



# **Peace AirShed Zone Association**

## **Ambient Air Monitoring Network Summary**

**Continuous Ambient Air Quality Monitoring Program  
Monthly Report  
April 2011**

**Operations and Reporting**



June 13, 2011

Alberta Environment  
11th Floor, Oxbridge Place  
9820-106 Street  
Edmonton Alberta T6B 2X3

**RE: Peace Airshed Zone Association (PAZA) – April 2011 Ambient Air Report**

Enclosed is the PAZA Ambient Monitoring Network Report for the month of **April 2011**.

This report is submitted by PAZA on behalf of the industrial member companies to satisfy the requirements of the following facility Operating Approvals:

| Company                                  | Facility            | LSD              | AENV Number    | Approval |
|------------------------------------------|---------------------|------------------|----------------|----------|
| Advantage Oil & Gas Ltd.                 | Sunset House        | 06-22-0707-20-W5 | 138884-01-00   |          |
|                                          | Glacier             | 05-02-076-13-W6  | 262479-00-00   |          |
| AltaGas Ltd.                             | Pouce Coupe         | 03-03-081-13-W6  | 247673-00-00   |          |
|                                          | Ante Creek          | 02-26-068-25-W5  | 266694-00-00   |          |
| Barrick Energy Inc.                      | Sturgeon/Valleyview | 02-02-069-22-W5  | 1633-02-00     |          |
| Birchcliff Energy Ltd.                   | Pouce Coupe         | 03-22-078-12-W6  | 252529-00-00   |          |
| Bonavista Energy Corporation             | Rycroft             | 08-25-077-06-W6  | 11351-02-00    |          |
|                                          | Spirit River        | 08-34-077-06-W6  | 11096-02-00    |          |
| Canadian Natural Resources Limited       | Bonanza             | 11-25-081-11-W6  | 00000029-01-00 |          |
|                                          | Progress/Gordondale | 01-01-077-10-W6  | 00010036-02-00 |          |
|                                          | Gold Creek          | 13-26-067-05-W6  | 00010446-02-00 |          |
|                                          | Teepee Creek        | SE-2-074-04-W6   | 00001635-02-00 |          |
| Conocophillips Canada Energy Partnership | Wembley             | 06-19-073-08-W6  | 00000212-01-00 |          |

|                                      |                                    |                  |                |
|--------------------------------------|------------------------------------|------------------|----------------|
| Devon Canada                         | Tangent                            | 16-20-080-24-W5  | 00011346-01-00 |
|                                      | NW Belloy (Dunvegan)               | 16-36-079-03-W6  | 00009810-02-00 |
|                                      | Eaglesham (South)                  | 02-14-077-25-W5  | 00047669-01-00 |
|                                      | Puskwaskau                         | 03-26-074-01-W6  | 00017524-01-00 |
|                                      | North Normanville                  | 03-36-079-23-W5  | 00047455-01-00 |
|                                      | West Culp                          | 05-34-078-25-W6  | 00136284-00-00 |
|                                      | Cecil                              | 08-15-084-08-W6  | 00010032-02-00 |
| EnCana Corporation                   | Hythe Brainard                     | 11-18-074-12-W6  | 00010910-02-00 |
|                                      | Sexsmith                           | 04-08-075-07-W6  | 00010002-01-00 |
| Galleon Energy Inc.                  | Eaglesham                          | 01-25-076-01-W6  | 00241532-00-00 |
|                                      | Kakut                              | 14-12-075-03-W6  | 00248469-00-00 |
|                                      | Donnelly                           | 06-01-077-21-W5  | 00000087-02-00 |
| Grande Prairie Generation Inc.       | Northern Prairie Power Project     | 04-19-073-08-W6  | 00238762-00-00 |
| Penn West Petroleum Ltd.             | Tangent                            | 13-29-080-23-W5  | 00001746-02-00 |
|                                      | Pouce Coupe                        | 16-07-078-11-W6  | 00000614-01-00 |
| Spectra Energy Midstream Corporation | Fourth Creek                       | 16-11-0/82-09-W6 | 00000263-01-00 |
| Suncor Energy Inc.                   | Progress                           | 07-22-078-09-W6  | 00011428-02-00 |
| Taq North Ltd.                       | Valhalla                           | 13-21-076-09-W6  | 00017620-01-00 |
| Weyerhaeuser Canada                  | Grande Prairie Pulp and Wood Plant | 01-14-070-05-W6  | 00000113-02-00 |

Included in this report is a summary of the monthly continuous monitoring, detailed hourly average reports and multipoint calibration reports of all instruments. Operational summaries can be found on the “Monthly Continuous Data Summary” and “Continuous Network Equipment Summary” pages of the report.

**Continuous Monitoring:** Six (6) Stations including Henry Pirker (Grande Prairie), Evergreen Park, Smoky Heights, Beaverlodge, Bonanza (portable) and Valleyview.

During the month of **April** the following events were noted:

**Henry Pirker Station:**

- ◆ The measured ambient air quality was within the Alberta Ambient Air Quality Objectives (AAAQO) for the Henry Pirker station.
- ◆ All analyzers and sensors at the Henry Pirker station had an operational uptime greater than 90% for the month of April.

**Evergreen Park Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Evergreen Park station, except for the PM<sub>2.5</sub> which had four (4) 1-hour exceedences of the AAAQG and one (1) 24-hour of the AAAQO:
  - o April 8 14:00 81 µg/m<sup>3</sup> Alberta Environment Reference #245878.
  - o April 11 14:00 92 µg/m<sup>3</sup> Alberta Environment Reference #245924.
  - o April 11 15:00 151 µg/m<sup>3</sup> Alberta Environment Reference #245924.
  - o April 11 16:00 185 µg/m<sup>3</sup> Alberta Environment Reference #245924.
  - o April 11 24-hr 34 µg/m<sup>3</sup> Alberta Environment Reference #245924.
- ◆ All analyzers / sensors at the Evergreen Park station had an operational uptime greater than 90% for the month of April.

**Smoky Heights Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Smoky Heights station.
- ◆ All analyzers / sensors at the Smoky Heights station had an operational uptime greater than 90% for the month of April.

**Beaverlodge Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Beaverlodge station.
- ◆ All analyzers / sensors at the Beaverlodge station had an operational uptime greater than 90% for the month of April.

**Portable – Bonanza Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Bonanza station.
- ◆ All analyzers / sensors at the Bonanza station had an operational uptime of 100% for the month of April.

**Valleyview Station:**

- ◆ The measured ambient air quality was within the AAAQO for the Valleyview station.
- ◆ All analyzers / sensors at the Valleyview station had an operational uptime greater than 90% for the month of April.

**Passive Monitoring - 43 Stations throughout the PAZA zone:**

There were four duplicate sites sampled in the month of April: Spirit River, Poplar, Saddle Hills and Kinuso. The passive samples at McLennan were not collected in March as roads were inaccessible due to heavy snow conditions, they were collected in April. The results for the SO<sub>2</sub>, NO<sub>2</sub> and O<sub>3</sub> samples for the McLennan sites are over a two month sample period (March and April). There is no O<sub>3</sub> sample result for Wanham; sample was missing. The passive sample analyses were performed by MAXXAM Analytics Inc.

A summary of the passive data collected are reported as follows:

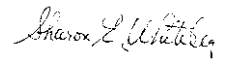
- Monthly average concentrations for SO<sub>2</sub> passives ranged from 0.1 ppb to 0.5 ppb, with a mean of 0.2 ppb.
- Monthly average concentrations for NO<sub>2</sub> passives ranged from 0.0 ppb to 2.6 ppb, with a mean of 0.3 ppb.
- Monthly average concentrations for O<sub>3</sub> passives ranged from 21.6 ppb to 51.9 ppb, with a mean of 42.1 ppb.

If you have any questions or concerns, please contact Shelly Pruden, PAZA Program Manager at 780.833.4343 or 780.882.4071.

On Behalf of the,  
Peace Airshed Zone Association

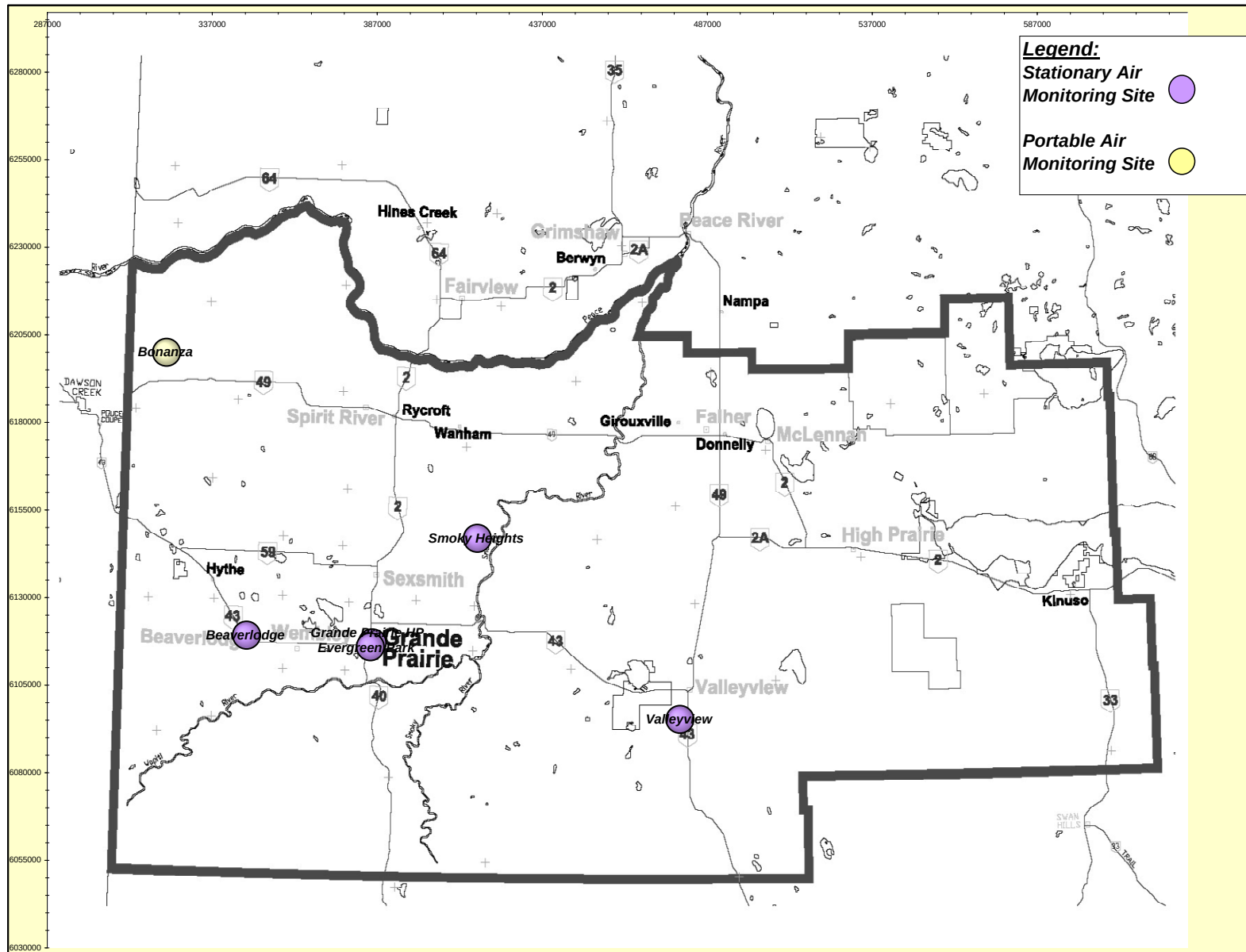


Shelly Pruden  
Program Manager



Sharon Whiteley, B.Sc.  
FOCUS AQM Data Specialist

## Location of PAZA Continuous Monitoring Stations



## PAZA Monthly Continuous Data Summary

| Apr-2011Peace Airshed Zone Association |            |       |                  |                    |            |       | Maximum Recorded Values |              |              |        |                         |
|----------------------------------------|------------|-------|------------------|--------------------|------------|-------|-------------------------|--------------|--------------|--------|-------------------------|
|                                        |            |       |                  |                    |            |       | 1-hr                    |              | 24-hr / 8-hr |        |                         |
| Pollutant<br>(units)                   | Objectives |       | Station          | Monthly<br>Average | Exceedence |       | Conc                    | Day          | Conc         | Day    | Operational<br>Time (%) |
|                                        | 1-hr       | 24-hr |                  |                    | 1-hr       | 24-hr |                         |              |              |        |                         |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Henry Pirker     | 0.2                | 0          | 0     | 2.2                     | Apr-24 10:00 | 0.6          | Apr-13 | 100.0%                  |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Evergreen Park   | 0.2                | 0          | 0     | 2.7                     | Apr-12 10:00 | 0.4          | Apr-24 | 99.6%                   |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Smoky Heights    | 0.7                | 0          | 0     | 12.1                    | Apr-22 08:00 | 2.7          | Apr-22 | 97.5%                   |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Beaverlodge      | 0.2                | 0          | 0     | 2.7                     | Apr-03 00:00 | 0.7          | Apr-02 | 100.0%                  |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Portable-Bonanza | 0.2                | 0          | 0     | 2.5                     | Apr-02 11:00 | 0.6          | Apr-25 | 99.9%                   |
| SO <sub>2</sub> (ppb)                  | 172        | 48    | Valleyview       | 0.5                | 0          | 0     | 15.5                    | Apr-21 10:00 | 1.2          | Apr-11 | 99.2%                   |
| NO (ppb)                               |            |       | Henry Pirker     | 0.9                | 0          | 0     | 24.3                    | Apr-12 07:00 | 3.6          | Apr-12 | 100.0%                  |
| NO <sub>2</sub> (ppb)                  | 212        | 106   | Henry Pirker     | 7.2                | 0          | 0     | 40.1                    | Apr-01 23:00 | 14.3         | Apr-03 | 100.0%                  |
| NO <sub>x</sub> (ppb)                  |            |       | Henry Pirker     | 8.2                | 0          | 0     | 48.6                    | Apr-12 07:00 | 16.1         | Apr-03 | 100.0%                  |
| NO (ppb)                               |            |       | Beaverlodge      | 0.3                | 0          | 0     | 5.1                     | Apr-02 10:00 | 0.9          | Apr-03 | 100.0%                  |
| NO <sub>2</sub> (ppb)                  | 212        | 106   | Beaverlodge      | 2.0                | 0          | 0     | 12.3                    | Apr-18 06:00 | 4.0          | Apr-03 | 100.0%                  |
| NO <sub>x</sub> (ppb)                  |            |       | Beaverlodge      | 2.3                | 0          | 0     | 12.8                    | Apr-19 07:00 | 4.9          | Apr-03 | 100.0%                  |
| NO (ppb)                               |            |       | Portable-Bonanza | 0.4                | 0          | 0     | 5.3                     | Apr-03 01:00 | 1.2          | Apr-03 | 99.9%                   |
| NO <sub>2</sub> (ppb)                  | 212        | 106   | Portable-Bonanza | 1.9                | 0          | 0     | 13.1                    | Apr-03 06:00 | 4.6          | Apr-03 | 99.9%                   |
| NO <sub>x</sub> (ppb)                  |            |       | Portable-Bonanza | 2.3                | 0          | 0     | 18.4                    | Apr-03 01:00 | 5.9          | Apr-03 | 99.9%                   |
| O <sub>3</sub> (ppb)                   | 82         |       | Henry Pirker     | 36.6               | 0          | -     | 64.0                    | Apr-25 16:00 | 46.1         | Apr-10 | 100.0%                  |
| O <sub>3</sub> (ppb) - 8-hr            |            |       | Henry Pirker     |                    | 0          |       |                         |              | 59.0         | Apr-25 |                         |
| O <sub>3</sub> (ppb)                   | 82         |       | Beaverlodge      | 44.8               | 0          | -     | 68.7                    | Apr-25 18:00 | 55.5         | Apr-10 | 100.0%                  |
| O <sub>3</sub> (ppb) - 8-hr            |            |       | Beaverlodge      |                    | 0          |       |                         |              | 63.6         | Apr-25 |                         |
| O <sub>3</sub> (ppb)                   | 82         |       | Portable-Bonanza | 41.8               | 0          | -     | 62.5                    | Apr-25 18:00 | 50.3         | Apr-10 | 99.9%                   |
| O <sub>3</sub> (ppb) - 8-hr            |            |       | Portable-Bonanza |                    | 0          |       |                         |              | 57.8         | Apr-25 |                         |
| CO (ppm)                               | 13         |       | Henry Pirker     | 0.21               | -          | -     | 0.5                     | Apr-12 07:00 | 0.3          | Apr-03 | 100.0%                  |
| CO (ppm) - 8-hr                        | 5          |       | Henry Pirker     |                    | 0          |       |                         |              | 0.3          | Apr-12 |                         |
| THC (ppm)                              |            |       | Henry Pirker     | 2.07               | -          | -     | 3.2                     | Apr-07 23:00 | 2.3          | Apr-18 | 100.0%                  |
| TRS (ppb)                              |            |       | Henry Pirker     | 0.3                | -          | -     | 1.1                     | Apr-28 10:00 | 0.4          | Apr-15 | 100.0%                  |
| TRS (ppb)                              |            |       | Evergreen Park   | 0.6                | -          | -     | 1.3                     | Apr-25 07:00 | 0.7          | Apr-28 | 99.6%                   |
| TRS (ppb)                              |            |       | Smoky Heights    | 0.4                | -          | -     | 1.4                     | Apr-20 21:00 | 0.9          | Apr-20 | 97.6%                   |
| TRS (ppb)                              |            |       | Portable-Bonanza | 0.6                | -          | -     | 1.3                     | Apr-11 03:00 | 0.7          | Apr-08 | 99.9%                   |
| H <sub>2</sub> S (ppb)                 | 10         | 3     | Valleyview       | 0.1                | 0          | 0     | 2.0                     | Apr-21 22:00 | 0.3          | Apr-02 | 99.3%                   |

## PAZA Monthly Continuous Data Summary – continued

| Apr-2011Peace Airshed Zone Association |    |    |                  |       |   |   | Maximum Recorded Values |              |              |        |        |
|----------------------------------------|----|----|------------------|-------|---|---|-------------------------|--------------|--------------|--------|--------|
|                                        |    |    |                  |       |   |   | 1-hr                    |              | 24-hr / 8-hr |        |        |
| PM2.5 (µg/m3)                          | 80 | 30 | Henry Pirker     | 7.5   | 0 | 0 | 26.6                    | Apr-03 08:00 | 12.8         | Apr-03 | 96.4%  |
| PM2.5 (µg/m3)                          | 80 | 30 | Evergreen Park   | 8.3   | 4 | 1 | 184.6                   | Apr-11 16:00 | 33.7         | Apr-11 | 91.7%  |
| PM2.5 (µg/m3)                          | 80 | 30 | Smoky Heights    | 2.6   | 0 | 0 | 22.7                    | Apr-17 00:00 | 6.6          | Apr-26 | 97.5%  |
| PM2.5 (µg/m3)                          | 80 | 30 | Beaverlodge      | 6.2   | 0 | 0 | 14.7                    | Apr-25 11:00 | 11.7         | Apr-25 | 99.4%  |
| RH (%)                                 |    |    | Henry Pirker     | 57.9  | - | - | 90.0                    | Apr-29 06:00 | 84.9         | Apr-14 | 100.0% |
| RH (%)                                 |    |    | Evergreen Park   | 57.5  | - | - | 97.7                    | Apr-14 19:00 | 92.0         | Apr-14 | 99.6%  |
| RH (%)                                 |    |    | Beaverlodge      | 59.3  | - | - | 94.4                    | Apr-19 21:00 | 87.7         | Apr-14 | 99.7%  |
| RH (%)                                 |    |    | Valleyview       | 57.3  | - | - | 98.6                    | Apr-29 09:00 | 87.2         | Apr-28 | 99.2%  |
| SR (W/m²)                              |    |    | Henry Pirker     | 171.8 | - | - | 732.7                   | Apr-21 13:00 | 220.8        | Apr-24 | 100.0% |
| Temp (°C)                              |    |    | Henry Pirker     | 3.2   | - | - | 17.5                    | Apr-25 16:00 | 9.5          | Apr-26 | 100.0% |
| Temp (°C)                              |    |    | Evergreen Park   | 3.4   | - | - | 16.3                    | Apr-25 15:00 | 9.9          | Apr-26 | 99.6%  |
| Temp (°C)                              |    |    | Smoky Heights    | 2.2   | - | - | 16.9                    | Apr-25 16:00 | 8.7          | Apr-25 | 97.6%  |
| Temp (°C)                              |    |    | Beaverlodge      | 2.9   | - | - | 15.5                    | Apr-25 16:00 | 8.8          | Apr-25 | 98.1%  |
| Temp (°C)                              |    |    | Portable-Bonanza | 2.4   | - | - | 14.7                    | Apr-25 18:00 | 8.4          | Apr-26 | 99.9%  |
| Temp (°C)                              |    |    | Valleyview       | 3.4   | - | - | 16.9                    | Apr-25 16:00 | 10.3         | Apr-26 | 99.2%  |
| WSPD s (km/hr)                         |    |    | Henry Pirker     | 10.7  | - | - | 41.0                    | Apr-08 20:00 | 19.0         | Apr-08 | 100.0% |
| WSPD s (km/hr)                         |    |    | Evergreen Park   | 7.1   | - | - | 27.0                    | Apr-04 12:00 | 13.4         | Apr-22 | 99.2%  |
| WSPD s (km/hr)                         |    |    | Smoky Heights    | 12.5  | - | - | 36.0                    | Apr-11 16:00 | 21.0         | Apr-08 | 97.6%  |
| WSPD s (km/hr)                         |    |    | Beaverlodge      | 12.2  | - | - | 46.0                    | Apr-11 14:00 | 26.3         | Apr-14 | 100.0% |
| WSPD s (km/hr)                         |    |    | Portable-Bonanza | 11.7  | - | - | 32.0                    | Apr-08 13:00 | 23.8         | Apr-08 | 99.9%  |
| WSPD s (km/hr)                         |    |    | Valleyview       | 5.6   | - | - | 24.0                    | Apr-11 16:00 | 9.5          | Apr-13 | 99.3%  |
| WSPD v (km/hr)                         |    |    | Henry Pirker     | 4.6   | - | - | 41.0                    | Apr-08 20:00 | 15.7         | Apr-08 | 100.0% |
| WSPD v (km/hr)                         |    |    | Evergreen Park   | 3.7   | - | - | 27.0                    | Apr-04 12:00 | 12.2         | Apr-22 | 99.2%  |
| WSPD v (km/hr)                         |    |    | Smoky Heights    | 6.5   | - | - | 35.0                    | Apr-11 16:00 | 18.8         | Apr-08 | 97.6%  |
| WSPD v (km/hr)                         |    |    | Beaverlodge      | 3.1   | - | - | 46.0                    | Apr-11 14:00 | 25.8         | Apr-14 | 100.0% |
| WSPD v (km/hr)                         |    |    | Portable-Bonanza | 4.9   | - | - | 32.0                    | Apr-11 14:00 | 21.7         | Apr-08 | 99.9%  |
| WSPD v (km/hr)                         |    |    | Valleyview       | 1.6   | - | - | 24.0                    | Apr-11 16:00 | 9.2          | Apr-13 | 99.3%  |
| WDIR                                   |    |    | Henry Pirker     | WNW   | - | - | -                       | -            | -            | -      | 100.0% |
| WDIR                                   |    |    | Evergreen Park   | WNW   | - | - | -                       | -            | -            | -      | 99.2%  |
| WDIR                                   |    |    | Smoky Heights    | WSW   | - | - | -                       | -            | -            | -      | 97.6%  |
| WDIR                                   |    |    | Beaverlodge      | W     | - | - | -                       | -            | -            | -      | 100.0% |
| WDIR                                   |    |    | Portable-Bonanza | SW    | - | - | -                       | -            | -            | -      | 99.9%  |
| WDIR                                   |    |    | Valleyview       | WNW   | - | - | -                       | -            | -            | -      | 99.3%  |



# Continuous Network Equipment Summary

## PAZA – Henry Pirker Station

### General Station Issues

Routine monthly calibrations were performed on April 5<sup>th</sup> (PM<sub>2.5</sub>), April 20<sup>th</sup> (TRS, CO & THC) and April 21<sup>st</sup> (SO<sub>2</sub>, NO<sub>x</sub> & O<sub>3</sub>).

| Parameter              | Make    | Model     | Notes                                                                                                                                                                                                                                     |
|------------------------|---------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SO <sub>2</sub>        | TEI     | 43C       | No operational issues observed.                                                                                                                                                                                                           |
| NOx/NO/NO <sub>2</sub> | TEI     | 42C       | No operational issues observed.                                                                                                                                                                                                           |
| O <sub>3</sub>         | TEI     | 49C       | Spans were outside the target on from April 1 <sup>st</sup> to 12 <sup>th</sup> (the spans were stable and it is assumed it was due to rising ambient temperature – a single point calibration was performed on April 12 <sup>th</sup> ). |
| CO                     | TEI     | 48C       | No operational issues observed.                                                                                                                                                                                                           |
| THC                    | TEI     | 51-CLT    | There were no spans April 26 <sup>th</sup> to 29 <sup>th</sup> – span cylinder ran out. No operational issues observed.                                                                                                                   |
| TRS                    | TEI     | 45C/43C   | No operational issues observed.                                                                                                                                                                                                           |
| PM <sub>2.5</sub>      | R&P     | 1400AB    | The TEOM unit was changed out on April 5 <sup>th</sup> in an effort to address the FDMS issues. One hour was flagged for maintenance on April 25 <sup>th</sup> . Twenty-five (25) hours were flagged for baseline drift.                  |
| RH                     | Met One | 083D      | No operational issues observed.                                                                                                                                                                                                           |
| ET                     | Met One | 083D      | No operational issues observed.                                                                                                                                                                                                           |
| SR                     | Met One | 096-1     | No operational issues observed.                                                                                                                                                                                                           |
| WS / WD                | Met One | 010C/020C | No operational issues observed.                                                                                                                                                                                                           |

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**PAZA – Evergreen Park Station**

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**General Station Issues**

Routine monthly calibrations were performed on April 13<sup>th</sup> (SO<sub>2</sub>, TRS & PM<sub>2.5</sub>). The AP1000 datalogger was replaced with a Campbell Scientific CR3000 on April 13<sup>th</sup> 2011 – several hours were flagged for maintenance for all parameters.

| Parameter         | Make          | Model  | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------|---------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SO <sub>2</sub>   | TEI           | 43i    | No operational issues observed, other than above noted maintenance (three (3) hours).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| TRS               | TEI           | 43C    | No operational issues observed, other than above noted maintenance (three (3) hours).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| PM <sub>2.5</sub> | R&P           | 1400AB | <p>Eight (8) hours flagged for above noted maintenance. Twenty-nine (29) hours were flagged invalid due to unusual spiking caused by loading issues in adverse weather conditions. Twenty-three (23) hours flagged for baseline drift.</p> <p>There were four 1-hour exceedences of the AAAQG and one 24-hour exceedence of the AAAQO:</p> <p>April 8: 14:00 81 µg/m<sup>3</sup> AE Reference # 245878</p> <p>April 11: 14:00 92 µg/m<sup>3</sup> AE Reference # 245924</p> <p>April 11: 15:00 151 µg/m<sup>3</sup> AE Reference # 245924</p> <p>April 11: 16:00 185 µg/m<sup>3</sup> AE Reference # 245924</p> <p>April 11: 24-hour 33.7 µg/m<sup>3</sup> AE Reference # 245924</p> |
| ET                | Met One/Gill  | 083D   | No operational issues observed, other than above noted maintenance (three (3) hours).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| RH                | Met One/Gill  |        | No operational issues observed, other than above noted maintenance (three (3) hours).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| WS / WD           | Met One/ Gill |        | No operational issues observed, other than above noted maintenance (six (6) hours).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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**PAZA – Smoky Heights Station**

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**General Station Issues**

Routine monthly calibrations were performed on April 14<sup>th</sup> (SO<sub>2</sub>, TRS). There was one power failure on April 4<sup>th</sup> (power company maintenance) resulting in seven (7) or eight (8) hours of invalid data for all parameters. There was a DACS / communication error on April 12<sup>th</sup> – resulting in seven (7) hours of invalid data for all parameters. The AP1000 datalogger was replaced with a Campbell Scientific CR3000 on April 14<sup>th</sup> 2011 – several hours were flagged for maintenance for all parameters.

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| Parameter         | Make    | Model     | Notes                                                                                                                            |
|-------------------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------|
| SO <sub>2</sub>   | TEI     | 43C       | Eight (8) hours flagged for power failure, seven (7) hours flagged for DACS failure and three (3) hours flagged for maintenance. |
| TRS               | TEI     | 43C       | Eight (8) hours flagged for power failure, seven (7) hours flagged for DACS failure and three (3) hours flagged for maintenance. |
| PM <sub>2.5</sub> | R&P     | 1400AB    | Eight (8) hours flagged for power failure, seven (7) hours flagged for DACS failure and three (3) hours flagged for maintenance. |
| ET                | Met One | 083D      | Seven (7) hours flagged for power failure, seven (7) hours flagged for DACS failure and three (3) hours flagged for maintenance. |
| WS / WD           | Met One | 010C/020C | Seven (7) hours flagged for power failure, seven (7) hours flagged for DACS failure and three (3) hours flagged for maintenance. |

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**PAZA – Beaverlodge Station**

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**General Station Issues**

Routine monthly calibrations were performed on April 6<sup>th</sup> (SO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub> & PM<sub>2.5</sub>).

| Parameter              | Make     | Model  | Notes                                                                                                                                                                                     |
|------------------------|----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SO <sub>2</sub>        | TEI      | 43CTL  | Spans just outside the target range on April 22 <sup>nd</sup> & 24 <sup>th</sup> – reason unknown.                                                                                        |
| NOx/NO/NO <sub>2</sub> | TEI      | 42C    | No operational issues observed.                                                                                                                                                           |
| O <sub>3</sub>         | TEI      | 49C    | No operational issues observed.                                                                                                                                                           |
| PM <sub>2.5</sub>      | R&P      | 1400AB | Two (2) hours were flagged for baseline drift. Two (2) hours were flagged invalid on April 29 <sup>th</sup> due to technical support / troubleshooting issues with other TEOM FDMS units. |
| ET                     | n/a      | n/a    | Fourteen (14) hours were flagged invalid due to signal interference.                                                                                                                      |
| RH                     | n/a      | n/a    | Two (2) hours were flagged invalid due to signal interference.                                                                                                                            |
| WS / WD                | Blue Sky | 857    | No operational issues observed.                                                                                                                                                           |

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**PAZA – Bonanza (Portable) Station**

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**General Station Issues**

Routine monthly calibrations were performed on April 26<sup>th</sup> (SO<sub>2</sub>, TRS, NO<sub>x</sub> & O<sub>3</sub>). A power failure on April 4<sup>th</sup> resulted in one (1) hour of invalid data for all parameters.

| Parameter                           | Make    | Model     | Notes                                                                 |
|-------------------------------------|---------|-----------|-----------------------------------------------------------------------|
| SO <sub>2</sub>                     | TEI     | 43C       | No operational issues observed, other than above noted power failure. |
| TRS                                 | TEI     | 43C       | No operational issues observed, other than above noted power failure. |
| NO <sub>x</sub> /NO/NO <sub>2</sub> | TEI     | 42I       | No operational issues observed, other than above noted power failure. |
| O <sub>3</sub>                      | TEI     | 49C       | No operational issues observed, other than above noted power failure. |
| ET                                  | Met One |           | No operational issues observed, other than above noted power failure. |
| WS / WD                             | Met One | 010C/020C | No operational issues observed, other than above noted power failure. |

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**PAZA – Valleyview Station**

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**General Station Issues**

Routine monthly calibrations were performed on April 15<sup>th</sup> (SO<sub>2</sub> & H<sub>2</sub>S). The AP1000 datalogger was replaced with a Campbell Scientific CR3000 on April 15<sup>th</sup> 2011 – several hours were flagged for maintenance for all parameters.

| Parameter        | Make | Model     | Notes                                                                                                                                                                                                                                                           |
|------------------|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SO <sub>2</sub>  | TEI  | 43i       | Four (4) hours were flagged maintenance on April 15 <sup>th</sup> for datalogger replacement. There were no spans April 15 <sup>th</sup> to 17 <sup>th</sup> due to a wiring issue - two hours were flagged maintenance on April 18 <sup>th</sup> for rewiring. |
| H <sub>2</sub> S | TEI  | 43A       | Four (4) hours were flagged maintenance on April 15 <sup>th</sup> for datalogger replacement. Two hours were flagged maintenance on April 18 <sup>th</sup> for rewiring.                                                                                        |
| ET               | Gill | Met Pak 3 | Six (6) hours were flagged maintenance on April 15 <sup>th</sup> for datalogger replacement.                                                                                                                                                                    |
| RH               | Gill | Met Pak 3 | Six (6) hours were flagged maintenance on April 15 <sup>th</sup> for datalogger replacement.                                                                                                                                                                    |
| WS / WD          | Gill | Met Pak 3 | Five (5) hours were flagged maintenance on April 15 <sup>th</sup> for datalogger replacement.                                                                                                                                                                   |

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PAZA

Henry Pirker Station

Monthly Summary Tables, Graphs and  
Roses

# Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Henry Pirker - April 2011

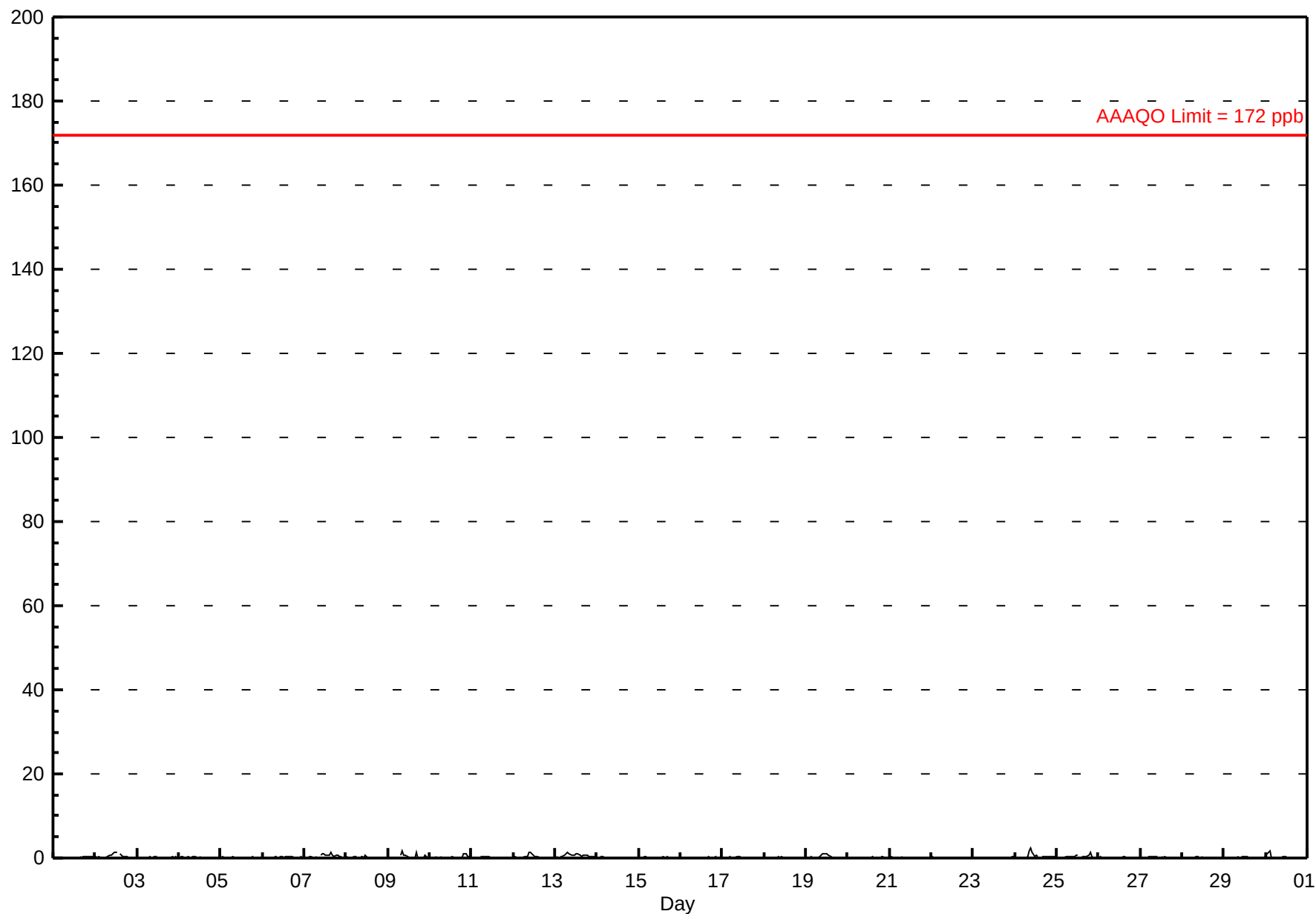
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 2.2 ppb on Apr 24 10:00<br>Maximum Daily Average: 0.6 ppb on Apr 13 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 34<br>Percent Operational Time: 100.0                                                                                                              |    |    |    |    |                 |               |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|
| Minimum Value: 0 ppb on Apr 5 04:00<br>Maximum Diurnal Average: 0.4 ppb at hour 10<br>Monthly Average: 0.19 ppb                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.0 ppb on Apr 16<br>Minimum Diurnal Average: 0.1 ppb at hour 5<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 1.3 |    |    |    |    |                 |               |
| Day                                                                                                                                   | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    | Daily Average   | Daily Maximum |
|                                                                                                                                       | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                                                                                                                   | 21 | 22 | 23 | 24 |                 |               |
| 1-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.2             | 0.4           |
| 2-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.4             | 1.4           |
| 3-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 4-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 5-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 6-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.2             | 0.5           |
| 7-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.5             | 1.4           |
| 8-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | A | 0 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.7           |
| 9-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | A | 1 | 2 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0  | 0.3             | 1.9           |
| 10-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | A | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 0  | 0  | 0.3             | 1.1           |
| 11-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 12-Apr                                                                                                                                | 0                             | 0 | 0 | A | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.3             | 1.2           |
| 13-Apr                                                                                                                                | 0                             | 0 | A | 0 | 0 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.6             | 1.3           |
| 14-Apr                                                                                                                                | 0                             | A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 15-Apr                                                                                                                                | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | A  | 0.1             | 0.5           |
| 16-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | A  | 0  | 0.0             | 0.2           |
| 17-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | A  | 0  | 0  | 0.1             | 0.4           |
| 18-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | A  | 0  | 0  | 0  | 0.1             | 0.3           |
| 19-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.3             | 1.1           |
| 20-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 21-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | C | C  | C  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 22-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 23-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 24-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2  | 1  | 0  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.5             | 2.2           |
| 25-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 1  | A  | 0  | 0  | 0  | 0  | 1  | 1                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.4             | 1.3           |
| 26-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 27-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.2             | 0.4           |
| 28-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 29-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 30-Apr                                                                                                                                | 1                             | 1 | 2 | 0 | 0 | 0 | 0 | 0 | A | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0.2             | 1.6           |
| 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.4 0.4 0.4 0.3 0.3 0.2 0.2 0.2 0.2 0.1 0.2 0.2 0.1 0.2 0.1 0.1                                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    | Diurnal Average |               |
| 0.6 1.2 1.6 0.5 0.4 0.6 0.9 1.3 1.9 2.2 1.3 1.4 1.2 0.9 1.1 1.4 1.4 0.6 0.7 1.3 1.1 1.0 0.5 0.4                                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    | Diurnal Maximum |               |
| C - Calibration A - Automated Daily Zero Span                                                                                         |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb                                                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 |               |



## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Henry Pirker - April 2011



## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb

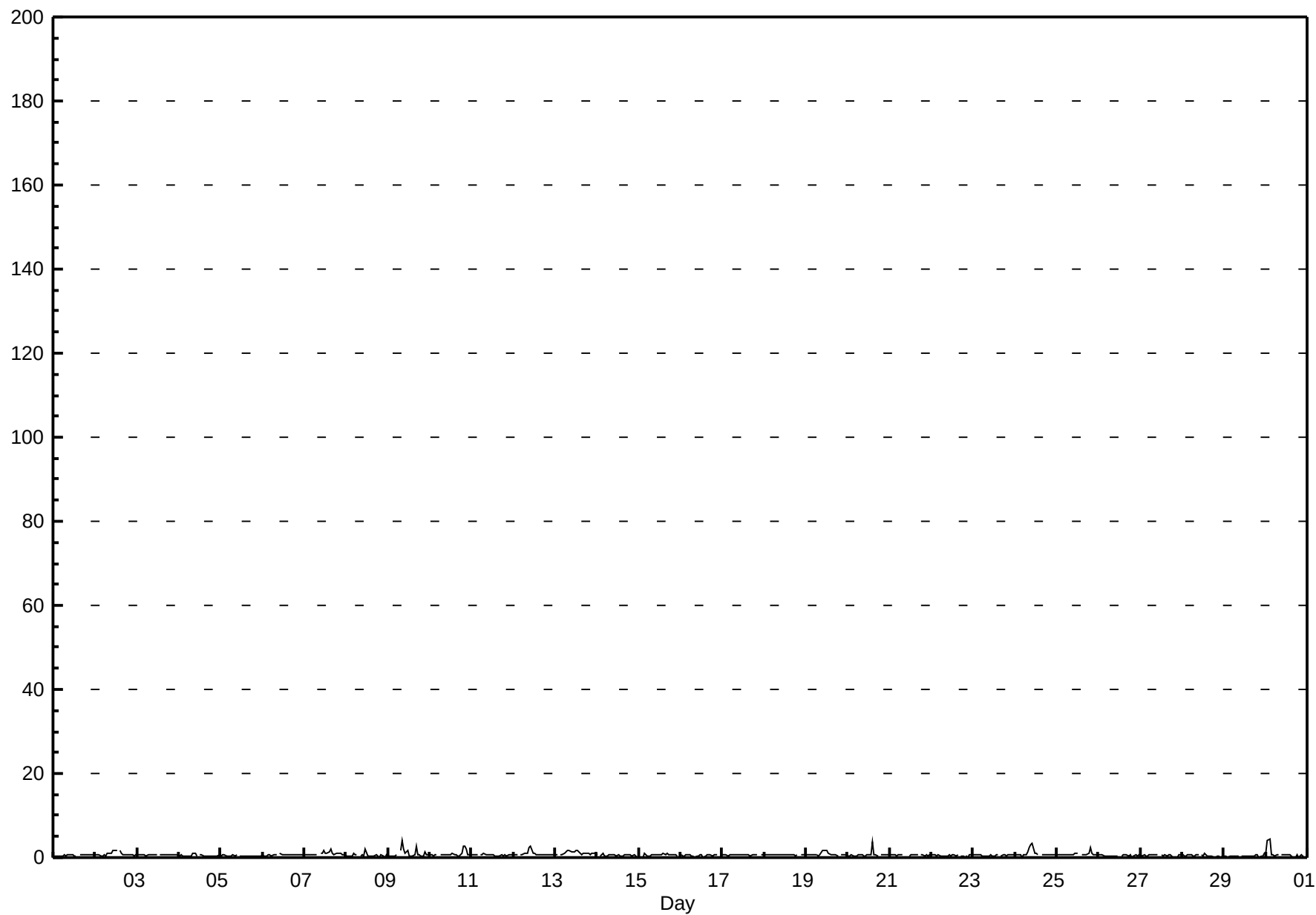
Henry Pirker - April 2011

| Maximum Value: 4.4 ppb on Apr 30 03:00      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 1.1 ppb on Apr 13                                                                                                                   |    |    |    |                               |               |               |  |  |  | Hours in Service: 720     |  |
|---------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-------------------------------|---------------|---------------|--|--|--|---------------------------|--|
| Minimum Value: 0 ppb on Apr 28 19:00        |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.4 ppb on Apr 22                                                                                                                   |    |    |    |                               |               |               |  |  |  | Hours of Data: 686        |  |
| Maximum Diurnal Average: 0.9 ppb at hour 11 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.5 ppb at hour 23                                                                                                                |    |    |    |                               |               |               |  |  |  | Hours of Missing Data: 34 |  |
| Monthly Average: 0.62 ppb                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.5 Median = 0.5 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.0 P <sub>99</sub> = 2.8 |    |    |    |                               |               |               |  |  |  | Hours of Calibration: 34  |  |
|                                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0                                                                                                                            |    |    |    |                               |               |               |  |  |  |                           |  |
| Day                                         | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                               | Daily Average | Daily Maximum |  |  |  |                           |  |
|                                             | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                         | 21 | 22 | 23 | 24                            |               |               |  |  |  |                           |  |
| 1-Apr                                       | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.5           | 0.7           |  |  |  |                           |  |
| 2-Apr                                       | 1                             | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1  | 2  | 2  | 2  | A  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 1                             | 0.8           | 1.8           |  |  |  |                           |  |
| 3-Apr                                       | 1                             | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.5           | 0.7           |  |  |  |                           |  |
| 4-Apr                                       | 1                             | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1  | 0  | A  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 1                             | 0.6           | 1.0           |  |  |  |                           |  |
| 5-Apr                                       | 0                             | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                             | 0.5           | 0.7           |  |  |  |                           |  |
| 6-Apr                                       | 1                             | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.5           | 1.1           |  |  |  |                           |  |
| 7-Apr                                       | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A | 1  | 1  | 2  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.9           | 2.1           |  |  |  |                           |  |
| 8-Apr                                       | 1                             | 0 | 0 | 0 | 1 | 1 | 1 | A | 0 | 1  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0                                                                                                                                                          | 1  | 0  | 0  | 1                             | 0.5           | 2.0           |  |  |  |                           |  |
| 9-Apr                                       | 0                             | 0 | 0 | 0 | 0 | 1 | A | 2 | 4 | 2  | 1  | 2  | 0  | 0  | 0  | 1  | 3  | 1  | 1  | 0                                                                                                                                                          | 0  | 1  | 1  | 1                             | 0.9           | 4.0           |  |  |  |                           |  |
| 10-Apr                                      | 1                             | 1 | 0 | 1 | 1 | A | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 3                                                                                                                                                          | 3  | 2  | 1  | 1                             | 0.9           | 2.6           |  |  |  |                           |  |
| 11-Apr                                      | 1                             | 1 | 1 | 1 | A | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 1  | 0  | 1                                                                                                                                                          | 0  | 1  | 1  | 1                             | 0.6           | 1.1           |  |  |  |                           |  |
| 12-Apr                                      | 1                             | 1 | 1 | A | 1 | 1 | 1 | 1 | 1 | 3  | 3  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.9           | 2.8           |  |  |  |                           |  |
| 13-Apr                                      | 1                             | 1 | A | 1 | 1 | 1 | 1 | 2 | 2 | 1  | 1  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 1.1           | 1.7           |  |  |  |                           |  |
| 14-Apr                                      | 1                             | A | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 0  | 1  | 0  | 0  | 0  | 1  | 1  | 1  | 1                                                                                                                                                          | 0  | 1  | 0  | 0                             | 0.5           | 1.0           |  |  |  |                           |  |
| 15-Apr                                      | A                             | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | A                             | 0.6           | 1.1           |  |  |  |                           |  |
| 16-Apr                                      | 1                             | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 1  | 1  | A  | 1                             | 0.4           | 0.6           |  |  |  |                           |  |
| 17-Apr                                      | 1                             | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                                          | 1  | A  | 1  | 1                             | 0.5           | 0.6           |  |  |  |                           |  |
| 18-Apr                                      | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | A  | 1  | 1  | 1                             | 0.5           | 0.5           |  |  |  |                           |  |
| 19-Apr                                      | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 0  | A                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.7           | 1.6           |  |  |  |                           |  |
| 20-Apr                                      | 0                             | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0  | 0  | 1  | 1  | 1  | 4  | 1  | 1  | 0  | A  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.6           | 3.6           |  |  |  |                           |  |
| 21-Apr                                      | 1                             | 1 | 1 | 1 | 0 | 1 | 1 | 1 | C | C  | C  | 0  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1                                                                                                                                                          | 0  | 1  | 0  | 1                             | 0.5           | 0.6           |  |  |  |                           |  |
| 22-Apr                                      | 1                             | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0  | 1  | 0  | 1  | 1  | 0  | 1  | A  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 1  | 1                             | 0.4           | 0.6           |  |  |  |                           |  |
| 23-Apr                                      | 1                             | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0  | 1  | 0  | 0  | 1  | 1  | A  | 0  | 1  | 1  | 0                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.5           | 0.6           |  |  |  |                           |  |
| 24-Apr                                      | 1                             | 1 | 1 | 1 | 0 | 1 | 1 | 2 | 2 | 3  | 4  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.9           | 3.5           |  |  |  |                           |  |
| 25-Apr                                      | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                                          | 1  | 1  | 1  | 1                             | 0.7           | 2.3           |  |  |  |                           |  |
| 26-Apr                                      | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0  | 0  | 0  | A  | 1  | 1  | 1  | 1  | 0  | 1  | 0                                                                                                                                                          | 0  | 1  | 0  | 1                             | 0.5           | 0.6           |  |  |  |                           |  |
| 27-Apr                                      | 1                             | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1  | 1  | A  | 1  | 0  | 1  | 0  | 1  | 1  | 0  | 0                                                                                                                                                          | 0  | 0  | 1  | 1                             | 0.5           | 0.7           |  |  |  |                           |  |
| 28-Apr                                      | 1                             | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1  | A  | 1  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                             | 0.5           | 1.0           |  |  |  |                           |  |
| 29-Apr                                      | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 0  | 1  | 1                                                                                                                                                          | 0  | 0  | 0  | 1                             | 0.4           | 0.9           |  |  |  |                           |  |
| 30-Apr                                      | 1                             | 4 | 4 | 1 | 1 | 0 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 1  | 0                                                                                                                                                          | 1  | 0  | 0  | 0                             | 0.7           | 4.4           |  |  |  |                           |  |
|                                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    | Diurnal Average               |               |               |  |  |  |                           |  |
|                                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    | Diurnal Maximum               |               |               |  |  |  |                           |  |
| C - Calibration                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    | A - Automated Daily Zero Span |               |               |  |  |  |                           |  |

## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb

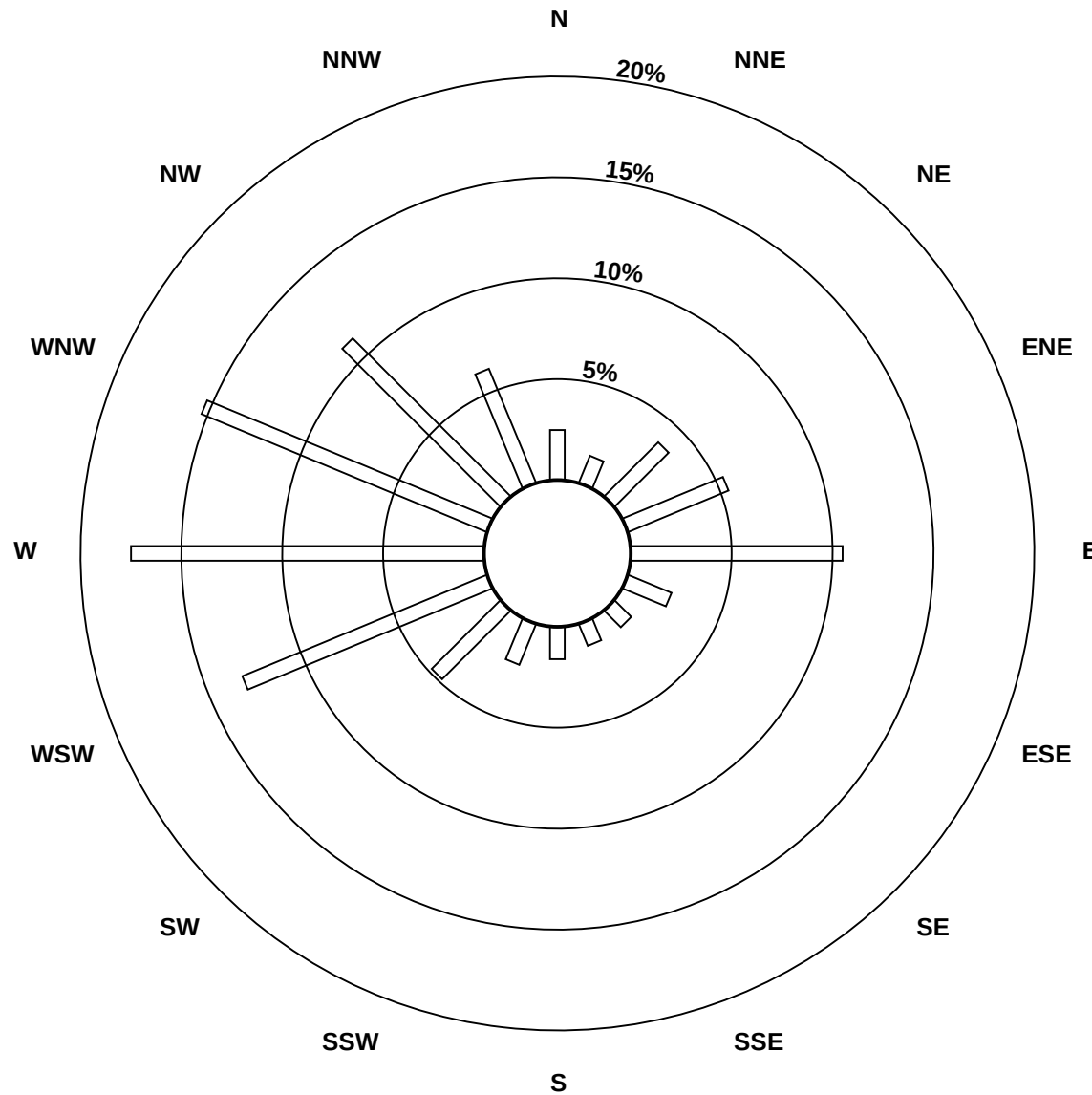
Henry Pirker - April 2011



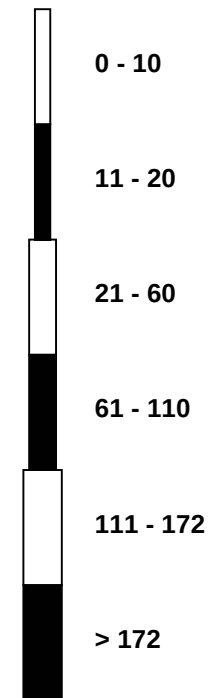
## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Henry Pirker - April 2011

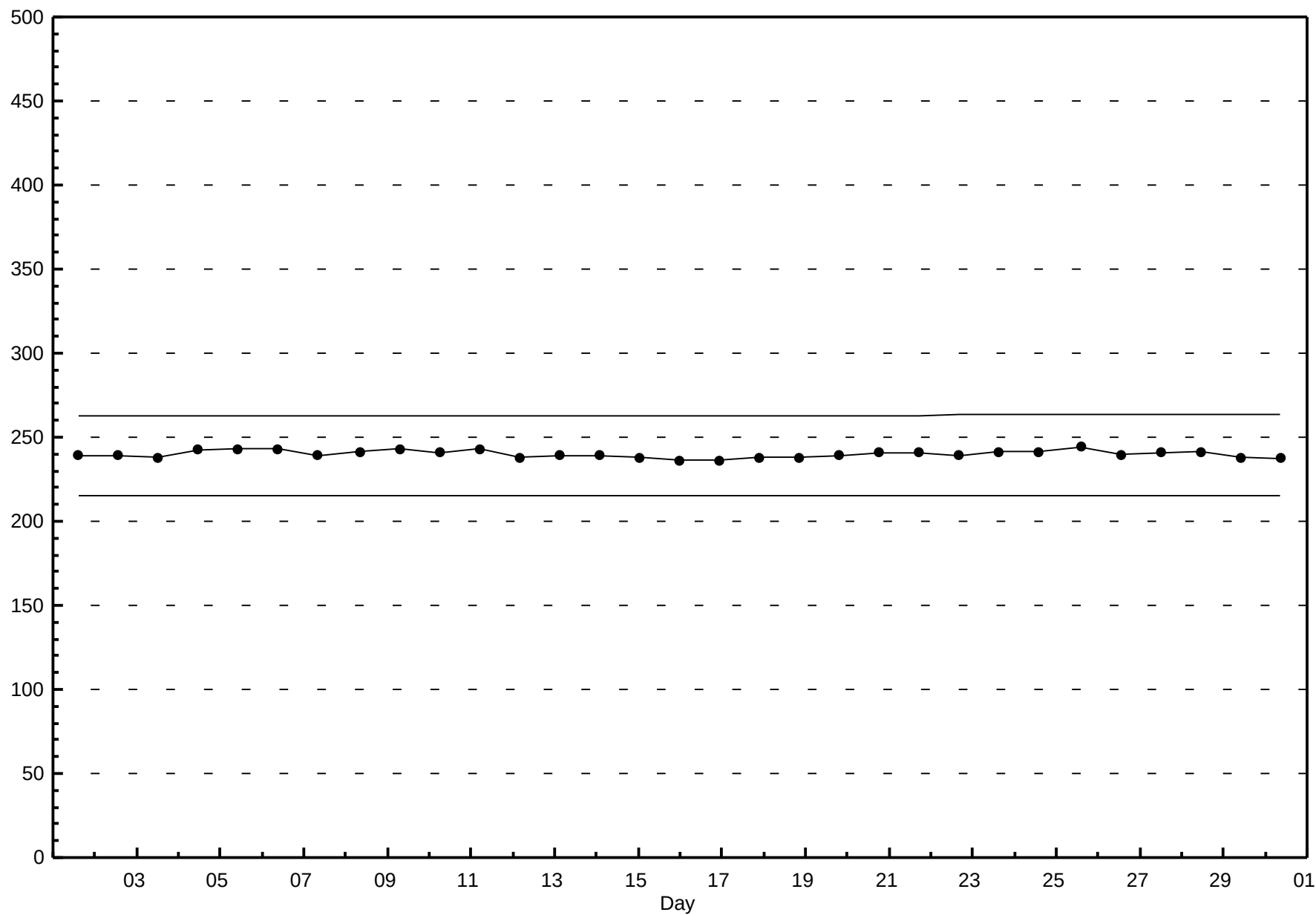


### Pollutant Classes (ppb)



## Span Responses

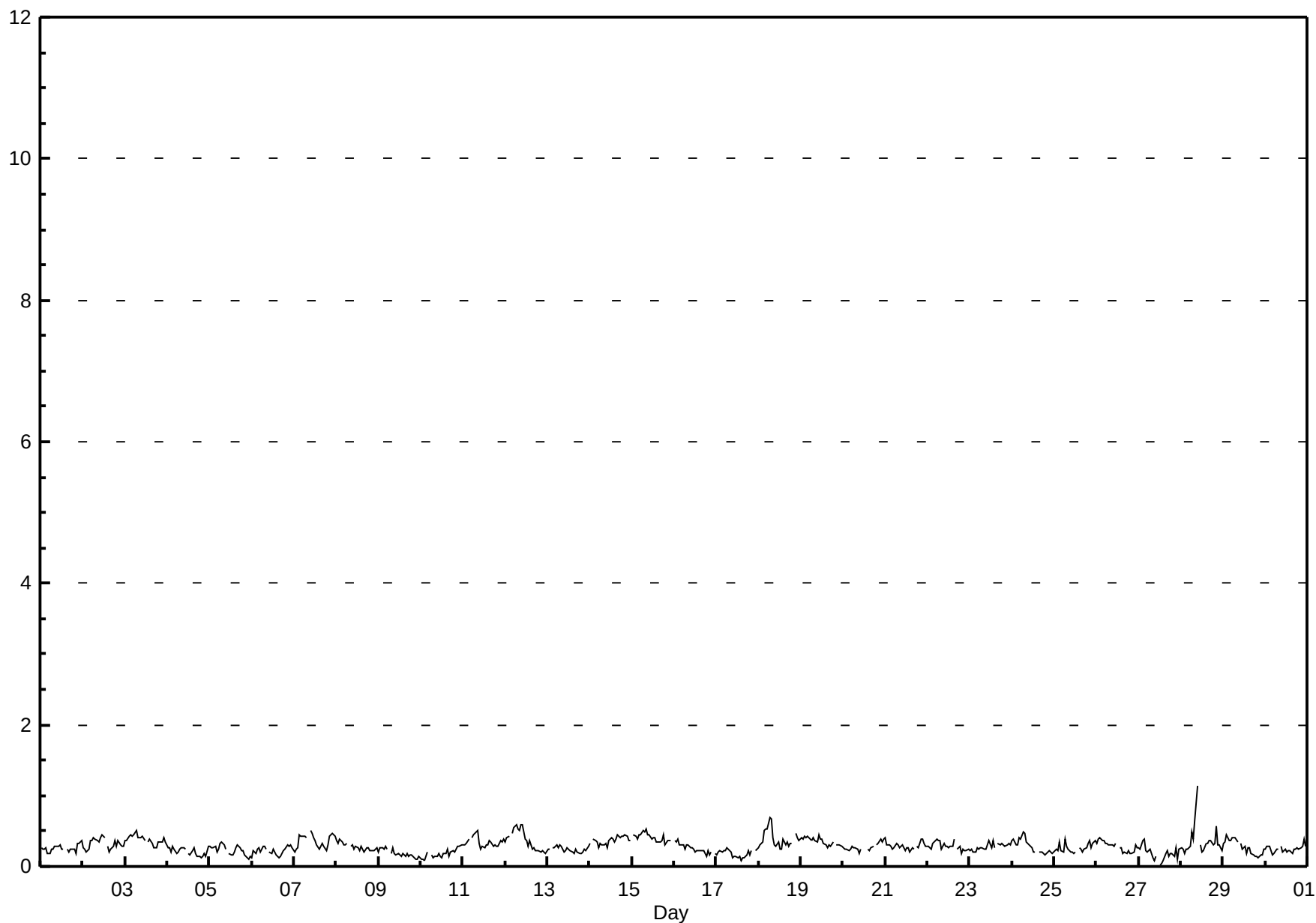
Sulphur Dioxide (SO<sub>2</sub>)  
Henry Pirker - April 2011



[illegible]

## Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Henry Pirker - April 2011



## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

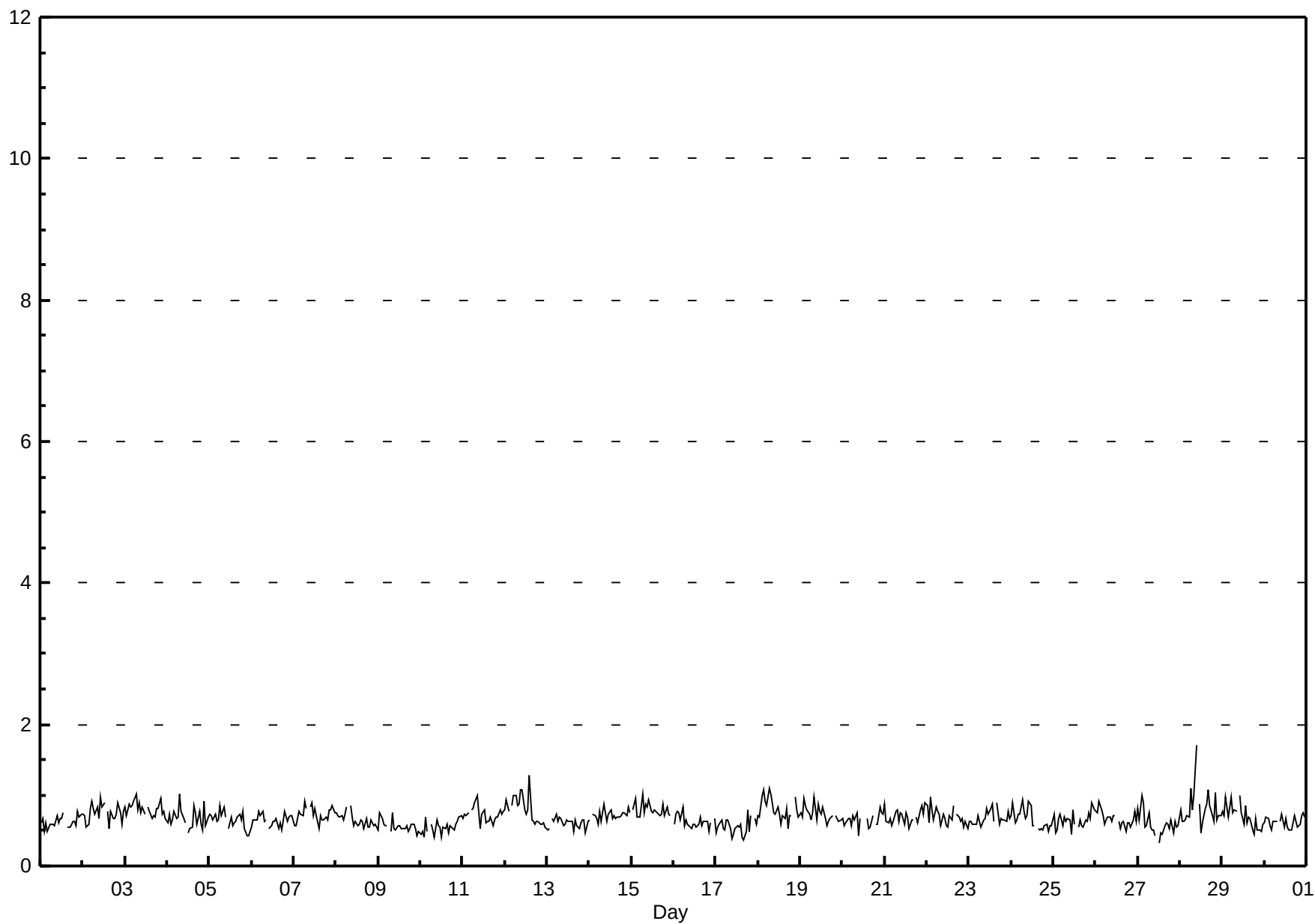
Henry Pirker - April 2011

| Maximum Value: 1.7 ppb on Apr 28 10:00        |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 0.8 ppb on Apr 28                                                                                                                   |    |    |    |    |                 |               |               |  |  | Hours in Service: 720           |  |
|-----------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|---------------|--|--|---------------------------------|--|
| Minimum Value: 0 ppb on Apr 27 13:00          |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.5 ppb on Apr 10                                                                                                                   |    |    |    |    |                 |               |               |  |  | Hours of Data: 686              |  |
| Maximum Diurnal Average: 0.8 ppb at hour 7    |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.6 ppb at hour 18                                                                                                                |    |    |    |    |                 |               |               |  |  | Hours of Missing Data: 34       |  |
| Monthly Average: 0.68 ppb                     |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.6 Median = 0.7 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 0.9 P <sub>99</sub> = 1.1 |    |    |    |    |                 |               |               |  |  | Hours of Calibration: 34        |  |
|                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                 |               |               |  |  | Percent Operational Time: 100.0 |  |
| Day                                           | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                 | Daily Average | Daily Maximum |  |  |                                 |  |
|                                               | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                         | 20 | 21 | 22 | 23 | 24              |               |               |  |  |                                 |  |
| 1-Apr                                         | 1                             | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.8           |  |  |                                 |  |
| 2-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.8           | 1.0           |  |  |                                 |  |
| 3-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.8           | 1.0           |  |  |                                 |  |
| 4-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | A  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 1.0           |  |  |                                 |  |
| 5-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 0  | 0               | 0.7           | 0.8           |  |  |                                 |  |
| 6-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.8           |  |  |                                 |  |
| 7-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 8-Apr                                         | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | A | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.9           |  |  |                                 |  |
| 9-Apr                                         | 0                             | 1 | 1 | 1 | 1 | 1 | A | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 1  | 1  | 1  | 0  | 0               | 0.6           | 0.8           |  |  |                                 |  |
| 10-Apr                                        | 0                             | 0 | 0 | 1 | 0 | A | 1 | 1 | 0 | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.5           | 0.7           |  |  |                                 |  |
| 11-Apr                                        | 1                             | 1 | 1 | 1 | A | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 1.0           |  |  |                                 |  |
| 12-Apr                                        | 1                             | 1 | 1 | A | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.8           | 1.3           |  |  |                                 |  |
| 13-Apr                                        | 1                             | 1 | A | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 0  | 1               | 0.6           | 0.7           |  |  |                                 |  |
| 14-Apr                                        | 1                             | A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 15-Apr                                        | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | A               | 0.8           | 1.0           |  |  |                                 |  |
| 16-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 1  | A  | 1               | 0.6           | 0.8           |  |  |                                 |  |
| 17-Apr                                        | 0                             | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 1                                                                                                                                                          | 0  | 1  | A  | 1  | 1               | 0.6           | 0.8           |  |  |                                 |  |
| 18-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | A  | 1  | 1  | 1               | 0.8           | 1.1           |  |  |                                 |  |
| 19-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | A  | 1  | 1  | 1  | 1               | 0.7           | 1.0           |  |  |                                 |  |
| 20-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0  | 1  | C  | C  | C  | 1  | 1  | 1  | 1  | A                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.8           |  |  |                                 |  |
| 21-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 22-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 1.0           |  |  |                                 |  |
| 23-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 24-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 25-Apr                                        | 1                             | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 0  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.9           |  |  |                                 |  |
| 26-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.7           | 0.9           |  |  |                                 |  |
| 27-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0  | 0  | A  | 0  | 0  | 0  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 1  | 1  | 1               | 0.6           | 1.0           |  |  |                                 |  |
| 28-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2  | A  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.8           | 1.7           |  |  |                                 |  |
| 29-Apr                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                                          | 1  | 1  | 1  | 0  | 1               | 0.7           | 1.0           |  |  |                                 |  |
| 30-Apr                                        | 1                             | 1 | 1 | 1 | 0 | 1 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6           | 0.8           |  |  |                                 |  |
|                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Average |               |               |  |  |                                 |  |
|                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Maximum |               |               |  |  |                                 |  |
| C - Calibration A - Automated Daily Zero Span |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                 |               |               |  |  |                                 |  |



## Hourly Maximums

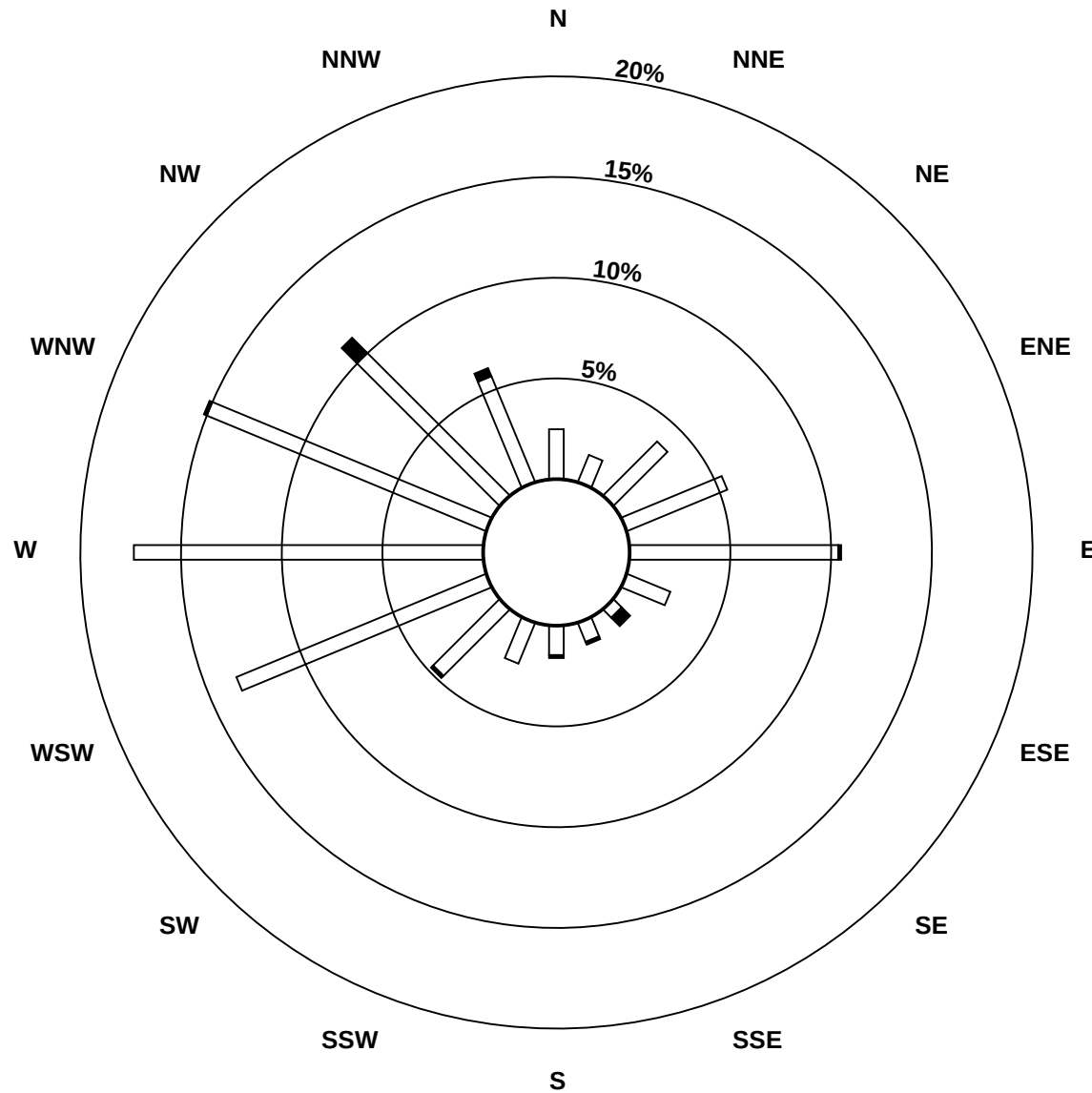
Total Reduced Sulphur (TRS) - ppb  
Henry Pirker - April 2011



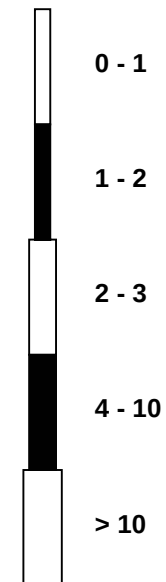
# Pollutant Rose

Total Reduced Sulphur (TRS) - ppb

Henry Pirker - April 2011

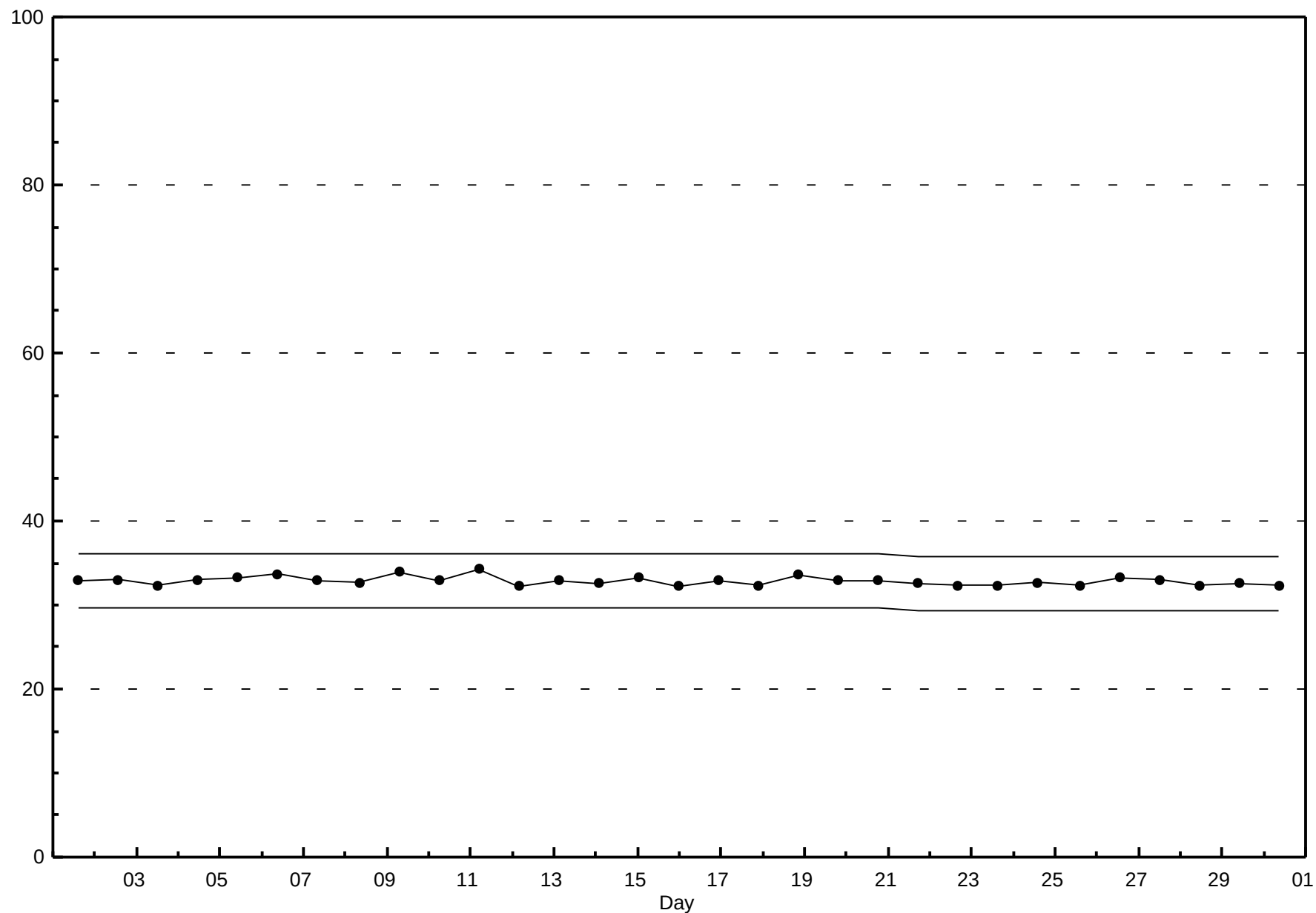


## Pollutant Classes (ppb)



## Span Responses

Total Reduced Sulphur (TRS)  
Henry Pirker - April 2011



## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

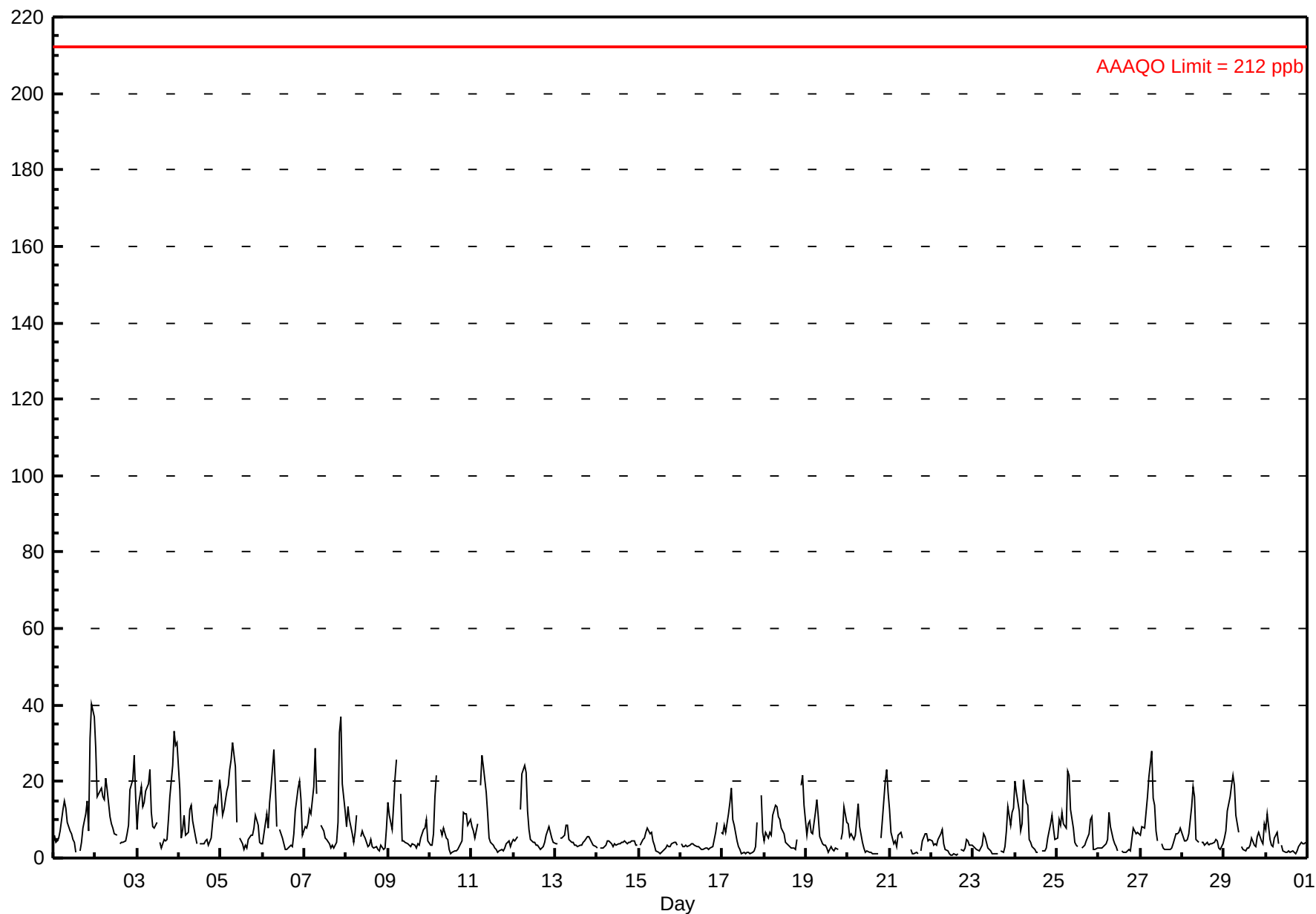
Henry Pirker - April 2011

|                                                                                                                                    |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 40.1 ppb on Apr 1 23:00 Maximum Daily Average: 14.3 ppb on Apr 3 |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |    |    |    |                 |               |               |
| Minimum Value: 1 ppb on Apr 22 12:00<br>Maximum Diurnal Average: 15.1 ppb at hour 7<br>Monthly Average: 7.18 ppb                   |                               |    |    |    |    |    |    |    |    | Minimum Daily Average: 3.0 ppb on Apr 22<br>Minimum Diurnal Average: 2.4 ppb at hour 14<br>Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 3.1 Median = 4.8 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 16.2 P <sub>99</sub> = 30.0 |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
| Day                                                                                                                                | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                    | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10                                                                                                                                                                                                                                                      | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                      | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                              | 6                             | 4  | 4  | 5  | 7  | 13 | 15 | 13 | 9  | 7                                                                                                                                                                                                                                                       | 6  | 5  | 4  | 2  | A  | 2  | 4  | 8  | 12 | 15                                                                                                                                      | 7  | 31 | 40 | 37              | 11.2          | 40.1          |
| 2-Apr                                                                                                                              | 29                            | 16 | 17 | 18 | 16 | 15 | 21 | 18 | 11 | 9                                                                                                                                                                                                                                                       | 8  | 6  | 6  | A  | 4  | 4  | 4  | 4  | 7  | 8                                                                                                                                       | 18 | 21 | 27 | 16              | 13.1          | 28.6          |
| 3-Apr                                                                                                                              | 7                             | 14 | 19 | 13 | 15 | 17 | 19 | 23 | 12 | 8                                                                                                                                                                                                                                                       | 8  | 9  | A  | 4  | 3  | 5  | 5  | 5  | 10 | 16                                                                                                                                      | 24 | 33 | 29 | 30              | 14.3          | 33.4          |
| 4-Apr                                                                                                                              | 18                            | 5  | 7  | 11 | 6  | 7  | 13 | 14 | 10 | 6                                                                                                                                                                                                                                                       | 4  | A  | 4  | 4  | 4  | 5  | 5  | 3  | 5  | 9                                                                                                                                       | 13 | 14 | 12 | 20              | 8.6           | 20.3          |
| 5-Apr                                                                                                                              | 17                            | 11 | 13 | 18 | 19 | 23 | 26 | 30 | 24 | 9                                                                                                                                                                                                                                                       | A  | 5  | 4  | 2  | 3  | 3  | 5  | 6  | 6  | 8                                                                                                                                       | 11 | 8  | 4  | 4               | 11.3          | 30.4          |
| 6-Apr                                                                                                                              | 4                             | 6  | 11 | 8  | 14 | 19 | 28 | 19 | 8  | A                                                                                                                                                                                                                                                       | 7  | 5  | 4  | 2  | 2  | 3  | 3  | 3  | 6  | 12                                                                                                                                      | 18 | 20 | 15 | 6               | 9.8           | 28.3          |
| 7-Apr                                                                                                                              | 8                             | 8  | 9  | 13 | 12 | 19 | 29 | 17 | A  | 9                                                                                                                                                                                                                                                       | 8  | 7  | 5  | 5  | 4  | 2  | 3  | 3  | 4  | 9                                                                                                                                       | 33 | 37 | 20 | 12              | 11.9          | 36.9          |
| 8-Apr                                                                                                                              | 8                             | 13 | 10 | 6  | 4  | 7  | 11 | A  | 6  | 7                                                                                                                                                                                                                                                       | 6  | 5  | 3  | 3  | 5  | 3  | 3  | 3  | 2  | 2                                                                                                                                       | 3  | 2  | 3  | 8               | 5.4           | 13.3          |
| 9-Apr                                                                                                                              | 15                            | 11 | 8  | 14 | 21 | 26 | A  | 17 | 5  | 4                                                                                                                                                                                                                                                       | 4  | 4  | 4  | 3  | 4  | 3  | 3  | 4  | 3  | 5                                                                                                                                       | 7  | 8  | 10 | 5               | 8.1           | 25.7          |
| 10-Apr                                                                                                                             | 3                             | 3  | 6  | 16 | 21 | A  | 8  | 6  | 8  | 5                                                                                                                                                                                                                                                       | 5  | 2  | 1  | 1  | 2  | 2  | 2  | 3  | 5  | 12                                                                                                                                      | 12 | 12 | 9  | 10              | 6.7           | 21.5          |
| 11-Apr                                                                                                                             | 8                             | 7  | 5  | 9  | A  | 19 | 27 | 24 | 17 | 12                                                                                                                                                                                                                                                      | 5  | 4  | 3  | 3  | 2  | 2  | 2  | 2  | 2  | 3                                                                                                                                       | 4  | 4  | 3  | 4               | 7.4           | 27.0          |
| 12-Apr                                                                                                                             | 5                             | 5  | 6  | A  | 13 | 22 | 24 | 22 | 12 | 7                                                                                                                                                                                                                                                       | 5  | 4  | 4  | 3  | 3  | 2  | 3  | 3  | 4  | 6                                                                                                                                       | 8  | 7  | 5  | 4               | 7.7           | 24.3          |
| 13-Apr                                                                                                                             | 4                             | 4  | A  | 5  | 5  | 6  | 9  | 9  | 5  | 4                                                                                                                                                                                                                                                       | 4  | 3  | 3  | 3  | 3  | 4  | 4  | 5  | 6  | 6                                                                                                                                       | 5  | 4  | 3  | 3               | 4.6           | 8.7           |
| 14-Apr                                                                                                                             | 3                             | A  | 3  | 3  | 3  | 3  | 5  | 4  | 4  | 3                                                                                                                                                                                                                                                       | 4  | 3  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4                                                                                                                                       | 5  | 5  | 3  | 3               | 3.7           | 4.6           |
| 15-Apr                                                                                                                             | A                             | 3  | 5  | 5  | 7  | 8  | 6  | 7  | 5  | 3                                                                                                                                                                                                                                                       | 2  | 2  | 1  | 1  | 2  | 3  | 3  | 3  | 3  | 4                                                                                                                                       | 4  | 4  | 3  | A               | 3.8           | 7.8           |
| 16-Apr                                                                                                                             | 4                             | 3  | 3  | 3  | 3  | 3  | 4  | 4  | 3  | 3                                                                                                                                                                                                                                                       | 3  | 3  | 2  | 2  | 2  | 3  | 2  | 3  | 3  | 5                                                                                                                                       | 7  | 9  | A  | 7               | 3.6           | 9.2           |
| 17-Apr                                                                                                                             | 7                             | 9  | 7  | 12 | 15 | 18 | 10 | 9  | 4  | 3                                                                                                                                                                                                                                                       | 2  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 2  | 3                                                                                                                                       | 9  | A  | 16 | 7               | 6.1           | 18.2          |
| 18-Apr                                                                                                                             | 5                             | 7  | 5  | 7  | 6  | 11 | 14 | 13 | 11 | 10                                                                                                                                                                                                                                                      | 8  | 6  | 4  | 4  | 3  | 3  | 3  | 3  | 2  | 5                                                                                                                                       | A  | 19 | 22 | 14              | 7.9           | 21.8          |
| 19-Apr                                                                                                                             | 6                             | 9  | 10 | 7  | 7  | 12 | 15 | 11 | 6  | 4                                                                                                                                                                                                                                                       | 3  | 3  | 2  | 2  | 3  | 2  | 2  | 2  | 2  | A                                                                                                                                       | 5  | 7  | 14 | 9               | 6.2           | 15.3          |
| 20-Apr                                                                                                                             | 9                             | 6  | 6  | 5  | 6  | 10 | 14 | 8  | 4  | 3                                                                                                                                                                                                                                                       | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 1  | A  | 5                                                                                                                                       | 10 | 20 | 23 | 17              | 6.9           | 23.1          |
| 21-Apr                                                                                                                             | 13                            | 7  | 4  | 4  | 3  | 6  | 7  | 5  | C  | C                                                                                                                                                                                                                                                       | C  | C  | 2  | 1  | 1  | 1  | 1  | A  | 2  | 4                                                                                                                                       | 6  | 6  | 5  | 5               | 4.4           | 12.8          |
| 22-Apr                                                                                                                             | 5                             | 3  | 4  | 3  | 5  | 6  | 7  | 4  | 2  | 2                                                                                                                                                                                                                                                       | 1  | 1  | 1  | 1  | 1  | 1  | A  | 2  | 2  | 3                                                                                                                                       | 5  | 4  | 3  | 3               | 3.0           | 7.4           |
| 23-Apr                                                                                                                             | 3                             | 3  | 2  | 2  | 3  | 3  | 6  | 6  | 3  | 2                                                                                                                                                                                                                                                       | 2  | 1  | 1  | 1  | 1  | A  | 2  | 2  | 3  | 7                                                                                                                                       | 14 | 9  | 12 | 13              | 4.3           | 13.6          |
| 24-Apr                                                                                                                             | 20                            | 17 | 12 | 7  | 9  | 20 | 15 | 14 | 5  | 4                                                                                                                                                                                                                                                       | 3  | 2  | 2  | 1  | A  | 2  | 2  | 2  | 3  | 5                                                                                                                                       | 9  | 11 | 8  | 5               | 7.7           | 20.4          |
| 25-Apr                                                                                                                             | 5                             | 10 | 8  | 12 | 9  | 8  | 23 | 21 | 13 | 8                                                                                                                                                                                                                                                       | 4  | 3  | 3  | A  | 3  | 3  | 3  | 5  | 7  | 10                                                                                                                                      | 11 | 2  | 2  | 3               | 7.6           | 22.7          |
| 26-Apr                                                                                                                             | 3                             | 3  | 3  | 3  | 4  | 5  | 12 | 8  | 5  | 4                                                                                                                                                                                                                                                       | 3  | 2  | A  | 2  | 1  | 1  | 2  | 2  | 2  | 5                                                                                                                                       | 8  | 6  | 7  | 6               | 4.2           | 12.0          |
| 27-Apr                                                                                                                             | 6                             | 8  | 8  | 12 | 16 | 21 | 28 | 16 | 14 | 7                                                                                                                                                                                                                                                       | 4  | A  | 4  | 2  | 2  | 2  | 2  | 2  | 3  | 4                                                                                                                                       | 6  | 6  | 7  | 8               | 8.2           | 28.0          |
| 28-Apr                                                                                                                             | 6                             | 4  | 4  | 5  | 6  | 13 | 18 | 16 | 5  | 4                                                                                                                                                                                                                                                       | A  | 4  | 4  | 3  | 4  | 4  | 4  | 4  | 4  | 5                                                                                                                                       | 4  | 3  | 2  | 4               | 5.7           | 18.5          |
| 29-Apr                                                                                                                             | 5                             | 7  | 12 | 16 | 19 | 22 | 19 | 11 | 7  | A                                                                                                                                                                                                                                                       | 3  | 2  | 2  | 3  | 3  | 3  | 5  | 3  | 3  | 6                                                                                                                                       | 7  | 4  | 4  | 9               | 7.6           | 21.6          |
| 30-Apr                                                                                                                             | 7                             | 12 | 5  | 3  | 3  | 5  | 7  | 4  | A  | 3                                                                                                                                                                                                                                                       | 2  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 2  | 3                                                                                                                                       | 4  | 4  | 4  | 4               | 3.6           | 11.7          |
| 8.2 7.5 7.5 8.4 9.5 12.7 15.1 12.9 8.0 5.6 4.3 3.7 2.9 2.4 2.6 2.6 2.9 3.1 4.0 6.5 9.6 11.1 10.8 9.5                               |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Average |               |               |
| 28.6 17.2 18.8 18.1 21.5 25.7 28.8 30.4 23.8 11.7 8.0 9.5 5.8 4.8 4.8 5.0 5.3 7.7 11.7 16.2 33.0 36.9 40.1 36.8                    |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Maximum |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                      |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 212 ppb 24-hr 106 ppb                                                         |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |

## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Henry Pirker - April 2011



## Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

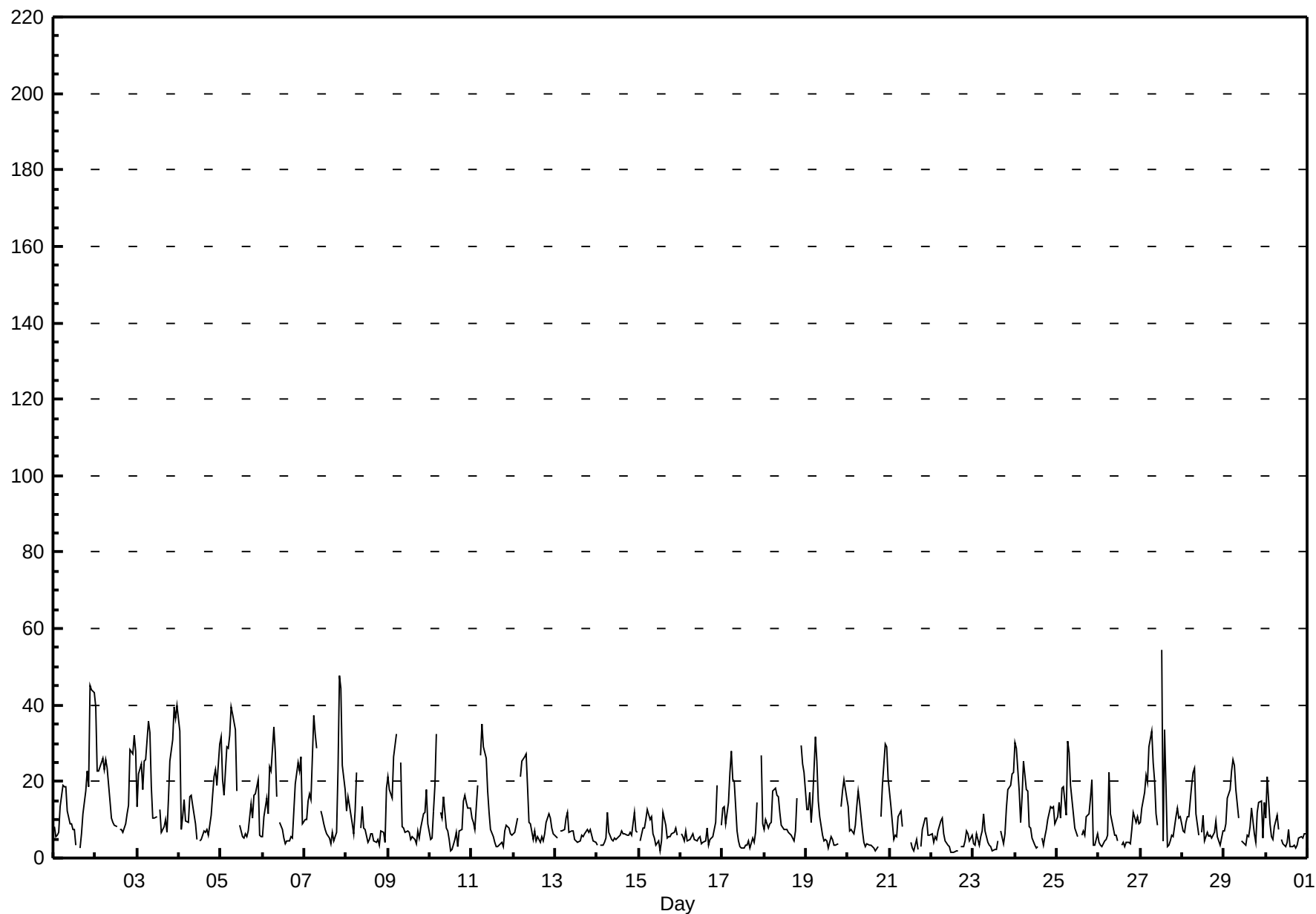
Henry Pirker - April 2011

| Maximum Value: 54.6 ppb on Apr 27 13:00     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 20.9 ppb on Apr 3                                                                                                                      |    |    |    |                               | Hours in Service: 720     |               |
|---------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-------------------------------|---------------------------|---------------|
| Minimum Value: 1 ppb on Apr 22 12:00        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 4.7 ppb on Apr 22                                                                                                                      |    |    |    |                               | Hours of Data: 685        |               |
| Maximum Diurnal Average: 21.2 ppb at hour 7 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 4.5 ppb at hour 14                                                                                                                   |    |    |    |                               | Hours of Missing Data: 35 |               |
| Monthly Average: 11.22 ppb                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 3.5 Q <sub>1</sub> = 5.3 Median = 7.5 Q <sub>3</sub> = 14.9 P <sub>90</sub> = 24.8 P <sub>99</sub> = 38.8 |    |    |    |                               | Hours of Calibration: 35  |               |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0                                                                                                                               |    |    |    |                               |                           |               |
| Day                                         | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |                               | Daily Average             | Daily Maximum |
|                                             | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                            | 21 | 22 | 23 | 24                            |                           |               |
| 1-Apr                                       | 8                             | 5  | 6  | 7  | 13 | 19 | 19 | 19 | 12 | 9  | 9  | 8  | 8  | 4  | A  | 2  | 6  | 12 | 17 | 23                                                                                                                                                            | 19 | 45 | 44 | 43                            | 15.5                      | 45.0          |
| 2-Apr                                       | 40                            | 23 | 23 | 25 | 26 | 23 | 26 | 23 | 15 | 10 | 9  | 9  | 8  | A  | 7  | 7  | 7  | 9  | 11 | 14                                                                                                                                                            | 28 | 27 | 32 | 28                            | 18.7                      | 39.7          |
| 3-Apr                                       | 13                            | 22 | 25 | 18 | 26 | 26 | 36 | 33 | 19 | 11 | 10 | 11 | A  | 13 | 7  | 8  | 10 | 7  | 15 | 25                                                                                                                                                            | 31 | 39 | 36 | 40                            | 20.9                      | 39.9          |
| 4-Apr                                       | 33                            | 7  | 11 | 15 | 10 | 9  | 16 | 16 | 14 | 9  | 5  | A  | 4  | 5  | 7  | 7  | 8  | 6  | 11 | 16                                                                                                                                                            | 21 | 23 | 19 | 30                            | 13.2                      | 33.2          |
| 5-Apr                                       | 32                            | 20 | 16 | 29 | 29 | 32 | 40 | 38 | 34 | 17 | A  | 8  | 5  | 5  | 6  | 5  | 7  | 14 | 10 | 17                                                                                                                                                            | 17 | 20 | 6  | 5                             | 18.0                      | 39.6          |
| 6-Apr                                       | 5                             | 11 | 16 | 11 | 24 | 23 | 34 | 28 | 16 | A  | 9  | 7  | 5  | 4  | 4  | 5  | 5  | 5  | 12 | 19                                                                                                                                                            | 25 | 23 | 26 | 9                             | 14.3                      | 34.3          |
| 7-Apr                                       | 10                            | 10 | 15 | 17 | 15 | 37 | 32 | 29 | A  | 12 | 11 | 9  | 7  | 6  | 5  | 4  | 7  | 4  | 7  | 23                                                                                                                                                            | 48 | 45 | 24 | 18                            | 17.2                      | 47.9          |
| 8-Apr                                       | 12                            | 16 | 14 | 9  | 6  | 12 | 22 | A  | 8  | 14 | 8  | 8  | 4  | 5  | 6  | 6  | 4  | 4  | 5  | 3                                                                                                                                                             | 7  | 7  | 4  | 18                            | 8.9                       | 22.4          |
| 9-Apr                                       | 21                            | 18 | 16 | 26 | 30 | 33 | A  | 25 | 8  | 8  | 7  | 7  | 7  | 5  | 6  | 5  | 4  | 7  | 5  | 8                                                                                                                                                             | 12 | 12 | 18 | 9                             | 12.8                      | 32.5          |
| 10-Apr                                      | 5                             | 5  | 12 | 19 | 32 | A  | 12 | 11 | 16 | 8  | 7  | 5  | 2  | 2  | 5  | 7  | 3  | 7  | 8  | 15                                                                                                                                                            | 17 | 15 | 13 | 13                            | 10.3                      | 32.4          |
| 11-Apr                                      | 10                            | 9  | 8  | 19 | A  | 27 | 35 | 29 | 26 | 18 | 12 | 7  | 5  | 4  | 3  | 3  | 4  | 4  | 3  | 7                                                                                                                                                             | 9  | 8  | 7  | 6                             | 11.4                      | 35.0          |
| 12-Apr                                      | 6                             | 7  | 10 | A  | 21 | 26 | 26 | 27 | 19 | 9  | 9  | 5  | 7  | 4  | 6  | 4  | 5  | 4  | 6  | 9                                                                                                                                                             | 12 | 10 | 8  | 6                             | 10.8                      | 27.2          |
| 13-Apr                                      | 5                             | 5  | A  | 7  | 7  | 8  | 10 | 12 | 7  | 7  | 7  | 5  | 4  | 4  | 5  | 6  | 5  | 6  | 7  | 7                                                                                                                                                             | 8  | 6  | 4  | 4                             | 6.4                       | 11.9          |
| 14-Apr                                      | 3                             | A  | 3  | 3  | 4  | 5  | 12 | 7  | 5  | 4  | 5  | 5  | 5  | 6  | 7  | 6  | 6  | 6  | 6  | 7                                                                                                                                                             | 6  | 12 | 7  | 7                             | 6.1                       | 12.0          |
| 15-Apr                                      | A                             | 4  | 8  | 8  | 10 | 13 | 10 | 11 | 6  | 5  | 3  | 4  | 2  | 5  | 12 | 8  | 5  | 6  | 6  | 6                                                                                                                                                             | 7  | 8  | 6  | A                             | 7.0                       | 12.5          |
| 16-Apr                                      | 6                             | 6  | 4  | 7  | 4  | 5  | 5  | 6  | 5  | 5  | 5  | 5  | 4  | 4  | 5  | 8  | 3  | 5  | 5  | 8                                                                                                                                                             | 9  | 19 | A  | 9                             | 6.3                       | 19.0          |
| 17-Apr                                      | 13                            | 14 | 9  | 15 | 22 | 28 | 21 | 20 | 7  | 5  | 3  | 3  | 3  | 3  | 3  | 4  | 3  | 5  | 4  | 7                                                                                                                                                             | 14 | A  | 27 | 9                             | 10.5                      | 28.0          |
| 18-Apr                                      | 8                             | 10 | 8  | 9  | 9  | 18 | 18 | 16 | 16 | 12 | 9  | 8  | 8  | 7  | 7  | 6  | 5  | 4  | 7  | 16                                                                                                                                                            | A  | 29 | 25 | 23                            | 12.0                      | 29.4          |
| 19-Apr                                      | 13                            | 13 | 17 | 9  | 14 | 32 | 26 | 15 | 11 | 6  | 4  | 5  | 4  | 2  | 5  | 5  | 3  | 3  | 4  | A                                                                                                                                                             | 13 | 17 | 21 | 16                            | 11.2                      | 31.5          |
| 20-Apr                                      | 14                            | 7  | 8  | 6  | 8  | 14 | 18 | 15 | 7  | 4  | 3  | 4  | 3  | 3  | 3  | 2  | 2  | 3  | A  | 11                                                                                                                                                            | 19 | 30 | 29 | 21                            | 10.1                      | 29.9          |
| 21-Apr                                      | 17                            | 14 | 5  | 6  | 6  | 11 | 12 | 8  | C  | C  | C  | C  | 4  | 2  | 2  | 5  | 2  | A  | 3  | 7                                                                                                                                                             | 10 | 10 | 6  | 6                             | 7.3                       | 17.0          |
| 22-Apr                                      | 6                             | 4  | 5  | 5  | 7  | 10 | 10 | 6  | 4  | 4  | 3  | 1  | 2  | 1  | 2  | 2  | A  | 3  | 3  | 4                                                                                                                                                             | 7  | 6  | 4  | 6                             | 4.7                       | 10.5          |
| 23-Apr                                      | 4                             | 4  | 6  | 3  | 5  | 7  | 12 | 7  | 4  | 4  | 3  | 2  | 2  | 2  | 4  | A  | 7  | 4  | 6  | 13                                                                                                                                                            | 18 | 19 | 22 | 23                            | 7.9                       | 22.5          |
| 24-Apr                                      | 30                            | 29 | 18 | 9  | 16 | 26 | 18 | 18 | 8  | 8  | 5  | 3  | 3  | 3  | A  | 5  | 3  | 6  | 7  | 10                                                                                                                                                            | 13 | 13 | 13 | 9                             | 11.9                      | 30.4          |
| 25-Apr                                      | 11                            | 15 | 11 | 18 | 19 | 11 | 31 | 28 | 19 | 11 | 8  | 7  | 5  | A  | 6  | 7  | 6  | 11 | 11 | 16                                                                                                                                                            | 20 | 3  | 3  | 6                             | 12.3                      | 30.5          |
| 26-Apr                                      | 4                             | 3  | 3  | 4  | 5  | 6  | 22 | 12 | 8  | 6  | 6  | 4  | A  | 3  | 4  | 3  | 4  | 4  | 4  | 7                                                                                                                                                             | 12 | 9  | 11 | 9                             | 6.8                       | 22.4          |
| 27-Apr                                      | 10                            | 13 | 17 | 22 | 20 | 29 | 33 | 25 | 20 | 11 | 8  | A  | 55 | 4  | 34 | 3  | 4  | 4  | 6  | 5                                                                                                                                                             | 11 | 13 | 10 | 11                            | 16.0                      | 54.6          |
| 28-Apr                                      | 7                             | 7  | 9  | 11 | 11 | 19 | 23 | 24 | 12 | 6  | A  | 7  | 11 | 4  | 7  | 6  | 6  | 5  | 7  | 10                                                                                                                                                            | 5  | 4  | 3  | 7                             | 9.2                       | 23.5          |
| 29-Apr                                      | 7                             | 9  | 16 | 18 | 23 | 26 | 24 | 18 | 10 | A  | 4  | 4  | 3  | 6  | 6  | 8  | 13 | 6  | 4  | 12                                                                                                                                                            | 14 | 15 | 5  | 14                            | 11.6                      | 25.9          |
| 30-Apr                                      | 10                            | 21 | 9  | 5  | 5  | 8  | 11 | 7  | A  | 5  | 4  | 3  | 4  | 7  | 3  | 3  | 3  | 3  | 4  | 5                                                                                                                                                             | 5  | 5  | 6  | 6                             | 6.3                       | 21.3          |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    | Diurnal Average               |                           |               |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    | Diurnal Maximum               |                           |               |
| C - Calibration                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    | A - Automated Daily Zero Span |                           |               |

## Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

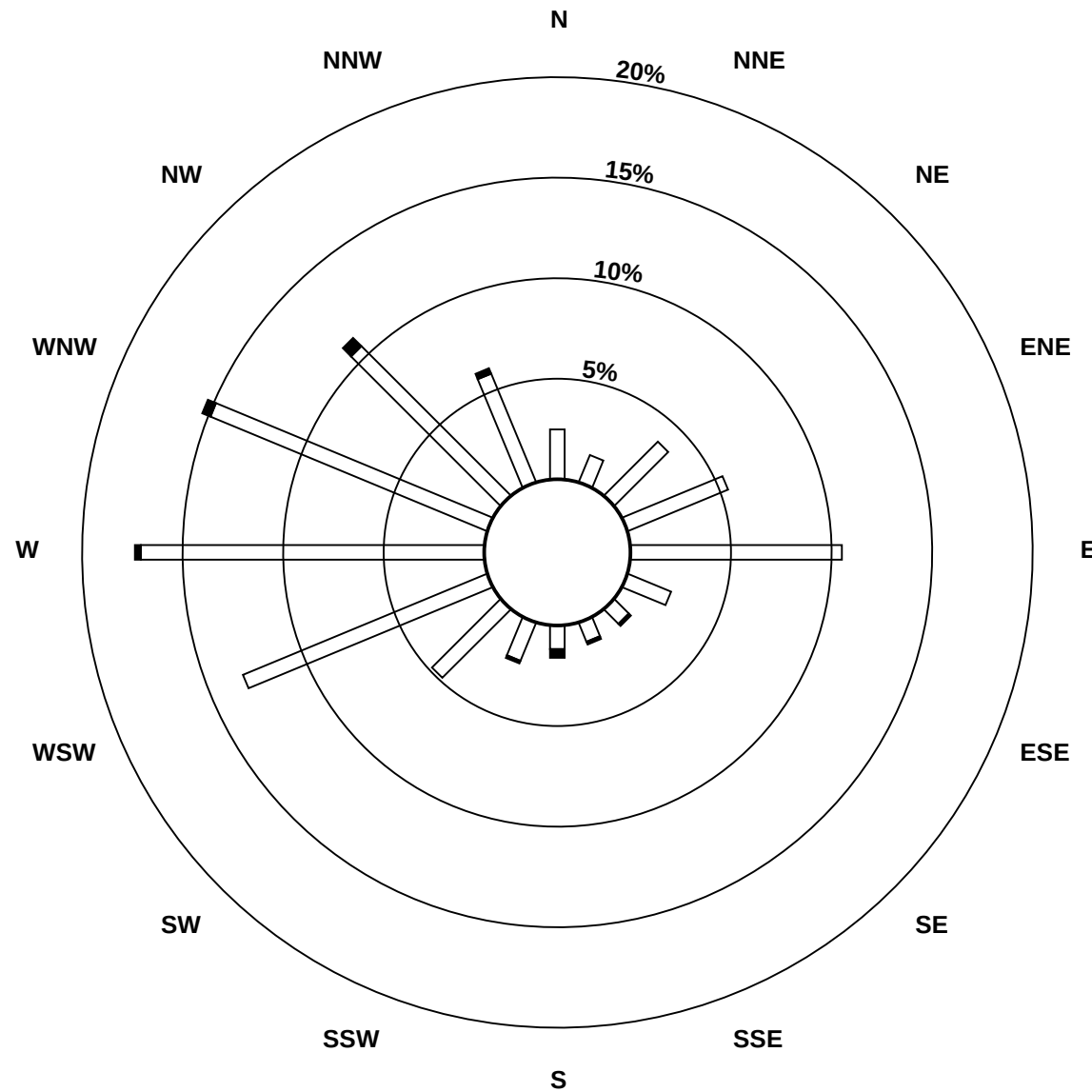
Henry Pirker - April 2011



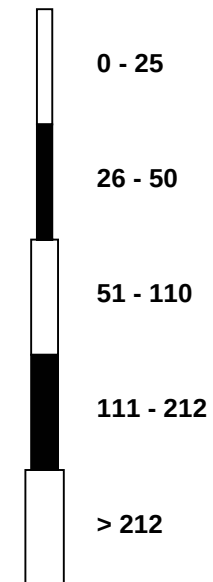
## Pollutant Rose

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Henry Pirker - April 2011



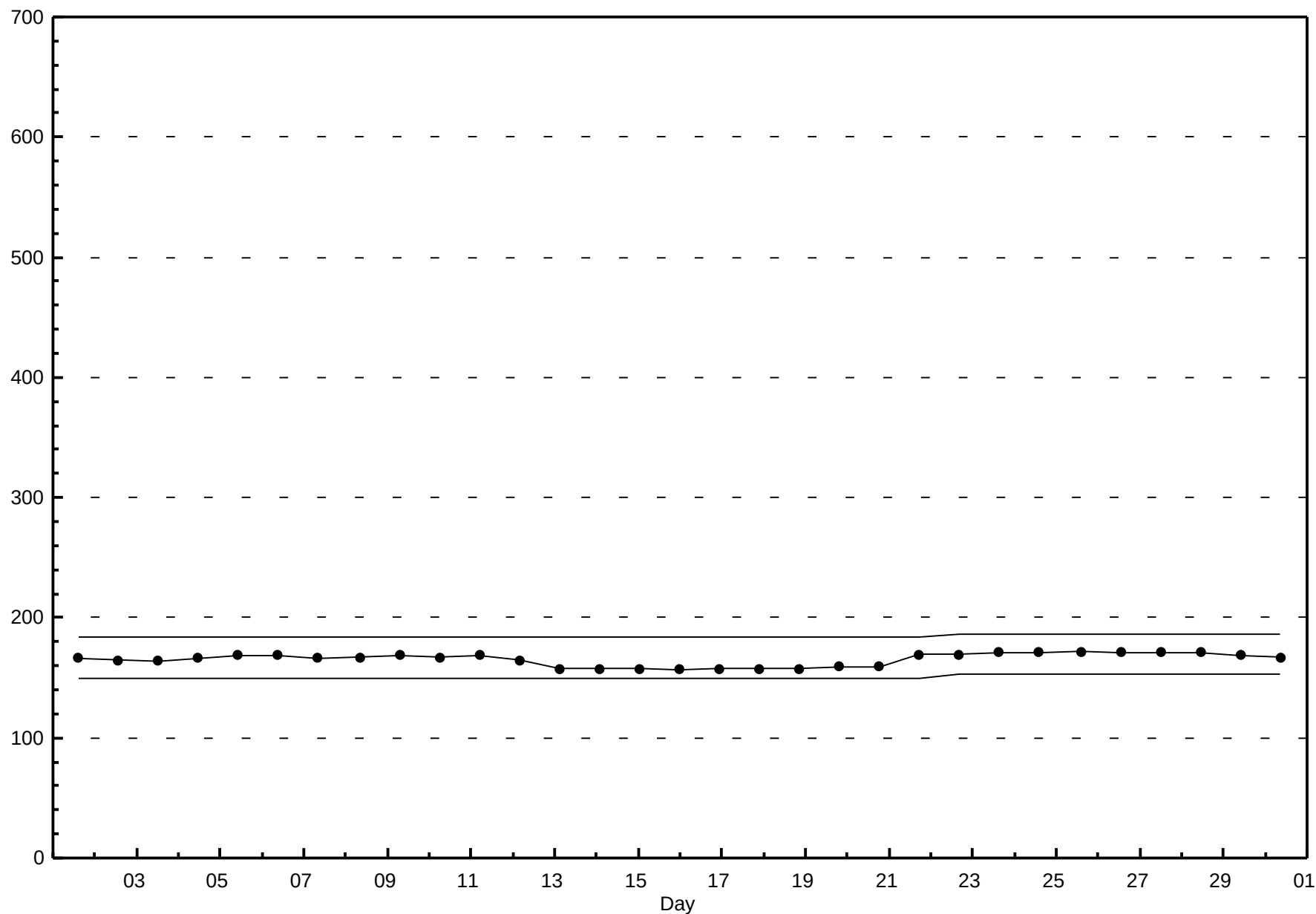
### Pollutant Classes (ppb)





## Span Responses

**Nitrogen Dioxide (NO<sub>2</sub>)**  
**Henry Pirker - April 2011**



## Hourly Averages

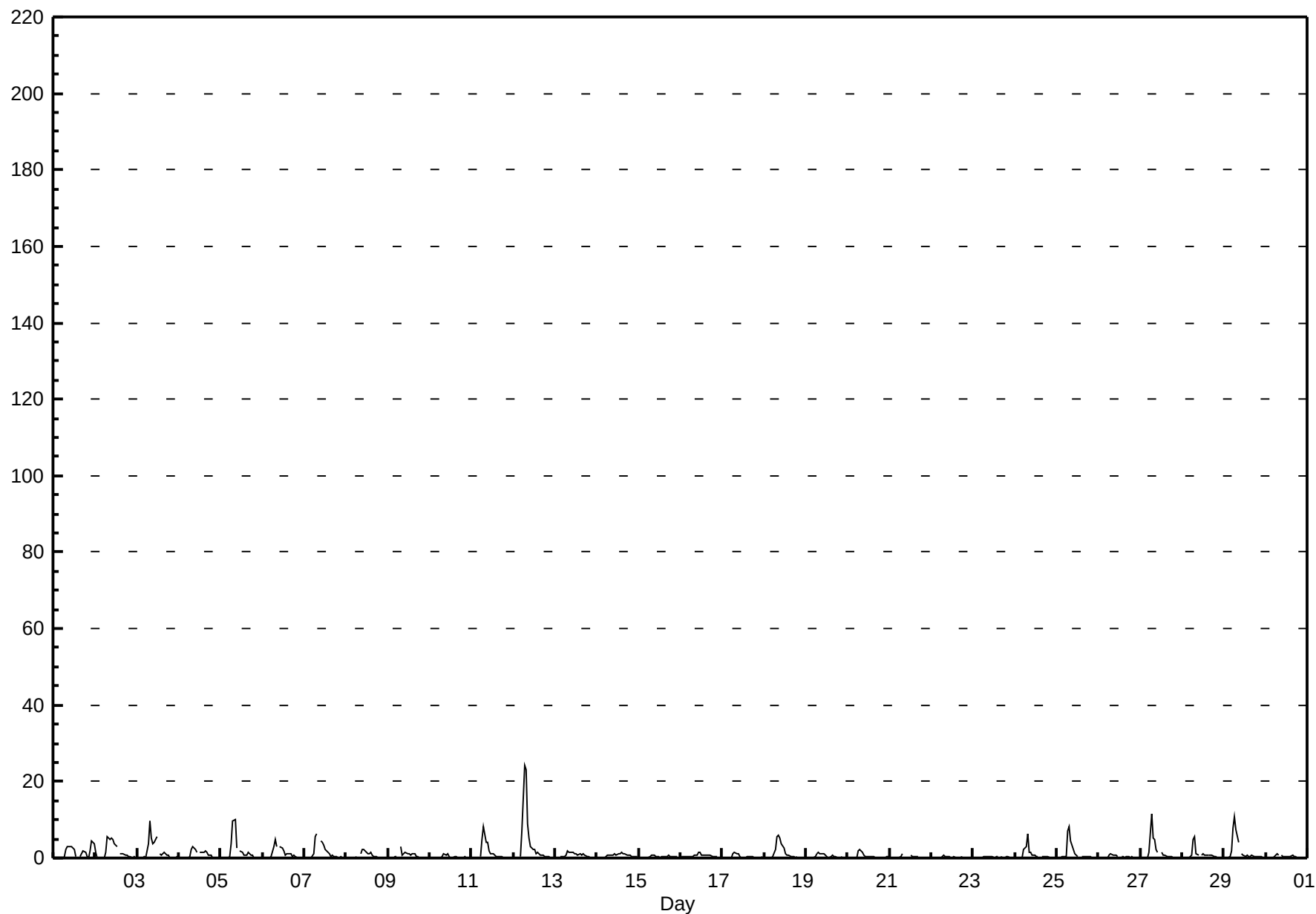
Nitrogen Oxide (NO) - ppb

Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 24.3 ppb on Apr 12 07:00 Maximum Daily Average: 3.6 ppb on Apr 12 |                               |   |   |   |   |   |    |    |    |                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |   | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |   |   |   |                 |               |               |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------------------------------------------------|---|---|---|-----------------|---------------|---------------|
| Minimum Value: 0 ppb on Apr 1 05:00<br>Maximum Diurnal Average: 4.4 ppb at hour 8<br>Monthly Average: 0.92 ppb                      |                               |   |   |   |   |   |    |    |    | Minimum Daily Average: 0.1 ppb on Apr 22<br>Minimum Diurnal Average: 0.0 ppb at hour 3<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.3 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 2.3 P <sub>99</sub> = 9.7 |   |   |   |   |   |   |   |   |   |                                                                                                                                         |   |   |   |                 |               |               |
| Day                                                                                                                                 | Hourly Period Ending At (MST) |   |   |   |   |   |    |    |    |                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |   |                                                                                                                                         |   |   |   |                 | Daily Average | Daily Maximum |
| 1-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 2  | 3  | 3                                                                                                                                                                                                                                                    | 3 | 2 | 0 | A | 0 | 1 | 2 | 1 | 1 | 0                                                                                                                                       | 2 | 4 | 4 | 1.4             | 4.5           |               |
| 2-Apr                                                                                                                               | 2                             | 0 | 0 | 0 | 0 | 0 | 2  | 6  | 5  | 5                                                                                                                                                                                                                                                    | 5 | 4 | 3 | A | 1 | 1 | 1 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 1.6             | 5.6           |               |
| 3-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 4  | 10 | 5  | 4                                                                                                                                                                                                                                                    | 4 | 6 | A | 1 | 1 | 1 | 1 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 1.7             | 9.8           |               |
| 4-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0  | 2  | 3  | 2                                                                                                                                                                                                                                                    | 2 | A | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 0.8             | 3.1           |               |
| 5-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 4  | 10 | 10 | 3                                                                                                                                                                                                                                                    | A | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 1.6             | 10.0          |               |
| 6-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 3  | 5  | 3  | A                                                                                                                                                                                                                                                    | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 1.1             | 4.7           |               |
| 7-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 1 | 5  | 6  | A  | 4                                                                                                                                                                                                                                                    | 4 | 3 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 1.4             | 6.2           |               |
| 8-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | A  | 1  | 2                                                                                                                                                                                                                                                    | 2 | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0.6             | 2.3           |               |
| 9-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | A  | 3  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0.6             | 2.9           |               |
| 10-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | A | 0  | 0  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0.2             | 1.1           |               |
| 11-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | A | 0 | 5  | 8  | 4  | 4                                                                                                                                                                                                                                                    | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 1.2             | 8.3           |               |
| 12-Apr                                                                                                                              | 0                             | 0 | 0 | A | 1 | 7 | 24 | 23 | 9  | 5                                                                                                                                                                                                                                                    | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 3.6             | 24.3          |               |
| 13-Apr                                                                                                                              | 0                             | 0 | A | 0 | 0 | 0 | 1  | 2  | 1  | 2                                                                                                                                                                                                                                                    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 0.7             | 1.9           |               |
| 14-Apr                                                                                                                              | 0                             | A | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1                                                                                                                                       | 0 | 0 | 0 | 0.7             | 1.3           |               |
| 15-Apr                                                                                                                              | A                             | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0                                                                                                                                       | 0 | 0 | 1 | A               | 0.4           | 0.9           |
| 16-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0                                                                                                                                       | 0 | 0 | A | 0               | 0.5           | 1.4           |
| 17-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | A | 0 | 0               | 0.3           | 1.5           |
| 18-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 2  | 6  | 6  | 5                                                                                                                                                                                                                                                    | 4 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | A | 0 | 0 | 1.3             | 5.9           |               |
| 19-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | A | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.4           | 1.4           |
| 20-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 2  | 2  | 1  | 1                                                                                                                                                                                                                                                    | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | A | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.4           | 2.1           |
| 21-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 0  | 1  | C  | C                                                                                                                                                                                                                                                    | C | C | 1 | 0 | 0 | 0 | 0 | A | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.2           | 1.0           |
| 22-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 0 | 0 | 0 | 0 | 0 | 0 | A | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.1           | 0.6           |
| 23-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 1                                                                                                                                                                                                                                                    | 0 | 0 | 0 | 0 | 0 | A | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.2           | 0.5           |
| 24-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 2 | 3  | 6  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 1 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.8           | 6.3           |
| 25-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 7  | 8  | 4  | 2                                                                                                                                                                                                                                                    | 1 | 1 | 1 | A | 0 | 0 | 0 | 1 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 1.2           | 8.1           |
| 26-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1 | 0 | A | 0 | 0 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.2           | 1.0           |
| 27-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 2 | 12 | 5  | 5  | 2                                                                                                                                                                                                                                                    | 1 | A | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 1.4             | 11.6          |               |
| 28-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 1 | 5  | 6  | 1  | 1                                                                                                                                                                                                                                                    | A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.9           | 5.7           |
| 29-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 2 | 8 | 11 | 7  | 4  | A                                                                                                                                                                                                                                                    | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 1.7             | 10.9          |               |
| 30-Apr                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0 | 1  | 1  | A  | 1                                                                                                                                                                                                                                                    | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0                                                                                                                                       | 0 | 0 | 0 | 0               | 0.3           | 1.3           |
|                                                                                                                                     |                               |   |   |   |   |   |    |    |    |                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |   |                                                                                                                                         |   |   |   | Diurnal Average |               |               |
|                                                                                                                                     |                               |   |   |   |   |   |    |    |    |                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |   |                                                                                                                                         |   |   |   | Diurnal Maximum |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                       |                               |   |   |   |   |   |    |    |    |                                                                                                                                                                                                                                                      |   |   |   |   |   |   |   |   |   |                                                                                                                                         |   |   |   |                 |               |               |

## Hourly Averages

Nitrogen Oxide (NO) - ppb  
Henry Pirker - April 2011



# Hourly Maximums

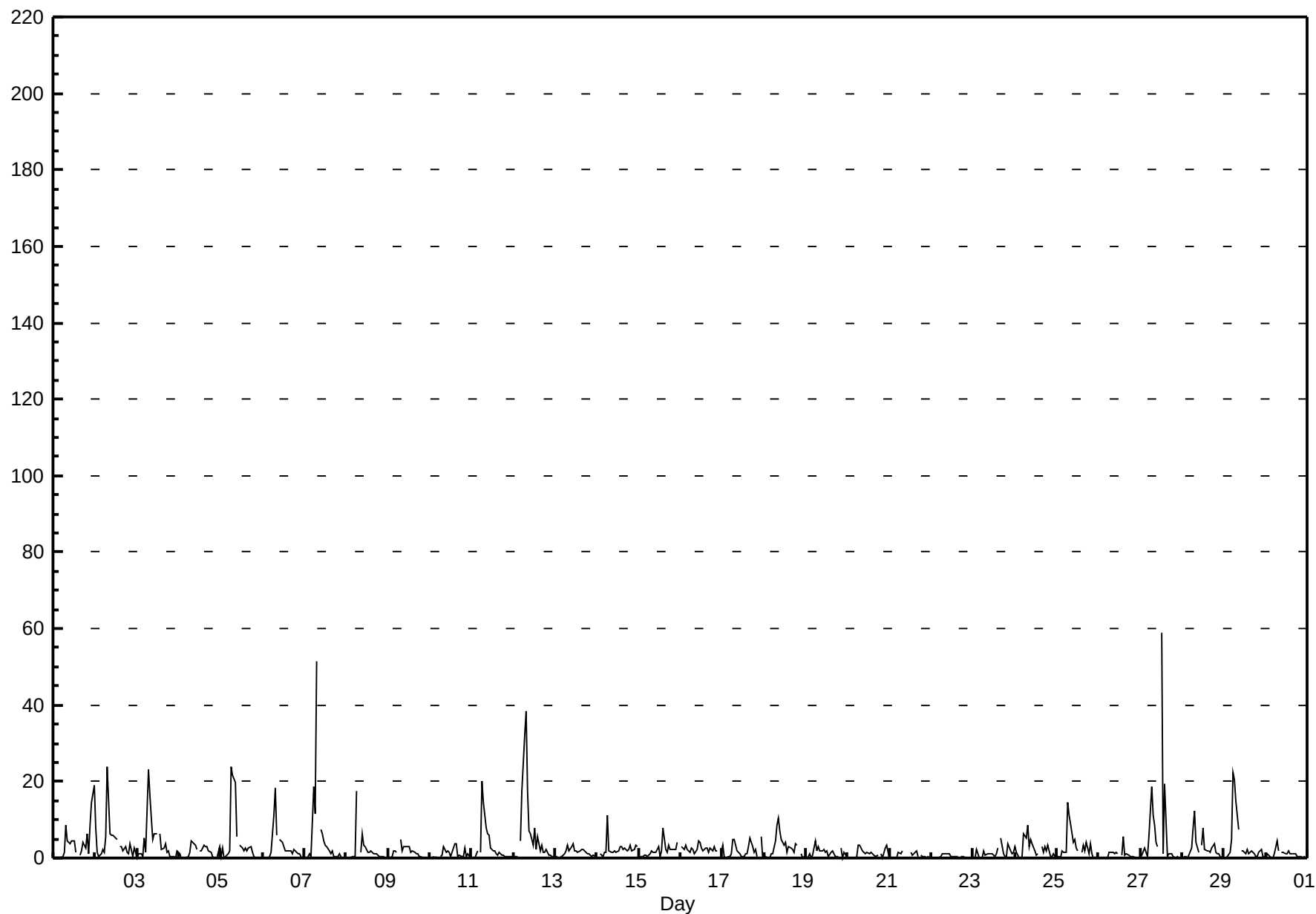
Nitrogen Oxide (NO) - ppb

Henry Pirker - April 2011

| Maximum Value: 58.8 ppb on Apr 27 13:00                                                                                                                     |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------|-----------------|
| Maximum Daily Average: 6.8 ppb on Apr 12                                                                                                                    |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 685              |                 |
| Minimum Value: 0 ppb on Apr 18 04:00                                                                                                                        |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 35       |                 |
| Maximum Diurnal Average: 10.3 ppb at hour 8                                                                                                                 |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 35        |                 |
| Monthly Average: 2.63 ppb                                                                                                                                   |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |                 |
| Minimum Daily Average: 0.4 ppb on Apr 22                                                                                                                    |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Daily<br>Average                |                 |
| Minimum Diurnal Average: 0.5 ppb at hour 3                                                                                                                  |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |
| Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.5 Median = 1.4 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 5.5 P <sub>99</sub> = 22.7 |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Daily<br>Maximum                |                 |
| Day                                                                                                                                                         | Hourly Period Ending At (MST) |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |
|                                                                                                                                                             | 1                             | 2 | 3 | 4 | 5 | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |                 |
| 1-Apr                                                                                                                                                       | 0                             | 0 | 0 | 0 | 0 | 0  | 2  | 9  | 4  | 4  | 5  | 4  | 5  | 2  | A  | 1  | 2  | 4  | 3  | 7  | 1  | 9  | 14 | 19                              | 4.0             |
| 2-Apr                                                                                                                                                       | 8                             | 1 | 0 | 1 | 2 | 1  | 6  | 24 | 7  | 6  | 6  | 6  | 5  | A  | 3  | 3  | 2  | 3  | 1  | 1  | 4  | 0  | 3  | 1                               | 4.1             |
| 3-Apr                                                                                                                                                       | 0                             | 1 | 1 | 0 | 5 | 1  | 23 | 16 | 11 | 5  | 7  | 7  | A  | 6  | 2  | 3  | 4  | 2  | 2  | 0  | 0  | 0  | 0  | 2                               | 4.3             |
| 4-Apr                                                                                                                                                       | 1                             | 0 | 0 | 0 | 0 | 0  | 1  | 5  | 4  | 4  | 2  | A  | 2  | 2  | 4  | 3  | 3  | 2  | 1  | 0  | 0  | 0  | 0  | 3                               | 1.6             |
| 5-Apr                                                                                                                                                       | 1                             | 3 | 0 | 1 | 1 | 2  | 24 | 22 | 20 | 6  | A  | 3  | 2  | 2  | 2  | 2  | 2  | 3  | 2  | 0  | 0  | 0  | 0  | 0                               | 4.3             |
| 6-Apr                                                                                                                                                       | 0                             | 0 | 0 | 0 | 0 | 1  | 11 | 18 | 6  | A  | 5  | 4  | 3  | 2  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 1  | 0  | 0                               | 2.8             |
| 7-Apr                                                                                                                                                       | 0                             | 0 | 0 | 1 | 0 | 19 | 12 | 52 | A  | 8  | 6  | 4  | 4  | 3  | 2  | 1  | 2  | 0  | 0  | 0  | 1  | 0  | 0  | 0                               | 5.1             |
| 8-Apr                                                                                                                                                       | 0                             | 0 | 0 | 0 | 0 | 0  | 18 | A  | 1  | 6  | 4  | 3  | 2  | 2  | 2  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                               | 1.9             |
| 9-Apr                                                                                                                                                       | 0                             | 0 | 0 | 2 | 2 | 1  | A  | 5  | 2  | 3  | 3  | 3  | 3  | 1  | 2  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                               | 1.4             |
| 10-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | A  | 0  | 1  | 3  | 1  | 2  | 1  | 0  | 1  | 4  | 4  | 0  | 1  | 0  | 0  | 3  | 0  | 1  | 0                               | 1.1             |
| 11-Apr                                                                                                                                                      | 0                             | 0 | 0 | 2 | A | 1  | 20 | 14 | 8  | 7  | 6  | 3  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                               | 3.2             |
| 12-Apr                                                                                                                                                      | 0                             | 0 | 0 | A | 5 | 17 | 32 | 39 | 18 | 7  | 6  | 3  | 8  | 2  | 6  | 2  | 3  | 1  | 1  | 2  | 1  | 1  | 0  | 0                               | 6.8             |
| 13-Apr                                                                                                                                                      | 0                             | 0 | A | 0 | 0 | 1  | 2  | 3  | 2  | 3  | 4  | 2  | 2  | 1  | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 0  | 1  | 0                               | 1.5             |
| 14-Apr                                                                                                                                                      | 0                             | A | 1 | 0 | 1 | 1  | 11 | 2  | 1  | 1  | 2  | 1  | 2  | 3  | 3  | 2  | 2  | 2  | 2  | 3  | 2  | 2  | 3  | 3                               | 2.4             |
| 15-Apr                                                                                                                                                      | A                             | 0 | 0 | 1 | 1 | 0  | 1  | 2  | 1  | 1  | 1  | 3  | 0  | 2  | 8  | 2  | 1  | 3  | 2  | 2  | 2  | 2  | 4  | A                               | 2.0             |
| 16-Apr                                                                                                                                                      | 3                             | 3 | 2 | 3 | 2 | 1  | 2  | 2  | 1  | 2  | 4  | 4  | 2  | 2  | 2  | 2  | 1  | 3  | 2  | 3  | 2  | 2  | A  | 2                               | 2.4             |
| 17-Apr                                                                                                                                                      | 3                             | 0 | 0 | 0 | 0 | 1  | 5  | 5  | 2  | 1  | 1  | 0  | 0  | 1  | 1  | 3  | 5  | 3  | 1  | 2  | 0  | A  | 6  | 0                               | 1.9             |
| 18-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 1 | 1  | 4  | 9  | 10 | 7  | 5  | 3  | 4  | 1  | 3  | 2  | 2  | 1  | 4  | 3  | A  | 1  | 0  | 0                               | 2.8             |
| 19-Apr                                                                                                                                                      | 0                             | 0 | 1 | 0 | 1 | 5  | 2  | 3  | 2  | 2  | 2  | 1  | 2  | 0  | 1  | 2  | 1  | 0  | 0  | A  | 2  | 0  | 1  | 0                               | 1.4             |
| 20-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | 0  | 3  | 4  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | A  | 1  | 0  | 2  | 3  | 1                               | 1.2             |
| 21-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | 1  | 1  | 2  | C  | C  | C  | C  | 1  | 1  | 1  | 2  | 0  | A  | 1  | 0  | 0  | 0  | 0  | 0                               | 0.6             |
| 22-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                               | 0.4             |
| 23-Apr                                                                                                                                                      | 0                             | 0 | 2 | 0 | 0 | 0  | 2  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 3  | A  | 5  | 1  | 0  | 0  | 4  | 2  | 1  | 1                               | 1.2             |
| 24-Apr                                                                                                                                                      | 3                             | 1 | 0 | 0 | 0 | 7  | 5  | 9  | 3  | 5  | 4  | 2  | 1  | 1  | A  | 3  | 1  | 3  | 2  | 3  | 0  | 0  | 1  | 0                               | 2.4             |
| 25-Apr                                                                                                                                                      | 0                             | 0 | 0 | 2 | 1 | 1  | 14 | 11 | 9  | 4  | 5  | 3  | 2  | A  | 1  | 3  | 2  | 4  | 1  | 4  | 1  | 0  | 0  | 0                               | 3.1             |
| 26-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | 0  | 1  | 2  | 1  | 1  | 1  | 1  | A  | 1  | 6  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                               | 0.8             |
| 27-Apr                                                                                                                                                      | 0                             | 1 | 2 | 2 | 0 | 6  | 19 | 11 | 9  | 4  | 3  | A  | 59 | 1  | 19 | 0  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                               | 6.1             |
| 28-Apr                                                                                                                                                      | 0                             | 0 | 0 | 0 | 1 | 2  | 8  | 12 | 4  | 1  | A  | 3  | 8  | 2  | 2  | 2  | 1  | 2  | 4  | 1  | 1  | 1  | 0  | 0                               | 2.6             |
| 29-Apr                                                                                                                                                      | 0                             | 0 | 0 | 1 | 5 | 22 | 20 | 15 | 7  | A  | 2  | 2  | 1  | 2  | 1  | 1  | 2  | 1  | 0  | 0  | 1  | 2  | 0  | 0                               | 3.9             |
| 30-Apr                                                                                                                                                      | 0                             | 1 | 0 | 0 | 0 | 1  | 4  | 2  | A  | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                               | 0.9             |
| 0.7 0.5 0.5 0.6 1.1 3.4 8.9 10.3 5.2 3.5 3.4 2.7 4.4 1.8 3.1 1.9 2.0 1.8 1.4 1.5 1.1 1.0 1.4 1.2                                                            |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 | Diurnal Average |
| 7.9 2.7 2.5 3.3 5.2 22.2 32.1 51.6 19.9 7.5 6.5 6.5 58.8 6.3 19.2 3.8 5.3 4.0 3.8 6.5 3.8 8.5 14.4 19.0                                                     |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 | Diurnal Maximum |
| C - Calibration A - Automated Daily Zero Span                                                                                                               |                               |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |

## Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Henry Pirker - April 2011



## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

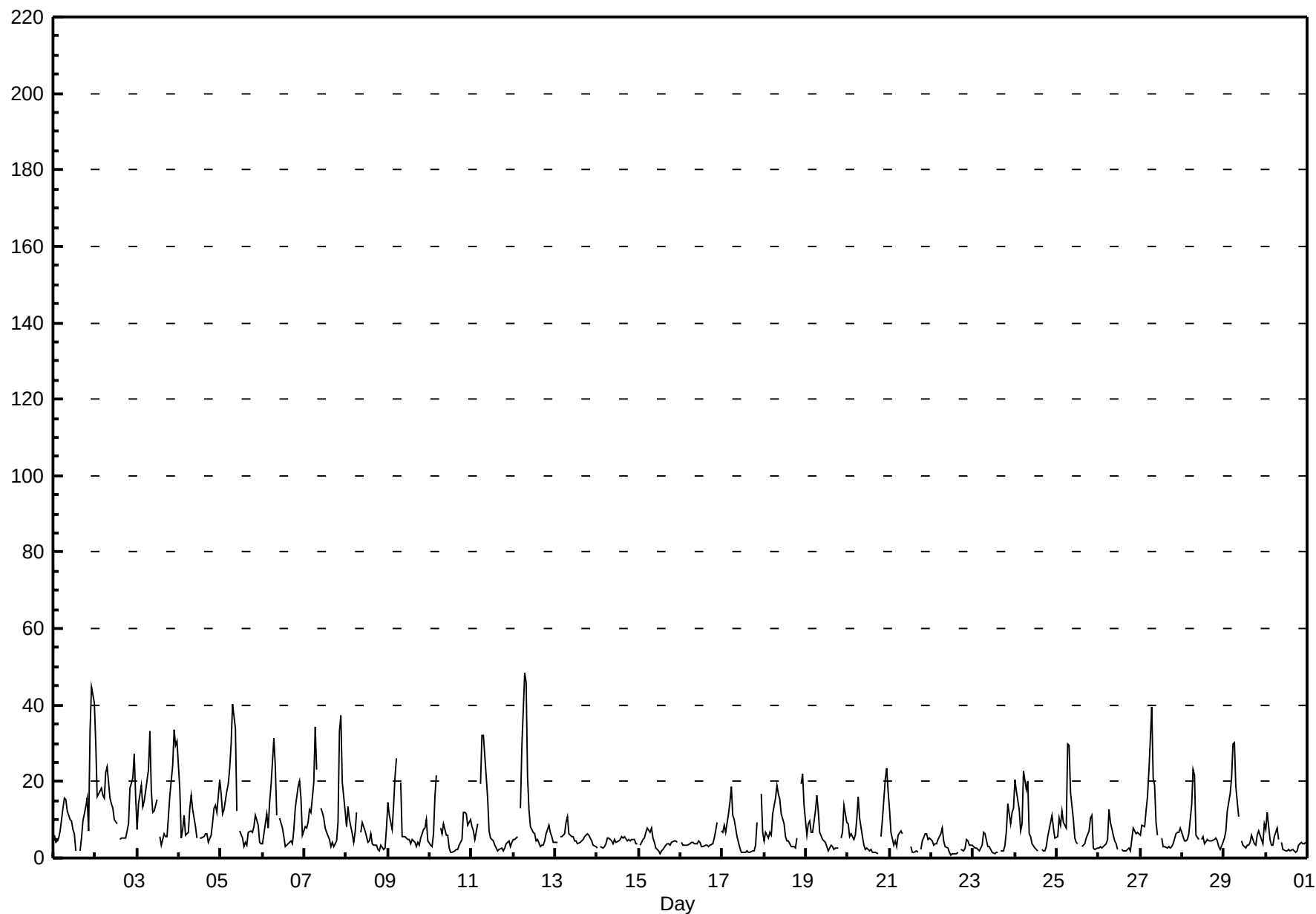
Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 48.6 ppb on Apr 12 07:00 Maximum Daily Average: 16.1 ppb on Apr 3                                                                                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |               |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|---|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Minimum Value: 1 ppb on Apr 22 12:00 Minimum Daily Average: 3.2 ppb on Apr 22<br>Maximum Diurnal Average: 18.5 ppb at hour 7 Minimum Diurnal Average: 3.1 ppb at hour 14<br>Monthly Average: 8.15 ppb Percentiles: P <sub>1</sub> = 1.3 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 3.5 Median = 5.4 Q <sub>3</sub> = 10.2 P <sub>90</sub> = 17.7 P <sub>99</sub> = 36.4 |                               |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |                                                                                                                                         |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                                 | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |                                                                                                                                         | Daily Average | Daily Maximum |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                               | 6                             | 4  | 4  | 5  | 7  | 13 | 15 | 15 | 12 | 10 | 10 | 8  | 6 | 2 | A | 2 | 5 | 10 | 13 | 15 | 7  | 33 | 45 | 41                                                                                                                                      | 12.6          | 44.7          |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                               | 30                            | 16 | 17 | 18 | 16 | 16 | 23 | 24 | 16 | 14 | 13 | 10 | 9 | A | 5 | 5 | 5 | 5  | 7  | 9  | 18 | 21 | 27 | 16                                                                                                                                      | 14.8          | 30.2          |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                               | 8                             | 14 | 19 | 13 | 15 | 18 | 23 | 33 | 17 | 12 | 12 | 15 | A | 5 | 3 | 6 | 6 | 6  | 11 | 16 | 24 | 34 | 29 | 30                                                                                                                                      | 16.1          | 33.5          |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                               | 18                            | 5  | 7  | 11 | 6  | 7  | 13 | 16 | 13 | 8  | 5  | A  | 5 | 5 | 6 | 6 | 6 | 4  | 6  | 9  | 13 | 14 | 12 | 21                                                                                                                                      | 9.5           | 20.6          |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                               | 17                            | 11 | 13 | 18 | 19 | 24 | 30 | 40 | 34 | 12 | A  | 7  | 5 | 3 | 4 | 3 | 7 | 7  | 7  | 8  | 11 | 8  | 4  | 4                                                                                                                                       | 12.9          | 40.2          |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                               | 4                             | 6  | 11 | 8  | 14 | 19 | 31 | 24 | 11 | A  | 10 | 8  | 5 | 3 | 3 | 4 | 4 | 4  | 7  | 13 | 19 | 20 | 16 | 6                                                                                                                                       | 10.9          | 31.4          |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                               | 8                             | 8  | 9  | 13 | 12 | 20 | 34 | 23 | A  | 13 | 12 | 10 | 8 | 7 | 5 | 3 | 4 | 3  | 4  | 9  | 33 | 37 | 20 | 12                                                                                                                                      | 13.4          | 37.2          |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                               | 8                             | 13 | 10 | 6  | 4  | 7  | 12 | A  | 7  | 9  | 8  | 7  | 4 | 4 | 6 | 4 | 3 | 3  | 2  | 2  | 3  | 2  | 3  | 8                                                                                                                                       | 6.0           | 13.3          |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                               | 15                            | 11 | 8  | 14 | 21 | 26 | A  | 20 | 5  | 6  | 6  | 5  | 5 | 4 | 5 | 4 | 3 | 4  | 3  | 5  | 7  | 8  | 10 | 5                                                                                                                                       | 8.7           | 26.0          |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                              | 3                             | 3  | 6  | 16 | 22 | A  | 8  | 6  | 9  | 6  | 6  | 3  | 1 | 2 | 2 | 2 | 2 | 3  | 5  | 12 | 12 | 12 | 9  | 10                                                                                                                                      | 7.0           | 21.6          |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                              | 8                             | 7  | 5  | 9  | A  | 20 | 32 | 32 | 21 | 16 | 7  | 5  | 4 | 3 | 3 | 2 | 2 | 2  | 2  | 3  | 4  | 4  | 3  | 4                                                                                                                                       | 8.7           | 32.2          |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                              | 5                             | 5  | 6  | A  | 13 | 29 | 49 | 46 | 21 | 13 | 8  | 7  | 6 | 4 | 5 | 3 | 3 | 3  | 4  | 6  | 9  | 7  | 5  | 4                                                                                                                                       | 11.4          | 48.6          |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                              | 4                             | 4  | A  | 6  | 5  | 6  | 10 | 11 | 6  | 6  | 6  | 5  | 4 | 4 | 4 | 4 | 5 | 5  | 6  | 6  | 5  | 4  | 3  | 3                                                                                                                                       | 5.3           | 10.6          |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                              | 3                             | A  | 3  | 3  | 3  | 4  | 5  | 5  | 4  | 4  | 5  | 4  | 5 | 5 | 6 | 5 | 6 | 5  | 5  | 5  | 5  | 5  | 4  | 4                                                                                                                                       | 4.3           | 5.6           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                              | A                             | 3  | 5  | 5  | 7  | 8  | 7  | 8  | 5  | 4  | 2  | 2  | 1 | 2 | 2 | 3 | 4 | 4  | 3  | 4  | 4  | 4  | 4  | A                                                                                                                                       | 4.2           | 7.9           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                              | 4                             | 3  | 3  | 4  | 3  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 3 | 3 | 3 | 3 | 3 | 3  | 4  | 5  | 7  | 9  | A  | 7                                                                                                                                       | 4.2           | 9.5           |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                              | 7                             | 9  | 7  | 12 | 15 | 18 | 11 | 10 | 5  | 4  | 3  | 1  | 2 | 1 | 2 | 2 | 2 | 2  | 2  | 3  | 9  | A  | 17 | 7                                                                                                                                       | 6.5           | 18.5          |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                              | 4                             | 7  | 5  | 7  | 6  | 12 | 16 | 19 | 17 | 15 | 12 | 9  | 5 | 4 | 4 | 3 | 3 | 3  | 3  | 5  | A  | 19 | 22 | 14                                                                                                                                      | 9.3           | 21.8          |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                              | 6                             | 9  | 10 | 7  | 7  | 12 | 16 | 12 | 7  | 5  | 4  | 4  | 3 | 2 | 3 | 3 | 2 | 3  | 3  | A  | 5  | 7  | 14 | 9                                                                                                                                       | 6.6           | 16.3          |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                              | 9                             | 6  | 6  | 5  | 6  | 10 | 16 | 11 | 5  | 3  | 2  | 2  | 2 | 2 | 1 | 1 | 1 | 1  | A  | 6  | 10 | 20 | 24 | 18                                                                                                                                      | 7.3           | 23.5          |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                              | 13                            | 7  | 4  | 4  | 3  | 6  | 7  | 6  | C  | C  | C  | C  | 3 | 2 | 1 | 2 | 2 | A  | 2  | 5  | 6  | 6  | 5  | 5                                                                                                                                       | 4.6           | 12.8          |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                              | 5                             | 3  | 4  | 4  | 5  | 6  | 8  | 4  | 3  | 2  | 2  | 1  | 1 | 1 | 1 | 1 | A | 2  | 2  | 3  | 5  | 4  | 3  | 3                                                                                                                                       | 3.2           | 8.0           |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                              | 3                             | 3  | 2  | 2  | 3  | 3  | 7  | 6  | 3  | 3  | 2  | 1  | 1 | 1 | 2 | A | 2 | 2  | 3  | 7  | 14 | 9  | 12 | 13                                                                                                                                      | 4.6           | 14.1          |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                              | 21                            | 17 | 13 | 7  | 9  | 23 | 18 | 20 | 6  | 6  | 4  | 3  | 2 | 2 | A | 2 | 2 | 2  | 3  | 6  | 9  | 11 | 8  | 5                                                                                                                                       | 8.6           | 22.6          |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                              | 5                             | 10 | 8  | 12 | 9  | 8  | 30 | 30 | 17 | 10 | 5  | 4  | 4 | A | 3 | 3 | 4 | 5  | 7  | 10 | 11 | 2  | 2  | 3                                                                                                                                       | 8.9           | 29.9          |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                              | 3                             | 3  | 3  | 3  | 4  | 5  | 13 | 9  | 6  | 4  | 4  | 2  | A | 2 | 2 | 2 | 2 | 3  | 2  | 5  | 8  | 6  | 7  | 6                                                                                                                                       | 4.5           | 12.8          |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                              | 6                             | 8  | 8  | 12 | 16 | 23 | 40 | 21 | 19 | 9  | 6  | A  | 5 | 3 | 3 | 3 | 3 | 3  | 3  | 4  | 6  | 7  | 7  | 8                                                                                                                                       | 9.7           | 39.6          |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                              | 6                             | 5  | 4  | 5  | 6  | 14 | 23 | 22 | 6  | 5  | A  | 5  | 5 | 4 | 5 | 4 | 4 | 4  | 5  | 5  | 5  | 3  | 2  | 4                                                                                                                                       | 6.6           | 23.2          |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                              | 5                             | 7  | 12 | 17 | 21 | 30 | 30 | 19 | 11 | A  | 4  | 3  | 3 | 3 | 3 | 4 | 6 | 4  | 3  | 6  | 7  | 5  | 4  | 9                                                                                                                                       | 9.4           | 30.0          |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                              | 8                             | 12 | 5  | 3  | 3  | 6  | 8  | 5  | A  | 4  | 2  | 2  | 2 | 2 | 2 | 2 | 2 | 2  | 2  | 3  | 4  | 4  | 4  | 4                                                                                                                                       | 3.9           | 11.9          |
| 8.3 7.6 7.5 8.6 9.7 13.6 18.5 17.3 10.8 7.7 6.1 5.1 4.0 3.1 3.4 3.3 3.6 3.7 4.5 6.8 9.7 11.3 11.1 9.7<br>30.2 17.4 19.0 18.3 21.6 29.7 48.6 45.7 33.9 15.8 13.0 15.2 8.9 6.8 6.2 6.5 6.6 9.7 13.3 16.4 33.3 37.2 44.7 40.7                                                                                                                                          |                               |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    | Diurnal Average                                                                                                                         |               |               |
|                                                                                                                                                                                                                                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    | Diurnal Maximum                                                                                                                         |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                                                                                                                                                                                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |   |   |   |   |   |    |    |    |    |    |    |                                                                                                                                         |               |               |

## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - April 2011



## Hourly Maximums

Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Henry Pirker - April 2011

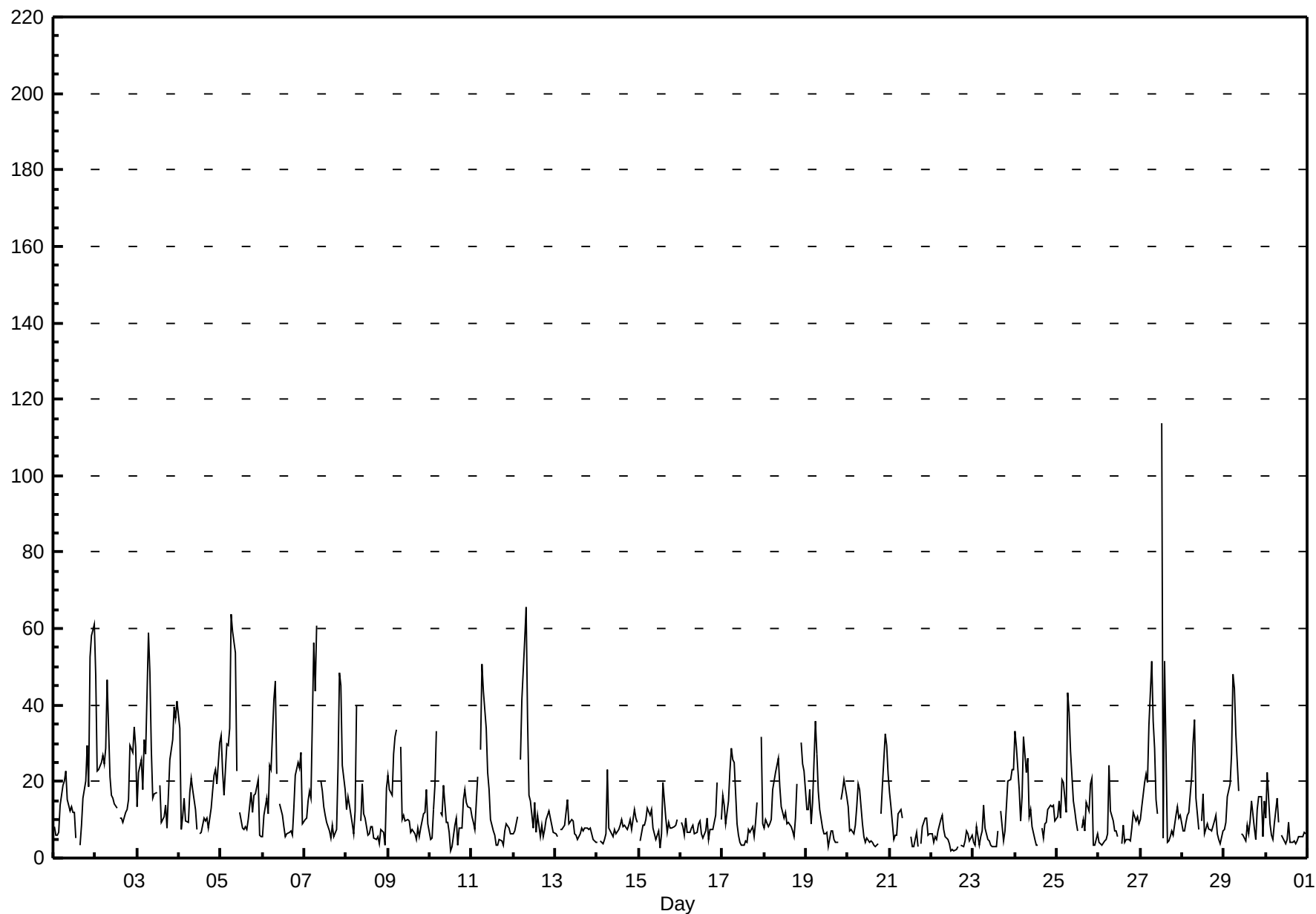
| Maximum Value: 113.6 ppb on Apr 27 13:00                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |                 |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|---------------------------------|-----------------|-------|
| Maximum Daily Average: 25.0 ppb on Apr 3                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Hours of Data: 685              |                 |       |
| Minimum Value: 2 ppb on Apr 22 12:00                                                                                                                          |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 35       |                 |       |
| Maximum Diurnal Average: 29.3 ppb at hour 7                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 35        |                 |       |
| Monthly Average: 13.63 ppb                                                                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |                 |       |
| Minimum Daily Average: 5.1 ppb on Apr 22                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Daily<br>Average                |                 |       |
| Minimum Diurnal Average: 6.2 ppb at hour 14                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |                                 |                 |       |
| Percentiles: P <sub>1</sub> = 2.8 P <sub>10</sub> = 4.5 Q <sub>1</sub> = 6.5 Median = 9.5 Q <sub>3</sub> = 16.9 P <sub>90</sub> = 28.4 P <sub>99</sub> = 58.6 |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | Daily<br>Maximum                |                 |       |
| Day                                                                                                                                                           | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |                                 |                 |       |
|                                                                                                                                                               | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |                 |       |
| 1-Apr                                                                                                                                                         | 8                             | 6  | 6  | 7  | 14 | 19 | 20 | 23 | 15 | 12 | 14 | 12 | 12  | 5  | A  | 4  | 9  | 16 | 20 | 29 | 19 | 53 | 58 | 61                              | 19.2            | 61.3  |
| 2-Apr                                                                                                                                                         | 48                            | 23 | 23 | 25 | 27 | 25 | 29 | 47 | 21 | 17 | 16 | 14 | 13  | A  | 10 | 10 | 9  | 12 | 13 | 15 | 29 | 28 | 34 | 29                              | 22.5            | 47.5  |
| 3-Apr                                                                                                                                                         | 13                            | 22 | 26 | 18 | 31 | 27 | 59 | 49 | 28 | 16 | 17 | 17 | A   | 19 | 9  | 11 | 14 | 8  | 17 | 26 | 31 | 40 | 37 | 41                              | 25.0            | 58.8  |
| 4-Apr                                                                                                                                                         | 34                            | 7  | 11 | 16 | 10 | 9  | 17 | 21 | 18 | 13 | 7  | A  | 7   | 7  | 11 | 10 | 11 | 8  | 13 | 17 | 22 | 23 | 19 | 30                              | 14.8            | 34.0  |
| 5-Apr                                                                                                                                                         | 32                            | 23 | 17 | 30 | 29 | 34 | 64 | 59 | 54 | 23 | A  | 12 | 8   | 7  | 8  | 7  | 10 | 17 | 12 | 17 | 17 | 20 | 6  | 6                               | 22.2            | 63.8  |
| 6-Apr                                                                                                                                                         | 6                             | 11 | 16 | 11 | 24 | 23 | 42 | 46 | 22 | A  | 14 | 11 | 8   | 6  | 6  | 7  | 7  | 6  | 13 | 22 | 25 | 24 | 28 | 9                               | 16.8            | 46.2  |
| 7-Apr                                                                                                                                                         | 10                            | 10 | 15 | 18 | 16 | 56 | 44 | 61 | A  | 20 | 17 | 13 | 11  | 9  | 7  | 5  | 9  | 5  | 7  | 24 | 49 | 45 | 24 | 18                              | 21.5            | 60.7  |
| 8-Apr                                                                                                                                                         | 13                            | 16 | 14 | 9  | 7  | 12 | 40 | A  | 10 | 20 | 11 | 11 | 6   | 7  | 8  | 8  | 5  | 5  | 6  | 4  | 7  | 7  | 4  | 18                              | 10.7            | 40.0  |
| 9-Apr                                                                                                                                                         | 21                            | 18 | 16 | 27 | 32 | 33 | A  | 29 | 10 | 11 | 10 | 10 | 10  | 7  | 8  | 6  | 5  | 8  | 6  | 8  | 12 | 12 | 18 | 9                               | 14.1            | 33.4  |
| 10-Apr                                                                                                                                                        | 5                             | 5  | 13 | 19 | 33 | A  | 12 | 11 | 19 | 9  | 9  | 7  | 2   | 3  | 8  | 11 | 4  | 8  | 8  | 15 | 18 | 14 | 13 | 13                              | 11.3            | 33.0  |
| 11-Apr                                                                                                                                                        | 11                            | 9  | 8  | 21 | A  | 28 | 51 | 43 | 34 | 23 | 18 | 10 | 7   | 6  | 4  | 4  | 5  | 4  | 4  | 7  | 9  | 8  | 7  | 6                               | 14.1            | 50.7  |
| 12-Apr                                                                                                                                                        | 7                             | 7  | 11 | A  | 26 | 41 | 57 | 66 | 36 | 16 | 15 | 8  | 14  | 7  | 11 | 6  | 9  | 5  | 8  | 10 | 12 | 11 | 9  | 7                               | 17.3            | 65.7  |
| 13-Apr                                                                                                                                                        | 6                             | 6  | A  | 8  | 8  | 9  | 12 | 15 | 9  | 10 | 10 | 7  | 6   | 5  | 6  | 8  | 7  | 8  | 8  | 7  | 8  | 7  | 5  | 4                               | 7.7             | 15.2  |
| 14-Apr                                                                                                                                                        | 4                             | A  | 4  | 4  | 5  | 6  | 23 | 8  | 6  | 5  | 7  | 7  | 8   | 9  | 10 | 8  | 9  | 7  | 8  | 10 | 8  | 13 | 10 | 9                               | 8.2             | 23.1  |
| 15-Apr                                                                                                                                                        | A                             | 5  | 9  | 9  | 10 | 13 | 11 | 13 | 8  | 6  | 5  | 7  | 3   | 6  | 20 | 11 | 7  | 9  | 8  | 8  | 8  | 8  | 10 | A                               | 8.7             | 19.7  |
| 16-Apr                                                                                                                                                        | 9                             | 8  | 6  | 10 | 7  | 7  | 8  | 9  | 6  | 7  | 9  | 10 | 6   | 5  | 7  | 10 | 5  | 8  | 7  | 9  | 11 | 20 | A  | 10                              | 8.4             | 19.6  |
| 17-Apr                                                                                                                                                        | 16                            | 14 | 9  | 15 | 23 | 29 | 26 | 25 | 9  | 6  | 4  | 3  | 3   | 4  | 4  | 7  | 7  | 8  | 6  | 9  | 14 | A  | 32 | 9                               | 12.3            | 31.9  |
| 18-Apr                                                                                                                                                        | 8                             | 10 | 8  | 9  | 10 | 18 | 22 | 24 | 26 | 19 | 14 | 11 | 12  | 9  | 9  | 8  | 7  | 6  | 11 | 19 | A  | 30 | 25 | 23                              | 14.6            | 30.2  |
| 19-Apr                                                                                                                                                        | 13                            | 13 | 18 | 9  | 15 | 36 | 27 | 18 | 13 | 8  | 6  | 6  | 7   | 3  | 7  | 7  | 5  | 4  | 4  | A  | 15 | 17 | 21 | 16                              | 12.4            | 35.9  |
| 20-Apr                                                                                                                                                        | 14                            | 7  | 8  | 7  | 8  | 14 | 20 | 18 | 9  | 6  | 4  | 5  | 4   | 5  | 4  | 3  | 3  | 4  | A  | 12 | 19 | 32 | 30 | 22                              | 11.1            | 32.4  |
| 21-Apr                                                                                                                                                        | 17                            | 14 | 5  | 6  | 6  | 12 | 13 | 10 | C  | C  | C  | C  | 6   | 3  | 3  | 7  | 3  | A  | 4  | 8  | 11 | 11 | 6  | 6                               | 7.9             | 17.1  |
| 22-Apr                                                                                                                                                        | 7                             | 4  | 6  | 5  | 7  | 10 | 11 | 8  | 5  | 5  | 4  | 2  | 2   | 2  | 2  | 3  | A  | 4  | 3  | 4  | 7  | 7  | 4  | 6                               | 5.1             | 11.0  |
| 23-Apr                                                                                                                                                        | 4                             | 4  | 8  | 4  | 5  | 7  | 14 | 8  | 5  | 4  | 4  | 3  | 3   | 3  | 7  | A  | 12 | 4  | 7  | 14 | 20 | 21 | 23 | 23                              | 9.0             | 23.2  |
| 24-Apr                                                                                                                                                        | 33                            | 29 | 18 | 10 | 16 | 32 | 22 | 26 | 11 | 13 | 8  | 5  | 3   | 4  | A  | 8  | 5  | 9  | 9  | 13 | 14 | 14 | 14 | 10                              | 14.1            | 33.2  |
| 25-Apr                                                                                                                                                        | 11                            | 15 | 11 | 20 | 20 | 12 | 43 | 38 | 28 | 15 | 12 | 9  | 7   | A  | 8  | 10 | 7  | 15 | 12 | 19 | 21 | 4  | 4  | 7                               | 15.1            | 43.1  |
| 26-Apr                                                                                                                                                        | 4                             | 4  | 3  | 4  | 5  | 6  | 24 | 12 | 10 | 7  | 7  | 5  | A   | 4  | 9  | 4  | 5  | 5  | 4  | 8  | 12 | 10 | 11 | 9                               | 7.5             | 24.1  |
| 27-Apr                                                                                                                                                        | 10                            | 14 | 20 | 22 | 20 | 35 | 51 | 36 | 29 | 15 | 11 | A  | 114 | 5  | 52 | 4  | 4  | 5  | 7  | 6  | 11 | 13 | 11 | 11                              | 22.0            | 113.6 |
| 28-Apr                                                                                                                                                        | 7                             | 7  | 9  | 11 | 12 | 21 | 30 | 36 | 16 | 8  | A  | 10 | 17  | 6  | 9  | 7  | 8  | 7  | 10 | 11 | 6  | 5  | 4  | 7                               | 11.5            | 36.1  |
| 29-Apr                                                                                                                                                        | 7                             | 9  | 16 | 20 | 27 | 48 | 45 | 32 | 18 | A  | 6  | 6  | 4   | 9  | 7  | 10 | 15 | 8  | 5  | 13 | 16 | 16 | 5  | 15                              | 15.5            | 48.0  |
| 30-Apr                                                                                                                                                        | 11                            | 22 | 9  | 6  | 5  | 9  | 16 | 9  | A  | 6  | 5  | 4  | 5   | 9  | 4  | 4  | 4  | 4  | 4  | 5  | 6  | 5  | 7  | 7                               | 7.2             | 22.4  |
| 13.4 11.7 11.7 13.0 15.7 21.8 29.3 27.6 17.6 11.8 9.8 8.3 11.0 6.2 9.2 7.2 7.1 7.5 8.4 12.7 15.7 17.8 16.4 15.2                                               |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |                                 | Diurnal Average |       |
| 47.5 29.1 25.6 30.0 33.0 56.5 63.8 65.7 53.7 22.9 18.0 17.3 113.6 18.9 51.6 10.8 14.9 17.1 20.0 29.3 48.5 52.6 58.1 61.3                                      |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |                                 | Diurnal Maximum |       |
| C - Calibration A - Automated Daily Zero Span                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |                                 |                 |       |



## Hourly Maximums

Oxides of Nitrogen ( $\text{NO}_x$ ) - ppb

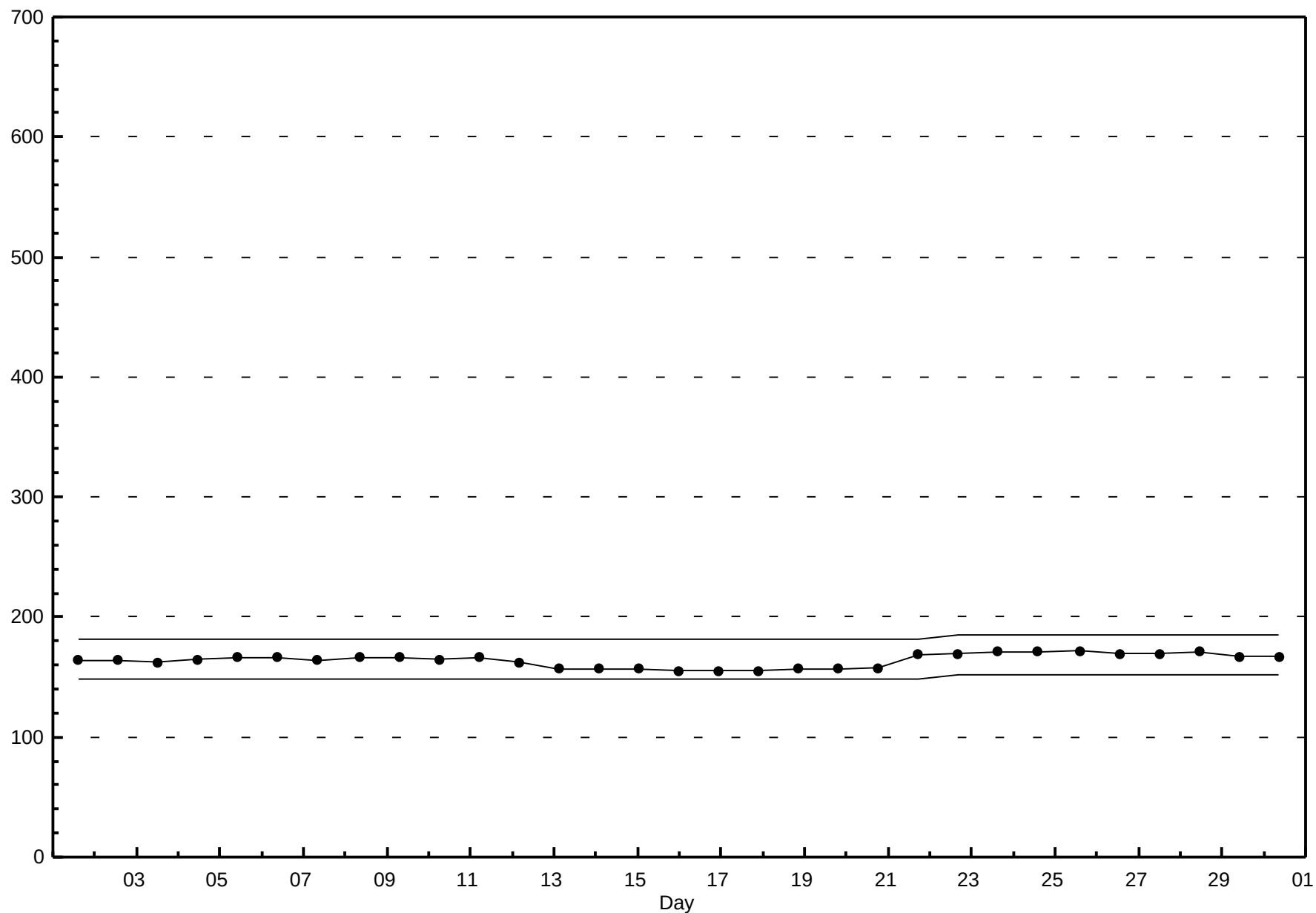
Henry Pirker - April 2011



## Span Responses

Oxides of Nitrogen ( $\text{NO}_x$ )

Henry Pirker - April 2011



# Hourly Averages

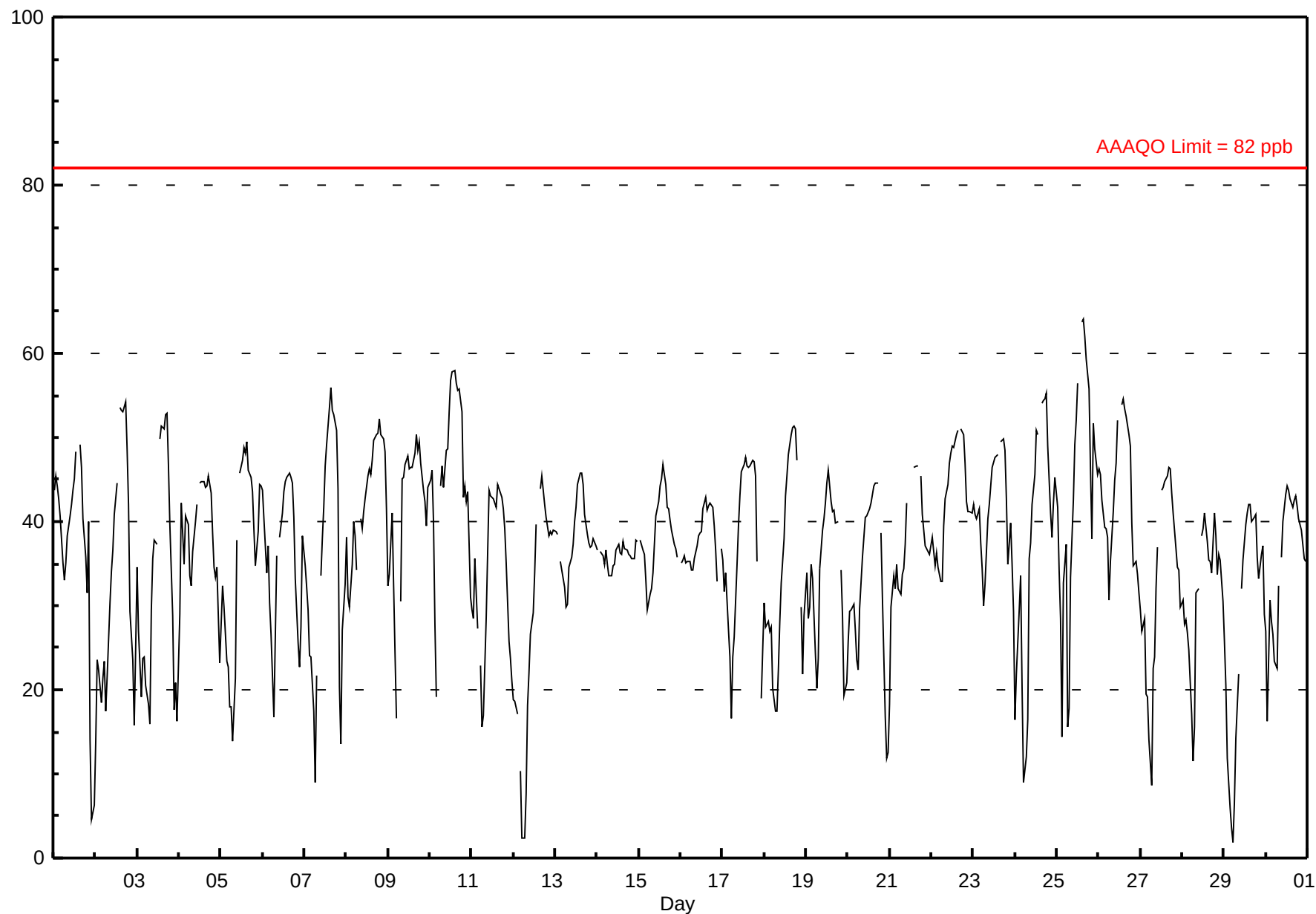
Ozone (O<sub>3</sub>) - ppb

Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 64.0 ppb on Apr 25 16:00 Maximum Daily Average: 46.1 ppb on Apr 10                                                                                                                                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |               |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Minimum Value: 2 ppb on Apr 29 06:00 Minimum Daily Average: 27.7 ppb on Apr 29<br>Maximum Diurnal Average: 47.4 ppb at hour 16 Minimum Diurnal Average: 22.7 ppb at hour 7<br>Monthly Average: 36.56 ppb Percentiles: P <sub>1</sub> = 6.0 P <sub>10</sub> = 20.9 Q <sub>1</sub> = 30.6 Median = 37.8 Q <sub>3</sub> = 44.2 P <sub>90</sub> = 48.8 P <sub>99</sub> = 56.4 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                                       | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         | Daily Average | Daily Maximum |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                                     | 44                            | 45 | 44 | 43 | 41 | 35 | 33 | 35 | 38 | 41 | 42 | 44 | 45 | 48 | A  | 49 | 46 | 40 | 36 | 32 | 40 | 14 | 5  | 6                                                                                                                                       | 36.8          | 49.2          |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                                     | 14                            | 24 | 22 | 18 | 21 | 23 | 17 | 21 | 30 | 34 | 37 | 41 | 45 | A  | 54 | 53 | 53 | 54 | 49 | 42 | 29 | 24 | 16 | 25                                                                                                                                      | 32.5          | 54.3          |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                                     | 35                            | 27 | 19 | 24 | 24 | 21 | 18 | 16 | 30 | 36 | 38 | 37 | A  | 50 | 51 | 51 | 53 | 53 | 47 | 40 | 29 | 18 | 21 | 16                                                                                                                                      | 32.7          | 52.9          |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                                     | 29                            | 42 | 39 | 35 | 41 | 40 | 33 | 32 | 36 | 40 | 42 | A  | 45 | 45 | 45 | 44 | 44 | 45 | 43 | 39 | 35 | 33 | 35 | 23                                                                                                                                      | 38.5          | 45.5          |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                                     | 28                            | 32 | 30 | 23 | 23 | 18 | 18 | 14 | 21 | 38 | A  | 46 | 47 | 49 | 48 | 50 | 46 | 45 | 44 | 39 | 35 | 39 | 44 | 44                                                                                                                                      | 35.7          | 49.5          |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                                     | 44                            | 40 | 34 | 37 | 30 | 27 | 17 | 26 | 36 | A  | 38 | 41 | 44 | 45 | 45 | 46 | 45 | 45 | 40 | 33 | 26 | 23 | 27 | 38                                                                                                                                      | 36.0          | 45.7          |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                                     | 35                            | 32 | 30 | 24 | 24 | 18 | 9  | 22 | A  | 34 | 38 | 42 | 47 | 49 | 54 | 56 | 53 | 53 | 51 | 44 | 20 | 13 | 27 | 33                                                                                                                                      | 35.0          | 56.0          |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                                     | 38                            | 31 | 30 | 35 | 40 | 38 | 34 | A  | 40 | 39 | 41 | 43 | 45 | 46 | 46 | 47 | 50 | 50 | 50 | 52 | 50 | 50 | 48 | 42                                                                                                                                      | 42.9          | 52.2          |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                                     | 32                            | 34 | 41 | 32 | 24 | 17 | A  | 31 | 45 | 45 | 47 | 48 | 46 | 46 | 46 | 48 | 50 | 48 | 49 | 47 | 44 | 42 | 39 | 44                                                                                                                                      | 41.2          | 50.3          |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                                    | 45                            | 46 | 40 | 28 | 19 | A  | 44 | 47 | 44 | 48 | 49 | 53 | 57 | 58 | 58 | 56 | 56 | 56 | 53 | 43 | 44 | 42 | 44 | 31                                                                                                                                      | 46.1          | 58.0          |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                                    | 30                            | 28 | 36 | 27 | A  | 23 | 16 | 17 | 29 | 36 | 44 | 43 | 43 | 42 | 42 | 44 | 44 | 43 | 41 | 39 | 35 | 26 | 24 | 21                                                                                                                                      | 33.6          | 44.5          |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                                    | 19                            | 19 | 17 | A  | 10 | 2  | 2  | 8  | 18 | 22 | 27 | 29 | 34 | 40 | C  | 44 | 45 | 44 | 42 | 41 | 38 | 39 | 39 | 39                                                                                                                                      | 28.0          | 45.5          |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                                    | 39                            | 38 | A  | 35 | 34 | 32 | 30 | 30 | 35 | 36 | 37 | 40 | 42 | 44 | 46 | 46 | 44 | 41 | 39 | 37 | 37 | 37 | 38 | 37                                                                                                                                      | 38.0          | 45.8          |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                                    | 37                            | A  | 36 | 36 | 35 | 37 | 35 | 33 | 34 | 35 | 35 | 37 | 37 | 36 | 36 | 38 | 37 | 37 | 36 | 36 | 36 | 36 | 38 | 38                                                                                                                                      | 36.0          | 37.8          |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                                    | A                             | 38 | 37 | 36 | 33 | 29 | 31 | 32 | 34 | 37 | 41 | 42 | 44 | 45 | 47 | 44 | 42 | 42 | 40 | 39 | 37 | 37 | 36 | A                                                                                                                                       | 38.4          | 46.7          |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                                    | 35                            | 35 | 36 | 35 | 35 | 35 | 34 | 34 | 36 | 37 | 38 | 39 | 39 | 42 | 43 | 41 | 42 | 42 | 42 | 39 | 37 | 33 | A  | 37                                                                                                                                      | 37.7          | 42.8          |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                                    | 35                            | 32 | 34 | 27 | 24 | 17 | 24 | 26 | 35 | 39 | 43 | 46 | 47 | 48 | 47 | 46 | 47 | 47 | 47 | 45 | 35 | A  | 19 | 25                                                                                                                                      | 36.3          | 47.7          |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                                    | 30                            | 28 | 28 | 27 | 28 | 20 | 17 | 18 | 22 | 28 | 33 | 38 | 43 | 45 | 48 | 50 | 51 | 51 | 51 | 47 | A  | 30 | 22 | 29                                                                                                                                      | 34.1          | 51.3          |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                                    | 34                            | 28 | 30 | 35 | 33 | 24 | 20 | 24 | 34 | 39 | 40 | 42 | 45 | 46 | 42 | 41 | 41 | 40 | 40 | A  | 34 | 29 | 19 | 21                                                                                                                                      | 34.1          | 46.1          |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                                    | 26                            | 29 | 29 | 30 | 27 | 24 | 22 | 30 | 36 | 38 | 40 | 41 | 42 | 42 | 43 | 44 | 45 | 45 | A  | 39 | 31 | 17 | 12 | 13                                                                                                                                      | 32.3          | 44.6          |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                                    | 18                            | 30 | 33 | 32 | 35 | 32 | 31 | 34 | 34 | 37 | 42 | C  | C  | C  | 46 | 47 | 47 | A  | 45 | 41 | 37 | 37 | 37 | 36                                                                                                                                      | 36.6          | 46.6          |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                                    | 38                            | 36 | 35 | 36 | 35 | 33 | 33 | 39 | 43 | 44 | 47 | 48 | 49 | 49 | 50 | 51 | A  | 51 | 50 | 47 | 42 | 41 | 41 | 41                                                                                                                                      | 42.6          | 51.0          |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                                    | 42                            | 41 | 40 | 42 | 38 | 34 | 30 | 33 | 40 | 42 | 44 | 46 | 48 | 48 | 48 | A  | 49 | 50 | 48 | 43 | 35 | 40 | 35 | 29                                                                                                                                      | 41.1          | 49.8          |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                                    | 16                            | 22 | 30 | 34 | 20 | 9  | 12 | 16 | 36 | 37 | 42 | 46 | 51 | 50 | A  | 54 | 54 | 55 | 55 | 49 | 41 | 38 | 42 | 45                                                                                                                                      | 37.2          | 55.3          |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                                    | 42                            | 34 | 28 | 14 | 33 | 37 | 16 | 18 | 33 | 43 | 49 | 52 | 57 | A  | 64 | 64 | 62 | 59 | 56 | 46 | 38 | 52 | 49 | 46                                                                                                                                      | 43.1          | 64.0          |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                                    | 46                            | 46 | 43 | 39 | 39 | 38 | 31 | 35 | 41 | 45 | 47 | 52 | A  | 54 | 55 | 53 | 53 | 50 | 49 | 40 | 35 | 35 | 34 | 31                                                                                                                                      | 43.1          | 54.6          |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                                    | 29                            | 27 | 28 | 20 | 19 | 14 | 9  | 23 | 24 | 32 | 37 | A  | 44 | 44 | 45 | 46 | 46 | 46 | 43 | 41 | 37 | 35 | 34 | 30                                                                                                                                      | 32.7          | 46.5          |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                                    | 31                            | 28 | 28 | 27 | 25 | 17 | 12 | 16 | 32 | A  | 38 | 39 | 41 | 38 | 35 | 35 | 34 | 41 | 38 | 34 | 36 | 35 | 31 |                                                                                                                                         | 31.4          | 41.0          |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                                    | 26                            | 20 | 12 | 6  | 4  | 2  | 7  | 14 | 22 | A  | 32 | 35 | 40 | 41 | 42 | 42 | 40 | 40 | 41 | 36 | 33 | 36 | 37 | 29                                                                                                                                      | 27.7          | 42.0          |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                                    | 27                            | 16 | 31 | 28 | 27 | 23 | 23 | 32 | A  | 36 | 40 | 43 | 44 | 44 | 43 | 42 | 43 | 43 | 42 | 40 | 39 | 37 | 36 | 35                                                                                                                                      | 35.4          | 44.2          |
| 32.5 32.1 31.7 29.9 28.3 24.8 22.7 26.1 33.5 37.5 40.3 42.7 44.6 45.8 47.0 47.4 47.0 46.6 45.2 41.2 36.0 33.4 32.1 31.5                                                                                                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                         |               |               |
| 46.3 46.1 44.3 42.7 40.7 39.6 44.3 46.5 45.0 48.4 49.2 53.1 56.8 57.7 63.7 64.0 62.0 59.2 55.7 52.2 50.4 51.7 48.6 45.6                                                                                                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                         |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                                                                                                                                                                                                                                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na                                                                                                                                                                                                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |

## Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - April 2011



## Hourly Maximums

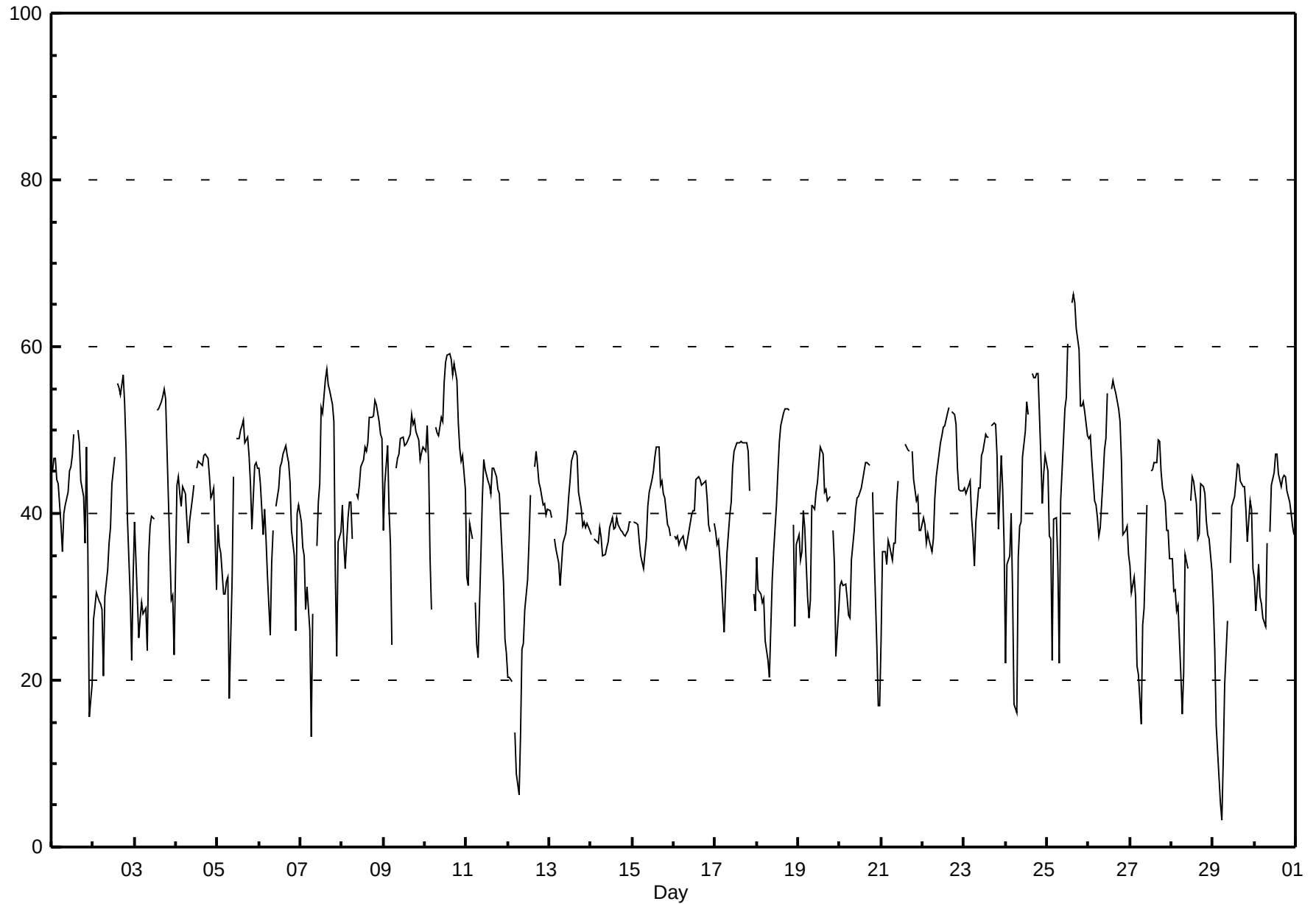
Ozone (O<sub>3</sub>) - ppb

Henry Pirker - April 2011

| Maximum Value: 66.3 ppb on Apr 25 16:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |                 |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------|-----------------|-----------------|
| Maximum Daily Average: 50.2 ppb on Apr 10                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 685              |                 |                 |
| Minimum Value: 3 ppb on Apr 29 06:00                                                                                                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 35       |                 |                 |
| Maximum Diurnal Average: 49.2 ppb at hour 16                                                                                                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 35        |                 |                 |
| Monthly Average: 40.17 ppb                                                                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |                 |                 |
| Minimum Daily Average: 30.8 ppb on Apr 12                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Daily<br>Average                |                 |                 |
| Minimum Diurnal Average: 28.2 ppb at hour 7                                                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |                 |
| Percentiles: P <sub>1</sub> = 13.1 P <sub>10</sub> = 28.3 Q <sub>1</sub> = 35.4 Median = 41.0 Q <sub>3</sub> = 46.7 P <sub>90</sub> = 51.1 P <sub>99</sub> = 59.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Daily<br>Maximum                |                 |                 |
| Day                                                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |                 |
|                                                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |                 |                 |
| 1-Apr                                                                                                                                                             | 45                            | 47 | 47 | 44 | 44 | 39 | 35 | 40 | 41 | 43 | 45 | 46 | 47 | 50 | A  | 50 | 49 | 44 | 42 | 36 | 48 | 35 | 16 | 19                              | 41.3            |                 |
| 2-Apr                                                                                                                                                             | 27                            | 29 | 30 | 29 | 29 | 28 | 21 | 30 | 33 | 37 | 38 | 44 | 47 | A  | 56 | 55 | 54 | 57 | 53 | 48 | 39 | 30 | 22 | 32                              | 37.8            |                 |
| 3-Apr                                                                                                                                                             | 39                            | 34 | 25 | 27 | 29 | 28 | 29 | 23 | 35 | 38 | 40 | 39 | A  | 52 | 52 | 53 | 54 | 55 | 54 | 47 | 35 | 30 | 30 | 23                              | 38.0            |                 |
| 4-Apr                                                                                                                                                             | 43                            | 44 | 42 | 41 | 43 | 42 | 39 | 36 | 39 | 42 | 43 | A  | 45 | 46 | 46 | 46 | 47 | 47 | 47 | 44 | 42 | 42 | 43 | 31                              | 42.7            |                 |
| 5-Apr                                                                                                                                                             | 39                            | 36 | 35 | 30 | 30 | 32 | 32 | 18 | 32 | 44 | A  | 49 | 49 | 50 | 50 | 51 | 49 | 49 | 47 | 43 | 38 | 46 | 46 | 45                              | 41.0            |                 |
| 6-Apr                                                                                                                                                             | 45                            | 44 | 38 | 41 | 37 | 32 | 25 | 34 | 38 | A  | 41 | 43 | 46 | 46 | 47 | 48 | 47 | 46 | 44 | 38 | 35 | 26 | 40 | 41                              | 40.1            |                 |
| 7-Apr                                                                                                                                                             | 39                            | 36 | 35 | 28 | 31 | 26 | 13 | 28 | A  | 36 | 41 | 44 | 53 | 52 | 56 | 57 | 55 | 55 | 53 | 51 | 33 | 23 | 37 | 38                              | 40.0            |                 |
| 8-Apr                                                                                                                                                             | 41                            | 36 | 33 | 39 | 41 | 41 | 37 | A  | 42 | 42 | 43 | 46 | 46 | 48 | 48 | 49 | 52 | 52 | 52 | 54 | 53 | 51 | 50 | 49                              | 45.4            |                 |
| 9-Apr                                                                                                                                                             | 38                            | 44 | 48 | 41 | 36 | 24 | A  | 45 | 47 | 47 | 49 | 49 | 48 | 48 | 49 | 50 | 52 | 51 | 51 | 50 | 49 | 46 | 47 | 48                              | 45.9            |                 |
| 10-Apr                                                                                                                                                            | 48                            | 51 | 46 | 35 | 28 | A  | 50 | 50 | 49 | 52 | 51 | 56 | 58 | 59 | 59 | 59 | 57 | 58 | 56 | 51 | 48 | 46 | 47 | 43                              | 50.2            |                 |
| 11-Apr                                                                                                                                                            | 32                            | 31 | 39 | 37 | A  | 29 | 24 | 23 | 35 | 42 | 47 | 45 | 44 | 43 | 42 | 45 | 45 | 44 | 43 | 42 | 39 | 32 | 25 | 23                              | 37.1            |                 |
| 12-Apr                                                                                                                                                            | 20                            | 20 | 20 | A  | 14 | 9  | 6  | 13 | 24 | 24 | 28 | 32 | 37 | 42 | C  | 46 | 47 | 46 | 44 | 43 | 41 | 41 | 40 | 41                              | 30.8            |                 |
| 13-Apr                                                                                                                                                            | 40                            | 39 | A  | 37 | 36 | 34 | 31 | 34 | 36 | 38 | 39 | 42 | 44 | 46 | 47 | 47 | 47 | 42 | 40 | 38 | 39 | 38 | 39 | 38                              | 39.8            |                 |
| 14-Apr                                                                                                                                                            | 37                            | A  | 37 | 37 | 36 | 38 | 37 | 35 | 35 | 36 | 37 | 38 | 39 | 38 | 38 | 39 | 39 | 38 | 38 | 37 | 37 | 38 | 39 | 39                              | 37.6            |                 |
| 15-Apr                                                                                                                                                            | A                             | 39 | 39 | 39 | 37 | 35 | 33 | 35 | 37 | 41 | 43 | 44 | 45 | 47 | 48 | 48 | 43 | 44 | 42 | 42 | 39 | 38 | 37 | A                               | 40.7            |                 |
| 16-Apr                                                                                                                                                            | 37                            | 37 | 37 | 36 | 37 | 37 | 36 | 36 | 37 | 39 | 40 | 40 | 40 | 44 | 44 | 44 | 43 | 44 | 44 | 42 | 39 | 38 | A  | 39                              | 39.6            |                 |
| 17-Apr                                                                                                                                                            | 38                            | 36 | 37 | 32 | 29 | 26 | 31 | 35 | 40 | 41 | 46 | 47 | 48 | 48 | 48 | 49 | 48 | 48 | 48 | 47 | 43 | A  | 30 | 28                              | 40.3            |                 |
| 18-Apr                                                                                                                                                            | 35                            | 31 | 30 | 29 | 30 | 25 | 22 | 20 | 26 | 32 | 35 | 41 | 45 | 48 | 51 | 52 | 53 | 53 | 53 | 52 | A  | 39 | 26 | 36                              | 37.6            |                 |
| 19-Apr                                                                                                                                                            | 37                            | 34 | 35 | 40 | 38 | 30 | 27 | 30 | 41 | 40 | 42 | 44 | 46 | 48 | 47 | 42 | 43 | 41 | 42 | A  | 38 | 34 | 23 | 28                              | 38.0            |                 |
| 20-Apr                                                                                                                                                            | 31                            | 32 | 31 | 32 | 30 | 28 | 27 | 34 | 38 | 40 | 42 | 42 | 43 | 44 | 45 | 46 | 46 | 46 | A  | 43 | 36 | 24 | 17 | 17                              | 35.4            |                 |
| 21-Apr                                                                                                                                                            | 25                            | 35 | 35 | 34 | 37 | 36 | 34 | 36 | 36 | 41 | 44 | C  | C  | C  | 48 | 48 | 47 | A  | 47 | 44 | 41 | 42 | 38 | 38                              | 39.5            |                 |
| 22-Apr                                                                                                                                                            | 39                            | 39 | 36 | 38 | 37 | 35 | 37 | 42 | 44 | 47 | 48 | 49 | 50 | 50 | 52 | 53 | A  | 52 | 52 | 51 | 45 | 43 | 43 | 43                              | 44.6            |                 |
| 23-Apr                                                                                                                                                            | 43                            | 42 | 43 | 44 | 39 | 37 | 34 | 39 | 43 | 43 | 47 | 47 | 49 | 49 | 49 | A  | 50 | 51 | 51 | 47 | 38 | 47 | 43 | 36                              | 44.0            |                 |
| 24-Apr                                                                                                                                                            | 22                            | 34 | 35 | 40 | 31 | 17 | 16 | 35 | 38 | 39 | 47 | 50 | 53 | 52 | A  | 57 | 56 | 56 | 57 | 57 | 47 | 41 | 45 | 47                              | 42.2            |                 |
| 25-Apr                                                                                                                                                            | 45                            | 37 | 37 | 22 | 39 | 39 | 34 | 22 | 42 | 49 | 53 | 54 | 60 | A  | 65 | 66 | 65 | 62 | 60 | 53 | 53 | 53 | 52 | 49                              | 48.4            |                 |
| 26-Apr                                                                                                                                                            | 49                            | 49 | 46 | 41 | 41 | 39 | 37 | 38 | 44 | 48 | 49 | 54 | A  | 55 | 56 | 55 | 54 | 53 | 51 | 46 | 37 | 38 | 39 | 35                              | 45.9            |                 |
| 27-Apr                                                                                                                                                            | 34                            | 31 | 32 | 30 | 22 | 21 | 15 | 27 | 29 | 35 | 41 | A  | 45 | 45 | 46 | 46 | 49 | 49 | 45 | 43 | 41 | 38 | 38 | 35                              | 36.3            |                 |
| 28-Apr                                                                                                                                                            | 35                            | 31 | 31 | 28 | 29 | 21 | 16 | 21 | 35 | 33 | A  | 41 | 44 | 44 | 41 | 37 | 37 | 43 | 43 | 42 | 39 | 38 | 37 | 33                              | 34.8            |                 |
| 29-Apr                                                                                                                                                            | 29                            | 24 | 15 | 8  | 5  | 3  | 11 | 19 | 27 | A  | 34 | 41 | 42 | 44 | 46 | 46 | 44 | 43 | 43 | 40 | 37 | 41 | 40 | 33                              | 31.1            |                 |
| 30-Apr                                                                                                                                                            | 32                            | 28 | 34 | 30 | 29 | 27 | 26 | 36 | A  | 38 | 43 | 45 | 47 | 47 | 45 | 43 | 44 | 45 | 44 | 43 | 41 | 40 | 38 | 37                              | 38.5            |                 |
| 36.8 36.2 35.5 34.2 32.6 29.7 28.2 31.6 37.3 40.2 42.7 44.9 46.8 47.7 49.0 49.2 48.9 48.7 47.8 45.4 41.1 38.6 36.8 36.1                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 | Diurnal Average |                 |
| 48.9 50.5 48.1 44.0 43.5 50.4 49.7 49.3 51.5 52.5 55.7 60.3 59.1 65.3 66.3 65.3 62.3 59.7 56.7 53.1 53.4 52.2 49.3                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 | Diurnal Maximum |
| C - Calibration A - Automated Daily Zero Span                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |                 |                 |

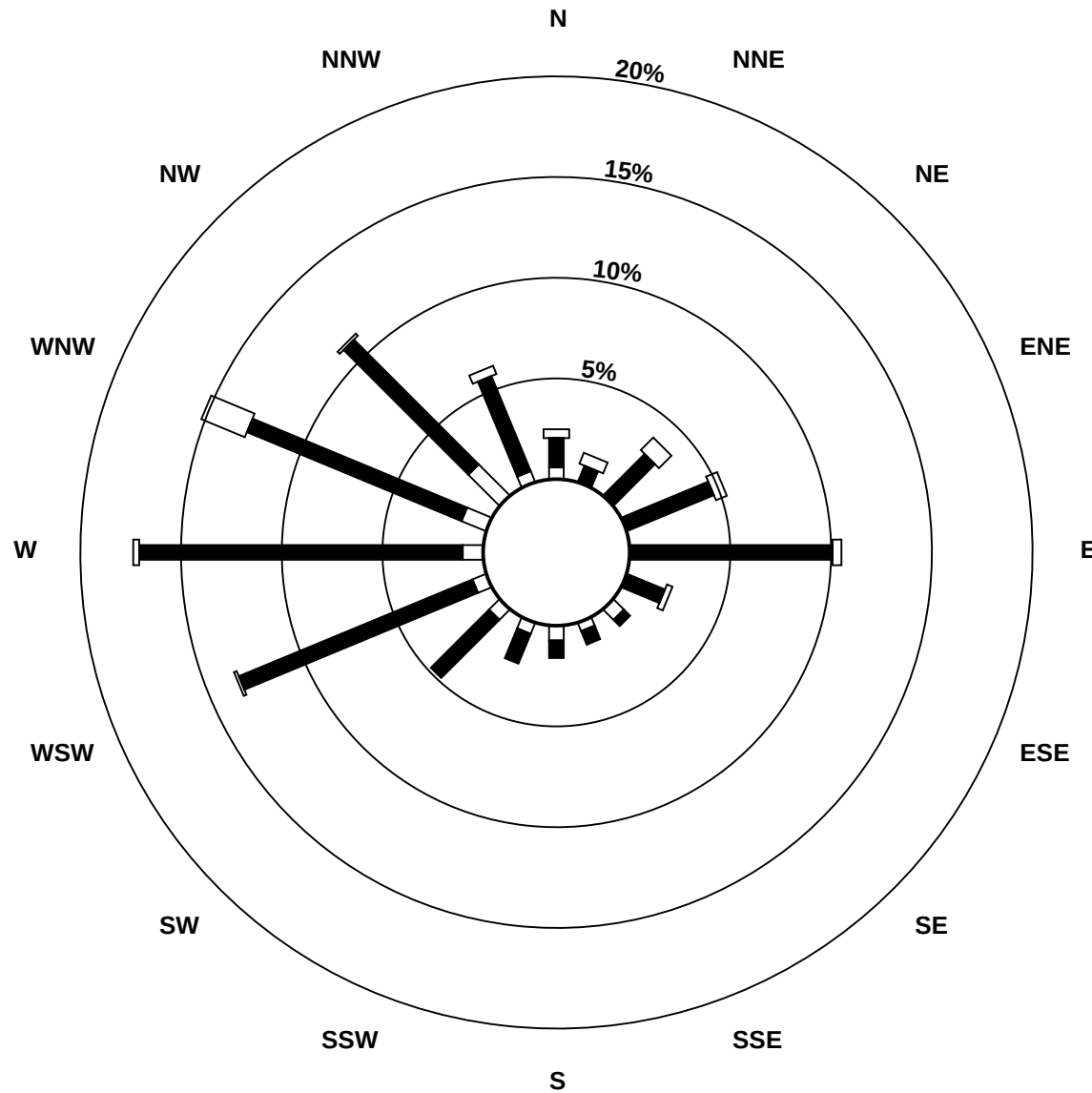
## Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - April 2011

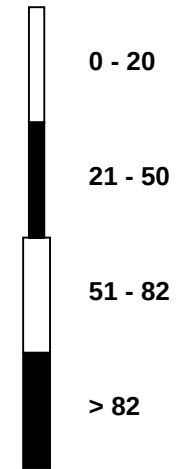


# Pollutant Rose

Ozone (O<sub>3</sub>) - ppb  
Henry Pirker - April 2011



## Pollutant Classes (ppb)



# Eight Hour Running Averages

Ozone (O<sub>3</sub>) - ppb

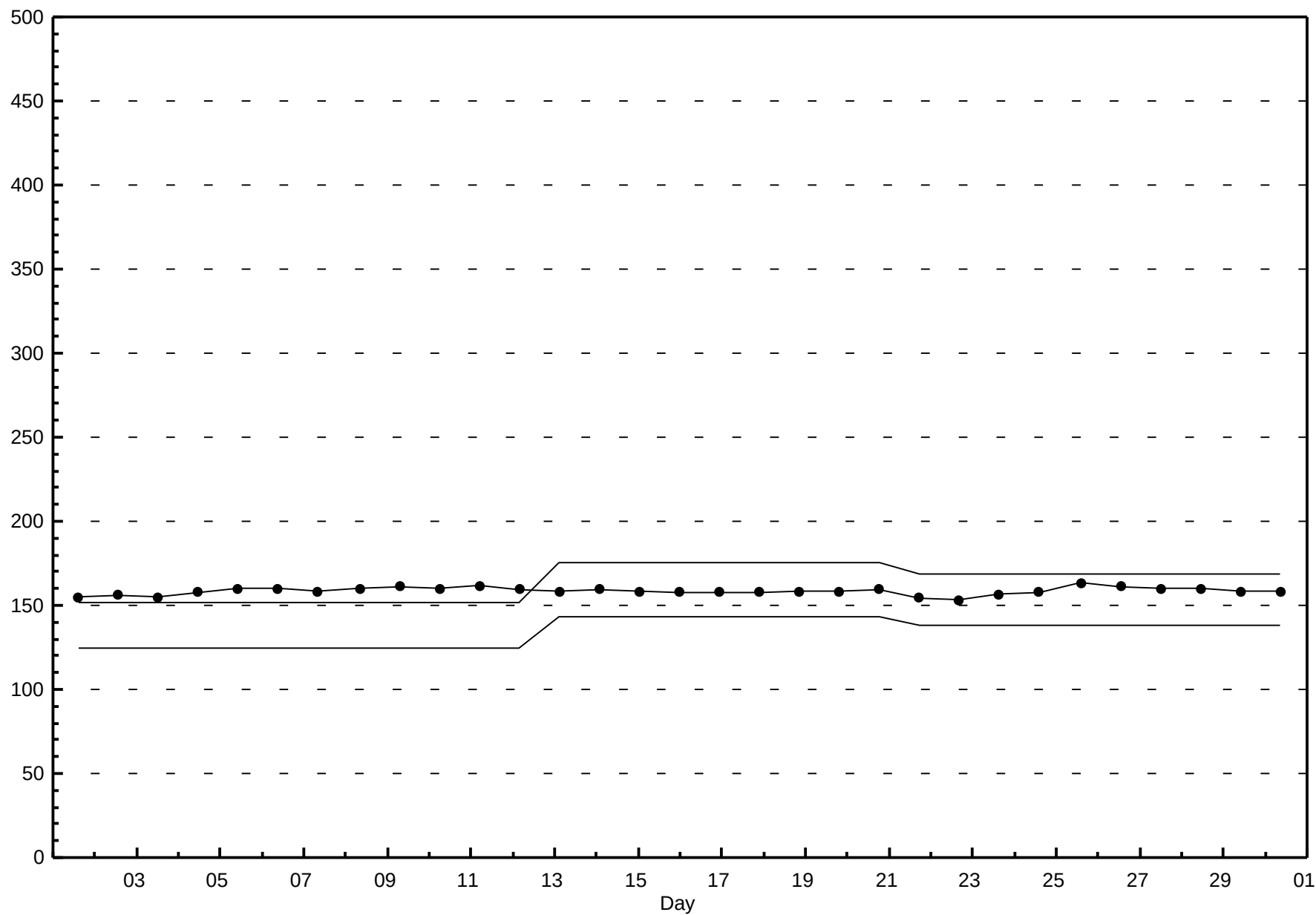
Henry Pirker - April 2011

| Maximum Value: 59.0 ppb on Apr 25 19:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------|------|
| Minimum Value: 9.4 ppb on Apr 29 10:00                                                                                                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 713              |      |
| Percentiles: P <sub>1</sub> = 12.7 P <sub>10</sub> = 24.8 Q <sub>1</sub> = 30.9 Median = 37.3 Q <sub>3</sub> = 42.5 P <sub>90</sub> = 47.2 P <sub>99</sub> = 55.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 7        |      |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 7         |      |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |      |
| Day                                                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Daily Maximum                   |      |
|                                                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |      |
| 1-Apr                                                                                                                                                             | 45                            | 45 | 45 | 45 | 44 | 43 | 41 | 40 | 39 | 39 | 38 | 39 | 39 | 41 | 42 | 44 | 45 | 45 | 44 | 42 | 42 | 37 | 33 | 27                              | 45.4 |
| 2-Apr                                                                                                                                                             | 23                            | 21 | 20 | 18 | 16 | 17 | 18 | 20 | 22 | 24 | 25 | 28 | 31 | 32 | 37 | 42 | 45 | 48 | 50 | 50 | 48 | 45 | 40 | 36                              | 49.9 |
| 3-Apr                                                                                                                                                             | 34                            | 31 | 27 | 25 | 24 | 24 | 24 | 23 | 22 | 23 | 26 | 27 | 28 | 32 | 37 | 42 | 45 | 48 | 49 | 49 | 47 | 43 | 39 | 34                              | 49.2 |
| 4-Apr                                                                                                                                                             | 32                            | 30 | 29 | 29 | 30 | 33 | 34 | 36 | 37 | 37 | 37 | 38 | 38 | 39 | 41 | 42 | 43 | 44 | 44 | 44 | 42 | 41 | 40 | 37                              | 44.5 |
| 5-Apr                                                                                                                                                             | 35                            | 34 | 32 | 30 | 28 | 27 | 24 | 23 | 22 | 23 | 22 | 25 | 29 | 33 | 38 | 43 | 46 | 47 | 47 | 46 | 44 | 43 | 43 | 42                              | 47.3 |
| 6-Apr                                                                                                                                                             | 42                            | 41 | 40 | 40 | 39 | 38 | 34 | 32 | 31 | 30 | 30 | 31 | 33 | 35 | 39 | 42 | 43 | 44 | 44 | 43 | 41 | 38 | 36 | 35                              | 43.9 |
| 7-Apr                                                                                                                                                             | 33                            | 32 | 30 | 29 | 29 | 28 | 26 | 24 | 23 | 23 | 24 | 26 | 30 | 34 | 41 | 45 | 46 | 49 | 50 | 51 | 47 | 43 | 40 | 37                              | 50.7 |
| 8-Apr                                                                                                                                                             | 35                            | 32 | 30 | 28 | 31 | 34 | 35 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 43 | 43 | 45 | 46 | 47 | 48 | 49 | 49 | 50 | 49                              | 49.8 |
| 9-Apr                                                                                                                                                             | 47                            | 45 | 44 | 41 | 38 | 34 | 32 | 30 | 32 | 34 | 34 | 37 | 40 | 44 | 44 | 47 | 47 | 48 | 48 | 48 | 47 | 47 | 46 | 46                              | 47.9 |
| 10-Apr                                                                                                                                                            | 45                            | 45 | 43 | 41 | 38 | 37 | 38 | 38 | 38 | 39 | 40 | 43 | 49 | 50 | 52 | 53 | 54 | 55 | 56 | 55 | 53 | 51 | 49 | 46                              | 55.8 |
| 11-Apr                                                                                                                                                            | 43                            | 39 | 37 | 35 | 34 | 31 | 27 | 25 | 25 | 26 | 27 | 30 | 31 | 34 | 37 | 40 | 42 | 43 | 43 | 42 | 41 | 39 | 37 | 34                              | 43.1 |
| 12-Apr                                                                                                                                                            | 31                            | 28 | 25 | 23 | 19 | 16 | 13 | 11 | 11 | 11 | 13 | 15 | 18 | 22 | 25 | 30 | 34 | 37 | 40 | 41 | 42 | 42 | 41 | 41                              | 41.9 |
| 13-Apr                                                                                                                                                            | 40                            | 39 | 39 | 38 | 38 | 37 | 35 | 34 | 34 | 33 | 34 | 34 | 35 | 37 | 39 | 41 | 42 | 42 | 43 | 42 | 42 | 41 | 40 | 39                              | 42.7 |
| 14-Apr                                                                                                                                                            | 38                            | 37 | 37 | 37 | 37 | 36 | 36 | 36 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 36 | 36 | 37 | 37 | 37 | 36 | 36 | 37 | 36                              | 37.8 |
| 15-Apr                                                                                                                                                            | 36                            | 37 | 37 | 37 | 36 | 35 | 35 | 34 | 34 | 34 | 34 | 35 | 36 | 38 | 40 | 42 | 43 | 43 | 43 | 43 | 42 | 41 | 40 | 39                              | 43.4 |
| 16-Apr                                                                                                                                                            | 38                            | 37 | 36 | 36 | 36 | 35 | 35 | 35 | 35 | 35 | 36 | 36 | 37 | 37 | 38 | 39 | 40 | 41 | 41 | 41 | 41 | 40 | 39 | 39                              | 41.2 |
| 17-Apr                                                                                                                                                            | 38                            | 36 | 35 | 33 | 32 | 29 | 29 | 27 | 27 | 28 | 29 | 32 | 35 | 38 | 41 | 44 | 45 | 46 | 47 | 47 | 45 | 45 | 41 | 38                              | 46.8 |
| 18-Apr                                                                                                                                                            | 36                            | 33 | 30 | 27 | 26 | 26 | 25 | 24 | 23 | 24 | 25 | 27 | 31 | 34 | 38 | 42 | 45 | 47 | 48 | 49 | 47 | 43 | 40 | 40                              | 49.2 |
| 19-Apr                                                                                                                                                            | 38                            | 34 | 31 | 30 | 30 | 29 | 29 | 29 | 29 | 30 | 31 | 32 | 34 | 36 | 39 | 41 | 42 | 42 | 42 | 42 | 41 | 38 | 35 | 32                              | 42.2 |
| 20-Apr                                                                                                                                                            | 30                            | 28 | 27 | 27 | 26 | 26 | 26 | 27 | 28 | 30 | 31 | 32 | 34 | 36 | 39 | 41 | 42 | 43 | 43 | 43 | 41 | 38 | 33 | 29                              | 43.0 |
| 21-Apr                                                                                                                                                            | 25                            | 23 | 24 | 23 | 24 | 26 | 28 | 31 | 33 | 34 | 35 | 35 | 35 | N  | N  | N  | N  | N  | N  | N  | 44 | 43 | 41 | 40                              | 43.8 |
| 22-Apr                                                                                                                                                            | 39                            | 38 | 37 | 37 | 36 | 36 | 35 | 36 | 36 | 37 | 39 | 40 | 42 | 44 | 46 | 48 | 48 | 49 | 50 | 50 | 49 | 48 | 46 | 45                              | 49.8 |
| 23-Apr                                                                                                                                                            | 45                            | 43 | 42 | 41 | 41 | 40 | 38 | 37 | 37 | 37 | 38 | 38 | 40 | 41 | 44 | 45 | 47 | 48 | 48 | 48 | 46 | 45 | 43 | 41                              | 48.2 |
| 24-Apr                                                                                                                                                            | 37                            | 34 | 31 | 30 | 28 | 24 | 22 | 20 | 22 | 24 | 26 | 27 | 31 | 36 | 40 | 45 | 48 | 50 | 52 | 53 | 51 | 49 | 49 | 47                              | 52.6 |
| 25-Apr                                                                                                                                                            | 46                            | 43 | 40 | 36 | 35 | 35 | 31 | 28 | 27 | 28 | 30 | 35 | 38 | 38 | 45 | 52 | 56 | 58 | 59 | 58 | 56 | 55 | 53 | 51                              | 59.0 |
| 26-Apr                                                                                                                                                            | 49                            | 47 | 46 | 45 | 45 | 43 | 41 | 40 | 39 | 39 | 39 | 41 | 41 | 44 | 47 | 50 | 51 | 52 | 52 | 51 | 49 | 46 | 44 | 41                              | 52.3 |
| 27-Apr                                                                                                                                                            | 38                            | 35 | 32 | 30 | 28 | 25 | 22 | 21 | 20 | 21 | 22 | 22 | 26 | 30 | 35 | 39 | 42 | 44 | 45 | 44 | 44 | 42 | 41 | 39                              | 44.9 |
| 28-Apr                                                                                                                                                            | 37                            | 35 | 33 | 31 | 30 | 27 | 25 | 23 | 23 | 23 | 24 | 26 | 30 | 34 | 36 | 37 | 37 | 38 | 38 | 37 | 36 | 36 | 36 | 36                              | 37.7 |
| 29-Apr                                                                                                                                                            | 34                            | 33 | 29 | 25 | 21 | 17 | 13 | 11 | 11 | 9  | 12 | 17 | 22 | 27 | 32 | 36 | 39 | 39 | 40 | 40 | 39 | 39 | 38 | 37                              | 40.2 |
| 30-Apr                                                                                                                                                            | 35                            | 32 | 31 | 30 | 29 | 27 | 25 | 26 | 26 | 28 | 30 | 32 | 34 | 37 | 40 | 42 | 42 | 43 | 43 | 43 | 42 | 41 | 40 | 39                              | 42.9 |
| 48.9 47.2 45.6 44.8 44.9 43.2 41.3 40.0 39.3 38.9 39.8 43.5 48.8 49.9 51.7 52.9 55.7 58.1 59.0 58.2 55.5 55.1 53.2 50.9                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |      |
| Diurnal Maximums                                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |      |
| N - Not Valid                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |      |



## Span Responses

Ozone (O<sub>3</sub>)  
Henry Pirker - April 2011



# Hourly Averages

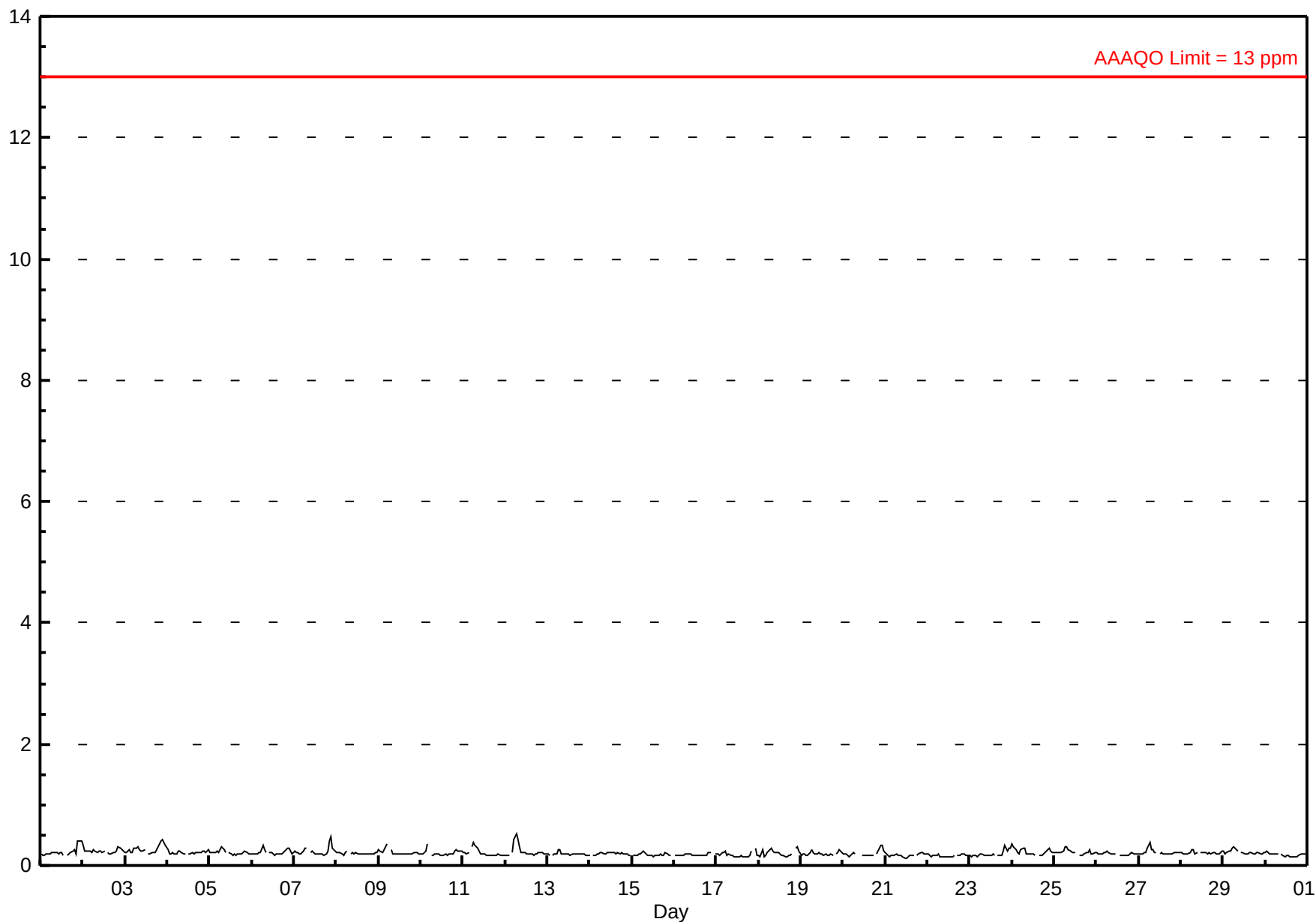
Carbon Monoxide (CO) - ppm

Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 0.51 ppm on Apr 12 07:00 Maximum Daily Average: 0.27 ppm on Apr 3                                                                                                                                                                                                                                          |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 34<br>Percent Operational Time: 100.0 |               |               |      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------|
| Minimum Value: 0.1 ppm on Apr 21 13:00 Minimum Daily Average: 0.16 ppm on Apr 22<br>Maximum Diurnal Average: 0.26 ppm at hour 7 Minimum Diurnal Average: 0.18 ppm at hour 14<br>Monthly Average: 0.206 ppm Percentiles: P <sub>1</sub> = 0.14 P <sub>10</sub> = 0.16 Q <sub>1</sub> = 0.18 Median = 0.20 Q <sub>3</sub> = 0.22 P <sub>90</sub> = 0.26 P <sub>99</sub> = 0.41 |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         |               |               |      |
| Day                                                                                                                                                                                                                                                                                                                                                                          | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         | Daily Average | Daily Maximum |      |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.4 | 0.4                                                                                                                                     | 0.4           | 0.23          | 0.41 |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.3                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3                                                                                                                                     | 0.2           | 0.24          | 0.32 |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3                                                                                                                                     | 0.27          | 0.42          |      |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.3                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3                                                                                                                                     | 0.21          | 0.26          |      |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.21          | 0.31          |      |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2                                                                                                                                     | 0.22          | 0.33          |      |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 0.5 | 0.3 | 0.2                                                                                                                                     | 0.24          | 0.47          |      |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.20          | 0.23          |      |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                                        | 0.3                           | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | A   | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.22          | 0.37          |      |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.4 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.21          | 0.36          |      |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | A   | 0.3 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.21          | 0.39          |      |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | A   | 0.2 | 0.4 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.23          | 0.51          |      |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.19          | 0.26          |      |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.19          | 0.22          |      |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                                       | A                             | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A                                                                                                                                       | 0.18          | 0.24          |      |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2                                                                                                                                     | 0.18          | 0.22          |      |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | A   | 0.3 | 0.2                                                                                                                                     | 0.18          | 0.29          |      |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.3 | 0.3                                                                                                                                     | 0.2           | 0.20          | 0.32 |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.3                                                                                                                                     | 0.2           | 0.19          | 0.25 |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | C   | C   | C   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.3 | 0.3 | 0.2                                                                                                                                     | 0.20          | 0.33          |      |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.17          | 0.21          |      |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.16          | 0.19          |      |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3                                                                                                                                     | 0.19          | 0.33          |      |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.3                           | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2                                                                                                                                     | 0.23          | 0.35          |      |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.22          | 0.31          |      |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.19          | 0.23          |      |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.22          | 0.39          |      |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.21          | 0.26          |      |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.22          | 0.31          |      |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                                       | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                     | 0.18          | 0.24          |      |
| 0.21 0.20 0.19 0.19 0.20 0.23 0.26 0.24 0.21 0.20 0.19 0.19 0.18 0.18 0.18 0.18 0.18 0.18 0.18 0.19 0.21 0.24 0.24 0.23 0.22<br>0.35 0.30 0.25 0.26 0.36 0.43 0.51 0.42 0.31 0.25 0.24 0.25 0.24 0.21 0.22 0.21 0.22 0.22 0.27 0.31 0.41 0.47 0.41 0.39                                                                                                                      |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Diurnal Average                                                                                                                         |               |               |      |
|                                                                                                                                                                                                                                                                                                                                                                              |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Diurnal Maximum                                                                                                                         |               |               |      |
| C - Calibration A - Automated Daily Zero Span<br>Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm 24-hr na                                                                                                                                                                                                                                                        |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         |               |               |      |

## Hourly Averages

Carbon Monoxide (CO) - ppm  
Henry Pirker - April 2011



# Hourly Maximums

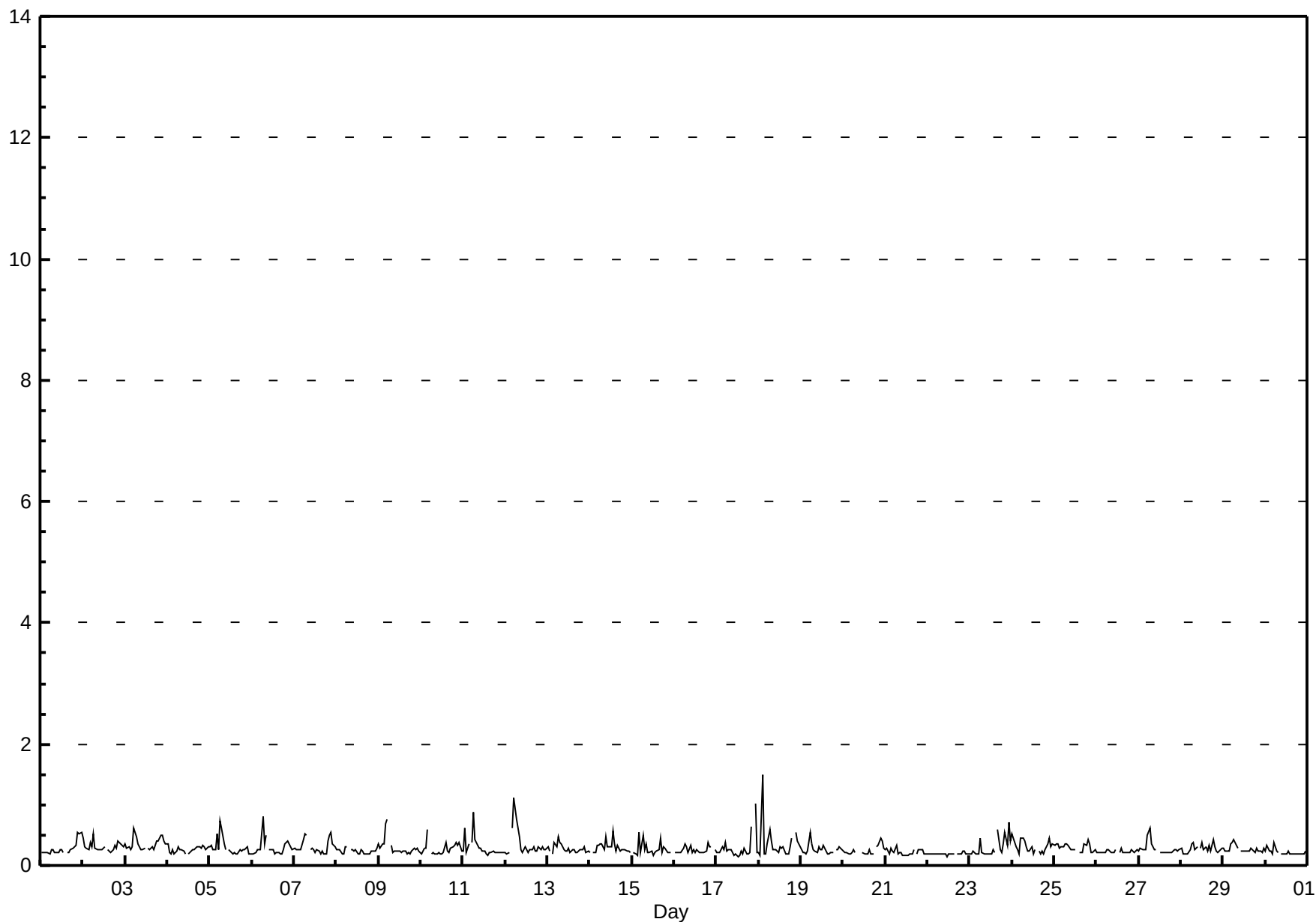
Carbon Monoxide (CO) - ppm

Henry Pirker - April 2011

| Maximum Value: 1.50 ppm on Apr 18 03:00                                                                                 |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Maximum Daily Average: 0.36 ppm on Apr 18                                                                                                                         |     |     |     |     | Hours in Service: 720           |               |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|---------------------------------|---------------|
| Minimum Value: 0.1 ppm on Apr 22 12:00                                                                                  |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Minimum Daily Average: 0.20 ppm on Apr 22                                                                                                                         |     |     |     |     | Hours of Data: 686              |               |
| Maximum Diurnal Average: 0.43 ppm at hour 7                                                                             |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Minimum Diurnal Average: 0.23 ppm at hour 16                                                                                                                      |     |     |     |     | Hours of Missing Data: 34       |               |
| Monthly Average: 0.279 ppm                                                                                              |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Percentiles: P <sub>1</sub> = 0.16 P <sub>10</sub> = 0.20 Q <sub>1</sub> = 0.20 Median = 0.25 Q <sub>3</sub> = 0.30 P <sub>90</sub> = 0.39 P <sub>99</sub> = 0.75 |     |     |     |     | Hours of Calibration: 34        |               |
|                                                                                                                         |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                   |     |     |     |     | Percent Operational Time: 100.0 |               |
| Day                                                                                                                     | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                   |     |     |     |     | Daily Average                   | Daily Maximum |
|                                                                                                                         | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20                                                                                                                                                                | 21  | 22  | 23  | 24  |                                 |               |
| 1-Apr                                                                                                                   | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | A   | 0.2 | 0.2 | 0.3 | 0.3 | 0.3                                                                                                                                                               | 0.3 | 0.6 | 0.5 | 0.6 | 0.27                            | 0.55          |
| 2-Apr                                                                                                                   | 0.5                           | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | A   | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3                                                                                                                                                               | 0.4 | 0.4 | 0.3 | 0.3 | 0.31                            | 0.52          |
| 3-Apr                                                                                                                   | 0.4                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | A   | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4                                                                                                                                                               | 0.5 | 0.5 | 0.4 | 0.4 | 0.35                            | 0.61          |
| 4-Apr                                                                                                                   | 0.4                           | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3                                                                                                                                                               | 0.3 | 0.3 | 0.3 | 0.3 | 0.26                            | 0.35          |
| 5-Apr                                                                                                                   | 0.3                           | 0.3 | 0.3 | 0.3 | 0.5 | 0.3 | 0.7 | 0.6 | 0.4 | 0.3 | A   | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3                                                                                                                                                               | 0.3 | 0.3 | 0.2 | 0.2 | 0.30                            | 0.73          |
| 6-Apr                                                                                                                   | 0.2                           | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.8 | 0.4 | 0.5 | A   | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4                                                                                                                                                               | 0.4 | 0.4 | 0.3 | 0.3 | 0.29                            | 0.82          |
| 7-Apr                                                                                                                   | 0.3                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | A   | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4                                                                                                                                                               | 0.5 | 0.6 | 0.4 | 0.3 | 0.31                            | 0.55          |
| 8-Apr                                                                                                                   | 0.3                           | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | A   | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.3 | 0.24                            | 0.30          |
| 9-Apr                                                                                                                   | 0.3                           | 0.3 | 0.3 | 0.3 | 0.7 | 0.8 | A   | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.3 | 0.3 | 0.3 | 0.2 | 0.30                            | 0.76          |
| 10-Apr                                                                                                                  | 0.2                           | 0.2 | 0.3 | 0.3 | 0.6 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3                                                                                                                                                               | 0.4 | 0.3 | 0.4 | 0.2 | 0.27                            | 0.59          |
| 11-Apr                                                                                                                  | 0.2                           | 0.6 | 0.2 | 0.4 | A   | 0.4 | 0.9 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.2 | 0.30                            | 0.89          |
| 12-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | A   | 0.6 | 1.1 | 0.8 | 0.6 | 0.5 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3                                                                                                                                                               | 0.3 | 0.3 | 0.3 | 0.3 | 0.35                            | 1.12          |
| 13-Apr                                                                                                                  | 0.3                           | 0.2 | A   | 0.2 | 0.4 | 0.3 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3                                                                                                                                                               | 0.2 | 0.3 | 0.2 | 0.2 | 0.28                            | 0.47          |
| 14-Apr                                                                                                                  | 0.2                           | A   | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.6 | 0.4 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3                                                                                                                                                               | 0.3 | 0.2 | 0.2 | 0.2 | 0.30                            | 0.58          |
| 15-Apr                                                                                                                  | A                             | 0.2 | 0.2 | 0.2 | 0.5 | 0.2 | 0.5 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.5 | 0.2 | 0.3 | 0.3                                                                                                                                                               | 0.2 | 0.2 | 0.2 | A   | 0.26                            | 0.54          |
| 16-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4                                                                                                                                                               | 0.3 | 0.3 | A   | 0.3 | 0.25                            | 0.37          |
| 17-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.6 | A   | 1.0 | 0.2 | 0.28                            | 1.03          |
| 18-Apr                                                                                                                  | 0.2                           | 0.2 | 1.5 | 0.2 | 0.2 | 0.3 | 0.6 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.5                                                                                                                                                               | A   | 0.5 | 0.4 | 0.4 | 0.36                            | 1.50          |
| 19-Apr                                                                                                                  | 0.3                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | A                                                                                                                                                                 | 0.3 | 0.3 | 0.3 | 0.3 | 0.26                            | 0.55          |
| 20-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | C   | C   | C   | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | A   | 0.3                                                                                                                                                               | 0.3 | 0.5 | 0.4 | 0.3 | 0.25                            | 0.46          |
| 21-Apr                                                                                                                  | 0.3                           | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | A   | 0.2 | 0.3                                                                                                                                                               | 0.3 | 0.3 | 0.2 | 0.2 | 0.22                            | 0.33          |
| 22-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.2 | 0.20                            | 0.24          |
| 23-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | A   | 0.6 | 0.3 | 0.2 | 0.4                                                                                                                                                               | 0.6 | 0.3 | 0.7 | 0.4 | 0.30                            | 0.72          |
| 24-Apr                                                                                                                  | 0.5                           | 0.5 | 0.3 | 0.3 | 0.2 | 0.5 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.4 | 0.4 | 0.3 | 0.4 | 0.31                            | 0.52          |
| 25-Apr                                                                                                                  | 0.3                           | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.4 | 0.3 | 0.4                                                                                                                                                               | 0.4 | 0.2 | 0.2 | 0.3 | 0.29                            | 0.44          |
| 26-Apr                                                                                                                  | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | A   | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.3 | 0.2 | 0.2 | 0.3 | 0.22                            | 0.29          |
| 27-Apr                                                                                                                  | 0.2                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.6 | 0.4 | 0.3 | 0.3 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.3 | 0.3 | 0.2 | 0.3 | 0.27                            | 0.61          |
| 28-Apr                                                                                                                  | 0.3                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | A   | 0.3 | 0.4 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.4 | 0.3                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.3 | 0.28                            | 0.42          |
| 29-Apr                                                                                                                  | 0.3                           | 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.3 | 0.27                            | 0.42          |
| 30-Apr                                                                                                                  | 0.2                           | 0.3 | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | 0.2 | A   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                                               | 0.2 | 0.2 | 0.2 | 0.2 | 0.22                            | 0.39          |
| 0.27 0.26 0.28 0.24 0.31 0.36 0.43 0.33 0.28 0.25 0.23 0.24 0.23 0.24 0.24 0.23 0.25 0.23 0.25 0.29 0.32 0.32 0.32 0.28 |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                   |     |     |     |     | Diurnal Average                 |               |
| 0.52 0.61 1.50 0.37 0.70 1.12 0.89 0.62 0.49 0.47 0.31 0.31 0.38 0.58 0.38 0.32 0.60 0.36 0.42 0.45 0.64 0.55 1.03 0.55 |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                   |     |     |     |     | Diurnal Maximum                 |               |
| C - Calibration A - Automated Daily Zero Span                                                                           |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                   |     |     |     |     |                                 |               |

## Hourly Maximums

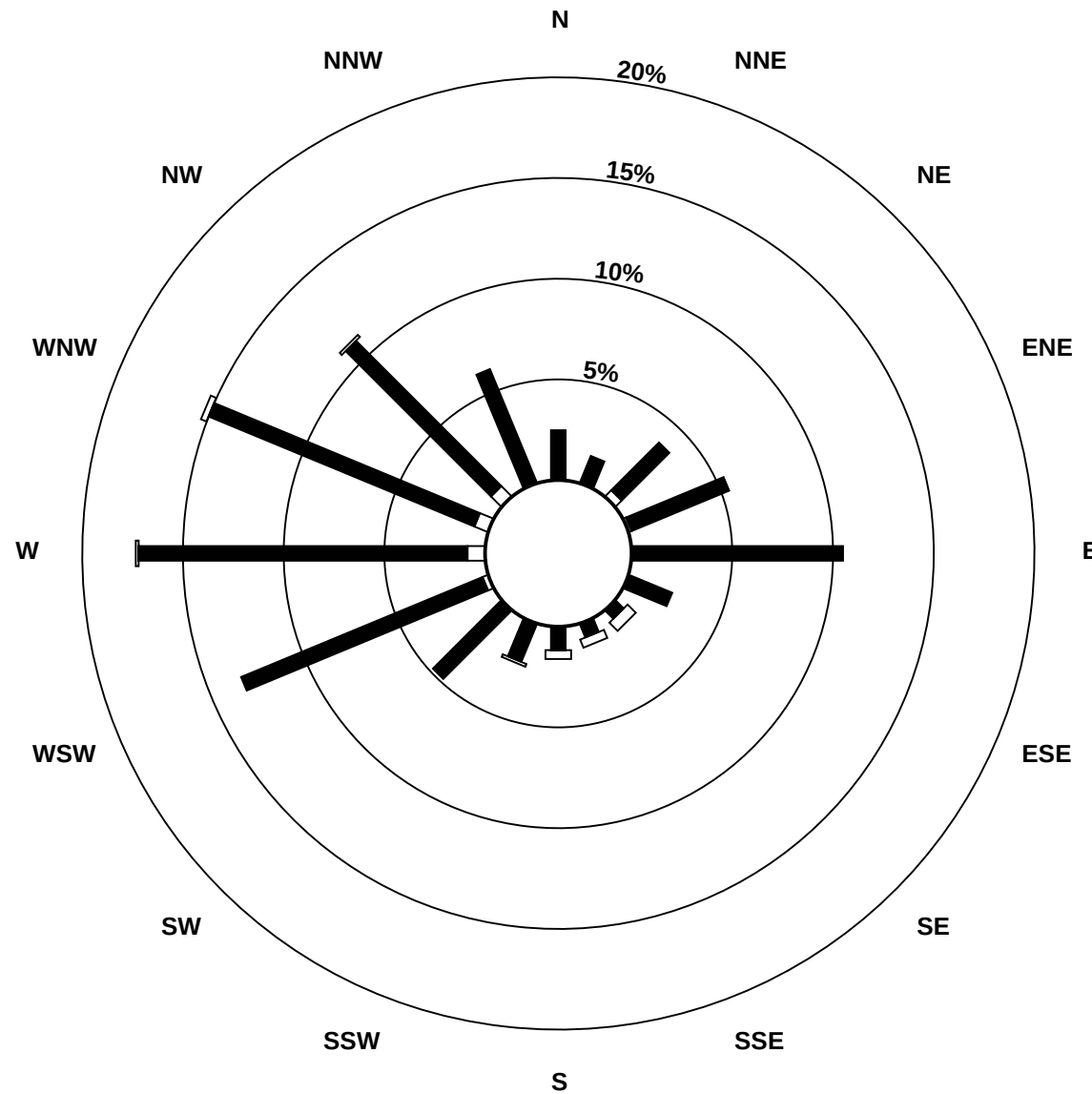
Carbon Monoxide (CO) - ppm  
Henry Pirker - April 2011



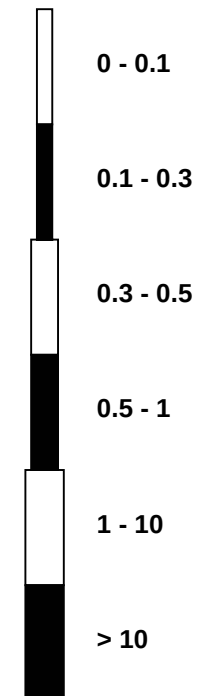
## Pollutant Rose

Carbon Monoxide (CO) - ppm

Henry Pirker - April 2011



## Pollutant Classes (ppm)



## Eight Hour Running Averages

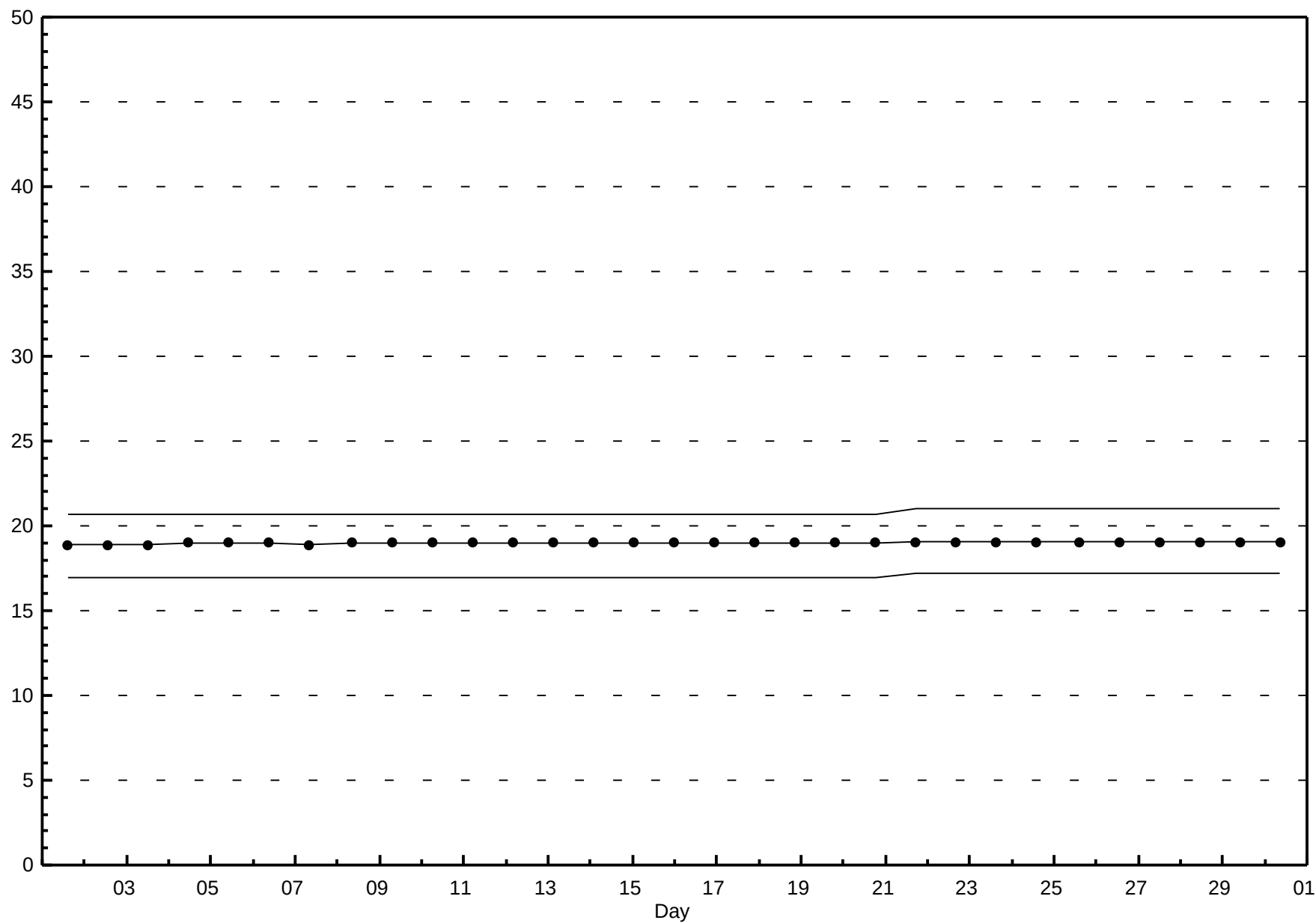
Carbon Monoxide (CO) - ppm

Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 8-hr: 0<br>Maximum Value: 0.33 ppm on Apr 12 11:00<br>Minimum Value: 0.14 ppm on Apr 21 18:00<br>Percentiles: $P_1 = 0.15$ $P_{10} = 0.17$ $Q_1 = 0.18$ Median = 0.20 $Q_3 = 0.22$ $P_{90} = 0.25$ $P_{99} = 0.31$ |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Hours in Service: 720<br>Hours of Data: 714<br>Hours of Missing Data: 6<br>Hours of Calibration: 6<br>Percent Operational Time: 100.0 |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Day                                                                                                                                                                                                                                               | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                       | Daily Maximum |
| 1-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.29                                                                                                                                  |               |
| 2-Apr                                                                                                                                                                                                                                             | 0.3                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.31          |
| 3-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3                                                                                                                                   | 0.32          |
| 4-Apr                                                                                                                                                                                                                                             | 0.3                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.32          |
| 5-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.25          |
| 6-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.24          |
| 7-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3                                                                                                                                   | 0.27          |
| 8-Apr                                                                                                                                                                                                                                             | 0.3                           | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.28          |
| 9-Apr                                                                                                                                                                                                                                             | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.28          |
| 10-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.23          |
| 11-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.28          |
| 12-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.33          |
| 13-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.21          |
| 14-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.21          |
| 15-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.19          |
| 16-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.19          |
| 17-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.20          |
| 18-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.23          |
| 19-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.22          |
| 20-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | N   | N   | N   | N   | N   | N   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.23          |
| 21-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.25          |
| 22-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.19          |
| 23-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.24          |
| 24-Apr                                                                                                                                                                                                                                            | 0.3                           | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.29          |
| 25-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.25          |
| 26-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.21          |
| 27-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.26          |
| 28-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.22          |
| 29-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.26          |
| 30-Apr                                                                                                                                                                                                                                            | 0.2                           | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2                                                                                                                                   | 0.21          |
| 0.32 0.32 0.31 0.31 0.31 0.29 0.27 0.30 0.32 0.32 0.33 0.31 0.31 0.28 0.24 0.23 0.22 0.22 0.22 0.22 0.23 0.25 0.28 0.30 0.32<br>Diurnal Maximums                                                                                                  |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                       |               |
| N - Not Valid<br>Alberta Ambient Air Quality Objectives (AAAQO): 8-hr 5 ppm                                                                                                                                                                       |                               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                       |               |

## Span Responses

Carbon Monoxide (CO)  
Henry Pirker - April 2011





# Hourly Averages

Total Hydrocarbons (THC) - ppm

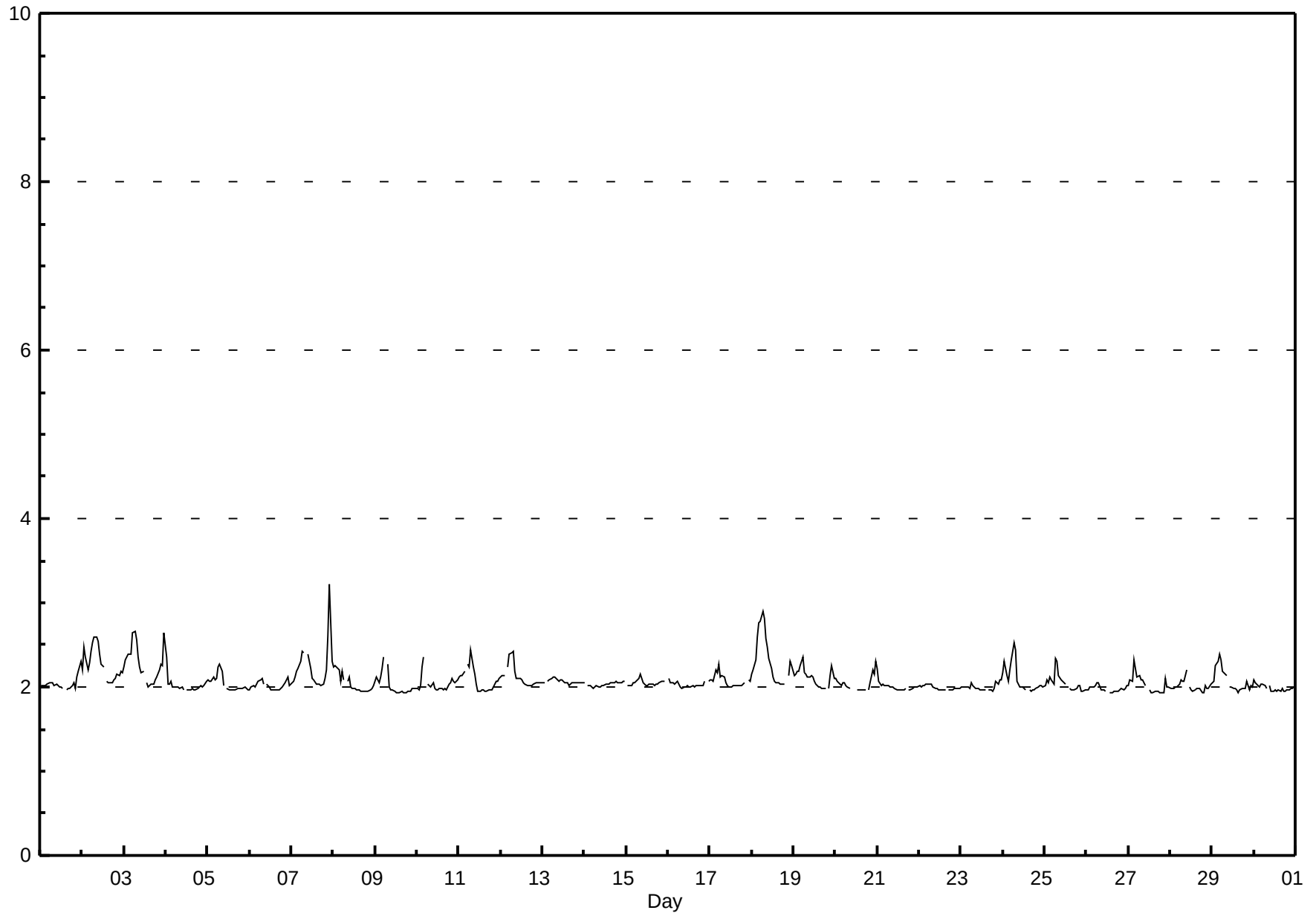
Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 3.22 ppm on Apr 7 23:00 Maximum Daily Average: 2.32 ppm on Apr 18                                                                                                                          |                               |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |     |     |     | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 34<br>Percent Operational Time: 100.0 |               |                 |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|-----------------|
| Minimum Value: 1.9 ppm on Apr 27 19:00<br>Maximum Diurnal Average: 2.19 ppm at hour 7<br>Monthly Average: 2.071 ppm                                                                                                                                          |                               |     |     |     |     |     |     |     |     |     |     | Minimum Daily Average: 1.98 ppm on Apr 26<br>Minimum Diurnal Average: 1.99 ppm at hour 16<br>Percentiles: P <sub>1</sub> = 1.93 P <sub>10</sub> = 1.96 Q <sub>1</sub> = 1.98 Median = 2.03 Q <sub>3</sub> = 2.09 P <sub>90</sub> = 2.24 P <sub>99</sub> = 2.64 |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         |               |                 |                 |
| Day                                                                                                                                                                                                                                                          | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         | Daily Average | Daily Maximum   |                 |
| 1-Apr                                                                                                                                                                                                                                                        | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.1 | 2.2                                                                                                                                     | 2.3           | 2.04            | 2.31            |
| 2-Apr                                                                                                                                                                                                                                                        | 2.2                           | 2.5 | 2.4 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.6 | 2.5 | 2.4 | 2.3                                                                                                                                                                                                                                                            | 2.2 | A   | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | 2.2 | 2.2                                                                                                                                     | 2.2           | 2.27            | 2.60            |
| 3-Apr                                                                                                                                                                                                                                                        | 2.2                           | 2.3 | 2.4 | 2.4 | 2.4 | 2.6 | 2.7 | 2.6 | 2.4 | 2.2 | 2.2 | 2.2                                                                                                                                                                                                                                                            | A   | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.2 | 2.3 | 2.3 | 2.6                                                                                                                                     | 2.27          | 2.66            |                 |
| 4-Apr                                                                                                                                                                                                                                                        | 2.4                           | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A                                                                                                                                                                                                                                                              | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.01                                                                                                                                    | 2.36          |                 |                 |
| 5-Apr                                                                                                                                                                                                                                                        | 2.1                           | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.3 | 2.2 | 2.0 | A   | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.04          | 2.27            |                 |
| 6-Apr                                                                                                                                                                                                                                                        | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | 2.0 | A   | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.0                                                                                                                                     | 2.01          | 2.12            |                 |
| 7-Apr                                                                                                                                                                                                                                                        | 2.1                           | 2.1 | 2.1 | 2.2 | 2.2 | 2.3 | 2.4 | 2.4 | A   | 2.4 | 2.3 | 2.2                                                                                                                                                                                                                                                            | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.2 | 2.6 | 3.2 | 2.3                                                                                                                                     | 2.24          | 3.22            |                 |
| 8-Apr                                                                                                                                                                                                                                                        | 2.2                           | 2.3 | 2.2 | 2.2 | 2.1 | 2.2 | 2.1 | A   | 2.1 | 2.1 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.04          | 2.26            |                 |
| 9-Apr                                                                                                                                                                                                                                                        | 2.1                           | 2.1 | 2.0 | 2.1 | 2.2 | 2.4 | A   | 2.3 | 2.0 | 2.0 | 1.9 | 1.9                                                                                                                                                                                                                                                            | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.02          | 2.36            |                 |
| 10-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | 2.0 | 2.2 | 2.4 | A   | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.0 | 2.1                                                                                                                                     | 2.04          | 2.35            |                 |
| 11-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.1 | 2.2 | A   | 2.3 | 2.2 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9                                                                                                                                                                                                                                                            | 1.9 | 2.0 | 2.0 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1                                                                                                                                     | 2.08          | 2.43            |                 |
| 12-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.1 | A   | 2.2 | 2.4 | 2.4 | 2.4 | 2.2 | 2.1 | 2.1 | 2.1                                                                                                                                                                                                                                                            | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.12          | 2.42            |                 |
| 13-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | A   | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1                                                                                                                                                                                                                                                            | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.1 | 2.1                                                                                                                                     | 2.06          | 2.12            |                 |
| 14-Apr                                                                                                                                                                                                                                                       | 2.0                           | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1                                                                                                                                     | 2.03          | 2.07            |                 |
| 15-Apr                                                                                                                                                                                                                                                       | A                             | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.1 | 2.1 | 2.2 | 2.1 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | A                                                                                                                                       | 2.05          | 2.16            |                 |
| 16-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | A   | 2.1                                                                                                                                     | 2.03          | 2.09            |                 |
| 17-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.1 | 2.2 | 2.2 | 2.3 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | A   | 2.1 | 2.1                                                                                                                                     | 2.07          | 2.27            |                 |
| 18-Apr                                                                                                                                                                                                                                                       | 2.2                           | 2.2 | 2.3 | 2.6 | 2.8 | 2.8 | 2.9 | 2.8 | 2.6 | 2.5 | 2.3 | 2.2                                                                                                                                                                                                                                                            | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.1 | 2.3                                                                                                                                     | 2.32          | 2.90            |                 |
| 19-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.2 | 2.2 | 2.2 | 2.3 | 2.4 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.1 | 2.2 | 2.1                                                                                                                                     | 2.11          | 2.36            |                 |
| 20-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | C   | C   | C                                                                                                                                                                                                                                                              | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.1 | 2.2 | 2.2 | 2.3                                                                                                                                     | 2.04          | 2.30            |                 |
| 21-Apr                                                                                                                                                                                                                                                       | 2.2                           | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.01          | 2.23            |                 |
| 22-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 1.99          | 2.04            |                 |
| 23-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.1 | 2.1                                                                                                                                     | 2.00          | 2.09            |                 |
| 24-Apr                                                                                                                                                                                                                                                       | 2.2                           | 2.3 | 2.1 | 2.1 | 2.2 | 2.3 | 2.5 | 2.4 | 2.1 | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.09          | 2.52            |                 |
| 25-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.3 | 2.3 | 2.1 | 2.1 | 2.1 | 2.0                                                                                                                                                                                                                                                            | 2.0 | A   | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 2.0                                                                                                                                     | 2.05          | 2.34            |                 |
| 26-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.0 | 2.0 | 2.0 | 1.9                                                                                                                                                                                                                                                            | A   | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 1.98          | 2.05            |                 |
| 27-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.1 | 2.1 | 2.3 | 2.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.0 | 2.0 | A                                                                                                                                                                                                                                                              | 2.0 | 1.9 | 1.9 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 | 1.9 | 2.1 | 2.0 | 2.0                                                                                                                                     | 2.03          | 2.32            |                 |
| 28-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | A                                                                                                                                                                                                                                                              | 2.0 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.00          | 2.20            |                 |
| 29-Apr                                                                                                                                                                                                                                                       | 2.0                           | 2.1 | 2.2 | 2.3 | 2.4 | 2.3 | 2.2 | 2.2 | 2.1 | A   | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.0 | 2.0 | 2.0                                                                                                                                     | 2.07          | 2.39            |                 |
| 30-Apr                                                                                                                                                                                                                                                       | 2.1                           | 2.1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | A   | 2.0 | 2.0 | 2.0                                                                                                                                                                                                                                                            | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0                                                                                                                                     | 1.99          | 2.09            |                 |
| 2.09 2.10 2.10 2.13 2.15 2.19 2.19 2.19 2.11 2.10 2.06 2.03 2.01 1.99 1.99 1.99 1.99 1.99 1.99 1.99 2.01 2.03 2.07 2.11 2.09<br>2.36 2.47 2.39 2.60 2.76 2.79 2.90 2.81 2.60 2.54 2.38 2.27 2.24 2.09 2.07 2.05 2.05 2.05 2.05 2.09 2.13 2.21 2.60 3.22 2.65 |                               |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         |               | Diurnal Average | Diurnal Maximum |
| C - Calibration A - Automated Daily Zero Span                                                                                                                                                                                                                |                               |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                         |               |                 |                 |

## Hourly Averages

Total Hydrocarbons (THC) - ppm

Henry Pirker - April 2011



# Hourly Maximums

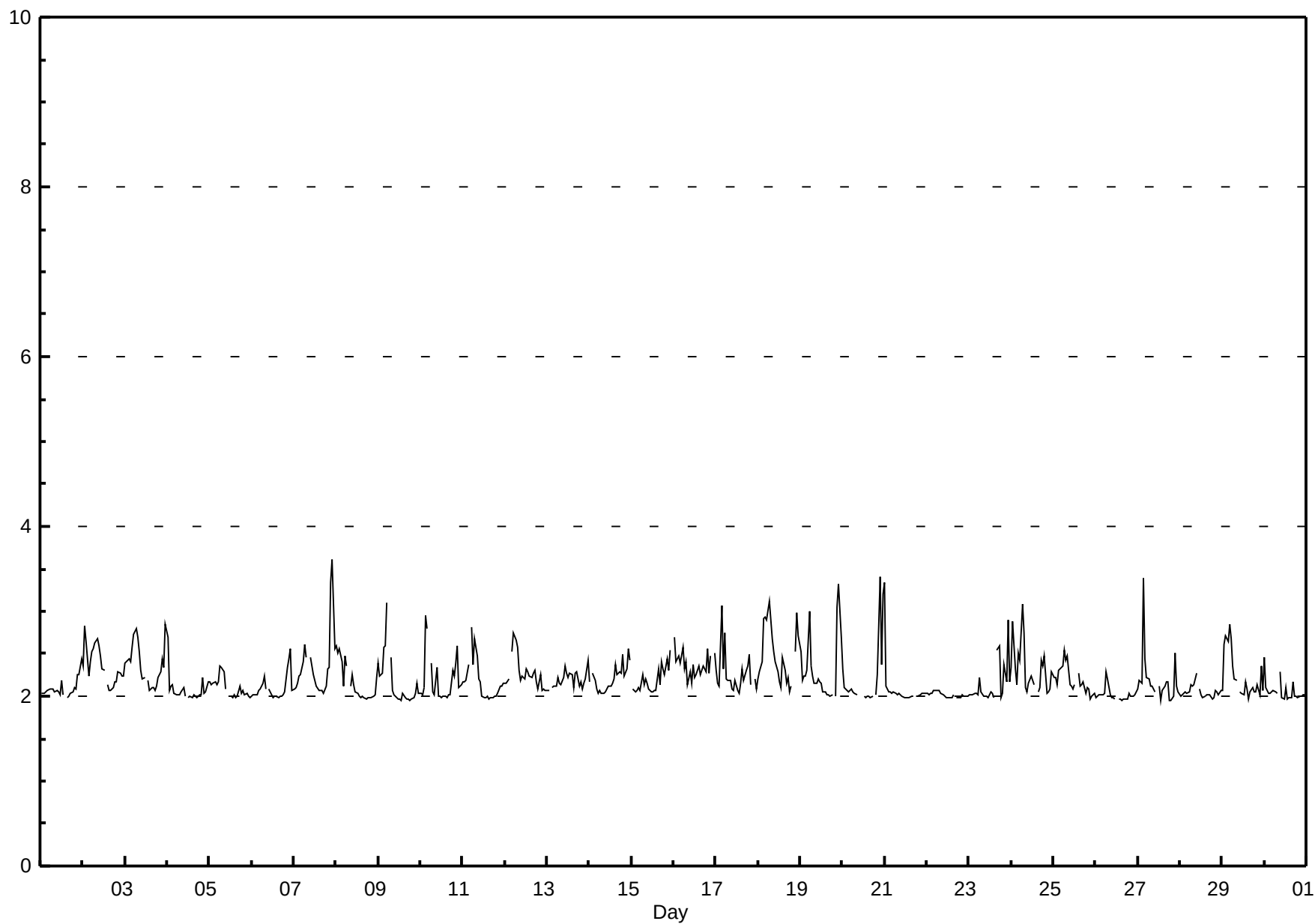
Total Hydrocarbons (THC) - ppm

Henry Pirker - April 2011

| Maximum Value: 3.61 ppm on Apr 7 23:00      |                               | Maximum Daily Average: 2.49 ppm on Apr 18                                                                                                                         |      | Hours in Service: 720           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |
|---------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------|---------------|--|
| Minimum Value: 1.9 ppm on Apr 27 20:00      |                               | Minimum Daily Average: 2.02 ppm on Apr 22                                                                                                                         |      | Hours of Data: 686              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |
| Maximum Diurnal Average: 2.37 ppm at hour 6 |                               | Minimum Diurnal Average: 2.06 ppm at hour 14                                                                                                                      |      | Hours of Missing Data: 34       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |
| Monthly Average: 2.197 ppm                  |                               | Percentiles: P <sub>1</sub> = 1.96 P <sub>10</sub> = 1.99 Q <sub>1</sub> = 2.02 Median = 2.11 Q <sub>3</sub> = 2.29 P <sub>90</sub> = 2.52 P <sub>99</sub> = 3.16 |      | Hours of Calibration: 34        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |
|                                             |                               |                                                                                                                                                                   |      | Percent Operational Time: 100.0 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |
| Day                                         | Hourly Period Ending At (MST) |                                                                                                                                                                   |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Daily Average   | Daily Maximum |  |
| 1-Apr                                       | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.1  | 2.1  | 2.1  | 2.1  | 2.0  | 2.1  | 2.1  | 2.0  | 2.2  | 2.0  | A    | 2.0  | 2.0  | 2.0  | 2.1  | 2.1  | 2.1  | 2.3  | 2.3  | 2.4  | 2.09            | 2.45          |  |
| 2-Apr                                       | 2.4                           | 2.8                                                                                                                                                               | 2.6  | 2.2                             | 2.4  | 2.5  | 2.6  | 2.6  | 2.7  | 2.6  | 2.5  | 2.3  | 2.3  | A    | 2.1  | 2.1  | 2.1  | 2.1  | 2.2  | 2.2  | 2.3  | 2.3  | 2.2  | 2.2  | 2.36            | 2.84          |  |
| 3-Apr                                       | 2.4                           | 2.4                                                                                                                                                               | 2.4  | 2.4                             | 2.6  | 2.7  | 2.8  | 2.7  | 2.5  | 2.3  | 2.2  | 2.2  | A    | 2.2  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.2  | 2.3  | 2.4  | 2.3  | 2.8  | 2.37            | 2.85          |  |
| 4-Apr                                       | 2.7                           | 2.1                                                                                                                                                               | 2.1  | 2.1                             | 2.0  | 2.0  | 2.0  | 2.0  | 2.1  | 2.1  | 2.0  | A    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.2  | 2.0  | 2.0  | 2.2  | 2.08            | 2.69          |  |
| 5-Apr                                       | 2.2                           | 2.1                                                                                                                                                               | 2.1  | 2.2                             | 2.1  | 2.2  | 2.4  | 2.3  | 2.3  | 2.1  | A    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.1  | 2.0  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.10            | 2.35          |  |
| 6-Apr                                       | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.1  | 2.1  | 2.1  | 2.2  | 2.1  | A    | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.3  | 2.4  | 2.6  | 2.1  | 2.10            | 2.57          |  |
| 7-Apr                                       | 2.1                           | 2.1                                                                                                                                                               | 2.2  | 2.2                             | 2.3  | 2.4  | 2.6  | 2.4  | A    | 2.5  | 2.4  | 2.3  | 2.2  | 2.1  | 2.1  | 2.1  | 2.1  | 2.0  | 2.1  | 2.3  | 2.3  | 3.3  | 3.6  | 2.6  | 2.36            | 3.61          |  |
| 8-Apr                                       | 2.6                           | 2.5                                                                                                                                                               | 2.6  | 2.4                             | 2.1  | 2.5  | 2.4  | A    | 2.1  | 2.3  | 2.1  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.2  | 2.16            | 2.60          |  |
| 9-Apr                                       | 2.4                           | 2.2                                                                                                                                                               | 2.3  | 2.6                             | 2.6  | 3.1  | A    | 2.5  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.2  | 2.0  | 2.0  | 2.16            | 3.09          |  |
| 10-Apr                                      | 2.0                           | 2.0                                                                                                                                                               | 2.1  | 3.0                             | 2.8  | A    | 2.4  | 2.0  | 2.0  | 2.3  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.3  | 2.2  | 2.4  | 2.6  | 2.1  | 2.1  | 2.19            | 2.96          |  |
| 11-Apr                                      | 2.2                           | 2.2                                                                                                                                                               | 2.2  | 2.4                             | A    | 2.8  | 2.4  | 2.7  | 2.5  | 2.2  | 2.2  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.1  | 2.1  | 2.1  | 2.1  | 2.17            | 2.82          |  |
| 12-Apr                                      | 2.2                           | 2.1                                                                                                                                                               | 2.2  | A                               | 2.5  | 2.7  | 2.7  | 2.6  | 2.3  | 2.2  | 2.2  | 2.2  | 2.3  | 2.3  | 2.2  | 2.2  | 2.3  | 2.3  | 2.2  | 2.1  | 2.3  | 2.1  | 2.1  | 2.1  | 2.28            | 2.74          |  |
| 13-Apr                                      | 2.1                           | 2.1                                                                                                                                                               | A    | 2.1                             | 2.1  | 2.1  | 2.2  | 2.2  | 2.1  | 2.2  | 2.3  | 2.3  | 2.2  | 2.3  | 2.3  | 2.1  | 2.3  | 2.3  | 2.1  | 2.2  | 2.1  | 2.2  | 2.2  | 2.4  | 2.19            | 2.43          |  |
| 14-Apr                                      | 2.2                           | A                                                                                                                                                                 | 2.3  | 2.2                             | 2.1  | 2.0  | 2.1  | 2.0  | 2.0  | 2.1  | 2.1  | 2.1  | 2.1  | 2.2  | 2.2  | 2.4  | 2.2  | 2.3  | 2.3  | 2.5  | 2.2  | 2.3  | 2.6  | 2.4  | 2.21            | 2.55          |  |
| 15-Apr                                      | A                             | 2.1                                                                                                                                                               | 2.0  | 2.1                             | 2.1  | 2.1  | 2.3  | 2.1  | 2.2  | 2.2  | 2.1  | 2.0  | 2.0  | 2.1  | 2.1  | 2.3  | 2.1  | 2.4  | 2.3  | 2.2  | 2.4  | 2.3  | 2.5  | A    | 2.19            | 2.54          |  |
| 16-Apr                                      | 2.7                           | 2.4                                                                                                                                                               | 2.4  | 2.5                             | 2.4  | 2.6  | 2.3  | 2.4  | 2.1  | 2.3  | 2.1  | 2.4  | 2.2  | 2.2  | 2.4  | 2.2  | 2.3  | 2.3  | 2.3  | 2.6  | 2.3  | 2.5  | A    | 2.5  | 2.37            | 2.70          |  |
| 17-Apr                                      | 2.3                           | 2.2                                                                                                                                                               | 2.1  | 3.1                             | 2.3  | 2.7  | 2.2  | 2.2  | 2.2  | 2.1  | 2.1  | 2.2  | 2.1  | 2.0  | 2.2  | 2.3  | 2.2  | 2.3  | 2.3  | 2.5  | 2.1  | A    | 2.2  | 2.1  | 2.26            | 3.07          |  |
| 18-Apr                                      | 2.2                           | 2.3                                                                                                                                                               | 2.4  | 2.9                             | 2.9  | 2.9  | 3.1  | 2.9  | 2.7  | 2.5  | 2.4  | 2.3  | 2.2  | 2.1  | 2.5  | 2.3  | 2.2  | 2.2  | 2.0  | 2.1  | A    | 2.5  | 3.0  | 2.7  | 2.49            | 3.11          |  |
| 19-Apr                                      | 2.5                           | 2.2                                                                                                                                                               | 2.2  | 2.2                             | 2.3  | 3.0  | 2.4  | 2.2  | 2.2  | 2.2  | 2.2  | 2.2  | 2.1  | 2.1  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.0  | 3.1  | 3.3  | 2.7  | 2.31            | 3.32          |  |
| 20-Apr                                      | 2.3                           | 2.1                                                                                                                                                               | 2.1  | 2.1                             | 2.1  | 2.1  | 2.1  | 2.0  | 2.0  | C    | C    | C    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.0  | 2.3  | 3.4  | 2.4  | 3.2  | 2.20            | 3.41          |  |
| 21-Apr                                      | 3.3                           | 2.1                                                                                                                                                               | 2.1  | 2.1                             | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.08            | 3.35          |  |
| 22-Apr                                      | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.1  | 2.1  | 2.1  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.02            | 2.07          |  |
| 23-Apr                                      | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.0  | 2.0  | 2.2  | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.5  | 2.6  | 2.0  | 2.0  | 2.4  | 2.2  | 2.9  | 2.2  | 2.14            | 2.90          |  |
| 24-Apr                                      | 2.3                           | 2.9                                                                                                                                                               | 2.3  | 2.1                             | 2.5  | 2.4  | 3.1  | 2.8  | 2.1  | 2.1  | 2.2  | 2.2  | 2.2  | 2.1  | A    | 2.1  | 2.1  | 2.4  | 2.4  | 2.5  | 2.0  | 2.0  | 2.1  | 2.3  | 2.31            | 3.08          |  |
| 25-Apr                                      | 2.2                           | 2.2                                                                                                                                                               | 2.1  | 2.3                             | 2.3  | 2.4  | 2.5  | 2.4  | 2.5  | 2.1  | 2.1  | 2.1  | 2.1  | A    | 2.3  | 2.1  | 2.1  | 2.2  | 2.0  | 2.1  | 2.1  | 2.0  | 2.0  | 2.0  | 2.19            | 2.54          |  |
| 26-Apr                                      | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.0  | 2.0  | 2.3  | 2.2  | 2.0  | 2.0  | 2.0  | 2.0  | A    | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.02            | 2.28          |  |
| 27-Apr                                      | 2.1                           | 2.2                                                                                                                                                               | 2.1  | 3.4                             | 2.4  | 2.2  | 2.2  | 2.1  | 2.1  | 2.1  | 2.1  | A    | 2.1  | 1.9  | 2.1  | 2.1  | 2.2  | 2.2  | 2.0  | 1.9  | 2.0  | 2.5  | 2.1  | 2.0  | 2.18            | 3.39          |  |
| 28-Apr                                      | 2.0                           | 2.0                                                                                                                                                               | 2.0  | 2.0                             | 2.0  | 2.1  | 2.1  | 2.1  | 2.1  | 2.3  | A    | 2.1  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.1  | 2.0  | 2.0  | 2.1  | 2.05            | 2.27          |  |
| 29-Apr                                      | 2.1                           | 2.6                                                                                                                                                               | 2.7  | 2.6                             | 2.8  | 2.7  | 2.4  | 2.2  | 2.2  | A    | 2.1  | 2.0  | 2.0  | 2.2  | 2.1  | 2.0  | 2.1  | 2.1  | 2.1  | 2.1  | 2.1  | 2.0  | 2.4  | 2.1  | 2.24            | 2.85          |  |
| 30-Apr                                      | 2.5                           | 2.1                                                                                                                                                               | 2.0  | 2.0                             | 2.1  | 2.1  | 2.0  | 2.0  | A    | 2.3  | 2.0  | 2.0  | 2.1  | 2.0  | 2.0  | 2.0  | 2.2  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.0  | 2.05            | 2.45          |  |
| 2.27                                        |                               | 2.21                                                                                                                                                              | 2.21 | 2.32                            | 2.28 | 2.37 | 2.34 | 2.29 | 2.19 | 2.18 | 2.13 | 2.11 | 2.09 | 2.06 | 2.09 | 2.08 | 2.10 | 2.13 | 2.09 | 2.13 | 2.15 | 2.30 | 2.32 | 2.27 | Diurnal Average |               |  |
| 3.35                                        |                               | 2.88                                                                                                                                                              | 2.72 | 3.39                            | 2.93 | 3.09 | 3.11 | 2.90 | 2.69 | 2.60 | 2.48 | 2.37 | 2.33 | 2.29 | 2.47 | 2.36 | 2.55 | 2.59 | 2.35 | 2.56 | 2.44 | 3.41 | 3.61 | 3.20 | Diurnal Maximum |               |  |
| C - Calibration                             |                               | A - Automated Daily Zero Span                                                                                                                                     |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |               |  |

## Hourly Maximums

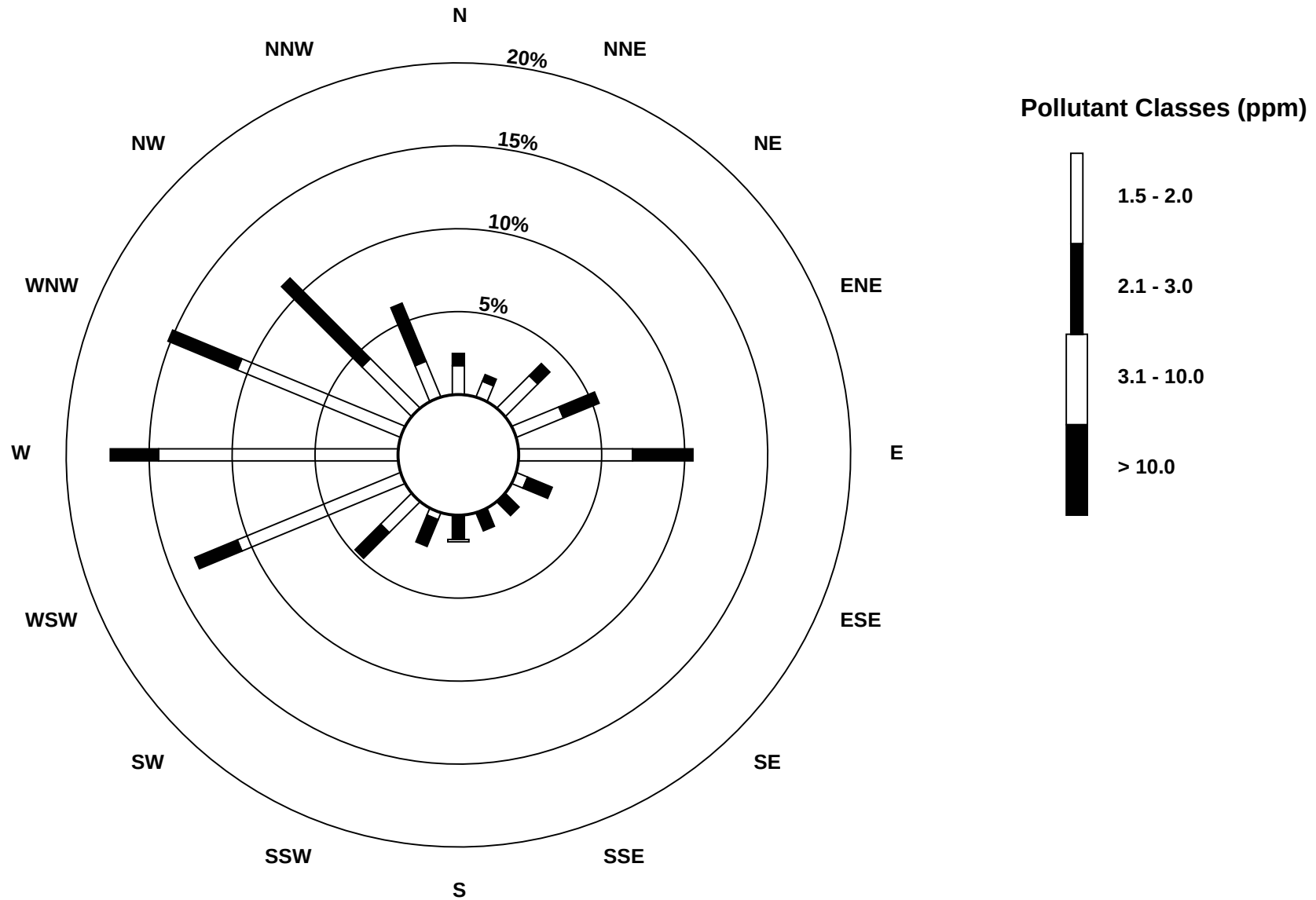
Total Hydrocarbons (THC) - ppm  
Henry Pirker - April 2011



## Pollutant Rose

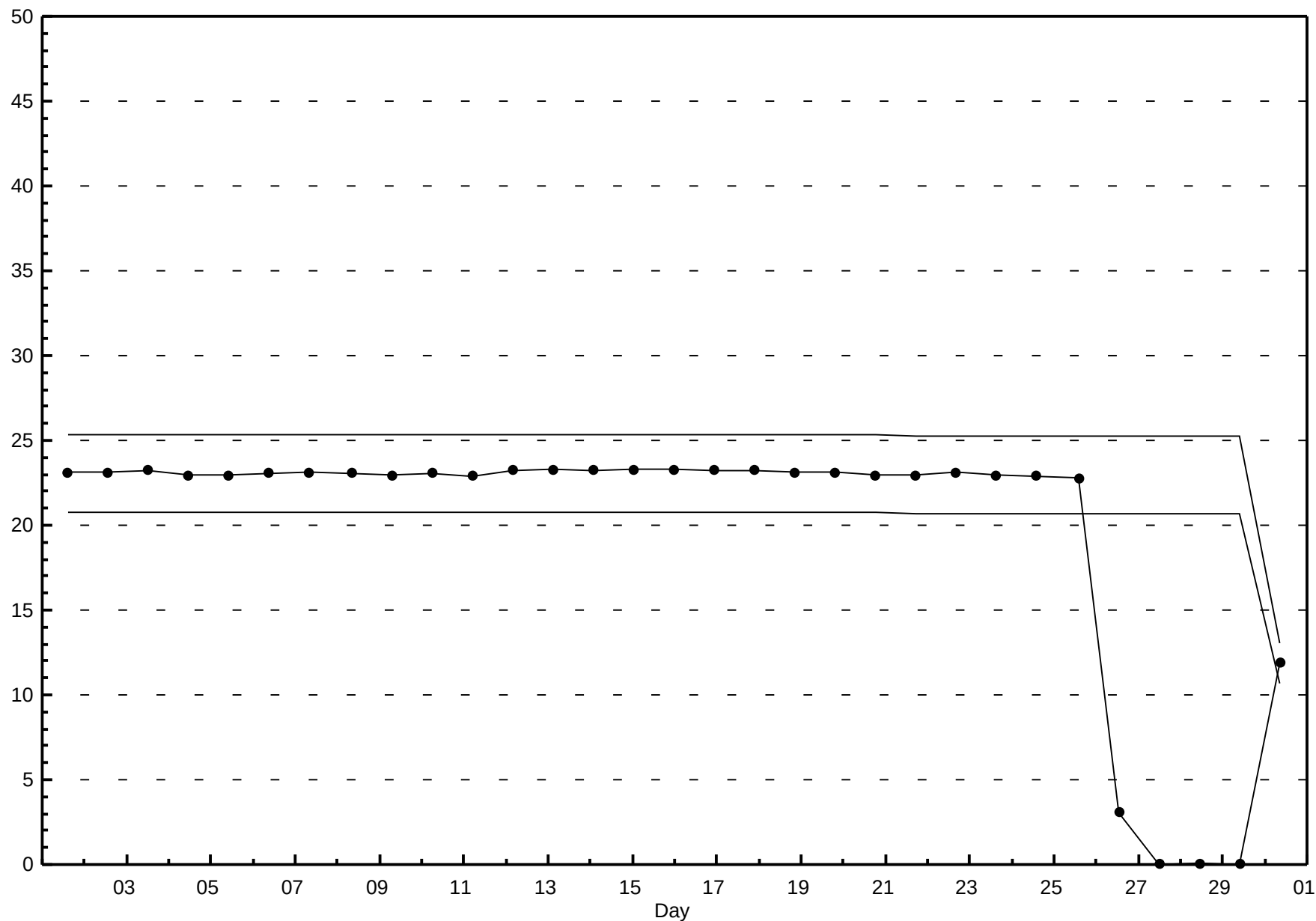
Total Hydrocarbons (THC) - ppm

Henry Pirker - April 2011



## Span Responses

Total Hydrocarbons (THC)  
Henry Pirker - April 2011

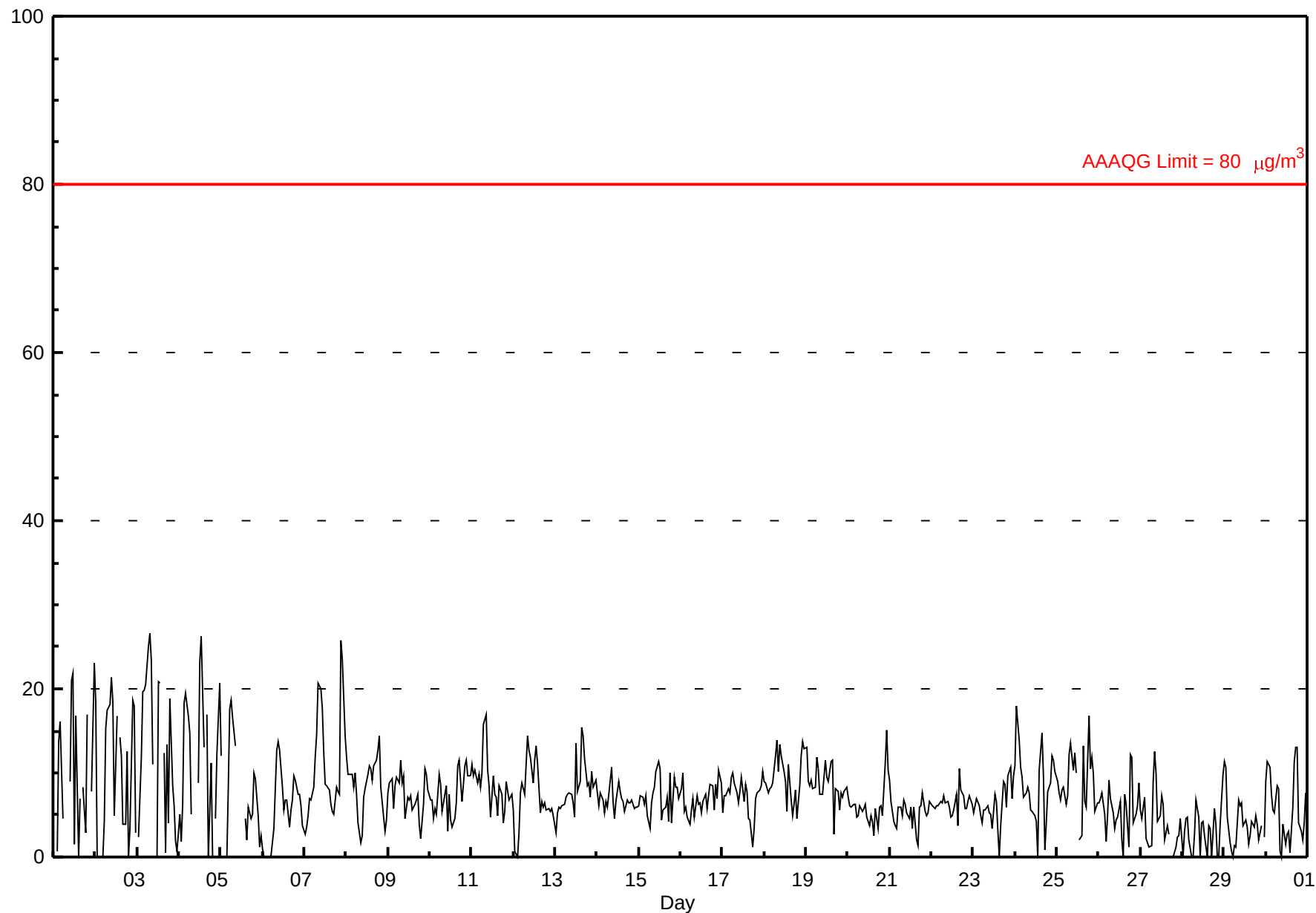


# Hourly Averages

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Henry Pirker - April 2011

|                                                                                                                                                                                                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                           |    |    |    |                 |                 |               |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|-----------------|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Number of Exceedences: 1-hr: 0 24-hr: 0<br>Maximum Value: 26.6 µg/m³ on Apr 3 08:00<br>Minimum Value: 0 µg/m³ on Apr 1 15:00<br>Maximum Diurnal Average: 9.7 µg/m³ at hour 9<br>Monthly Average: 7.51 µg/m³                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 12.8 µg/m³ on Apr 3<br>Minimum Daily Average: 2.9 µg/m³ on Apr 28<br>Minimum Diurnal Average: 6.3 µg/m³ at hour 15<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 4.8 Median = 6.8 Q <sub>3</sub> = 9.5 P <sub>90</sub> = 13.0 P <sub>99</sub> = 23.2 |    |    |    |                 |                 |               |  |  |  |  |  |  |  |  |  |  |  |  |  | Hours in Service: 720<br>Hours of Data: 692<br>Hours of Missing Data: 28<br>Hours of Calibration: 2<br>Percent Operational Time: 96.4 |  |
| Day                                                                                                                                                                                                                        | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                           |    |    |    |                 | Daily Average   | Daily Maximum |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 1-Apr                                                                                                                                                                                                                      | BD                            | BD | 1  | 14 | 16 | 5  | BD | BD | BD | 9  | 21 | 22 | 2  | 17 | 0  | 7  | BD | 8  | 3  | 17                                                                                                                                                                                                                                                                                                        | BD | BD | 8  | 23              | --              | 23.1          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 2-Apr                                                                                                                                                                                                                      | 19                            | 0  | BD | BD | 0  | 4  | 15 | 17 | 18 | 21 | 18 | 5  | 17 | BD | 14 | 12 | 4  | 4  | 13 | 0                                                                                                                                                                                                                                                                                                         | 3  | 19 | 18 | 3               | 10.7            | 21.4          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 3-Apr                                                                                                                                                                                                                      | BD                            | 2  | 12 | 20 | 20 | 20 | 25 | 27 | 23 | 11 | BD | 0  | 21 | 21 | BD | 12 | 1  | 13 | 4  | 19                                                                                                                                                                                                                                                                                                        | 9  | 6  | 2  | 1               | 12.8            | 26.6          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 4-Apr                                                                                                                                                                                                                      | 5                             | 2  | 6  | 18 | 20 | 17 | 15 | 5  | BD | BD | BD | 9  | 23 | 26 | 13 | BD | 17 | 0  | 11 | 0                                                                                                                                                                                                                                                                                                         | BD | 5  | 12 | 21              | 11.8            | 26.3          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 5-Apr                                                                                                                                                                                                                      | 12                            | BD | BD | 0  | 8  | 18 | 19 | 17 | 13 | BD | BD | 5  | C  | C  | 5  | 2  | 6  | 5  | 5  | 10                                                                                                                                                                                                                                                                                                        | 9  | 5  | 1  | 3               | 7.9             | 18.6          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 6-Apr                                                                                                                                                                                                                      | 1                             | 0  | 0  | 0  | 0  | 0  | 3  | 8  | 13 | 14 | 13 | 8  | 6  | 7  | 7  | 4  | 6  | 7  | 10 | 9                                                                                                                                                                                                                                                                                                         | 7  | 7  | 6  | 4               | 5.8             | 13.8          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 7-Apr                                                                                                                                                                                                                      | 3                             | 4  | 5  | 7  | 7  | 8  | 12 | 15 | 21 | 20 | 18 | 12 | 9  | 9  | 8  | 6  | 5  | 5  | 8  | 8                                                                                                                                                                                                                                                                                                         | 8  | 26 | 24 | 14              | 10.8            | 25.8          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 8-Apr                                                                                                                                                                                                                      | 12                            | 10 | 10 | 10 | 8  | 10 | 8  | 4  | 2  | 2  | 7  | 8  | 10 | 11 | 10 | 9  | 11 | 12 | 13 | 14                                                                                                                                                                                                                                                                                                        | 8  | 5  | 3  | 4               | 8.4             | 14.4          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 9-Apr                                                                                                                                                                                                                      | 8                             | 9  | 9  | 6  | 8  | 10 | 9  | 11 | 9  | 10 | 5  | 7  | 7  | 7  | 6  | 6  | 7  | 8  | 4  | 2                                                                                                                                                                                                                                                                                                         | 6  | 10 | 10 | 8               | 7.5             | 11.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 10-Apr                                                                                                                                                                                                                     | 7                             | 7  | 5  | 6  | 5  | 10 | 9  | 5  | 6  | 9  | 3  | 7  | 4  | 4  | 5  | 6  | 11 | 12 | 7  | 9                                                                                                                                                                                                                                                                                                         | 11 | 11 | 10 | 10              | 7.4             | 11.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 11-Apr                                                                                                                                                                                                                     | 11                            | 10 | 10 | 9  | 10 | 8  | 10 | 16 | 17 | 10 | 9  | 5  | 10 | 8  | 7  | 5  | 8  | 7  | 4  | 5                                                                                                                                                                                                                                                                                                         | 9  | 7  | 7  | 7               | 8.7             | 17.0          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 12-Apr                                                                                                                                                                                                                     | 6                             | 1  | 0  | 3  | 8  | 9  | 7  | 11 | 14 | 13 | 12 | 9  | 11 | 13 | 11 | 5  | 7  | 6  | 6  | 6                                                                                                                                                                                                                                                                                                         | 6  | 5  | 6  | 5               | 7.5             | 14.3          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 13-Apr                                                                                                                                                                                                                     | 3                             | 5  | 6  | 6  | 6  | 6  | 7  | 7  | 8  | 7  | 6  | 5  | 14 | 8  | 9  | 15 | 14 | 12 | 8  | 9                                                                                                                                                                                                                                                                                                         | 7  | 10 | 8  | 9               | 8.2             | 15.4          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 14-Apr                                                                                                                                                                                                                     | 8                             | 6  | 8  | 7  | 5  | 7  | 6  | 8  | 11 | 7  | 5  | 7  | 9  | 8  | 7  | 7  | 6  | 7  | 6  | 6                                                                                                                                                                                                                                                                                                         | 7  | 6  | 6  | 6               | 6.7             | 10.7          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 15-Apr                                                                                                                                                                                                                     | 6                             | 7  | 7  | 6  | 7  | 5  | 3  | 6  | 8  | 8  | 10 | 11 | 10 | 4  | 6  | 6  | 7  | 4  | 10 | 4                                                                                                                                                                                                                                                                                                         | 9  | 8  | 8  | 7               | 7.1             | 11.4          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 16-Apr                                                                                                                                                                                                                     | 8                             | 10 | 5  | 6  | 5  | 4  | 6  | 7  | 5  | 7  | 6  | 6  | 5  | 7  | 8  | 6  | 7  | 9  | 8  | 6                                                                                                                                                                                                                                                                                                         | 9  | 7  | 10 | 9               | 6.9             | 10.3          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 17-Apr                                                                                                                                                                                                                     | 5                             | 7  | 7  | 8  | 8  | 10 | 10 | 9  | 8  | 7  | 8  | 10 | 7  | 9  | 8  | 5  | 4  | 1  | 3  | 7                                                                                                                                                                                                                                                                                                         | 8  | 8  | 8  | 10              | 7.2             | 10.2          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 18-Apr                                                                                                                                                                                                                     | 9                             | 9  | 8  | 8  | 8  | 9  | 12 | 14 | 10 | 13 | 12 | 10 | 9  | 5  | 11 | 7  | 5  | 6  | 8  | 5                                                                                                                                                                                                                                                                                                         | 8  | 12 | 14 | 13              | 9.4             | 13.9          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 19-Apr                                                                                                                                                                                                                     | 13                            | 9  | 9  | 9  | 8  | 8  | 12 | 10 | 7  | 8  | 9  | 11 | 10 | 9  | 11 | 11 | 3  | 8  | 8  | 6                                                                                                                                                                                                                                                                                                         | 8  | 7  | 8  | 8               | 8.8             | 13.1          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 20-Apr                                                                                                                                                                                                                     | 7                             | 6  | 6  | 6  | 6  | 5  | 5  | 6  | 5  | 6  | 6  | 5  | 4  | 5  | 4  | 3  | 6  | 3  | 6  | 6                                                                                                                                                                                                                                                                                                         | 5  | 11 | 15 | 10              | 6.1             | 15.0          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 21-Apr                                                                                                                                                                                                                     | 9                             | 7  | 4  | 4  | 3  | 6  | 6  | 5  | 7  | 6  | 5  | 5  | 6  | 3  | 6  | 2  | 1  | 6  | 6  | 8                                                                                                                                                                                                                                                                                                         | 5  | 5  | 5  | 7               | 5.3             | 9.1           |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 22-Apr                                                                                                                                                                                                                     | 6                             | 6  | 6  | 6  | 6  | 7  | 6  | 7  | 6  | 7  | 6  | 5  | 5  | 6  | 8  | 4  | 10 | 8  | 7  | 6                                                                                                                                                                                                                                                                                                         | 6  | 7  | 7  | 6               | 6.4             | 10.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 23-Apr                                                                                                                                                                                                                     | 5                             | 6  | 7  | 6  | 5  | 4  | 6  | 6  | 6  | 5  | 5  | 3  | 7  | 7  | 3  | 0  | 4  | 9  | 9  | 6                                                                                                                                                                                                                                                                                                         | 10 | 11 | 7  | 10              | 6.1             | 10.7          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 24-Apr                                                                                                                                                                                                                     | 11                            | 18 | 14 | 11 | 10 | 7  | 8  | 8  | 8  | 6  | 5  | 5  | 4  | 0  | 10 | 15 | 10 | 1  | 4  | 8                                                                                                                                                                                                                                                                                                         | 9  | 12 | 12 | 10              | 8.5             | 18.0          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 25-Apr                                                                                                                                                                                                                     | 9                             | 8  | 7  | 8  | 8  | 6  | 7  | 12 | 14 | 10 | 12 | 10 | M  | 2  | 2  | 13 | 7  | 6  | 17 | 10                                                                                                                                                                                                                                                                                                        | 12 | 10 | 5  | 6               | 8.8             | 16.8          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 26-Apr                                                                                                                                                                                                                     | 6                             | 7  | 8  | 5  | 2  | 5  | 9  | 7  | 5  | 3  | 4  | 5  | 7  | 2  | 0  | 7  | 6  | 1  | 12 | 12                                                                                                                                                                                                                                                                                                        | 4  | 5  | 6  | 9               | 5.8             | 12.2          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 27-Apr                                                                                                                                                                                                                     | 6                             | 5  | 7  | 2  | 2  | 1  | 1  | 9  | 13 | 10 | 4  | 5  | 7  | 6  | 2  | 4  | 3  | BD | 0  | 0                                                                                                                                                                                                                                                                                                         | 1  | 2  | 2  | 5               | 4.2             | 12.6          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 28-Apr                                                                                                                                                                                                                     | 0                             | 3  | 5  | 5  | 2  | 0  | 0  | 3  | 7  | 5  | 0  | 4  | 4  | 3  | 0  | 4  | 3  | 0  | 6  | 4                                                                                                                                                                                                                                                                                                         | 0  | 0  | 4  | 10              | 2.9             | 9.8           |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 29-Apr                                                                                                                                                                                                                     | 11                            | 11 | 5  | 2  | 1  | 0  | 1  | 1  | 7  | 6  | 6  | 4  | 4  | 4  | 1  | 3  | 4  | 4  | 5  | 4                                                                                                                                                                                                                                                                                                         | 2  | 4  | BD | 2               | 4.0             | 11.3          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 30-Apr                                                                                                                                                                                                                     | 9                             | 11 | 11 | 7  | 6  | 5  | 8  | 8  | 1  | 0  | 4  | 1  | 3  | 3  | 1  | 6  | 11 | 13 | 13 | 4                                                                                                                                                                                                                                                                                                         | 3  | 2  | 4  | 8               | 6.0             | 13.1          |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| 7.6 6.6 6.6 7.0 6.9 7.1 8.5 9.3 9.7 8.6 8.2 7.0 8.3 7.5 6.3 6.6 6.7 6.3 7.5 6.9 6.7 8.1 8.2 8.2<br>18.6 18.0 13.9 19.6 19.8 20.5 25.0 26.6 23.3 21.4 21.1 21.9 23.2 26.3 14.3 15.4 16.9 13.4 16.8 18.8 11.8 25.8 23.6 23.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                           |    |    |    | Diurnal Average | Diurnal Maximum |               |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |
| C - Calibration M - Maintenance BD - Baseline Drift<br>Alberta Ambient Air Quality Guideline (AAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAQO): 24-hr 30 µg/m³                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                                           |    |    |    |                 |                 |               |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                       |  |



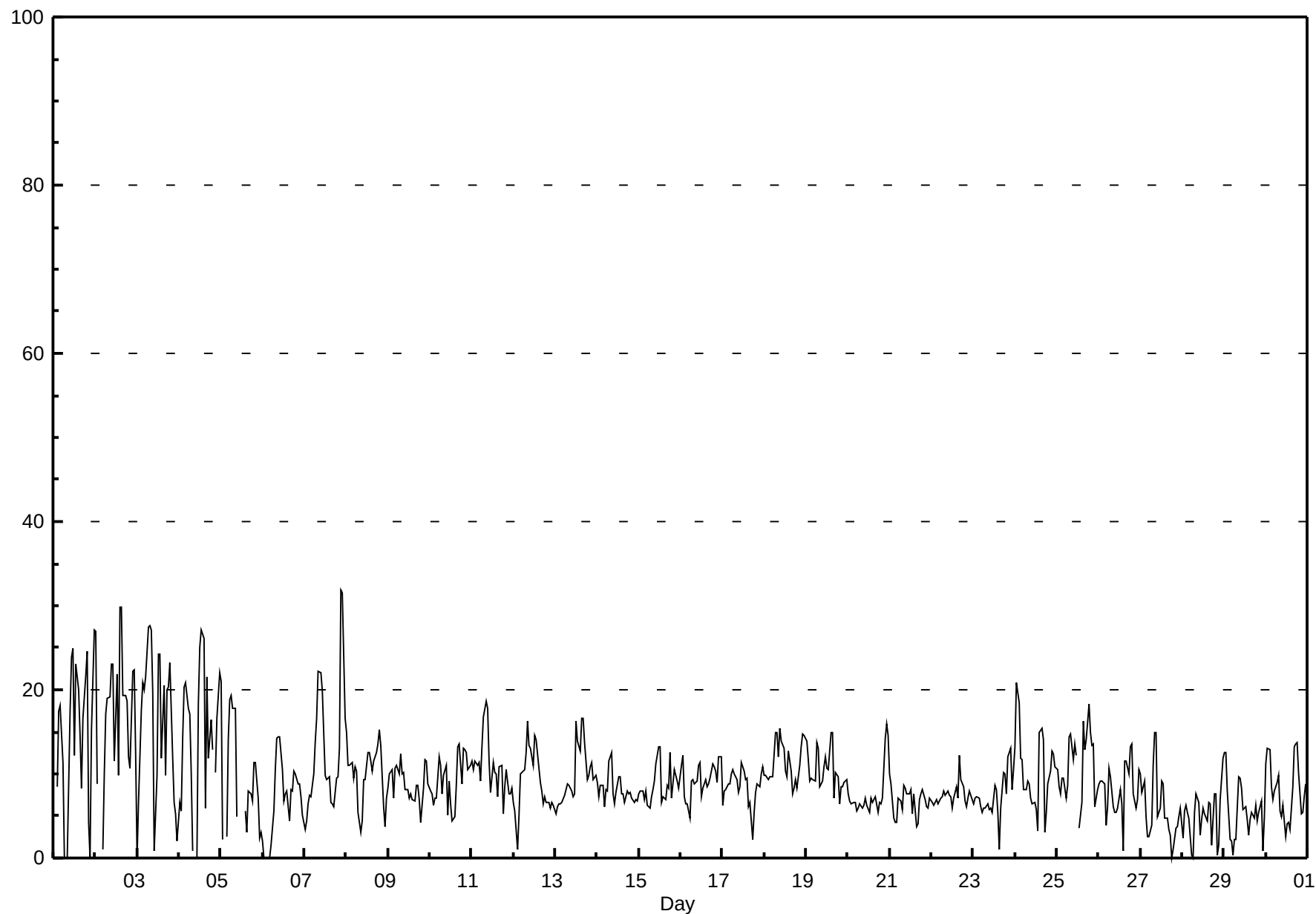


# Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

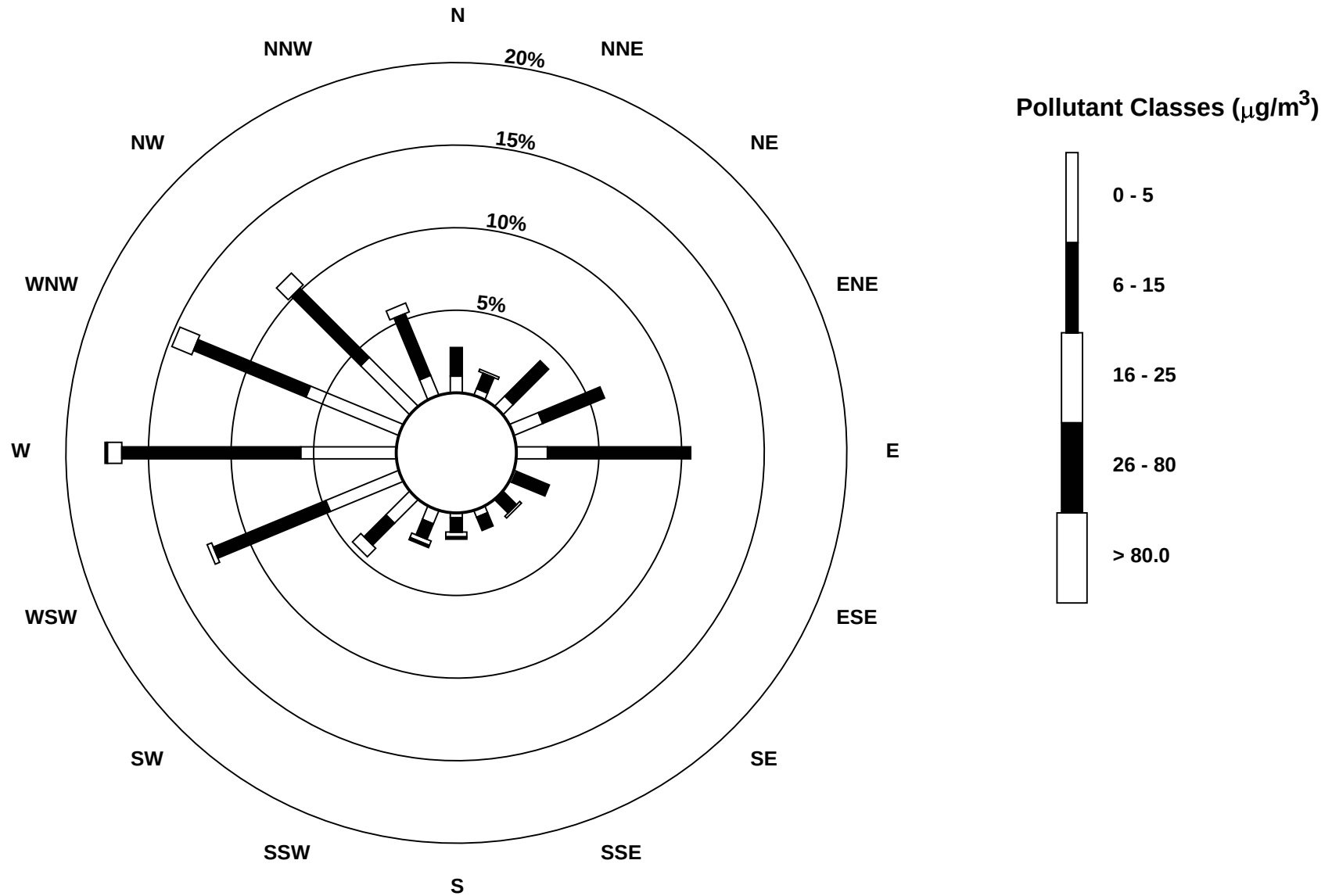
Henry Pirker - April 2011

| Maximum Value: 31.8 μg/m <sup>3</sup> on Apr 7 22:00                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 17.6 μg/m <sup>3</sup> on Apr 2                                                                                                        |                 |               |  |  |  |  |  | Hours in Service: 720     |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|--|--|--|--|--|---------------------------|--|
| Minimum Value: 0 μg/m <sup>3</sup> on Apr 1 07:00                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 4.9 μg/m <sup>3</sup> on Apr 28                                                                                                        |                 |               |  |  |  |  |  | Hours of Data: 708        |  |
| Maximum Diurnal Average: 11.0 μg/m <sup>3</sup> at hour 8                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 8.3 μg/m <sup>3</sup> at hour 5                                                                                                      |                 |               |  |  |  |  |  | Hours of Missing Data: 12 |  |
| Monthly Average: 9.63 μg/m <sup>3</sup>                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 4.6 Q <sub>1</sub> = 6.4 Median = 8.6 Q <sub>3</sub> = 11.8 P <sub>90</sub> = 16.6 P <sub>99</sub> = 27.0 |                 |               |  |  |  |  |  | Hours of Calibration: 2   |  |
|                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 98.6                                                                                                                                |                 |               |  |  |  |  |  |                           |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               | Daily Average   | Daily Maximum |  |  |  |  |  |                           |  |
| 1-Apr                                                                                                                   | BD                            | BD | 8  | 17 | 18 | 11 | 0  | BD | 0  | 17 | 24 | 25 | 12 | 23 | 20 | 15 | 8  | 17 | 22 | 25 | 4  | 0  | 15 | 27                                                                                                                                                            | 14.7            | 27.2          |  |  |  |  |  |                           |  |
| 2-Apr                                                                                                                   | 27                            | 9  | BD | BD | 1  | 10 | 17 | 19 | 19 | 23 | 23 | 11 | 22 | 10 | 30 | 30 | 19 | 19 | 19 | 12 | 11 | 22 | 22 | 12                                                                                                                                                            | 17.6            | 29.8          |  |  |  |  |  |                           |  |
| 3-Apr                                                                                                                   | 0                             | 7  | 18 | 21 | 20 | 21 | 27 | 28 | 27 | 20 | 1  | 10 | 24 | 24 | 12 | 21 | 10 | 20 | 20 | 23 | 12 | 7  | 5  | 2                                                                                                                                                             | 15.8            | 27.6          |  |  |  |  |  |                           |  |
| 4-Apr                                                                                                                   | 7                             | 6  | 14 | 20 | 21 | 18 | 17 | 10 | 1  | BD | 0  | 18 | 25 | 27 | 26 | 6  | 22 | 12 | 16 | 13 | BD | 10 | 17 | 22                                                                                                                                                            | 14.9            | 27.2          |  |  |  |  |  |                           |  |
| 5-Apr                                                                                                                   | 21                            | 2  | BD | 3  | 14 | 19 | 19 | 18 | 18 | 5  | BD | 19 | C  | C  | 6  | 3  | 8  | 8  | 7  | 11 | 11 | 7  | 2  | 3                                                                                                                                                             | 10.2            | 21.1          |  |  |  |  |  |                           |  |
| 6-Apr                                                                                                                   | 2                             | 0  | 0  | 0  | 0  | 2  | 6  | 11 | 14 | 14 | 14 | 10 | 7  | 8  | 8  | 4  | 8  | 8  | 10 | 10 | 9  | 9  | 7  | 5                                                                                                                                                             | 6.9             | 14.4          |  |  |  |  |  |                           |  |
| 7-Apr                                                                                                                   | 3                             | 4  | 6  | 7  | 7  | 10 | 14 | 17 | 22 | 22 | 20 | 15 | 10 | 9  | 10 | 7  | 6  | 6  | 10 | 10 | 13 | 32 | 32 | 17                                                                                                                                                            | 12.8            | 31.8          |  |  |  |  |  |                           |  |
| 8-Apr                                                                                                                   | 15                            | 11 | 11 | 11 | 10 | 11 | 10 | 5  | 3  | 4  | 9  | 9  | 13 | 13 | 12 | 10 | 11 | 13 | 13 | 15 | 13 | 6  | 4  | 7                                                                                                                                                             | 10.0            | 15.2          |  |  |  |  |  |                           |  |
| 9-Apr                                                                                                                   | 8                             | 10 | 11 | 7  | 11 | 11 | 10 | 12 | 10 | 10 | 8  | 8  | 7  | 8  | 7  | 7  | 9  | 9  | 7  | 4  | 8  | 12 | 12 | 9                                                                                                                                                             | 8.9             | 12.4          |  |  |  |  |  |                           |  |
| 10-Apr                                                                                                                  | 8                             | 8  | 6  | 7  | 7  | 12 | 11 | 8  | 10 | 11 | 5  | 9  | 6  | 4  | 5  | 9  | 13 | 14 | 9  | 13 | 13 | 13 | 10 | 11                                                                                                                                                            | 9.3             | 13.5          |  |  |  |  |  |                           |  |
| 11-Apr                                                                                                                  | 12                            | 11 | 12 | 11 | 11 | 9  | 13 | 17 | 19 | 18 | 11 | 8  | 11 | 10 | 10 | 7  | 11 | 11 | 5  | 9  | 11 | 8  | 8  | 8                                                                                                                                                             | 10.8            | 18.6          |  |  |  |  |  |                           |  |
| 12-Apr                                                                                                                  | 7                             | 6  | 1  | 5  | 10 | 10 | 11 | 13 | 16 | 13 | 13 | 11 | 15 | 14 | 12 | 9  | 8  | 6  | 7  | 7  | 7  | 6  | 7  | 6                                                                                                                                                             | 9.1             | 16.2          |  |  |  |  |  |                           |  |
| 13-Apr                                                                                                                  | 5                             | 6  | 6  | 6  | 7  | 7  | 8  | 9  | 9  | 8  | 7  | 8  | 16 | 14 | 13 | 17 | 17 | 14 | 9  | 10 | 11 | 11 | 9  | 10                                                                                                                                                            | 9.9             | 16.7          |  |  |  |  |  |                           |  |
| 14-Apr                                                                                                                  | 9                             | 7  | 9  | 9  | 6  | 8  | 8  | 12 | 13 | 8  | 6  | 8  | 10 | 10 | 8  | 8  | 7  | 8  | 8  | 8  | 7  | 7  | 7  | 7                                                                                                                                                             | 8.1             | 12.6          |  |  |  |  |  |                           |  |
| 15-Apr                                                                                                                  | 8                             | 8  | 8  | 7  | 8  | 6  | 6  | 7  | 8  | 9  | 11 | 13 | 13 | 7  | 7  | 7  | 9  | 8  | 13 | 7  | 11 | 10 | 9  | 8                                                                                                                                                             | 8.7             | 13.3          |  |  |  |  |  |                           |  |
| 16-Apr                                                                                                                  | 11                            | 12 | 7  | 6  | 6  | 5  | 9  | 9  | 9  | 9  | 11 | 11 | 7  | 8  | 9  | 9  | 9  | 10 | 11 | 11 | 10 | 9  | 12 | 12                                                                                                                                                            | 9.3             | 12.3          |  |  |  |  |  |                           |  |
| 17-Apr                                                                                                                  | 6                             | 8  | 8  | 9  | 9  | 10 | 10 | 10 | 9  | 8  | 9  | 11 | 10 | 9  | 10 | 6  | 7  | 2  | 5  | 8  | 9  | 8  | 10 | 11                                                                                                                                                            | 8.5             | 11.3          |  |  |  |  |  |                           |  |
| 18-Apr                                                                                                                  | 10                            | 10 | 9  | 10 | 10 | 10 | 15 | 15 | 12 | 15 | 14 | 13 | 10 | 10 | 13 | 10 | 8  | 8  | 9  | 8  | 11 | 13 | 15 | 15                                                                                                                                                            | 11.4            | 15.5          |  |  |  |  |  |                           |  |
| 19-Apr                                                                                                                  | 14                            | 12 | 9  | 10 | 9  | 9  | 14 | 13 | 8  | 9  | 11 | 12 | 11 | 11 | 15 | 15 | 7  | 10 | 10 | 6  | 8  | 8  | 9  | 9                                                                                                                                                             | 10.4            | 15.0          |  |  |  |  |  |                           |  |
| 20-Apr                                                                                                                  | 8                             | 7  | 6  | 7  | 7  | 6  | 6  | 6  | 6  | 6  | 7  | 6  | 6  | 7  | 7  | 7  | 7  | 5  | 7  | 6  | 7  | 14 | 16 | 15                                                                                                                                                            | 7.6             | 15.9          |  |  |  |  |  |                           |  |
| 21-Apr                                                                                                                  | 10                            | 9  | 5  | 4  | 4  | 7  | 7  | 6  | 9  | 8  | 8  | 8  | 8  | 5  | 8  | 4  | 4  | 7  | 8  | 8  | 7  | 6  | 6  | 7                                                                                                                                                             | 6.7             | 10.1          |  |  |  |  |  |                           |  |
| 22-Apr                                                                                                                  | 7                             | 6  | 7  | 7  | 6  | 7  | 7  | 8  | 7  | 8  | 7  | 7  | 6  | 7  | 8  | 7  | 12 | 9  | 8  | 7  | 6  | 7  | 8  | 7                                                                                                                                                             | 7.5             | 12.3          |  |  |  |  |  |                           |  |
| 23-Apr                                                                                                                  | 6                             | 7  | 7  | 7  | 6  | 5  | 6  | 6  | 6  | 6  | 6  | 5  | 9  | 8  | 5  | 1  | 6  | 10 | 10 | 8  | 12 | 13 | 8  | 11                                                                                                                                                            | 7.3             | 13.0          |  |  |  |  |  |                           |  |
| 24-Apr                                                                                                                  | 13                            | 21 | 18 | 12 | 12 | 8  | 8  | 9  | 9  | 7  | 6  | 7  | 6  | 3  | 15 | 15 | 14 | 3  | 5  | 9  | 10 | 13 | 12 | 11                                                                                                                                                            | 10.3            | 20.8          |  |  |  |  |  |                           |  |
| 25-Apr                                                                                                                  | 11                            | 8  | 8  | 9  | 10 | 7  | 9  | 14 | 15 | 12 | 14 | 12 | M  | 3  | 7  | 16 | 13 | 14 | 18 | 15 | 13 | 14 | 6  | 8                                                                                                                                                             | 11.1            | 18.4          |  |  |  |  |  |                           |  |
| 26-Apr                                                                                                                  | 9                             | 9  | 9  | 9  | 4  | 6  | 11 | 10 | 6  | 5  | 5  | 6  | 8  | 6  | 1  | 12 | 12 | 10 | 13 | 14 | 8  | 6  | 7  | 11                                                                                                                                                            | 8.2             | 13.5          |  |  |  |  |  |                           |  |
| 27-Apr                                                                                                                  | 10                            | 8  | 9  | 5  | 2  | 3  | 4  | 11 | 15 | 15 | 5  | 6  | 9  | 9  | 5  | 5  | 3  | 3  | 0  | 1  | 4  | 4  | 5  | 6                                                                                                                                                             | 6.1             | 15.0          |  |  |  |  |  |                           |  |
| 28-Apr                                                                                                                  | 2                             | 6  | 6  | 5  | 5  | 0  | 0  | 5  | 8  | 7  | 3  | 5  | 6  | 5  | 4  | 7  | 6  | 2  | 8  | 8  | 0  | 2  | 7  | 12                                                                                                                                                            | 4.9             | 11.8          |  |  |  |  |  |                           |  |
| 29-Apr                                                                                                                  | 13                            | 13 | 8  | 2  | 2  | 0  | 2  | 2  | 10 | 10 | 8  | 6  | 6  | 4  | 3  | 5  | 5  | 5  | 6  | 4  | 5  | 7  | 1  | 5                                                                                                                                                             | 5.5             | 12.6          |  |  |  |  |  |                           |  |
| 30-Apr                                                                                                                  | 11                            | 13 | 13 | 8  | 7  | 8  | 9  | 10 | 6  | 5  | 6  | 3  | 4  | 4  | 3  | 8  | 13 | 14 | 14 | 10 | 5  | 5  | 7  | 9                                                                                                                                                             | 8.2             | 13.8          |  |  |  |  |  |                           |  |
| 9.4 8.4 8.6 8.4 8.3 8.6 9.8 11.0 10.8 10.8 9.4 10.0 10.6 9.7 9.9 9.5 9.7 9.4 10.3 10.0 8.9 9.6 9.8 10.1                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               | Diurnal Average |               |  |  |  |  |  |                           |  |
| 26.9 20.8 18.4 20.8 20.8 21.5 27.4 27.6 27.1 23.0 24.0 24.9 25.1 27.2 29.8 29.8 21.5 20.0 21.7 24.6 13.4 31.8 31.5 27.2 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               | Diurnal Maximum |               |  |  |  |  |  |                           |  |
| C - Calibration M - Maintenance BD - Baseline Drift                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |                 |               |  |  |  |  |  |                           |  |



# Pollutant Rose

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Henry Pirker - April 2011



# Hourly Averages

External Temperature (ET) - °C

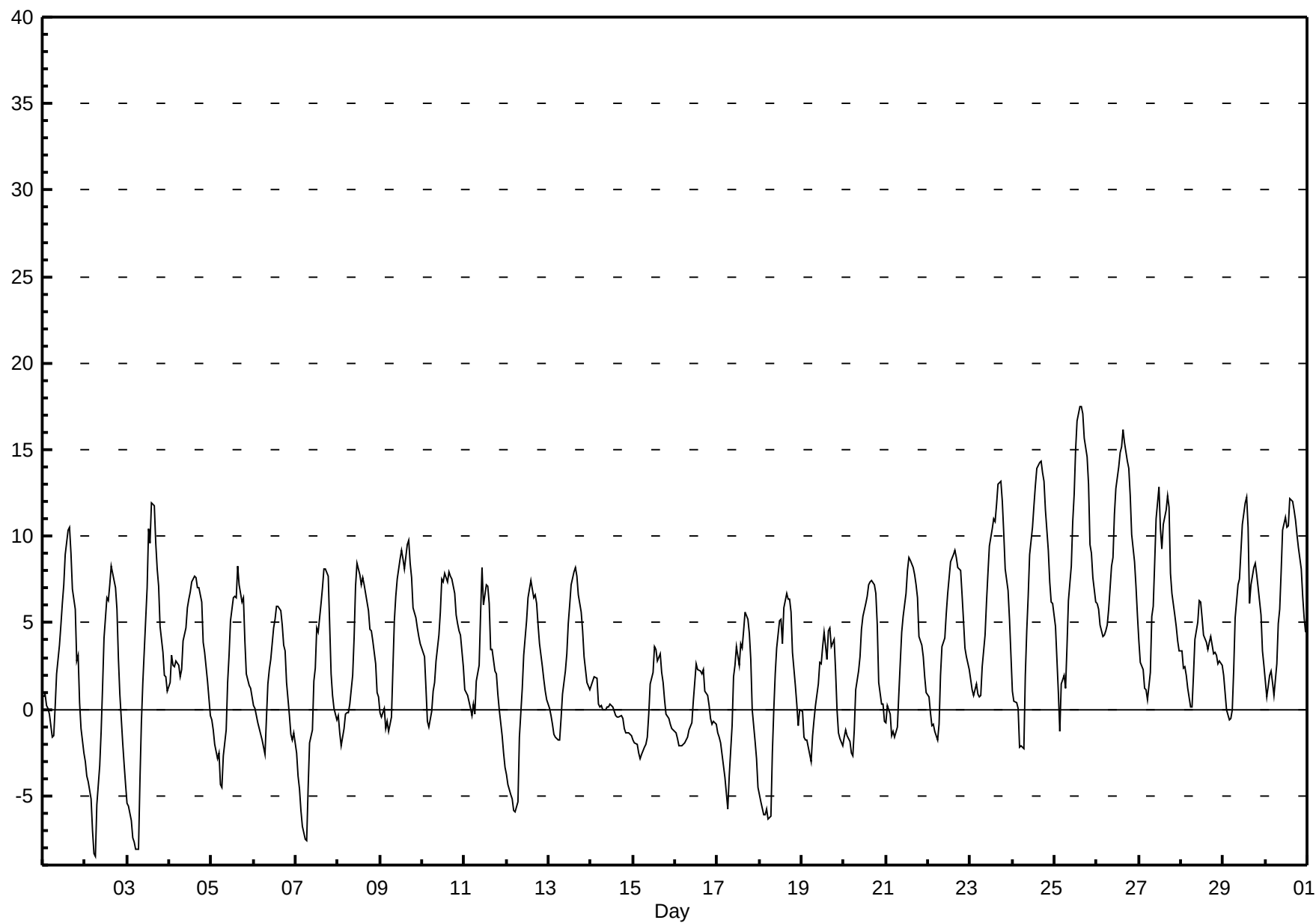
Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 17.5 °C on Apr 25 16:00 Maximum Daily Average: 9.5 °C on Apr 26 |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 720<br>Hours of Missing Data: 0<br>Hours of Calibration: 0<br>Percent Operational Time: 100.0 |                 |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|
| Minimum Value: -9 °C on Apr 2 07:00<br>Maximum Diurnal Average: 8.0 °C at hour 16<br>Monthly Average: 3.18 °C                     |                               |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: -0.2 °C on Apr 16<br>Minimum Diurnal Average: -1.9 °C at hour 6<br>Percentiles: P <sub>1</sub> = -7.5 P <sub>10</sub> = -2.1 Q <sub>1</sub> = -0.3 Median = 2.7 Q <sub>3</sub> = 6.5 P <sub>90</sub> = 9.2 P <sub>99</sub> = 15.3 |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |                 |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       | Daily Average   | Daily Maximum |
|                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12                                                                                                                                                                                                                                                       | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                    |                 |               |
| 1-Apr                                                                                                                             | 1                             | 1  | 0  | 0  | 0  | -2 | -2 | 0  | 2  | 4  | 5  | 6                                                                                                                                                                                                                                                        | 7  | 9  | 10 | 11 | 9  | 7  | 6  | 3  | 3  | 0  | -1 | -2                                                                                                                                    | 3.2             | 10.5          |
| 2-Apr                                                                                                                             | -3                            | -4 | -4 | -5 | -7 | -8 | -9 | -6 | -3 | -1 | 1  | 4                                                                                                                                                                                                                                                        | 6  | 6  | 7  | 8  | 8  | 7  | 6  | 3  | 1  | -2 | -3 | -4                                                                                                                                    | -0.1            | 8.3           |
| 3-Apr                                                                                                                             | -5                            | -6 | -6 | -7 | -8 | -8 | -8 | -4 | -1 | 2  | 3  | 7                                                                                                                                                                                                                                                        | 10 | 10 | 12 | 12 | 10 | 8  | 7  | 5  | 3  | 2  | 2  | 1                                                                                                                                     | 1.7             | 12.0          |
| 4-Apr                                                                                                                             | 2                             | 3  | 3  | 2  | 3  | 3  | 2  | 2  | 4  | 5  | 6  | 6                                                                                                                                                                                                                                                        | 7  | 7  | 8  | 8  | 7  | 7  | 6  | 4  | 3  | 2  | 2  | 0                                                                                                                                     | 4.2             | 7.7           |
| 5-Apr                                                                                                                             | -1                            | -1 | -2 | -3 | -3 | -4 | -5 | -3 | -1 | 2  | 3  | 5                                                                                                                                                                                                                                                        | 6  | 7  | 6  | 8  | 7  | 6  | 6  | 4  | 2  | 1  | 1  | 1                                                                                                                                     | 1.9             | 8.3           |
| 6-Apr                                                                                                                             | 0                             | 0  | -1 | -1 | -1 | -2 | -3 | 0  | 1  | 2  | 3  | 5                                                                                                                                                                                                                                                        | 5  | 6  | 6  | 6  | 5  | 4  | 3  | 2  | 0  | -1 | -2 | -1                                                                                                                                    | 1.5             | 5.9           |
| 7-Apr                                                                                                                             | -3                            | -4 | -5 | -6 | -7 | -8 | -8 | -5 | -2 | -1 | 2  | 2                                                                                                                                                                                                                                                        | 5  | 4  | 6  | 7  | 8  | 8  | 8  | 5  | 2  | 1  | 0  | -1                                                                                                                                    | 0.5             | 8.1           |
| 8-Apr                                                                                                                             | 0                             | -1 | -2 | -1 | 0  | 0  | 0  | 0  | 2  | 4  | 7  | 8                                                                                                                                                                                                                                                        | 8  | 7  | 8  | 7  | 7  | 6  | 5  | 5  | 4  | 3  | 1  | 1                                                                                                                                     | 3.2             | 8.5           |
| 9-Apr                                                                                                                             | 0                             | 0  | 0  | -1 | -1 | -1 | 0  | 2  | 5  | 7  | 8  | 9                                                                                                                                                                                                                                                        | 9  | 9  | 8  | 9  | 10 | 8  | 8  | 6  | 5  | 5  | 4  | 4                                                                                                                                     | 4.6             | 9.8           |
| 10-Apr                                                                                                                            | 3                             | 3  | 1  | -1 | -1 | 0  | 1  | 2  | 3  | 4  | 6  | 8                                                                                                                                                                                                                                                        | 7  | 8  | 7  | 8  | 8  | 8  | 7  | 5  | 5  | 5  | 4  | 2                                                                                                                                     | 4.3             | 7.9           |
| 11-Apr                                                                                                                            | 1                             | 1  | 1  | 0  | 0  | 0  | 0  | 2  | 3  | 6  | 8  | 6                                                                                                                                                                                                                                                        | 7  | 7  | 6  | 3  | 3  | 2  | 2  | 1  | 0  | -2 | -3 | -3                                                                                                                                    | 2.1             | 8.2           |
| 12-Apr                                                                                                                            | -4                            | -4 | -5 | -5 | -6 | -6 | -5 | -2 | 0  | 1  | 3  | 5                                                                                                                                                                                                                                                        | 6  | 7  | 7  | 6  | 7  | 6  | 5  | 4  | 2  | 2  | 1  | 1                                                                                                                                     | 1.1             | 7.4           |
| 13-Apr                                                                                                                            | 0                             | 0  | -1 | -1 | -2 | -2 | -2 | -1 | 1  | 2  | 3  | 5                                                                                                                                                                                                                                                        | 6  | 7  | 8  | 8  | 8  | 7  | 6  | 5  | 3  | 2  | 2  | 1                                                                                                                                     | 2.7             | 8.2           |
| 14-Apr                                                                                                                            | 1                             | 2  | 2  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                        | 0  | 0  | 0  | 0  | 0  | 0  | -1 | -1 | -1 | -1 | -1 | -2                                                                                                                                    | 0.0             | 1.9           |
| 15-Apr                                                                                                                            | -2                            | -2 | -2 | -3 | -3 | -3 | -2 | -2 | -2 | 0  | 1  | 2                                                                                                                                                                                                                                                        | 4  | 3  | 3  | 3  | 2  | 2  | 1  | 0  | -1 | -1 | -1 | -1                                                                                                                                    | -0.1            | 3.7           |
| 16-Apr                                                                                                                            | -1                            | -2 | -2 | -2 | -2 | -2 | -2 | -2 | -1 | -1 | 0  | 2                                                                                                                                                                                                                                                        | 3  | 2  | 2  | 2  | 2  | 1  | 1  | 0  | -1 | -1 | -1 | -1                                                                                                                                    | -0.2            | 2.6           |
| 17-Apr                                                                                                                            | -1                            | -2 | -2 | -3 | -4 | -5 | -6 | -4 | -1 | 2  | 3  | 4                                                                                                                                                                                                                                                        | 3  | 4  | 4  | 5  | 6  | 5  | 4  | 3  | 0  | -2 | -3 | -5                                                                                                                                    | 0.1             | 5.6           |
| 18-Apr                                                                                                                            | -5                            | -5 | -6 | -6 | -6 | -6 | -6 | -3 | 0  | 2  | 4  | 5                                                                                                                                                                                                                                                        | 5  | 4  | 6  | 7  | 6  | 6  | 6  | 3  | 1  | 0  | -1 | 0                                                                                                                                     | 0.5             | 6.7           |
| 19-Apr                                                                                                                            | 0                             | -2 | -2 | -2 | -2 | -3 | -2 | -1 | 0  | 1  | 3  | 3                                                                                                                                                                                                                                                        | 4  | 4  | 3  | 5  | 5  | 4  | 4  | 2  | 0  | -1 | -2 | -2                                                                                                                                    | 0.8             | 4.7           |
| 20-Apr                                                                                                                            | -2                            | -1 | -2 | -2 | -3 | -3 | -1 | 1  | 2  | 3  | 5  | 5                                                                                                                                                                                                                                                        | 6  | 7  | 7  | 7  | 7  | 7  | 7  | 5  | 2  | 0  | 0  | -1                                                                                                                                    | 2.4             | 7.4           |
| 21-Apr                                                                                                                            | -1                            | 0  | 0  | -2 | -1 | -2 | -1 | 1  | 3  | 4  | 5  | 7                                                                                                                                                                                                                                                        | 8  | 9  | 9  | 8  | 8  | 7  | 6  | 4  | 4  | 3  | 2  | 1                                                                                                                                     | 3.4             | 8.8           |
| 22-Apr                                                                                                                            | 1                             | 0  | -1 | -1 | -1 | -2 | -1 | 2  | 4  | 4  | 6  | 7                                                                                                                                                                                                                                                        | 8  | 8  | 9  | 9  | 9  | 8  | 8  | 7  | 5  | 4  | 3  | 2                                                                                                                                     | 4.0             | 9.2           |
| 23-Apr                                                                                                                            | 2                             | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 4  | 6  | 8  | 9                                                                                                                                                                                                                                                        | 10 | 11 | 11 | 12 | 13 | 13 | 12 | 10 | 8  | 7  | 5  | 3                                                                                                                                     | 6.4             | 13.1          |
| 24-Apr                                                                                                                            | 1                             | 0  | 0  | 0  | -2 | -2 | -2 | 2  | 5  | 7  | 9  | 10                                                                                                                                                                                                                                                       | 12 | 13 | 14 | 14 | 14 | 14 | 13 | 11 | 9  | 7  | 6  | 6                                                                                                                                     | 6.8             | 14.4          |
| 25-Apr                                                                                                                            | 5                             | 3  | 1  | -1 | 1  | 2  | 1  | 4  | 6  | 8  | 11 | 12                                                                                                                                                                                                                                                       | 15 | 17 | 17 | 18 | 17 | 16 | 15 | 13 | 10 | 9  | 8  | 6                                                                                                                                     | 8.9             | 17.5          |
| 26-Apr                                                                                                                            | 6                             | 6  | 5  | 4  | 4  | 5  | 5  | 6  | 8  | 9  | 11 | 13                                                                                                                                                                                                                                                       | 14 | 15 | 15 | 16 | 15 | 14 | 14 | 12 | 10 | 9  | 7  | 5                                                                                                                                     | 9.5             | 16.2          |
| 27-Apr                                                                                                                            | 4                             | 3  | 2  | 1  | 1  | 1  | 2  | 5  | 6  | 8  | 11 | 13                                                                                                                                                                                                                                                       | 10 | 9  | 11 | 12 | 12 | 12 | 8  | 7  | 5  | 5  | 4  | 3                                                                                                                                     | 6.5             | 12.8          |
| 28-Apr                                                                                                                            | 3                             | 2  | 2  | 2  | 1  | 0  | 0  | 2  | 4  | 5  | 6  | 6                                                                                                                                                                                                                                                        | 5  | 4  | 4  | 3  | 4  | 4  | 3  | 3  | 3  | 3  | 3  | 3                                                                                                                                     | 3.2             | 6.3           |
| 29-Apr                                                                                                                            | 2                             | 1  | 0  | -1 | -1 | 0  | 2  | 5  | 7  | 8  | 9  | 11                                                                                                                                                                                                                                                       | 12 | 12 | 11 | 6  | 7  | 8  | 8  | 8  | 7  | 5  | 3  | 3                                                                                                                                     | 5.6             | 12.3          |
| 30-Apr                                                                                                                            | 2                             | 1  | 2  | 2  | 2  | 1  | 3  | 5  | 6  | 8  | 10 | 11                                                                                                                                                                                                                                                       | 11 | 11 | 12 | 12 | 12 | 11 | 10 | 9  | 8  | 7  | 5  | 4                                                                                                                                     | 6.8             | 12.2          |
|                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       | Diurnal Average |               |
|                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       | Diurnal Maximum |               |

## Hourly Averages

External Temperature (ET) - °C

Henry Pirker - April 2011



# Hourly Averages

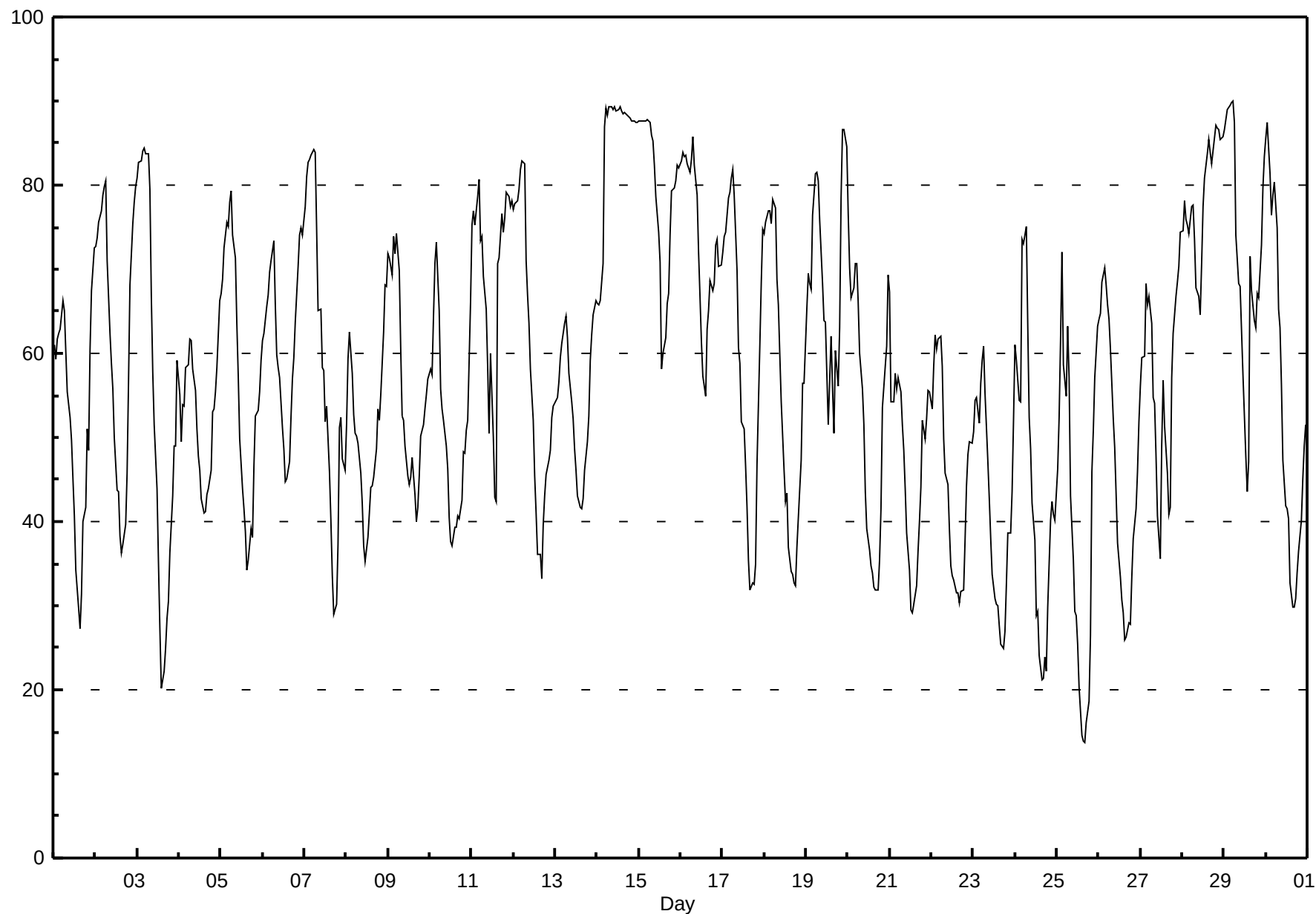
Relative Humidity (RH) - %

Henry Pirker - April 2011

|                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |               |                                 |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------|--|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720                                                                                                                                             |               |                                 |  |
| Maximum Value: 90.0 % on Apr 29 06:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 84.9 % on Apr 14                                                                                                                           |               | Hours of Data: 720              |  |
| Minimum Value: 14 % on Apr 25 17:00                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 40.4 % on Apr 25                                                                                                                           |               | Hours of Missing Data: 0        |  |
| Maximum Diurnal Average: 72.9 % at hour 6                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 42.1 % at hour 15                                                                                                                        |               | Hours of Calibration: 0         |  |
| Monthly Average: 57.85 %                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 21.1 P <sub>10</sub> = 33.8 Q <sub>1</sub> = 44.0 Median = 57.6 Q <sub>3</sub> = 72.0 P <sub>90</sub> = 82.5 P <sub>99</sub> = 89.2 |               | Percent Operational Time: 100.0 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   | Daily Average | Daily Maximum                   |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                                                |               |                                 |  |
| 1-Apr                                                                                                                   | 61                            | 59 | 62 | 62 | 63 | 66 | 65 | 60 | 55 | 52 | 50 | 45 | 41 | 34 | 30 | 27 | 31 | 40 | 42 | 51 | 48 | 61 | 67 | 73                                                                                                                                                                | 51.9          | 72.5                            |  |
| 2-Apr                                                                                                                   | 73                            | 74 | 76 | 77 | 79 | 80 | 80 | 71 | 62 | 59 | 56 | 50 | 44 | 44 | 38 | 36 | 37 | 40 | 46 | 57 | 68 | 75 | 78 | 80                                                                                                                                                                | 61.6          | 80.5                            |  |
| 3-Apr                                                                                                                   | 81                            | 83 | 83 | 84 | 84 | 84 | 84 | 80 | 67 | 58 | 51 | 44 | 35 | 27 | 20 | 22 | 25 | 28 | 30 | 36 | 43 | 49 | 49 | 59                                                                                                                                                                | 54.4          | 84.3                            |  |
| 4-Apr                                                                                                                   | 55                            | 50 | 54 | 54 | 58 | 59 | 62 | 61 | 58 | 56 | 51 | 48 | 46 | 43 | 41 | 41 | 43 | 44 | 46 | 53 | 53 | 55 | 58 | 66                                                                                                                                                                | 52.3          | 66.2                            |  |
| 5-Apr                                                                                                                   | 67                            | 69 | 73 | 76 | 75 | 78 | 79 | 74 | 71 | 64 | 57 | 50 | 44 | 41 | 39 | 34 | 35 | 39 | 38 | 47 | 53 | 53 | 55 | 59                                                                                                                                                                | 57.1          | 79.4                            |  |
| 6-Apr                                                                                                                   | 62                            | 62 | 66 | 67 | 70 | 71 | 73 | 66 | 60 | 58 | 57 | 51 | 49 | 45 | 45 | 47 | 52 | 57 | 59 | 64 | 70 | 74 | 75 | 74                                                                                                                                                                | 61.4          | 75.0                            |  |
| 7-Apr                                                                                                                   | 78                            | 81 | 83 | 83 | 84 | 84 | 84 | 75 | 65 | 65 | 58 | 58 | 52 | 54 | 46 | 40 | 34 | 29 | 30 | 37 | 51 | 52 | 47 | 46                                                                                                                                                                | 59.0          | 84.2                            |  |
| 8-Apr                                                                                                                   | 52                            | 59 | 62 | 58 | 53 | 51 | 50 | 49 | 46 | 42 | 37 | 35 | 38 | 41 | 44 | 44 | 45 | 49 | 53 | 52 | 55 | 63 | 68 | 68                                                                                                                                                                | 50.6          | 68.2                            |  |
| 9-Apr                                                                                                                   | 72                            | 71 | 69 | 74 | 72 | 74 | 70 | 61 | 53 | 52 | 49 | 45 | 44 | 45 | 48 | 43 | 40 | 42 | 45 | 50 | 51 | 53 | 55 | 57                                                                                                                                                                | 55.7          | 74.2                            |  |
| 10-Apr                                                                                                                  | 58                            | 57 | 64 | 71 | 73 | 65 | 56 | 53 | 52 | 49 | 46 | 41 | 38 | 37 | 39 | 39 | 41 | 40 | 42 | 48 | 48 | 51 | 52 | 66                                                                                                                                                                | 51.2          | 73.3                            |  |
| 11-Apr                                                                                                                  | 75                            | 77 | 75 | 79 | 81 | 73 | 74 | 69 | 65 | 59 | 50 | 60 | 50 | 43 | 42 | 71 | 71 | 77 | 74 | 76 | 79 | 79 | 77 | 78                                                                                                                                                                | 69.0          | 80.7                            |  |
| 12-Apr                                                                                                                  | 77                            | 78 | 78 | 79 | 82 | 83 | 83 | 71 | 67 | 64 | 58 | 52 | 45 | 41 | 36 | 36 | 33 | 40 | 43 | 46 | 47 | 48 | 52 | 54                                                                                                                                                                | 58.1          | 82.9                            |  |
| 13-Apr                                                                                                                  | 54                            | 55 | 57 | 59 | 61 | 64 | 64 | 62 | 58 | 54 | 52 | 49 | 46 | 43 | 42 | 41 | 43 | 46 | 49 | 53 | 59 | 62 | 65 | 66                                                                                                                                                                | 54.4          | 66.3                            |  |
| 14-Apr                                                                                                                  | 66                            | 66 | 66 | 71 | 87 | 89 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 88 | 88 | 88 | 88 | 88 | 87 | 87                                                                                                                                                                | 84.9          | 89.3                            |  |
| 15-Apr                                                                                                                  | 88                            | 88 | 88 | 88 | 88 | 88 | 87 | 86 | 85 | 82 | 79 | 74 | 71 | 58 | 60 | 62 | 66 | 67 | 74 | 79 | 80 | 80 | 82 | 82                                                                                                                                                                | 78.4          | 87.7                            |  |
| 16-Apr                                                                                                                  | 83                            | 84 | 83 | 84 | 83 | 81 | 83 | 86 | 82 | 79 | 72 | 67 | 61 | 57 | 55 | 63 | 65 | 69 | 67 | 68 | 73 | 74 | 70 | 71                                                                                                                                                                | 73.3          | 85.8                            |  |
| 17-Apr                                                                                                                  | 72                            | 74 | 74 | 78 | 79 | 81 | 82 | 79 | 70 | 61 | 59 | 52 | 51 | 47 | 42 | 35 | 32 | 33 | 33 | 35 | 47 | 61 | 68 | 75                                                                                                                                                                | 59.1          | 81.9                            |  |
| 18-Apr                                                                                                                  | 74                            | 76 | 77 | 77 | 75 | 78 | 77 | 69 | 66 | 60 | 54 | 46 | 42 | 43 | 37 | 34 | 34 | 33 | 32 | 37 | 44 | 47 | 56 | 56                                                                                                                                                                | 55.3          | 78.3                            |  |
| 19-Apr                                                                                                                  | 65                            | 69 | 68 | 68 | 76 | 81 | 81 | 81 | 76 | 68 | 64 | 64 | 58 | 52 | 62 | 56 | 51 | 60 | 56 | 63 | 79 | 87 | 87 | 85                                                                                                                                                                | 69.0          | 86.6                            |  |
| 20-Apr                                                                                                                  | 77                            | 70 | 67 | 68 | 71 | 71 | 66 | 60 | 56 | 52 | 44 | 39 | 37 | 35 | 34 | 32 | 32 | 32 | 35 | 41 | 54 | 59 | 61 | 69                                                                                                                                                                | 52.5          | 76.6                            |  |
| 21-Apr                                                                                                                  | 67                            | 54 | 54 | 58 | 56 | 57 | 56 | 52 | 48 | 44 | 39 | 34 | 30 | 29 | 30 | 32 | 37 | 40 | 44 | 52 | 50 | 52 | 56 | 56                                                                                                                                                                | 46.9          | 67.3                            |  |
| 22-Apr                                                                                                                  | 53                            | 59 | 62 | 61 | 62 | 62 | 58 | 50 | 46 | 44 | 39 | 35 | 34 | 33 | 32 | 32 | 30 | 32 | 32 | 38 | 44 | 48 | 49 | 49                                                                                                                                                                | 45.1          | 62.2                            |  |
| 23-Apr                                                                                                                  | 51                            | 54 | 55 | 52 | 56 | 59 | 61 | 55 | 47 | 43 | 38 | 34 | 31 | 30 | 30 | 28 | 25 | 25 | 27 | 33 | 39 | 39 | 44 | 52                                                                                                                                                                | 41.9          | 60.8                            |  |
| 24-Apr                                                                                                                  | 61                            | 59 | 54 | 54 | 74 | 73 | 75 | 63 | 52 | 49 | 42 | 38 | 29 | 29 | 24 | 21 | 21 | 24 | 22 | 30 | 40 | 42 | 41 | 40                                                                                                                                                                | 44.1          | 75.1                            |  |
| 25-Apr                                                                                                                  | 46                            | 52 | 61 | 72 | 59 | 55 | 63 | 57 | 43 | 35 | 29 | 29 | 25 | 20 | 15 | 14 | 14 | 16 | 19 | 26 | 46 | 51 | 57 | 63                                                                                                                                                                | 40.4          | 72.0                            |  |
| 26-Apr                                                                                                                  | 64                            | 65 | 68 | 70 | 68 | 66 | 64 | 61 | 52 | 49 | 43 | 37 | 33 | 31 | 29 | 26 | 26 | 28 | 28 | 33 | 38 | 42 | 46 | 52                                                                                                                                                                | 46.7          | 70.1                            |  |
| 27-Apr                                                                                                                  | 56                            | 59 | 60 | 68 | 66 | 67 | 64 | 55 | 54 | 48 | 41 | 36 | 49 | 57 | 51 | 46 | 41 | 42 | 57 | 62 | 67 | 68 | 70 | 74                                                                                                                                                                | 56.6          | 74.5                            |  |
| 28-Apr                                                                                                                  | 75                            | 78 | 76 | 75 | 74 | 77 | 78 | 74 | 68 | 67 | 65 | 71 | 77 | 81 | 84 | 85 | 84 | 83 | 86 | 87 | 87 | 87 | 85 | 86                                                                                                                                                                | 78.7          | 87.1                            |  |
| 29-Apr                                                                                                                  | 87                            | 88 | 89 | 90 | 90 | 90 | 87 | 74 | 68 | 68 | 63 | 58 | 48 | 44 | 47 | 71 | 67 | 64 | 63 | 67 | 67 | 73 | 80 | 83                                                                                                                                                                | 71.9          | 90.0                            |  |
| 30-Apr                                                                                                                  | 86                            | 87 | 81 | 76 | 79 | 80 | 75 | 65 | 63 | 56 | 47 | 42 | 42 | 40 | 33 | 30 | 30 | 31 | 34 | 36 | 40 | 45 | 49 | 51                                                                                                                                                                | 54.2          | 87.5                            |  |
| 67.8 68.6 69.5 71.0 72.5 72.9 72.4 66.9 61.5 57.5 52.7 49.0 45.9 43.8 42.1 42.6 42.5 44.5 46.6 51.5 56.9 60.6 63.0 65.9 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                                                   |               |                                 |  |
| 87.6 87.8 89.0 89.5 89.9 90.0 88.4 89.3 89.3 89.0 89.3 88.9 88.9 89.3 88.8 88.5 88.6 88.2 88.2 87.9 87.6 87.6 87.5 87.4 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                                                   |               |                                 |  |

## Hourly Averages

Relative Humidity (RH) - %  
Henry Pirker - April 2011



## Hourly Averages

Solar Radiation (SR) - W/m<sup>2</sup>

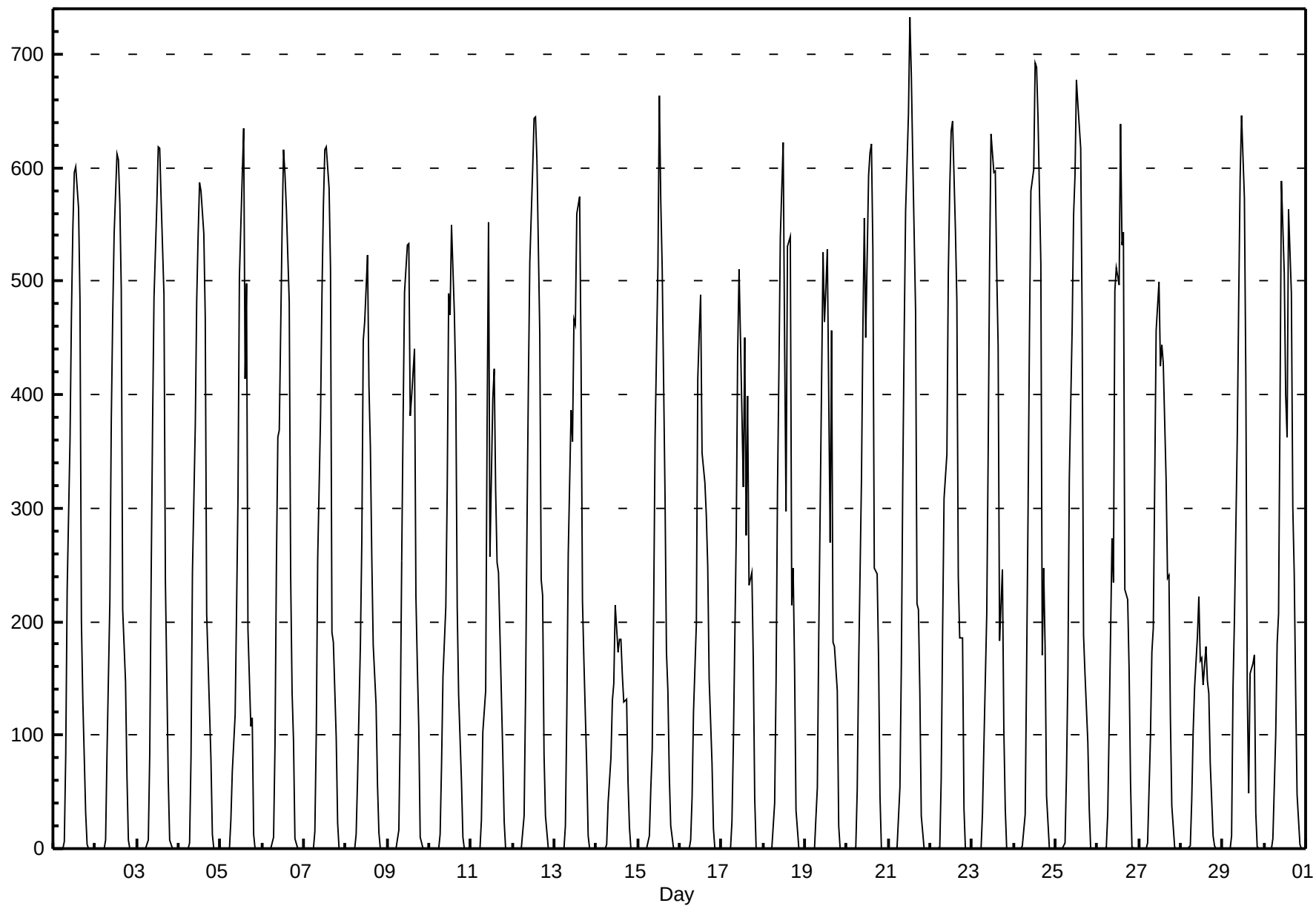
Henry Pirker - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 732.7 W/m <sup>2</sup> on Apr 21 13:00<br>Maximum Daily Average: 220.8 W/m <sup>2</sup> on Apr 24 |                               |   |   |   |   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    | Hours in Service: 720<br>Hours of Data: 720<br>Hours of Missing Data: 0<br>Hours of Calibration: 0<br>Percent Operational Time: 100.0                                                                                                                                                  |               |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Minimum Value: 0 W/m <sup>2</sup> on Apr 1 01:00<br>Maximum Diurnal Average: 527.8 W/m <sup>2</sup> at hour 13<br>Monthly Average: 171.82 W/m <sup>2</sup>          |                               |   |   |   |   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    | Minimum Daily Average: 68.6 W/m <sup>2</sup> on Apr 14<br>Minimum Diurnal Average: 0.0 W/m <sup>2</sup> at hour 1<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 53.1 Q <sub>3</sub> = 322.3 P <sub>90</sub> = 539.7 P <sub>99</sub> = 650.0 |               |               |
| Day                                                                                                                                                                 | Hourly Period Ending At (MST) |   |   |   |   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |                                                                                                                                                                                                                                                                                        | Daily Average | Daily Maximum |
|                                                                                                                                                                     | 1                             | 2 | 3 | 4 | 5 | 6  | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20 | 21 | 22 | 23 | 24                                                                                                                                                                                                                                                                                     |               |               |
| 1-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 6   | 82  | 228 | 361 | 470 | 547 | 596 | 601 | 565 | 483 | 200 | 130 | 31  | 4  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 179.3         | 601.1         |
| 2-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 8   | 85  | 218 | 378 | 471 | 542 | 612 | 607 | 568 | 493 | 210 | 147 | 64  | 7  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 183.7         | 612.5         |
| 3-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 7   | 82  | 238 | 374 | 485 | 568 | 618 | 618 | 572 | 487 | 236 | 150 | 62  | 7  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 187.6         | 618.0         |
| 4-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 6   | 80  | 244 | 373 | 483 | 541 | 587 | 579 | 542 | 468 | 206 | 165 | 79  | 13 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 181.9         | 587.4         |
| 5-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 25  | 67  | 117 | 211 | 310 | 504 | 593 | 635 | 414 | 498 | 194 | 107 | 116 | 13 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 158.5         | 634.6         |
| 6-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 10  | 91  | 251 | 363 | 368 | 546 | 616 | 595 | 564 | 481 | 241 | 138 | 96  | 9  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 182.1         | 615.8         |
| 7-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 14  | 102 | 256 | 382 | 489 | 567 | 616 | 618 | 582 | 510 | 191 | 182 | 97  | 22 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 192.9         | 618.3         |
| 8-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 13  | 61  | 181 | 272 | 448 | 464 | 523 | 407 | 353 | 256 | 179 | 126 | 56  | 14 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 139.8         | 522.7         |
| 9-Apr                                                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0  | 16  | 111 | 254 | 379 | 491 | 532 | 533 | 382 | 399 | 441 | 222 | 160 | 107 | 10 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 168.2         | 533.1         |
| 10-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 13  | 74  | 152 | 213 | 318 | 490 | 470 | 550 | 472 | 409 | 213 | 136 | 58  | 10 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 149.1         | 549.9         |
| 11-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 25  | 103 | 139 | 372 | 552 | 257 | 397 | 422 | 316 | 252 | 243 | 137 | 84  | 24 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 138.5         | 552.2         |
| 12-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 29  | 132 | 279 | 409 | 517 | 598 | 643 | 644 | 607 | 455 | 237 | 223 | 82  | 28 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 203.5         | 644.1         |
| 13-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 20  | 119 | 260 | 387 | 358 | 466 | 462 | 559 | 574 | 432 | 219 | 166 | 72  | 11 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 171.0         | 573.9         |
| 14-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 4   | 40  | 80  | 131 | 145 | 214 | 173 | 184 | 184 | 154 | 129 | 132 | 59  | 18 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 68.6          | 214.0         |
| 15-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 12  | 53  | 88  | 210 | 361 | 513 | 664 | 571 | 512 | 310 | 173 | 139 | 64  | 20 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 153.8         | 664.0         |
| 16-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 7   | 45  | 120 | 198 | 414 | 454 | 487 | 348 | 323 | 294 | 249 | 149 | 75  | 18 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 132.6         | 487.3         |
| 17-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 23  | 93  | 275 | 436 | 511 | 449 | 319 | 450 | 276 | 398 | 232 | 243 | 166 | 44 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 163.1         | 510.9         |
| 18-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 41  | 147 | 316 | 421 | 540 | 623 | 445 | 297 | 531 | 540 | 214 | 247 | 160 | 34 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 189.8         | 622.7         |
| 19-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 27  | 54  | 190 | 414 | 525 | 465 | 494 | 528 | 270 | 457 | 182 | 178 | 139 | 20 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 164.2         | 527.6         |
| 20-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 1  | 52  | 160 | 326 | 459 | 556 | 451 | 593 | 614 | 620 | 528 | 248 | 241 | 168 | 46 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 210.9         | 620.4         |
| 21-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 1  | 54  | 162 | 323 | 453 | 562 | 647 | 733 | 682 | 610 | 474 | 216 | 210 | 137 | 29 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 220.6         | 732.7         |
| 22-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 1  | 61  | 194 | 308 | 348 | 507 | 582 | 633 | 642 | 545 | 483 | 239 | 186 | 185 | 35 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 206.2         | 641.5         |
| 23-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 0  | 32  | 92  | 207 | 348 | 516 | 630 | 596 | 597 | 509 | 443 | 183 | 246 | 106 | 35 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 189.2         | 630.2         |
| 24-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 2  | 30  | 159 | 295 | 452 | 580 | 598 | 692 | 689 | 645 | 516 | 171 | 247 | 177 | 46 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 220.8         | 692.2         |
| 25-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 4  | 65  | 154 | 325 | 459 | 558 | 593 | 677 | 656 | 617 | 468 | 188 | 155 | 94  | 35 | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 210.3         | 676.9         |
| 26-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 2  | 31  | 108 | 274 | 235 | 491 | 512 | 497 | 638 | 532 | 543 | 228 | 220 | 158 | 59 | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 188.7         | 638.4         |
| 27-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 5  | 98  | 173 | 195 | 324 | 456 | 499 | 426 | 444 | 428 | 325 | 238 | 241 | 117 | 38 | 2  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 167.0         | 498.6         |
| 28-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 2  | 42  | 103 | 142 | 187 | 222 | 166 | 168 | 144 | 178 | 148 | 136 | 75  | 12  | 3  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 71.9          | 221.7         |
| 29-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 12 | 141 | 202 | 363 | 483 | 591 | 646 | 574 | 415 | 142 | 49  | 155 | 163 | 171 | 32 | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 172.5         | 645.7         |
| 30-Apr                                                                                                                                                              | 0                             | 0 | 0 | 0 | 0 | 8  | 101 | 181 | 207 | 388 | 589 | 507 | 399 | 362 | 564 | 489 | 301 | 242 | 138 | 48 | 4  | 0  | 0  | 0                                                                                                                                                                                                                                                                                      | 188.7         | 588.5         |
| 0.0 0.0 0.0 0.0 0.0 1.3 33.8 110.4 228.4 347.2 462.7 505.6 527.8 515.9 467.0 409.4 209.1 176.0 104.4 24.4 0.3 0.0 0.0 0.0                                           |                               |   |   |   |   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    | Diurnal Average                                                                                                                                                                                                                                                                        |               |               |
| 0.0 0.0 0.0 0.0 0.0 11.7 141.2 202.5 363.4 483.3 590.7 646.7 732.7 689.1 645.1 542.7 300.9 247.2 185.0 59.1 4.0 0.0 0.0 0.0                                         |                               |   |   |   |   |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    | Diurnal Maximum                                                                                                                                                                                                                                                                        |               |               |



## Hourly Averages

Solar Radiation (SR) - W/m<sup>2</sup>  
Henry Pirker - April 2011



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Henry Pirker - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 12                            | 16  | 16  | 17  | 17  | 10  | 13  | 14  | 13  | 14  | 16  | 14  | 13  | 8   | 5   | 5   | 7   | 8   | 7   | 7   | 9   | 3   | 3   | 2   | 9.6           | 16.7          |
| Dir    | 237                           | 250 | 253 | 253 | 254 | 246 | 247 | 252 | 258 | 271 | 264 | 272 | 284 | 308 | 285 | 298 | 289 | 276 | 269 | 331 | 306 | 264 | 292 | 195 | 265.2         | 253.6         |
| 2 Spd  | 4                             | 2   | 4   | 5   | 5   | 5   | 5   | 6   | 6   | 8   | 8   | 7   | 8   | 9   | 8   | 7   | 8   | 8   | 7   | 8   | 3   | 3   | 4   | 3   | 5.2           | 8.6           |
| Dir    | 315                           | 302 | 298 | 326 | 306 | 312 | 317 | 325 | 292 | 292 | 296 | 293 | 290 | 289 | 283 | 294 | 323 | 329 | 328 | 36  | 34  | 314 | 347 | 306 | 311.5         | 288.5         |
| 3 Spd  | 3                             | 3   | 4   | 3   | 5   | 3   | 2   | 4   | 5   | 6   | 6   | 3   | 3   | 5   | 3   | 2   | 7   | 9   | 5   | 4   | 4   | 4   | 2   | 2   | 0.5           | 9.1           |
| Dir    | 323                           | 332 | 353 | 339 | 292 | 330 | 188 | 196 | 204 | 238 | 272 | 293 | 274 | 251 | 296 | 51  | 106 | 109 | 99  | 129 | 125 | 141 | 182 | 343 | 223.9         | 109.3         |
| 4 Spd  | 6                             | 8   | 6   | 7   | 11  | 14  | 12  | 13  | 15  | 22  | 24  | 25  | 26  | 23  | 21  | 20  | 20  | 13  | 12  | 8   | 7   | 9   | 6   | 4   | 13.1          | 25.7          |
| Dir    | 260                           | 242 | 236 | 225 | 224 | 231 | 232 | 238 | 242 | 253 | 261 | 263 | 266 | 265 | 270 | 270 | 283 | 296 | 288 | 254 | 246 | 257 | 260 | 280 | 258.8         | 266.1         |
| 5 Spd  | 4                             | 4   | 2   | 4   | 6   | 5   | 6   | 4   | 7   | 12  | 18  | 15  | 16  | 19  | 11  | 7   | 11  | 5   | 6   | 8   | 6   | 10  | 13  | 12  | 7.8           | 18.9          |
| Dir    | 249                           | 270 | 249 | 231 | 287 | 310 | 315 | 303 | 276 | 284 | 279 | 266 | 283 | 294 | 284 | 284 | 288 | 357 | 270 | 232 | 245 | 227 | 227 | 230 | 271.5         | 293.9         |
| 6 Spd  | 11                            | 9   | 7   | 7   | 6   | 8   | 1   | 6   | 7   | 11  | 14  | 16  | 17  | 16  | 16  | 15  | 14  | 13  | 8   | 6   | 4   | 3   | 6   | 8   | 9.1           | 17.1          |
| Dir    | 228                           | 239 | 241 | 263 | 241 | 245 | 276 | 249 | 312 | 278 | 260 | 268 | 285 | 261 | 274 | 286 | 273 | 265 | 290 | 251 | 282 | 255 | 262 | 273 | 266.1         | 284.7         |
| 7 Spd  | 5                             | 5   | 5   | 5   | 4   | 5   | 4   | 4   | 6   | 7   | 7   | 9   | 8   | 9   | 7   | 6   | 6   | 5   | 4   | 4   | 3   | 6   | 7   | 5   | 4.0           | 8.9           |
| Dir    | 285                           | 308 | 311 | 315 | 310 | 302 | 311 | 306 | 309 | 289 | 301 | 284 | 312 | 287 | 283 | 290 | 289 | 291 | 261 | 157 | 166 | 177 | 183 | 184 | 283.9         | 284.5         |
| 8 Spd  | 9                             | 6   | 6   | 12  | 13  | 10  | 11  | 13  | 12  | 11  | 15  | 15  | 27  | 31  | 23  | 31  | 35  | 34  | 33  | 41  | 29  | 19  | 11  | 7   | 14.6          | 40.6          |
| Dir    | 212                           | 209 | 205 | 194 | 180 | 164 | 156 | 156 | 168 | 192 | 246 | 260 | 265 | 261 | 255 | 269 | 272 | 280 | 286 | 282 | 282 | 288 | 294 | 270 | 257.1         | 282.2         |
| 9 Spd  | 2                             | 5   | 3   | 0   | 3   | 4   | 5   | 6   | 10  | 10  | 14  | 17  | 19  | 22  | 24  | 21  | 16  | 17  | 21  | 16  | 11  | 10  | 9   | 13  | 10.8          | 23.7          |
| Dir    | 230                           | 217 | 261 | 310 | 123 | 190 | 213 | 227 | 262 | 265 | 271 | 276 | 271 | 269 | 280 | 263 | 264 | 270 | 262 | 274 | 249 | 251 | 240 | 273 | 262.8         | 279.6         |
| 10 Spd | 11                            | 8   | 4   | 2   | 2   | 6   | 6   | 8   | 8   | 10  | 10  | 8   | 8   | 10  | 15  | 13  | 9   | 6   | 5   | 2   | 6   | 5   | 3   | 3   | 3.6           | 15.0          |
| Dir    | 269                           | 277 | 294 | 106 | 168 | 239 | 250 | 264 | 275 | 255 | 274 | 288 | 303 | 348 | 358 | 356 | 10  | 39  | 47  | 49  | 97  | 109 | 82  | 337 | 311.6         | 358.0         |
| 11 Spd | 2                             | 4   | 4   | 3   | 1   | 6   | 2   | 3   | 4   | 5   | 19  | 23  | 26  | 34  | 39  | 25  | 21  | 23  | 21  | 14  | 12  | 10  | 10  | 11  | 11.5          | 39.4          |
| Dir    | 308                           | 327 | 345 | 340 | 138 | 114 | 298 | 263 | 236 | 274 | 253 | 274 | 258 | 260 | 267 | 308 | 315 | 312 | 304 | 302 | 319 | 314 | 320 | 315 | 287.8         | 266.8         |
| 12 Spd | 10                            | 10  | 7   | 4   | 1   | 3   | 4   | 3   | 6   | 7   | 6   | 5   | 4   | 9   | 10  | 13  | 12  | 14  | 14  | 11  | 10  | 10  | 11  | 12  | 5.7           | 14.3          |
| Dir    | 321                           | 324 | 325 | 321 | 348 | 140 | 153 | 146 | 140 | 125 | 101 | 91  | 53  | 76  | 66  | 83  | 85  | 91  | 87  | 90  | 90  | 96  | 98  | 97  | 83.4          | 91.0          |
| 13 Spd | 13                            | 12  | 13  | 15  | 16  | 15  | 14  | 14  | 16  | 14  | 15  | 16  | 17  | 18  | 20  | 20  | 19  | 18  | 15  | 15  | 17  | 16  | 15  | 15  | 15.6          | 19.7          |
| Dir    | 98                            | 99  | 100 | 102 | 101 | 100 | 100 | 99  | 103 | 93  | 88  | 86  | 88  | 87  | 83  | 86  | 78  | 84  | 94  | 97  | 95  | 91  | 89  | 90  | 92.3          | 83.1          |
| 14 Spd | 15                            | 16  | 17  | 17  | 15  | 18  | 20  | 19  | 19  | 21  | 20  | 20  | 20  | 19  | 16  | 16  | 15  | 13  | 12  | 12  | 11  | 10  | 9   | 7   | 15.7          | 21.2          |
| Dir    | 87                            | 83  | 85  | 93  | 92  | 94  | 94  | 97  | 96  | 97  | 98  | 96  | 92  | 90  | 83  | 84  | 85  | 86  | 83  | 85  | 87  | 82  | 70  | 64  | 89.4          | 96.8          |
| 15 Spd | 6                             | 7   | 8   | 8   | 4   | 4   | 6   | 8   | 8   | 7   | 9   | 11  | 9   | 11  | 13  | 8   | 10  | 11  | 11  | 9   | 10  | 10  | 9   | 10  | 5.8           | 12.6          |
| Dir    | 53                            | 48  | 37  | 36  | 347 | 326 | 323 | 321 | 313 | 320 | 297 | 315 | 315 | 341 | 336 | 27  | 44  | 60  | 57  | 67  | 68  | 61  | 62  | 71  | 16.2          | 336.4         |
| 16 Spd | 9                             | 8   | 8   | 8   | 9   | 9   | 10  | 10  | 13  | 14  | 15  | 14  | 14  | 14  | 14  | 14  | 15  | 12  | 9   | 6   | 6   | 5   | 6   | 5   | 10.1          | 15.0          |
| Dir    | 73                            | 71  | 70  | 81  | 80  | 74  | 79  | 86  | 89  | 83  | 82  | 73  | 62  | 71  | 70  | 50  | 53  | 67  | 62  | 52  | 52  | 59  | 71  | 76  | 70.7          | 52.9          |
| 17 Spd | 2                             | 1   | 5   | 1   | 1   | 1   | 2   | 1   | 5   | 5   | 6   | 6   | 8   | 10  | 6   | 5   | 6   | 6   | 6   | 4   | 2   | 5   | 3   | 4   | 3.0           | 10.2          |
| Dir    | 74                            | 38  | 37  | 75  | 56  | 306 | 325 | 323 | 331 | 305 | 293 | 340 | 336 | 333 | 14  | 48  | 40  | 50  | 71  | 72  | 30  | 2   | 318 | 309 | 1.4           | 333.1         |
| 18 Spd | 6                             | 4   | 4   | 5   | 6   | 5   | 5   | 4   | 6   | 6   | 6   | 6   | 6   | 6   | 6   | 6   | 5   | 6   | 5   | 4   | 4   | 3   | 2   | 2   | 2.8           | 6.3           |
| Dir    | 305                           | 338 | 317 | 332 | 328 | 333 | 324 | 317 | 286 | 262 | 290 | 286 | 340 | 86  | 56  | 62  | 60  | 25  | 340 | 1   | 58  | 68  | 163 | 258 | 342.2         | 286.0         |
| 19 Spd | 7                             | 3   | 4   | 4   | 4   | 1   | 5   | 8   | 9   | 11  | 10  | 12  | 14  | 14  | 12  | 14  | 14  | 12  | 12  | 11  | 7   | 1   | 2   | 4   | 6.7           | 14.5          |
| Dir    | 271                           | 339 | 336 | 290 | 339 | 237 | 273 | 266 | 306 | 333 | 328 | 334 | 337 | 320 | 262 | 251 | 265 | 263 | 257 | 277 | 329 | 188 | 193 | 263 | 292.4         | 319.8         |
| 20 Spd | 8                             | 9   | 8   | 8   | 7   | 7   | 9   | 13  | 22  | 27  | 24  | 23  | 25  | 26  | 24  | 22  | 18  | 18  | 13  | 7   | 0   | 3   | 0   | 0   | 12.2          | 27.0          |
| Dir    | 226                           | 236 | 227 | 245 | 253 | 246 | 244 | 250 | 253 | 260 | 280 | 284 | 281 | 279 | 294 | 289 | 291 | 300 | 314 | 330 | 28  | 177 | 264 | 2   | 274.0         | 259.9         |
| 21 Spd | 4                             | 7   | 5   | 5   | 8   | 6   | 6   | 12  | 13  | 18  | 24  | 19  | 17  | 16  | 20  | 19  | 22  | 19  | 16  | 10  | 10  | 10  | 11  | 10  | 11.8          | 23.6          |
| Dir    | 230                           | 271 | 268 | 340 | 281 | 299 | 303 | 265 | 249 | 254 | 266 | 271 | 279 | 303 | 298 | 294 | 301 | 302 | 304 | 309 | 278 | 252 | 240 | 237 | 280.1         | 266.4         |
| 22 Spd | 11                            | 12  | 11  | 13  | 12  | 11  | 12  | 18  | 23  | 25  | 24  | 21  | 19  | 16  | 15  | 14  | 25  | 26  | 23  | 15  | 11  | 11  | 12  | 12  | 15.0          | 25.6          |
| Dir    | 237                           | 237 | 237 | 244 | 241 | 240 | 248 | 264 | 277 | 277 | 286 | 302 | 310 | 313 | 304 | 301 | 262 | 257 | 275 | 263 | 257 | 244 | 244 | 236 | 268.6         | 256.6         |

## Hourly Averages

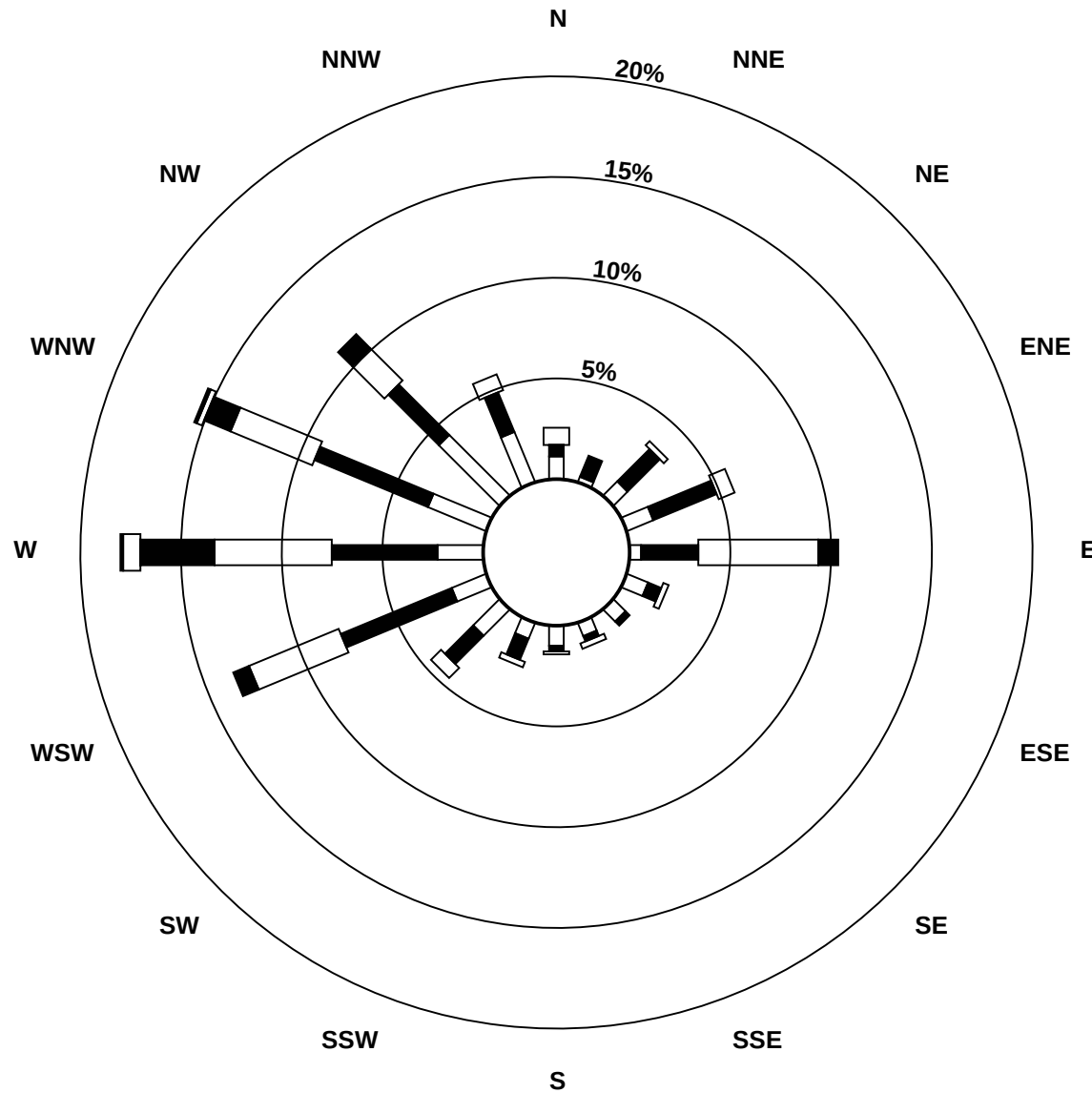
Wind Speed (km/h)  
Wind Direction (deg)  
Henry Pirker - April 2011

| Day                                                                                | Hourly Period Ending At (MST) |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       | Daily Average   | Daily Maximum |  |  |  |  |  |
|------------------------------------------------------------------------------------|-------------------------------|-------|---------|-------|----------|-------|----------|-------|----------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-----------------|---------------|--|--|--|--|--|
|                                                                                    | 1                             | 2     | 3       | 4     | 5        | 6     | 7        | 8     | 9        | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18                                                                                                                                                                  | 19    | 20    | 21    | 22    | 23    | 24    |                 |               |  |  |  |  |  |
| 23 Spd                                                                             | 13                            | 11    | 7       | 11    | 8        | 6     | 6        | 7     | 15       | 16    | 17    | 16    | 16    | 15    | 14    | 8     | 5     | 3                                                                                                                                                                   | 0     | 1     | 1     | 2     | 2     | 0     | 6.3             | 16.9          |  |  |  |  |  |
| Dir                                                                                | 239                           | 240   | 308     | 292   | 305      | 298   | 300      | 283   | 276      | 265   | 274   | 310   | 304   | 327   | 351   | 3     | 13    | 358                                                                                                                                                                 | 229   | 108   | 89    | 74    | 114   | 172   | 297.0           | 274.2         |  |  |  |  |  |
| 24 Spd                                                                             | 2                             | 2     | 3       | 5     | 3        | 3     | 0        | 2     | 6        | 6     | 5     | 5     | 9     | 6     | 7     | 7     | 7     | 8                                                                                                                                                                   | 9     | 6     | 8     | 7     | 7     | 10    | 3.6             | 10.0          |  |  |  |  |  |
| Dir                                                                                | 220                           | 234   | 279     | 313   | 258      | 359   | 125      | 293   | 23       | 11    | 67    | 58    | 17    | 39    | 22    | 32    | 45    | 76                                                                                                                                                                  | 87    | 83    | 101   | 96    | 91    | 91    | 53.5            | 91.0          |  |  |  |  |  |
| 25 Spd                                                                             | 6                             | 5     | 1       | 4     | 9        | 5     | 3        | 1     | 2        | 4     | 4     | 6     | 6     | 7     | 6     | 8     | 7     | 9                                                                                                                                                                   | 8     | 7     | 11    | 20    | 18    | 14    | 1.9             | 20.4          |  |  |  |  |  |
| Dir                                                                                | 107                           | 108   | 9       | 357   | 82       | 97    | 204      | 290   | 115      | 105   | 103   | 98    | 80    | 63    | 70    | 59    | 54    | 34                                                                                                                                                                  | 19    | 2     | 273   | 276   | 280   | 283   | 19.3            | 275.6         |  |  |  |  |  |
| 26 Spd                                                                             | 15                            | 12    | 15      | 15    | 19       | 15    | 12       | 17    | 18       | 17    | 14    | 14    | 14    | 16    | 13    | 15    | 18    | 20                                                                                                                                                                  | 16    | 11    | 10    | 10    | 8     | 8     | 13.8            | 20.2          |  |  |  |  |  |
| Dir                                                                                | 288                           | 272   | 258     | 254   | 254      | 257   | 249      | 258   | 263      | 271   | 273   | 289   | 299   | 288   | 299   | 286   | 293   | 279                                                                                                                                                                 | 289   | 287   | 273   | 256   | 263   | 272   | 274.0           | 279.3         |  |  |  |  |  |
| 27 Spd                                                                             | 6                             | 4     | 4       | 1     | 3        | 3     | 1        | 6     | 5        | 6     | 7     | 7     | 22    | 20    | 11    | 4     | 6     | 10                                                                                                                                                                  | 18    | 11    | 7     | 9     | 3     | 5     | 6.7             | 22.2          |  |  |  |  |  |
| Dir                                                                                | 295                           | 319   | 300     | 172   | 237      | 303   | 313      | 248   | 251      | 261   | 278   | 237   | 268   | 259   | 231   | 224   | 212   | 218                                                                                                                                                                 | 256   | 254   | 255   | 199   | 233   | 267   | 252.6           | 268.3         |  |  |  |  |  |
| 28 Spd                                                                             | 6                             | 5     | 8       | 9     | 8        | 7     | 7        | 6     | 15       | 15    | 14    | 14    | 16    | 16    | 17    | 20    | 19    | 20                                                                                                                                                                  | 15    | 11    | 13    | 12    | 12    | 11    | 11.2            | 20.2          |  |  |  |  |  |
| Dir                                                                                | 268                           | 291   | 269     | 257   | 275      | 275   | 291      | 296   | 313      | 317   | 317   | 354   | 352   | 339   | 323   | 313   | 313   | 323                                                                                                                                                                 | 360   | 330   | 324   | 314   | 302   | 285   | 315.4           | 322.8         |  |  |  |  |  |
| 29 Spd                                                                             | 8                             | 3     | 3       | 1     | 3        | 3     | 4        | 5     | 4        | 10    | 11    | 10    | 9     | 2     | 12    | 20    | 9     | 10                                                                                                                                                                  | 12    | 9     | 11    | 13    | 1     | 2     | 5.3             | 20.4          |  |  |  |  |  |
| Dir                                                                                | 282                           | 252   | 244     | 227   | 234      | 218   | 258      | 322   | 261      | 244   | 251   | 233   | 254   | 286   | 283   | 322   | 227   | 196                                                                                                                                                                 | 203   | 220   | 205   | 340   | 337   | 246   | 255.8           | 321.6         |  |  |  |  |  |
| 30 Spd                                                                             | 3                             | 5     | 12      | 13    | 11       | 6     | 7        | 14    | 12       | 13    | 13    | 14    | 14    | 13    | 23    | 29    | 27    | 28                                                                                                                                                                  | 20    | 17    | 15    | 15    | 15    | 12    | 14.0            | 29.0          |  |  |  |  |  |
| Dir                                                                                | 216                           | 263   | 259     | 261   | 274      | 296   | 292      | 278   | 272      | 268   | 300   | 307   | 283   | 298   | 288   | 270   | 279   | 289                                                                                                                                                                 | 276   | 262   | 250   | 253   | 257   | 254   | 274.8           | 269.7         |  |  |  |  |  |
| Spd                                                                                | 3.1                           | 2.8   | 2.6     | 2.6   | 2.6      | 2.0   | 2.3      | 4.1   | 5.1      | 6.8   | 8.2   | 7.7   | 9.2   | 8.5   | 8.4   | 7.5   | 6.9   | 5.9                                                                                                                                                                 | 5.5   | 3.8   | 2.5   | 2.4   | 2.2   | 2.5   | Diurnal Average |               |  |  |  |  |  |
| Dir                                                                                | 258.3                         | 266.2 | 277.1   | 267.7 | 255.0    | 250.6 | 254.0    | 259.2 | 267.6    | 270.0 | 277.9 | 290.1 | 295.0 | 296.9 | 300.0 | 305.9 | 302.5 | 304.3                                                                                                                                                               | 300.3 | 294.1 | 283.8 | 268.8 | 261.9 | 268.5 | Diurnal Maximum |               |  |  |  |  |  |
| Spd                                                                                | 15.5                          | 16.3  | 17.0    | 16.9  | 18.6     | 18.1  | 20.4     | 19.3  | 23.1     | 27.0  | 24.5  | 25.3  | 26.9  | 33.9  | 39.4  | 30.5  | 34.9  | 33.5                                                                                                                                                                | 33.3  | 40.6  | 28.9  | 20.4  | 18.0  | 15.1  | Diurnal Maximum |               |  |  |  |  |  |
| Dir                                                                                | 86.7                          | 249.7 | 84.9    | 93.1  | 254.4    | 94.5  | 93.9     | 97.3  | 276.7    | 259.9 | 285.9 | 262.6 | 265.4 | 260.2 | 266.8 | 269.1 | 272.0 | 279.9                                                                                                                                                               | 286.3 | 282.2 | 282.3 | 275.6 | 280.2 | 89.9  |                 |               |  |  |  |  |  |
| Maximum Speed Value: 41 km/h on Apr 8 20:00                                        |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Speed Value: 0 km/h on Apr 23 19:00                                                                                                                         |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Maximum Daily Speed Average: 15.7 km/h on Apr 8                                    |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Daily Speed Average: 0.5 km/h on Apr 3                                                                                                                      |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Maximum Diurnal Speed Average: 9.2 km/h at hour 13                                 |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Diurnal Speed Average: 2.0 km/h at hour 6                                                                                                                   |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Monthly Average Velocity: 4.58 km/h 284.78 deg                                     |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Speed Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 3.1 Q <sub>1</sub> = 5.4 Median = 8.8 Q <sub>3</sub> = 14.1 P <sub>90</sub> = 19.1 P <sub>99</sub> = 28.8 |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| All monthly, daily, and diurnal averages have been calculated using vector methods |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Percent Operational Time: 100.0                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
|                                                                                    |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Frequency Distribution                                                             |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Speed Range (km/h)                                                                 |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Direction                                                                          | 0 to 5                        |       | 5 to 11 |       | 11 to 19 |       | 19 to 28 |       | 28 to 38 |       | > 38  |       | Total |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| North                                                                              | 20                            |       | 14      |       | 8        |       | 0        |       | 0        |       | 0     |       | 42    |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| NorthEast                                                                          | 12                            |       | 34      |       | 5        |       | 0        |       | 0        |       | 0     |       | 51    |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| East                                                                               | 15                            |       | 36      |       | 50       |       | 8        |       | 0        |       | 0     |       | 109   |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| SouthEast                                                                          | 12                            |       | 4       |       | 1        |       | 0        |       | 0        |       | 0     |       | 17    |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| South                                                                              | 14                            |       | 5       |       | 4        |       | 0        |       | 0        |       | 0     |       | 23    |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| SouthWest                                                                          | 20                            |       | 39      |       | 21       |       | 0        |       | 0        |       | 0     |       | 80    |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| West                                                                               | 29                            |       | 83      |       | 85       |       | 41       |       | 8        |       | 2     |       | 248   |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| NorthWest                                                                          | 44                            |       | 59      |       | 33       |       | 14       |       | 0        |       | 0     |       | 150   |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |
| Total                                                                              | 166                           |       | 274     |       | 207      |       | 63       |       | 8        |       | 2     |       | 720   |       |       |       |       |                                                                                                                                                                     |       |       |       |       |       |       |                 |               |  |  |  |  |  |

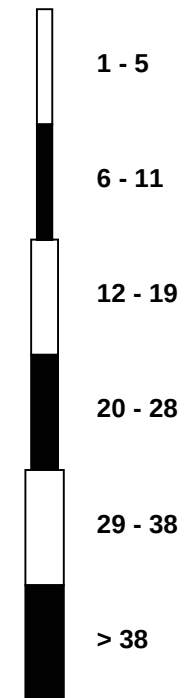
## Wind Rose

Wind Speed (WS) (km/h)

Henry Pirker - April 2011



## Wind Speed Classes (km/h)



## Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Henry Pirker - April 2011

| Maximum Speed: 41 km/h on Apr 8 20:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 19.0 km/h on Apr 8                                                                                                               |    |    |    |    |                 |               |  |  |  | Hours in Service: 720           |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|--|--|--|---------------------------------|--|--|--|
| Minimum Speed: 1 km/h on Apr 17 02:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 4.9 km/h on Apr 3                                                                                                                |    |    |    |    |                 |               |  |  |  | Hours of Data: 720              |  |  |  |
| Maximum Diurnal Speed Average: 15.5 km/h at hour 14                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 7.2 km/h at hour 7                                                                                                             |    |    |    |    |                 |               |  |  |  | Hours of Missing Data: 0        |  |  |  |
| Monthly Average Speed: 10.69 km/h                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 3.8 Q <sub>1</sub> = 5.9 Median = 9.2 Q <sub>3</sub> = 14.7 P <sub>90</sub> = 19.4 P <sub>99</sub> = 29.0 |    |    |    |    |                 |               |  |  |  | Percent Operational Time: 100.0 |  |  |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Daily Average   | Daily Maximum |  |  |  |                                 |  |  |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                            | 21 | 22 | 23 | 24 |                 |               |  |  |  |                                 |  |  |  |
| 1-Apr                                                                                                                   | 12                            | 16 | 16 | 17 | 17 | 10 | 13 | 14 | 13 | 14 | 17 | 14 | 13 | 8  | 5  | 6  | 7  | 8  | 8  | 7                                                                                                                                                             | 10 | 4  | 4  | 4  | 10.7            | 16.9          |  |  |  |                                 |  |  |  |
| 2-Apr                                                                                                                   | 5                             | 3  | 5  | 5  | 6  | 6  | 5  | 6  | 6  | 8  | 8  | 7  | 8  | 9  | 8  | 7  | 9  | 8  | 7  | 8                                                                                                                                                             | 4  | 4  | 4  | 4  | 6.3             | 8.8           |  |  |  |                                 |  |  |  |
| 3-Apr                                                                                                                   | 4                             | 4  | 4  | 3  | 5  | 3  | 4  | 4  | 6  | 6  | 7  | 4  | 4  | 8  | 4  | 5  | 7  | 9  | 5  | 4                                                                                                                                                             | 4  | 5  | 4  | 5  | 4.9             | 9.3           |  |  |  |                                 |  |  |  |
| 4-Apr                                                                                                                   | 7                             | 8  | 6  | 7  | 11 | 14 | 12 | 13 | 15 | 22 | 24 | 25 | 26 | 23 | 21 | 20 | 20 | 13 | 12 | 9                                                                                                                                                             | 8  | 9  | 6  | 4  | 14.0            | 25.9          |  |  |  |                                 |  |  |  |
| 5-Apr                                                                                                                   | 5                             | 4  | 3  | 5  | 7  | 6  | 6  | 4  | 8  | 12 | 18 | 15 | 17 | 19 | 12 | 8  | 13 | 6  | 7  | 9                                                                                                                                                             | 6  | 10 | 13 | 12 | 9.4             | 19.1          |  |  |  |                                 |  |  |  |
| 6-Apr                                                                                                                   | 11                            | 10 | 7  | 8  | 7  | 9  | 4  | 8  | 7  | 11 | 14 | 17 | 17 | 16 | 17 | 15 | 15 | 13 | 8  | 7                                                                                                                                                             | 5  | 3  | 6  | 8  | 10.1            | 17.3          |  |  |  |                                 |  |  |  |
| 7-Apr                                                                                                                   | 5                             | 5  | 5  | 5  | 4  | 5  | 4  | 4  | 6  | 7  | 7  | 9  | 8  | 9  | 7  | 6  | 6  | 5  | 5  | 4                                                                                                                                                             | 4  | 6  | 7  | 6  | 5.9             | 9.0           |  |  |  |                                 |  |  |  |
| 8-Apr                                                                                                                   | 9                             | 6  | 6  | 12 | 13 | 11 | 11 | 13 | 12 | 11 | 15 | 15 | 27 | 31 | 23 | 31 | 35 | 34 | 33 | 41                                                                                                                                                            | 29 | 19 | 11 | 8  | 19.0            | 40.9          |  |  |  |                                 |  |  |  |
| 9-Apr                                                                                                                   | 4                             | 5  | 6  | 3  | 4  | 5  | 5  | 7  | 10 | 11 | 16 | 17 | 20 | 22 | 24 | 21 | 16 | 17 | 22 | 16                                                                                                                                                            | 11 | 10 | 9  | 13 | 12.2            | 23.8          |  |  |  |                                 |  |  |  |
| 10-Apr                                                                                                                  | 12                            | 8  | 6  | 3  | 3  | 7  | 7  | 9  | 9  | 10 | 10 | 8  | 9  | 11 | 16 | 13 | 10 | 7  | 6  | 3                                                                                                                                                             | 6  | 5  | 3  | 3  | 7.7             | 15.5          |  |  |  |                                 |  |  |  |
| 11-Apr                                                                                                                  | 2                             | 5  | 4  | 4  | 3  | 6  | 4  | 6  | 7  | 6  | 19 | 23 | 26 | 34 | 40 | 26 | 21 | 23 | 21 | 14                                                                                                                                                            | 12 | 10 | 10 | 11 | 14.0            | 39.9          |  |  |  |                                 |  |  |  |
| 12-Apr                                                                                                                  | 10                            | 10 | 7  | 5  | 3  | 4  | 4  | 3  | 7  | 8  | 8  | 6  | 6  | 9  | 11 | 13 | 12 | 15 | 14 | 11                                                                                                                                                            | 10 | 10 | 11 | 12 | 8.7             | 14.5          |  |  |  |                                 |  |  |  |
| 13-Apr                                                                                                                  | 13                            | 12 | 14 | 15 | 16 | 15 | 14 | 14 | 16 | 14 | 15 | 17 | 18 | 19 | 20 | 20 | 19 | 18 | 15 | 15                                                                                                                                                            | 17 | 16 | 15 | 15 | 15.9            | 20.0          |  |  |  |                                 |  |  |  |
| 14-Apr                                                                                                                  | 16                            | 16 | 17 | 17 | 15 | 18 | 21 | 19 | 19 | 21 | 20 | 21 | 20 | 19 | 16 | 16 | 15 | 13 | 13 | 13                                                                                                                                                            | 12 | 10 | 9  | 7  | 16.0            | 21.4          |  |  |  |                                 |  |  |  |
| 15-Apr                                                                                                                  | 6                             | 7  | 8  | 8  | 5  | 4  | 6  | 8  | 8  | 8  | 9  | 11 | 10 | 11 | 13 | 10 | 11 | 12 | 11 | 10                                                                                                                                                            | 10 | 10 | 9  | 10 | 8.9             | 13.1          |  |  |  |                                 |  |  |  |
| 16-Apr                                                                                                                  | 9                             | 8  | 8  | 8  | 9  | 9  | 10 | 10 | 13 | 14 | 15 | 14 | 14 | 15 | 14 | 15 | 16 | 13 | 10 | 6                                                                                                                                                             | 6  | 5  | 6  | 5  | 10.5            | 15.5          |  |  |  |                                 |  |  |  |
| 17-Apr                                                                                                                  | 3                             | 1  | 5  | 1  | 1  | 2  | 2  | 1  | 6  | 6  | 7  | 7  | 9  | 11 | 9  | 8  | 8  | 8  | 7  | 5                                                                                                                                                             | 3  | 5  | 3  | 4  | 5.1             | 10.6          |  |  |  |                                 |  |  |  |
| 18-Apr                                                                                                                  | 6                             | 4  | 4  | 5  | 6  | 5  | 5  | 4  | 6  | 6  | 6  | 7  | 8  | 8  | 8  | 7  | 7  | 7  | 6  | 4                                                                                                                                                             | 4  | 3  | 2  | 3  | 5.6             | 8.3           |  |  |  |                                 |  |  |  |
| 19-Apr                                                                                                                  | 8                             | 4  | 5  | 5  | 4  | 3  | 5  | 8  | 10 | 11 | 11 | 12 | 14 | 15 | 16 | 14 | 15 | 12 | 12 | 11                                                                                                                                                            | 8  | 3  | 4  | 5  | 8.9             | 15.6          |  |  |  |                                 |  |  |  |
| 20-Apr                                                                                                                  | 8                             | 9  | 8  | 9  | 7  | 7  | 9  | 13 | 22 | 27 | 24 | 24 | 25 | 26 | 25 | 23 | 19 | 19 | 14 | 7                                                                                                                                                             | 2  | 4  | 4  | 4  | 14.1            | 27.2          |  |  |  |                                 |  |  |  |
| 21-Apr                                                                                                                  | 4                             | 8  | 5  | 5  | 10 | 7  | 7  | 13 | 13 | 19 | 24 | 20 | 18 | 17 | 20 | 20 | 22 | 20 | 16 | 11                                                                                                                                                            | 11 | 10 | 11 | 10 | 13.4            | 24.1          |  |  |  |                                 |  |  |  |
| 22-Apr                                                                                                                  | 11                            | 12 | 11 | 14 | 12 | 11 | 13 | 18 | 23 | 26 | 25 | 21 | 20 | 17 | 16 | 17 | 25 | 26 | 23 | 16                                                                                                                                                            | 11 | 12 | 12 | 12 | 16.8            | 25.9          |  |  |  |                                 |  |  |  |
| 23-Apr                                                                                                                  | 13                            | 11 | 9  | 12 | 8  | 6  | 6  | 8  | 15 | 16 | 17 | 17 | 17 | 15 | 14 | 9  | 6  | 5  | 1  | 1                                                                                                                                                             | 1  | 7  | 5  | 2  | 9.2             | 17.4          |  |  |  |                                 |  |  |  |
| 24-Apr                                                                                                                  | 3                             | 3  | 4  | 6  | 3  | 5  | 3  | 3  | 6  | 7  | 7  | 6  | 9  | 7  | 8  | 8  | 8  | 8  | 9  | 6                                                                                                                                                             | 8  | 7  | 7  | 10 | 6.3             | 10.0          |  |  |  |                                 |  |  |  |
| 25-Apr                                                                                                                  | 6                             | 5  | 4  | 5  | 9  | 6  | 4  | 2  | 4  | 5  | 6  | 8  | 8  | 8  | 7  | 8  | 8  | 10 | 9  | 7                                                                                                                                                             | 13 | 21 | 18 | 14 | 8.1             | 20.5          |  |  |  |                                 |  |  |  |
| 26-Apr                                                                                                                  | 15                            | 13 | 15 | 15 | 19 | 16 | 12 | 18 | 18 | 17 | 15 | 15 | 15 | 17 | 14 | 16 | 19 | 21 | 16 | 11                                                                                                                                                            | 10 | 11 | 8  | 8  | 14.7            | 20.5          |  |  |  |                                 |  |  |  |
| 27-Apr                                                                                                                  | 7                             | 4  | 4  | 3  | 4  | 3  | 2  | 7  | 5  | 6  | 7  | 8  | 24 | 21 | 11 | 6  | 7  | 14 | 18 | 12                                                                                                                                                            | 7  | 9  | 4  | 6  | 8.3             | 23.6          |  |  |  |                                 |  |  |  |
| 28-Apr                                                                                                                  | 7                             | 6  | 8  | 9  | 8  | 7  | 7  | 6  | 16 | 15 | 14 | 14 | 16 | 17 | 18 | 20 | 19 | 21 | 15 | 12                                                                                                                                                            | 14 | 13 | 12 | 11 | 12.6            | 21.0          |  |  |  |                                 |  |  |  |
| 29-Apr                                                                                                                  | 8                             | 3  | 3  | 2  | 3  | 3  | 4  | 5  | 6  | 10 | 11 | 11 | 10 | 9  | 16 | 22 | 10 | 11 | 13 | 9                                                                                                                                                             | 11 | 17 | 2  | 2  | 8.4             | 22.4          |  |  |  |                                 |  |  |  |
| 30-Apr                                                                                                                  | 4                             | 5  | 12 | 13 | 11 | 7  | 7  | 14 | 12 | 14 | 14 | 15 | 18 | 15 | 24 | 30 | 27 | 28 | 21 | 17                                                                                                                                                            | 15 | 15 | 16 | 12 | 15.2            | 29.7          |  |  |  |                                 |  |  |  |
| 7.6 7.2 7.3 7.5 7.7 7.3 7.2 8.7 10.8 12.3 13.7 13.7 15.1 15.5 15.2 14.7 14.4 14.2 12.5 10.2 9.1 9.1 7.9 7.7             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Diurnal Average |               |  |  |  |                                 |  |  |  |
| 15.6 16.4 17.1 17.1 18.7 18.2 20.6 19.4 23.3 27.2 25.0 25.5 27.1 34.2 39.9 30.8 35.3 33.7 33.4 40.9 29.0 20.5 18.2 15.2 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Diurnal Maximum |               |  |  |  |                                 |  |  |  |
| All monthly, daily, and diurnal averages have been calculated using scalar methods                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    |                 |               |  |  |  |                                 |  |  |  |

## Hourly Standard Deviations

Wind Direction (WD) - deg

Henry Pirker - April 2011

|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                 |      |      |      |      |      |      |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------------------------------|------|------|------|------|------|------|---------------|
| Maximum Value: 95.7 deg on Apr 21 00:00                                                                                                                        |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours in Service: 720           |      |      |      |      |      |      |               |
| Minimum Value: 4.4 deg on Apr 2 13:00                                                                                                                          |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Data: 720              |      |      |      |      |      |      |               |
|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Missing Data: 0        |      |      |      |      |      |      |               |
| Percentiles: P <sub>1</sub> = 5.1 P <sub>10</sub> = 7.0 Q <sub>1</sub> = 9.4 Median = 15.0 Q <sub>3</sub> = 25.6 P <sub>90</sub> = 46.6 P <sub>99</sub> = 85.6 |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Calibration: 0         |      |      |      |      |      |      |               |
|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Percent Operational Time: 100.0 |      |      |      |      |      |      |               |
| Day                                                                                                                                                            | Hourly Period Ending At (MST) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                 |      |      |      |      |      |      | Daily Maximum |
|                                                                                                                                                                | 1                             | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18                              | 19   | 20   | 21   | 22   | 23   | 24   |               |
| 1-Apr                                                                                                                                                          | 5                             | 6    | 6    | 6    | 9    | 8    | 7    | 8    | 8    | 11   | 8    | 10   | 11   | 17   | 17   | 23   | 22   | 19                              | 22   | 13   | 22   | 42   | 39   | 60   | 59.9          |
| 2-Apr                                                                                                                                                          | 20                            | 70   | 38   | 10   | 17   | 22   | 11   | 12   | 19   | 10   | 11   | 8    | 4    | 10   | 8    | 21   | 30   | 14                              | 22   | 21   | 35   | 54   | 20   | 29   | 70.3          |
| 3-Apr                                                                                                                                                          | 60                            | 48   | 15   | 25   | 20   | 17   | 65   | 26   | 23   | 16   | 24   | 47   | 47   | 44   | 53   | 82   | 20   | 12                              | 19   | 18   | 12   | 11   | 53   | 78   | 82.0          |
| 4-Apr                                                                                                                                                          | 24                            | 10   | 18   | 16   | 8    | 7    | 8    | 8    | 9    | 8    | 7    | 8    | 6    | 8    | 8    | 8    | 7    | 9                               | 9    | 24   | 15   | 16   | 26   | 40   | 39.8          |
| 5-Apr                                                                                                                                                          | 28                            | 38   | 48   | 23   | 27   | 12   | 30   | 26   | 16   | 14   | 11   | 12   | 11   | 7    | 25   | 35   | 30   | 32                              | 51   | 23   | 18   | 8    | 8    | 7    | 51.1          |
| 6-Apr                                                                                                                                                          | 6                             | 9    | 10   | 18   | 11   | 15   | 83   | 40   | 25   | 17   | 11   | 13   | 8    | 14   | 13   | 13   | 13   | 8                               | 12   | 26   | 39   | 40   | 24   | 12   | 82.9          |
| 7-Apr                                                                                                                                                          | 17                            | 18   | 30   | 29   | 25   | 18   | 15   | 21   | 19   | 10   | 14   | 8    | 16   | 6    | 8    | 13   | 9    | 13                              | 30   | 35   | 25   | 10   | 22   | 29   | 35.0          |
| 8-Apr                                                                                                                                                          | 8                             | 11   | 9    | 7    | 6    | 9    | 9    | 8    | 10   | 12   | 18   | 12   | 7    | 7    | 6    | 7    | 8    | 6                               | 5    | 8    | 5    | 5    | 6    | 27   | 27.5          |
| 9-Apr                                                                                                                                                          | 58                            | 21   | 75   | 86   | 43   | 38   | 24   | 28   | 19   | 23   | 22   | 12   | 14   | 8    | 5    | 12   | 11   | 11                              | 11   | 14   | 13   | 15   | 10   | 85.9 |               |
| 10-Apr                                                                                                                                                         | 21                            | 23   | 54   | 62   | 63   | 22   | 38   | 16   | 24   | 12   | 12   | 12   | 23   | 19   | 15   | 14   | 28   | 16                              | 17   | 49   | 24   | 47   | 71   | 37   | 70.7          |
| 11-Apr                                                                                                                                                         | 43                            | 21   | 47   | 58   | 73   | 18   | 88   | 55   | 51   | 29   | 15   | 8    | 8    | 8    | 9    | 9    | 8    | 7                               | 9    | 9    | 12   | 8    | 7    | 5    | 88.5          |
| 12-Apr                                                                                                                                                         | 6                             | 7    | 13   | 45   | 80   | 33   | 16   | 29   | 24   | 26   | 34   | 56   | 58   | 23   | 17   | 11   | 11   | 9                               | 8    | 7    | 7    | 6    | 6    | 6    | 79.7          |
| 13-Apr                                                                                                                                                         | 6                             | 5    | 6    | 5    | 5    | 6    | 6    | 7    | 8    | 9    | 10   | 10   | 11   | 11   | 10   | 8    | 9    | 9                               | 6    | 7    | 7    | 7    | 7    | 8    | 10.8          |
| 14-Apr                                                                                                                                                         | 7                             | 7    | 6    | 9    | 7    | 6    | 7    | 7    | 7    | 7    | 6    | 7    | 8    | 8    | 9    | 9    | 8    | 10                              | 10   | 9    | 9    | 11   | 12   | 14   | 14.2          |
| 15-Apr                                                                                                                                                         | 17                            | 21   | 12   | 13   | 31   | 16   | 10   | 8    | 10   | 20   | 15   | 19   | 22   | 22   | 16   | 34   | 16   | 13                              | 16   | 14   | 11   | 13   | 14   | 10   | 34.4          |
| 16-Apr                                                                                                                                                         | 11                            | 14   | 14   | 12   | 11   | 9    | 11   | 11   | 9    | 11   | 14   | 15   | 14   | 16   | 14   | 15   | 15   | 15                              | 18   | 17   | 19   | 18   | 11   | 12   | 19.3          |
| 17-Apr                                                                                                                                                         | 52                            | 20   | 12   | 28   | 23   | 87   | 19   | 16   | 26   | 25   | 41   | 36   | 32   | 17   | 47   | 52   | 53   | 40                              | 29   | 23   | 52   | 11   | 24   | 17   | 87.4          |
| 18-Apr                                                                                                                                                         | 13                            | 9    | 19   | 9    | 15   | 16   | 16   | 15   | 18   | 24   | 21   | 26   | 45   | 58   | 49   | 47   | 47   | 43                              | 41   | 20   | 26   | 36   | 19   | 84   | 83.6          |
| 19-Apr                                                                                                                                                         | 30                            | 34   | 35   | 24   | 24   | 69   | 20   | 13   | 22   | 12   | 24   | 21   | 16   | 14   | 41   | 16   | 22   | 19                              | 17   | 11   | 15   | 85   | 59   | 34   | 85.0          |
| 20-Apr                                                                                                                                                         | 10                            | 9    | 9    | 9    | 10   | 14   | 10   | 10   | 9    | 7    | 13   | 10   | 13   | 12   | 15   | 17   | 17   | 13                              | 13   | 10   | 77   | 28   | 81   | 96   | 95.7          |
| 21-Apr                                                                                                                                                         | 32                            | 24   | 23   | 17   | 30   | 34   | 19   | 14   | 13   | 11   | 12   | 16   | 20   | 21   | 17   | 14   | 13   | 13                              | 11   | 19   | 18   | 13   | 7    | 6    | 33.8          |
| 22-Apr                                                                                                                                                         | 7                             | 6    | 6    | 6    | 6    | 7    | 9    | 9    | 8    | 9    | 13   | 10   | 17   | 21   | 24   | 34   | 12   | 9                               | 9    | 9    | 13   | 7    | 7    | 6    | 34.0          |
| 23-Apr                                                                                                                                                         | 7                             | 8    | 40   | 27   | 14   | 8    | 10   | 11   | 9    | 10   | 14   | 25   | 21   | 18   | 19   | 31   | 51   | 64                              | 91   | 13   | 14   | 79   | 80   | 89   | 91.4          |
| 24-Apr                                                                                                                                                         | 39                            | 34   | 31   | 25   | 28   | 59   | 86   | 58   | 18   | 28   | 44   | 43   | 29   | 41   | 30   | 39   | 31   | 23                              | 17   | 23   | 10   | 6    | 8    | 6    | 85.7          |
| 25-Apr                                                                                                                                                         | 28                            | 18   | 75   | 40   | 7    | 39   | 24   | 75   | 71   | 52   | 62   | 44   | 43   | 29   | 26   | 25   | 19   | 19                              | 9    | 13   | 33   | 8    | 9    | 8    | 75.5          |
| 26-Apr                                                                                                                                                         | 5                             | 12   | 6    | 5    | 7    | 6    | 11   | 5    | 12   | 11   | 12   | 18   | 21   | 19   | 25   | 21   | 25   | 11                              | 12   | 7    | 12   | 11   | 14   | 10   | 25.1          |
| 27-Apr                                                                                                                                                         | 29                            | 18   | 17   | 66   | 32   | 29   | 82   | 12   | 24   | 18   | 26   | 48   | 24   | 12   | 21   | 69   | 34   | 51                              | 13   | 16   | 18   | 15   | 30   | 20   | 82.2          |
| 28-Apr                                                                                                                                                         | 26                            | 33   | 18   | 7    | 14   | 13   | 9    | 8    | 7    | 8    | 11   | 12   | 14   | 11   | 9    | 6    | 7    | 16                              | 12   | 24   | 12   | 7    | 5    | 9    | 32.7          |
| 29-Apr                                                                                                                                                         | 10                            | 35   | 31   | 68   | 26   | 20   | 25   | 22   | 46   | 17   | 20   | 26   | 21   | 78   | 47   | 26   | 32   | 19                              | 18   | 10   | 9    | 43   | 80   | 11   | 79.5          |
| 30-Apr                                                                                                                                                         | 42                            | 15   | 6    | 13   | 10   | 25   | 9    | 9    | 10   | 12   | 28   | 20   | 50   | 44   | 15   | 13   | 11   | 10                              | 14   | 11   | 7    | 8    | 5    | 9    | 50.3          |
|                                                                                                                                                                | 59.8                          | 70.3 | 75.1 | 85.9 | 79.7 | 87.4 | 88.5 | 75.5 | 71.5 | 52.2 | 62.1 | 56.0 | 57.8 | 78.2 | 52.8 | 82.0 | 53.1 | 64.0                            | 91.4 | 49.1 | 77.1 | 85.0 | 81.0 | 95.7 |               |

PAZA

Evergreen Park Station

Monthly Summary Tables, Graphs and  
Roses

# Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

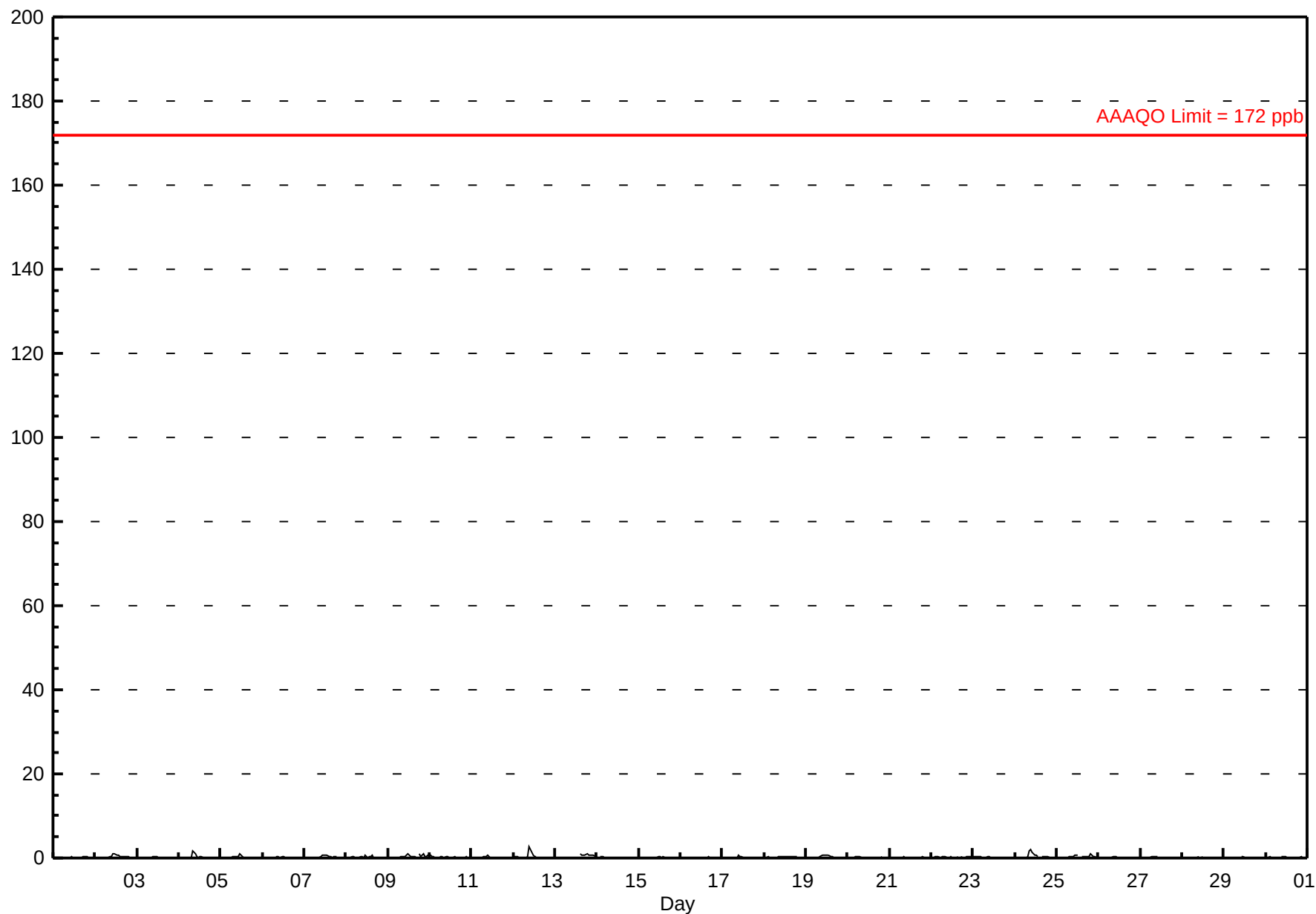
Evergreen Park - April 2011

|                                                                                                     |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    |                 |               |               |
|-----------------------------------------------------------------------------------------------------|-------------------------------|-----------------|---|---|---|---|---|---|---|----|----|-------------------------------|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------|----|-----------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                                                     |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    | Hours in Service: 720                                                                                                                                      |    |                                |    |                 |               |               |
| Maximum Value: 2.7 ppb on Apr 12 10:00                                                              |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    | Maximum Daily Average: 0.4 ppb on Apr 24                                                                                                                   |    | Hours of Data: 683             |    |                 |               |               |
| Minimum Value: 0 ppb on Apr 2 00:00                                                                 |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    | Minimum Daily Average: 0.1 ppb on Apr 28                                                                                                                   |    | Hours of Missing Data: 37      |    |                 |               |               |
| Maximum Diurnal Average: 0.5 ppb at hour 10                                                         |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.1 ppb at hour 5                                                                                                                 |    | Hours of Calibration: 34       |    |                 |               |               |
| Monthly Average: 0.17 ppb                                                                           |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.8 |    | Percent Operational Time: 99.6 |    |                 |               |               |
| Day                                                                                                 | Hourly Period Ending At (MST) |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    |                 | Daily Average | Daily Maximum |
|                                                                                                     | 1                             | 2               | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12                            | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                         | 21 | 22                             | 23 | 24              |               |               |
| 1-Apr                                                                                               | 0                             | 0               | A | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.4           |
| 2-Apr                                                                                               | 0                             | A               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1                             | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.3           | 1.0           |
| 3-Apr                                                                                               | A                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | A               | 0.1           | 0.4           |
| 4-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | A  | 0               | 0.2           | 1.8           |
| 5-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | A                              | 0  | 0               | 0.2           | 0.9           |
| 6-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | A  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 7-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1                             | 1  | 1  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.6           |
| 8-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1                             | 0  | 0  | 0  | 1  | 0  | 0  | A  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.5           |
| 9-Apr                                                                                               | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1                             | 1  | 0  | 0  | 0  | 0  | A  | 1  | 0                                                                                                                                                          | 1  | 0                              | 0  | 1               | 0.3           | 1.0           |
| 10-Apr                                                                                              | 1                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.7           |
| 11-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 0  | 0                             | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.5           |
| 12-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3  | 2  | 1                             | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.3           | 2.7           |
| 13-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | M | M  | M  | C                             | C  | C  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1                              | 1  | 0               | 0.4           | 1.0           |
| 14-Apr                                                                                              | 0                             | A               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 15-Apr                                                                                              | A                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | A               | 0.1           | 0.3           |
| 16-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | A  | 0               | 0.1           | 0.2           |
| 17-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | A                              | 0  | 0               | 0.2           | 0.7           |
| 18-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | A  | 0                              | 0  | 0               | 0.2           | 0.3           |
| 19-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1                             | 1  | 1  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.8           |
| 20-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 21-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 22-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.2           |
| 23-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.2           | 0.4           |
| 24-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2  | 2  | 1                             | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.4           | 2.0           |
| 25-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1                             | 1  | A  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                          | 1  | 0                              | 0  | 0               | 0.3           | 0.9           |
| 26-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 27-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.4           |
| 28-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.4           |
| 29-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.2           |
| 30-Apr                                                                                              | 0                             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | A | 0  | 0  | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0                              | 0  | 0               | 0.1           | 0.3           |
| 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.5 0.4 0.4 0.3 0.2 0.2 0.2 0.1 0.2 0.2 0.2 0.1 0.1 0.1 0.1 |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    | Diurnal Average |               |               |
| 0.7 0.4 0.3 0.3 0.2 0.3 0.3 0.4 0.4 1.9 2.7 2.1 0.9 0.8 0.7 1.0 0.6 0.7 0.8 0.9 0.9 1.0 0.7 0.6 0.8 |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    | Diurnal Maximum |               |               |
| C - Calibration                                                                                     |                               | M - Maintenance |   |   |   |   |   |   |   |    |    | A - Automated Daily Zero Span |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb                           |                               |                 |   |   |   |   |   |   |   |    |    |                               |    |    |    |    |    |    |    |                                                                                                                                                            |    |                                |    |                 |               |               |



## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Evergreen Park - April 2011**



# Hourly Maximums

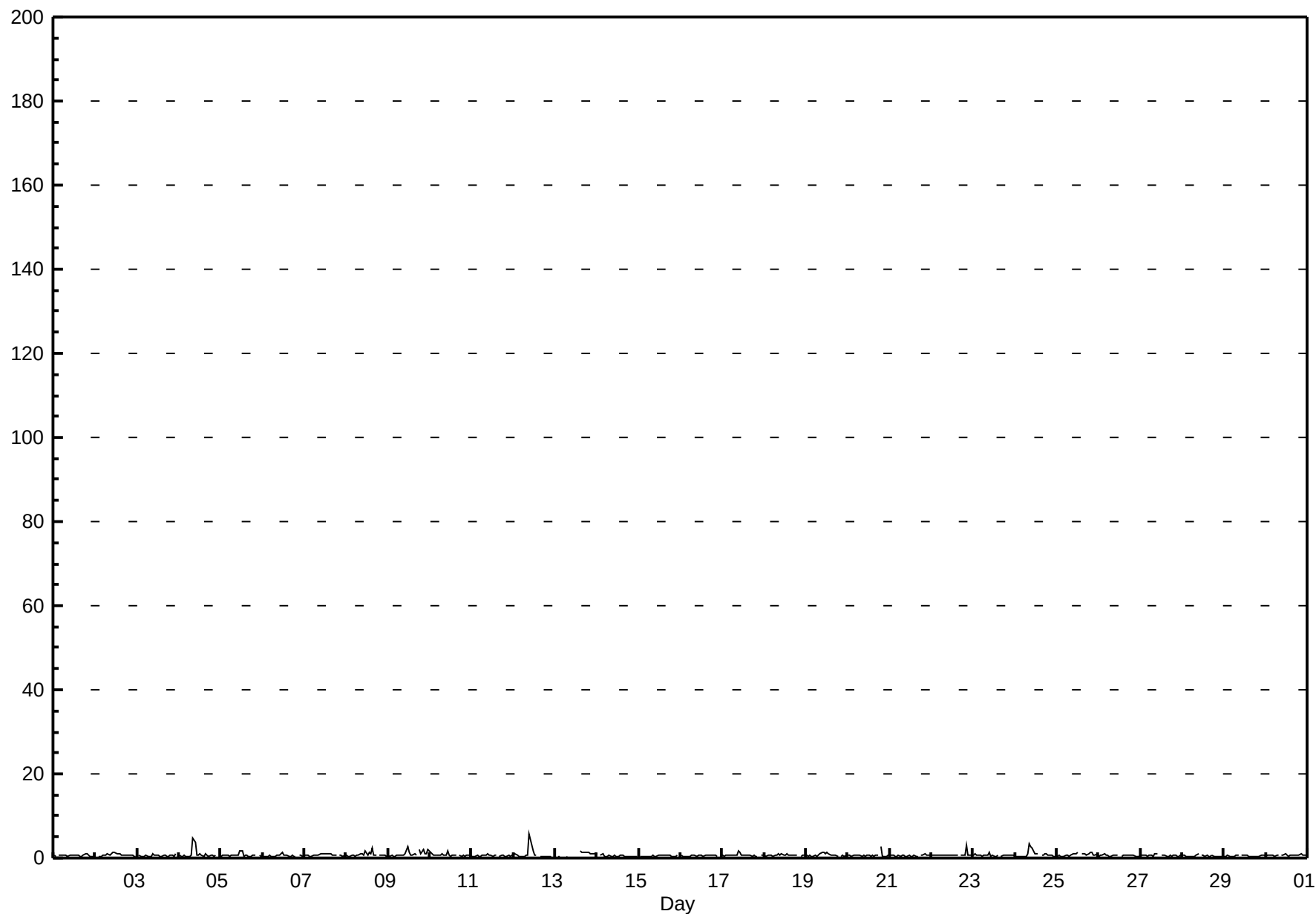
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Evergreen Park - April 2011

| Maximum Value: 5.9 ppb on Apr 12 10:00                                                          |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 1.0 ppb on Apr 9                                                                                                                    |    |    |    |    | Hours in Service: 720     |               |     |
|-------------------------------------------------------------------------------------------------|-------------------------------|---|---|-----------------|---|---|---|-------------------------------|---|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------------------|---------------|-----|
| Minimum Value: 0 ppb on Apr 13 05:00                                                            |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.5 ppb on Apr 28                                                                                                                   |    |    |    |    | Hours of Data: 683        |               |     |
| Maximum Diurnal Average: 1.2 ppb at hour 10                                                     |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.5 ppb at hour 5                                                                                                                 |    |    |    |    | Hours of Missing Data: 37 |               |     |
| Monthly Average: 0.67 ppb                                                                       |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.6 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.0 P <sub>99</sub> = 2.6 |    |    |    |    | Hours of Calibration: 34  |               |     |
|                                                                                                 |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.6                                                                                                                             |    |    |    |    |                           |               |     |
| Day                                                                                             | Hourly Period Ending At (MST) |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Daily Average             | Daily Maximum |     |
|                                                                                                 | 1                             | 2 | 3 | 4               | 5 | 6 | 7 | 8                             | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                         | 21 | 22 | 23 | 24 |                           |               |     |
| 1-Apr                                                                                           | 1                             | 0 | A | 1               | 1 | 1 | 1 | 1                             | 0 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 0  | 0  | 0.6                       | 1.1           |     |
| 2-Apr                                                                                           | 0                             | A | 0 | 1               | 1 | 1 | 1 | 1                             | 1 | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 0  | 0.8                       | 1.5           |     |
| 3-Apr                                                                                           | A                             | 1 | 0 | 0               | 0 | 1 | 1 | 0                             | 0 | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1  | 0  | 0  | 1                                                                                                                                                          | 1  | 0  | 1  | A  | 0.5                       | 0.9           |     |
| 4-Apr                                                                                           | 1                             | 0 | 0 | 1               | 0 | 0 | 0 | 1                             | 5 | 4  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 0  | 1  | 1                                                                                                                                                          | 0  | 1  | A  | 1  | 0.9                       | 4.9           |     |
| 5-Apr                                                                                           | 0                             | 1 | 1 | 1               | 1 | 1 | 1 | 1                             | 1 | 1  | 1  | 2  | 2  | 1  | 1  | 1  | 0  | 0  | 1  | 1                                                                                                                                                          | 1  | A  | 1  | 0  | 0.7                       | 1.8           |     |
| 6-Apr                                                                                           | 0                             | 0 | 0 | 0               | 1 | 1 | 0 | 0                             | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 0  | 0                                                                                                                                                          | A  | 1  | 1  | 0  | 0.6                       | 1.2           |     |
| 7-Apr                                                                                           | 1                             | 1 | 1 | 0               | 0 | 1 | 1 | 1                             | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A                                                                                                                                                          | 1  | 1  | 0  | 1  | 0.7                       | 1.1           |     |
| 8-Apr                                                                                           | 1                             | 1 | 0 | 1               | 1 | 1 | 1 | 1                             | 1 | 1  | 1  | 2  | 1  | 1  | 1  | 3  | 1  | 1  | A  | 1                                                                                                                                                          | 1  | 1  | 1  | 0  | 0.8                       | 2.5           |     |
| 9-Apr                                                                                           | 1                             | 0 | 1 | 0               | 0 | 1 | 1 | 1                             | 1 | 1  | 1  | 3  | 1  | 1  | 1  | 1  | 1  | A  | 2  | 1                                                                                                                                                          | 2  | 1  | 1  | 2  | 1.0                       | 2.6           |     |
| 10-Apr                                                                                          | 1                             | 1 | 1 | 1               | 1 | 1 | 1 | 1                             | 1 | 1  | 2  | 1  | 0  | 1  | 1  | 1  | A  | 1  | 0  | 1                                                                                                                                                          | 0  | 1  | 1  | 1  | 0.7                       | 1.8           |     |
| 11-Apr                                                                                          | 0                             | 0 | 0 | 1               | 0 | 0 | 1 | 1                             | 1 | 1  | 1  | 1  | 0  | 1  | 1  | A  | 0  | 0  | 1  | 1                                                                                                                                                          | 0  | 0  | 1  | 0  | 1                         | 0.5           | 1.1 |
| 12-Apr                                                                                          | 1                             | 1 | 1 | 0               | 0 | 0 | 0 | 1                             | 1 | 6  | 4  | 2  | 1  | 1  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0                         | 0.9           | 5.9 |
| 13-Apr                                                                                          | 0                             | 0 | 0 | 0               | 0 | 0 | 0 | 0                             | M | M  | M  | C  | C  | C  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.7                       | 1.6           |     |
| 14-Apr                                                                                          | 1                             | A | 1 | 1               | 1 | 0 | 0 | 1                             | 0 | 0  | 1  | 0  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.5                       | 1.0           |     |
| 15-Apr                                                                                          | A                             | 0 | 0 | 0               | 0 | 0 | 0 | 0                             | 1 | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                                          | 0  | 0  | 1  | A  | 0.5                       | 0.8           |     |
| 16-Apr                                                                                          | 1                             | 0 | 0 | 0               | 0 | 0 | 1 | 1                             | 1 | 0  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | A  | 1  | 0.5                       | 0.8           |     |
| 17-Apr                                                                                          | 1                             | 0 | 1 | 1               | 1 | 1 | 1 | 1                             | 1 | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 0                                                                                                                                                          | 0  | A  | 1  | 1  | 0.7                       | 1.9           |     |
| 18-Apr                                                                                          | 1                             | 0 | 1 | 1               | 1 | 0 | 1 | 1                             | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | A  | 0  | 1  | 1  | 0.7                       | 1.0           |     |
| 19-Apr                                                                                          | 1                             | 1 | 1 | 0               | 0 | 1 | 0 | 1                             | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | A                                                                                                                                                          | 0  | 1  | 0  | 1  | 0.7                       | 1.5           |     |
| 20-Apr                                                                                          | 1                             | 1 | 0 | 1               | 1 | 1 | 1 | 1                             | 0 | 1  | 0  | 1  | 1  | 0  | 1  | 0  | 1  | 1  | A  | 3                                                                                                                                                          | 0  | 0  | 0  | 1  | 0.7                       | 2.7           |     |
| 21-Apr                                                                                          | 1                             | 1 | 1 | 0               | 0 | 1 | 0 | 1                             | 1 | 0  | 0  | 1  | 0  | 0  | 1  | 0  | 0  | A  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.5                       | 0.9           |     |
| 22-Apr                                                                                          | 1                             | 1 | 1 | 1               | 1 | 1 | 1 | 1                             | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                          | 3  | 1  | 1  | 1  | 0.7                       | 3.1           |     |
| 23-Apr                                                                                          | 1                             | 1 | 1 | 1               | 1 | 0 | 1 | 1                             | 1 | 1  | 1  | 1  | 0  | 0  | 1  | A  | 0  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.6                       | 1.3           |     |
| 24-Apr                                                                                          | 0                             | 0 | 0 | 0               | 0 | 0 | 0 | 1                             | 3 | 3  | 2  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 0  | 0.9                       | 3.3           |     |
| 25-Apr                                                                                          | 0                             | 1 | 0 | 0               | 0 | 1 | 1 | 0                             | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.8                       | 1.3           |     |
| 26-Apr                                                                                          | 0                             | 1 | 1 | 1               | 1 | 1 | 0 | 0                             | 1 | 1  | 1  | 1  | A  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 0  | 0  | 0.6                       | 1.1           |     |
| 27-Apr                                                                                          | 1                             | 1 | 1 | 1               | 0 | 1 | 1 | 0                             | 1 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 1  | 0  | 0  | 1  | 0.6                       | 1.0           |     |
| 28-Apr                                                                                          | 1                             | 1 | 0 | 0               | 0 | 0 | 0 | 0                             | 1 | 1  | 1  | A  | 1  | 1  | 0  | 1  | 0  | 0  | 1  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.5                       | 1.0           |     |
| 29-Apr                                                                                          | 0                             | 0 | 1 | 0               | 0 | 0 | 0 | 1                             | 1 | A  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 1  | 1  | 0.5                       | 0.8           |     |
| 30-Apr                                                                                          | 0                             | 1 | 1 | 1               | 1 | 1 | 1 | 1                             | A | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.6                       | 1.1           |     |
| 0.6 0.6 0.5 0.5 0.5 0.5 0.5 0.6 0.9 1.2 1.0 0.9 0.8 0.6 0.7 0.7 0.6 0.6 0.7 0.7 0.7 0.6 0.6 0.6 |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Average           |               |     |
| 1.2 1.1 0.8 1.1 0.8 0.8 0.8 1.1 4.9 5.9 4.3 2.6 1.5 1.4 1.6 2.5 1.3 1.4 2.0 2.7 3.1 1.1 1.1 2.1 |                               |   |   |                 |   |   |   |                               |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Maximum           |               |     |
| C - Calibration                                                                                 |                               |   |   | M - Maintenance |   |   |   | A - Automated Daily Zero Span |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                           |               |     |

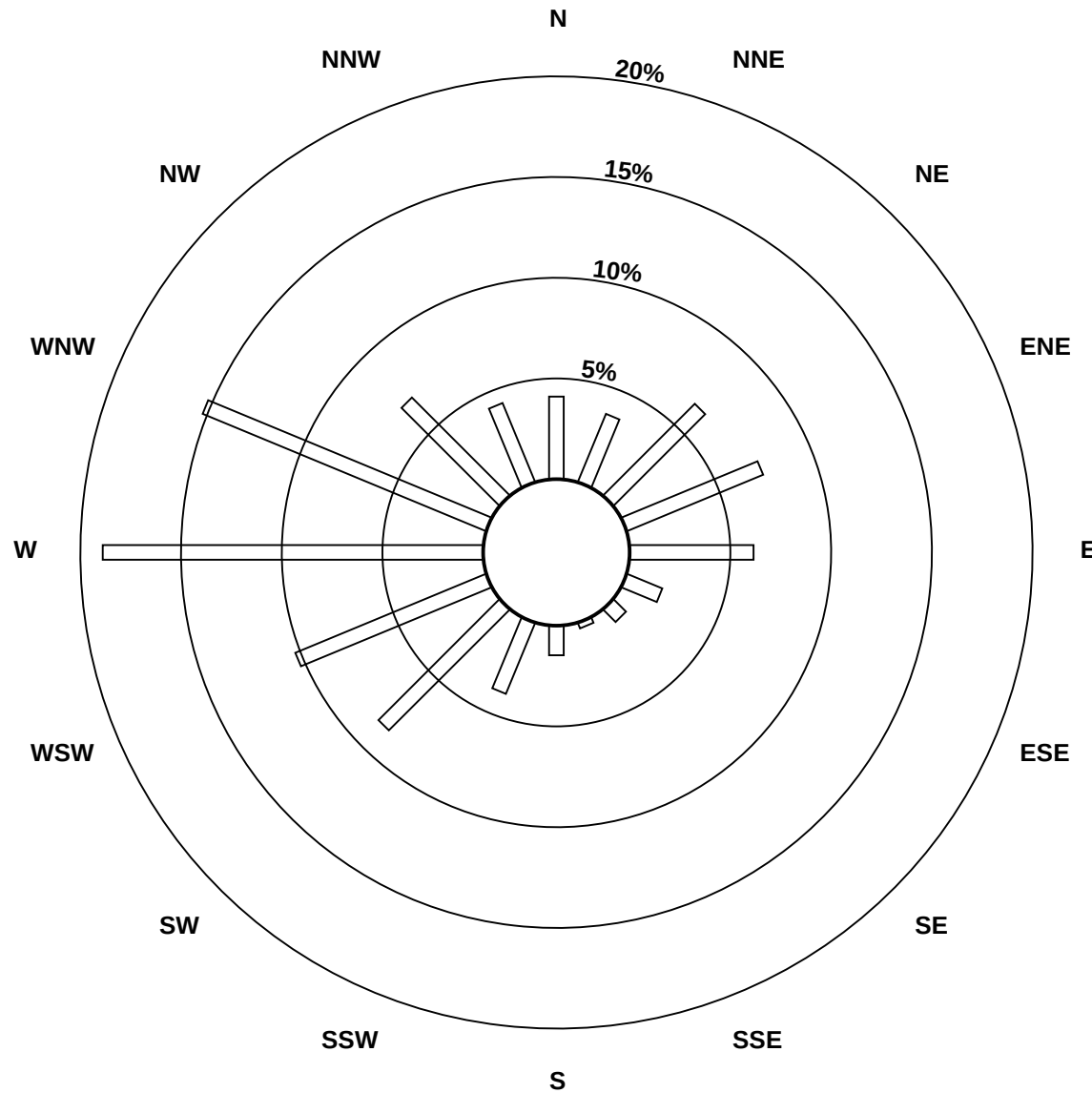
## Hourly Maximums

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Evergreen Park - April 2011**

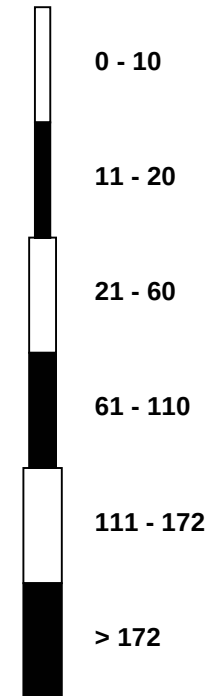


## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Evergreen Park - April 2011

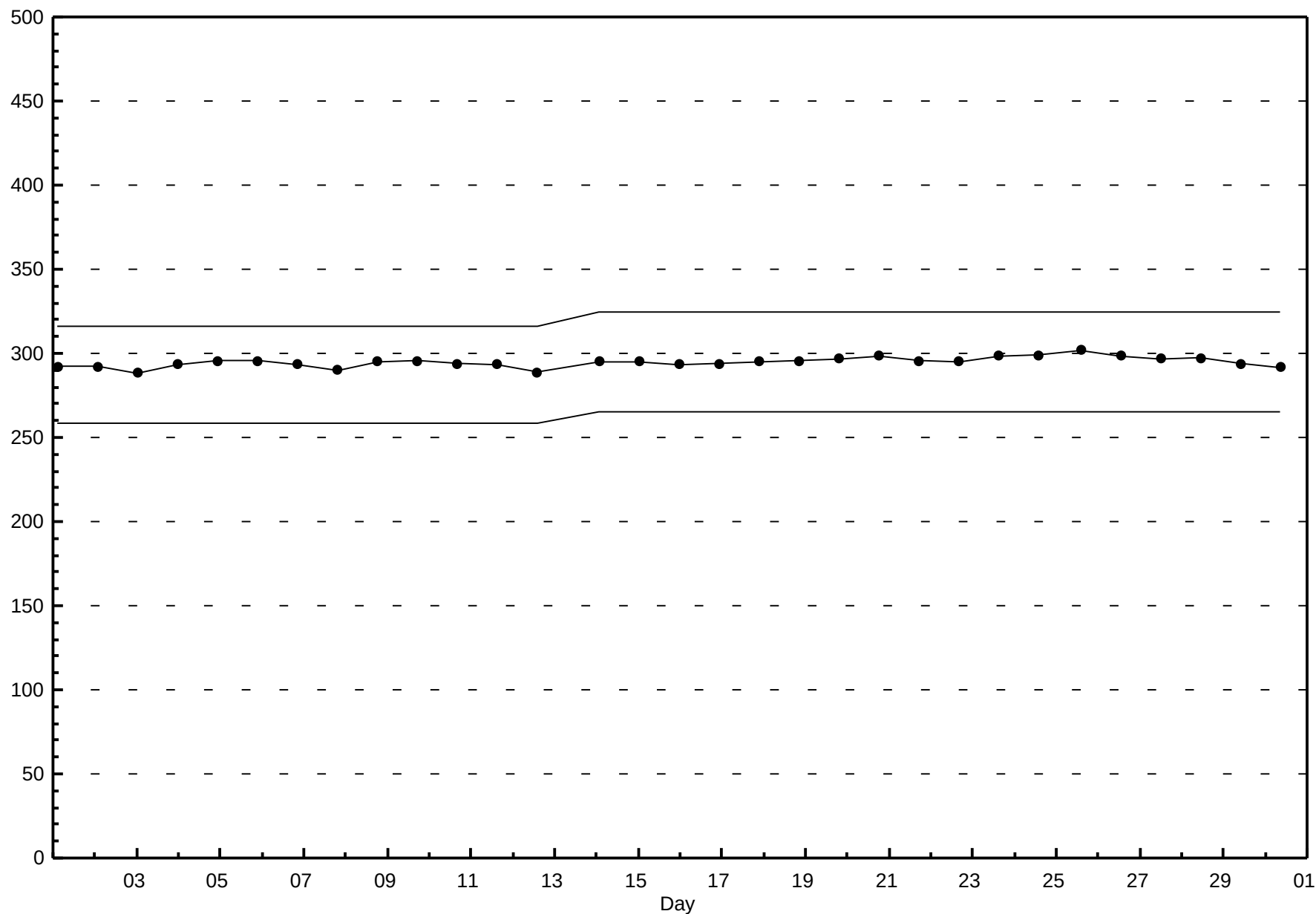


## Pollutant Classes (ppb)



## Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Evergreen Park - April 2011



## Hourly Averages

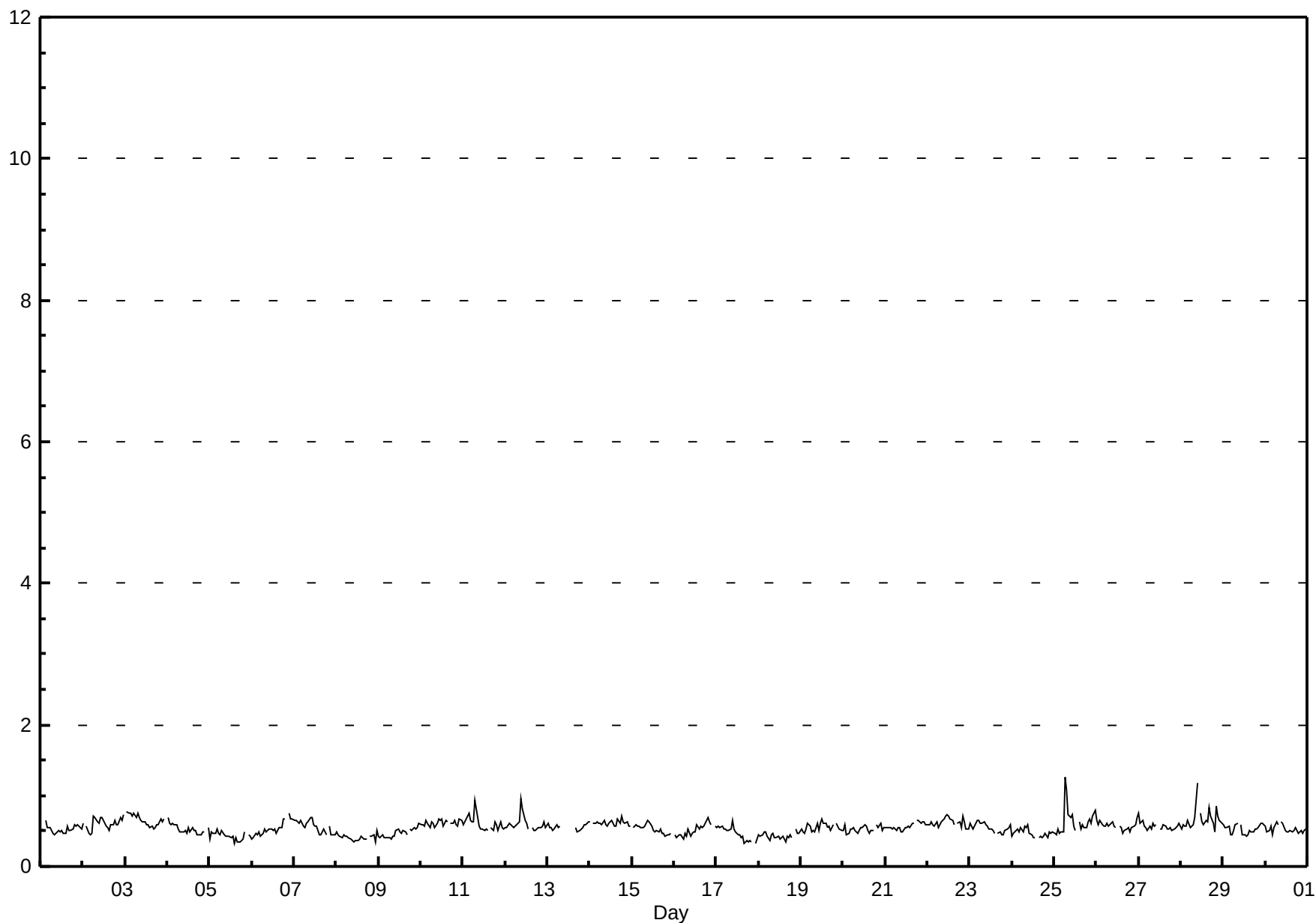
Total Reduced Sulphur (TRS) - ppb

Evergreen Park - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 1.3 ppb on Apr 25 07:00<br>Maximum Daily Average: 0.7 ppb on Apr 28 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 682<br>Hours of Missing Data: 38<br>Hours of Calibration: 35<br>Percent Operational Time: 99.6                                                                                                               |    |    |    |                 |               |               |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|
| Minimum Value: 0 ppb on Apr 17 23:00<br>Maximum Diurnal Average: 0.6 ppb at hour 10<br>Monthly Average: 0.55 ppb                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.4 ppb on Apr 8<br>Minimum Diurnal Average: 0.5 ppb at hour 18<br>Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.5 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 0.7 P <sub>99</sub> = 0.8 |    |    |    |                 |               |               |
| Day                                                                                                                                   | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                       | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                                                                                                                   | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                                 | 0                             | 1 | A | 1 | 1 | 1 | 1 | 0 | 0 | 0  | 1  | 0  | 1  | 0  | 0  | 1  | 1  | 0  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.5           | 0.7           |
| 2-Apr                                                                                                                                 | 1                             | A | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 3-Apr                                                                                                                                 | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | A               | 0.7           | 0.8           |
| 4-Apr                                                                                                                                 | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | A  | 1               | 0.5           | 0.7           |
| 5-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | A  | 0  | 0               | 0.4           | 0.5           |
| 6-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | A  | 1  | 1  | 1               | 0.5           | 0.7           |
| 7-Apr                                                                                                                                 | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 1  | 0  | A                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0               | 0.6           | 0.7           |
| 8-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 1               | 0.4           | 0.5           |
| 9-Apr                                                                                                                                 | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 0  | 0  | 1  | 0  | 0  | A  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.5           | 0.6           |
| 10-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 11-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.9           |
| 12-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 1.0           |
| 13-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | M | M  | M  | 1  | C  | C  | C  | C  | 1  | 0  | 0  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | --            | 0.6           |
| 14-Apr                                                                                                                                | 1                             | A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 15-Apr                                                                                                                                | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 0  | 1  | 0  | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | A               | 0.5           | 0.6           |
| 16-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | A  | 1               | 0.5           | 0.7           |
| 17-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | A  | 0  | 0               | 0.5           | 0.6           |
| 18-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | A  | 1  | 0  | 0               | 0.4           | 0.5           |
| 19-Apr                                                                                                                                | 1                             | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 20-Apr                                                                                                                                | 1                             | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | A  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.5           | 0.6           |
| 21-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 22-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 23-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.6           |
| 24-Apr                                                                                                                                | 0                             | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0               | 0.5           | 0.6           |
| 25-Apr                                                                                                                                | 0                             | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 1.3           |
| 26-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 0  | 1  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.7           |
| 27-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.6           | 0.8           |
| 28-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.7           | 1.2           |
| 29-Apr                                                                                                                                | 1                             | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1  | A  | 1  | 0  | 0  | 0  | 1  | 0  | 0  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 1               | 0.5           | 0.6           |
| 30-Apr                                                                                                                                | 1                             | 0 | 0 | 1 | 0 | 1 | 1 | 1 | A | 1  | 1  | 1  | 0  | 0  | 1  | 0  | 1  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 1  | 0  | 1  | 1               | 0.5           | 0.6           |
| 0.5 0.5 0.6 0.6 0.5 0.5 0.6 0.6 0.6 0.6 0.6 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.6 0.6 0.5 0.6                                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    | Diurnal Average |               |               |
| 0.8 0.8 0.8 0.8 0.7 0.7 1.3 1.1 0.7 1.2 0.8 0.7 0.7 0.7 0.7 0.6 0.8 0.7 0.7 0.7 0.8 0.7 0.7 0.8                                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    | Diurnal Maximum |               |               |
| C - Calibration M - Maintenance A - Automated Daily Zero Span                                                                         |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb                                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |                 |               |               |

## Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Evergreen Park - April 2011



# Hourly Maximums

Total Reduced Sulphur (TRS) - ppb

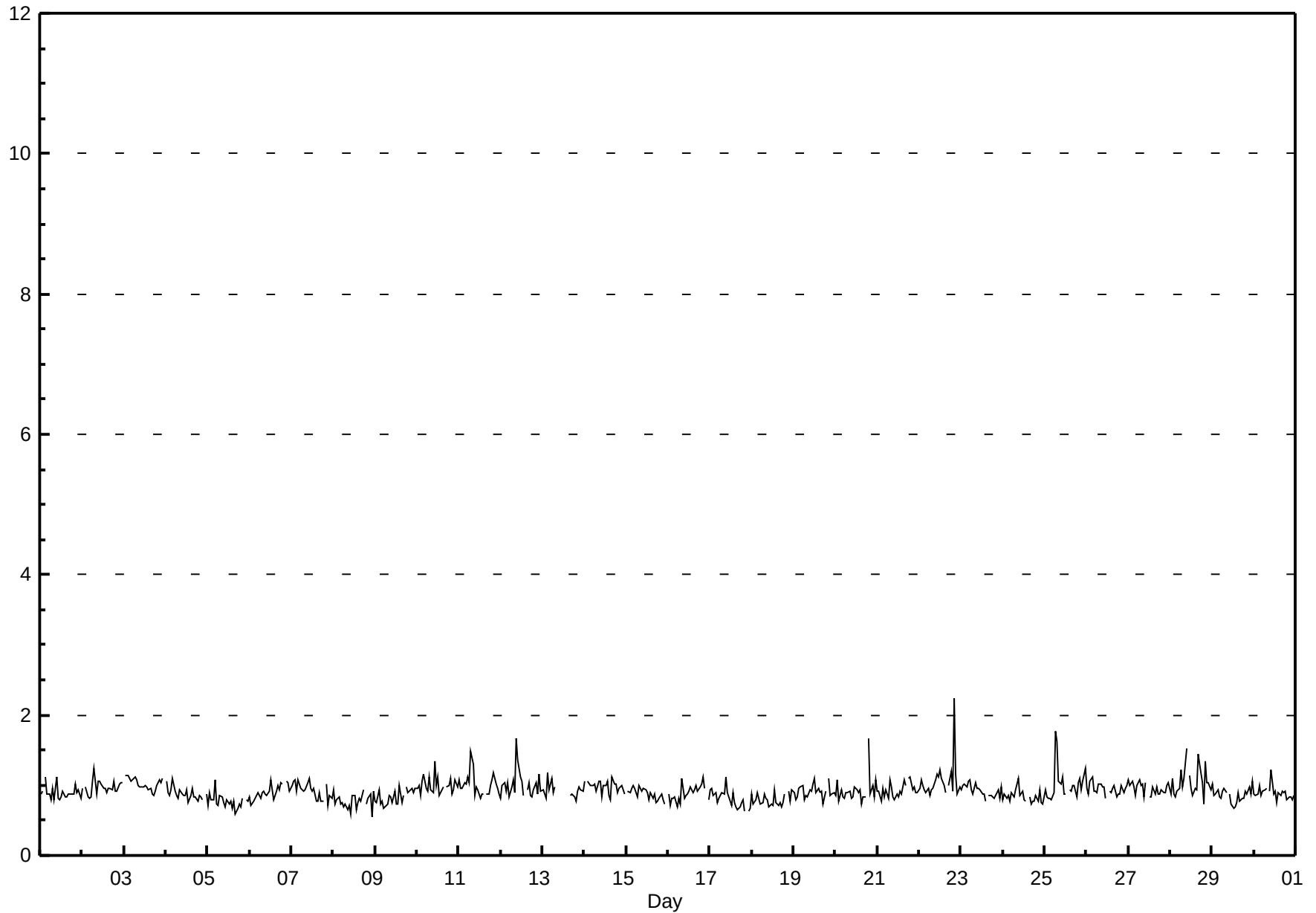
Evergreen Park - April 2011

| Maximum Value: 2.2 ppb on Apr 22 21:00      |                               |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     | Maximum Daily Average: 1.1 ppb on Apr 22                                                                                                                   |     |    |     |    |                 |               |               |  |  | Hours in Service: 720          |  |
|---------------------------------------------|-------------------------------|-----|---|-----------------|---|-----|---|-----|---|-----|----|-------------------------------|----|-----|----|-----|----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-----|----|-----------------|---------------|---------------|--|--|--------------------------------|--|
| Minimum Value: 1 ppb on Apr 8 23:00         |                               |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     | Minimum Daily Average: 0.8 ppb on Apr 8                                                                                                                    |     |    |     |    |                 |               |               |  |  | Hours of Data: 682             |  |
| Maximum Diurnal Average: 1.0 ppb at hour 21 |                               |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     | Minimum Diurnal Average: 0.9 ppb at hour 15                                                                                                                |     |    |     |    |                 |               |               |  |  | Hours of Missing Data: 38      |  |
| Monthly Average: 0.92 ppb                   |                               |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     | Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 0.8 Median = 0.9 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.1 P <sub>99</sub> = 1.5 |     |    |     |    |                 |               |               |  |  | Hours of Calibration: 35       |  |
|                                             |                               |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     |                                                                                                                                                            |     |    |     |    |                 |               |               |  |  | Percent Operational Time: 99.6 |  |
| Day                                         | Hourly Period Ending At (MST) |     |   |                 |   |     |   |     |   |     |    |                               |    |     |    |     |    |     |                                                                                                                                                            |     |    |     |    |                 | Daily Average | Daily Maximum |  |  |                                |  |
|                                             | 1                             | 2   | 3 | 4               | 5 | 6   | 7 | 8   | 9 | 10  | 11 | 12                            | 13 | 14  | 15 | 16  | 17 | 18  | 19                                                                                                                                                         | 20  | 21 | 22  | 23 | 24              |               |               |  |  |                                |  |
| 1-Apr                                       | 1                             | 1   | A | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 2-Apr                                       | 1                             | A   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.2           |  |  |                                |  |
| 3-Apr                                       | A                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | A               | 1.0           | 1.1           |  |  |                                |  |
| 4-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | A  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 5-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | A   | 1  | 1               | 0.8           | 1.1           |  |  |                                |  |
| 6-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | A  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 7-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | A   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 8-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | A                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.8           | 0.9           |  |  |                                |  |
| 9-Apr                                       | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | A   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.8           | 1.0           |  |  |                                |  |
| 10-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | A  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.3           |  |  |                                |  |
| 11-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | A   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.5           |  |  |                                |  |
| 12-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 2   | 1  | 1                             | 1  | 1   | A  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.7           |  |  |                                |  |
| 13-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | M | M   | M  | 1                             | C  | C   | C  | C   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | --            | 1.2           |  |  |                                |  |
| 14-Apr                                      | 1                             | A   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.1           |  |  |                                |  |
| 15-Apr                                      | A                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | A               | 0.9           | 1.0           |  |  |                                |  |
| 16-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | A  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 17-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | A   | 1  | 1               | 0.8           | 1.1           |  |  |                                |  |
| 18-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | A  | 1   | 1  | 1               | 0.8           | 0.9           |  |  |                                |  |
| 19-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | A   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 20-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | A                                                                                                                                                          | 2   | 1  | 1   | 1  | 1               | 0.9           | 1.7           |  |  |                                |  |
| 21-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | A  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 22-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | A  | 1   | 1                                                                                                                                                          | 1   | 2  | 1   | 1  | 1               | 1.1           | 2.2           |  |  |                                |  |
| 23-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | 1  | A   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 24-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | 1  | 1   | A  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.8           | 1.1           |  |  |                                |  |
| 25-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 2 | 2   | 1 | 1   | 1  | 1                             | 1  | A   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.8           |  |  |                                |  |
| 26-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | 1                             | A  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.1           |  |  |                                |  |
| 27-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | 1  | A                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.1           |  |  |                                |  |
| 28-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 2   | A  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 1.0           | 1.5           |  |  |                                |  |
| 29-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | 1 | 1   | A  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.0           |  |  |                                |  |
| 30-Apr                                      | 1                             | 1   | 1 | 1               | 1 | 1   | 1 | 1   | A | 1   | 1  | 1                             | 1  | 1   | 1  | 1   | 1  | 1   | 1                                                                                                                                                          | 1   | 1  | 1   | 1  | 1               | 0.9           | 1.2           |  |  |                                |  |
| 0.9                                         |                               | 0.9 |   | 0.9             |   | 0.9 |   | 1.0 |   | 0.9 |    | 0.9                           |    | 0.9 |    | 0.9 |    | 0.9 |                                                                                                                                                            | 0.9 |    | 0.9 |    | Diurnal Average |               |               |  |  |                                |  |
| 1.1                                         |                               | 1.1 |   | 1.1             |   | 1.2 |   | 1.2 |   | 1.1 |    | 1.8                           |    | 1.6 |    | 1.3 |    | 1.0 |                                                                                                                                                            | 1.7 |    | 1.4 |    | Diurnal Maximum |               |               |  |  |                                |  |
| C - Calibration                             |                               |     |   | M - Maintenance |   |     |   |     |   |     |    | A - Automated Daily Zero Span |    |     |    |     |    |     |                                                                                                                                                            |     |    |     |    |                 |               |               |  |  |                                |  |



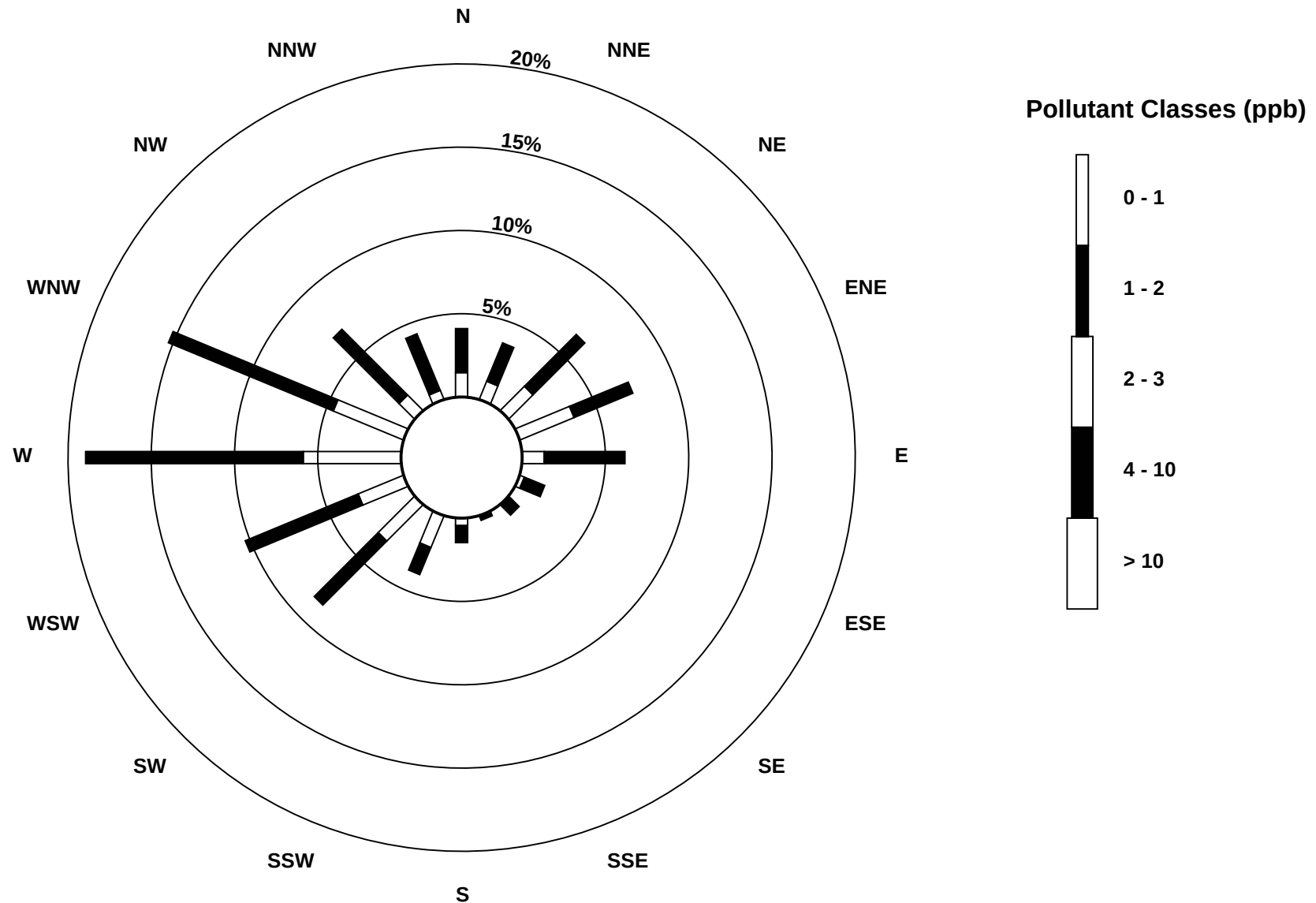
## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb  
Evergreen Park - April 2011



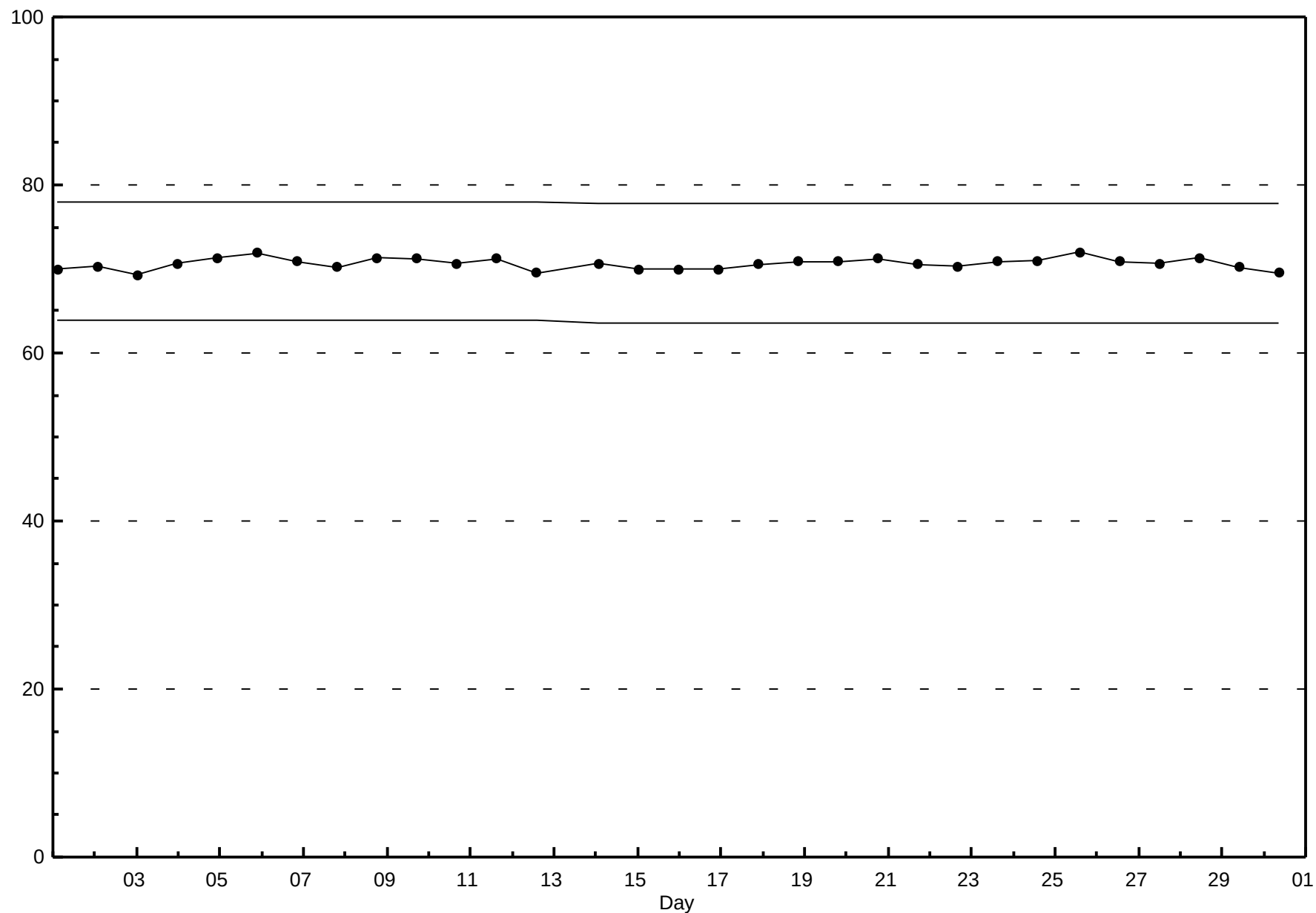
# Pollutant Rose

Total Reduced Sulphur (TRS) - ppb  
Evergreen Park - April 2011



## Span Responses

**Total Reduced Sulphur (TRS)**  
**Evergreen Park - April 2011**

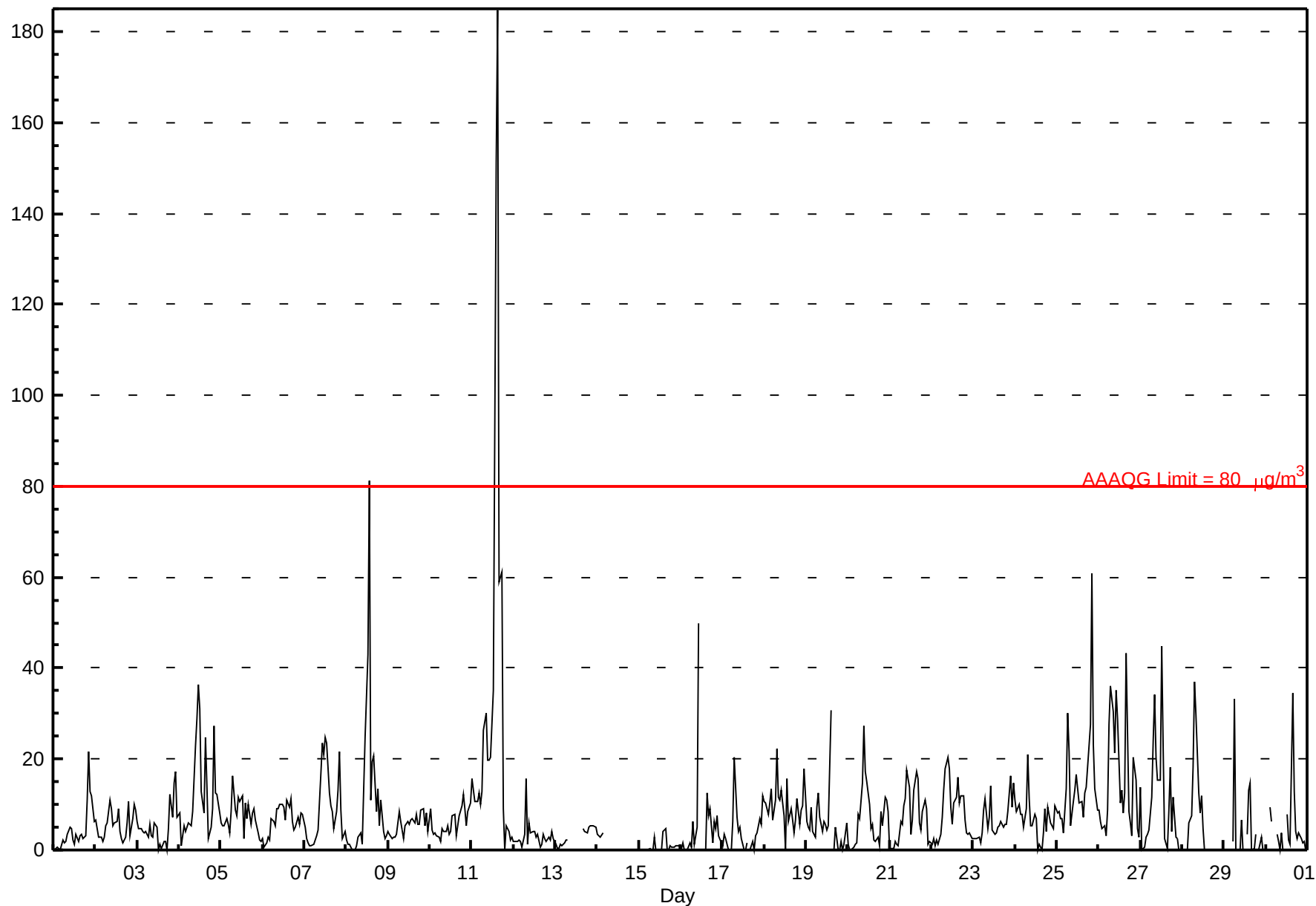


## Hourly Averages

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Evergreen Park - April 2011

| Number of Exceedences: 1-hr: 4 24-hr: 1<br>Maximum Value: 184.6 µg/m³ on Apr 11 16:00<br>Minimum Value: 0 µg/m³ on Apr 3 13:00<br>Maximum Diurnal Average: 16.3 µg/m³ at hour 16<br>Monthly Average: 8.30 µg/m³                                                                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 660<br>Hours of Missing Data: 60<br>Hours of Calibration: 0<br>Percent Operational Time: 91.7 |               |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Maximum Daily Average: 33.7 µg/m³ on Apr 11<br>Minimum Daily Average: 0.9 µg/m³ on Apr 15<br>Minimum Diurnal Average: 3.3 µg/m³ at hour 3<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 2.4 Median = 5.4 Q <sub>3</sub> = 10.0 P <sub>90</sub> = 17.3 P <sub>99</sub> = 58.9 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
| Day                                                                                                                                                                                                                                                                                                        | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    |                                                                                                                                       | Daily Average | Daily Maximum |
| 1-Apr                                                                                                                                                                                                                                                                                                      | 0                             | 0  | 0  | 0  | 0  | 2  | 2  | 2  | 4  | 5  | 5  | 2  | 1  | 3  | 2   | 3   | 4  | 2  | 3  | 11 | 22 | 13 | 12 | 6                                                                                                                                     | 4.4           | 21.8          |
| 2-Apr                                                                                                                                                                                                                                                                                                      | 7                             | 5  | 3  | 3  | 2  | 3  | 5  | 6  | 11 | 9  | 5  | 6  | 6  | 9  | 4   | 2   | 1  | 3  | 6  | 11 | 3  | 7  | 10 | 9                                                                                                                                     | 5.6           | 11.0          |
| 3-Apr                                                                                                                                                                                                                                                                                                      | 6                             | 5  | 5  | 4  | 4  | 4  | 3  | 6  | 3  | 3  | 6  | 5  | 0  | 1  | 0   | 2   | 2  | 0  | 5  | 12 | 7  | 15 | 17 | 7                                                                                                                                     | 5.1           | 17.3          |
| 4-Apr                                                                                                                                                                                                                                                                                                      | 8                             | 1  | 3  | 5  | 4  | 6  | 6  | 5  | 8  | 23 | 29 | 36 | 31 | 13 | 8   | 25  | 14 | 3  | 5  | 9  | 27 | 13 | 12 | 8                                                                                                                                     | 12.6          | 36.3          |
| 5-Apr                                                                                                                                                                                                                                                                                                      | 6                             | 5  | 5  | 7  | 6  | 4  | 8  | 16 | 9  | 8  | 11 | 11 | 12 | 3  | 10  | 7   | 10 | 6  | 8  | 9  | 6  | 4  | 2  | 2                                                                                                                                     | 7.3           | 16.3          |
| 6-Apr                                                                                                                                                                                                                                                                                                      | 3                             | 1  | 2  | 3  | 2  | 7  | 6  | 5  | 9  | 9  | 10 | 10 | 9  | 7  | 11  | 9   | 11 | 6  | 4  | 5  | 7  | 6  | 8  | 8                                                                                                                                     | 6.6           | 11.3          |
| 7-Apr                                                                                                                                                                                                                                                                                                      | 5                             | 3  | 1  | 1  | 1  | 1  | 2  | 3  | 4  | 17 | 23 | 21 | 25 | 23 | 12  | 10  | 9  | 5  | 8  | 13 | 22 | 9  | 2  | 4                                                                                                                                     | 9.4           | 24.7          |
| 8-Apr                                                                                                                                                                                                                                                                                                      | 2                             | 1  | 1  | 0  | 0  | 0  | 1  | 3  | 4  | 1  | 13 | 25 | 43 | 81 | 11  | 19  | 21 | 9  | 13 | 5  | 11 | 4  | 2  | 3                                                                                                                                     | 11.4          | 81.3          |
| 9-Apr                                                                                                                                                                                                                                                                                                      | 4                             | 3  | 3  | 3  | 3  | 4  | 8  | 6  | 4  | 2  | 5  | 6  | 6  | 7  | 7   | 6   | 8  | 6  | 6  | 9  | 9  | 5  | 8  | 4                                                                                                                                     | 5.5           | 9.1           |
| 10-Apr                                                                                                                                                                                                                                                                                                     | 9                             | 4  | 3  | 4  | 3  | 3  | 2  | 5  | 4  | 4  | 5  | 3  | 4  | 7  | 8   | 3   | 5  | 7  | 10 | 12 | 9  | 5  | 8  | 10                                                                                                                                    | 5.8           | 12.1          |
| 11-Apr                                                                                                                                                                                                                                                                                                     | 16                            | 13 | 11 | 11 | 12 | 10 | 13 | 26 | 30 | 20 | 20 | 20 | 35 | 92 | 151 | 185 | 59 | 61 | 9  | 0  | 5  | 4  | 2  | 3                                                                                                                                     | 33.7          | 184.6         |
| 12-Apr                                                                                                                                                                                                                                                                                                     | 2                             | 2  | 2  | 2  | 2  | 1  | 3  | 16 | 1  | 6  | 4  | 4  | 4  | 3  | 3   | 1   | 1  | 3  | 3  | 2  | 3  | 2  | 4  | 2                                                                                                                                     | 3.2           | 15.8          |
| 13-Apr                                                                                                                                                                                                                                                                                                     | 1                             | 0  | 0  | 1  | 1  | 2  | 2  | 2  | M  | M  | M  | M  | M  | M  | M   | M   | 5  | 4  | 4  | 5  | 5  | 5  | 5  | 5                                                                                                                                     | --            | 5.5           |
| 14-Apr                                                                                                                                                                                                                                                                                                     | 4                             | 3  | 3  | 4  | N  | N  | N  | N  | N  | N  | N  | N  | N  | N  | N   | N   | N  | N  | N  | N  | N  | N  | N  | N                                                                                                                                     | --            | 3.8           |
| 15-Apr                                                                                                                                                                                                                                                                                                     | BD                            | BD | BD | BD | 0  | 0  | 0  | 0  | 0  | 3  | 0  | BD | 0  | 0  | 4   | 5   | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                     | 0.9           | 4.7           |
| 16-Apr                                                                                                                                                                                                                                                                                                     | 0                             | 2  | 0  | 0  | 0  | 2  | 1  | 6  | 1  | 5  | 50 | BD | BD | 0  | 0   | 12  | 8  | 9  | 2  | 6  | 5  | 8  | 3  | 2                                                                                                                                     | 5.5           | 49.8          |
| 17-Apr                                                                                                                                                                                                                                                                                                     | 1                             | 3  | 2  | 0  | BD | 0  | 6  | 20 | 7  | 4  | 5  | 3  | 0  | 0  | 1   | BD  | 0  | 2  | 0  | 3  | 4  | 7  | 5  | 12                                                                                                                                    | 4.0           | 20.3          |
| 18-Apr                                                                                                                                                                                                                                                                                                     | 11                            | 10 | 8  | 10 | 13 | 6  | 11 | 22 | 12 | 11 | 13 | 7  | 0  | 16 | 6   | 9   | 7  | 4  | 7  | 11 | 6  | 9  | 10 | 18                                                                                                                                    | 9.9           | 22.2          |
| 19-Apr                                                                                                                                                                                                                                                                                                     | 6                             | 5  | 4  | 9  | 4  | 3  | 9  | 12 | 7  | 4  | 6  | 6  | 4  | 5  | 31  | BD  | 0  | 5  | 0  | 0  | 2  | 0  | 1  | 6                                                                                                                                     | 5.7           | 30.7          |
| 20-Apr                                                                                                                                                                                                                                                                                                     | 1                             | 0  | 0  | 0  | 1  | 2  | 8  | 7  | 15 | 27 | 17 | 15 | 10 | 5  | 5   | 2   | 2  | 3  | 1  | 8  | 5  | 12 | 11 | 8                                                                                                                                     | 6.9           | 27.2          |
| 21-Apr                                                                                                                                                                                                                                                                                                     | 0                             | 0  | 0  | 2  | 1  | 1  | 6  | 6  | 10 | 11 | 18 | 14 | 4  | 7  | 13  | 17  | 16 | 6  | 4  | 8  | 11 | 9  | 1  | 2                                                                                                                                     | 7.0           | 17.6          |
| 22-Apr                                                                                                                                                                                                                                                                                                     | 1                             | 3  | 1  | 2  | 1  | 4  | 7  | 13 | 18 | 20 | 18 | 9  | 6  | 10 | 12  | 16  | 10 | 12 | 12 | 7  | 4  | 3  | 4  | 2                                                                                                                                     | 8.1           | 20.3          |
| 23-Apr                                                                                                                                                                                                                                                                                                     | 2                             | 3  | 2  | 3  | 2  | 4  | 9  | 11 | 5  | 7  | 14 | 4  | 4  | 4  | 5   | 5   | 6  | 5  | 6  | 6  | 9  | 16 | 10 | 15                                                                                                                                    | 6.5           | 16.4          |
| 24-Apr                                                                                                                                                                                                                                                                                                     | 11                            | 8  | 10 | 8  | 8  | 5  | 9  | 21 | 11 | 5  | 5  | 8  | 7  | 0  | 1   | 0   | 4  | 9  | 4  | 9  | 6  | 5  | 5  | 10                                                                                                                                    | 7.1           | 20.9          |
| 25-Apr                                                                                                                                                                                                                                                                                                     | 8                             | 8  | 7  | 7  | 4  | 13 | 30 | 22 | 5  | 11 | 13 | 17 | 14 | 10 | 11  | 7   | 12 | 14 | 23 | 28 | 61 | 23 | 13 | 9                                                                                                                                     | 15.4          | 60.9          |
| 26-Apr                                                                                                                                                                                                                                                                                                     | 9                             | 6  | 5  | 5  | 3  | 9  | 28 | 36 | 30 | 21 | 35 | 29 | 10 | 13 | 8   | 13  | 43 | 8  | 6  | 3  | 20 | 15 | 5  | 3                                                                                                                                     | 15.2          | 43.1          |
| 27-Apr                                                                                                                                                                                                                                                                                                     | 14                            | 0  | 0  | 3  | 3  | 4  | 12 | 24 | 34 | 20 | 15 | 15 | 45 | 23 | 2   | 0   | 8  | 18 | 4  | 11 | 3  | 3  | 0  | 0                                                                                                                                     | 11.0          | 44.7          |
| 28-Apr                                                                                                                                                                                                                                                                                                     | 0                             | 0  | 0  | 0  | 6  | 8  | 18 | 37 | 30 | 12 | 8  | 12 | 5  | 0  | 0   | N   | N  | N  | N  | N  | N  | N  | N  | N                                                                                                                                     | --            | 36.9          |
| 29-Apr                                                                                                                                                                                                                                                                                                     | BD                            | BD | BD | BD | BD | 2  | 33 | 0  | 0  | 0  | 7  | 0  | BD | 3  | 13  | 15  | 0  | 0  | 3  | BD | 0  | 3  | 0  | BD                                                                                                                                    | --            | 33.3          |
| 30-Apr                                                                                                                                                                                                                                                                                                     | BD                            | BD | 9  | 6  | BD | BD | 3  | 2  | 0  | 4  | 0  | BD | 8  | 2  | 1   | 34  | 13 | 4  | 2  | 4  | 2  | 1  | 2  | 0                                                                                                                                     | 5.2           | 34.5          |
| 5.1 3.5 3.3 3.7 3.3 3.9 8.7 11.8 9.9 9.8 12.9 11.5 11.2 12.5 12.3 16.3 10.0 7.6 5.7 7.7 9.8 7.4 5.9 5.9                                                                                                                                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    | Diurnal Average                                                                                                                       |               |               |
| 15.6 13.1 10.6 10.7 13.3 13.4 33.3 36.9 34.1 27.2 49.8 36.3 44.7 92.5 151.2 184.6 59.1 61.2 22.9 27.5 60.9 23.3 17.3 17.8                                                                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                       |               |               |
| M - Maintenance N - Not Valid BD - Baseline Drift                                                                                                                                                                                                                                                          |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
| Alberta Ambient Air Quality Guideline (AAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAQO): 24-hr 30 µg/m³                                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    |                                                                                                                                       |               |               |



# Hourly Maximums

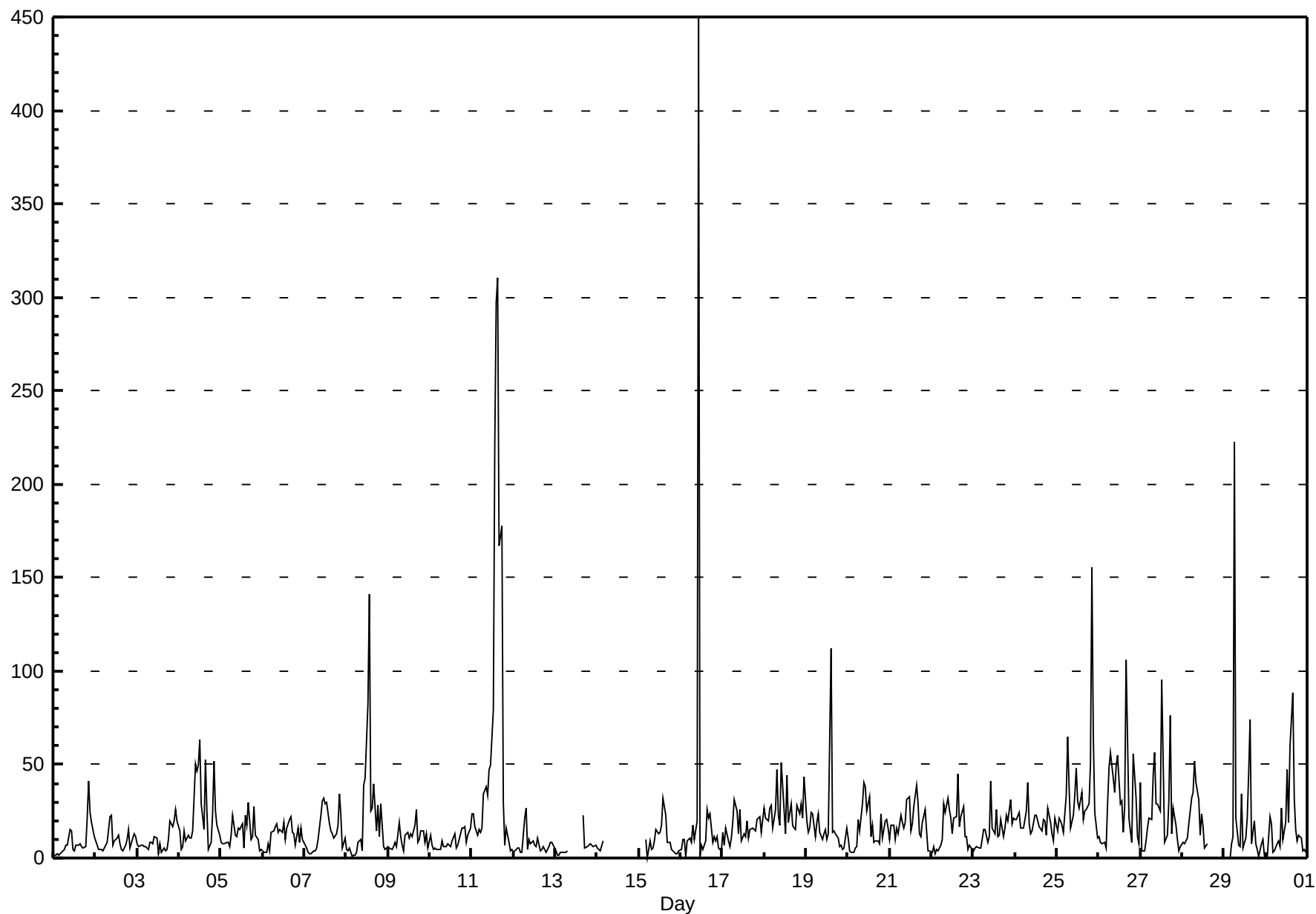
Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Evergreen Park - April 2011

| Maximum Value: 449.6 μg/m³ on Apr 16 11:00                                                                                      |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Maximum Daily Average: 68.6 μg/m³ on Apr 11                                                                                                                     |               |               |  |  |  |  |  | Hours in Service: 720     |  |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|-----|----|----|----|-----|----|----|-----|-----|-----|-----|-----|----|----|-----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|--|--|--|--|--|---------------------------|--|
| Minimum Value: 0 μg/m³ on Apr 15 06:00                                                                                          |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Minimum Daily Average: 7.5 μg/m³ on Apr 12                                                                                                                      |               |               |  |  |  |  |  | Hours of Data: 678        |  |
| Maximum Diurnal Average: 40.3 μg/m³ at hour 11                                                                                  |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Minimum Diurnal Average: 8.3 μg/m³ at hour 2                                                                                                                    |               |               |  |  |  |  |  | Hours of Missing Data: 42 |  |
| Monthly Average: 19.18 μg/m³                                                                                                    |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 4.1 Q <sub>1</sub> = 6.7 Median = 12.5 Q <sub>3</sub> = 21.3 P <sub>90</sub> = 33.5 P <sub>99</sub> = 163.8 |               |               |  |  |  |  |  | Hours of Calibration: 0   |  |
|                                                                                                                                 |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Percent Operational Time: 94.2                                                                                                                                  |               |               |  |  |  |  |  |                           |  |
| Day                                                                                                                             | Hourly Period Ending At (MST) |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    |                                                                                                                                                                 | Daily Average | Daily Maximum |  |  |  |  |  |                           |  |
|                                                                                                                                 | 1                             | 2  | 3  | 4  | 5  | 6  | 7   | 8  | 9  | 10 | 11  | 12 | 13 | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21  | 22 | 23 | 24                                                                                                                                                              |               |               |  |  |  |  |  |                           |  |
| 1-Apr                                                                                                                           | 1                             | 2  | 2  | 1  | 2  | 4  | 4   | 7  | 7  | 15 | 15  | 4  | 3  | 7   | 7   | 8   | 6   | 6   | 6  | 21 | 41  | 25 | 19 | 11                                                                                                                                                              | 9.4           | 41.1          |  |  |  |  |  |                           |  |
| 2-Apr                                                                                                                           | 9                             | 7  | 5  | 4  | 4  | 5  | 7   | 9  | 22 | 23 | 7   | 9  | 11 | 12  | 8   | 5   | 4   | 7   | 10 | 15 | 6   | 11 | 13 | 11                                                                                                                                                              | 9.2           | 22.8          |  |  |  |  |  |                           |  |
| 3-Apr                                                                                                                           | 8                             | 6  | 7  | 7  | 6  | 6  | 5   | 8  | 9  | 8  | 11  | 11 | 3  | 8   | 3   | 6   | 4   | 5   | 10 | 20 | 17  | 20 | 26 | 19                                                                                                                                                              | 9.6           | 26.2          |  |  |  |  |  |                           |  |
| 4-Apr                                                                                                                           | 14                            | 5  | 6  | 14 | 10 | 12 | 10  | 10 | 14 | 50 | 46  | 49 | 63 | 29  | 15  | 53  | 25  | 5   | 8  | 23 | 52  | 25 | 17 | 12                                                                                                                                                              | 23.8          | 63.1          |  |  |  |  |  |                           |  |
| 5-Apr                                                                                                                           | 8                             | 7  | 7  | 8  | 8  | 6  | 12  | 23 | 12 | 12 | 16  | 15 | 19 | 5   | 23  | 18  | 30  | 10  | 11 | 28 | 12  | 10 | 4  | 5                                                                                                                                                               | 12.9          | 29.8          |  |  |  |  |  |                           |  |
| 6-Apr                                                                                                                           | 4                             | 3  | 3  | 8  | 4  | 13 | 14  | 17 | 19 | 14 | 15  | 14 | 19 | 10  | 16  | 21  | 22  | 14  | 13 | 7  | 16  | 8  | 16 | 10                                                                                                                                                              | 12.5          | 21.8          |  |  |  |  |  |                           |  |
| 7-Apr                                                                                                                           | 7                             | 6  | 3  | 2  | 3  | 4  | 4   | 5  | 10 | 23 | 30  | 32 | 29 | 29  | 19  | 15  | 13  | 11  | 13 | 17 | 35  | 23 | 5  | 11                                                                                                                                                              | 14.5          | 34.6          |  |  |  |  |  |                           |  |
| 8-Apr                                                                                                                           | 5                             | 4  | 5  | 1  | 2  | 2  | 3   | 9  | 10 | 4  | 39  | 43 | 82 | 141 | 25  | 26  | 39  | 14  | 28 | 11 | 29  | 6  | 4  | 5                                                                                                                                                               | 22.5          | 141.1         |  |  |  |  |  |                           |  |
| 9-Apr                                                                                                                           | 6                             | 5  | 4  | 6  | 9  | 6  | 19  | 11 | 7  | 4  | 13  | 14 | 11 | 13  | 12  | 18  | 26  | 9   | 10 | 14 | 14  | 9  | 13 | 6                                                                                                                                                               | 10.8          | 26.0          |  |  |  |  |  |                           |  |
| 10-Apr                                                                                                                          | 12                            | 7  | 5  | 5  | 5  | 4  | 4   | 10 | 6  | 6  | 8   | 7  | 6  | 9   | 13  | 5   | 7   | 10  | 16 | 16 | 17  | 9  | 12 | 16                                                                                                                                                              | 9.0           | 17.0          |  |  |  |  |  |                           |  |
| 11-Apr                                                                                                                          | 24                            | 24 | 16 | 12 | 15 | 14 | 16  | 34 | 38 | 34 | 48  | 50 | 79 | 221 | 297 | 311 | 167 | 178 | 30 | 7  | 16  | 9  | 4  | 5                                                                                                                                                               | 68.6          | 310.5         |  |  |  |  |  |                           |  |
| 12-Apr                                                                                                                          | 3                             | 4  | 5  | 5  | 3  | 3  | 21  | 26 | 5  | 10 | 8   | 9  | 7  | 6   | 11  | 4   | 4   | 6   | 4  | 3  | 6   | 9  | 9  | 7                                                                                                                                                               | 7.5           | 26.4          |  |  |  |  |  |                           |  |
| 13-Apr                                                                                                                          | 4                             | 2  | 2  | 3  | 3  | 3  | 3   | 4  | M  | M  | M   | M  | M  | M   | M   | M   | 23  | 5   | 6  | 7  | 7   | 7  | 6  | 7                                                                                                                                                               | --            | 22.7          |  |  |  |  |  |                           |  |
| 14-Apr                                                                                                                          | 5                             | 4  | 4  | 9  | N  | N  | N   | N  | N  | N  | N   | N  | N  | N   | N   | N   | N   | N   | N  | N  | N   | N  | N  | N                                                                                                                                                               | --            | 9.5           |  |  |  |  |  |                           |  |
| 15-Apr                                                                                                                          | BD                            | BD | 4  | BD | 10 | 0  | 9   | 4  | 6  | 9  | 16  | 13 | 14 | 17  | 32  | 23  | 8   | 8   | 8  | 4  | 3   | 2  | 2  | 4                                                                                                                                                               | 9.4           | 32.0          |  |  |  |  |  |                           |  |
| 16-Apr                                                                                                                          | 5                             | 10 | 10 | 1  | 9  | 11 | 9   | 18 | 10 | 20 | 450 | 0  | 7  | 5   | 9   | 26  | 21  | 24  | 8  | 12 | 9   | 11 | 6  | 4                                                                                                                                                               | 28.8          | 449.6         |  |  |  |  |  |                           |  |
| 17-Apr                                                                                                                          | 14                            | 7  | 16 | 9  | 6  | 11 | 19  | 31 | 25 | 13 | 26  | 10 | 13 | 11  | 20  | 11  | 15  | 16  | 15 | 14 | 21  | 22 | 14 | 21                                                                                                                                                              | 15.9          | 31.0          |  |  |  |  |  |                           |  |
| 18-Apr                                                                                                                          | 26                            | 22 | 20 | 27 | 29 | 16 | 26  | 47 | 23 | 18 | 51  | 26 | 13 | 44  | 19  | 29  | 17  | 16  | 15 | 28 | 24  | 29 | 21 | 43                                                                                                                                                              | 26.2          | 51.0          |  |  |  |  |  |                           |  |
| 19-Apr                                                                                                                          | 20                            | 13 | 16 | 25 | 23 | 11 | 19  | 24 | 13 | 10 | 13  | 15 | 10 | 13  | 112 | 14  | 15  | 13  | 11 | 6  | 7   | 4  | 5  | 16                                                                                                                                                              | 17.9          | 112.3         |  |  |  |  |  |                           |  |
| 20-Apr                                                                                                                          | 11                            | 4  | 3  | 3  | 6  | 6  | 21  | 15 | 29 | 41 | 38  | 25 | 33 | 12  | 17  | 8   | 10  | 9   | 8  | 23 | 11  | 20 | 20 | 16                                                                                                                                                              | 16.3          | 40.8          |  |  |  |  |  |                           |  |
| 21-Apr                                                                                                                          | 10                            | 18 | 17 | 10 | 16 | 13 | 23  | 19 | 16 | 19 | 31  | 32 | 14 | 18  | 28  | 39  | 30  | 13  | 12 | 19 | 26  | 14 | 4  | 4                                                                                                                                                               | 18.6          | 38.5          |  |  |  |  |  |                           |  |
| 22-Apr                                                                                                                          | 3                             | 6  | 2  | 4  | 4  | 7  | 10  | 29 | 25 | 32 | 26  | 21 | 13 | 21  | 22  | 45  | 17  | 22  | 28 | 11 | 12  | 5  | 7  | 4                                                                                                                                                               | 15.6          | 44.7          |  |  |  |  |  |                           |  |
| 23-Apr                                                                                                                          | 4                             | 6  | 6  | 5  | 6  | 10 | 15  | 15 | 9  | 12 | 41  | 16 | 13 | 26  | 12  | 12  | 21  | 11  | 16 | 23 | 20  | 31 | 19 | 21                                                                                                                                                              | 15.3          | 41.0          |  |  |  |  |  |                           |  |
| 24-Apr                                                                                                                          | 21                            | 21 | 25 | 16 | 16 | 16 | 25  | 41 | 18 | 13 | 15  | 23 | 23 | 20  | 17  | 14  | 20  | 20  | 12 | 27 | 19  | 13 | 9  | 21                                                                                                                                                              | 19.3          | 40.8          |  |  |  |  |  |                           |  |
| 25-Apr                                                                                                                          | 14                            | 21 | 20 | 18 | 14 | 34 | 65  | 38 | 16 | 23 | 33  | 48 | 31 | 26  | 35  | 20  | 25  | 26  | 29 | 51 | 155 | 65 | 24 | 11                                                                                                                                                              | 35.1          | 155.3         |  |  |  |  |  |                           |  |
| 26-Apr                                                                                                                          | 12                            | 8  | 7  | 9  | 5  | 29 | 48  | 56 | 43 | 35 | 49  | 55 | 29 | 31  | 13  | 28  | 106 | 21  | 14 | 8  | 55  | 32 | 12 | 7                                                                                                                                                               | 29.7          | 106.2         |  |  |  |  |  |                           |  |
| 27-Apr                                                                                                                          | 41                            | 4  | 4  | 9  | 16 | 21 | 20  | 44 | 56 | 29 | 29  | 25 | 95 | 52  | 8   | 12  | 31  | 76  | 13 | 27 | 18  | 10 | 4  | 6                                                                                                                                                               | 27.0          | 95.0          |  |  |  |  |  |                           |  |
| 28-Apr                                                                                                                          | 8                             | 8  | 9  | 11 | 19 | 32 | 35  | 52 | 41 | 31 | 12  | 24 | 17 | 5   | 8   | N   | N   | N   | N  | N  | N   | N  | N  | N                                                                                                                                                               | --            | 52.0          |  |  |  |  |  |                           |  |
| 29-Apr                                                                                                                          | BD                            | BD | 0  | 0  | 7  | 12 | 223 | 21 | 7  | 6  | 35  | 6  | 11 | 21  | 45  | 74  | 8   | 20  | 8  | 5  | 0   | 7  | 10 | 1                                                                                                                                                               | 23.9          | 222.7         |  |  |  |  |  |                           |  |
| 30-Apr                                                                                                                          | 0                             | 0  | 22 | 18 | 3  | 4  | 7   | 9  | 6  | 27 | 10  | 19 | 47 | 19  | 60  | 88  | 32  | 15  | 9  | 13 | 11  | 4  | 5  | 3                                                                                                                                                               | 18.0          | 88.1          |  |  |  |  |  |                           |  |
| 10.7 8.3 8.5 8.7 9.0 10.9 24.1 22.0 17.9 19.2 40.3 21.9 25.5 29.8 32.3 34.4 26.6 21.1 13.4 16.5 23.5 15.8 11.1 11.1             |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Diurnal Average                                                                                                                                                 |               |               |  |  |  |  |  |                           |  |
| 40.5 23.9 24.7 26.6 28.6 33.7 222.7 56.2 56.4 50.1 449.6 54.7 95.0 221.1 297.3 310.5 166.8 177.7 30.1 50.6 155.3 65.2 26.2 43.2 |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    | Diurnal Maximum                                                                                                                                                 |               |               |  |  |  |  |  |                           |  |
| M - Maintenance N - Not Valid BD - Baseline Drift                                                                               |                               |    |    |    |    |    |     |    |    |    |     |    |    |     |     |     |     |     |    |    |     |    |    |                                                                                                                                                                 |               |               |  |  |  |  |  |                           |  |

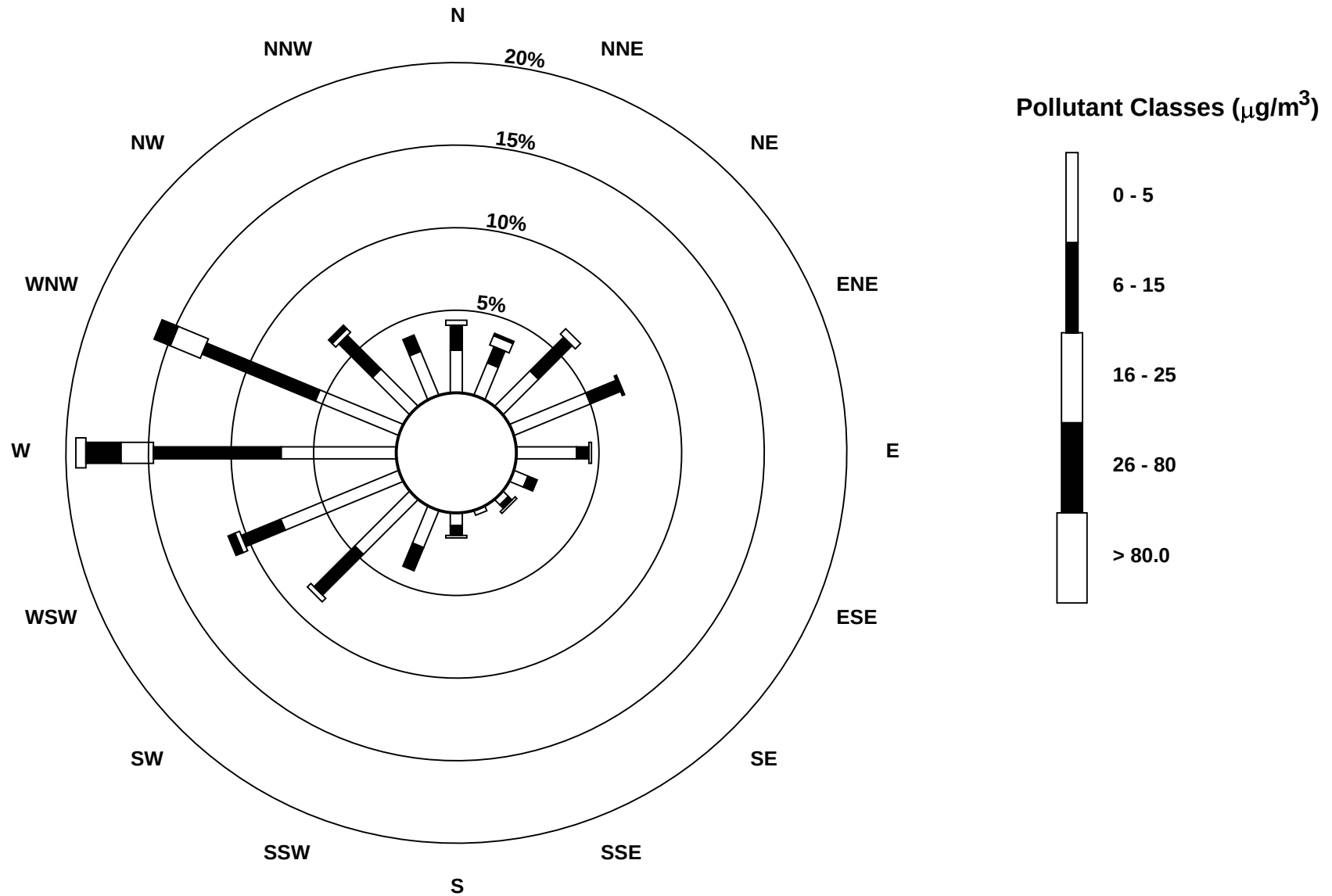
# Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Evergreen Park - April 2011



# Pollutant Rose

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Evergreen Park - April 2011





# Hourly Averages

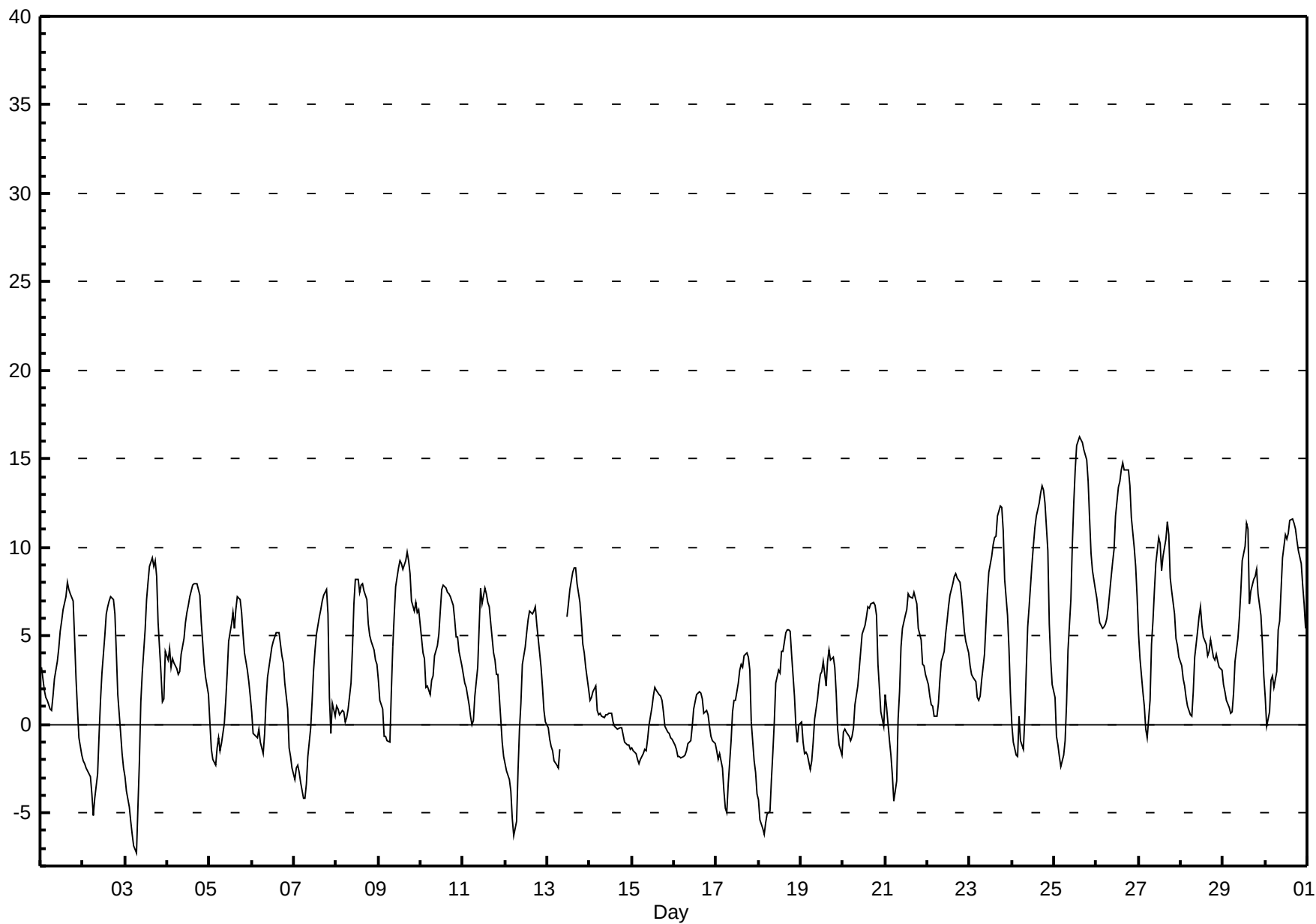
External Temperature (ET) - °C

Evergreen Park - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 16.3 °C on Apr 25 15:00 Maximum Daily Average: 9.9 °C on Apr 26                                                                                                                                                                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 717<br>Hours of Missing Data: 3<br>Hours of Calibration: 0<br>Percent Operational Time: 99.6 |    |    |    |    |               |               |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------|---------------|-----|
| Minimum Value: -7 °C on Apr 3 07:00 Minimum Daily Average: -0.3 °C on Apr 16<br>Maximum Diurnal Average: 7.5 °C at hour 17 Minimum Diurnal Average: -1.1 °C at hour 6<br>Monthly Average: 3.39 °C Percentiles: P <sub>1</sub> = -5.5 P <sub>10</sub> = -1.8 Q <sub>1</sub> = 0.0 Median = 3.1 Q <sub>3</sub> = 6.6 P <sub>90</sub> = 9.0 P <sub>99</sub> = 14.7 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |     |
| Day                                                                                                                                                                                                                                                                                                                                                             | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    | Daily Average | Daily Maximum |     |
|                                                                                                                                                                                                                                                                                                                                                                 | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                   | 21 | 22 | 23 | 24 |               |               |     |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                           | 3                             | 3  | 2  | 1  | 1  | 1  | 1  | 2  | 3  | 4  | 4  | 5  | 6  | 6  | 7  | 8  | 8  | 7  | 7  | 7                                                                                                                                    | 5  | 3  | 1  | -1 | -2            | 3.5           | 8.0 |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                           | -2                            | -2 | -2 | -3 | -3 | -4 | -5 | -4 | -3 | -1 | 1  | 3  | 5  | 6  | 7  | 7  | 7  | 7  | 6  | 4                                                                                                                                    | 2  | -1 | -2 | -2 | 0.9           | 7.2           |     |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                           | -3                            | -4 | -5 | -5 | -6 | -7 | -7 | -5 | -2 | 1  | 3  | 5  | 7  | 8  | 9  | 9  | 9  | 9  | 8  | 6                                                                                                                                    | 3  | 1  | 1  | 4  | 1.7           | 9.4           |     |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                           | 4                             | 4  | 3  | 4  | 4  | 3  | 3  | 3  | 4  | 5  | 6  | 6  | 7  | 7  | 8  | 8  | 8  | 8  | 7  | 6                                                                                                                                    | 5  | 3  | 3  | 2  | 5.0           | 8.0           |     |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | -1 | -2 | -2 | -1 | -1 | -2 | -1 | 0  | 1  | 3  | 5  | 6  | 6  | 5  | 6  | 7  | 7  | 6  | 5                                                                                                                                    | 4  | 3  | 2  | 2  | 2.5           | 7.2           |     |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 0  | -1 | -1 | 0  | -1 | -2 | -1 | 1  | 3  | 3  | 4  | 5  | 5  | 5  | 5  | 5  | 4  | 3  | 2                                                                                                                                    | 1  | -1 | -2 | -2 | 1.5           | 5.2           |     |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                           | -3                            | -2 | -2 | -3 | -3 | -4 | -4 | -3 | -2 | 0  | 1  | 3  | 4  | 5  | 6  | 6  | 7  | 7  | 8  | 6                                                                                                                                    | 1  | 0  | 1  | 0  | 1.2           | 7.6           |     |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 2  | 4  | 7  | 8  | 8  | 7  | 8  | 8  | 8  | 7  | 6  | 5                                                                                                                                    | 5  | 4  | 4  | 3  | 4.2           | 8.2           |     |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 1  | 1  | -1 | -1 | -1 | -1 | 2  | 4  | 6  | 8  | 9  | 9  | 9  | 9  | 9  | 10 | 9  | 9  | 7                                                                                                                                    | 6  | 7  | 6  | 6  | 5.3           | 9.8           |     |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                          | 5                             | 4  | 4  | 2  | 2  | 2  | 2  | 3  | 4  | 4  | 5  | 6  | 8  | 8  | 8  | 7  | 7  | 7  | 7  | 6                                                                                                                                    | 5  | 5  | 4  | 3  | 4.9           | 7.8           |     |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                          | 3                             | 2  | 2  | 1  | 0  | 0  | 0  | 2  | 3  | 5  | 8  | 7  | 8  | 7  | 7  | 7  | 6  | 4  | 4  | 3                                                                                                                                    | 3  | 0  | -1 | -2 | 3.3           | 7.7           |     |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                          | -2                            | -3 | -3 | -4 | -5 | -6 | -6 | -3 | 0  | 1  | 3  | 4  | 5  | 6  | 6  | 6  | 6  | 7  | 6  | 5                                                                                                                                    | 3  | 2  | 1  | 0  | 1.3           | 6.6           |     |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | -1 | -1 | -1 | -2 | -2 | -2 | -1 | M  | M  | M  | 6  | 7  | 8  | 9  | 9  | 9  | 8  | 7  | 6                                                                                                                                    | 5  | 4  | 3  | 2  | 3.3           | 8.8           |     |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                          | 1                             | 1  | 2  | 2  | 1  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | -1                                                                                                                                   | -1 | -1 | -1 | -1 | 0.2           | 2.2           |     |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                          | -1                            | -1 | -2 | -2 | -2 | -2 | -2 | -1 | -1 | -1 | 0  | 1  | 2  | 2  | 2  | 2  | 2  | 1  | 1  | 0                                                                                                                                    | 0  | -1 | -1 | -1 | -0.3          | 2.1           |     |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                          | -1                            | -1 | -2 | -2 | -2 | -2 | -2 | -2 | -1 | -1 | 0  | 1  | 1  | 2  | 2  | 2  | 1  | 1  | 1  | 1                                                                                                                                    | 0  | -1 | -1 | -1 | -0.3          | 1.9           |     |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                          | -1                            | -2 | -2 | -2 | -4 | -5 | -5 | -3 | -1 | 1  | 1  | 1  | 2  | 3  | 3  | 3  | 4  | 4  | 4  | 3                                                                                                                                    | 0  | -2 | -3 | -4 | -0.2          | 4.0           |     |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                          | -4                            | -5 | -6 | -6 | -6 | -5 | -5 | -3 | -2 | 0  | 2  | 3  | 3  | 4  | 4  | 5  | 5  | 5  | 5  | 4                                                                                                                                    | 2  | 0  | -1 | 0  | 0.0           | 5.3           |     |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | -1 | -2 | -2 | -2 | -3 | -2 | -1 | 0  | 1  | 2  | 3  | 3  | 4  | 2  | 4  | 4  | 4  | 4  | 3                                                                                                                                    | 2  | 0  | -1 | -2 | 0.9           | 4.2           |     |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0  | 0  | -1 | -1 | -1 | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 6  | 7  | 7  | 7  | 7  | 7  | 6                                                                                                                                    | 3  | 1  | 0  | 0  | 2.8           | 6.9           |     |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                          | 2                             | 1  | -1 | -2 | -3 | -4 | -3 | 0  | 2  | 4  | 5  | 6  | 6  | 7  | 7  | 7  | 7  | 7  | 7  | 5                                                                                                                                    | 5  | 3  | 3  | 3  | 3.2           | 7.4           |     |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                          | 2                             | 2  | 1  | 1  | 0  | 0  | 1  | 3  | 4  | 4  | 5  | 6  | 7  | 7  | 8  | 8  | 9  | 8  | 8  | 7                                                                                                                                    | 6  | 5  | 5  | 4  | 4.7           | 8.5           |     |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                          | 3                             | 3  | 3  | 2  | 2  | 1  | 2  | 2  | 4  | 6  | 7  | 9  | 9  | 10 | 11 | 11 | 12 | 12 | 12 | 11                                                                                                                                   | 8  | 6  | 4  | 2  | 6.3           | 12.3          |     |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | -1 | -2 | -2 | 0  | -1 | -1 | 0  | 3  | 5  | 7  | 9  | 10 | 11 | 12 | 13 | 13 | 13 | 13 | 13                                                                                                                                   | 10 | 6  | 4  | 2  | 5.7           | 13.5          |     |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                          | 2                             | -1 | -1 | -2 | -2 | -2 | -1 | 1  | 4  | 7  | 10 | 12 | 14 | 16 | 16 | 16 | 16 | 16 | 15 | 14                                                                                                                                   | 12 | 10 | 9  | 8  | 7.8           | 16.3          |     |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                          | 7                             | 6  | 6  | 5  | 6  | 6  | 6  | 7  | 8  | 9  | 10 | 12 | 13 | 14 | 14 | 15 | 14 | 14 | 14 | 13                                                                                                                                   | 12 | 10 | 9  | 7  | 9.9           | 14.8          |     |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                          | 5                             | 4  | 2  | 1  | 0  | -1 | 1  | 5  | 6  | 8  | 9  | 11 | 10 | 9  | 10 | 10 | 11 | 11 | 8  | 8                                                                                                                                    | 6  | 5  | 4  | 4  | 6.1           | 11.4          |     |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                          | 3                             | 3  | 2  | 2  | 1  | 1  | 0  | 2  | 4  | 5  | 6  | 7  | 6  | 5  | 5  | 4  | 4  | 5  | 4  | 4                                                                                                                                    | 4  | 4  | 3  | 3  | 3.5           | 6.6           |     |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                          | 2                             | 2  | 1  | 1  | 1  | 1  | 2  | 4  | 5  | 6  | 7  | 9  | 10 | 11 | 11 | 7  | 8  | 8  | 8  | 9                                                                                                                                    | 7  | 6  | 5  | 3  | 5.6           | 11.4          |     |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                          | 2                             | 0  | 1  | 2  | 3  | 2  | 3  | 5  | 6  | 8  | 9  | 11 | 10 | 11 | 11 | 12 | 11 | 11 | 10 | 10                                                                                                                                   | 9  | 8  | 7  | 5  | 7.0           | 11.6          |     |
| 1.0 0.3 -0.1 -0.5 -0.7 -1.1 -0.9 0.5 2.0 3.5 4.8 5.9 6.6 7.1 7.3 7.4 7.5 7.3 6.8 5.8 4.3 2.9 2.2 1.6 Diurnal Average                                                                                                                                                                                                                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |     |
| 7.1 6.4 5.8 5.4 5.5 5.7 6.0 6.6 8.4 9.1 10.1 12.5 14.4 15.8 16.3 16.1 15.9 15.6 14.9 13.8 11.7 10.0 8.9 7.6 Diurnal Maximum                                                                                                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |     |
| M - Maintenance                                                                                                                                                                                                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |     |

## Hourly Averages

External Temperature (ET) - °C  
Evergreen Park - April 2011



## Hourly Averages

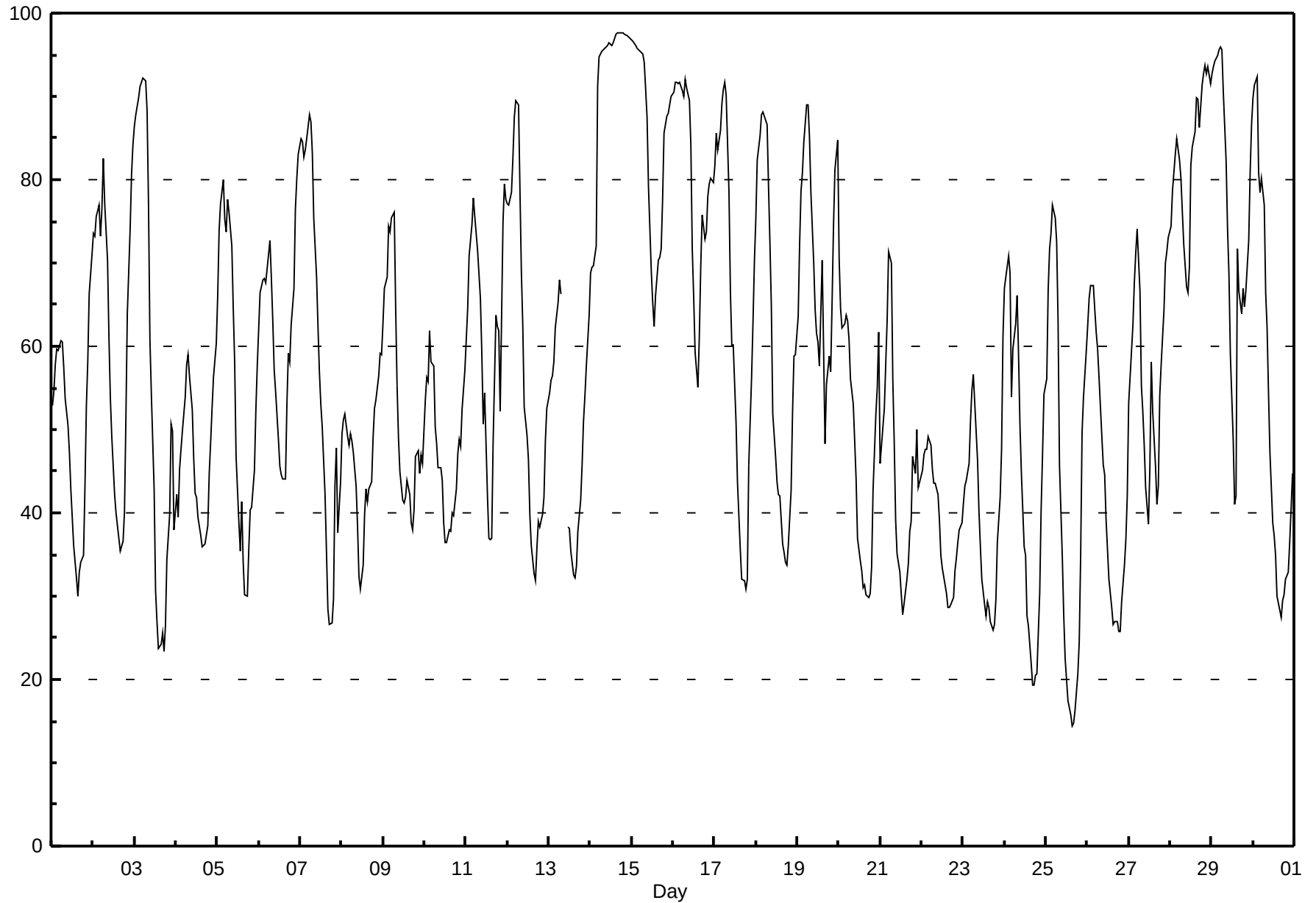
Relative Humidity (RH) - %

Evergreen Park - April 2011

|                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 97.7 % on Apr 14 19:00 Maximum Daily Average: 92.0 % on Apr 14 |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 717<br>Hours of Missing Data: 3<br>Hours of Calibration: 0<br>Percent Operational Time: 99.6 |               |               |
| Minimum Value: 14 % on Apr 25 16:00<br>Maximum Diurnal Average: 74.7 % at hour 6<br>Monthly Average: 57.46 %                     |                               |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 38.6 % on Apr 22<br>Minimum Diurnal Average: 41.2 % at hour 17<br>Percentiles: P <sub>1</sub> = 19.8 P <sub>10</sub> = 32.0 Q <sub>1</sub> = 40.5 Median = 55.4 Q <sub>3</sub> = 73.5 P <sub>90</sub> = 88.9 P <sub>99</sub> = 97.2 |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |
| Day                                                                                                                              | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      | Daily Average | Daily Maximum |
|                                                                                                                                  | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12                                                                                                                                                                                                                                                         | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                   |               |               |
| 1-Apr                                                                                                                            | 53                            | 55 | 58 | 60 | 60 | 61 | 61 | 57 | 54 | 50 | 47 | 43                                                                                                                                                                                                                                                         | 40 | 36 | 32 | 30 | 33 | 34 | 35 | 43 | 53 | 58 | 66 | 71                                                                                                                                   | 49.5          | 71.0          |
| 2-Apr                                                                                                                            | 74                            | 73 | 76 | 77 | 73 | 77 | 83 | 77 | 70 | 61 | 54 | 49                                                                                                                                                                                                                                                         | 42 | 40 | 38 | 37 | 35 | 37 | 40 | 51 | 64 | 74 | 81 | 84                                                                                                                                   | 61.1          | 84.3          |
| 3-Apr                                                                                                                            | 86                            | 88 | 90 | 91 | 92 | 92 | 92 | 88 | 77 | 61 | 54 | 43                                                                                                                                                                                                                                                         | 31 | 27 | 24 | 24 | 26 | 23 | 26 | 34 | 40 | 51 | 50 | 38                                                                                                                                   | 56.2          | 92.1          |
| 4-Apr                                                                                                                            | 42                            | 39 | 45 | 48 | 50 | 54 | 58 | 59 | 56 | 52 | 47 | 42                                                                                                                                                                                                                                                         | 42 | 40 | 37 | 36 | 36 | 36 | 39 | 45 | 49 | 53 | 56 | 60                                                                                                                                   | 46.7          | 60.4          |
| 5-Apr                                                                                                                            | 66                            | 74 | 77 | 80 | 75 | 74 | 78 | 76 | 72 | 65 | 58 | 47                                                                                                                                                                                                                                                         | 39 | 35 | 41 | 34 | 30 | 30 | 36 | 40 | 41 | 45 | 52 | 58                                                                                                                                   | 55.1          | 80.0          |
| 6-Apr                                                                                                                            | 62                            | 66 | 68 | 68 | 68 | 69 | 73 | 68 | 63 | 57 | 55 | 49                                                                                                                                                                                                                                                         | 46 | 45 | 44 | 44 | 53 | 59 | 58 | 63 | 67 | 76 | 80 | 83                                                                                                                                   | 61.8          | 83.1          |
| 7-Apr                                                                                                                            | 85                            | 85 | 83 | 83 | 85 | 88 | 87 | 83 | 75 | 68 | 62 | 57                                                                                                                                                                                                                                                         | 53 | 50 | 42 | 35 | 29 | 27 | 27 | 30 | 43 | 48 | 38 | 44                                                                                                                                   | 58.6          | 87.8          |
| 8-Apr                                                                                                                            | 50                            | 51 | 52 | 49 | 48 | 50 | 49 | 47 | 43 | 38 | 32 | 31                                                                                                                                                                                                                                                         | 34 | 40 | 43 | 41 | 43 | 44 | 49 | 53 | 54 | 57 | 59 | 59                                                                                                                                   | 46.4          | 59.1          |
| 9-Apr                                                                                                                            | 63                            | 67 | 68 | 74 | 74 | 76 | 76 | 64 | 55 | 49 | 45 | 41                                                                                                                                                                                                                                                         | 41 | 42 | 44 | 42 | 39 | 38 | 40 | 47 | 47 | 45 | 47 | 46                                                                                                                                   | 52.9          | 76.1          |
| 10-Apr                                                                                                                           | 54                            | 56 | 56 | 62 | 58 | 58 | 50 | 48 | 45 | 45 | 44 | 39                                                                                                                                                                                                                                                         | 36 | 36 | 38 | 38 | 40 | 40 | 43 | 47 | 49 | 48 | 52 | 57                                                                                                                                   | 47.5          | 61.8          |
| 11-Apr                                                                                                                           | 61                            | 65 | 71 | 75 | 78 | 76 | 74 | 71 | 66 | 59 | 51 | 54                                                                                                                                                                                                                                                         | 42 | 37 | 37 | 37 | 48 | 64 | 62 | 62 | 52 | 75 | 79 | 78                                                                                                                                   | 61.4          | 79.4          |
| 12-Apr                                                                                                                           | 77                            | 77 | 78 | 83 | 87 | 89 | 89 | 79 | 69 | 62 | 53 | 49                                                                                                                                                                                                                                                         | 47 | 40 | 36 | 33 | 32 | 36 | 39 | 38 | 40 | 42 | 49 | 52                                                                                                                                   | 57.3          | 89.5          |
| 13-Apr                                                                                                                           | 54                            | 56 | 56 | 58 | 62 | 65 | 68 | 66 | M  | M  | M  | 38                                                                                                                                                                                                                                                         | 38 | 35 | 33 | 32 | 34 | 38 | 41 | 46 | 51 | 54 | 58 | 64                                                                                                                                   | 49.9          | 68.0          |
| 14-Apr                                                                                                                           | 69                            | 70 | 70 | 72 | 91 | 95 | 95 | 95 | 96 | 96 | 96 | 96                                                                                                                                                                                                                                                         | 96 | 96 | 97 | 98 | 98 | 98 | 98 | 98 | 98 | 97 | 97 | 97                                                                                                                                   | 92.0          | 97.7          |
| 15-Apr                                                                                                                           | 97                            | 97 | 96 | 96 | 96 | 95 | 95 | 94 | 91 | 88 | 79 | 69                                                                                                                                                                                                                                                         | 65 | 62 | 66 | 70 | 71 | 72 | 78 | 86 | 88 | 88 | 89 | 90                                                                                                                                   | 84.0          | 96.8          |
| 16-Apr                                                                                                                           | 90                            | 92 | 92 | 92 | 92 | 91 | 90 | 92 | 91 | 90 | 84 | 72                                                                                                                                                                                                                                                         | 66 | 59 | 55 | 61 | 69 | 76 | 73 | 74 | 78 | 79 | 80 | 80                                                                                                                                   | 79.9          | 92.1          |
| 17-Apr                                                                                                                           | 82                            | 86 | 84 | 86 | 89 | 91 | 92 | 90 | 78 | 67 | 60 | 60                                                                                                                                                                                                                                                         | 51 | 44 | 40 | 36 | 32 | 32 | 31 | 32 | 46 | 56 | 63 | 70                                                                                                                                   | 62.3          | 91.7          |
| 18-Apr                                                                                                                           | 75                            | 82 | 85 | 88 | 88 | 88 | 87 | 79 | 72 | 65 | 52 | 47                                                                                                                                                                                                                                                         | 44 | 42 | 42 | 36 | 35 | 34 | 34 | 36 | 43 | 52 | 59 | 59                                                                                                                                   | 59.3          | 88.2          |
| 19-Apr                                                                                                                           | 64                            | 72 | 79 | 81 | 85 | 89 | 89 | 85 | 79 | 70 | 64 | 62                                                                                                                                                                                                                                                         | 60 | 58 | 70 | 59 | 48 | 55 | 59 | 57 | 65 | 74 | 81 | 85                                                                                                                                   | 70.4          | 89.0          |
| 20-Apr                                                                                                                           | 70                            | 65 | 62 | 63 | 64 | 63 | 61 | 56 | 53 | 49 | 44 | 37                                                                                                                                                                                                                                                         | 34 | 33 | 31 | 31 | 30 | 30 | 30 | 34 | 43 | 52 | 55 | 62                                                                                                                                   | 48.0          | 70.4          |
| 21-Apr                                                                                                                           | 46                            | 48 | 53 | 58 | 63 | 71 | 70 | 56 | 48 | 39 | 35 | 33                                                                                                                                                                                                                                                         | 30 | 28 | 29 | 32 | 34 | 38 | 39 | 47 | 45 | 50 | 43 | 44                                                                                                                                   | 44.9          | 71.4          |
| 22-Apr                                                                                                                           | 45                            | 47 | 48 | 48 | 49 | 48 | 45 | 44 | 43 | 42 | 39 | 35                                                                                                                                                                                                                                                         | 33 | 32 | 30 | 29 | 29 | 29 | 30 | 33 | 35 | 36 | 38 | 39                                                                                                                                   | 38.6          | 49.1          |
| 23-Apr                                                                                                                           | 41                            | 43 | 44 | 46 | 51 | 55 | 57 | 53 | 46 | 40 | 36 | 32                                                                                                                                                                                                                                                         | 29 | 28 | 29 | 29 | 27 | 26 | 27 | 30 | 37 | 42 | 48 | 61                                                                                                                                   | 39.8          | 61.2          |
| 24-Apr                                                                                                                           | 67                            | 68 | 71 | 69 | 54 | 60 | 63 | 66 | 59 | 51 | 45 | 36                                                                                                                                                                                                                                                         | 35 | 28 | 26 | 22 | 19 | 19 | 20 | 21 | 30 | 40 | 47 | 54                                                                                                                                   | 44.6          | 70.9          |
| 25-Apr                                                                                                                           | 56                            | 67 | 72 | 74 | 77 | 75 | 73 | 63 | 46 | 35 | 28 | 23                                                                                                                                                                                                                                                         | 20 | 17 | 16 | 14 | 15 | 16 | 21 | 25 | 35 | 50 | 54 | 59                                                                                                                                   | 42.9          | 77.0          |
| 26-Apr                                                                                                                           | 63                            | 66 | 67 | 67 | 64 | 62 | 60 | 56 | 49 | 46 | 45 | 39                                                                                                                                                                                                                                                         | 32 | 30 | 29 | 27 | 27 | 27 | 26 | 26 | 29 | 34 | 37 | 42                                                                                                                                   | 43.7          | 67.2          |
| 27-Apr                                                                                                                           | 53                            | 56 | 62 | 68 | 71 | 74 | 67 | 55 | 52 | 48 | 43 | 39                                                                                                                                                                                                                                                         | 45 | 58 | 52 | 46 | 41 | 43 | 54 | 58 | 64 | 70 | 71 | 73                                                                                                                                   | 56.9          | 74.0          |
| 28-Apr                                                                                                                           | 74                            | 79 | 81 | 83 | 85 | 82 | 80 | 76 | 72 | 67 | 66 | 69                                                                                                                                                                                                                                                         | 82 | 84 | 86 | 90 | 90 | 86 | 91 | 93 | 94 | 93 | 94 | 92                                                                                                                                   | 82.9          | 93.7          |
| 29-Apr                                                                                                                           | 93                            | 94 | 94 | 95 | 96 | 96 | 96 | 90 | 82 | 74 | 69 | 59                                                                                                                                                                                                                                                         | 49 | 41 | 42 | 72 | 67 | 64 | 67 | 65 | 67 | 73 | 81 | 87                                                                                                                                   | 75.4          | 95.9          |
| 30-Apr                                                                                                                           | 90                            | 91 | 92 | 81 | 79 | 80 | 77 | 66 | 62 | 54 | 47 | 39                                                                                                                                                                                                                                                         | 37 | 35 | 30 | 28 | 28 | 29 | 30 | 32 | 33 | 37 | 41 | 45                                                                                                                                   | 52.6          | 92.3          |
| 66.7 69.1 71.0 72.4 73.4 74.7 74.3 70.2 64.4 58.2 52.9 47.6 44.6 42.6 42.0 41.5 41.2 42.7 44.7 48.1 52.5 58.3 61.5 64.4          |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                      |               |               |
| 96.8 96.5 96.1 95.8 95.5 95.9 95.5 95.5 95.8 96.0 96.0 96.4 96.1 96.4 97.0 97.5 97.7 97.7 97.7 97.7 97.7 97.5 97.3 97.1 97.0     |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                      |               |               |
| M - Maintenance                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                            |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |

## Hourly Averages

Relative Humidity (RH) - %  
Evergreen Park - April 2011



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Evergreen Park - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 12                            | 14  | 14  | 13  | 13  | 10  | 12  | 14  | 17  | 16  | 16  | 13  | 11  | 10  | 8   | 6   | 9   | 7   | 5   | 3   | 2   | 1   | 2   | 1   | 9.2           | 16.7          |
| Dir    | 264                           | 259 | 257 | 257 | 258 | 253 | 253 | 257 | 262 | 273 | 276 | 283 | 282 | 282 | 296 | 311 | 288 | 282 | 279 | 283 | 230 | 225 | 207 | 254 | 268.7         | 261.7         |
| 2 Spd  | 0                             | 2   | 1   | 1   | 3   | 2   | 3   | 3   | 3   | 5   | 5   | 5   | 5   | 6   | 6   | 6   | 5   | 5   | 5   | 4   | 1   | 1   | 1   | 0   | 2.1           | 6.0           |
| Dir    | 267                           | 215 | 230 | 301 | 278 | 326 | 313 | 314 | 287 | 289 | 313 | 280 | 359 | 22  | 29  | 20  | 35  | 30  | 354 | 48  | 53  | 337 | 222 | 263 | 343.4         | 28.6          |
| 3 Spd  | 2                             | 1   | 1   | 0   | 0   | 1   | 1   | 1   | 4   | 2   | 4   | 4   | 6   | 4   | 4   | 4   | 5   | 4   | 3   | 1   | 0   | 1   | 2   | 2   | 0.7           | 6.5           |
| Dir    | 229                           | 11  | 259 | 155 | 237 | 207 | 230 | 217 | 224 | 283 | 267 | 234 | 219 | 281 | 341 | 31  | 45  | 62  | 54  | 52  | 175 | 186 | 239 | 253 | 268.3         | 219.4         |
| 4 Spd  | 4                             | 4   | 3   | 5   | 7   | 9   | 10  | 13  | 16  | 21  | 24  | 27  | 25  | 20  | 15  | 17  | 13  | 8   | 9   | 9   | 4   | 2   | 2   | 1   | 10.7          | 27.0          |
| Dir    | 240                           | 236 | 226 | 246 | 234 | 237 | 250 | 256 | 262 | 271 | 274 | 273 | 274 | 277 | 288 | 281 | 295 | 301 | 277 | 269 | 258 | 292 | 262 | 269 | 270.0         | 273.5         |
| 5 Spd  | 1                             | 1   | 1   | 1   | 4   | 5   | 3   | 4   | 7   | 9   | 12  | 14  | 14  | 12  | 8   | 7   | 7   | 5   | 6   | 4   | 8   | 12  | 13  | 10  | 6.3           | 14.2          |
| Dir    | 197                           | 335 | 208 | 259 | 282 | 291 | 257 | 274 | 276 | 282 | 269 | 280 | 296 | 322 | 293 | 316 | 285 | 295 | 242 | 230 | 249 | 249 | 248 | 239 | 274.2         | 279.8         |
| 6 Spd  | 7                             | 3   | 4   | 2   | 2   | 5   | 1   | 5   | 8   | 7   | 10  | 11  | 13  | 11  | 11  | 13  | 13  | 8   | 6   | 4   | 1   | 0   | 1   | 2   | 5.6           | 13.2          |
| Dir    | 239                           | 213 | 233 | 237 | 252 | 230 | 359 | 221 | 265 | 283 | 287 | 291 | 291 | 292 | 287 | 286 | 279 | 292 | 287 | 271 | 269 | 24  | 221 | 223 | 274.9         | 290.8         |
| 7 Spd  | 0                             | 2   | 4   | 4   | 2   | 2   | 3   | 3   | 3   | 4   | 5   | 5   | 4   | 4   | 4   | 6   | 6   | 5   | 2   | 1   | 1   | 2   | 5   | 5   | 2.2           | 5.7           |
| Dir    | 183                           | 282 | 285 | 303 | 332 | 282 | 293 | 335 | 338 | 277 | 269 | 360 | 26  | 18  | 333 | 284 | 276 | 276 | 279 | 201 | 186 | 194 | 205 | 214 | 291.8         | 276.1         |
| 8 Spd  | 9                             | 7   | 8   | 11  | 9   | 8   | 7   | 7   | 8   | 9   | 16  | 17  | 19  | 22  | 16  | 17  | 17  | 15  | 17  | 14  | 14  | 11  | 8   | 8   | 10.2          | 22.2          |
| Dir    | 227                           | 230 | 230 | 220 | 206 | 194 | 187 | 190 | 195 | 212 | 247 | 273 | 285 | 277 | 263 | 287 | 290 | 297 | 291 | 286 | 287 | 289 | 283 | 269 | 262.3         | 276.6         |
| 9 Spd  | 1                             | 1   | 1   | 1   | 1   | 1   | 1   | 4   | 9   | 15  | 15  | 15  | 14  | 13  | 14  | 14  | 13  | 11  | 15  | 8   | 7   | 7   | 6   | 8   | 7.7           | 15.1          |
| Dir    | 354                           | 360 | 215 | 105 | 222 | 209 | 74  | 272 | 263 | 263 | 267 | 282 | 284 | 285 | 293 | 289 | 279 | 281 | 276 | 275 | 264 | 247 | 255 | 263 | 275.0         | 282.3         |
| 10 Spd | 3                             | 5   | 2   | 0   | 4   | 4   | 7   | 5   | 7   | 8   | 9   | 7   | 3   | 6   | 9   | 8   | 6   | 5   | 3   | 1   | 2   | 2   | 0   | 1   | 1.7           | 9.0           |
| Dir    | 263                           | 266 | 240 | 355 | 240 | 246 | 257 | 262 | 276 | 281 | 281 | 282 | 348 | 39  | 49  | 44  | 44  | 47  | 40  | 47  | 105 | 117 | 342 | 35  | 313.4         | 49.2          |
| 11 Spd | 1                             | 1   | 1   | 1   | 0   | 1   | 2   | 3   | 3   | 4   | 14  | 16  | 21  | 24  | 24  | 25  | 18  | 16  | 13  | 13  | 15  | 8   | 7   | 8   | 9.1           | 24.8          |
| Dir    | 15                            | 355 | 353 | 29  | 109 | 183 | 228 | 267 | 271 | 293 | 273 | 281 | 275 | 273 | 280 | 281 | 295 | 316 | 312 | 277 | 287 | 334 | 344 | 345 | 289.9         | 280.9         |
| 12 Spd | 7                             | 4   | 2   | 1   | 1   | 1   | 0   | 1   | 2   | 4   | 2   | 5   | 6   | 7   | 9   | 10  | 10  | 8   | 7   | 5   | 3   | 4   | 3   | 4   | 3.2           | 10.0          |
| Dir    | 348                           | 336 | 292 | 258 | 198 | 159 | 187 | 54  | 142 | 145 | 127 | 1   | 33  | 51  | 66  | 68  | 64  | 71  | 72  | 86  | 86  | 90  | 82  | 90  | 63.3          | 64.5          |
| 13 Spd | 5                             | 5   | 4   | 4   | 4   | 5   | 4   | 4   | M   | M   | M   | M   | M   | M   | 11  | 11  | 11  | 13  | 11  | 9   | 8   | 9   | 7   | 6   | 7.2           | 12.5          |
| Dir    | 90                            | 88  | 91  | 92  | 87  | 89  | 77  | 76  | M   | M   | M   | M   | M   | M   | 110 | 118 | 105 | 104 | 100 | 104 | 98  | 98  | 90  | 88  | 98.3          | 103.6         |
| 14 Spd | 7                             | 7   | 7   | 8   | 6   | 8   | 9   | 9   | 10  | 9   | 10  | 10  | 9   | 8   | 7   | 6   | 6   | 4   | 4   | 5   | 4   | 3   | 4   | 4   | 6.7           | 10.2          |
| Dir    | 82                            | 81  | 79  | 96  | 89  | 90  | 90  | 98  | 99  | 99  | 103 | 102 | 97  | 88  | 84  | 83  | 97  | 80  | 74  | 80  | 75  | 78  | 68  | 62  | 89.4          | 103.2         |
| 15 Spd | 3                             | 4   | 4   | 4   | 2   | 3   | 2   | 3   | 4   | 4   | 4   | 5   | 6   | 4   | 5   | 7   | 8   | 8   | 7   | 5   | 5   | 5   | 5   | 4   | 3.6           | 8.4           |
| Dir    | 58                            | 49  | 45  | 44  | 5   | 359 | 2   | 320 | 336 | 334 | 324 | 315 | 356 | 3   | 29  | 52  | 54  | 59  | 63  | 70  | 66  | 66  | 68  | 72  | 34.6          | 58.7          |
| 16 Spd | 5                             | 4   | 4   | 4   | 3   | 3   | 3   | 3   | 4   | 6   | 7   | 9   | 10  | 10  | 10  | 10  | 13  | 9   | 6   | 3   | 3   | 2   | 2   | 2   | 5.6           | 12.6          |
| Dir    | 72                            | 73  | 68  | 82  | 76  | 84  | 91  | 93  | 96  | 75  | 72  | 72  | 68  | 71  | 65  | 59  | 60  | 64  | 64  | 54  | 54  | 68  | 66  | 72  | 69.7          | 60.4          |
| 17 Spd | 1                             | 1   | 2   | 1   | 1   | 0   | 1   | 1   | 2   | 3   | 4   | 4   | 3   | 4   | 3   | 4   | 5   | 6   | 6   | 3   | 0   | 1   | 0   | 0   | 1.6           | 5.9           |
| Dir    | 70                            | 47  | 44  | 57  | 210 | 234 | 235 | 0   | 282 | 284 | 318 | 360 | 28  | 22  | 26  | 55  | 53  | 52  | 57  | 61  | 305 | 349 | 309 | 262 | 28.7          | 57.4          |
| 18 Spd | 1                             | 1   | 0   | 1   | 0   | 2   | 2   | 7   | 6   | 5   | 3   | 5   | 5   | 5   | 5   | 3   | 6   | 4   | 3   | 2   | 2   | 1   | 0   | 4   | 1.1           | 6.9           |
| Dir    | 211                           | 209 | 20  | 218 | 357 | 220 | 233 | 280 | 283 | 279 | 279 | 326 | 7   | 45  | 61  | 82  | 35  | 28  | 39  | 57  | 69  | 208 | 240 | 249 | 336.5         | 280.0         |
| 19 Spd | 2                             | 0   | 1   | 1   | 2   | 1   | 3   | 7   | 9   | 8   | 8   | 9   | 8   | 6   | 7   | 12  | 12  | 10  | 7   | 6   | 1   | 0   | 2   | 5   | 4.3           | 12.3          |
| Dir    | 265                           | 9   | 220 | 322 | 230 | 220 | 222 | 268 | 284 | 280 | 316 | 330 | 348 | 343 | 315 | 262 | 269 | 276 | 278 | 261 | 266 | 70  | 199 | 218 | 284.1         | 261.5         |
| 20 Spd | 7                             | 7   | 8   | 8   | 9   | 9   | 10  | 16  | 18  | 19  | 16  | 16  | 15  | 15  | 15  | 13  | 14  | 11  | 9   | 4   | 0   | 1   | 2   | 1   | 8.8           | 18.7          |
| Dir    | 237                           | 240 | 240 | 242 | 243 | 249 | 246 | 254 | 265 | 271 | 287 | 296 | 311 | 314 | 316 | 311 | 316 | 308 | 321 | 322 | 271 | 202 | 220 | 224 | 281.7         | 271.0         |
| 21 Spd | 6                             | 0   | 1   | 1   | 1   | 1   | 0   | 2   | 9   | 15  | 16  | 14  | 12  | 12  | 12  | 11  | 13  | 10  | 10  | 7   | 5   | 4   | 9   | 12  | 6.6           | 15.7          |
| Dir    | 252                           | 204 | 170 | 194 | 140 | 106 | 145 | 228 | 258 | 267 | 284 | 288 | 314 | 303 | 297 | 302 | 305 | 321 | 319 | 333 | 276 | 253 | 247 | 251 | 287.0         | 284.2         |
| 22 Spd | 12                            | 9   | 11  | 11  | 7   | 8   | 12  | 14  | 16  | 17  | 16  | 13  | 13  | 15  | 14  | 15  | 16  | 18  | 17  | 12  | 11  | 10  | 12  | 13  | 12.2          | 17.9          |
| Dir    | 250                           | 252 | 253 | 257 | 252 | 249 | 257 | 270 | 283 | 283 | 293 | 309 | 312 | 299 | 293 | 301 | 289 | 275 | 274 | 271 | 251 | 248 | 253 | 252 | 274.9         | 275.0         |

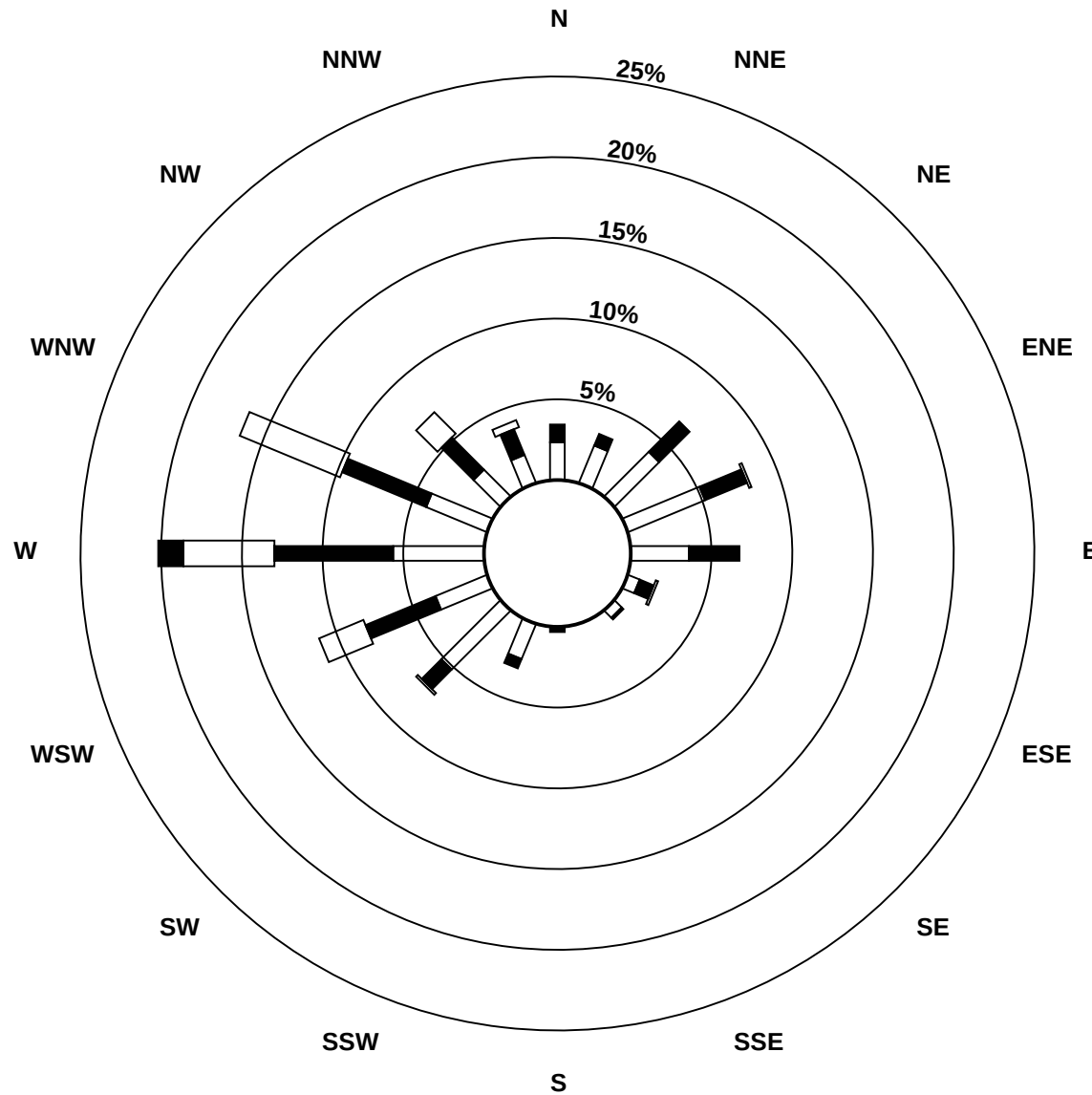
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Evergreen Park - April 2011

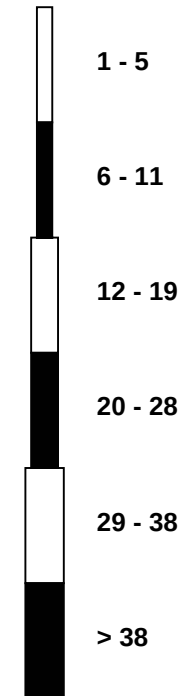
| Day                                                                                | Hourly Period Ending At (MST) |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                | Daily Average   | Daily Maximum |  |
|------------------------------------------------------------------------------------|-------------------------------|-------|---------|-------|----------|-------|----------|-------|----------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|--------------------------------|-----------------|---------------|--|
|                                                                                    | 1                             | 2     | 3       | 4     | 5        | 6     | 7        | 8     | 9        | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18                                                                                                                                                                 | 19    | 20    | 21    | 22    | 23    | 24                             |                 |               |  |
| 23 Spd                                                                             | 13                            | 12    | 12      | 6     | 4        | 3     | 2        | 6     | 9        | 15    | 14    | 14    | 12    | 10    | 7     | 4     | 3     | 3                                                                                                                                                                  | 2     | 2     | 2     | 1     | 0     | 1                              | 4.9             | 14.6          |  |
| Dir                                                                                | 257                           | 258   | 260     | 300   | 328      | 297   | 278      | 264   | 274      | 273   | 285   | 297   | 302   | 325   | 9     | 22    | 26    | 24                                                                                                                                                                 | 68    | 89    | 62    | 98    | 322   | 231                            | 291.7           | 273.0         |  |
| 24 Spd                                                                             | 1                             | 1     | 0       | 1     | 2        | 2     | 1        | 1     | 2        | 1     | 3     | 3     | 6     | 5     | 6     | 7     | 6     | 4                                                                                                                                                                  | 4     | 3     | 3     | 1     | 1     | 1                              | 2.0             | 6.7           |  |
| Dir                                                                                | 218                           | 198   | 183     | 21    | 279      | 209   | 42       | 323   | 356      | 48    | 6     | 24    | 48    | 47    | 43    | 41    | 46    | 49                                                                                                                                                                 | 75    | 79    | 94    | 73    | 76    | 221                            | 46.6            | 41.2          |  |
| 25 Spd                                                                             | 2                             | 0     | 0       | 2     | 0        | 2     | 2        | 1     | 1        | 1     | 1     | 6     | 5     | 2     | 7     | 10    | 8     | 7                                                                                                                                                                  | 6     | 3     | 8     | 14    | 13    | 10                             | 1.6             | 14.3          |  |
| Dir                                                                                | 70                            | 227   | 299     | 49    | 259      | 204   | 249      | 27    | 317      | 67    | 56    | 132   | 108   | 111   | 63    | 56    | 53    | 48                                                                                                                                                                 | 41    | 34    | 281   | 284   | 293   | 301                            | 4.6             | 283.6         |  |
| 26 Spd                                                                             | 11                            | 10    | 9       | 8     | 10       | 9     | 10       | 10    | 14       | 11    | 9     | 6     | 9     | 11    | 10    | 11    | 13    | 11                                                                                                                                                                 | 9     | 10    | 6     | 7     | 6     | 3                              | 8.9             | 13.5          |  |
| Dir                                                                                | 282                           | 276   | 279     | 274   | 271      | 273   | 274      | 266   | 273      | 282   | 270   | 282   | 305   | 309   | 318   | 301   | 273   | 306                                                                                                                                                                | 312   | 276   | 264   | 264   | 271   | 296                            | 283.2           | 272.6         |  |
| 27 Spd                                                                             | 3                             | 1     | 0       | 2     | 1        | 2     | 4        | 6     | 5        | 6     | 5     | 5     | 13    | 16    | 6     | 1     | 2     | 13                                                                                                                                                                 | 12    | 10    | 3     | 6     | 0     | 2                              | 4.7             | 16.2          |  |
| Dir                                                                                | 265                           | 53    | 195     | 218   | 216      | 211   | 219      | 270   | 279      | 277   | 282   | 281   | 273   | 265   | 271   | 15    | 249   | 236                                                                                                                                                                | 262   | 262   | 250   | 227   | 228   | 218                            | 259.6           | 265.1         |  |
| 28 Spd                                                                             | 4                             | 1     | 2       | 2     | 4        | 5     | 7        | 5     | 5        | 8     | 10    | 8     | 7     | 8     | 11    | 12    | 11    | 13                                                                                                                                                                 | 7     | 4     | 2     | 5     | 7     | 7                              | 5.3             | 13.1          |  |
| Dir                                                                                | 222                           | 231   | 306     | 275   | 298      | 283   | 285      | 287   | 289      | 342   | 351   | 4     | 12    | 5     | 351   | 337   | 328   | 334                                                                                                                                                                | 10    | 319   | 326   | 308   | 278   | 292                            | 326.8           | 333.7         |  |
| 29 Spd                                                                             | 6                             | 4     | 3       | 4     | 2        | 3     | 3        | 4     | 6        | 9     | 7     | 6     | 6     | 7     | 7     | 13    | 8     | 7                                                                                                                                                                  | 9     | 8     | 8     | 4     | 1     | 3                              | 4.7             | 13.1          |  |
| Dir                                                                                | 285                           | 272   | 270     | 266   | 259      | 238   | 250      | 272   | 263      | 268   | 263   | 271   | 272   | 254   | 312   | 337   | 244   | 222                                                                                                                                                                | 227   | 230   | 227   | 343   | 285   | 225                            | 264.5           | 337.0         |  |
| 30 Spd                                                                             | 1                             | 1     | 3       | 7     | 6        | 2     | 4        | 9     | 10       | 10    | 8     | 10    | 11    | 8     | 14    | 19    | 18    | 15                                                                                                                                                                 | 14    | 14    | 12    | 12    | 11    | 6                              | 8.7             | 19.0          |  |
| Dir                                                                                | 233                           | 225   | 270     | 269   | 271      | 321   | 291      | 286   | 283      | 289   | 322   | 313   | 324   | 339   | 304   | 292   | 289   | 302                                                                                                                                                                | 286   | 269   | 254   | 255   | 264   | 249                            | 287.5           | 291.8         |  |
| Spd                                                                                | 2.5                           | 1.9   | 2.2     | 1.9   | 2.3      | 2.3   | 2.6      | 4.0   | 5.8      | 6.7   | 7.3   | 7.2   | 6.8   | 6.4   | 5.4   | 5.6   | 5.1   | 4.4                                                                                                                                                                | 3.7   | 2.8   | 2.3   | 2.1   | 2.4   | 2.5                            | Diurnal Average |               |  |
| Dir                                                                                | 257.1                         | 259.4 | 256.5   | 258.4 | 254.7    | 245.4 | 253.2    | 265.3 | 270.0    | 276.5 | 284.9 | 295.3 | 306.9 | 309.3 | 321.3 | 319.7 | 314.2 | 318.3                                                                                                                                                              | 309.9 | 284.8 | 267.5 | 270.7 | 265.2 | 259.9                          | Diurnal Maximum |               |  |
| Spd                                                                                | 13.2                          | 13.5  | 13.9    | 12.7  | 12.6     | 10.5  | 12.3     | 15.9  | 17.5     | 21.5  | 24.2  | 27.0  | 25.1  | 24.1  | 24.5  | 24.8  | 18.2  | 17.9                                                                                                                                                               | 17.0  | 14.3  | 14.8  | 14.3  | 13.4  | 13.2                           | Diurnal Maximum |               |  |
| Dir                                                                                | 257.3                         | 259.2 | 256.9   | 257.0 | 258.3    | 253.1 | 252.7    | 254.3 | 265.3    | 271.1 | 274.1 | 273.5 | 274.5 | 273.3 | 280.0 | 280.9 | 288.7 | 275.0                                                                                                                                                              | 291.2 | 269.4 | 287.0 | 283.6 | 292.6 | 251.8                          |                 |               |  |
| Maximum Speed Value: 27 km/h on Apr 4 12:00                                        |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Speed Value: 0 km/h on Apr 3 04:00                                                                                                                         |       |       |       |       |       | Hours in Service: 720          |                 |               |  |
| Maximum Daily Speed Average: 12.2 km/h on Apr 22                                   |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Daily Speed Average: 0.7 km/h on Apr 3                                                                                                                     |       |       |       |       |       | Hours of Data: 714             |                 |               |  |
| Maximum Diurnal Speed Average: 7.3 km/h at hour 11                                 |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Minimum Diurnal Speed Average: 1.9 km/h at hour 4                                                                                                                  |       |       |       |       |       | Hours of Missing Data: 6       |                 |               |  |
| Monthly Average Velocity: 3.65 km/h 287.87 deg                                     |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       | Speed Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 2.5 Median = 5.5 Q <sub>3</sub> = 9.6 P <sub>90</sub> = 13.6 P <sub>99</sub> = 21.0 |       |       |       |       |       | Percent Operational Time: 99.2 |                 |               |  |
| All monthly, daily, and diurnal averages have been calculated using vector methods |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| M - Maintenance                                                                    |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| Frequency Distribution                                                             |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| Speed Range (km/h)                                                                 |                               |       |         |       |          |       |          |       |          |       |       |       |       |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| Direction                                                                          | 0 to 5                        |       | 5 to 11 |       | 11 to 19 |       | 19 to 28 |       | 28 to 38 |       | > 38  |       | Total |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| North                                                                              | 33                            |       | 19      |       | 0        |       | 0        |       | 0        |       | 0     |       | 52    |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| NorthEast                                                                          | 48                            |       | 36      |       | 1        |       | 0        |       | 0        |       | 0     |       | 85    |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| East                                                                               | 49                            |       | 36      |       | 2        |       | 0        |       | 0        |       | 0     |       | 87    |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| SouthEast                                                                          | 7                             |       | 2       |       | 0        |       | 0        |       | 0        |       | 0     |       | 9     |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| South                                                                              | 18                            |       | 4       |       | 0        |       | 0        |       | 0        |       | 0     |       | 22    |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| SouthWest                                                                          | 69                            |       | 29      |       | 3        |       | 0        |       | 0        |       | 0     |       | 101   |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| West                                                                               | 68                            |       | 97      |       | 82       |       | 11       |       | 0        |       | 0     |       | 258   |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| NorthWest                                                                          | 35                            |       | 29      |       | 36       |       | 0        |       | 0        |       | 0     |       | 100   |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |
| Total                                                                              | 327                           |       | 252     |       | 124      |       | 11       |       | 0        |       | 0     |       | 714   |       |       |       |       |                                                                                                                                                                    |       |       |       |       |       |                                |                 |               |  |

## Wind Rose

Wind Speed (WS) (km/h)  
Evergreen Park - April 2011



## Wind Speed Classes (km/h)



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Evergreen Park - April 2011

| Maximum Speed: 27 km/h on Apr 4 12:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 13.4 km/h on Apr 22                                                                                                              |    |    |    |    |                 |               |  |  |  | Hours in Service: 720          |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|--|--|--|--------------------------------|--|
| Minimum Speed: 1 km/h on Apr 7 01:00                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 2.9 km/h on Apr 3                                                                                                                |    |    |    |    |                 |               |  |  |  | Hours of Data: 714             |  |
| Maximum Diurnal Speed Average: 10.9 km/h at hour 13                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 4.1 km/h at hour 5                                                                                                             |    |    |    |    |                 |               |  |  |  | Hours of Missing Data: 6       |  |
| Monthly Average Speed: 7.07 km/h                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 3.0 Median = 6.0 Q <sub>3</sub> = 10.0 P <sub>90</sub> = 14.4 P <sub>99</sub> = 21.0 |    |    |    |    |                 |               |  |  |  | Percent Operational Time: 99.2 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Daily Average   | Daily Maximum |  |  |  |                                |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                            | 21 | 22 | 23 | 24 |                 |               |  |  |  |                                |  |
| 1-Apr                                                                                                                   | 12                            | 14 | 14 | 13 | 13 | 11 | 12 | 14 | 17 | 16 | 16 | 14 | 12 | 11 | 9  | 7  | 9  | 7  | 5  | 3                                                                                                                                                             | 3  | 2  | 2  | 2  | 9.8             | 16.8          |  |  |  |                                |  |
| 2-Apr                                                                                                                   | 1                             | 3  | 2  | 2  | 3  | 3  | 3  | 3  | 4  | 5  | 6  | 6  | 5  | 6  | 7  | 6  | 6  | 5  | 6  | 4                                                                                                                                                             | 1  | 1  | 2  | 1  | 3.8             | 6.5           |  |  |  |                                |  |
| 3-Apr                                                                                                                   | 2                             | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 4  | 2  | 4  | 4  | 7  | 5  | 5  | 5  | 6  | 4  | 3  | 1                                                                                                                                                             | 1  | 1  | 2  | 4  | 2.9             | 6.9           |  |  |  |                                |  |
| 4-Apr                                                                                                                   | 4                             | 4  | 3  | 5  | 7  | 9  | 10 | 13 | 17 | 22 | 24 | 27 | 25 | 20 | 15 | 17 | 13 | 9  | 9  | 9                                                                                                                                                             | 4  | 3  | 2  | 2  | 11.4            | 27.2          |  |  |  |                                |  |
| 5-Apr                                                                                                                   | 1                             | 1  | 2  | 1  | 4  | 5  | 3  | 4  | 7  | 9  | 12 | 14 | 15 | 13 | 10 | 7  | 8  | 6  | 6  | 5                                                                                                                                                             | 8  | 12 | 13 | 10 | 7.5             | 14.8          |  |  |  |                                |  |
| 6-Apr                                                                                                                   | 7                             | 3  | 5  | 3  | 3  | 5  | 2  | 5  | 8  | 7  | 10 | 11 | 13 | 12 | 11 | 13 | 13 | 8  | 6  | 4                                                                                                                                                             | 2  | 1  | 1  | 2  | 6.6             | 13.4          |  |  |  |                                |  |
| 7-Apr                                                                                                                   | 1                             | 3  | 4  | 4  | 3  | 2  | 3  | 3  | 3  | 4  | 5  | 5  | 5  | 4  | 5  | 6  | 6  | 5  | 2  | 1                                                                                                                                                             | 1  | 2  | 5  | 5  | 3.7             | 6.3           |  |  |  |                                |  |
| 8-Apr                                                                                                                   | 9                             | 7  | 8  | 11 | 10 | 8  | 7  | 7  | 8  | 10 | 17 | 18 | 19 | 22 | 16 | 18 | 17 | 16 | 17 | 14                                                                                                                                                            | 14 | 11 | 9  | 8  | 12.5            | 22.3          |  |  |  |                                |  |
| 9-Apr                                                                                                                   | 2                             | 2  | 1  | 1  | 2  | 2  | 1  | 4  | 9  | 15 | 15 | 15 | 15 | 14 | 14 | 14 | 13 | 11 | 15 | 8                                                                                                                                                             | 7  | 7  | 6  | 8  | 8.4             | 15.3          |  |  |  |                                |  |
| 10-Apr                                                                                                                  | 3                             | 5  | 3  | 2  | 5  | 4  | 7  | 6  | 7  | 8  | 9  | 8  | 5  | 7  | 9  | 8  | 6  | 5  | 3  | 1                                                                                                                                                             | 2  | 2  | 1  | 1  | 4.9             | 9.2           |  |  |  |                                |  |
| 11-Apr                                                                                                                  | 1                             | 1  | 1  | 1  | 1  | 2  | 2  | 4  | 3  | 5  | 14 | 16 | 21 | 25 | 25 | 25 | 19 | 18 | 15 | 13                                                                                                                                                            | 16 | 8  | 7  | 8  | 10.6            | 25.1          |  |  |  |                                |  |
| 12-Apr                                                                                                                  | 7                             | 5  | 2  | 2  | 2  | 2  | 1  | 1  | 3  | 5  | 4  | 5  | 6  | 8  | 9  | 10 | 10 | 8  | 7  | 5                                                                                                                                                             | 4  | 4  | 4  | 4  | 4.9             | 10.2          |  |  |  |                                |  |
| 13-Apr                                                                                                                  | 5                             | 5  | 4  | 4  | 4  | 5  | 4  | 4  | M  | M  | M  | M  | M  | M  | 12 | 12 | 11 | 13 | 11 | 9                                                                                                                                                             | 9  | 9  | 7  | 7  | 7.5             | 12.9          |  |  |  |                                |  |
| 14-Apr                                                                                                                  | 7                             | 8  | 7  | 8  | 6  | 8  | 9  | 9  | 10 | 9  | 11 | 10 | 10 | 8  | 7  | 6  | 6  | 4  | 4  | 5                                                                                                                                                             | 4  | 3  | 4  | 4  | 7.1             | 10.5          |  |  |  |                                |  |
| 15-Apr                                                                                                                  | 3                             | 4  | 4  | 4  | 2  | 3  | 2  | 3  | 4  | 4  | 5  | 6  | 6  | 5  | 6  | 7  | 8  | 9  | 7  | 5                                                                                                                                                             | 5  | 5  | 5  | 4  | 4.8             | 8.6           |  |  |  |                                |  |
| 16-Apr                                                                                                                  | 5                             | 4  | 4  | 4  | 4  | 3  | 3  | 3  | 5  | 6  | 8  | 9  | 10 | 10 | 10 | 11 | 13 | 9  | 6  | 3                                                                                                                                                             | 3  | 2  | 2  | 2  | 5.8             | 12.8          |  |  |  |                                |  |
| 17-Apr                                                                                                                  | 1                             | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 3  | 4  | 6  | 4  | 4  | 5  | 4  | 5  | 7  | 6  | 6  | 3                                                                                                                                                             | 1  | 1  | 1  | 1  | 3.0             | 6.6           |  |  |  |                                |  |
| 18-Apr                                                                                                                  | 1                             | 1  | 1  | 2  | 1  | 2  | 2  | 7  | 7  | 5  | 4  | 6  | 6  | 8  | 5  | 5  | 7  | 5  | 4  | 2                                                                                                                                                             | 2  | 2  | 2  | 4  | 3.8             | 7.6           |  |  |  |                                |  |
| 19-Apr                                                                                                                  | 2                             | 1  | 1  | 2  | 2  | 2  | 3  | 7  | 9  | 9  | 9  | 10 | 9  | 7  | 8  | 13 | 13 | 10 | 8  | 6                                                                                                                                                             | 2  | 2  | 2  | 5  | 6.0             | 12.8          |  |  |  |                                |  |
| 20-Apr                                                                                                                  | 7                             | 8  | 9  | 8  | 9  | 9  | 10 | 16 | 18 | 19 | 16 | 17 | 16 | 16 | 16 | 14 | 15 | 12 | 10 | 5                                                                                                                                                             | 1  | 1  | 3  | 2  | 10.7            | 19.0          |  |  |  |                                |  |
| 21-Apr                                                                                                                  | 7                             | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 9  | 15 | 16 | 14 | 14 | 13 | 13 | 12 | 15 | 10 | 11 | 7                                                                                                                                                             | 5  | 4  | 9  | 12 | 8.1             | 16.3          |  |  |  |                                |  |
| 22-Apr                                                                                                                  | 12                            | 10 | 11 | 11 | 7  | 9  | 12 | 14 | 16 | 18 | 17 | 14 | 14 | 16 | 15 | 16 | 17 | 18 | 17 | 12                                                                                                                                                            | 11 | 10 | 12 | 13 | 13.4            | 18.4          |  |  |  |                                |  |
| 23-Apr                                                                                                                  | 13                            | 13 | 12 | 6  | 5  | 3  | 2  | 6  | 9  | 15 | 14 | 15 | 14 | 11 | 8  | 6  | 6  | 4  | 3  | 2                                                                                                                                                             | 3  | 3  | 1  | 1  | 7.2             | 14.9          |  |  |  |                                |  |
| 24-Apr                                                                                                                  | 1                             | 1  | 1  | 2  | 3  | 2  | 2  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 7  | 8  | 7  | 5  | 5  | 3                                                                                                                                                             | 3  | 1  | 2  | 2  | 3.5             | 7.7           |  |  |  |                                |  |
| 25-Apr                                                                                                                  | 2                             | 1  | 1  | 2  | 1  | 3  | 3  | 2  | 2  | 3  | 4  | 7  | 7  | 5  | 9  | 10 | 9  | 8  | 6  | 3                                                                                                                                                             | 9  | 14 | 14 | 11 | 5.6             | 14.4          |  |  |  |                                |  |
| 26-Apr                                                                                                                  | 11                            | 10 | 9  | 8  | 10 | 9  | 10 | 10 | 14 | 11 | 10 | 8  | 11 | 13 | 11 | 12 | 13 | 12 | 9  | 10                                                                                                                                                            | 6  | 7  | 6  | 3  | 9.8             | 13.8          |  |  |  |                                |  |
| 27-Apr                                                                                                                  | 3                             | 1  | 1  | 2  | 1  | 3  | 4  | 6  | 6  | 7  | 6  | 6  | 14 | 16 | 7  | 4  | 5  | 14 | 12 | 10                                                                                                                                                            | 4  | 6  | 1  | 2  | 5.8             | 16.4          |  |  |  |                                |  |
| 28-Apr                                                                                                                  | 4                             | 1  | 2  | 2  | 4  | 6  | 7  | 5  | 5  | 8  | 10 | 9  | 8  | 8  | 11 | 12 | 12 | 14 | 7  | 5                                                                                                                                                             | 3  | 6  | 7  | 7  | 6.8             | 13.6          |  |  |  |                                |  |
| 29-Apr                                                                                                                  | 6                             | 4  | 4  | 4  | 2  | 3  | 3  | 5  | 6  | 9  | 8  | 7  | 7  | 8  | 9  | 14 | 8  | 7  | 9  | 8                                                                                                                                                             | 8  | 8  | 3  | 3  | 6.4             | 13.9          |  |  |  |                                |  |
| 30-Apr                                                                                                                  | 1                             | 1  | 3  | 7  | 6  | 3  | 4  | 9  | 10 | 10 | 9  | 11 | 13 | 10 | 15 | 20 | 19 | 16 | 15 | 14                                                                                                                                                            | 12 | 12 | 11 | 6  | 10.0            | 19.7          |  |  |  |                                |  |
| 4.7 4.2 4.1 4.2 4.1 4.3 4.6 5.9 7.7 9.1 10.1 10.5 10.9 10.8 10.3 10.8 10.5 9.3 8.2 6.1 5.1 5.0 4.9 4.8                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Diurnal Average |               |  |  |  |                                |  |
| 13.2 13.6 13.9 12.7 12.6 10.5 12.3 16.0 17.7 21.7 24.4 27.2 25.3 24.5 24.7 25.1 19.4 18.4 17.3 14.4 16.2 14.4 13.6 13.3 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Diurnal Maximum |               |  |  |  |                                |  |
| M - Maintenance                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    |                 |               |  |  |  |                                |  |
| All monthly, daily, and diurnal averages have been calculated using scalar methods                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    |                 |               |  |  |  |                                |  |



## Hourly Standard Deviations

Wind Direction (WD) - deg

Evergreen Park - April 2011

| Maximum Value: 98.7 deg on Apr 6 22:00                                                                                                                          |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720          |    |    |    |    |    |    |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------|----|----|----|----|----|----|---------------|
| Minimum Value: 3.6 deg on Apr 1 04:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 714             |    |    |    |    |    |    |               |
|                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 6       |    |    |    |    |    |    |               |
| Percentiles: P <sub>1</sub> = 4.6 P <sub>10</sub> = 7.8 Q <sub>1</sub> = 12.1 Median = 19.9 Q <sub>3</sub> = 39.9 P <sub>90</sub> = 70.7 P <sub>99</sub> = 90.9 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 0        |    |    |    |    |    |    |               |
|                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.2 |    |    |    |    |    |    |               |
| Day                                                                                                                                                             | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    | Daily Maximum |
|                                                                                                                                                                 | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18                             | 19 | 20 | 21 | 22 | 23 | 24 |               |
| 1-Apr                                                                                                                                                           | 5                             | 4  | 4  | 4  | 4  | 5  | 5  | 5  | 6  | 8  | 10 | 10 | 15 | 14 | 27 | 29 | 16 | 13                             | 9  | 30 | 53 | 62 | 79 | 77 | 78.7          |
| 2-Apr                                                                                                                                                           | 87                            | 44 | 21 | 44 | 17 | 29 | 29 | 35 | 39 | 27 | 35 | 33 | 24 | 29 | 23 | 20 | 23 | 27                             | 18 | 18 | 39 | 59 | 55 | 82 | 86.8          |
| 3-Apr                                                                                                                                                           | 53                            | 66 | 52 | 92 | 96 | 50 | 56 | 83 | 13 | 47 | 14 | 31 | 24 | 55 | 48 | 48 | 30 | 32                             | 36 | 81 | 78 | 45 | 74 | 69 | 96.2          |
| 4-Apr                                                                                                                                                           | 27                            | 20 | 18 | 17 | 5  | 5  | 6  | 7  | 8  | 7  | 6  | 6  | 7  | 9  | 11 | 10 | 13 | 21                             | 9  | 8  | 12 | 34 | 14 | 74 | 73.6          |
| 5-Apr                                                                                                                                                           | 78                            | 67 | 87 | 67 | 17 | 17 | 19 | 26 | 9  | 10 | 9  | 11 | 23 | 19 | 37 | 29 | 23 | 31                             | 24 | 44 | 9  | 8  | 5  | 5  | 86.9          |
| 6-Apr                                                                                                                                                           | 13                            | 24 | 43 | 75 | 47 | 12 | 78 | 17 | 11 | 21 | 15 | 14 | 12 | 14 | 14 | 13 | 10 | 14                             | 13 | 37 | 62 | 99 | 71 | 40 | 98.7          |
| 7-Apr                                                                                                                                                           | 87                            | 22 | 18 | 28 | 37 | 38 | 22 | 28 | 31 | 33 | 41 | 43 | 46 | 42 | 39 | 29 | 14 | 22                             | 31 | 53 | 75 | 11 | 7  | 7  | 86.6          |
| 8-Apr                                                                                                                                                           | 7                             | 6  | 5  | 6  | 11 | 11 | 11 | 12 | 13 | 14 | 17 | 12 | 8  | 7  | 18 | 8  | 11 | 11                             | 7  | 9  | 12 | 11 | 14 | 9  | 17.6          |
| 9-Apr                                                                                                                                                           | 62                            | 68 | 72 | 56 | 42 | 63 | 84 | 25 | 10 | 9  | 10 | 10 | 10 | 12 | 9  | 9  | 9  | 11                             | 7  | 9  | 9  | 12 | 13 | 12 | 83.8          |
| 10-Apr                                                                                                                                                          | 18                            | 21 | 63 | 91 | 30 | 20 | 7  | 15 | 16 | 15 | 11 | 31 | 50 | 24 | 14 | 13 | 18 | 12                             | 18 | 48 | 33 | 60 | 84 | 49 | 91.5          |
| 11-Apr                                                                                                                                                          | 63                            | 20 | 45 | 46 | 74 | 67 | 64 | 32 | 18 | 34 | 13 | 8  | 10 | 11 | 7  | 8  | 24 | 26                             | 26 | 14 | 27 | 15 | 13 | 10 | 74.1          |
| 12-Apr                                                                                                                                                          | 10                            | 22 | 33 | 57 | 39 | 80 | 88 | 43 | 80 | 29 | 72 | 30 | 24 | 26 | 16 | 13 | 13 | 15                             | 12 | 12 | 11 | 9  | 11 | 13 | 88.1          |
| 13-Apr                                                                                                                                                          | 7                             | 6  | 7  | 7  | 8  | 8  | 10 | 10 | M  | M  | M  | M  | M  | M  | 20 | 25 | 18 | 14                             | 14 | 12 | 15 | 14 | 13 | 14 | 25.1          |
| 14-Apr                                                                                                                                                          | 9                             | 11 | 11 | 17 | 15 | 14 | 11 | 14 | 13 | 16 | 14 | 14 | 13 | 16 | 16 | 18 | 20 | 22                             | 19 | 16 | 15 | 16 | 14 | 16 | 21.8          |
| 15-Apr                                                                                                                                                          | 20                            | 12 | 11 | 12 | 38 | 21 | 22 | 18 | 17 | 32 | 29 | 34 | 46 | 40 | 24 | 13 | 16 | 14                             | 15 | 20 | 13 | 12 | 14 | 14 | 46.3          |
| 16-Apr                                                                                                                                                          | 15                            | 16 | 15 | 16 | 17 | 21 | 21 | 23 | 19 | 17 | 15 | 17 | 16 | 15 | 16 | 15 | 11 | 14                             | 19 | 17 | 13 | 14 | 9  | 20 | 23.4          |
| 17-Apr                                                                                                                                                          | 31                            | 41 | 20 | 27 | 67 | 93 | 68 | 64 | 54 | 57 | 55 | 47 | 68 | 45 | 53 | 49 | 35 | 28                             | 23 | 9  | 83 | 77 | 79 | 83 | 93.3          |
| 18-Apr                                                                                                                                                          | 23                            | 38 | 70 | 89 | 84 | 33 | 67 | 13 | 17 | 22 | 52 | 58 | 40 | 70 | 36 | 71 | 42 | 40                             | 38 | 19 | 18 | 57 | 82 | 25 | 88.6          |
| 19-Apr                                                                                                                                                          | 40                            | 71 | 80 | 58 | 53 | 32 | 22 | 13 | 16 | 20 | 30 | 31 | 23 | 40 | 38 | 16 | 18 | 15                             | 21 | 17 | 78 | 82 | 66 | 7  | 82.1          |
| 20-Apr                                                                                                                                                          | 9                             | 9  | 8  | 7  | 5  | 6  | 6  | 6  | 8  | 9  | 17 | 16 | 21 | 20 | 22 | 21 | 20 | 21                             | 21 | 22 | 70 | 51 | 71 | 71 | 70.8          |
| 21-Apr                                                                                                                                                          | 21                            | 73 | 27 | 33 | 32 | 34 | 80 | 72 | 10 | 14 | 15 | 19 | 25 | 24 | 17 | 24 | 28 | 20                             | 22 | 20 | 26 | 15 | 6  | 6  | 80.4          |
| 22-Apr                                                                                                                                                          | 5                             | 6  | 5  | 6  | 7  | 6  | 5  | 9  | 10 | 12 | 19 | 19 | 24 | 23 | 23 | 22 | 15 | 14                             | 14 | 12 | 8  | 5  | 6  | 5  | 24.3          |
| 23-Apr                                                                                                                                                          | 5                             | 5  | 6  | 19 | 15 | 19 | 14 | 11 | 11 | 9  | 20 | 20 | 23 | 29 | 29 | 52 | 73 | 60                             | 33 | 47 | 48 | 91 | 98 | 72 | 98.4          |
| 24-Apr                                                                                                                                                          | 48                            | 54 | 87 | 82 | 43 | 47 | 72 | 61 | 53 | 84 | 65 | 67 | 32 | 45 | 45 | 38 | 26 | 35                             | 24 | 17 | 16 | 52 | 68 | 88 | 87.6          |
| 25-Apr                                                                                                                                                          | 71                            | 89 | 84 | 18 | 87 | 68 | 69 | 29 | 73 | 80 | 82 | 38 | 40 | 80 | 38 | 17 | 18 | 13                             | 10 | 11 | 54 | 8  | 11 | 11 | 89.0          |
| 26-Apr                                                                                                                                                          | 10                            | 7  | 7  | 8  | 6  | 9  | 8  | 7  | 11 | 13 | 13 | 47 | 36 | 31 | 26 | 25 | 16 | 23                             | 22 | 7  | 6  | 6  | 22 | 25 | 47.3          |
| 27-Apr                                                                                                                                                          | 17                            | 65 | 76 | 23 | 72 | 64 | 12 | 22 | 19 | 19 | 32 | 43 | 17 | 11 | 45 | 95 | 82 | 23                             | 12 | 9  | 67 | 11 | 89 | 32 | 94.7          |
| 28-Apr                                                                                                                                                          | 14                            | 73 | 53 | 31 | 29 | 16 | 14 | 17 | 22 | 24 | 13 | 24 | 22 | 23 | 17 | 13 | 15 | 15                             | 25 | 34 | 67 | 16 | 10 | 11 | 73.4          |
| 29-Apr                                                                                                                                                          | 14                            | 17 | 9  | 11 | 14 | 20 | 24 | 15 | 16 | 17 | 25 | 27 | 47 | 45 | 40 | 22 | 23 | 14                             | 9  | 8  | 5  | 68 | 86 | 25 | 86.0          |
| 30-Apr                                                                                                                                                          | 83                            | 79 | 25 | 9  | 9  | 35 | 21 | 11 | 11 | 17 | 26 | 33 | 36 | 40 | 26 | 15 | 15 | 17                             | 13 | 8  | 8  | 7  | 6  | 8  | 83.0          |
| 86.8 89.0 87.4 92.3 96.2 93.3 88.1 83.3 80.2 83.7 81.6 66.6 68.3 80.4 53.2 94.7 82.2 60.1 38.1 81.1 82.6 98.7 98.4 87.6                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |
| M - Maintenance                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |

PAZA  
Smoky Heights Station  
Monthly Summary Tables, Graphs and  
Roses

## Hourly Averages

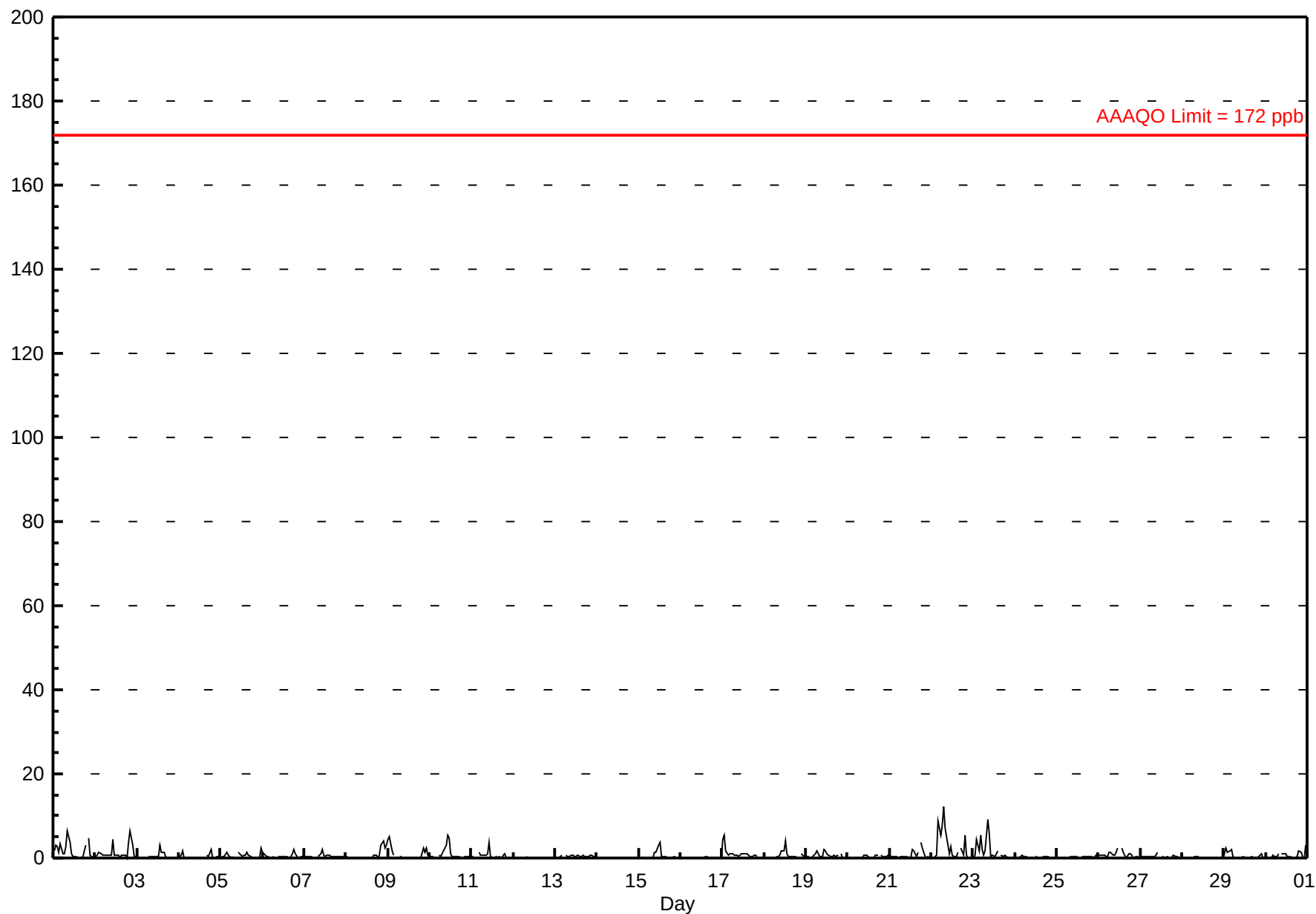
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Smoky Heights - April 2011

|                                                                                                                                                                                                                                                                                                                                                                 |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |                 |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|----|---|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 12.1 ppb on Apr 22 08:00 Maximum Daily Average: 2.7 ppb on Apr 22                                                                                                                                                                                                                             |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 662<br>Hours of Missing Data: 58<br>Hours of Calibration: 40<br>Percent Operational Time: 97.5 |    |    |    |                 |               |               |
| Minimum Value: 0 ppb on Apr 19 23:00 Minimum Daily Average: 0.1 ppb on Apr 16<br>Maximum Diurnal Average: 1.2 ppb at hour 9 Minimum Diurnal Average: 0.3 ppb at hour 23<br>Monthly Average: 0.68 ppb Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.7 P <sub>99</sub> = 6.3 |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |                 |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                             | Hourly Period Ending At (MST) |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                                                 | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                     | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 3 | 3 | 1 | 4 | 1 | 1 | 3  | 6 | 4  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 3  | A                                                                                                                                      | 5  | 1  | 0  | 0               | 1.7           | 6.3           |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1 | 1  | 4  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 4                                                                                                                                      | 6  | 3  | 0  | 0               | 1.2           | 6.5           |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 0 | 0 | 0 | 0 | A | 0 | 0  | 0 | 0  | 0  | 0  | 0  | 3  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 0.4           | 3.1           |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 1 | 2 | 0 | 0 | A | 0 | 0  | P | P  | P  | P  | P  | P  | P  | P  | 1  | 0  | 2  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | --            | 2.2           |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 0 | 0 | 2 | 1 | 0 | 0 | 0  | A | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 2               | 0.6           | 2.2           |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1 | 0 | 0 | 0 | 0 | 0 | A  | A | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 2  | 1                                                                                                                                      | 0  | 0  | 0  | 0               | 0.5           | 2.1           |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 0 | 0 | 1 | 0 | 0 | A | A  | 0 | 1  | 2  | 1  | 0  | 1  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 0.5           | 2.2           |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                           | 0                             | 0 | 0 | 0 | 0 | A | A | A  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 0  | 1                                                                                                                                      | 3  | 4  | 2  | 3               | 0.7           | 4.0           |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                           | 4                             | 5 | 2 | 1 | A | A | 0 | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 2  | 1  | 2  | 1               | 0.9           | 5.2           |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | A | A | 1 | 0 | 1  | 2 | 3  | 5  | 5  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 1.0           | 5.4           |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | A | A | 1 | 1 | 1 | 1  | 1 | 1  | 4  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1                                                                                                                                      | 0  | 0  | 0  | 0               | 0.6           | 3.7           |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | A | 0 | 0  | 0 | D  | D  | D  | D  | D  | D  | D  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | --            | 0.3           |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 1 | A | 1 | 0  | 0 | 1  | 1  | 0  | 1  | 1  | 0  | 0  | 1  | 0  | 0  | 0                                                                                                                                      | 1  | 1  | 1  | 0               | 0.4           | 0.7           |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0  | M | M  | M  | C  | C  | C  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | --            | 0.2           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 1  | 3  | 4  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | A               | 0.5           | 3.6           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | A  | 0               | 0.1           | 0.3           |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                          | 4                             | 5 | 2 | 1 | 1 | 1 | 1 | 1  | 1 | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1                                                                                                                                      | 0  | A  | 0  | 0               | 1.0           | 5.3           |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 2  | 2  | 4  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | A  | 1  | 1  | 0               | 0.6           | 4.1           |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 1 | 2 | 1  | 0 | 0  | 2  | 2  | 1  | 1  | 0  | 0  | 1  | 0  | 1  | A                                                                                                                                      | 1  | 0  | 0  | 0               | 0.6           | 1.9           |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 1  | 1  | A  | 1                                                                                                                                      | 0  | 0  | 0  | 1               | 0.3           | 0.7           |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                          | 1                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 0  | 0  | 0  | 0  | 2  | 2  | 0  | 2  | A  | 4  | 2                                                                                                                                      | 0  | 0  | 0  | 0               | 0.7           | 3.6           |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 1 | 9 | 6 | 8 | 12 | 7 | 3  | 1  | 3  | 1  | 0  | 0  | 1  | A  | 2  | 1  | 5                                                                                                                                      | 1  | 0  | 0  | 0               | 2.7           | 12.1          |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 1 | 4 | 2 | 5 | 2 | 1 | 2  | 9 | 6  | 0  | 1  | 0  | 1  | 2  | A  | 1  | 0  | 1  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 1.6           | 9.3           |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 1 | 0 | 0 | 0  | 0 | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 0.2           | 0.7           |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 1               | 0.2           | 1.0           |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                          | 1                             | 1 | 1 | 1 | 0 | 0 | 1 | 1  | 1 | 1  | 1  | 2  | A  | 2  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                      | 0  | 0  | 0  | 0               | 0.8           | 2.3           |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 1  | 1  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                      | 0  | 0  | 0  | 0               | 0.3           | 1.3           |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0               | 0.1           | 0.5           |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                          | 1                             | 2 | 1 | 2 | 2 | 0 | 0 | 0  | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 1  | 0  | 0               | 0.5           | 2.2           |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0 | 0 | 1 | 0 | 0 | 1  | A | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 2                                                                                                                                      | 1  | 0  | 0  | 3               | 0.6           | 3.1           |
| 0.6 0.7 0.6 0.4 1.0 0.6 0.6 0.9 1.2 1.0 1.2 0.9 0.6 0.6 0.5 0.4 0.4 0.4 0.6 0.7 0.8 0.5 0.3 0.5                                                                                                                                                                                                                                                                 |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    | Diurnal Average |               |               |
| 4.4 5.3 4.3 1.8 8.8 5.6 7.7 12.1 9.3 5.8 5.4 4.6 4.1 3.1 1.8 1.4 1.5 2.4 3.6 5.4 6.5 4.0 2.3 3.1                                                                                                                                                                                                                                                                |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    | Diurnal Maximum |               |               |
| C - Calibration P - Power Failure D - DAS Failure M - Maintenance A - Automated Daily Zero Span                                                                                                                                                                                                                                                                 |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb                                                                                                                                                                                                                                                                                       |                               |   |   |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |                 |               |               |

## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - April 2011



## Hourly Maximums

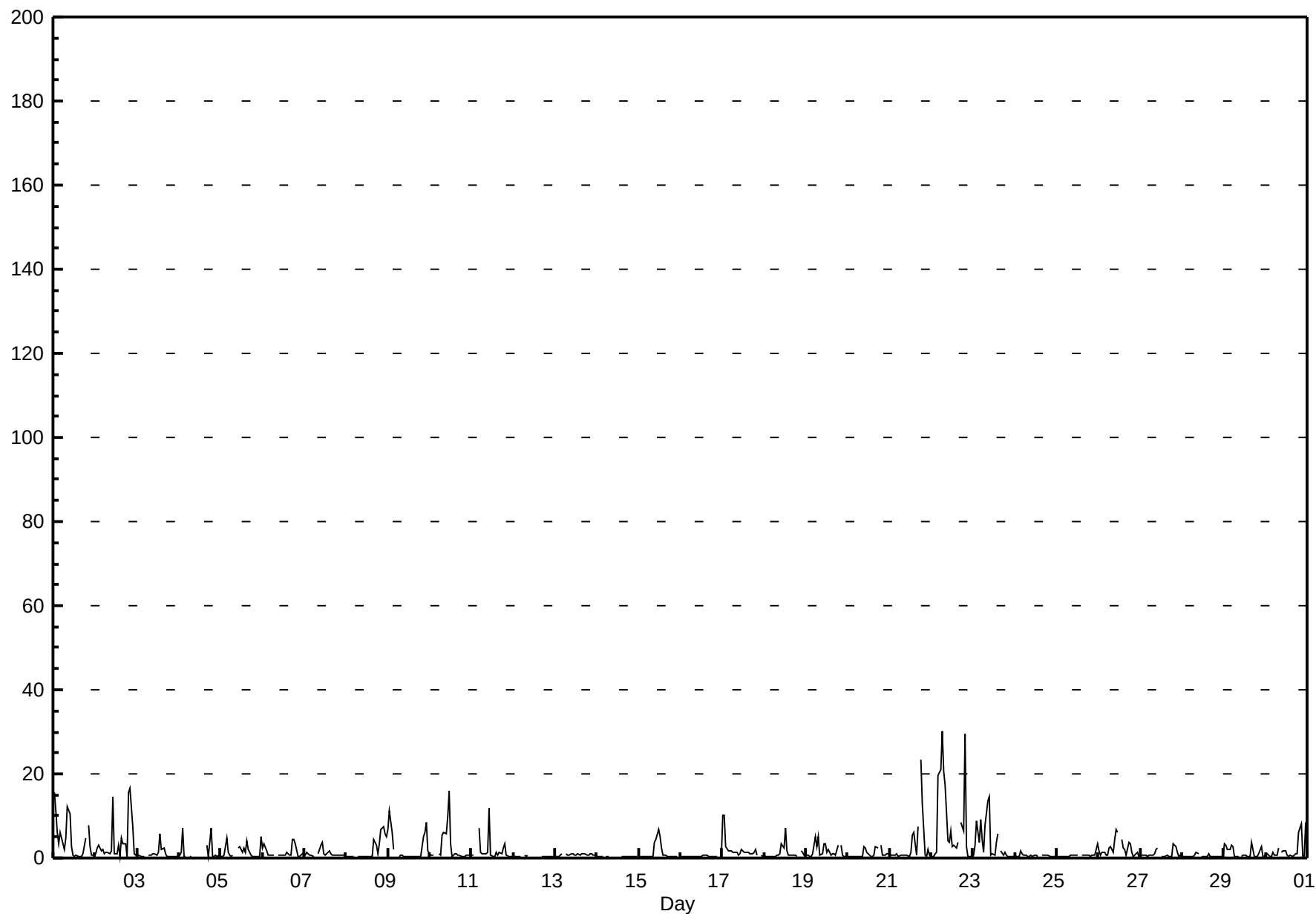
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Smoky Heights - April 2011

| Maximum Value: 30.1 ppb on Apr 22 07:00                                                                      |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    | Maximum Daily Average: 8.1 ppb on Apr 22                                                                                                                    |    |    |    |                 |               |               |  |  |  | Hours in Service: 720     |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------|-------------------------------|----|---|-------------------|----|----|----|-----------------|----|----|----|-----------------|----|----|----|-------------------------------|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|--|--|--|---------------------------|--|--|--|--|--|--|--|--|--|
| Minimum Value: 0 ppb on Apr 20 02:00                                                                         |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    | Minimum Daily Average: 0.4 ppb on Apr 16                                                                                                                    |    |    |    |                 |               |               |  |  |  | Hours of Data: 662        |  |  |  |  |  |  |  |  |  |
| Maximum Diurnal Average: 3.3 ppb at hour 20                                                                  |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    | Minimum Diurnal Average: 1.1 ppb at hour 23                                                                                                                 |    |    |    |                 |               |               |  |  |  | Hours of Missing Data: 58 |  |  |  |  |  |  |  |  |  |
| Monthly Average: 1.87 ppb                                                                                    |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    | Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.6 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 4.6 P <sub>99</sub> = 17.0 |    |    |    |                 |               |               |  |  |  | Hours of Calibration: 40  |  |  |  |  |  |  |  |  |  |
|                                                                                                              |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    | Percent Operational Time: 97.5                                                                                                                              |    |    |    |                 |               |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| Day                                                                                                          | Hourly Period Ending At (MST) |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    |                                                                                                                                                             |    |    |    |                 | Daily Average | Daily Maximum |  |  |  |                           |  |  |  |  |  |  |  |  |  |
|                                                                                                              | 1                             | 2  | 3 | 4                 | 5  | 6  | 7  | 8               | 9  | 10 | 11 | 12              | 13 | 14 | 15 | 16                            | 17 | 18 | 19 | 20                                                                                                                                                          | 21 | 22 | 23 | 24              |               |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 1-Apr                                                                                                        | 16                            | 11 | 6 | 3                 | 6  | 3  | 2  | 5               | 12 | 11 | 3  | 1               | 0  | 1  | 0  | 0                             | 0  | 1  | 5  | A                                                                                                                                                           | 8  | 3  | 1  | 1               | 4.3           | 15.7          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 2-Apr                                                                                                        | 1                             | 2  | 3 | 2                 | 2  | 1  | 1  | 1               | 1  | 2  | 15 | 1               | 1  | 3  | 0  | 5                             | 3  | 3  | 0  | 16                                                                                                                                                          | 17 | 7  | 1  | 1               | 3.7           | 16.6          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 3-Apr                                                                                                        | 0                             | 1  | 0 | 0                 | 0  | A  | 1  | 1               | 1  | 1  | 1  | 1               | 1  | 6  | 2  | 2                             | 1  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | 0               | 0.9           | 5.8           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 4-Apr                                                                                                        | 1                             | 1  | 7 | 0                 | 0  | A  | 0  | 0               | P  | P  | P  | P               | P  | P  | P  | P                             | 3  | 0  | 7  | 0                                                                                                                                                           | 0  | 1  | 0  | 1               | --            | 7.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 5-Apr                                                                                                        | 1                             | 0  | 1 | 5                 | 1  | 1  | 0  | 1               | A  | A  | 3  | 3               | 1  | 2  | 1  | 4                             | 2  | 1  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | 5               | 1.5           | 5.0           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 6-Apr                                                                                                        | 2                             | 4  | 2 | 1                 | 1  | 1  | 1  | A               | A  | 1  | 1  | 1               | 1  | 1  | 1  | 1                             | 1  | 4  | 4  | 3                                                                                                                                                           | 0  | 0  | 1  | 1               | 1.4           | 4.4           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 7-Apr                                                                                                        | 1                             | 1  | 1 | 1                 | 1  | 0  | A  | A               | 1  | 3  | 4  | 1               | 1  | 1  | 2  | 1                             | 1  | 1  | 1  | 1                                                                                                                                                           | 1  | 1  | 1  | 1               | 1.1           | 3.9           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 8-Apr                                                                                                        | 0                             | 0  | 0 | 0                 | 1  | A  | A  | 0               | 0  | 0  | 0  | 0               | 0  | 0  | 0  | 0                             | 4  | 3  | 1  | 3                                                                                                                                                           | 7  | 7  | 6  | 5               | 1.9           | 7.5           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 9-Apr                                                                                                        | 7                             | 11 | 6 | 2                 | A  | A  | 0  | 1               | 1  | 0  | 0  | 0               | 0  | 0  | 0  | 0                             | 0  | 0  | 0  | 0                                                                                                                                                           | 5  | 6  | 9  | 2               | 2.4           | 11.3          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 10-Apr                                                                                                       | 1                             | 1  | 1 | A                 | A  | 1  | 1  | 5               | 6  | 6  | 10 | 16              | 3  | 1  | 1  | 1                             | 1  | 1  | 0  | 0                                                                                                                                                           | 0  | 1  | 1  | 1               | 2.6           | 15.9          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 11-Apr                                                                                                       | 1                             | 1  | A | A                 | 7  | 1  | 1  | 1               | 1  | 1  | 12 | 1               | 0  | 0  | 1  | 1                             | 1  | 1  | 2  | 3                                                                                                                                                           | 1  | 0  | 0  | 1               | 1.8           | 11.8          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 12-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | 0  | A  | 1  | 0               | 1  | D  | D  | D               | D  | D  | D  | D                             | 0  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | 0               | --            | 0.6           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 13-Apr                                                                                                       | 0                             | 0  | 0 | 1                 | 1  | A  | 1  | 1               | 1  | 1  | 1  | 1               | 1  | 1  | 1  | 1                             | 1  | 1  | 1  | 1                                                                                                                                                           | 1  | 1  | 1  | 1               | 0.8           | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 14-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | A  | 0  | 0  | 0               | M  | M  | M  | C               | C  | C  | 1  | 0                             | 0  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | 0               | --            | 0.5           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 15-Apr                                                                                                       | A                             | 0  | 0 | 0                 | 0  | 0  | 0  | 0               | 0  | 4  | 4  | 7               | 5  | 2  | 1  | 1                             | 0  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | A               | 1.3           | 6.7           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 16-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | 0  | 0  | 0  | 0               | 0  | 0  | 0  | 0               | 0  | 1  | 1  | 1                             | 0  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | A  | 1               | 0.4           | 0.7           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 17-Apr                                                                                                       | 10                            | 10 | 3 | 2                 | 2  | 2  | 1  | 1               | 1  | 1  | 1  | 2               | 1  | 1  | 1  | 1                             | 1  | 1  | 1  | 2                                                                                                                                                           | 1  | A  | 1  | 0               | 2.1           | 10.3          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 18-Apr                                                                                                       | 1                             | 0  | 0 | 0                 | 0  | 1  | 0  | 1               | 1  | 1  | 4  | 2               | 7  | 2  | 1  | 1                             | 1  | 1  | 1  | 0                                                                                                                                                           | A  | 2  | 1  | 1               | 1.2           | 7.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 19-Apr                                                                                                       | 1                             | 1  | 0 | 0                 | 1  | 5  | 3  | 5               | 1  | 1  | 3  | 3               | 1  | 2  | 1  | 1                             | 1  | 1  | 3  | A                                                                                                                                                           | 3  | 1  | 0  | 0               | 1.6           | 5.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 20-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | 0  | 0  | 0  | 0               | 1  | 3  | 2  | 1               | 1  | 0  | 0  | 1                             | 3  | 2  | A  | 3                                                                                                                                                           | 1  | 1  | 1  | 1               | 1.0           | 2.9           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 21-Apr                                                                                                       | 1                             | 1  | 1 | 1                 | 1  | 0  | 1  | 1               | 1  | 1  | 1  | 0               | 1  | 6  | 6  | 1                             | 8  | A  | 23 | 13                                                                                                                                                          | 1  | 0  | 2  | 1               | 3.0           | 23.4          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 22-Apr                                                                                                       | 0                             | 0  | 1 | 1                 | 20 | 21 | 30 | 21              | 17 | 4  | 4  | 6               | 3  | 3  | 3  | 4                             | A  | 8  | 6  | 30                                                                                                                                                          | 3  | 0  | 0  | 0               | 8.1           | 30.1          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 23-Apr                                                                                                       | 1                             | 3  | 9 | 4                 | 9  | 4  | 1  | 8               | 14 | 15 | 1  | 1               | 1  | 4  | 6  | A                             | 2  | 1  | 1  | 1                                                                                                                                                           | 0  | 0  | 0  | 0               | 3.7           | 14.6          |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 24-Apr                                                                                                       | 1                             | 0  | 0 | 2                 | 1  | 1  | 1  | 0               | 0  | 1  | 0  | 1               | 1  | 0  | A  | 1                             | 1  | 1  | 1  | 1                                                                                                                                                           | 0  | 0  | 0  | 0               | 0.6           | 1.7           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 25-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | 0  | 0  | 0  | 0               | 1  | 1  | 1  | 1               | 1  | A  | 1  | 1                             | 1  | 1  | 1  | 0                                                                                                                                                           | 1  | 1  | 1  | 3               | 0.6           | 3.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 26-Apr                                                                                                       | 2                             | 1  | 1 | 1                 | 1  | 1  | 2  | 3               | 1  | 4  | 7  | 6               | A  | 4  | 2  | 2                             | 1  | 4  | 3  | 1                                                                                                                                                           | 0  | 1  | 2  | 0               | 2.3           | 6.7           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 27-Apr                                                                                                       | 1                             | 1  | 1 | 1                 | 1  | 1  | 1  | 1               | 1  | 2  | 2  | A               | 0  | 0  | 0  | 1                             | 0  | 0  | 0  | 3                                                                                                                                                           | 3  | 1  | 0  | 1               | 0.9           | 3.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 28-Apr                                                                                                       | 0                             | 0  | 0 | 0                 | 0  | 0  | 0  | 1               | 1  | 1  | A  | 0               | 0  | 0  | 0  | 1                             | 0  | 0  | 0  | 0                                                                                                                                                           | 0  | 0  | 0  | 0               | 0.5           | 1.5           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 29-Apr                                                                                                       | 3                             | 3  | 2 | 2                 | 3  | 3  | 0  | 0               | 0  | A  | 0  | 1               | 1  | 0  | 0  | 0                             | 4  | 0  | 0  | 0                                                                                                                                                           | 1  | 3  | 0  | 0               | 1.2           | 3.6           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 30-Apr                                                                                                       | 1                             | 1  | 0 | 0                 | 1  | 1  | 1  | 2               | A  | 1  | 2  | 2               | 1  | 0  | 1  | 0                             | 1  | 1  | 1  | 6                                                                                                                                                           | 8  | 0  | 0  | 9               | 1.8           | 8.5           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 1.8 1.9 1.7 1.2 2.3 2.0 1.9 2.2 2.6 2.6 3.1 2.3 1.3 1.6 1.3 1.2 1.4 1.4 2.3 3.3 2.2 1.4 1.1 1.2              |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    |                                                                                                                                                             |    |    |    | Diurnal Average |               |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 15.7 11.3 8.9 4.7 19.6 21.2 30.1 20.5 17.3 14.6 14.6 15.9 7.2 5.8 6.2 4.7 7.5 8.5 23.4 29.5 16.6 7.5 8.6 8.5 |                               |    |   |                   |    |    |    |                 |    |    |    |                 |    |    |    |                               |    |    |    |                                                                                                                                                             |    |    |    | Diurnal Maximum |               |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| C - Calibration                                                                                              |                               |    |   | P - Power Failure |    |    |    | D - DAS Failure |    |    |    | M - Maintenance |    |    |    | A - Automated Daily Zero Span |    |    |    |                                                                                                                                                             |    |    |    |                 |               |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |

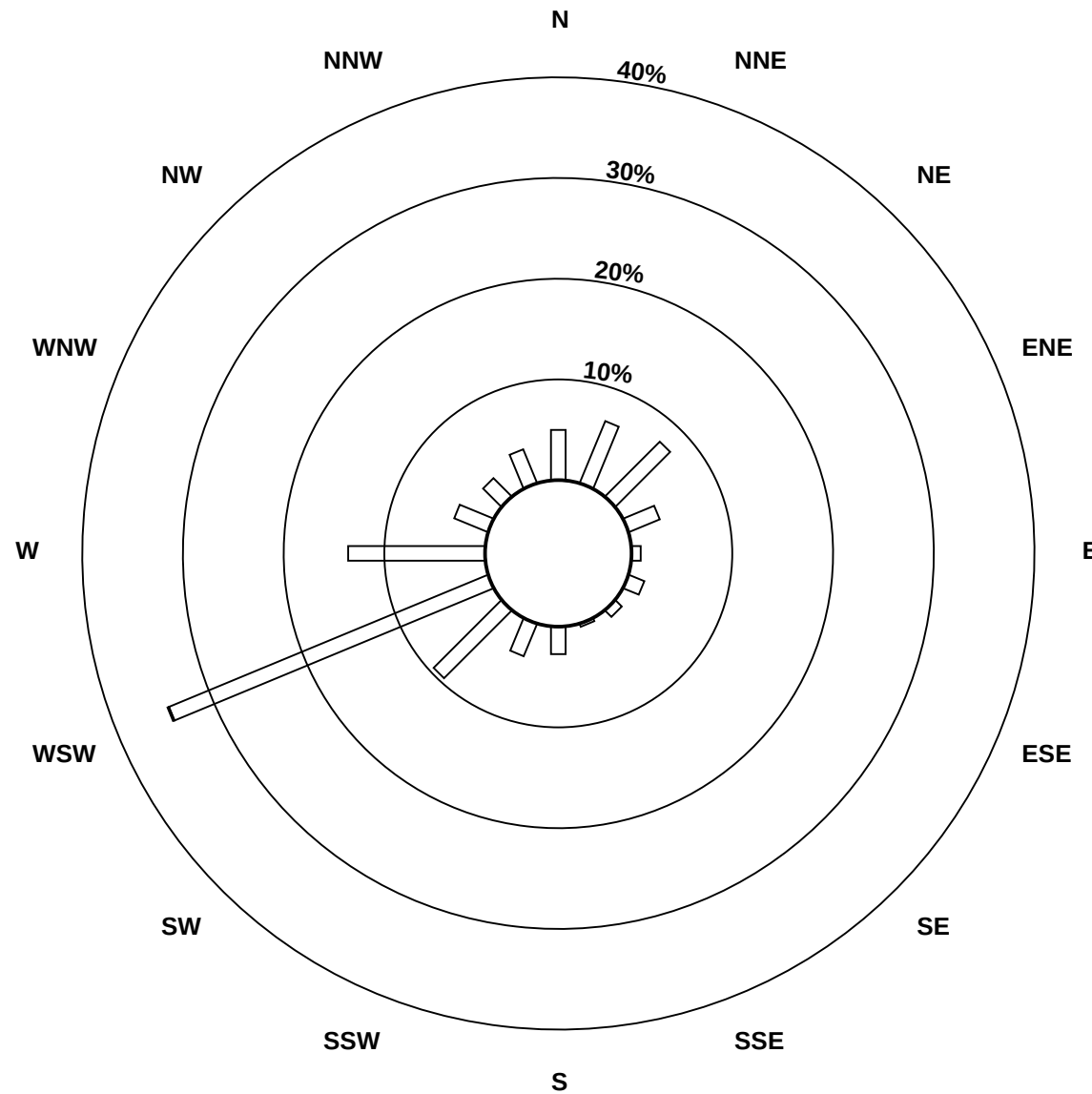
## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - April 2011

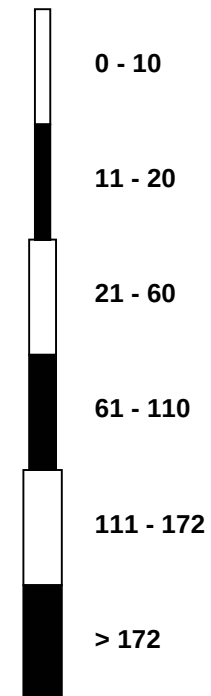


## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Smoky Heights - April 2011

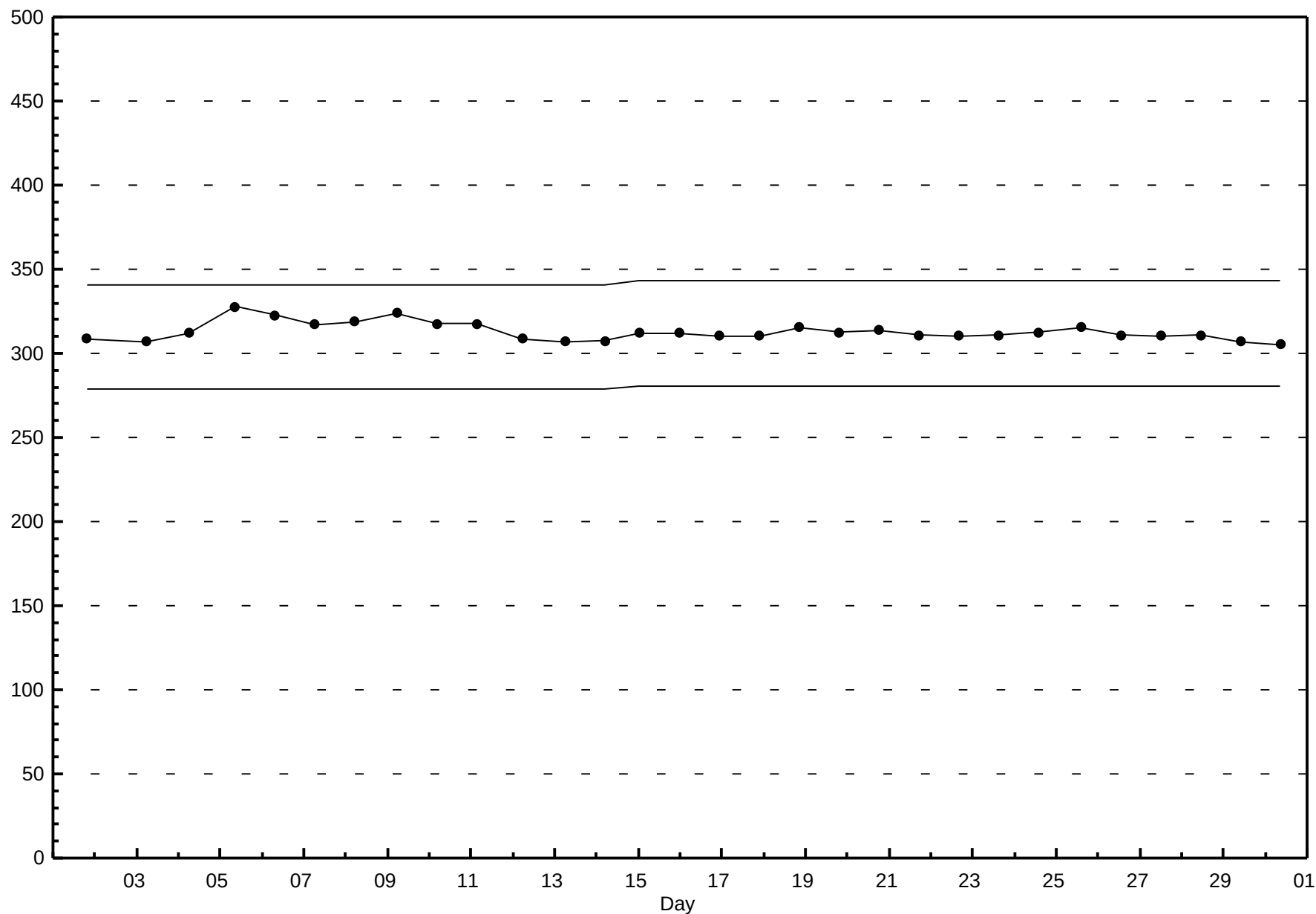


## Pollutant Classes (ppb)



## Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Smoky Heights - April 2011





## Hourly Averages

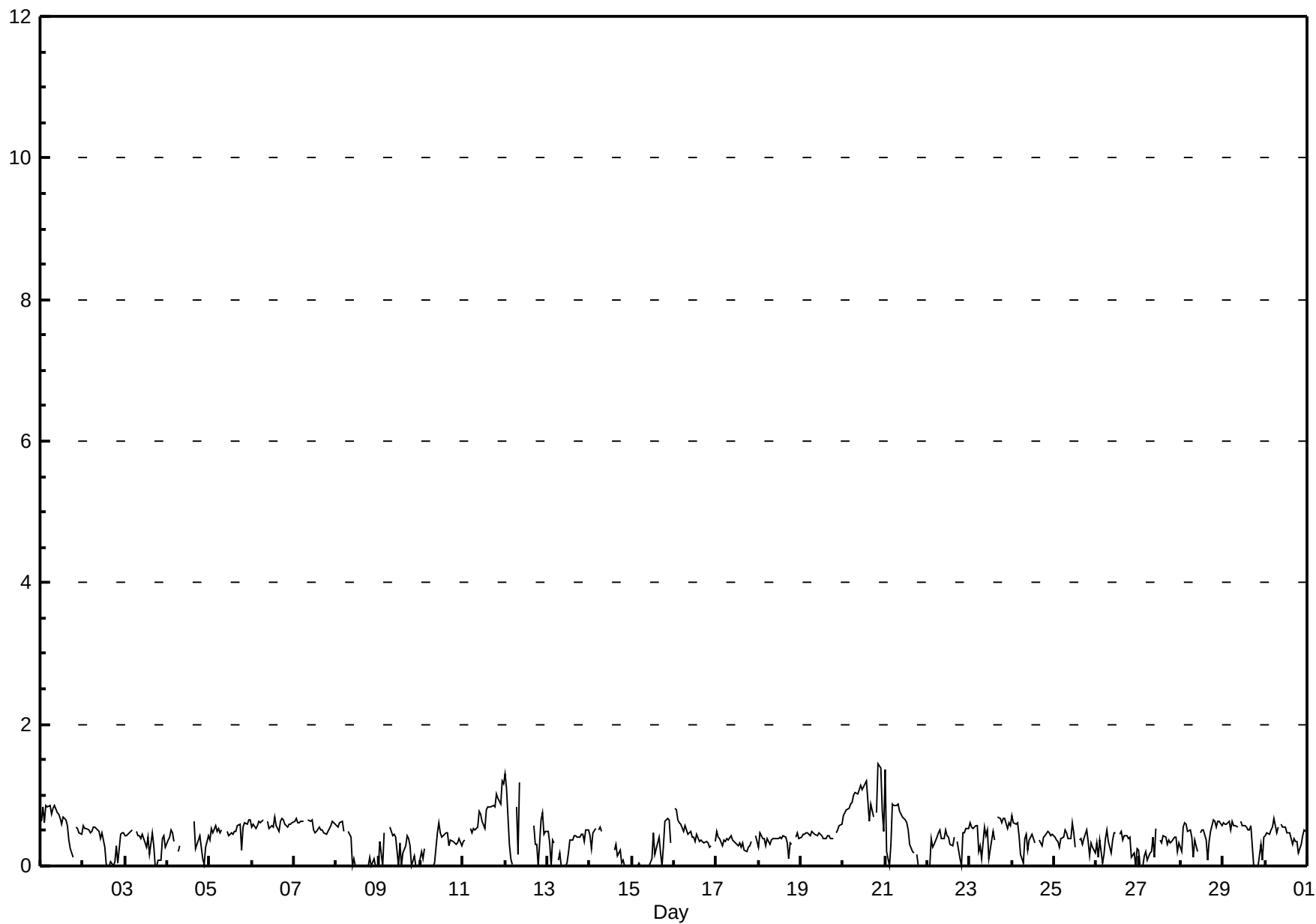
Total Reduced Sulphur (TRS) - ppb

Smoky Heights - April 2011

|                                                                         |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     |                 |                 |  |
|-------------------------------------------------------------------------|-------------------------------|-------------------|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------|-----|-----|-----------------|-----------------|--|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                         |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     | Hours in Service: 720                                                                                                                                      |     |                                |     |     |                 |                 |  |
| Maximum Value: 1.4 ppb on Apr 20 21:00                                  |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     | Maximum Daily Average: 0.9 ppb on Apr 20                                                                                                                   |     | Hours of Data: 663             |     |     |                 |                 |  |
| Minimum Value: 0 ppb on Apr 2 15:00                                     |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     | Minimum Daily Average: 0.2 ppb on Apr 8                                                                                                                    |     | Hours of Missing Data: 57      |     |     |                 |                 |  |
| Maximum Diurnal Average: 0.5 ppb at hour 1                              |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     | Minimum Diurnal Average: 0.3 ppb at hour 19                                                                                                                |     | Hours of Calibration: 40       |     |     |                 |                 |  |
| Monthly Average: 0.42 ppb                                               |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.3 Median = 0.4 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.7 P <sub>99</sub> = 1.2 |     | Percent Operational Time: 97.6 |     |     |                 |                 |  |
| Day                                                                     | Hourly Period Ending At (MST) |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     | Daily Average   | Daily Maximum   |  |
|                                                                         | 1                             | 2                 | 3   | 4   | 5   | 6   | 7   | 8               | 9   | 10  | 11  | 12  | 13  | 14              | 15  | 16  | 17  | 18  | 19  | 20                                                                                                                                                         | 21  | 22                             | 23  | 24  |                 |                 |  |
| 1-Apr                                                                   | 1                             | 1                 | 1   | 1   | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1   | 1   | 1               | 1   | 1   | 0   | 0   | 0   | A                                                                                                                                                          | 1   | 1                              | 0   | 0   | 0.6             | 0.9             |  |
| 2-Apr                                                                   | 1                             | 1                 | 1   | 1   | 0   | 0   | 1   | 1               | 1   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.3             | 0.6             |  |
| 3-Apr                                                                   | 0                             | 0                 | 0   | 0   | 1   | A   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.3             | 0.5             |  |
| 4-Apr                                                                   | 0                             | 0                 | 1   | 0   | 0   | A   | 0   | 0               | P   | P   | P   | P   | P   | P               | P   | 1   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | --              | 0.6             |  |
| 5-Apr                                                                   | 0                             | 1                 | 0   | 1   | 0   | 1   | 0   | 1               | A   | A   | 0   | 0   | 0   | 0               | 0   | 0   | 1   | 1   | 0   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.5             | 0.7             |  |
| 6-Apr                                                                   | 1                             | 1                 | 1   | 1   | 1   | 1   | 1   | A               | A   | 1   | 1   | 1   | 1   | 1               | 1   | 0   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.6             | 0.7             |  |
| 7-Apr                                                                   | 1                             | 1                 | 1   | 1   | 1   | 1   | A   | A               | 1   | 1   | 1   | 1   | 0   | 0               | 1   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.6             | 0.7             |  |
| 8-Apr                                                                   | 1                             | 1                 | 1   | 1   | 0   | A   | A   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.2             | 0.6             |  |
| 9-Apr                                                                   | 0                             | 0                 | 0   | 0   | A   | A   | 1   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.2             | 0.6             |  |
| 10-Apr                                                                  | 0                             | 0                 | 0   | A   | A   | 0   | 0   | 0               | 0   | 0   | 1   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.3             | 0.6             |  |
| 11-Apr                                                                  | 0                             | 0                 | A   | A   | 1   | 0   | 1   | 1               | 1   | 1   | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.7             | 1.2             |  |
| 12-Apr                                                                  | 1                             | 1                 | 0   | 0   | 0   | A   | 1   | 0               | 1   | D   | D   | D   | D   | D               | D   | D   | 1   | 0   | 0   | 0                                                                                                                                                          | 1   | 1                              | 0   | 0   | --              | 1.3             |  |
| 13-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | A   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 1   | 1   | 0.3             | 0.5             |  |
| 14-Apr                                                                  | 0                             | 0                 | 0   | 1   | A   | 1   | 1   | 0               | M   | M   | M   | C   | C   | C               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | --              | 0.6             |  |
| 15-Apr                                                                  | A                             | 0                 | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 1   | 1                              | 0   | A   | 0.2             | 0.7             |  |
| 16-Apr                                                                  | 1                             | 1                 | 1   | 1   | 1   | 0   | 1   | 1               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | A   | 0   | 0.5             | 0.8             |  |
| 17-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | A                              | 0   | 0   | 0.3             | 0.5             |  |
| 18-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | A   | 0                              | 0   | 0   | 0.4             | 0.5             |  |
| 19-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | A                                                                                                                                                          | 0   | 1                              | 1   | 1   | 0.5             | 0.6             |  |
| 20-Apr                                                                  | 1                             | 1                 | 1   | 1   | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1   | A   | 1                                                                                                                                                          | 1   | 1                              | 1   | 0   | 0.9             | 1.4             |  |
| 21-Apr                                                                  | 1                             | 0                 | 0   | 0   | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1   | 1   | 0               | 0   | 0   | 0   | A   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.4             | 1.4             |  |
| 22-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 0   | 1               | 0   | 0   | 1   | 0   | 0   | 0               | 0   | 0   | A   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 1   | 1   | 0.3             | 0.5             |  |
| 23-Apr                                                                  | 1                             | 1                 | 1   | 1   | 1   | 0   | 0   | 0               | 1   | 0   | 1   | 0   | 0   | 0               | 0   | A   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.5             | 0.7             |  |
| 24-Apr                                                                  | 1                             | 1                 | 1   | 1   | 0   | 0   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0               | A   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.4             | 0.7             |  |
| 25-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 1   | 0               | 0   | 0   | 1   | 0   | 0   | A               | 0   | 0   | 0   | 0   | 1   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.4             | 0.6             |  |
| 26-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 1   | 0               | 0   | 0   | 0   | 0   | A   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.3             | 0.5             |  |
| 27-Apr                                                                  | 0                             | 0                 | 0   | 0   | 0   | 0   | 0   | 0               | 0   | 0   | 1   | A   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.3             | 0.5             |  |
| 28-Apr                                                                  | 0                             | 1                 | 1   | 1   | 0   | 1   | 0   | 0               | 0   | 0   | 0   | A   | 0   | 1               | 1   | 0   | 0   | 0   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.5             | 0.6             |  |
| 29-Apr                                                                  | 1                             | 1                 | 1   | 1   | 1   | 1   | 1   | 1               | 1   | A   | 1   | 1   | 1   | 1               | 1   | 0   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 0   | 0   | 0.4             | 0.6             |  |
| 30-Apr                                                                  | 0                             | 0                 | 0   | 1   | 1   | 1   | 0   | 1               | A   | 1   | 1   | 1   | 0   | 0               | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0                              | 1   | 0   | 0.5             | 0.7             |  |
|                                                                         |                               | 0.5               | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.4             | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4             | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3                                                                                                                                                        | 0.4 | 0.4                            | 0.4 | 0.4 | Diurnal Average |                 |  |
|                                                                         |                               | 1.4               | 1.1 | 0.8 | 0.8 | 0.9 | 0.9 | 1.0             | 1.0 | 1.2 | 1.1 | 1.1 | 1.1 | 1.2             | 1.2 | 0.9 | 0.8 | 0.9 | 0.9 | 0.8                                                                                                                                                        | 1.0 | 1.4                            | 1.4 | 1.2 | 1.2             | Diurnal Maximum |  |
| C - Calibration                                                         |                               | P - Power Failure |     |     |     |     |     | D - DAS Failure |     |     |     |     |     | M - Maintenance |     |     |     |     |     | A - Automated Daily Zero Span                                                                                                                              |     |                                |     |     |                 |                 |  |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb |                               |                   |     |     |     |     |     |                 |     |     |     |     |     |                 |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     |                 |                 |  |

## Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Smoky Heights - April 2011



## Hourly Maximums

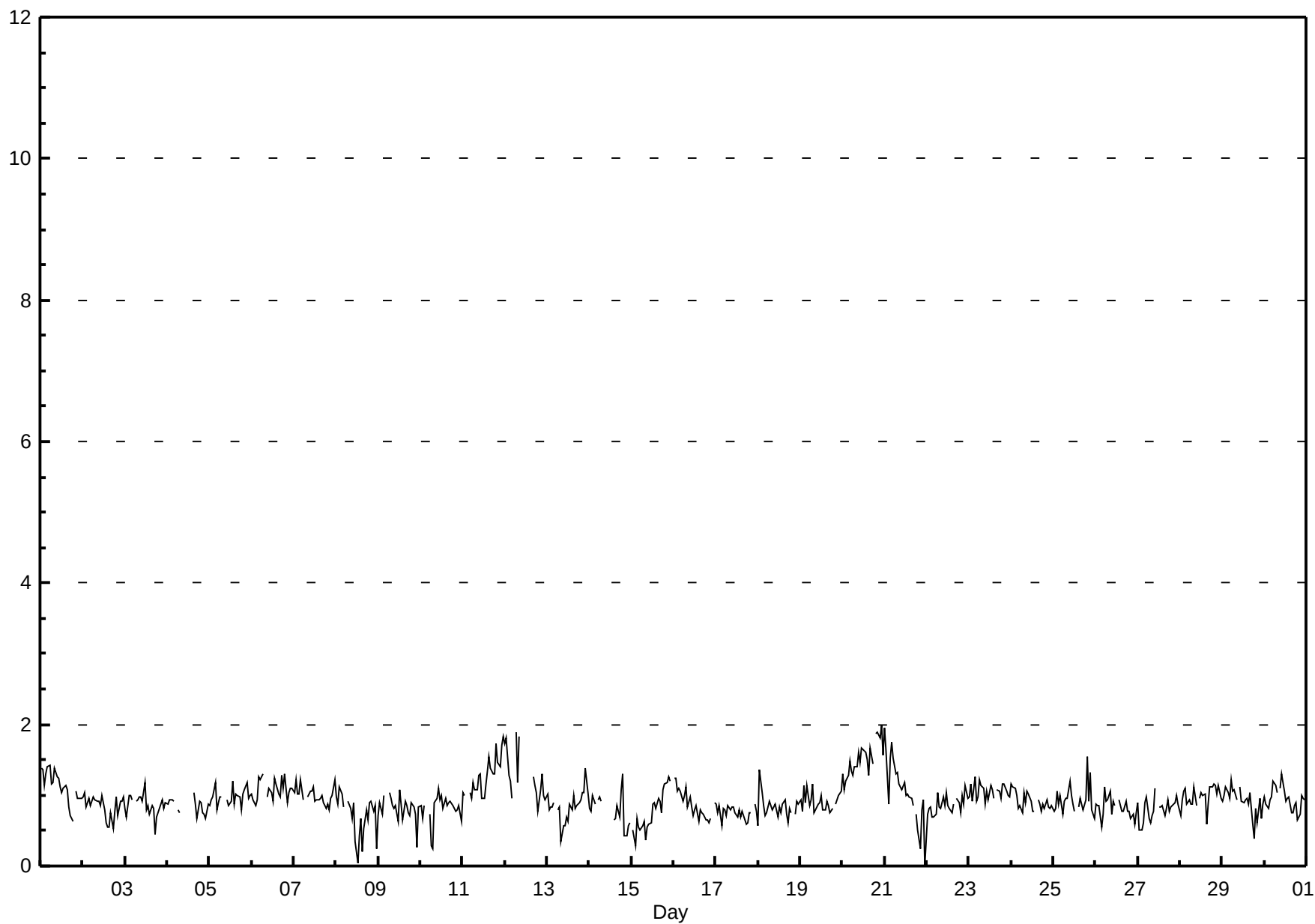
Total Reduced Sulphur (TRS) - ppb

Smoky Heights - April 2011

| Maximum Value: 2.0 ppb on Apr 20 23:00     |                               |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     | Maximum Daily Average: 1.5 ppb on Apr 20                                                                                                                   |     |     |     |     |                 |               |  |  |  | Hours in Service: 720     |  |  |  |  |  |  |  |  |  |
|--------------------------------------------|-------------------------------|-----|-----|-------------------|-----|-----|-----|-----------------|-----|-----|-----|-----------------|-----|-----|-----|-------------------------------|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----------------|---------------|--|--|--|---------------------------|--|--|--|--|--|--|--|--|--|
| Minimum Value: 0 ppb on Apr 22 00:00       |                               |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     | Minimum Daily Average: 0.7 ppb on Apr 8                                                                                                                    |     |     |     |     |                 |               |  |  |  | Hours of Data: 663        |  |  |  |  |  |  |  |  |  |
| Maximum Diurnal Average: 1.0 ppb at hour 1 |                               |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     | Minimum Diurnal Average: 0.8 ppb at hour 19                                                                                                                |     |     |     |     |                 |               |  |  |  | Hours of Missing Data: 57 |  |  |  |  |  |  |  |  |  |
| Monthly Average: 0.94 ppb                  |                               |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     | Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 0.8 Median = 0.9 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.3 P <sub>99</sub> = 1.8 |     |     |     |     |                 |               |  |  |  | Hours of Calibration: 40  |  |  |  |  |  |  |  |  |  |
|                                            |                               |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     | Percent Operational Time: 97.6                                                                                                                             |     |     |     |     |                 |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| Day                                        | Hourly Period Ending At (MST) |     |     |                   |     |     |     |                 |     |     |     |                 |     |     |     |                               |     |     |     |                                                                                                                                                            |     |     |     |     | Daily Average   | Daily Maximum |  |  |  |                           |  |  |  |  |  |  |  |  |  |
|                                            | 1                             | 2   | 3   | 4                 | 5   | 6   | 7   | 8               | 9   | 10  | 11  | 12              | 13  | 14  | 15  | 16                            | 17  | 18  | 19  | 20                                                                                                                                                         | 21  | 22  | 23  | 24  |                 |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 1-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | A                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.1             | 1.4           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 2-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.8             | 1.0           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 3-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | A   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 0   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 4-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | A   | 1   | 1               | P   | P   | P   | P               | P   | P   | P   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | --              | 1.0           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 5-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | A   | A   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.0             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 6-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | A               | A   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.1             | 1.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 7-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | 1   | A   | A               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.0             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 8-Apr                                      | 1                             | 1   | 1   | 1                 | 1   | A   | A   | A               | 1   | 1   | 1   | 1               | 0   | 0   | 0   | 1                             | 0   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 0   | 0   | 0.7             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 9-Apr                                      | 1                             | 1   | 1   | 1                 | A   | A   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 0   | 1   | 0.8             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 10-Apr                                     | 1                             | 1   | 1   | A                 | A   | 1   | 0   | 0               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.8             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 11-Apr                                     | 1                             | 1   | A   | A                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 2                             | 1   | 1   | 1   | 2                                                                                                                                                          | 1   | 1   | 2   | 2   | 1.3             | 1.8           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 12-Apr                                     | 2                             | 2   | 1   | 1                 | 1   | A   | 2   | 1               | 2   | D   | D   | D               | D   | D   | D   | D                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | --              | 1.9           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 13-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | A   | 1   | 1               | 0   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.8             | 1.4           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 14-Apr                                     | 1                             | 1   | 1   | 1                 | A   | 1   | 1   | 1               | M   | M   | M   | C               | C   | C   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 0   | 0   | 1   | 1   | --              | 1.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 15-Apr                                     | A                             | 1   | 0   | 1                 | 1   | 0   | 1   | 1               | 0   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | A   | 0.8             | 1.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 16-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | A   | 1   | 0.9             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 17-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | A   | 1   | 1   | 0.8             | 0.9           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 18-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | A   | 1   | 1   | 0.8             | 1.4           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 19-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | A   | 1   | 1   | 1   | 0.9             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 20-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 2   | 1   | 2               | 2   | 2   | 1   | 1                             | 2   | 1   | A   | 2                                                                                                                                                          | 2   | 2   | 2   | 2   | 1.5             | 2.0           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 21-Apr                                     | 2                             | 2   | 1   | 2                 | 2   | 2   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | A   | 1   | 0                                                                                                                                                          | 0   | 1   | 1   | 0   | 1.1             | 1.9           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 22-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | A   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 23-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | 1   | A                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.0             | 1.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 24-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | 1   | A   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 25-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | 1   | A   | 1   | 1                             | 1   | 1   | 1   | 2                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.5           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 26-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | 1               | A   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.8             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 27-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | 1   | A               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.8             | 1.1           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 28-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | 1   | A   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1.0             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 29-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | 1   | A   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 0   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.2           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 30-Apr                                     | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1               | A   | 1   | 1   | 1               | 1   | 1   | 1   | 1                             | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 0.9             | 1.3           |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 1.0                                        |                               | 1.0 | 0.9 | 1.0               | 1.0 | 1.0 | 1.0 | 1.0             | 1.0 | 1.0 | 0.9 | 0.9             | 0.9 | 0.9 | 0.9 | 0.9                           | 0.9 | 0.9 | 0.8 | 1.0                                                                                                                                                        | 0.9 | 1.0 | 1.0 | 0.9 | Diurnal Average |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| 1.9                                        |                               | 1.8 | 1.3 | 1.5               | 1.7 | 1.5 | 1.9 | 1.4             | 1.8 | 1.6 | 1.5 | 1.7             | 1.6 | 1.6 | 1.5 | 1.5                           | 1.7 | 1.5 | 1.3 | 1.9                                                                                                                                                        | 1.9 | 1.8 | 2.0 | 1.8 | Diurnal Maximum |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |
| C - Calibration                            |                               |     |     | P - Power Failure |     |     |     | D - DAS Failure |     |     |     | M - Maintenance |     |     |     | A - Automated Daily Zero Span |     |     |     |                                                                                                                                                            |     |     |     |     |                 |               |  |  |  |                           |  |  |  |  |  |  |  |  |  |

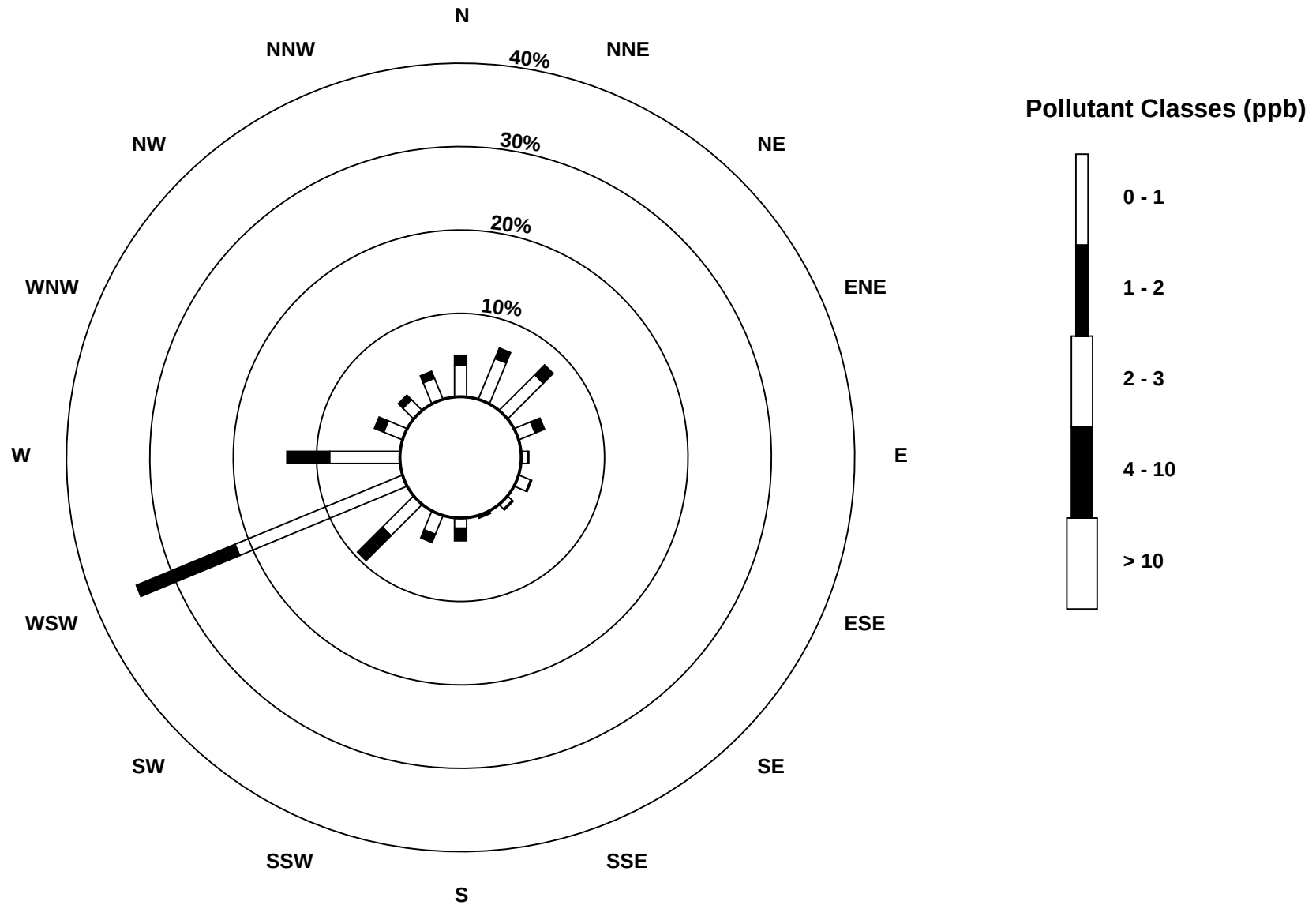
## Hourly Maximums

Total Reduced Sulphur (TRS) - ppb  
Smoky Heights - April 2011



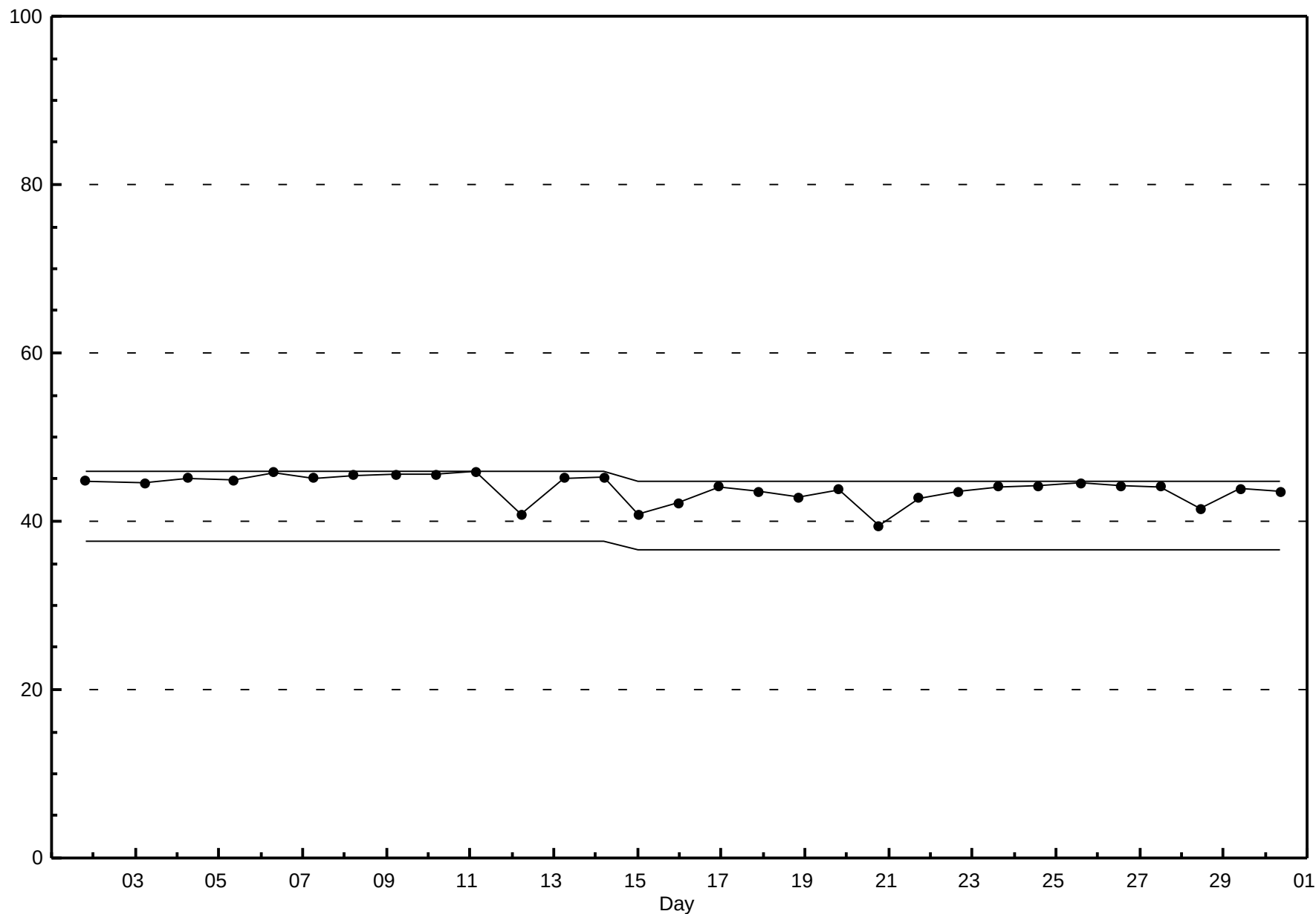
# Pollutant Rose

Total Reduced Sulphur (TRS) - ppb  
Smoky Heights - April 2011



## Span Responses

Total Reduced Sulphur (TRS)  
Smoky Heights - April 2011

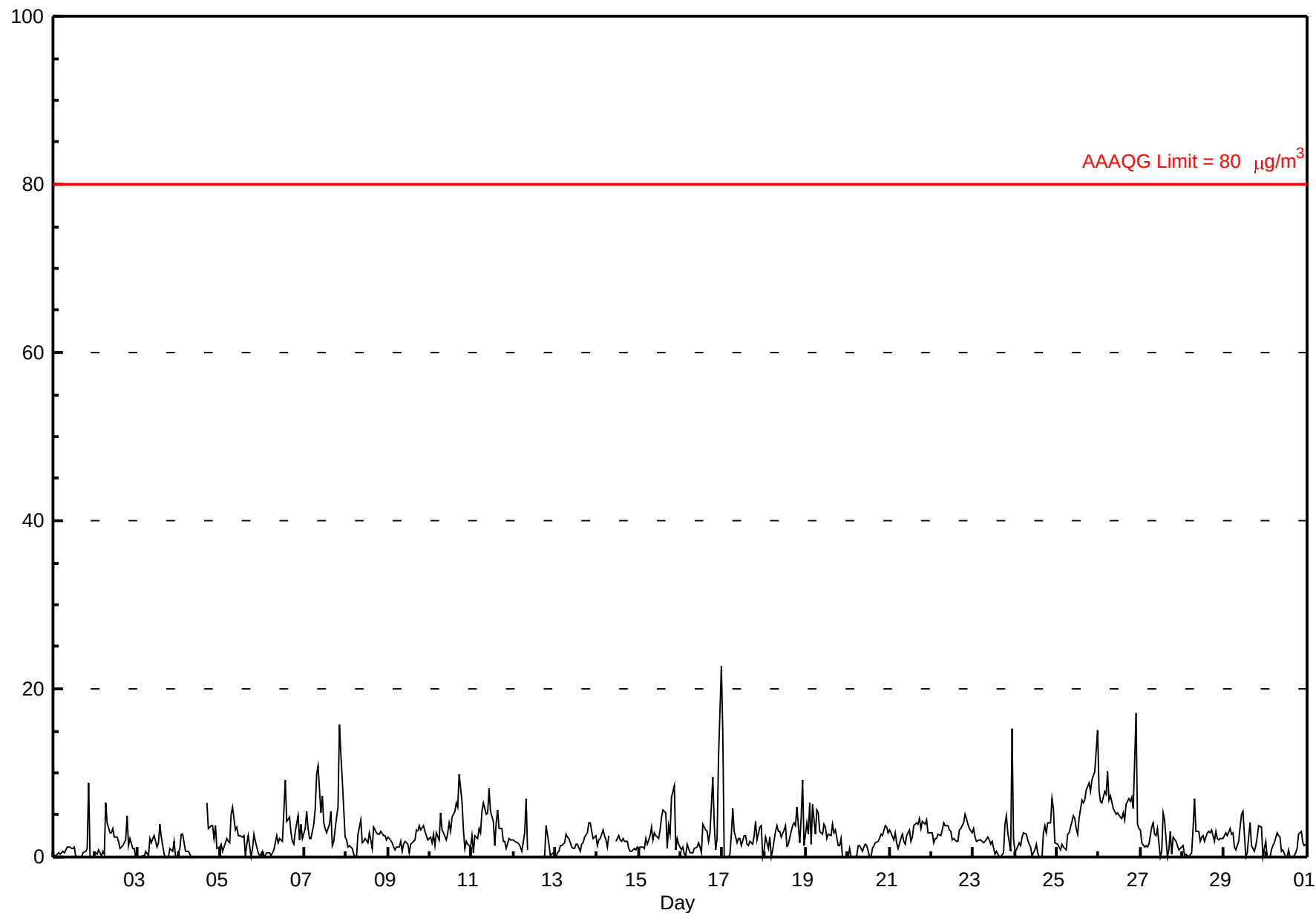


## Hourly Averages

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Smoky Heights - April 2011

|                                                                                                                                                                                                                                                                                                                                            |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Number of Exceedences: 1-hr: 0 24-hr: 0<br>Maximum Value: 22.7 µg/m <sup>3</sup> on Apr 17 00:00<br>Minimum Value: 0 µg/m <sup>3</sup> on Apr 1 14:00<br>Maximum Diurnal Average: 3.7 µg/m <sup>3</sup> at hour 21<br>Monthly Average: 2.62 µg/m <sup>3</sup>                                                                              |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 702<br>Hours of Missing Data: 18<br>Hours of Calibration: 0<br>Percent Operational Time: 97.5 |               |               |
| Maximum Daily Average: 6.6 µg/m <sup>3</sup> on Apr 26<br>Minimum Daily Average: 0.9 µg/m <sup>3</sup> on Apr 1<br>Minimum Diurnal Average: 1.6 µg/m <sup>3</sup> at hour 2<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 1.1 Median = 2.1 Q <sub>3</sub> = 3.4 P <sub>90</sub> = 5.4 P <sub>99</sub> = 11.0 |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
| Day                                                                                                                                                                                                                                                                                                                                        | Hourly Period Ending At (MST) |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                            | 1                             | 2 | 3 | 4 | 5 | 6  | 7 | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                    |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                      | 0                             | 0 | 0 | 1 | 0 | 1  | 1 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 9  | 0  | 0  | 0  | 0                                                                                                                                     | 0.9           | 8.8           |
| 2-Apr                                                                                                                                                                                                                                                                                                                                      | 1                             | 0 | 1 | 0 | 1 | 0  | 6 | 4  | 3  | 3  | 3  | 2  | 2  | 2  | 1  | 1  | 1  | 2  | 5  | 1  | 2  | 1  | 1  | 0                                                                                                                                     | 1.9           | 6.4           |
| 3-Apr                                                                                                                                                                                                                                                                                                                                      | 0                             | 0 | 0 | 0 | 0 | 1  | 0 | 2  | 2  | 2  | 3  | 1  | 2  | 4  | 2  | 0  | 0  | 0  | 0  | 1  | 1  | 2  | 0  | 0                                                                                                                                     | 0.9           | 4.0           |
| 4-Apr                                                                                                                                                                                                                                                                                                                                      | 1                             | 3 | 3 | 2 | 1 | 1  | 0 | 0  | P  | P  | P  | P  | P  | P  | P  | P  | 6  | 3  | 4  | 4  | 2  | 4  | 1  | 1                                                                                                                                     | --            | 6.4           |
| 5-Apr                                                                                                                                                                                                                                                                                                                                      | 2                             | 1 | 1 | 2 | 2 | 2  | 5 | 6  | 3  | 4  | 3  | 3  | 2  | 2  | 0  | 2  | 3  | 0  | 1  | 3  | 2  | 0  | 0  | 0                                                                                                                                     | 2.0           | 5.9           |
| 6-Apr                                                                                                                                                                                                                                                                                                                                      | 1                             | 0 | 1 | 0 | 1 | 0  | 1 | 2  | 2  | 2  | 2  | 2  | 5  | 9  | 4  | 5  | 3  | 2  | 2  | 3  | 5  | 2  | 4  | 2                                                                                                                                     | 2.5           | 9.2           |
| 7-Apr                                                                                                                                                                                                                                                                                                                                      | 3                             | 5 | 3 | 2 | 2 | 4  | 6 | 10 | 11 | 5  | 7  | 4  | 3  | 3  | 4  | 5  | 1  | 2  | 5  | 6  | 16 | 12 | 9  | 2                                                                                                                                     | 5.5           | 15.7          |
| 8-Apr                                                                                                                                                                                                                                                                                                                                      | 2                             | 1 | 1 | 1 | 0 | 0  | 0 | 3  | 4  | 2  | 2  | 2  | 2  | 3  | 2  | 1  | 4  | 3  | 3  | 3  | 3  | 3  | 3  | 2                                                                                                                                     | 2.0           | 4.4           |
| 9-Apr                                                                                                                                                                                                                                                                                                                                      | 2                             | 2 | 2 | 1 | 1 | 1  | 1 | 2  | 1  | 1  | 2  | 1  | 0  | 1  | 2  | 2  | 3  | 3  | 4  | 3  | 4  | 3  | 3  | 2                                                                                                                                     | 2.0           | 3.7           |
| 10-Apr                                                                                                                                                                                                                                                                                                                                     | 2                             | 2 | 3 | 1 | 3 | 2  | 5 | 3  | 3  | 2  | 3  | 4  | 3  | 5  | 5  | 6  | 6  | 10 | 7  | 3  | 1  | 2  | 2  | 1                                                                                                                                     | 3.5           | 9.8           |
| 11-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 1 | 3 | 2 | 3 | 3  | 5 | 6  | 5  | 5  | 8  | 5  | 4  | 1  | 4  | 6  | 3  | 3  | 2  | 2  | 1  | 2  | 2  | 2                                                                                                                                     | 3.4           | 8.2           |
| 12-Apr                                                                                                                                                                                                                                                                                                                                     | 2                             | 2 | 2 | 1 | 1 | 1  | 3 | 7  | 1  | D  | D  | D  | D  | D  | D  | D  | 0  | 0  | 0  | 4  | 1  | 0  | 0  | 1                                                                                                                                     | --            | 6.9           |
| 13-Apr                                                                                                                                                                                                                                                                                                                                     | 0                             | 0 | 1 | 1 | 1 | 2  | 3 | 2  | 2  | 1  | 1  | 1  | 2  | 2  | 1  | 2  | 2  | 2  | 3  | 4  | 4  | 3  | 2  | 3                                                                                                                                     | 1.8           | 4.0           |
| 14-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 2 | 2 | 3 | 3 | 2  | 1 | 3  | M  | M  | M  | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                     | 1.7           | 3.2           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 1 | 1 | 1 | 2 | 1  | 3 | 4  | 2  | 3  | 3  | 2  | 3  | 5  | 6  | 5  | 1  | 4  | 3  | 7  | 8  | 1  | 2  | 1                                                                                                                                     | 2.9           | 8.4           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 1 | 0 | 0 | 1 | 1  | 0 | 0  | 1  | 1  | 2  | 1  | 1  | 4  | 3  | 3  | 2  | 3  | 10 | 4  | 1  | 2  | 12 | 23                                                                                                                                    | 3.2           | 22.7          |
| 17-Apr                                                                                                                                                                                                                                                                                                                                     | 15                            | 0 | 0 | 0 | 0 | 3  | 6 | 3  | 2  | 2  | 2  | 1  | 3  | 3  | 1  | 1  | 2  | 2  | 3  | 4  | 2  | 4  | 4  | 0                                                                                                                                     | 2.6           | 14.7          |
| 18-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 2 | 1 | 2 | 0 | 1  | 3 | 4  | 3  | 3  | 2  | 3  | 4  | 1  | 1  | 3  | 4  | 4  | 4  | 6  | 2  | 5  | 9  | 1                                                                                                                                     | 2.9           | 9.2           |
| 19-Apr                                                                                                                                                                                                                                                                                                                                     | 4                             | 3 | 6 | 2 | 6 | 3  | 6 | 5  | 3  | 3  | 4  | 3  | 2  | 3  | 3  | 4  | 3  | 3  | 1  | 1  | 2  | 0  | 0  | 0                                                                                                                                     | 2.9           | 6.4           |
| 20-Apr                                                                                                                                                                                                                                                                                                                                     | 0                             | 1 | 0 | 0 | 0 | 0  | 1 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1  | 2  | 2  | 2  | 3  | 2  | 4  | 4  | 3                                                                                                                                     | 1.3           | 3.7           |
| 21-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 3 | 2 | 3 | 2 | 1  | 2 | 3  | 2  | 2  | 2  | 3  | 2  | 2  | 4  | 4  | 4  | 5  | 3  | 4  | 4  | 4  | 3  | 3                                                                                                                                     | 2.9           | 4.7           |
| 22-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 2 | 2 | 2 | 3 | 3  | 3 | 4  | 4  | 4  | 3  | 3  | 2  | 2  | 2  | 2  | 3  | 3  | 4  | 5  | 5  | 4  | 3  | 3                                                                                                                                     | 3.1           | 5.1           |
| 23-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 2 | 2 | 2 | 2 | 2  | 2 | 2  | 2  | 2  | 2  | 2  | 0  | 1  | 0  | 0  | 0  | 1  | 4  | 5  | 3  | 1  | 15 | 2                                                                                                                                     | 2.4           | 15.2          |
| 24-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 1 | 2 | 1 | 2 | 3  | 3 | 2  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 0  | 3  | 4  | 3  | 4  | 4  | 7  | 6  | 2                                                                                                                                     | 2.2           | 7.0           |
| 25-Apr                                                                                                                                                                                                                                                                                                                                     | 2                             | 1 | 1 | 1 | 1 | 1  | 3 | 3  | 4  | 5  | 5  | 3  | 3  | 5  | 7  | 6  | 7  | 8  | 9  | 8  | 9  | 10 | 10 | 15                                                                                                                                    | 5.2           | 15.1          |
| 26-Apr                                                                                                                                                                                                                                                                                                                                     | 8                             | 7 | 6 | 8 | 8 | 10 | 7 | 7  | 6  | 5  | 5  | 5  | 5  | 5  | 5  | 4  | 6  | 7  | 7  | 7  | 6  | 17 | 4  | 3                                                                                                                                     | 6.6           | 17.2          |
| 27-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 2 | 1 | 1 | 1 | 1  | 4 | 4  | 3  | 3  | 3  | 0  | 1  | 5  | 4  | 0  | 1  | 3  | 0  | 2  | 2  | 1  | 1  | 1                                                                                                                                     | 2.0           | 5.3           |
| 28-Apr                                                                                                                                                                                                                                                                                                                                     | 1                             | 0 | 0 | 0 | 0 | 0  | 3 | 7  | 3  | 3  | 2  | 2  | 2  | 3  | 3  | 3  | 3  | 3  | 2  | 3  | 2  | 2  | 2  | 2                                                                                                                                     | 2.2           | 7.0           |
| 29-Apr                                                                                                                                                                                                                                                                                                                                     | 3                             | 3 | 2 | 3 | 3 | 3  | 1 | 1  | 2  | 4  | 5  | 5  | 0  | 1  | 2  | 4  | 1  | 1  | 1  | 2  | 4  | 4  | 0  | 1                                                                                                                                     | 2.3           | 5.4           |
| 30-Apr                                                                                                                                                                                                                                                                                                                                     | 2                             | 0 | 0 | 1 | 1 | 2  | 3 | 2  | 2  | 1  | 1  | 0  | 0  | 1  | 0  | 0  | 0  | 1  | 1  | 3  | 3  | 2  | 1  | 1                                                                                                                                     | 1.2           | 3.1           |
| 2.3 1.6 1.7 1.6 1.7 1.8 2.9 3.5 2.8 2.6 2.9 2.4 2.1 2.6 2.5 2.7 2.5 2.8 3.1 3.6 3.7 3.4 3.5 2.7                                                                                                                                                                                                                                            |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                       |               |               |
| 14.7 6.5 6.5 7.8 7.5 10.2 6.8 9.9 10.9 5.4 8.2 5.5 5.4 9.2 6.8 6.4 6.7 9.8 9.6 7.8 15.7 17.2 15.2 22.7                                                                                                                                                                                                                                     |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                       |               |               |
| P - Power Failure D - DAS Failure M - Maintenance                                                                                                                                                                                                                                                                                          |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
| Alberta Ambient Air Quality Guideline (AAQG): 1-hr 80 µg/m <sup>3</sup> Alberta Ambient Air Quality Objective (AAQO): 24-hr 30 µg/m <sup>3</sup>                                                                                                                                                                                           |                               |   |   |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |





## Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

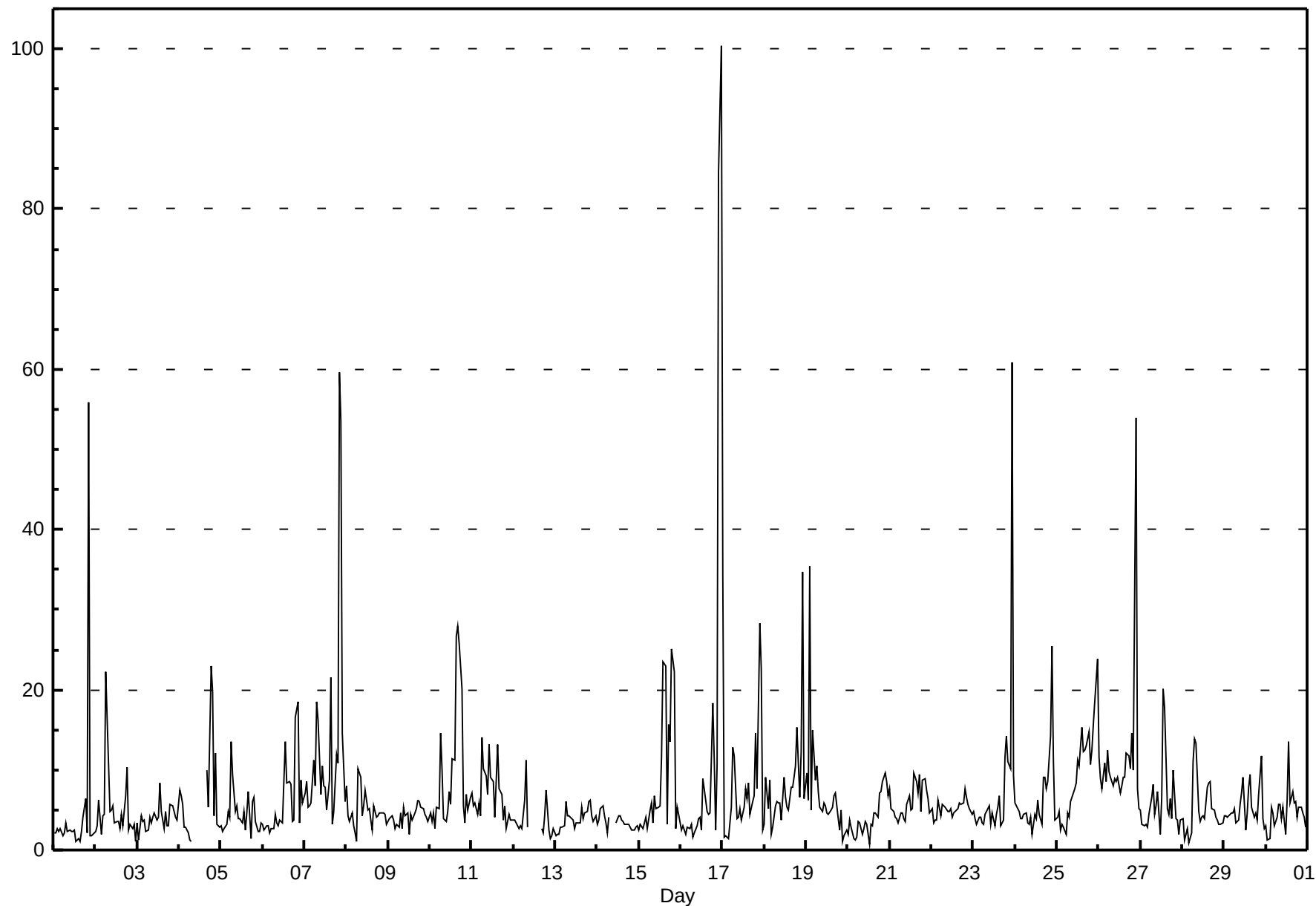
Smoky Heights - April 2011

| Maximum Value: 100.4 μg/m <sup>3</sup> on Apr 17 00:00     |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 13.3 μg/m <sup>3</sup> on Apr 7                                                                                                       |    |    |     |                 | Hours in Service: 720     |  |
|------------------------------------------------------------|-------------------------------|-----------------|----|----|----|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|-----------------|---------------------------|--|
| Minimum Value: 1 μg/m <sup>3</sup> on Apr 20 13:00         |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 3.5 μg/m <sup>3</sup> on Apr 14                                                                                                       |    |    |     |                 | Hours of Data: 702        |  |
| Maximum Diurnal Average: 11.5 μg/m <sup>3</sup> at hour 23 |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 3.9 μg/m <sup>3</sup> at hour 4                                                                                                     |    |    |     |                 | Hours of Missing Data: 18 |  |
| Monthly Average: 6.64 μg/m <sup>3</sup>                    |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 2.4 Q <sub>1</sub> = 3.3 Median = 4.7 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 11.5 P <sub>99</sub> = 53.4 |    |    |     |                 | Hours of Calibration: 0   |  |
|                                                            |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 97.5                                                                                                                               |    |    |     |                 |                           |  |
| Day                                                        | Hourly Period Ending At (MST) |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |     | Daily Average   | Daily Maximum             |  |
|                                                            | 1                             | 2               | 3  | 4  | 5  | 6               | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21                                                                                                                                                           | 22 | 23 | 24  |                 |                           |  |
| 1-Apr                                                      | 2                             | 2               | 3  | 2  | 3  | 2               | 2  | 3  | 2  | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 2  | 4  | 6  | 2  | 56                                                                                                                                                           | 2  | 2  | 2   | 4.6             | 55.9                      |  |
| 2-Apr                                                      | 2                             | 3               | 6  | 2  | 4  | 4               | 22 | 16 | 5  | 5  | 6  | 3  | 3  | 3  | 3  | 4  | 3  | 7  | 10 | 2  | 3                                                                                                                                                            | 3  | 3  | 1   | 5.3             | 22.3                      |  |
| 3-Apr                                                      | 3                             | 1               | 4  | 4  | 4  | 2               | 2  | 4  | 3  | 4  | 5  | 4  | 4  | 8  | 5  | 3  | 5  | 3  | 3  | 6  | 5                                                                                                                                                            | 5  | 4  | 4   | 4.0             | 8.4                       |  |
| 4-Apr                                                      | 8                             | 7               | 6  | 3  | 3  | 2               | 1  | 1  | P  | P  | P  | P  | P  | P  | P  | P  | 10 | 5  | 23 | 20 | 4                                                                                                                                                            | 12 | 3  | 3   | --              | 23.0                      |  |
| 5-Apr                                                      | 3                             | 2               | 3  | 3  | 5  | 4               | 13 | 9  | 5  | 5  | 4  | 4  | 3  | 5  | 2  | 5  | 7  | 1  | 6  | 7  | 4                                                                                                                                                            | 2  | 2  | 3   | 4.6             | 13.4                      |  |
| 6-Apr                                                      | 3                             | 3               | 3  | 3  | 2  | 3               | 3  | 5  | 3  | 3  | 4  | 3  | 9  | 14 | 8  | 9  | 8  | 4  | 4  | 17 | 18                                                                                                                                                           | 3  | 9  | 6   | 6.0             | 18.4                      |  |
| 7-Apr                                                      | 7                             | 9               | 5  | 5  | 6  | 11              | 8  | 19 | 16 | 7  | 11 | 8  | 8  | 5  | 9  | 22 | 3  | 5  | 12 | 11 | 60                                                                                                                                                           | 54 | 15 | 6   | 13.3            | 59.7                      |  |
| 8-Apr                                                      | 8                             | 4               | 4  | 5  | 3  | 2               | 1  | 10 | 9  | 4  | 5  | 7  | 5  | 5  | 4  | 2  | 5  | 4  | 4  | 5  | 5                                                                                                                                                            | 5  | 4  | 3   | 4.8             | 10.2                      |  |
| 9-Apr                                                      | 4                             | 4               | 4  | 4  | 3  | 3               | 3  | 5  | 3  | 5  | 4  | 5  | 2  | 4  | 4  | 5  | 5  | 6  | 6  | 5  | 5                                                                                                                                                            | 4  | 4  | 4   | 4.2             | 6.3                       |  |
| 10-Apr                                                     | 5                             | 4               | 5  | 3  | 5  | 5               | 15 | 10 | 4  | 4  | 5  | 7  | 6  | 11 | 11 | 27 | 28 | 26 | 20 | 5  | 3                                                                                                                                                            | 7  | 5  | 7   | 9.4             | 27.9                      |  |
| 11-Apr                                                     | 7                             | 5               | 6  | 4  | 6  | 4               | 14 | 10 | 9  | 7  | 13 | 9  | 9  | 4  | 9  | 13 | 8  | 7  | 4  | 5  | 3                                                                                                                                                            | 4  | 4  | 4   | 7.0             | 14.0                      |  |
| 12-Apr                                                     | 4                             | 4               | 3  | 3  | 3  | 3               | 6  | 11 | 3  | D  | D  | D  | D  | D  | D  | D  | 3  | 2  | 4  | 7  | 3                                                                                                                                                            | 1  | 2  | 3   | --              | 11.3                      |  |
| 13-Apr                                                     | 2                             | 2               | 2  | 3  | 3  | 3               | 6  | 4  | 4  | 4  | 4  | 3  | 3  | 3  | 3  | 5  | 4  | 5  | 5  | 6  | 6                                                                                                                                                            | 4  | 4  | 4   | 3.9             | 6.2                       |  |
| 14-Apr                                                     | 3                             | 4               | 5  | 5  | 4  | 3               | 2  | 4  | M  | M  | M  | 3  | 4  | 4  | 4  | 4  | 3  | 3  | 3  | 3  | 2                                                                                                                                                            | 2  | 3  | 3   | 3.5             | 5.4                       |  |
| 15-Apr                                                     | 2                             | 3               | 3  | 3  | 4  | 3               | 5  | 6  | 3  | 7  | 5  | 5  | 6  | 12 | 24 | 23 | 3  | 16 | 13 | 25 | 22                                                                                                                                                           | 3  | 5  | 4   | 8.6             | 25.1                      |  |
| 16-Apr                                                     | 2                             | 3               | 2  | 2  | 3  | 3               | 3  | 2  | 2  | 3  | 4  | 4  | 2  | 9  | 6  | 5  | 4  | 5  | 18 | 11 | 3                                                                                                                                                            | 11 | 85 | 100 | 12.2            | 100.4                     |  |
| 17-Apr                                                     | 34                            | 2               | 2  | 1  | 3  | 5               | 13 | 12 | 4  | 4  | 5  | 4  | 5  | 8  | 6  | 8  | 4  | 6  | 7  | 15 | 8                                                                                                                                                            | 28 | 23 | 2   | 8.7             | 34.4                      |  |
| 18-Apr                                                     | 3                             | 9               | 5  | 9  | 2  | 3               | 5  | 6  | 6  | 6  | 4  | 9  | 7  | 5  | 5  | 8  | 8  | 9  | 11 | 15 | 7                                                                                                                                                            | 12 | 35 | 6   | 8.1             | 34.7                      |  |
| 19-Apr                                                     | 10                            | 6               | 35 | 5  | 15 | 9               | 11 | 7  | 5  | 5  | 6  | 6  | 5  | 4  | 5  | 5  | 7  | 7  | 4  | 3  | 5                                                                                                                                                            | 1  | 2  | 2   | 7.0             | 35.4                      |  |
| 20-Apr                                                     | 2                             | 4               | 3  | 1  | 1  | 2               | 4  | 3  | 2  | 3  | 4  | 3  | 1  | 3  | 3  | 5  | 5  | 4  | 7  | 7  | 9                                                                                                                                                            | 10 | 9  | 7   | 4.1             | 9.6                       |  |
| 21-Apr                                                     | 8                             | 5               | 5  | 4  | 4  | 3               | 5  | 5  | 4  | 4  | 6  | 7  | 5  | 5  | 10 | 9  | 7  | 10 | 5  | 9  | 9                                                                                                                                                            | 7  | 6  | 5   | 6.0             | 9.5                       |  |
| 22-Apr                                                     | 5                             | 3               | 4  | 4  | 6  | 4               | 6  | 5  | 5  | 5  | 5  | 5  | 4  | 5  | 5  | 5  | 6  | 6  | 6  | 8  | 7                                                                                                                                                            | 6  | 5  | 4   | 5.2             | 7.6                       |  |
| 23-Apr                                                     | 5                             | 4               | 3  | 4  | 4  | 3               | 3  | 4  | 5  | 5  | 3  | 5  | 3  | 4  | 5  | 7  | 3  | 4  | 12 | 14 | 11                                                                                                                                                           | 10 | 61 | 9   | 8.0             | 60.8                      |  |
| 24-Apr                                                     | 6                             | 5               | 5  | 4  | 4  | 4               | 5  | 3  | 3  | 4  | 2  | 4  | 4  | 6  | 4  | 3  | 9  | 9  | 8  | 9  | 14                                                                                                                                                           | 25 | 11 | 4   | 6.5             | 25.4                      |  |
| 25-Apr                                                     | 4                             | 5               | 2  | 3  | 3  | 2               | 5  | 4  | 6  | 7  | 8  | 8  | 11 | 11 | 15 | 12 | 12 | 13 | 15 | 11 | 13                                                                                                                                                           | 16 | 19 | 24  | 9.5             | 23.9                      |  |
| 26-Apr                                                     | 12                            | 9               | 8  | 11 | 9  | 13              | 10 | 9  | 8  | 9  | 9  | 9  | 7  | 8  | 9  | 9  | 12 | 12 | 10 | 15 | 10                                                                                                                                                           | 54 | 8  | 5   | 11.3            | 54.0                      |  |
| 27-Apr                                                     | 5                             | 3               | 3  | 3  | 3  | 4               | 7  | 8  | 4  | 5  | 7  | 2  | 7  | 20 | 18 | 5  | 4  | 6  | 4  | 10 | 4                                                                                                                                                            | 4  | 2  | 4   | 6.0             | 20.0                      |  |
| 28-Apr                                                     | 4                             | 1               | 2  | 3  | 1  | 2               | 11 | 14 | 13 | 5  | 3  | 4  | 4  | 4  | 8  | 8  | 9  | 5  | 5  | 4  | 4                                                                                                                                                            | 3  | 3  | 3   | 5.2             | 13.9                      |  |
| 29-Apr                                                     | 4                             | 4               | 4  | 4  | 5  | 5               | 5  | 3  | 4  | 6  | 7  | 9  | 2  | 5  | 8  | 9  | 5  | 4  | 5  | 4  | 7                                                                                                                                                            | 12 | 4  | 3   | 5.3             | 11.8                      |  |
| 30-Apr                                                     | 3                             | 1               | 1  | 5  | 5  | 3               | 4  | 6  | 6  | 4  | 5  | 2  | 6  | 14 | 6  | 7  | 6  | 6  | 4  | 5  | 5                                                                                                                                                            | 5  | 4  | 3   | 4.9             | 13.5                      |  |
|                                                            |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |     | Diurnal Average |                           |  |
|                                                            |                               |                 |    |    |    |                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |     | Diurnal Maximum |                           |  |
| P - Power Failure                                          |                               | D - DAS Failure |    |    |    | M - Maintenance |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |     |                 |                           |  |

## Hourly Maximums

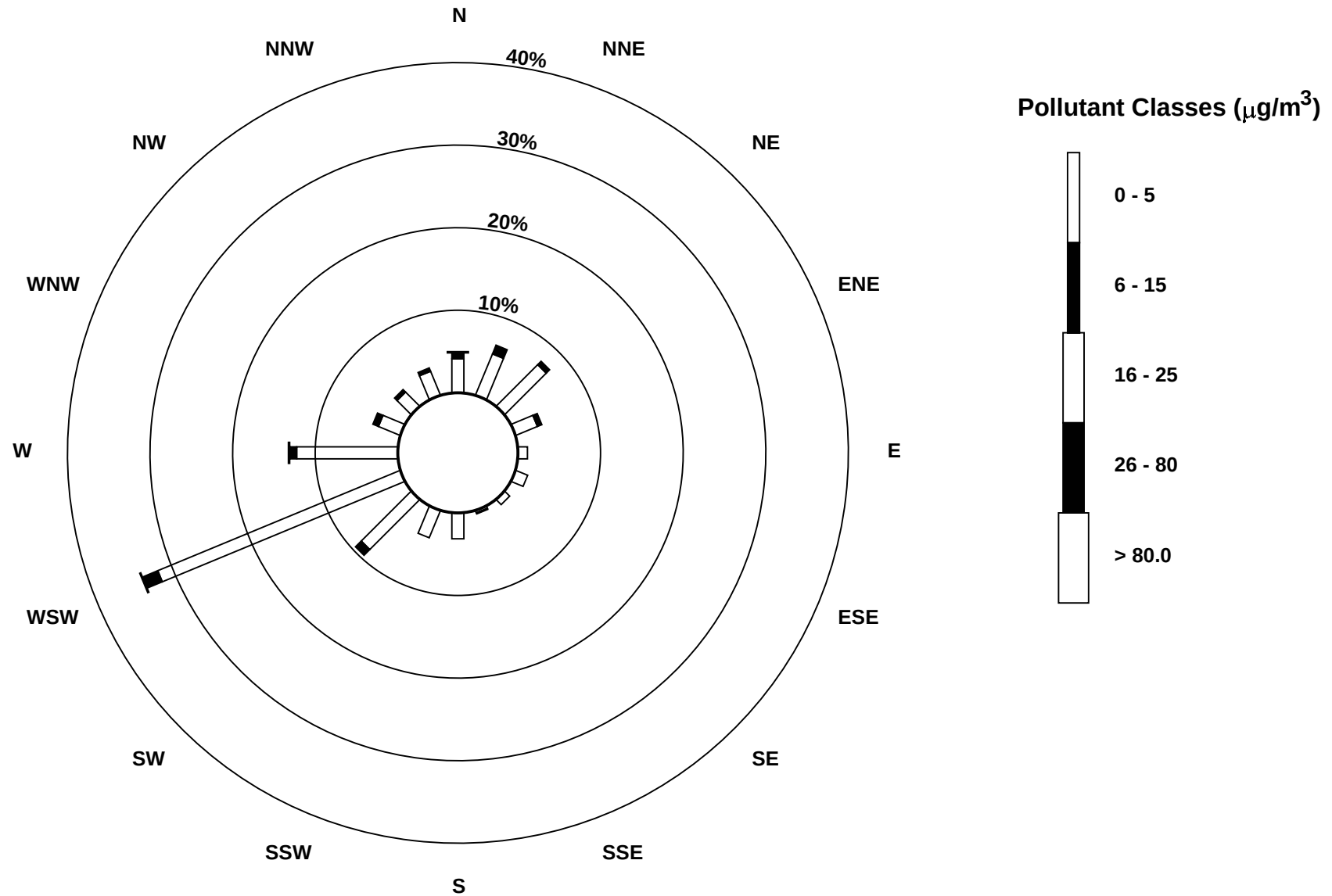
Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$

Smoky Heights - April 2011



# Pollutant Rose

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Smoky Heights - April 2011



# Hourly Averages

External Temperature (ET) - °C

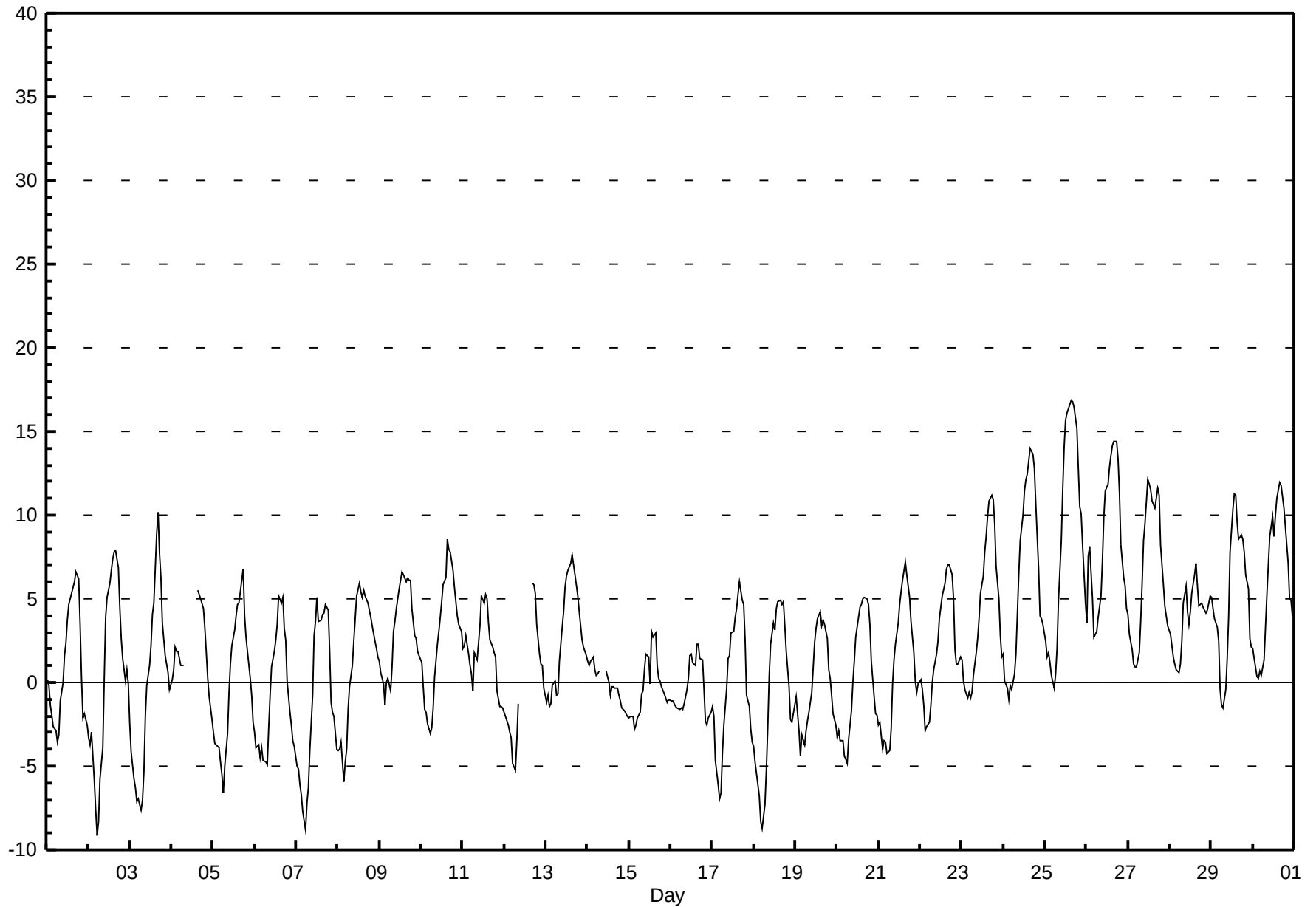
Smoky Heights - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 16.9 °C on Apr 25 16:00 Maximum Daily Average: 8.7 °C on Apr 25 |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 703<br>Hours of Missing Data: 17<br>Hours of Calibration: 0<br>Percent Operational Time: 97.6 |    |    |    |    |                 |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|
| Minimum Value: -9 °C on Apr 2 06:00<br>Maximum Diurnal Average: 7.0 °C at hour 16<br>Monthly Average: 2.16 °C                     |                               |    |    |    |    |    |    |    |    | Minimum Daily Average: -1.2 °C on Apr 7<br>Minimum Diurnal Average: -2.6 °C at hour 6<br>Percentiles: P <sub>1</sub> = -7.8 P <sub>10</sub> = -3.6 Q <sub>1</sub> = -1.1 Median = 1.8 Q <sub>3</sub> = 5.0 P <sub>90</sub> = 8.1 P <sub>99</sub> = 14.8 |    |    |    |    |    |    |    |    |    |                                                                                                                                       |    |    |    |    |                 |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                       |    |    |    |    | Daily Average   | Daily Maximum |
|                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10                                                                                                                                                                                                                                                      | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                    | 21 | 22 | 23 | 24 |                 |               |
| 1-Apr                                                                                                                             | 0                             | 0  | -1 | -2 | -3 | -3 | -4 | -3 | -1 | 0                                                                                                                                                                                                                                                       | 2  | 2  | 4  | 5  | 5  | 6  | 6  | 7  | 6  | 3                                                                                                                                     | 0  | -2 | -2 | -3 | 1.0             | 6.6           |
| 2-Apr                                                                                                                             | -3                            | -4 | -3 | -6 | -8 | -9 | -8 | -6 | -4 | 0                                                                                                                                                                                                                                                       | 4  | 5  | 6  | 7  | 7  | 8  | 8  | 7  | 4  | 3                                                                                                                                     | 1  | 0  | 1  | 0  | 0.4             | 7.8           |
| 3-Apr                                                                                                                             | -2                            | -4 | -6 | -6 | -7 | -7 | -8 | -7 | -5 | -2                                                                                                                                                                                                                                                      | 0  | 1  | 2  | 4  | 5  | 9  | 10 | 8  | 6  | 4                                                                                                                                     | 2  | 1  | 1  | 0  | -0.1            | 10.2          |
| 4-Apr                                                                                                                             | 0                             | 1  | 2  | 2  | 2  | 1  | 1  | 1  | P  | P                                                                                                                                                                                                                                                       | P  | P  | P  | P  | P  | 5  | 5  | 5  | 4  | 3                                                                                                                                     | 2  | 0  | -1 | -2 | --              | 5.5           |
| 5-Apr                                                                                                                             | -3                            | -4 | -4 | -4 | -5 | -5 | -7 | -5 | -3 | -1                                                                                                                                                                                                                                                      | 1  | 2  | 3  | 4  | 5  | 5  | 5  | 7  | 4  | 3                                                                                                                                     | 2  | 0  | -1 | -2 | -0.1            | 6.8           |
| 6-Apr                                                                                                                             | -3                            | -4 | -4 | -5 | -4 | -5 | -5 | -5 | -3 | -1                                                                                                                                                                                                                                                      | 1  | 2  | 3  | 3  | 5  | 5  | 5  | 3  | 3  | 0                                                                                                                                     | -2 | -3 | -3 | -4 | -0.8            | 5.2           |
| 7-Apr                                                                                                                             | -5                            | -5 | -6 | -7 | -8 | -9 | -7 | -6 | -4 | -1                                                                                                                                                                                                                                                      | 3  | 4  | 5  | 4  | 4  | 4  | 4  | 5  | 4  | 2                                                                                                                                     | -1 | -2 | -2 | -4 | -1.2            | 5.1           |
| 8-Apr                                                                                                                             | -4                            | -4 | -4 | -6 | -5 | -4 | -2 | 0  | 1  | 2                                                                                                                                                                                                                                                       | 4  | 5  | 6  | 5  | 5  | 5  | 5  | 5  | 4  | 4                                                                                                                                     | 3  | 2  | 2  | 2  | 1.4             | 5.9           |
| 9-Apr                                                                                                                             | 1                             | 1  | 0  | -1 | 0  | 0  | 0  | 1  | 3  | 4                                                                                                                                                                                                                                                       | 4  | 6  | 6  | 7  | 6  | 6  | 6  | 6  | 6  | 4                                                                                                                                     | 3  | 3  | 2  | 2  | 3.1             | 6.6           |
| 10-Apr                                                                                                                            | 1                             | 0  | -2 | -2 | -2 | -3 | -3 | -1 | 0  | 2                                                                                                                                                                                                                                                       | 3  | 4  | 5  | 6  | 6  | 9  | 8  | 8  | 7  | 6                                                                                                                                     | 5  | 4  | 3  | 3  | 2.8             | 8.6           |
| 11-Apr                                                                                                                            | 2                             | 2  | 3  | 2  | 1  | 0  | 0  | 2  | 1  | 2                                                                                                                                                                                                                                                       | 3  | 5  | 5  | 5  | 5  | 4  | 3  | 2  | 2  | 2                                                                                                                                     | 0  | -1 | -1 | -2 | 1.9             | 5.3           |
| 12-Apr                                                                                                                            | -2                            | -2 | -3 | -3 | -3 | -5 | -5 | -3 | -1 | D                                                                                                                                                                                                                                                       | D  | D  | D  | D  | D  | D  | 6  | 6  | 5  | 3                                                                                                                                     | 2  | 1  | 1  | 0  | --              | 5.9           |
| 13-Apr                                                                                                                            | -1                            | -1 | -1 | -1 | 0  | 0  | -1 | -1 | 1  | 3                                                                                                                                                                                                                                                       | 4  | 6  | 6  | 7  | 7  | 8  | 7  | 6  | 5  | 4                                                                                                                                     | 3  | 3  | 2  | 2  | 2.9             | 7.6           |
| 14-Apr                                                                                                                            | 1                             | 1  | 1  | 2  | 1  | 0  | 1  | 1  | M  | M                                                                                                                                                                                                                                                       | M  | 1  | 0  | -1 | 0  | 0  | 0  | 0  | -1 | -1                                                                                                                                    | -2 | -2 | -2 | -2 | -0.1            | 1.5           |
| 15-Apr                                                                                                                            | -2                            | -2 | -2 | -3 | -3 | -2 | -2 | -1 | -1 | 1                                                                                                                                                                                                                                                       | 2  | 2  | 0  | 3  | 3  | 3  | 1  | 0  | 0  | 0                                                                                                                                     | -1 | -1 | -1 | -1 | -0.3            | 3.0           |
| 16-Apr                                                                                                                            | -1                            | -1 | -1 | -1 | -2 | -2 | -2 | -2 | -1 | 0                                                                                                                                                                                                                                                       | 0  | 2  | 2  | 1  | 1  | 2  | 2  | 1  | 1  | 0                                                                                                                                     | -2 | -3 | -2 | -2 | -0.4            | 2.3           |
| 17-Apr                                                                                                                            | -1                            | -2 | -5 | -6 | -7 | -7 | -4 | -3 | 0  | 1                                                                                                                                                                                                                                                       | 2  | 3  | 3  | 4  | 4  | 5  | 6  | 5  | 5  | 3                                                                                                                                     | -1 | -1 | -3 | -4 | -0.1            | 6.0           |
| 18-Apr                                                                                                                            | -4                            | -5 | -6 | -7 | -8 | -9 | -7 | -5 | -3 | 0                                                                                                                                                                                                                                                       | 2  | 4  | 3  | 4  | 5  | 5  | 5  | 5  | 3  | 2                                                                                                                                     | 0  | -2 | -2 | -2 | -0.9            | 4.9           |
| 19-Apr                                                                                                                            | -1                            | -2 | -3 | -4 | -3 | -4 | -3 | -2 | -2 | -1                                                                                                                                                                                                                                                      | 1  | 2  | 3  | 4  | 4  | 3  | 4  | 3  | 3  | 1                                                                                                                                     | 0  | -1 | -2 | -3 | 0.0             | 4.2           |
| 20-Apr                                                                                                                            | -3                            | -3 | -3 | -4 | -4 | -5 | -5 | -3 | -2 | 0                                                                                                                                                                                                                                                       | 1  | 3  | 4  | 4  | 5  | 5  | 5  | 5  | 5  | 3                                                                                                                                     | 1  | -1 | -2 | -2 | 0.2             | 5.1           |
| 21-Apr                                                                                                                            | -3                            | -2 | -4 | -3 | -4 | -4 | -4 | -3 | 0  | 1                                                                                                                                                                                                                                                       | 2  | 4  | 5  | 5  | 6  | 7  | 6  | 6  | 5  | 4                                                                                                                                     | 2  | 0  | -1 | 0  | 1.1             | 7.2           |
| 22-Apr                                                                                                                            | 0                             | 0  | -1 | -3 | -3 | -2 | -1 | 0  | 1  | 2                                                                                                                                                                                                                                                       | 2  | 4  | 5  | 5  | 6  | 7  | 7  | 7  | 6  | 5                                                                                                                                     | 2  | 1  | 1  | 2  | 2.1             | 7.1           |
| 23-Apr                                                                                                                            | 1                             | 0  | 0  | -1 | -1 | -1 | -1 | 0  | 2  | 3                                                                                                                                                                                                                                                       | 4  | 5  | 6  | 8  | 9  | 10 | 11 | 11 | 11 | 10                                                                                                                                    | 7  | 5  | 3  | 2  | 4.3             | 11.2          |
| 24-Apr                                                                                                                            | 2                             | 0  | 0  | -1 | 0  | 0  | 0  | 2  | 4  | 6                                                                                                                                                                                                                                                       | 8  | 10 | 11 | 12 | 12 | 14 | 14 | 14 | 13 | 11                                                                                                                                    | 7  | 4  | 4  | 3  | 6.2             | 14.0          |
| 25-Apr                                                                                                                            | 2                             | 2  | 2  | 1  | 0  | 0  | 1  | 2  | 5  | 8                                                                                                                                                                                                                                                       | 12 | 14 | 16 | 16 | 17 | 17 | 17 | 16 | 15 | 13                                                                                                                                    | 11 | 10 | 8  | 5  | 8.7             | 16.9          |
| 26-Apr                                                                                                                            | 4                             | 8  | 8  | 5  | 3  | 3  | 3  | 4  | 5  | 7                                                                                                                                                                                                                                                       | 10 | 11 | 12 | 13 | 14 | 14 | 14 | 14 | 13 | 11                                                                                                                                    | 8  | 6  | 6  | 4  | 8.4             | 14.4          |
| 27-Apr                                                                                                                            | 4                             | 3  | 2  | 1  | 1  | 1  | 2  | 4  | 6  | 8                                                                                                                                                                                                                                                       | 9  | 12 | 12 | 11 | 11 | 10 | 11 | 12 | 11 | 8                                                                                                                                     | 6  | 5  | 4  | 3  | 6.6             | 12.1          |
| 28-Apr                                                                                                                            | 3                             | 2  | 2  | 1  | 1  | 1  | 1  | 2  | 5  | 6                                                                                                                                                                                                                                                       | 4  | 4  | 4  | 5  | 6  | 7  | 6  | 5  | 5  | 4                                                                                                                                     | 4  | 4  | 4  | 5  | 3.8             | 7.1           |
| 29-Apr                                                                                                                            | 5                             | 4  | 4  | 3  | 2  | 0  | -1 | -2 | 0  | 1                                                                                                                                                                                                                                                       | 4  | 8  | 10 | 11 | 11 | 10 | 9  | 9  | 9  | 8                                                                                                                                     | 6  | 6  | 3  | 2  | 5.1             | 11.3          |
| 30-Apr                                                                                                                            | 2                             | 1  | 0  | 0  | 1  | 0  | 1  | 3  | 5  | 7                                                                                                                                                                                                                                                       | 9  | 10 | 9  | 10 | 11 | 12 | 12 | 11 | 10 | 9                                                                                                                                     | 7  | 5  | 5  | 4  | 6.1             | 12.0          |
| -0.3 -0.7 -1.2 -2.0 -2.2 -2.6 -2.3 -1.2 0.3 2.3 3.8 5.0 5.5 6.2 6.6 7.0 6.9 6.6 5.9 4.4 2.5 1.4 0.8 0.2                           |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                       |    |    |    |    | Diurnal Average |               |
| 5.0 7.5 8.1 5.0 2.7 2.9 3.0 3.9 5.9 8.5 11.5 14.1 15.7 16.1 16.6 16.9 16.8 16.5 15.1 12.8 10.5 10.0 8.2 5.1                       |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                       |    |    |    |    | Diurnal Maximum |               |
| P - Power Failure D - DAS Failure M - Maintenance                                                                                 |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                         |    |    |    |    |    |    |    |    |    |                                                                                                                                       |    |    |    |    |                 |               |

## Hourly Averages

External Temperature (ET) - °C

Smoky Heights - April 2011



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Smoky Heights - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 27                            | 25  | 23  | 17  | 16  | 18  | 17  | 17  | 26  | 28  | 26  | 25  | 19  | 19  | 17  | 16  | 9   | 7   | 6   | 8   | 4   | 5   | 6   | 8   | 15.9          | 28.0          |
| Dir    | 262                           | 258 | 263 | 264 | 253 | 243 | 247 | 250 | 254 | 251 | 248 | 244 | 244 | 241 | 239 | 231 | 249 | 276 | 262 | 248 | 314 | 245 | 264 | 250 | 251.5         | 251.0         |
| 2 Spd  | 8                             | 9   | 10  | 3   | 3   | 1   | 0   | 2   | 3   | 1   | 8   | 13  | 12  | 11  | 8   | 9   | 10  | 12  | 11  | 9   | 10  | 4   | 11  | 6   | 5.7           | 12.5          |
| Dir    | 235                           | 282 | 288 | 73  | 317 | 248 | 239 | 66  | 206 | 271 | 11  | 8   | 1   | 350 | 333 | 335 | 350 | 347 | 14  | 342 | 336 | 1   | 340 | 340 | 340.7         | 8.4           |
| 3 Spd  | 2                             | 5   | 11  | 9   | 9   | 8   | 8   | 7   | 9   | 10  | 12  | 14  | 10  | 9   | 10  | 3   | 2   | 9   | 7   | 3   | 7   | 7   | 5   | 6   | 6.2           | 13.7          |
| Dir    | 181                           | 266 | 262 | 250 | 248 | 213 | 213 | 219 | 207 | 227 | 244 | 250 | 261 | 266 | 260 | 235 | 124 | 132 | 142 | 213 | 237 | 236 | 269 | 247 | 235.2         | 250.2         |
| 4 Spd  | 7                             | 12  | 16  | 15  | 15  | 14  | 19  | 20  | P   | P   | P   | P   | P   | P   | P   | 20  | 19  | 18  | 12  | 15  | 11  | 13  | 12  | 12  | --            | 20.3          |
| Dir    | 227                           | 243 | 250 | 235 | 222 | 222 | 221 | 234 | P   | P   | P   | P   | P   | P   | P   | 236 | 235 | 240 | 257 | 259 | 264 | 244 | 253 | 257 | --            | 234.1         |
| 5 Spd  | 12                            | 13  | 12  | 3   | 7   | 8   | 7   | 7   | 9   | 10  | 16  | 20  | 22  | 19  | 18  | 19  | 6   | 1   | 10  | 16  | 12  | 11  | 10  | 10  | 10.6          | 22.0          |
| Dir    | 251                           | 256 | 247 | 206 | 211 | 211 | 248 | 234 | 233 | 233 | 238 | 232 | 244 | 234 | 253 | 244 | 283 | 177 | 206 | 183 | 172 | 193 | 227 | 264 | 232.1         | 244.4         |
| 6 Spd  | 14                            | 15  | 15  | 12  | 10  | 10  | 15  | 15  | 13  | 17  | 20  | 19  | 22  | 21  | 9   | 15  | 6   | 14  | 13  | 14  | 13  | 16  | 13  | 5   | 13.7          | 22.2          |
| Dir    | 264                           | 263 | 265 | 241 | 245 | 247 | 253 | 261 | 253 | 239 | 241 | 242 | 239 | 242 | 277 | 245 | 287 | 242 | 258 | 263 | 258 | 260 | 268 | 224 | 252.1         | 239.4         |
| 7 Spd  | 7                             | 11  | 10  | 10  | 7   | 2   | 1   | 1   | 2   | 2   | 1   | 4   | 5   | 10  | 12  | 10  | 10  | 8   | 7   | 7   | 5   | 7   | 7   | 8   | 5.9           | 12.0          |
| Dir    | 210                           | 261 | 266 | 274 | 269 | 9   | 168 | 337 | 231 | 180 | 300 | 246 | 250 | 263 | 269 | 265 | 253 | 250 | 278 | 265 | 256 | 246 | 230 | 231 | 255.9         | 269.3         |
| 8 Spd  | 9                             | 9   | 8   | 9   | 10  | 11  | 19  | 20  | 23  | 26  | 23  | 19  | 24  | 27  | 27  | 22  | 27  | 19  | 30  | 25  | 31  | 28  | 28  | 27  | 18.5          | 30.8          |
| Dir    | 226                           | 245 | 224 | 192 | 199 | 200 | 178 | 180 | 188 | 186 | 194 | 212 | 229 | 237 | 238 | 236 | 242 | 245 | 258 | 250 | 252 | 254 | 257 | 259 | 229.1         | 251.9         |
| 9 Spd  | 25                            | 22  | 19  | 15  | 20  | 15  | 13  | 14  | 16  | 18  | 23  | 19  | 24  | 22  | 23  | 17  | 18  | 16  | 15  | 16  | 8   | 13  | 12  | 10  | 16.9          | 25.0          |
| Dir    | 256                           | 255 | 256 | 251 | 241 | 231 | 217 | 223 | 240 | 244 | 233 | 234 | 239 | 239 | 235 | 247 | 255 | 243 | 237 | 250 | 242 | 238 | 264 | 250 | 242.7         | 256.4         |
| 10 Spd | 9                             | 9   | 9   | 12  | 11  | 12  | 11  | 12  | 12  | 16  | 15  | 15  | 14  | 9   | 9   | 4   | 4   | 2   | 5   | 8   | 10  | 6   | 6   | 5   | 6.7           | 15.9          |
| Dir    | 260                           | 244 | 250 | 256 | 262 | 265 | 266 | 272 | 254 | 259 | 258 | 259 | 245 | 239 | 263 | 276 | 291 | 304 | 12  | 27  | 32  | 33  | 26  | 21  | 270.0         | 259.0         |
| 11 Spd | 4                             | 5   | 7   | 9   | 8   | 9   | 5   | 3   | 9   | 14  | 17  | 24  | 30  | 27  | 34  | 35  | 32  | 32  | 21  | 11  | 11  | 14  | 15  | 13  | 11.8          | 35.5          |
| Dir    | 1                             | 357 | 2   | 30  | 40  | 43  | 18  | 5   | 223 | 251 | 242 | 236 | 240 | 239 | 248 | 271 | 251 | 254 | 272 | 276 | 336 | 309 | 307 | 315 | 267.9         | 271.0         |
| 12 Spd | 9                             | 7   | 6   | 7   | 3   | 1   | 1   | 2   | 4   | D   | D   | D   | D   | D   | D   | D   | 9   | 9   | 8   | 10  | 10  | 10  | 12  | 11  | --            | 12.1          |
| Dir    | 330                           | 320 | 317 | 324 | 284 | 183 | 333 | 258 | 129 | D   | D   | D   | D   | D   | D   | D   | 110 | 105 | 85  | 41  | 48  | 65  | 69  | 51  | --            | 68.6          |
| 13 Spd | 8                             | 6   | 6   | 7   | 10  | 8   | 6   | 8   | 8   | 11  | 16  | 18  | 24  | 23  | 23  | 23  | 25  | 23  | 20  | 17  | 13  | 12  | 11  | 11  | 12.1          | 25.5          |
| Dir    | 22                            | 41  | 47  | 53  | 101 | 101 | 37  | 42  | 33  | 106 | 131 | 125 | 121 | 119 | 106 | 102 | 120 | 114 | 105 | 96  | 67  | 55  | 52  | 47  | 95.4          | 120.5         |
| 14 Spd | 13                            | 13  | 12  | 14  | 14  | 16  | 18  | 19  | M   | M   | M   | 18  | 21  | 22  | 22  | 19  | 15  | 12  | 12  | 11  | 12  | 12  | 11  | 11  | 14.8          | 22.0          |
| Dir    | 37                            | 42  | 38  | 69  | 67  | 59  | 64  | 66  | M   | M   | M   | 59  | 54  | 51  | 55  | 58  | 52  | 63  | 68  | 50  | 41  | 42  | 34  | 34  | 53.7          | 50.9          |
| 15 Spd | 11                            | 10  | 10  | 8   | 7   | 7   | 5   | 3   | 5   | 5   | 4   | 6   | 11  | 8   | 14  | 17  | 15  | 13  | 13  | 11  | 12  | 12  | 10  | 11  | 7.9           | 16.7          |
| Dir    | 30                            | 31  | 28  | 20  | 11  | 356 | 341 | 21  | 337 | 335 | 321 | 279 | 258 | 355 | 29  | 34  | 39  | 38  | 45  | 29  | 30  | 35  | 35  | 49  | 21.8          | 34.0          |
| 16 Spd | 10                            | 8   | 8   | 10  | 11  | 11  | 15  | 15  | 13  | 13  | 16  | 16  | 20  | 17  | 17  | 15  | 15  | 10  | 5   | 2   | 8   | 5   | 4   | 5   | 10.4          | 20.2          |
| Dir    | 52                            | 47  | 43  | 47  | 43  | 50  | 51  | 61  | 46  | 37  | 34  | 46  | 56  | 38  | 32  | 56  | 62  | 74  | 6   | 360 | 307 | 337 | 5   | 352 | 42.7          | 56.4          |
| 17 Spd | 6                             | 7   | 2   | 5   | 4   | 2   | 1   | 2   | 4   | 3   | 5   | 7   | 10  | 10  | 8   | 5   | 7   | 8   | 7   | 5   | 8   | 11  | 8   | 9   | 4.7           | 10.9          |
| Dir    | 5                             | 325 | 242 | 283 | 319 | 287 | 42  | 252 | 226 | 248 | 268 | 237 | 249 | 257 | 271 | 293 | 6   | 329 | 334 | 288 | 282 | 286 | 286 | 290 | 288.7         | 286.1         |
| 18 Spd | 10                            | 2   | 2   | 2   | 4   | 6   | 4   | 5   | 6   | 5   | 5   | 7   | 12  | 9   | 8   | 8   | 8   | 7   | 9   | 9   | 7   | 4   | 3   | 3   | 4.8           | 12.5          |
| Dir    | 292                           | 357 | 204 | 185 | 252 | 233 | 217 | 186 | 192 | 192 | 247 | 266 | 259 | 249 | 251 | 248 | 257 | 267 | 258 | 270 | 308 | 329 | 38  | 236 | 254.5         | 259.1         |
| 19 Spd | 4                             | 4   | 1   | 4   | 5   | 1   | 1   | 10  | 6   | 3   | 3   | 4   | 5   | 7   | 8   | 14  | 10  | 12  | 12  | 12  | 19  | 15  | 13  | 14  | 5.9           | 18.5          |
| Dir    | 262                           | 262 | 287 | 271 | 20  | 61  | 335 | 11  | 23  | 29  | 223 | 240 | 240 | 232 | 245 | 255 | 243 | 233 | 246 | 242 | 247 | 251 | 253 | 230 | 252.8         | 247.1         |
| 20 Spd | 12                            | 15  | 17  | 17  | 14  | 15  | 14  | 10  | 17  | 22  | 23  | 20  | 23  | 26  | 25  | 22  | 21  | 18  | 12  | 7   | 5   | 2   | 4   | 7   | 14.8          | 25.7          |
| Dir    | 245                           | 245 | 247 | 246 | 250 | 245 | 239 | 232 | 234 | 236 | 235 | 240 | 253 | 252 | 252 | 250 | 248 | 237 | 245 | 283 | 355 | 17  | 242 | 239 | 245.8         | 252.0         |
| 21 Spd | 9                             | 9   | 7   | 12  | 15  | 10  | 11  | 9   | 12  | 14  | 16  | 17  | 17  | 19  | 17  | 9   | 16  | 17  | 16  | 9   | 10  | 11  | 12  | 16  | 12.5          | 18.6          |
| Dir    | 244                           | 245 | 247 | 252 | 254 | 226 | 225 | 229 | 233 | 236 | 243 | 244 | 238 | 237 | 251 | 295 | 243 | 260 | 244 | 268 | 264 | 256 | 247 | 241 | 245.8         | 237.0         |
| 22 Spd | 18                            | 18  | 15  | 14  | 15  | 17  | 19  | 22  | 21  | 23  | 25  | 22  | 24  | 24  | 22  | 19  | 22  | 21  | 20  | 17  | 11  | 12  | 14  | 20  | 18.8          | 24.8          |
| Dir    | 246                           | 250 | 251 | 258 | 255 | 259 | 250 | 251 | 243 | 239 | 237 | 243 | 239 | 240 | 238 | 248 | 253 | 251 | 240 | 241 | 254 | 249 | 251 | 249 | 246.5         | 237.5         |

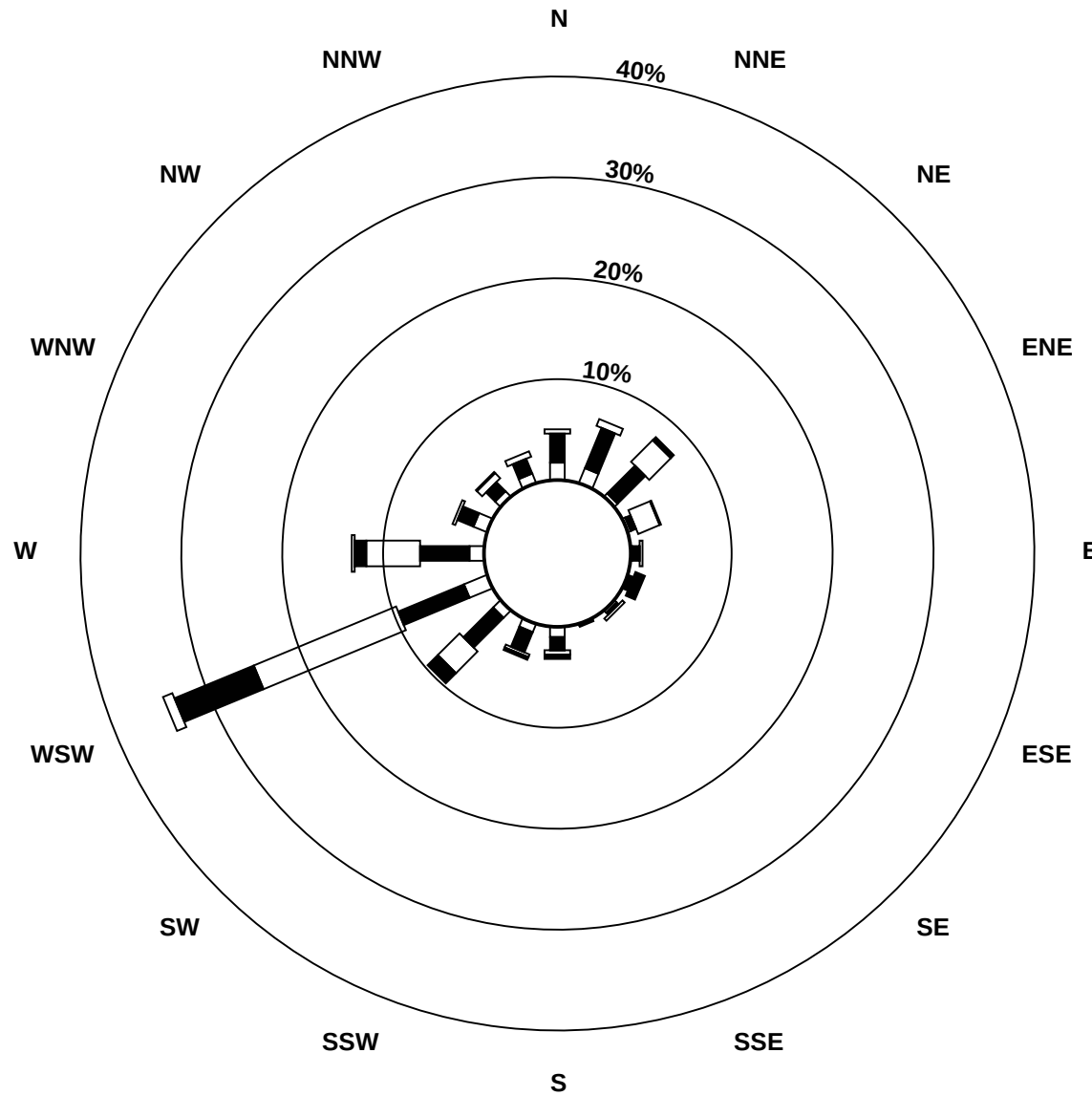
## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Smoky Heights - April 2011

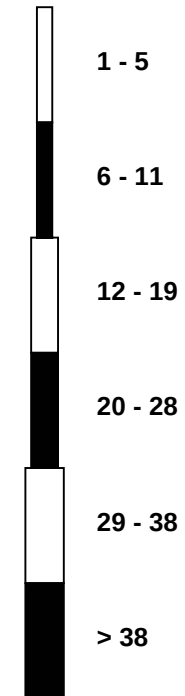
| Day                                                                                                                                                                  | Hourly Period Ending At (MST) |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                | Daily Average   | Daily Maximum |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------|-----------------|---------------|
|                                                                                                                                                                      | 1                             | 2                  | 3        | 4        | 5        | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20    | 21    | 22    | 23    | 24                             |                 |               |
| 23 Spd                                                                                                                                                               | 21                            | 21                 | 24       | 22       | 21       | 19    | 15    | 6     | 3     | 11    | 17    | 19    | 21    | 18    | 16    | 12    | 8     | 8     | 6     | 6     | 7     | 4     | 1     | 5                              | 11.6            | 23.9          |
| Dir                                                                                                                                                                  | 254                           | 259                | 255      | 259      | 259      | 264   | 260   | 251   | 271   | 238   | 242   | 238   | 240   | 241   | 237   | 238   | 231   | 241   | 274   | 18    | 27    | 28    | 266   | 261                            | 252.6           | 255.1         |
| 24 Spd                                                                                                                                                               | 4                             | 1                  | 3        | 6        | 9        | 11    | 10    | 13    | 12    | 9     | 7     | 4     | 2     | 3     | 6     | 5     | 8     | 12    | 10    | 7     | 4     | 5     | 7     | 7                              | 5.8             | 12.7          |
| Dir                                                                                                                                                                  | 255                           | 338                | 341      | 16       | 4        | 2     | 22    | 29    | 38    | 53    | 71    | 82    | 288   | 50    | 307   | 14    | 20    | 32    | 47    | 40    | 25    | 357   | 18    | 11                             | 22.7            | 28.8          |
| 25 Spd                                                                                                                                                               | 6                             | 6                  | 8        | 9        | 9        | 7     | 9     | 10    | 8     | 3     | 6     | 8     | 9     | 13    | 13    | 11    | 14    | 17    | 15    | 10    | 8     | 10    | 3     | 12                             | 7.1             | 16.6          |
| Dir                                                                                                                                                                  | 6                             | 4                  | 18       | 18       | 16       | 18    | 27    | 26    | 24    | 17    | 86    | 105   | 83    | 95    | 75    | 78    | 63    | 51    | 68    | 56    | 27    | 25    | 296   | 259                            | 46.3            | 50.8          |
| 26 Spd                                                                                                                                                               | 7                             | 16                 | 21       | 8        | 10       | 11    | 9     | 12    | 19    | 24    | 23    | 20    | 21    | 22    | 23    | 24    | 24    | 22    | 19    | 13    | 12    | 15    | 16    | 15                             | 15.5            | 24.1          |
| Dir                                                                                                                                                                  | 285                           | 328                | 321      | 217      | 219      | 240   | 258   | 236   | 239   | 253   | 256   | 245   | 246   | 250   | 248   | 251   | 250   | 249   | 245   | 254   | 254   | 260   | 263   | 266                            | 255.1           | 250.8         |
| 27 Spd                                                                                                                                                               | 13                            | 9                  | 13       | 14       | 15       | 11    | 8     | 7     | 8     | 7     | 6     | 5     | 8     | 16    | 27    | 17    | 9     | 17    | 14    | 21    | 13    | 11    | 14    | 11                             | 11.2            | 27.3          |
| Dir                                                                                                                                                                  | 263                           | 255                | 262      | 262      | 265      | 252   | 203   | 183   | 168   | 193   | 239   | 184   | 182   | 209   | 240   | 241   | 233   | 249   | 231   | 249   | 238   | 221   | 218   | 246                            | 235.4           | 239.7         |
| 28 Spd                                                                                                                                                               | 10                            | 10                 | 11       | 9        | 7        | 5     | 7     | 5     | 7     | 14    | 19    | 19    | 17    | 16    | 17    | 18    | 10    | 11    | 16    | 12    | 13    | 13    | 5     | 12                             | 10.1            | 18.8          |
| Dir                                                                                                                                                                  | 235                           | 236                | 246      | 265      | 271      | 264   | 258   | 258   | 350   | 339   | 321   | 300   | 289   | 276   | 263   | 274   | 336   | 309   | 268   | 257   | 273   | 274   | 303   | 337                            | 283.8           | 300.3         |
| 29 Spd                                                                                                                                                               | 13                            | 10                 | 10       | 10       | 8        | 4     | 6     | 8     | 8     | 9     | 10    | 10    | 13    | 18    | 18    | 18    | 27    | 23    | 20    | 18    | 5     | 8     | 9     | 6                              | 6.5             | 27.0          |
| Dir                                                                                                                                                                  | 351                           | 353                | 354      | 0        | 6        | 150   | 186   | 179   | 176   | 174   | 176   | 178   | 226   | 241   | 255   | 264   | 246   | 212   | 224   | 229   | 246   | 317   | 28    | 275                            | 241.8           | 246.2         |
| 30 Spd                                                                                                                                                               | 14                            | 9                  | 4        | 9        | 11       | 16    | 15    | 13    | 13    | 10    | 8     | 6     | 16    | 13    | 12    | 26    | 29    | 34    | 25    | 20    | 14    | 12    | 20    | 21                             | 14.6            | 33.5          |
| Dir                                                                                                                                                                  | 255                           | 241                | 211      | 211      | 255      | 265   | 264   | 253   | 246   | 230   | 224   | 185   | 240   | 314   | 267   | 264   | 261   | 256   | 253   | 250   | 243   | 244   | 250   | 257                            | 252.6           | 255.6         |
| Spd                                                                                                                                                                  | 6.8                           | 7.0                | 6.9      | 5.2      | 5.1      | 4.8   | 4.5   | 3.8   | 5.7   | 7.7   | 9.0   | 8.6   | 10.4  | 9.8   | 10.1  | 9.1   | 7.0   | 6.9   | 6.2   | 5.9   | 5.0   | 5.1   | 5.4   | 6.3                            | Diurnal Average |               |
| Dir                                                                                                                                                                  | 270.0                         | 273.3              | 274.7    | 266.0    | 263.3    | 250.8 | 243.5 | 241.0 | 236.9 | 237.8 | 240.2 | 238.3 | 242.3 | 246.6 | 253.9 | 258.2 | 256.0 | 250.5 | 253.5 | 261.6 | 281.4 | 276.1 | 277.9 | 272.5                          | Diurnal Maximum |               |
| Spd                                                                                                                                                                  | 27.3                          | 25.3               | 23.9     | 22.4     | 20.7     | 18.8  | 19.5  | 21.7  | 25.6  | 28.0  | 25.8  | 25.0  | 30.1  | 26.8  | 33.5  | 35.5  | 32.3  | 33.5  | 29.8  | 25.0  | 30.8  | 28.1  | 27.8  | 27.5                           | Diurnal Maximum |               |
| Dir                                                                                                                                                                  | 261.8                         | 258.4              | 255.1    | 259.1    | 258.8    | 264.3 | 220.7 | 251.0 | 253.7 | 251.0 | 247.9 | 243.5 | 240.4 | 237.4 | 248.4 | 271.0 | 251.0 | 255.6 | 257.9 | 250.5 | 251.9 | 254.3 | 257.0 | 259.5                          |                 |               |
| Maximum Speed Value: 35 km/h on Apr 11 16:00                                                                                                                         |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Hours in Service: 720          |                 |               |
| Maximum Daily Speed Average: 18.8 km/h on Apr 8                                                                                                                      |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Hours of Data: 703             |                 |               |
| Maximum Diurnal Speed Average: 10.4 km/h at hour 13                                                                                                                  |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Hours of Missing Data: 17      |                 |               |
| Minimum Speed Value: 0 km/h on Apr 2 07:00                                                                                                                           |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Minimum Daily Speed Average: 4.7 km/h on Apr 17                                                                                                                      |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Minimum Diurnal Speed Average: 3.8 km/h at hour 8                                                                                                                    |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Monthly Average Velocity: 6.52 km/h 256.01 deg                                                                                                                       |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Percent Operational Time: 97.6 |                 |               |
| Speed Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 4.3 Q <sub>1</sub> = 7.4 Median = 11.0 Q <sub>3</sub> = 16.0 P <sub>90</sub> = 21.8 P <sub>99</sub> = 29.7 |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| All monthly, daily, and diurnal averages have been calculated using vector methods                                                                                   |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| P - Power Failure D - DAS Failure M - Maintenance                                                                                                                    |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Frequency Distribution                                                                                                                                               |                               |                    |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
|                                                                                                                                                                      |                               | Speed Range (km/h) |          |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Direction                                                                                                                                                            | 0 to 5                        | 5 to 11            | 11 to 19 | 19 to 28 | 28 to 38 | > 38  | Total |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| North                                                                                                                                                                | 16                            | 41                 | 6        | 0        | 0        | 0     | 63    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| NorthEast                                                                                                                                                            | 8                             | 40                 | 41       | 6        | 0        | 0     | 95    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| East                                                                                                                                                                 | 2                             | 10                 | 9        | 3        | 0        | 0     | 24    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| SouthEast                                                                                                                                                            | 3                             | 2                  | 2        | 4        | 0        | 0     | 11    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| South                                                                                                                                                                | 8                             | 15                 | 4        | 5        | 0        | 0     | 32    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| SouthWest                                                                                                                                                            | 16                            | 63                 | 79       | 46       | 1        | 0     | 205   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| West                                                                                                                                                                 | 23                            | 68                 | 90       | 39       | 10       | 0     | 230   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| NorthWest                                                                                                                                                            | 12                            | 22                 | 8        | 1        | 0        | 0     | 43    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |
| Total                                                                                                                                                                | 88                            | 261                | 239      | 104      | 11       | 0     | 703   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |                                |                 |               |

## Wind Rose

Wind Speed (WS) (km/h)  
Smoky Heights - April 2011



## Wind Speed Classes (km/h)





## Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Smoky Heights - April 2011

| Maximum Speed: 36 km/h on Apr 11 16:00                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 21.0 km/h on Apr 8                                                                                                                |    |    |    |                 |               |               |  |  |  | Hours in Service: 720          |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|--|--|--|--------------------------------|--|
| Minimum Speed: 1 km/h on Apr 12 07:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 6.5 km/h on Apr 18                                                                                                                |    |    |    |                 |               |               |  |  |  | Hours of Data: 703             |  |
| Maximum Diurnal Speed Average: 16.9 km/h at hour 15                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 10.0 km/h at hour 7                                                                                                             |    |    |    |                 |               |               |  |  |  | Hours of Missing Data: 17      |  |
| Monthly Average Speed: 12.53 km/h                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 2.5 P <sub>10</sub> = 5.1 Q <sub>1</sub> = 7.8 Median = 11.3 Q <sub>3</sub> = 16.3 P <sub>90</sub> = 21.9 P <sub>99</sub> = 29.8 |    |    |    |                 |               |               |  |  |  | Percent Operational Time: 97.6 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |                 | Daily Average | Daily Maximum |  |  |  |                                |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                             | 21 | 22 | 23 | 24              |               |               |  |  |  |                                |  |
| 1-Apr                                                                                                                   | 27                            | 25 | 23 | 17 | 16 | 18 | 17 | 17 | 26 | 28 | 26 | 25 | 20 | 19 | 17 | 16 | 10 | 7  | 6  | 8                                                                                                                                                              | 5  | 6  | 7  | 11              | 16.5          | 28.1          |  |  |  |                                |  |
| 2-Apr                                                                                                                   | 10                            | 9  | 10 | 4  | 3  | 3  | 3  | 3  | 4  | 3  | 8  | 13 | 12 | 11 | 9  | 9  | 11 | 13 | 11 | 9                                                                                                                                                              | 10 | 5  | 11 | 9               | 8.0           | 12.7          |  |  |  |                                |  |
| 3-Apr                                                                                                                   | 4                             | 6  | 11 | 9  | 9  | 9  | 8  | 8  | 9  | 10 | 12 | 14 | 10 | 9  | 10 | 3  | 4  | 9  | 8  | 5                                                                                                                                                              | 8  | 7  | 5  | 7               | 8.0           | 13.8          |  |  |  |                                |  |
| 4-Apr                                                                                                                   | 8                             | 12 | 16 | 15 | 15 | 14 | 20 | 20 | P  | P  | P  | P  | P  | P  | P  | 20 | 19 | 18 | 12 | 15                                                                                                                                                             | 12 | 14 | 12 | 12              | --            | 20.3          |  |  |  |                                |  |
| 5-Apr                                                                                                                   | 12                            | 13 | 13 | 4  | 7  | 9  | 7  | 8  | 9  | 11 | 16 | 20 | 22 | 19 | 18 | 19 | 11 | 6  | 10 | 16                                                                                                                                                             | 12 | 11 | 11 | 10              | 12.3          | 22.1          |  |  |  |                                |  |
| 6-Apr                                                                                                                   | 14                            | 16 | 15 | 12 | 10 | 11 | 15 | 15 | 13 | 17 | 20 | 19 | 22 | 21 | 12 | 15 | 7  | 15 | 13 | 14                                                                                                                                                             | 13 | 16 | 14 | 6               | 14.3          | 22.2          |  |  |  |                                |  |
| 7-Apr                                                                                                                   | 8                             | 11 | 10 | 10 | 7  | 3  | 2  | 2  | 3  | 2  | 3  | 5  | 5  | 10 | 12 | 10 | 10 | 8  | 7  | 7                                                                                                                                                              | 5  | 7  | 7  | 8               | 6.8           | 12.1          |  |  |  |                                |  |
| 8-Apr                                                                                                                   | 9                             | 9  | 9  | 9  | 10 | 11 | 19 | 20 | 23 | 26 | 23 | 19 | 24 | 27 | 27 | 23 | 27 | 19 | 30 | 25                                                                                                                                                             | 31 | 28 | 28 | 27              | 21.0          | 30.8          |  |  |  |                                |  |
| 9-Apr                                                                                                                   | 25                            | 22 | 19 | 15 | 20 | 15 | 13 | 14 | 16 | 18 | 23 | 19 | 24 | 22 | 24 | 17 | 18 | 16 | 15 | 16                                                                                                                                                             | 9  | 13 | 12 | 10              | 17.3          | 25.1          |  |  |  |                                |  |
| 10-Apr                                                                                                                  | 9                             | 9  | 10 | 12 | 11 | 12 | 11 | 12 | 12 | 16 | 15 | 15 | 14 | 9  | 9  | 4  | 4  | 2  | 6  | 8                                                                                                                                                              | 10 | 7  | 7  | 5               | 9.6           | 16.0          |  |  |  |                                |  |
| 11-Apr                                                                                                                  | 4                             | 5  | 7  | 9  | 8  | 9  | 5  | 5  | 9  | 14 | 17 | 25 | 30 | 27 | 34 | 36 | 32 | 32 | 22 | 15                                                                                                                                                             | 11 | 14 | 15 | 13              | 16.6          | 35.7          |  |  |  |                                |  |
| 12-Apr                                                                                                                  | 9                             | 7  | 7  | 7  | 3  | 3  | 1  | 3  | 4  | D  | D  | D  | D  | D  | D  | D  | 10 | 9  | 8  | 10                                                                                                                                                             | 10 | 10 | 12 | 11              | --            | 12.1          |  |  |  |                                |  |
| 13-Apr                                                                                                                  | 8                             | 6  | 6  | 8  | 11 | 9  | 7  | 8  | 9  | 12 | 16 | 19 | 24 | 23 | 23 | 24 | 26 | 23 | 20 | 17                                                                                                                                                             | 13 | 12 | 11 | 11              | 14.4          | 25.6          |  |  |  |                                |  |
| 14-Apr                                                                                                                  | 13                            | 13 | 13 | 14 | 14 | 16 | 18 | 19 | M  | M  | M  | 18 | 21 | 22 | 22 | 19 | 16 | 12 | 12 | 11                                                                                                                                                             | 12 | 13 | 11 | 11              | 15.2          | 22.1          |  |  |  |                                |  |
| 15-Apr                                                                                                                  | 11                            | 10 | 10 | 8  | 7  | 7  | 5  | 3  | 5  | 5  | 5  | 7  | 11 | 10 | 14 | 17 | 15 | 14 | 13 | 11                                                                                                                                                             | 12 | 12 | 10 | 11              | 9.7           | 16.9          |  |  |  |                                |  |
| 16-Apr                                                                                                                  | 10                            | 8  | 8  | 10 | 12 | 11 | 15 | 16 | 13 | 13 | 16 | 16 | 21 | 17 | 17 | 15 | 16 | 11 | 5  | 9                                                                                                                                                              | 8  | 5  | 4  | 5               | 11.8          | 20.6          |  |  |  |                                |  |
| 17-Apr                                                                                                                  | 7                             | 7  | 4  | 5  | 5  | 3  | 2  | 4  | 4  | 4  | 6  | 7  | 10 | 10 | 8  | 7  | 8  | 8  | 7  | 6                                                                                                                                                              | 8  | 11 | 8  | 9               | 6.6           | 10.9          |  |  |  |                                |  |
| 18-Apr                                                                                                                  | 10                            | 4  | 4  | 3  | 5  | 6  | 4  | 5  | 6  | 6  | 6  | 8  | 13 | 9  | 8  | 8  | 8  | 7  | 9  | 9                                                                                                                                                              | 7  | 5  | 4  | 4               | 6.5           | 12.7          |  |  |  |                                |  |
| 19-Apr                                                                                                                  | 5                             | 5  | 3  | 4  | 6  | 3  | 3  | 10 | 6  | 4  | 4  | 4  | 5  | 7  | 8  | 14 | 10 | 12 | 12 | 12                                                                                                                                                             | 19 | 15 | 14 | 14              | 8.3           | 18.6          |  |  |  |                                |  |
| 20-Apr                                                                                                                  | 12                            | 15 | 17 | 17 | 14 | 15 | 14 | 10 | 17 | 22 | 23 | 20 | 23 | 26 | 25 | 22 | 21 | 18 | 12 | 8                                                                                                                                                              | 6  | 3  | 5  | 8               | 15.6          | 25.7          |  |  |  |                                |  |
| 21-Apr                                                                                                                  | 9                             | 10 | 7  | 13 | 15 | 11 | 11 | 9  | 12 | 14 | 16 | 17 | 17 | 19 | 18 | 10 | 16 | 18 | 16 | 9                                                                                                                                                              | 10 | 11 | 12 | 16              | 13.1          | 18.7          |  |  |  |                                |  |
| 22-Apr                                                                                                                  | 18                            | 18 | 16 | 14 | 15 | 17 | 19 | 22 | 21 | 23 | 25 | 22 | 24 | 24 | 22 | 19 | 22 | 21 | 20 | 17                                                                                                                                                             | 11 | 12 | 14 | 20              | 19.0          | 24.9          |  |  |  |                                |  |
| 23-Apr                                                                                                                  | 21                            | 22 | 24 | 22 | 21 | 19 | 15 | 9  | 6  | 11 | 17 | 19 | 21 | 18 | 16 | 12 | 8  | 8  | 7  | 7                                                                                                                                                              | 7  | 4  | 3  | 5               | 13.3          | 24.0          |  |  |  |                                |  |
| 24-Apr                                                                                                                  | 6                             | 5  | 6  | 6  | 10 | 11 | 10 | 13 | 12 | 10 | 8  | 7  | 6  | 7  | 7  | 6  | 9  | 12 | 11 | 8                                                                                                                                                              | 4  | 5  | 7  | 7               | 7.9           | 12.7          |  |  |  |                                |  |
| 25-Apr                                                                                                                  | 6                             | 6  | 8  | 9  | 9  | 7  | 10 | 10 | 8  | 4  | 7  | 9  | 11 | 14 | 13 | 12 | 15 | 17 | 15 | 10                                                                                                                                                             | 8  | 10 | 10 | 12              | 10.0          | 17.1          |  |  |  |                                |  |
| 26-Apr                                                                                                                  | 9                             | 16 | 21 | 14 | 10 | 11 | 9  | 12 | 19 | 24 | 23 | 21 | 21 | 22 | 23 | 24 | 24 | 22 | 19 | 13                                                                                                                                                             | 12 | 15 | 16 | 15              | 17.3          | 24.3          |  |  |  |                                |  |
| 27-Apr                                                                                                                  | 13                            | 9  | 13 | 14 | 15 | 12 | 9  | 7  | 8  | 9  | 7  | 6  | 11 | 18 | 27 | 17 | 10 | 18 | 16 | 22                                                                                                                                                             | 14 | 11 | 14 | 12              | 13.0          | 27.5          |  |  |  |                                |  |
| 28-Apr                                                                                                                  | 10                            | 10 | 11 | 10 | 7  | 5  | 8  | 6  | 7  | 14 | 19 | 19 | 17 | 16 | 18 | 18 | 13 | 12 | 16 | 12                                                                                                                                                             | 14 | 13 | 7  | 12              | 12.3          | 19.0          |  |  |  |                                |  |
| 29-Apr                                                                                                                  | 13                            | 10 | 10 | 10 | 8  | 5  | 6  | 8  | 8  | 9  | 11 | 10 | 15 | 19 | 18 | 20 | 28 | 24 | 21 | 18                                                                                                                                                             | 8  | 12 | 13 | 6               | 12.9          | 27.5          |  |  |  |                                |  |
| 30-Apr                                                                                                                  | 14                            | 9  | 5  | 10 | 11 | 16 | 15 | 13 | 13 | 10 | 9  | 7  | 18 | 16 | 13 | 27 | 29 | 34 | 26 | 20                                                                                                                                                             | 14 | 12 | 20 | 21              | 15.9          | 33.7          |  |  |  |                                |  |
| 11.2 10.9 11.0 10.5 10.4 10.0 10.0 10.3 10.8 12.5 14.1 14.7 16.8 16.8 16.9 16.0 15.3 14.8 13.4 12.2 10.7 10.7 10.8 11.0 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    | Diurnal Average |               |               |  |  |  |                                |  |
| 27.3 25.3 24.0 22.4 20.7 18.8 19.5 21.8 25.7 28.1 25.9 25.0 30.1 26.9 33.7 35.7 32.5 33.7 29.8 25.2 30.8 28.2 27.9 27.5 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    | Diurnal Maximum |               |               |  |  |  |                                |  |
| P - Power Failure D - DAS Failure M - Maintenance                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |                 |               |               |  |  |  |                                |  |
| All monthly, daily, and diurnal averages have been calculated using scalar methods                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |                 |               |               |  |  |  |                                |  |

# Hourly Standard Deviations

Wind Direction (WD) - deg

Smoky Heights - April 2011

| Maximum Value: 93.7 deg on Apr 2 10:00                                                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720          |    |    |    |    |    |    |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------|----|----|----|----|----|----|---------------|
| Minimum Value: 1.5 deg on Apr 1 01:00                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 703             |    |    |    |    |    |    |               |
| Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 3.6 Q <sub>1</sub> = 5.5 Median = 9.7 Q <sub>3</sub> = 17.4 P <sub>90</sub> = 40.3 P <sub>99</sub> = 86.8 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 17      |    |    |    |    |    |    |               |
|                                                                                                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 0        |    |    |    |    |    |    |               |
|                                                                                                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 97.6 |    |    |    |    |    |    |               |
| Day                                                                                                                                                           | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    | Daily Maximum |
|                                                                                                                                                               | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18                             | 19 | 20 | 21 | 22 | 23 | 24 |               |
| 1-Apr                                                                                                                                                         | 2                             | 2  | 2  | 5  | 6  | 3  | 5  | 3  | 4  | 2  | 5  | 3  | 3  | 3  | 4  | 5  | 25 | 11                             | 10 | 3  | 35 | 22 | 33 | 44 | 43.9          |
| 2-Apr                                                                                                                                                         | 37                            | 13 | 30 | 60 | 17 | 91 | 91 | 58 | 24 | 94 | 27 | 7  | 10 | 11 | 10 | 11 | 12 | 14                             | 12 | 11 | 7  | 42 | 5  | 83 | 93.7          |
| 3-Apr                                                                                                                                                         | 85                            | 50 | 9  | 9  | 12 | 17 | 14 | 15 | 9  | 13 | 5  | 5  | 6  | 7  | 4  | 54 | 88 | 5                              | 18 | 48 | 21 | 18 | 19 | 37 | 88.2          |
| 4-Apr                                                                                                                                                         | 15                            | 14 | 12 | 5  | 6  | 3  | 2  | 4  | P  | P  | P  | P  | P  | P  | P  | 6  | 4  | 4                              | 11 | 3  | 11 | 13 | 11 | 4  | 15.0          |
| 5-Apr                                                                                                                                                         | 7                             | 4  | 15 | 54 | 14 | 24 | 10 | 22 | 6  | 13 | 10 | 5  | 6  | 4  | 7  | 7  | 64 | 76                             | 12 | 5  | 7  | 12 | 22 | 12 | 75.7          |
| 6-Apr                                                                                                                                                         | 10                            | 4  | 7  | 15 | 14 | 12 | 10 | 3  | 6  | 3  | 3  | 4  | 3  | 3  | 57 | 13 | 39 | 9                              | 4  | 3  | 3  | 4  | 7  | 24 | 56.6          |
| 7-Apr                                                                                                                                                         | 20                            | 7  | 10 | 12 | 16 | 64 | 75 | 66 | 30 | 29 | 76 | 30 | 10 | 4  | 7  | 7  | 10 | 9                              | 5  | 11 | 14 | 8  | 6  | 12 | 75.6          |
| 8-Apr                                                                                                                                                         | 11                            | 13 | 11 | 10 | 7  | 14 | 3  | 4  | 5  | 6  | 9  | 8  | 6  | 4  | 3  | 4  | 6  | 7                              | 3  | 6  | 3  | 2  | 3  | 2  | 14.4          |
| 9-Apr                                                                                                                                                         | 2                             | 2  | 5  | 7  | 3  | 9  | 5  | 11 | 6  | 6  | 3  | 5  | 4  | 3  | 4  | 9  | 3  | 7                              | 5  | 5  | 12 | 7  | 12 | 7  | 12.4          |
| 10-Apr                                                                                                                                                        | 8                             | 15 | 18 | 6  | 9  | 5  | 6  | 12 | 7  | 3  | 4  | 5  | 8  | 10 | 4  | 13 | 20 | 52                             | 20 | 8  | 8  | 36 | 42 | 13 | 51.7          |
| 11-Apr                                                                                                                                                        | 19                            | 17 | 12 | 8  | 11 | 12 | 15 | 66 | 14 | 7  | 14 | 5  | 4  | 4  | 6  | 7  | 5  | 4                              | 17 | 55 | 10 | 9  | 7  | 11 | 66.2          |
| 12-Apr                                                                                                                                                        | 12                            | 18 | 16 | 10 | 17 | 71 | 59 | 57 | 21 | D  | D  | D  | D  | D  | D  | D  | 15 | 10                             | 20 | 7  | 7  | 13 | 7  | 5  | 71.3          |
| 13-Apr                                                                                                                                                        | 14                            | 24 | 18 | 18 | 19 | 26 | 24 | 11 | 8  | 19 | 14 | 10 | 7  | 8  | 7  | 14 | 6  | 6                              | 4  | 10 | 11 | 10 | 10 | 7  | 25.9          |
| 14-Apr                                                                                                                                                        | 5                             | 5  | 6  | 11 | 7  | 5  | 6  | 7  | M  | M  | M  | 9  | 7  | 6  | 6  | 6  | 8  | 9                              | 13 | 8  | 5  | 5  | 5  | 4  | 13.1          |
| 15-Apr                                                                                                                                                        | 3                             | 5  | 4  | 5  | 8  | 8  | 22 | 20 | 14 | 22 | 45 | 40 | 10 | 45 | 13 | 10 | 10 | 11                             | 12 | 11 | 8  | 4  | 6  | 15 | 45.1          |
| 16-Apr                                                                                                                                                        | 9                             | 7  | 11 | 5  | 7  | 9  | 5  | 9  | 8  | 7  | 10 | 13 | 11 | 18 | 7  | 10 | 16 | 29                             | 16 | 73 | 15 | 15 | 12 | 17 | 73.1          |
| 17-Apr                                                                                                                                                        | 13                            | 7  | 65 | 10 | 28 | 43 | 87 | 78 | 8  | 52 | 30 | 10 | 8  | 11 | 32 | 53 | 26 | 14                             | 12 | 35 | 11 | 3  | 3  | 3  | 87.2          |
| 18-Apr                                                                                                                                                        | 6                             | 67 | 69 | 71 | 23 | 20 | 15 | 7  | 8  | 27 | 38 | 13 | 10 | 11 | 6  | 7  | 20 | 17                             | 5  | 10 | 5  | 24 | 50 | 40 | 70.5          |
| 19-Apr                                                                                                                                                        | 45                            | 36 | 78 | 21 | 31 | 92 | 90 | 8  | 14 | 35 | 60 | 19 | 19 | 9  | 8  | 4  | 10 | 10                             | 10 | 8  | 6  | 11 | 19 | 14 | 92.2          |
| 20-Apr                                                                                                                                                        | 9                             | 3  | 2  | 3  | 6  | 3  | 4  | 6  | 6  | 3  | 3  | 7  | 5  | 4  | 4  | 6  | 6  | 4                              | 14 | 13 | 31 | 64 | 12 | 11 | 64.5          |
| 21-Apr                                                                                                                                                        | 11                            | 30 | 12 | 4  | 7  | 18 | 7  | 4  | 3  | 7  | 5  | 6  | 4  | 5  | 21 | 28 | 9  | 12                             | 9  | 21 | 10 | 7  | 11 | 3  | 30.0          |
| 22-Apr                                                                                                                                                        | 5                             | 6  | 7  | 3  | 5  | 4  | 3  | 3  | 5  | 3  | 4  | 6  | 4  | 4  | 3  | 7  | 4  | 4                              | 3  | 6  | 6  | 3  | 3  | 3  | 7.3           |
| 23-Apr                                                                                                                                                        | 3                             | 3  | 4  | 2  | 3  | 2  | 2  | 78 | 68 | 10 | 4  | 5  | 3  | 4  | 5  | 10 | 10 | 8                              | 20 | 36 | 11 | 10 | 87 | 17 | 87.3          |
| 24-Apr                                                                                                                                                        | 50                            | 80 | 54 | 28 | 6  | 8  | 9  | 4  | 10 | 21 | 36 | 67 | 70 | 77 | 40 | 37 | 23 | 13                             | 13 | 17 | 31 | 14 | 7  | 9  | 80.4          |
| 25-Apr                                                                                                                                                        | 5                             | 10 | 4  | 4  | 6  | 6  | 6  | 5  | 7  | 64 | 30 | 31 | 29 | 23 | 22 | 28 | 20 | 14                             | 12 | 9  | 11 | 9  | 72 | 11 | 72.2          |
| 26-Apr                                                                                                                                                        | 46                            | 10 | 6  | 56 | 15 | 4  | 6  | 10 | 8  | 8  | 10 | 8  | 6  | 7  | 6  | 7  | 6  | 6                              | 5  | 5  | 4  | 8  | 8  | 5  | 56.5          |
| 27-Apr                                                                                                                                                        | 3                             | 5  | 4  | 3  | 2  | 16 | 18 | 22 | 16 | 29 | 27 | 52 | 49 | 25 | 6  | 12 | 23 | 13                             | 22 | 12 | 22 | 14 | 11 | 11 | 52.2          |
| 28-Apr                                                                                                                                                        | 13                            | 8  | 6  | 33 | 8  | 16 | 16 | 28 | 21 | 11 | 9  | 5  | 7  | 13 | 13 | 42 | 29 | 6                              | 13 | 7  | 9  | 75 | 8  | 8  | 75.3          |
| 29-Apr                                                                                                                                                        | 9                             | 9  | 9  | 8  | 18 | 30 | 8  | 9  | 13 | 11 | 11 | 14 | 28 | 15 | 15 | 30 | 12 | 12                             | 9  | 6  | 71 | 79 | 39 | 41 | 78.9          |
| 30-Apr                                                                                                                                                        | 7                             | 11 | 41 | 20 | 10 | 4  | 4  | 5  | 11 | 16 | 22 | 43 | 25 | 41 | 31 | 14 | 10 | 5                              | 6  | 4  | 6  | 4  | 3  | 2  | 43.2          |
| 85.2 80.4 78.5 70.5 30.9 92.2 91.0 78.5 67.8 93.7 75.6 67.4 70.2 76.8 56.6 54.3 88.2 75.7 21.8 73.1 70.6 78.9 87.3 83.1                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |
| P - Power Failure D - DAS Failure M - Maintenance                                                                                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |

PAZA  
Beaverlodge Station  
Monthly Summary Tables, Graphs and  
Roses

# Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Beaverlodge - April 2011

|                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    |                 |               |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|-----------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 2.7 ppb on Apr 3 00:00 Maximum Daily Average: 0.7 ppb on Apr 2 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 34<br>Percent Operational Time: 100.0                                                                                                              |    |    |    |    |    |                 |               |
| Minimum Value: 0 ppb on Apr 1 02:00<br>Maximum Diurnal Average: 0.3 ppb at hour 10<br>Monthly Average: 0.23 ppb                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.0 ppb on Apr 9<br>Minimum Diurnal Average: 0.1 ppb at hour 21<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.4 |    |    |    |    |    |                 |               |
| Day                                                                                                                              | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    | Daily Average   | Daily Maximum |
|                                                                                                                                  | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                                                                                                                   | 20 | 21 | 22 | 23 | 24 |                 |               |
| 1-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 1  | 0  | 0.1             | 0.6           |
| 2-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 1  | 2  | 1  | 3  | 0.7             | 2.7           |
| 3-Apr                                                                                                                            | 2                             | 1 | 1 | 1 | A | 0 | 0 | 0 | 1 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.4             | 1.5           |
| 4-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 5-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 6-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | C | C  | C  | C  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 7-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.4             | 1.4           |
| 8-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.0             | 0.2           |
| 9-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.0             | 0.1           |
| 10-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 11-Apr                                                                                                                           | 0                             | 0 | 1 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.6           |
| 12-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.5           |
| 13-Apr                                                                                                                           | 0                             | 0 | 1 | 1 | A | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 1  | 1  | 0  | 0  | 0.6             | 1.1           |
| 14-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 15-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.3             | 0.7           |
| 16-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.3           |
| 17-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 1 | 0 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.3             | 0.7           |
| 18-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.3           |
| 19-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.6           |
| 20-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 21-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.5           |
| 22-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.2           |
| 23-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.9           |
| 24-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0  | 0  | 0.6             | 2.3           |
| 25-Apr                                                                                                                           | 0                             | 0 | 0 | 1 | A | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0  | 0  | 0.5             | 1.4           |
| 26-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 1  | 0  | 0.2             | 0.6           |
| 27-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 28-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.7           |
| 29-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.7           |
| 30-Apr                                                                                                                           | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.5           |
|                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    | Diurnal Average |               |
|                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    | Diurnal Maximum |               |
|                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    |                 |               |
|                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |    |                 |               |

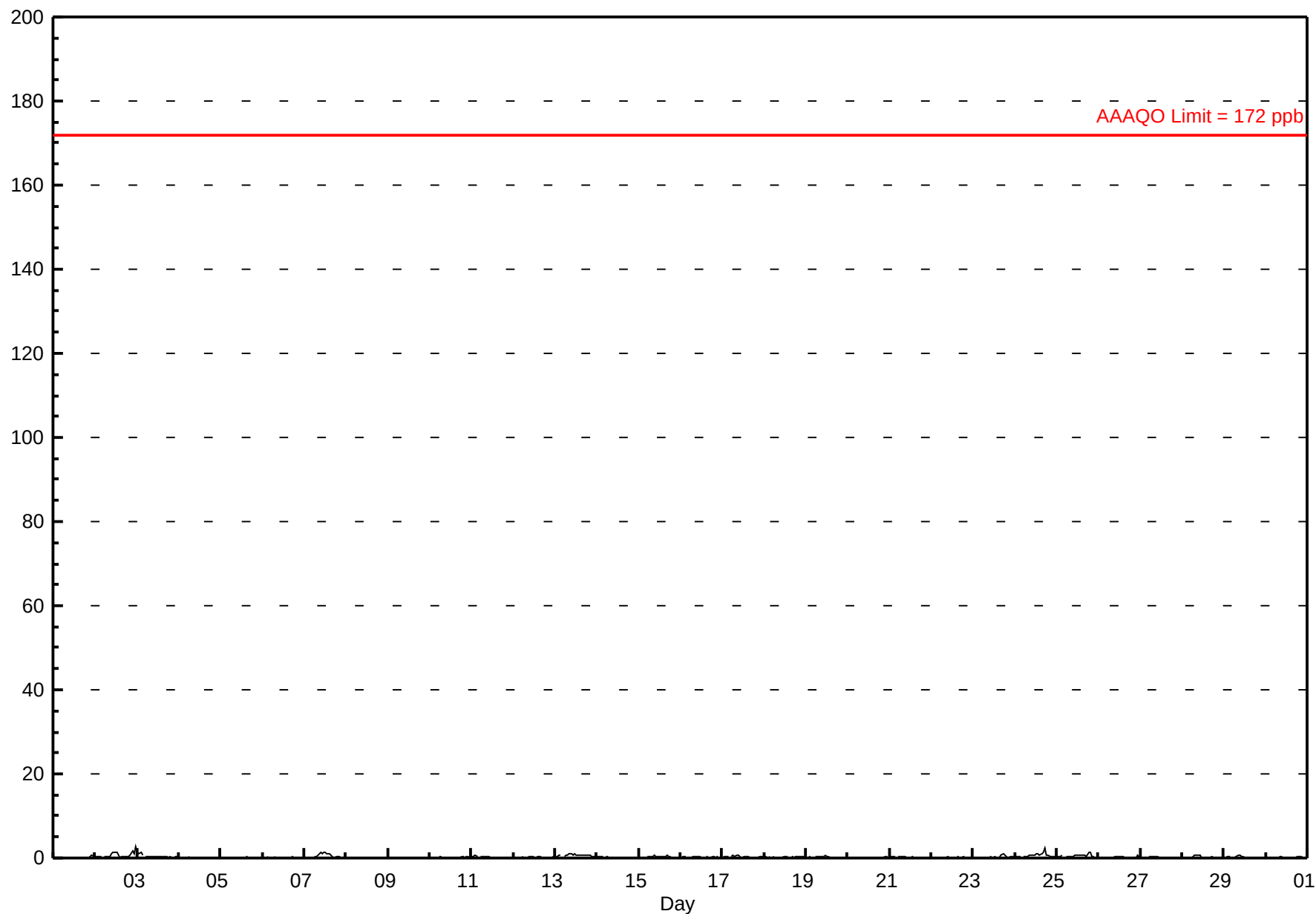
C - Calibration

A - Automated Daily Zero Span

Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb

## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Beaverlodge - April 2011



# Hourly Maximums

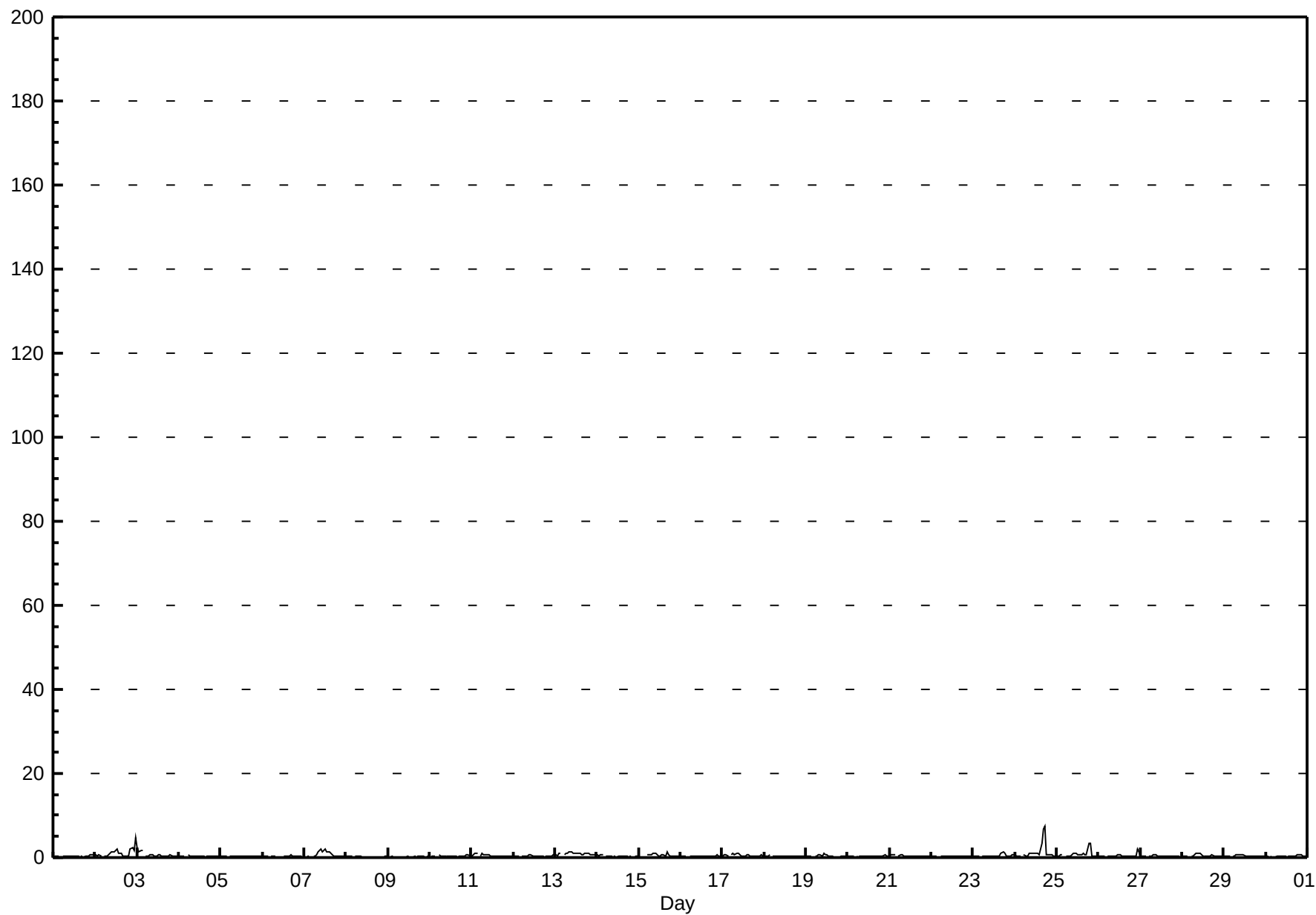
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Beaverlodge - April 2011

|                                                                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                                 |               |
|------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------------------------|---------------|
| Maximum Value: 7.4 ppb on Apr 24 18:00                                                         |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 1.4 ppb on Apr 24                                                                                                                   |    |    |    |    | Hours in Service: 720           |               |
| Minimum Value: 0 ppb on Apr 14 12:00                                                           |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.1 ppb on Apr 9                                                                                                                    |    |    |    |    | Hours of Data: 686              |               |
| Maximum Diurnal Average: 0.6 ppb at hour 17                                                    |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.3 ppb at hour 2                                                                                                                 |    |    |    |    | Hours of Missing Data: 34       |               |
| Monthly Average: 0.46 ppb                                                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.2 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.9 P <sub>99</sub> = 2.1 |    |    |    |    | Hours of Calibration: 34        |               |
|                                                                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Percent Operational Time: 100.0 |               |
| Day                                                                                            | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Daily Average                   | Daily Maximum |
|                                                                                                | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                         | 21 | 22 | 23 | 24 |                                 |               |
| 1-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 1  | 1  | 0.3                             | 0.7           |
| 2-Apr                                                                                          | 1                             | 0 | 1 | 0 | A | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                          | 2  | 2  | 2  | 5  | 1.1                             | 4.7           |
| 3-Apr                                                                                          | 2                             | 1 | 2 | 2 | A | 0 | 0 | 1 | 1 | 1  | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.7                             | 2.4           |
| 4-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.5           |
| 5-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.4           |
| 6-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | C | C  | C  | C  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.5           |
| 7-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 2  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.7                             | 2.0           |
| 8-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.2                             | 0.3           |
| 9-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.1                             | 0.2           |
| 10-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 1  | 0  | 0.3                             | 0.6           |
| 11-Apr                                                                                         | 0                             | 1 | 1 | 1 | A | 0 | 1 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.5                             | 1.2           |
| 12-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 1  | 0.4                             | 0.7           |
| 13-Apr                                                                                         | 1                             | 0 | 1 | 1 | A | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 0.9                             | 1.3           |
| 14-Apr                                                                                         | 1                             | 1 | 1 | 1 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.7           |
| 15-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 1 | 1 | 1 | 1 | 1  | 1  | 0  | 0  | 1  | 1  | 0  | 1  | 1  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.5                             | 1.2           |
| 16-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 0  | 0  | 0.4                             | 0.5           |
| 17-Apr                                                                                         | 0                             | 1 | 1 | 0 | A | 1 | 1 | 1 | 1 | 1  | 1  | 0  | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 1  | 0  | 0.5                             | 1.1           |
| 18-Apr                                                                                         | 0                             | 0 | 0 | 1 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.4                             | 0.5           |
| 19-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 0  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.4                             | 0.9           |
| 20-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 0  | 0  | 0.2                             | 0.6           |
| 21-Apr                                                                                         | 0                             | 1 | 1 | 1 | A | 1 | 1 | 1 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.4                             | 0.7           |
| 22-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.4           |
| 23-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 0                                                                                                                                                          | 0  | 0  | 1  | 1  | 0.4                             | 1.3           |
| 24-Apr                                                                                         | 1                             | 0 | 0 | 0 | A | 1 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 3  | 7  | 7  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 0  | 1.4                             | 7.4           |
| 25-Apr                                                                                         | 0                             | 0 | 1 | 1 | A | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 3  | 3                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.9                             | 3.5           |
| 26-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 2  | 1  | 0.5                             | 2.0           |
| 27-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.3                             | 0.6           |
| 28-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.4                             | 0.9           |
| 29-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0.4                             | 0.8           |
| 30-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1                                                                                                                                                          | 1  | 0  | 0  | 0  | 0.3                             | 0.8           |
| 0.4 0.3 0.4 0.4 -- 0.4 0.4 0.4 0.5 0.6 0.5 0.5 0.5 0.4 0.4 0.5 0.6 0.6 0.5 0.4 0.4 0.4 0.5 0.5 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Average                 |               |
| 2.4 1.2 1.6 1.8 -- 0.7 1.1 1.0 1.4 2.0 1.4 1.7 2.0 1.3 1.3 3.3 6.8 7.4 3.5 3.2 2.1 2.3 2.0 4.7 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Maximum                 |               |
| C - Calibration A - Automated Daily Zero Span                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                                 |               |

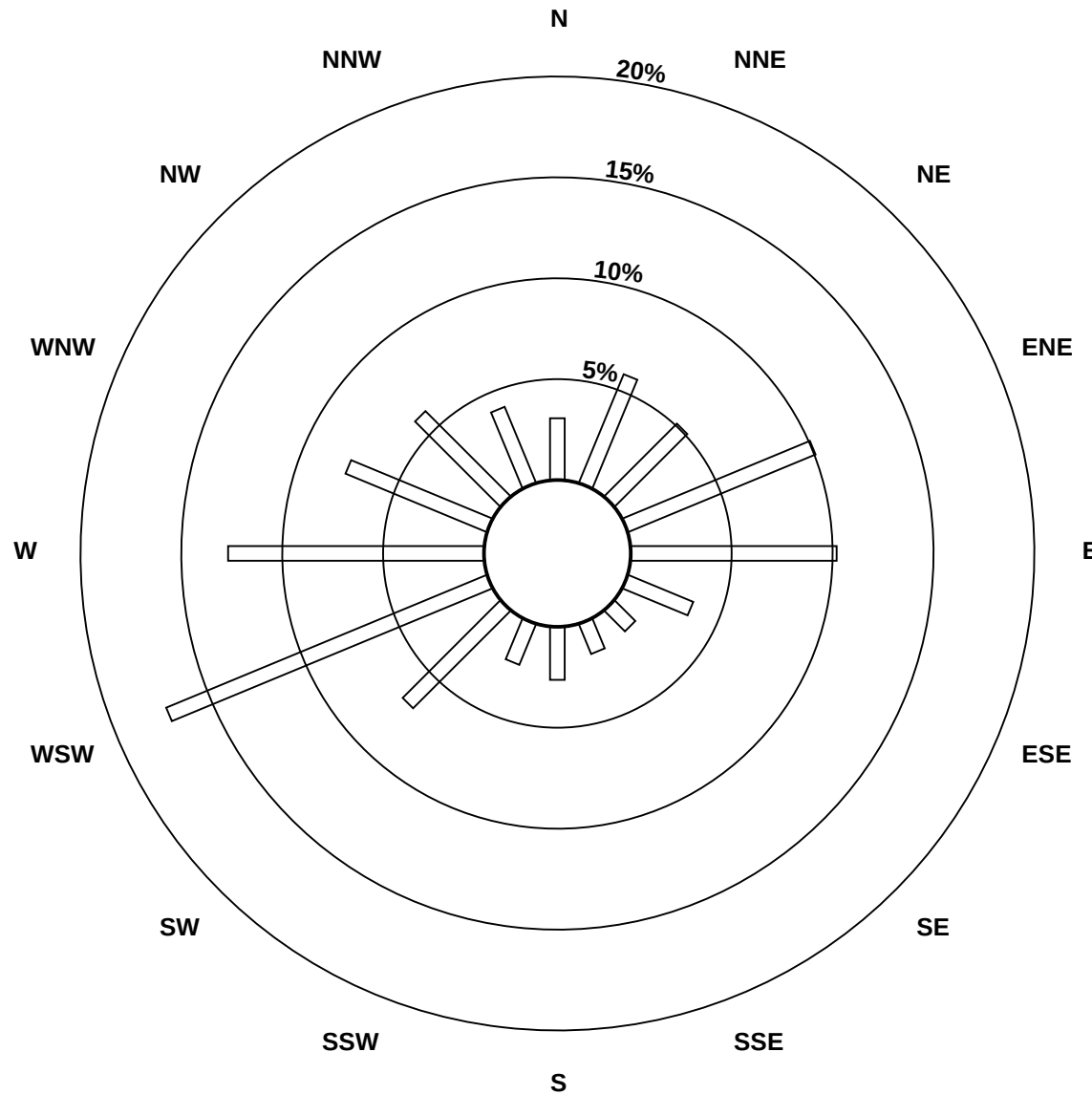
## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Beaverlodge - April 2011

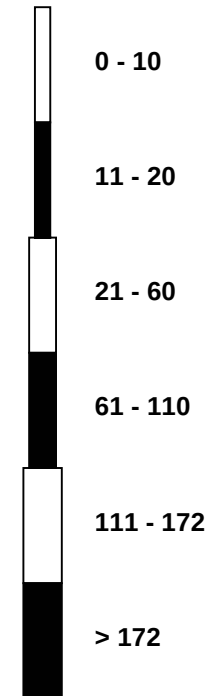


## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Beaverlodge - April 2011



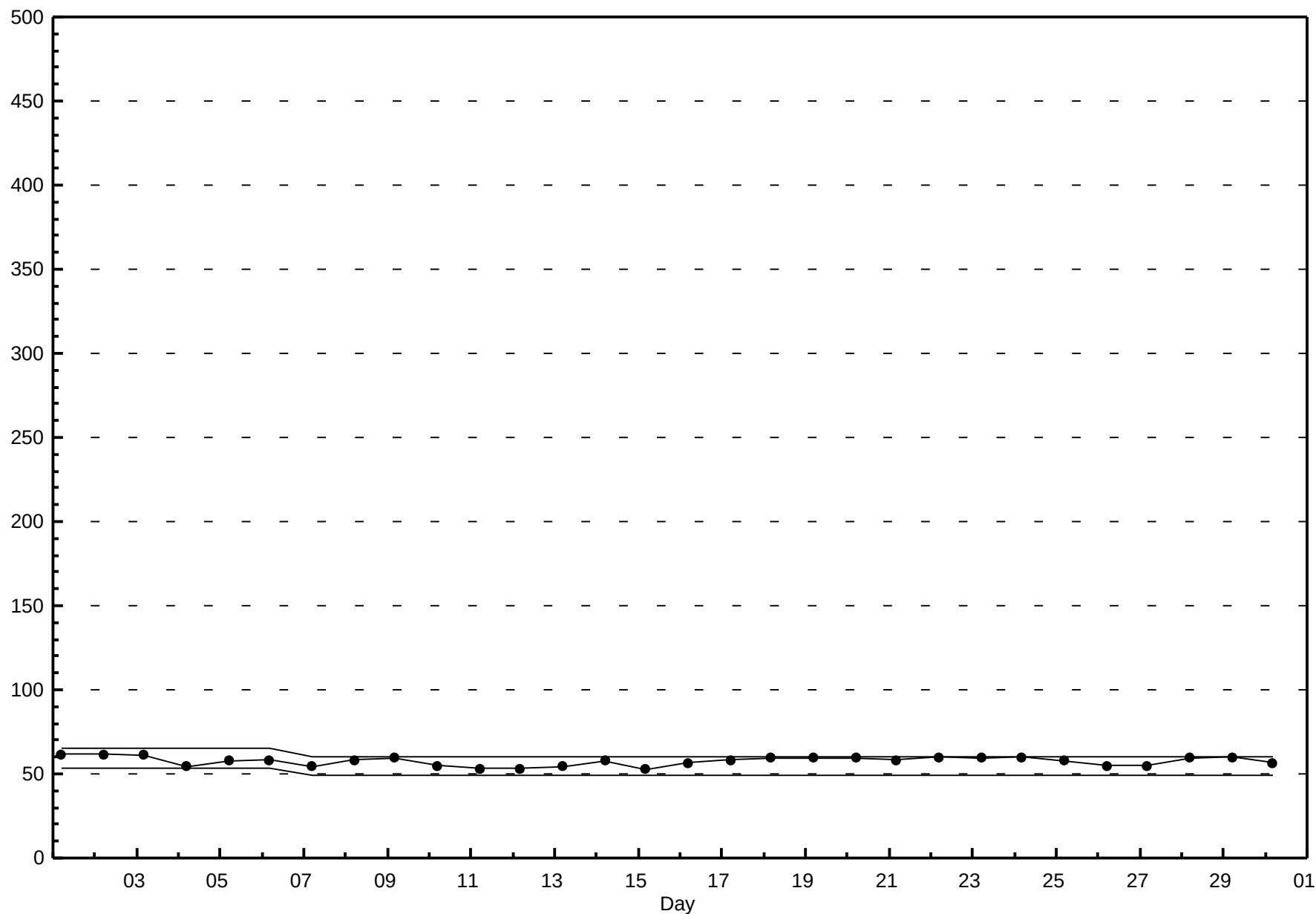
### Pollutant Classes (ppb)





## Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Beaverlodge - April 2011



# Hourly Averages

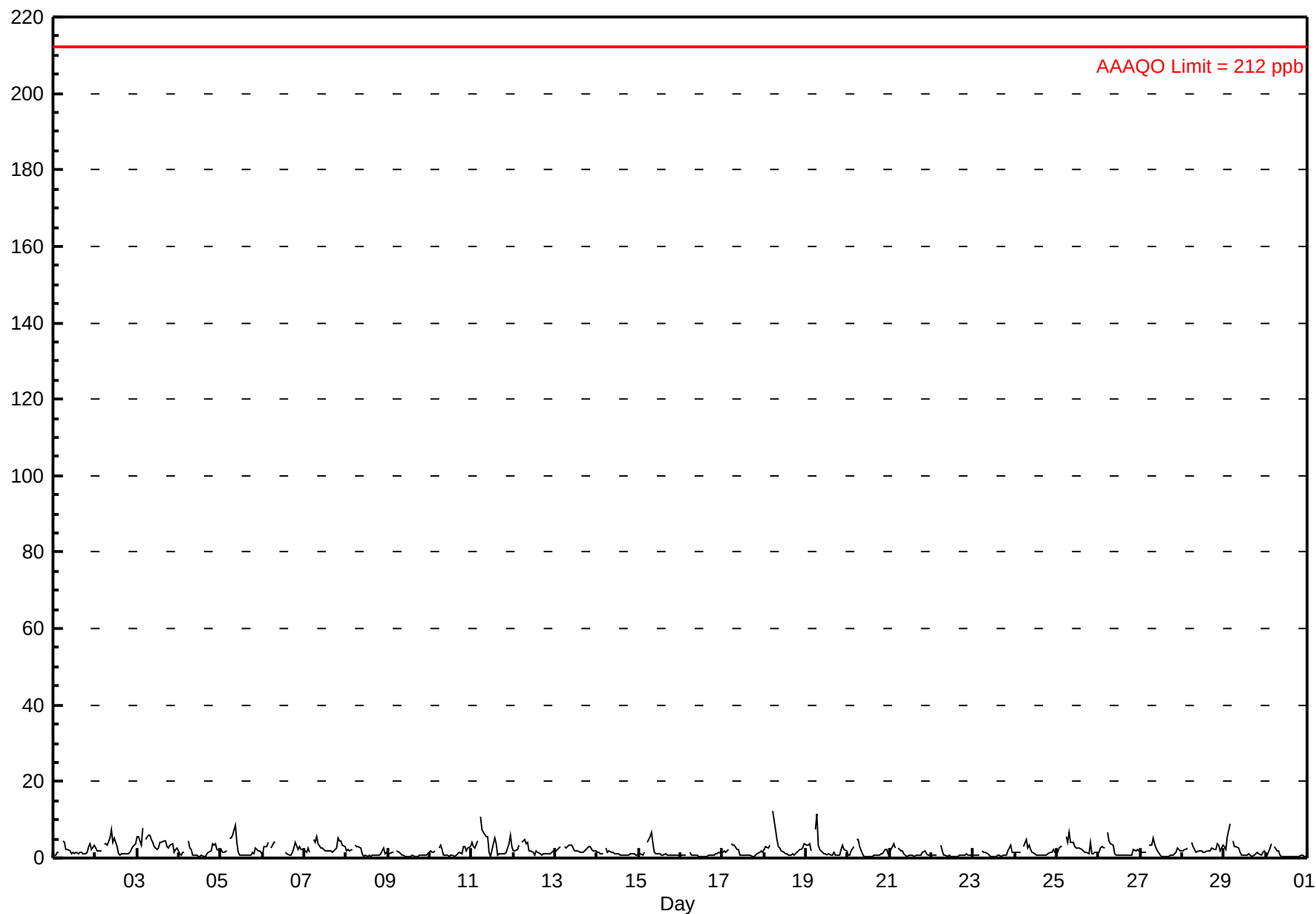
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Beaverlodge - April 2011

| Number of Exceedences (AAAO): 1-hr: 0 24-hr: 0<br>Maximum Value: 12.3 ppb on Apr 18 06:00 Maximum Daily Average: 4.0 ppb on Apr 3 |                               |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |    |    |    |                 |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|----|----|---|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|
| Minimum Value: 0 ppb on Apr 30 16:00<br>Maximum Diurnal Average: 4.4 ppb at hour 6<br>Monthly Average: 1.95 ppb                   |                               |   |   |   |   |    |    |   |   | Minimum Daily Average: 0.8 ppb on Apr 16<br>Minimum Diurnal Average: 1.0 ppb at hour 16<br>Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.8 Median = 1.5 Q <sub>3</sub> = 2.7 P <sub>90</sub> = 3.9 P <sub>99</sub> = 7.4 |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                   | 1                             | 2 | 3 | 4 | 5 | 6  | 7  | 8 | 9 | 10                                                                                                                                                                                                                                                    | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                      | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                             | 1                             | 1 | 2 | 1 | A | 5  | 4  | 2 | 2 | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 2  | 1  | 2  | 2  | 1  | 1  | 2                                                                                                                                       | 3  | 4  | 2  | 3               | 2.0           | 4.6           |
| 2-Apr                                                                                                                             | 3                             | 2 | 2 | 2 | A | 4  | 4  | 3 | 5 | 8                                                                                                                                                                                                                                                     | 4  | 5  | 3  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 3  | 3  | 4               | 2.7           | 7.6           |
| 3-Apr                                                                                                                             | 6                             | 6 | 3 | 8 | A | 5  | 6  | 6 | 5 | 4                                                                                                                                                                                                                                                     | 3  | 2  | 2  | 4  | 4  | 4  | 4  | 3  | 3  | 3                                                                                                                                       | 4  | 2  | 2  | 3               | 4.0           | 7.9           |
| 4-Apr                                                                                                                             | 1                             | 1 | 1 | 2 | A | 4  | 3  | 2 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 4                                                                                                                                       | 3  | 4  | 2  | 2               | 1.6           | 4.4           |
| 5-Apr                                                                                                                             | 2                             | 2 | 1 | 2 | A | 5  | 5  | 6 | 9 | 4                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1                                                                                                                                       | 3  | 2  | 2  | 1               | 2.4           | 8.6           |
| 6-Apr                                                                                                                             | 1                             | 3 | 3 | 4 | A | 2  | 4  | 4 | C | C                                                                                                                                                                                                                                                     | C  | C  | C  | 1  | 1  | 1  | 1  | 1  | 3  | 4                                                                                                                                       | 2  | 3  | 2  | 2               | 2.4           | 4.3           |
| 7-Apr                                                                                                                             | 2                             | 2 | 3 | 2 | A | 5  | 4  | 6 | 4 | 3                                                                                                                                                                                                                                                     | 3  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 5                                                                                                                                       | 4  | 4  | 3  | 3               | 2.9           | 5.6           |
| 8-Apr                                                                                                                             | 2                             | 2 | 2 | 2 | A | 3  | 3  | 3 | 3 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 3  | 1  | 2               | 1.5           | 3.4           |
| 9-Apr                                                                                                                             | 1                             | 1 | 2 | 2 | A | 2  | 1  | 1 | 1 | 1                                                                                                                                                                                                                                                     | 0  | 0  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 0.9           | 2.0           |
| 10-Apr                                                                                                                            | 2                             | 1 | 2 | 2 | A | 3  | 3  | 2 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 3                                                                                                                                       | 3  | 2  | 2  | 3               | 1.6           | 3.3           |
| 11-Apr                                                                                                                            | 4                             | 3 | 3 | 4 | A | 11 | 7  | 7 | 6 | 6                                                                                                                                                                                                                                                     | 1  | 1  | 4  | 5  | 4  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 4  | 6  | 3               | 3.7           | 10.8          |
| 12-Apr                                                                                                                            | 2                             | 2 | 2 | 3 | A | 4  | 5  | 4 | 4 | 2                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 2               | 2.0           | 4.7           |
| 13-Apr                                                                                                                            | 2                             | 2 | 3 | 3 | A | 3  | 3  | 3 | 3 | 3                                                                                                                                                                                                                                                     | 2  | 2  | 2  | 2  | 1  | 1  | 1  | 2  | 3  | 3                                                                                                                                       | 3  | 2  | 2  | 2               | 2.4           | 3.3           |
| 14-Apr                                                                                                                            | 2                             | 1 | 1 | 1 | A | 3  | 2  | 2 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.2           | 2.6           |
| 15-Apr                                                                                                                            | 1                             | 1 | 1 | 2 | A | 4  | 6  | 7 | 4 | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.7           | 6.9           |
| 16-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | A | 1  | 1  | 1 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 0.8           | 1.5           |
| 17-Apr                                                                                                                            | 1                             | 2 | 2 | 2 | A | 4  | 3  | 3 | 2 | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 2  | 2               | 1.5           | 3.6           |
| 18-Apr                                                                                                                            | 2                             | 3 | 3 | 3 | A | 12 | 7  | 5 | 3 | 2                                                                                                                                                                                                                                                     | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                       | 2  | 2  | 3  | 4               | 2.8           | 12.3          |
| 19-Apr                                                                                                                            | 3                             | 3 | 4 | 2 | A | 7  | 12 | 3 | 2 | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 3  | 2  | 2               | 2.5           | 11.6          |
| 20-Apr                                                                                                                            | 1                             | 1 | 2 | 3 | A | 5  | 5  | 3 | 1 | 1                                                                                                                                                                                                                                                     | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 2  | 2  | 1               | 1.4           | 4.9           |
| 21-Apr                                                                                                                            | 1                             | 2 | 4 | 3 | A | 3  | 2  | 2 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                       | 2  | 1  | 1  | 1               | 1.3           | 3.7           |
| 22-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | A | 3  | 2  | 1 | 1 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 0.8           | 3.2           |
| 23-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | A | 2  | 2  | 2 | 1 | 1                                                                                                                                                                                                                                                     | 0  | 0  | 0  | 1  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                       | 2  | 4  | 2  | 1               | 1.0           | 3.5           |
| 24-Apr                                                                                                                            | 1                             | 2 | 2 | 2 | A | 3  | 5  | 3 | 3 | 2                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 2  | 1               | 1.7           | 5.0           |
| 25-Apr                                                                                                                            | 2                             | 3 | 3 | 3 | A | 6  | 4  | 7 | 4 | 4                                                                                                                                                                                                                                                     | 3  | 3  | 2  | 3  | 2  | 2  | 2  | 1  | 1  | 4                                                                                                                                       | 1  | 1  | 1  | 2               | 2.8           | 6.6           |
| 26-Apr                                                                                                                            | 2                             | 3 | 3 | 3 | A | 7  | 4  | 4 | 3 | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 2  | 2  | 2               | 1.9           | 6.5           |
| 27-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | A | 3  | 3  | 5 | 4 | 2                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 0  | 0  | 1  | 0  | 1  | 1  | 1                                                                                                                                       | 1  | 3  | 2  | 2               | 1.7           | 5.1           |
| 28-Apr                                                                                                                            | 2                             | 2 | 2 | 3 | A | 4  | 3  | 2 | 2 | 2                                                                                                                                                                                                                                                     | 2  | 2  | 2  | 1  | 2  | 2  | 2  | 3  | 2  | 2                                                                                                                                       | 4  | 3  | 2  | 3               | 2.3           | 4.1           |
| 29-Apr                                                                                                                            | 3                             | 2 | 6 | 9 | A | 5  | 3  | 3 | 3 | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                       | 1  | 2  | 2  | 2               | 2.1           | 9.0           |
| 30-Apr                                                                                                                            | 1                             | 1 | 3 | 4 | A | 3  | 2  | 2 | 1 | 0                                                                                                                                                                                                                                                     | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.0           | 3.7           |
| 1.8 1.9 2.2 2.6 -- 4.4 3.9 3.4 2.8 2.1 1.4 1.2 1.1 1.2 1.1 1.0 1.0 1.0 1.2 1.7 1.9 2.1 1.9 1.9                                    |                               |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Average |               |               |
| 5.5 5.6 5.6 9.0 -- 12.3 11.6 6.9 8.6 7.6 4.0 5.1 3.8 5.3 4.2 4.4 4.4 4.4 2.8 2.8 5.3 4.4 4.3 5.9 3.6                              |                               |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Maximum |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                     |                               |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAO): 1-hr 212 ppb 24-hr 106 ppb                                                         |                               |   |   |   |   |    |    |   |   |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |

## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Beaverlodge - April 2011



## Hourly Maximums

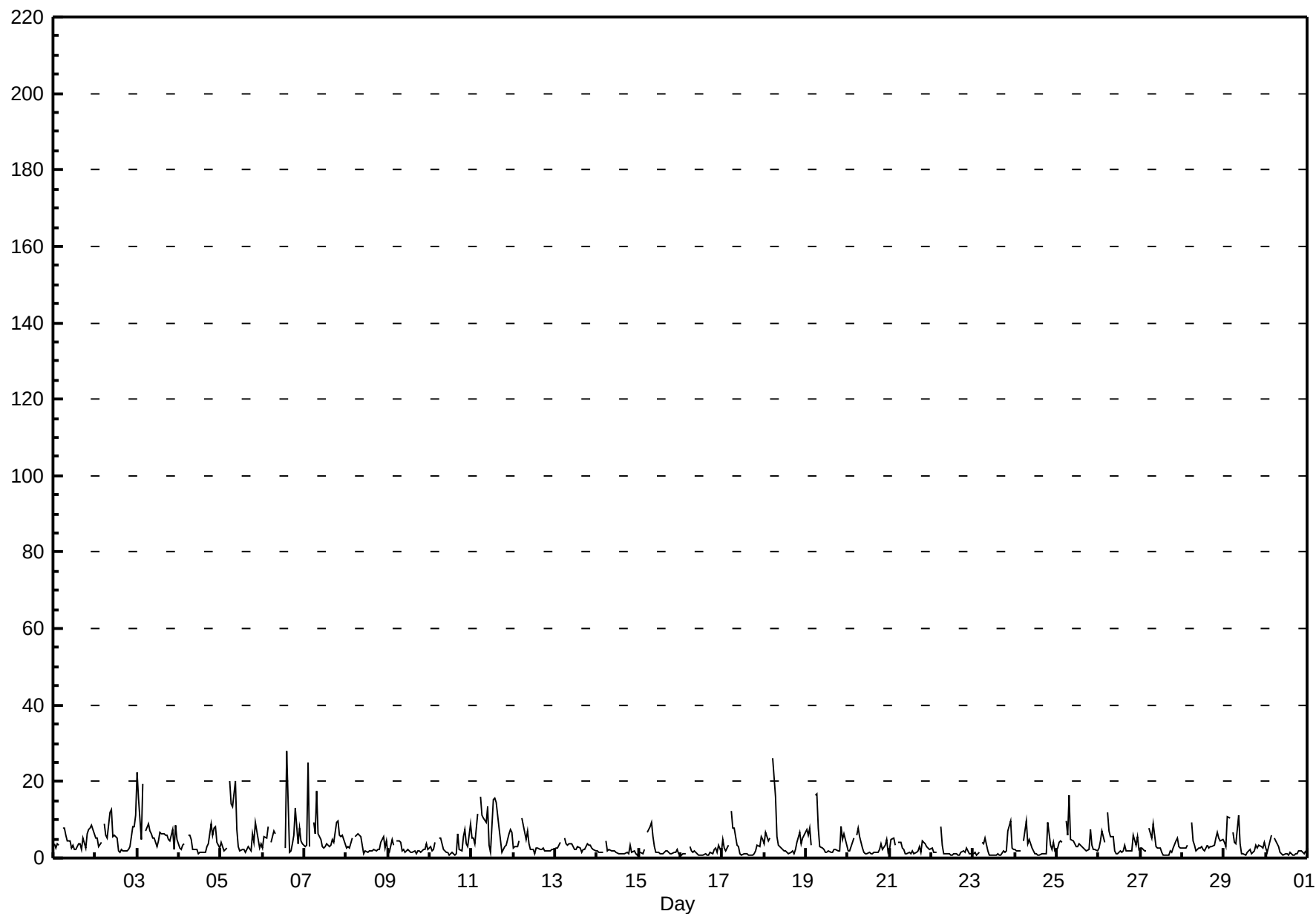
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Beaverlodge - April 2011

| Maximum Value: 28.1 ppb on Apr 6 15:00     |                               |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     | Maximum Daily Average: 8.1 ppb on Apr 11                                                                                                                    |     |     |     |      | Hours in Service: 720           |               |
|--------------------------------------------|-------------------------------|-------------------------------|------|------|----|------|------|------|------|------|-----|-----|------|------|------|------|-----|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------|---------------------------------|---------------|
| Minimum Value: 1 ppb on Apr 27 17:00       |                               |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     | Minimum Daily Average: 1.5 ppb on Apr 16                                                                                                                    |     |     |     |      | Hours of Data: 685              |               |
| Maximum Diurnal Average: 8.6 ppb at hour 6 |                               |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     | Minimum Diurnal Average: 1.9 ppb at hour 12                                                                                                                 |     |     |     |      | Hours of Missing Data: 35       |               |
| Monthly Average: 3.81 ppb                  |                               |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     | Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.7 Median = 2.7 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 7.7 P <sub>99</sub> = 19.2 |     |     |     |      | Hours of Calibration: 35        |               |
|                                            |                               |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     |                                                                                                                                                             |     |     |     |      | Percent Operational Time: 100.0 |               |
| Day                                        | Hourly Period Ending At (MST) |                               |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     |                                                                                                                                                             |     |     |     |      | Daily Average                   | Daily Maximum |
| 1-Apr                                      | 4                             | 3                             | 4    | 3    | A  | 8    | 8    | 6    | 4    | 4    | 3   | 3   | 2    | 2    | 4    | 4    | 2   | 5   | 3   | 6                                                                                                                                                           | 8   | 8   | 8   | 6    | 4.7                             | 8.4           |
| 2-Apr                                      | 5                             | 5                             | 3    | 4    | A  | 9    | 6    | 5    | 12   | 13   | 5   | 6   | 5    | 2    | 1    | 2    | 2   | 2   | 2   | 2                                                                                                                                                           | 3   | 8   | 8   | 11   | 5.3                             | 12.6          |
| 3-Apr                                      | 22                            | 16                            | 5    | 19   | A  | 7    | 9    | 7    | 6    | 5    | 5   | 3   | 4    | 7    | 6    | 6    | 6   | 6   | 5   | 4                                                                                                                                                           | 7   | 2   | 9   | 5    | 7.5                             | 22.3          |
| 4-Apr                                      | 3                             | 2                             | 3    | 4    | A  | 6    | 6    | 5    | 2    | 2    | 2   | 1   | 2    | 2    | 2    | 1    | 3   | 4   | 9   | 6                                                                                                                                                           | 8   | 8   | 4   | 2    | 3.8                             | 8.9           |
| 5-Apr                                      | 4                             | 3                             | 2    | 2    | A  | 20   | 14   | 13   | 20   | 7    | 3   | 2   | 2    | 2    | 2    | 2    | 3   | 2   | 6   | 4                                                                                                                                                           | 9   | 5   | 3   | 4    | 5.8                             | 20.1          |
| 6-Apr                                      | 3                             | 6                             | 5    | 8    | A  | 4    | 7    | 7    | C    | C    | C   | C   | C    | 3    | 28   | 2    | 2   | 4   | 6   | 13                                                                                                                                                          | 4   | 8   | 5   | 4    | 6.4                             | 28.1          |
| 7-Apr                                      | 3                             | 3                             | 25   | 3    | A  | 9    | 6    | 17   | 7    | 5    | 3   | 3   | 3    | 4    | 3    | 3    | 5   | 4   | 9   | 10                                                                                                                                                          | 6   | 6   | 6   | 4    | 6.4                             | 25.1          |
| 8-Apr                                      | 3                             | 3                             | 3    | 5    | A  | 6    | 6    | 6    | 6    | 3    | 1   | 2   | 1    | 2    | 2    | 2    | 2   | 2   | 2   | 2                                                                                                                                                           | 4   | 6   | 2   | 4    | 3.3                             | 6.4           |
| 9-Apr                                      | 1                             | 1                             | 5    | 3    | A  | 4    | 4    | 4    | 2    | 2    | 1   | 2   | 2    | 1    | 2    | 2    | 1   | 2   | 2   | 1                                                                                                                                                           | 2   | 2   | 4   | 2    | 2.4                             | 5.0           |
| 10-Apr                                     | 3                             | 2                             | 2    | 4    | A  | 5    | 5    | 4    | 2    | 2    | 1   | 1   | 1    | 1    | 1    | 1    | 6   | 2   | 2   | 6                                                                                                                                                           | 8   | 4   | 3   | 9    | 3.3                             | 9.1           |
| 11-Apr                                     | 5                             | 5                             | 4    | 11   | A  | 16   | 11   | 11   | 9    | 14   | 3   | 1   | 15   | 15   | 15   | 11   | 8   | 2   | 2   | 3                                                                                                                                                           | 3   | 6   | 8   | 7    | 8.1                             | 16.0          |
| 12-Apr                                     | 3                             | 3                             | 3    | 4    | A  | 11   | 7    | 5    | 7    | 4    | 2   | 2   | 1    | 3    | 3    | 2    | 2   | 2   | 2   | 2                                                                                                                                                           | 2   | 2   | 2   | 2    | 3.2                             | 10.5          |
| 13-Apr                                     | 3                             | 3                             | 3    | 4    | A  | 5    | 4    | 3    | 4    | 4    | 3   | 2   | 2    | 3    | 3    | 2    | 2   | 2   | 4   | 3                                                                                                                                                           | 3   | 3   | 2   | 2    | 3.0                             | 5.2           |
| 14-Apr                                     | 2                             | 2                             | 1    | 1    | A  | 4    | 2    | 2    | 2    | 2    | 2   | 1   | 1    | 1    | 1    | 1    | 1   | 2   | 1   | 3                                                                                                                                                           | 2   | 2   | 1   | 1    | 1.7                             | 4.3           |
| 15-Apr                                     | 2                             | 1                             | 1    | 2    | A  | 7    | 8    | 9    | 6    | 3    | 1   | 2   | 1    | 1    | 1    | 2    | 2   | 1   | 1   | 1                                                                                                                                                           | 2   | 1   | 2   | 1    | 2.6                             | 9.5           |
| 16-Apr                                     | 1                             | 1                             | 1    | 1    | A  | 3    | 2    | 2    | 2    | 1    | 1   | 1   | 1    | 1    | 1    | 1    | 1   | 1   | 1   | 2                                                                                                                                                           | 3   | 2   | 3   | 2    | 1.5                             | 3.2           |
| 17-Apr                                     | 5                             | 3                             | 2    | 3    | A  | 12   | 8    | 8    | 3    | 3    | 1   | 1   | 1    | 1    | 1    | 1    | 1   | 1   | 1   | 2                                                                                                                                                           | 3   | 3   | 6   | 5    | 3.2                             | 12.2          |
| 18-Apr                                     | 4                             | 7                             | 5    | 5    | A  | 26   | 16   | 6    | 4    | 3    | 2   | 2   | 2    | 1    | 1    | 1    | 2   | 1   | 2   | 4                                                                                                                                                           | 7   | 4   | 5   | 6    | 5.0                             | 26.1          |
| 19-Apr                                     | 7                             | 6                             | 8    | 3    | A  | 17   | 17   | 8    | 3    | 2    | 2   | 1   | 2    | 2    | 1    | 2    | 2   | 2   | 2   | 2                                                                                                                                                           | 8   | 5   | 6   | 3    | 4.8                             | 16.7          |
| 20-Apr                                     | 2                             | 2                             | 3    | 5    | A  | 6    | 8    | 6    | 3    | 1    | 1   | 1   | 1    | 1    | 1    | 1    | 2   | 2   | 2   | 4                                                                                                                                                           | 2   | 3   | 5   | 2    | 2.8                             | 7.9           |
| 21-Apr                                     | 2                             | 5                             | 5    | 3    | A  | 4    | 4    | 3    | 2    | 1    | 1   | 2   | 1    | 2    | 1    | 1    | 2   | 3   | 2   | 4                                                                                                                                                           | 4   | 3   | 3   | 2    | 2.6                             | 5.4           |
| 22-Apr                                     | 3                             | 1                             | 2    | 2    | A  | 8    | 3    | 1    | 1    | 1    | 1   | 1   | 1    | 1    | 1    | 1    | 1   | 1   | 2   | 1                                                                                                                                                           | 3   | 2   | 1   | 1    | 1.7                             | 8.0           |
| 23-Apr                                     | 1                             | 1                             | 1    | 1    | A  | 4    | 4    | 5    | 2    | 1    | 1   | 1   | 1    | 1    | 1    | 1    | 1   | 2   | 2   | 2                                                                                                                                                           | 7   | 10  | 3   | 2    | 2.3                             | 9.9           |
| 24-Apr                                     | 2                             | 2                             | 2    | 2    | A  | 5    | 10   | 4    | 5    | 4    | 2   | 1   | 1    | 1    | 1    | 1    | 1   | 1   | 1   | 9                                                                                                                                                           | 3   | 2   | 4   | 2    | 2.9                             | 9.9           |
| 25-Apr                                     | 3                             | 4                             | 4    | 4    | A  | 10   | 6    | 16   | 5    | 4    | 4   | 3   | 3    | 4    | 3    | 2    | 2   | 2   | 2   | 7                                                                                                                                                           | 3   | 2   | 2   | 2    | 4.3                             | 16.3          |
| 26-Apr                                     | 2                             | 4                             | 7    | 4    | A  | 12   | 7    | 6    | 6    | 2    | 1   | 1   | 2    | 1    | 2    | 3    | 2   | 2   | 2   | 2                                                                                                                                                           | 6   | 4   | 6   | 2    | 3.7                             | 11.8          |
| 27-Apr                                     | 2                             | 2                             | 2    | 2    | A  | 8    | 5    | 9    | 6    | 3    | 3   | 3   | 1    | 1    | 1    | 1    | 1   | 2   | 2   | 2                                                                                                                                                           | 5   | 5   | 3   | 2    | 3.0                             | 8.8           |
| 28-Apr                                     | 2                             | 2                             | 3    | 3    | A  | 9    | 4    | 4    | 2    | 3    | 3   | 3   | 2    | 2    | 3    | 3    | 3   | 3   | 3   | 5                                                                                                                                                           | 7   | 5   | 5   | 5    | 3.7                             | 9.5           |
| 29-Apr                                     | 4                             | 3                             | 11   | 11   | A  | 7    | 4    | 4    | 11   | 4    | 1   | 1   | 1    | 1    | 2    | 2    | 1   | 2   | 3   | 3                                                                                                                                                           | 4   | 3   | 2   | 4    | 3.9                             | 11.2          |
| 30-Apr                                     | 3                             | 1                             | 4    | 6    | A  | 5    | 4    | 3    | 1    | 1    | 1   | 1   | 1    | 1    | 2    | 1    | 1   | 1   | 1   | 2                                                                                                                                                           | 2   | 1   | 1   | 2    | 2.0                             | 6.0           |
| 3.6                                        |                               | 3.4                           | 4.3  | 4.6  | -- | 8.6  | 6.8  | 6.2  | 5.0  | 3.6  | 2.2 | 1.9 | 2.2  | 2.3  | 3.1  | 2.2  | 2.3 | 2.3 | 2.8 | 4.0                                                                                                                                                         | 4.5 | 4.1 | 4.1 | 3.5  | Diurnal Average                 |               |
| 22.3                                       |                               | 15.6                          | 25.1 | 19.4 | -- | 26.1 | 16.7 | 17.4 | 20.1 | 13.6 | 5.4 | 5.9 | 15.3 | 15.5 | 28.1 | 11.2 | 7.9 | 6.0 | 9.1 | 13.2                                                                                                                                                        | 9.2 | 9.9 | 8.6 | 11.2 | Diurnal Maximum                 |               |
| C - Calibration                            |                               | A - Automated Daily Zero Span |      |      |    |      |      |      |      |      |     |     |      |      |      |      |     |     |     |                                                                                                                                                             |     |     |     |      |                                 |               |

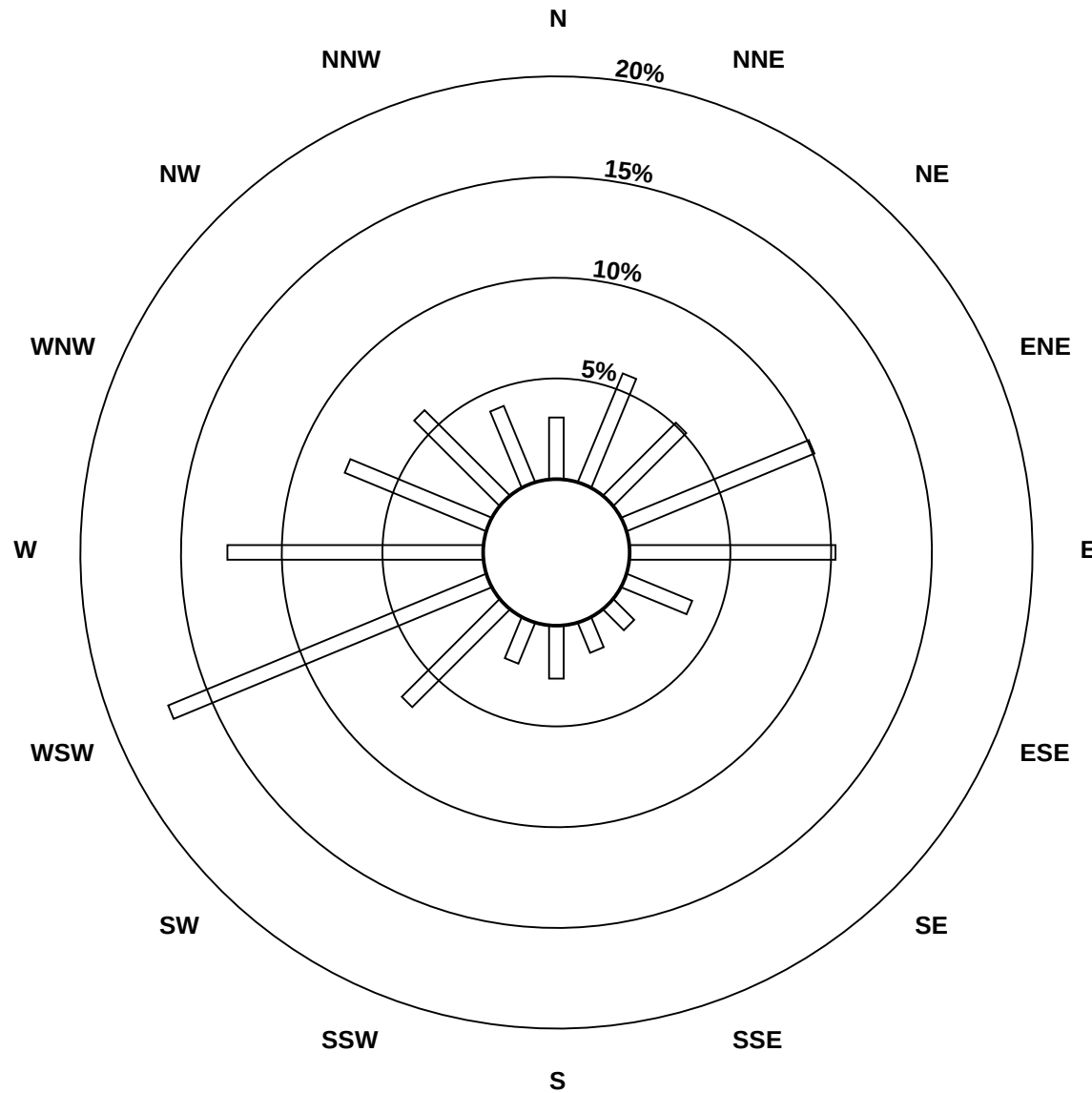
## Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Beaverlodge - April 2011

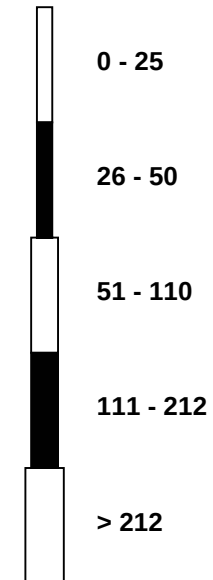


## Pollutant Rose

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Beaverlodge - April 2011

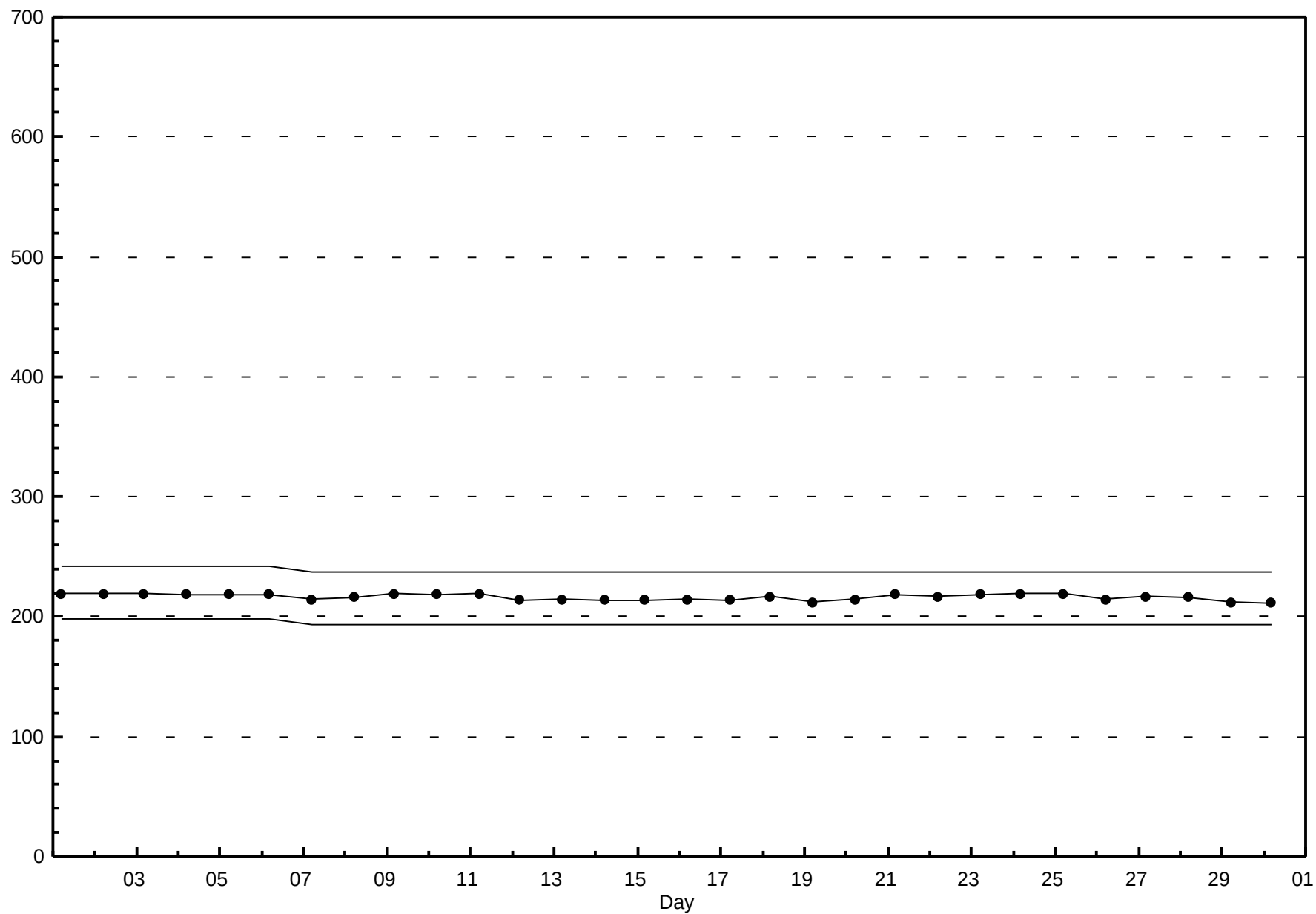


## Pollutant Classes (ppb)



## Span Responses

Nitrogen Dioxide (NO<sub>2</sub>)  
Beaverlodge - April 2011



# Hourly Averages

Nitrogen Oxide (NO) - ppb

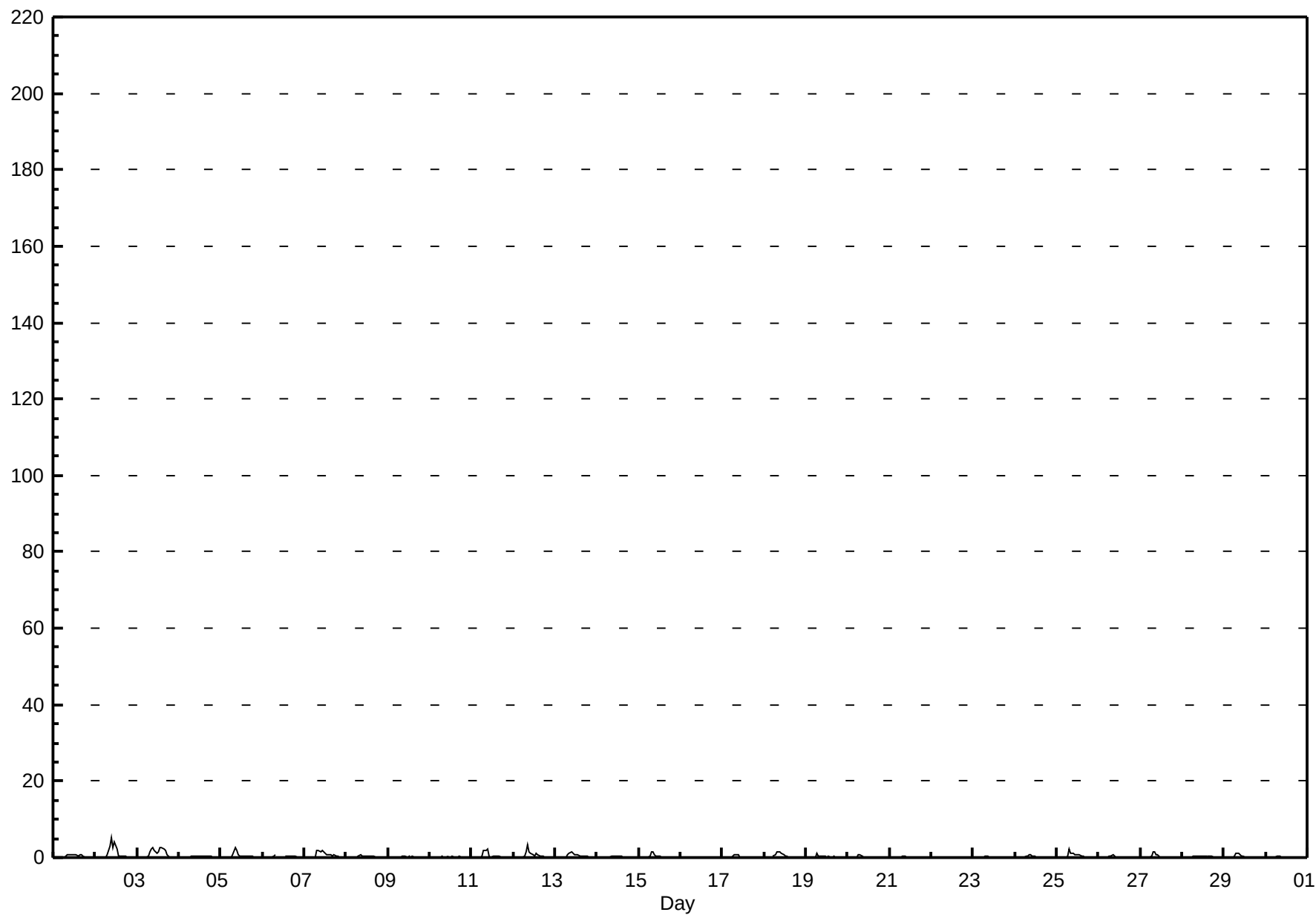
Beaverlodge - April 2011

|                                                                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                                 |    |                 |               |
|------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|---------------------------------|----|-----------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Hours in Service: 720                                                                                                                                      |    |    |    |                                 |    |                 |               |
| Maximum Value: 5.1 ppb on Apr 2 10:00                                                          |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 0.9 ppb on Apr 3                                                                                                                    |    |    |    | Hours of Data: 685              |    |                 |               |
| Minimum Value: 0 ppb on Apr 4 01:00                                                            |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.0 ppb on Apr 16                                                                                                                   |    |    |    | Hours of Missing Data: 35       |    |                 |               |
| Maximum Diurnal Average: 1.0 ppb at hour 9                                                     |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.0 ppb at hour 1                                                                                                                 |    |    |    | Hours of Calibration: 35        |    |                 |               |
| Monthly Average: 0.28 ppb                                                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.7 P <sub>99</sub> = 2.6 |    |    |    | Percent Operational Time: 100.0 |    |                 |               |
| Day                                                                                            | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                                 |    | Daily Average   | Daily Maximum |
|                                                                                                | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                         | 20 | 21 | 22 | 23                              | 24 |                 |               |
| 1-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.3             | 0.9           |
| 2-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 3 | 5  | 3  | 4  | 2  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.8             | 5.1           |
| 3-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 2 | 3  | 2  | 1  | 2  | 3  | 3  | 2  | 2  | 1  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.9             | 2.7           |
| 4-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.4           |
| 5-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 3 | 2  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.4             | 2.6           |
| 6-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | C | C  | C  | C  | C  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.9           |
| 7-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 2 | 2 | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.6             | 2.0           |
| 8-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.8           |
| 9-Apr                                                                                          | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.3           |
| 10-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.2           |
| 11-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 1 | 2 | 2 | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.4             | 2.4           |
| 12-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 3 | 2  | 1  | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.5             | 3.3           |
| 13-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 2  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.4             | 1.6           |
| 14-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.5           |
| 15-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 1.4           |
| 16-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.0             | 0.2           |
| 17-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.9           |
| 18-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 1 | 2 | 1 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.4             | 1.6           |
| 19-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 1 | 0 | 1 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 1.0           |
| 20-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 1 | 1 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.8           |
| 21-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.4           |
| 22-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.2           |
| 23-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.3           |
| 24-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.8           |
| 25-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 2 | 1 | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.4             | 2.4           |
| 26-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 1 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.6           |
| 27-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 1.4           |
| 28-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 0.5           |
| 29-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.2             | 1.2           |
| 30-Apr                                                                                         | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0                               | 0  | 0.1             | 0.4           |
| 0.0 0.0 0.0 0.0 -- 0.1 0.3 0.8 1.0 0.9 0.6 0.5 0.4 0.4 0.3 0.3 0.3 0.2 0.1 0.1 0.0 0.0 0.0 0.0 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                                 |    | Diurnal Average |               |
| 0.1 0.0 0.1 0.1 -- 0.3 1.0 2.4 3.3 5.1 2.5 4.1 2.1 2.7 2.6 2.3 2.0 0.6 0.4 0.2 0.1 0.1 0.1 0.1 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                                 |    | Diurnal Maximum |               |
| C - Calibration A - Automated Daily Zero Span                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |                                 |    |                 |               |



## Hourly Averages

Nitrogen Oxide (NO) - ppb  
Beaverlodge - April 2011



## Hourly Maximums

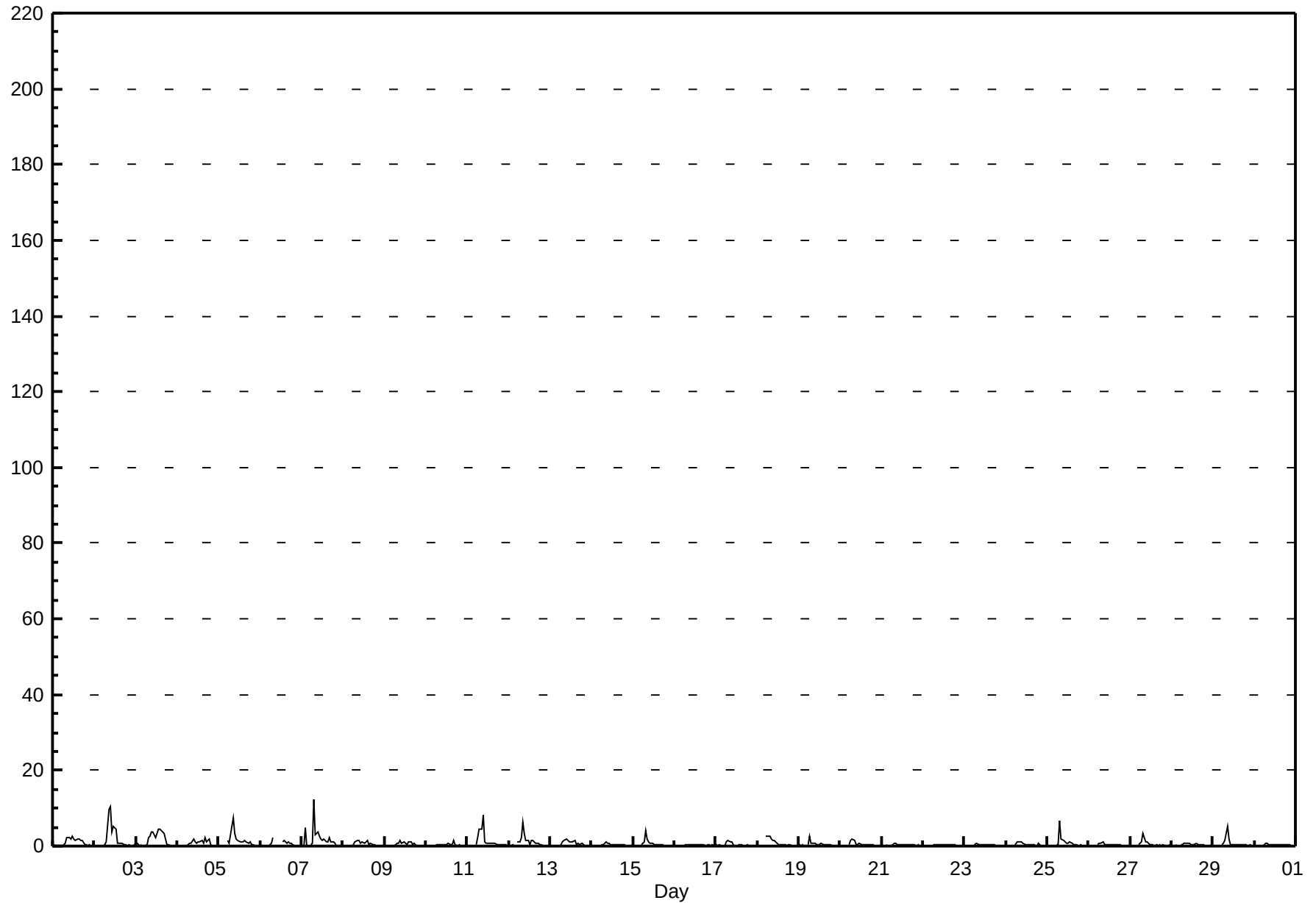
Nitrogen Oxide (NO) - ppb

Beaverlodge - April 2011

|                                            |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     |                                 |               |
|--------------------------------------------|-------------------------------|-------------------------------|-----|-----|----|-----|-----|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|---------------------------------|---------------|
| Maximum Value: 12.4 ppb on Apr 7 08:00     |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     | Maximum Daily Average: 1.8 ppb on Apr 7                                                                                                                    |     |     |     |     | Hours in Service: 720           |               |
| Minimum Value: 0 ppb on Apr 15 23:00       |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     | Minimum Daily Average: 0.2 ppb on Apr 22                                                                                                                   |     |     |     |     | Hours of Data: 685              |               |
| Maximum Diurnal Average: 2.2 ppb at hour 9 |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     | Minimum Diurnal Average: 0.1 ppb at hour 23                                                                                                                |     |     |     |     | Hours of Missing Data: 35       |               |
| Monthly Average: 0.68 ppb                  |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     | Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.6 P <sub>99</sub> = 6.2 |     |     |     |     | Hours of Calibration: 35        |               |
|                                            |                               |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     | Percent Operational Time: 100.0 |               |
| Day                                        | Hourly Period Ending At (MST) |                               |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     | Daily Average                   | Daily Maximum |
|                                            | 1                             | 2                             | 3   | 4   | 5  | 6   | 7   | 8    | 9   | 10   | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20                                                                                                                                                         | 21  | 22  | 23  | 24  |                                 |               |
| 1-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 2   | 2    | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.9                             | 2.5           |
| 2-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 10  | 10   | 4   | 5   | 4   | 1   | 1   | 1   | 1   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.8                             | 10.5          |
| 3-Apr                                      | 1                             | 1                             | 0   | 0   | A  | 0   | 1   | 2    | 2   | 4    | 4   | 2   | 3   | 5   | 5   | 4   | 3   | 2   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.7                             | 4.6           |
| 4-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 1   | 2    | 1   | 1   | 1   | 1   | 1   | 1   | 2   | 1   | 2   | 1                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.7                             | 2.3           |
| 5-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 2   | 1   | 3    | 7   | 3    | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.3                             | 7.5           |
| 6-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 2    | C   | C    | C   | C   | C   | 1   | 2   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.6                             | 2.1           |
| 7-Apr                                      | 0                             | 0                             | 5   | 0   | A  | 0   | 1   | 12   | 3   | 4    | 2   | 2   | 2   | 2   | 1   | 1   | 2   | 1   | 1   | 1                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.8                             | 12.4          |
| 8-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 2   | 2    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.6                             | 1.6           |
| 9-Apr                                      | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 1   | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.5                             | 1.4           |
| 10-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 0   | 0    | 0   | 0   | 0   | 1   | 0   | 0   | 2   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 1.6           |
| 11-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 2   | 4    | 4   | 8    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.2                             | 8.2           |
| 12-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 1   | 1   | 2    | 6   | 3    | 2   | 2   | 1   | 2   | 2   | 1   | 1   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1.1                             | 6.4           |
| 13-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 2   | 2    | 2   | 1   | 1   | 1   | 2   | 1   | 1   | 0   | 1   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.6                             | 1.9           |
| 14-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 1   | 1    | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 1.1           |
| 15-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 4    | 2   | 1    | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.6                             | 4.0           |
| 16-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 0    | 0   | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 0.5           |
| 17-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 1    | 1   | 1    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 1.3           |
| 18-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 3   | 3   | 2    | 2   | 2    | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.7                             | 2.6           |
| 19-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 1   | 3   | 1    | 1   | 1    | 1   | 0   | 0   | 1   | 0   | 0   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.5                             | 2.6           |
| 20-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 2   | 2    | 1   | 1    | 0   | 1   | 1   | 0   | 0   | 0   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.5                             | 1.9           |
| 21-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 1   | 0    | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 0.7           |
| 22-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 0    | 0   | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.2                             | 0.4           |
| 23-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 0   | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.2                             | 0.8           |
| 24-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 1    | 1   | 1    | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.4                             | 1.2           |
| 25-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 1   | 0   | 7    | 2   | 2    | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.8                             | 6.8           |
| 26-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 1    | 1   | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 1.1           |
| 27-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 1   | 1   | 3    | 2   | 1    | 1   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.5                             | 3.4           |
| 28-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 0   | 1    | 1   | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.4                             | 0.7           |
| 29-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 2    | 5   | 2    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.6                             | 5.1           |
| 30-Apr                                     | 0                             | 0                             | 0   | 0   | A  | 0   | 1   | 1    | 1   | 0    | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0.3                             | 0.6           |
| 0.2                                        |                               | 0.1                           | 0.3 | 0.1 | -- | 0.4 | 0.8 | 2.0  | 2.2 | 1.9  | 1.1 | 1.0 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.5 | 0.4 | 0.3                                                                                                                                                        | 0.1 | 0.1 | 0.1 | 0.1 | Diurnal Average                 |               |
| 0.6                                        |                               | 0.9                           | 4.7 | 0.4 | -- | 2.6 | 2.6 | 12.4 | 9.6 | 10.5 | 3.8 | 5.4 | 4.3 | 4.6 | 4.6 | 3.8 | 3.5 | 1.7 | 1.8 | 0.6                                                                                                                                                        | 0.4 | 0.3 | 0.4 | 0.3 | Diurnal Maximum                 |               |
| C - Calibration                            |                               | A - Automated Daily Zero Span |     |     |    |     |     |      |     |      |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     |                                 |               |

## Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Beaverlodge - April 2011



# Hourly Averages

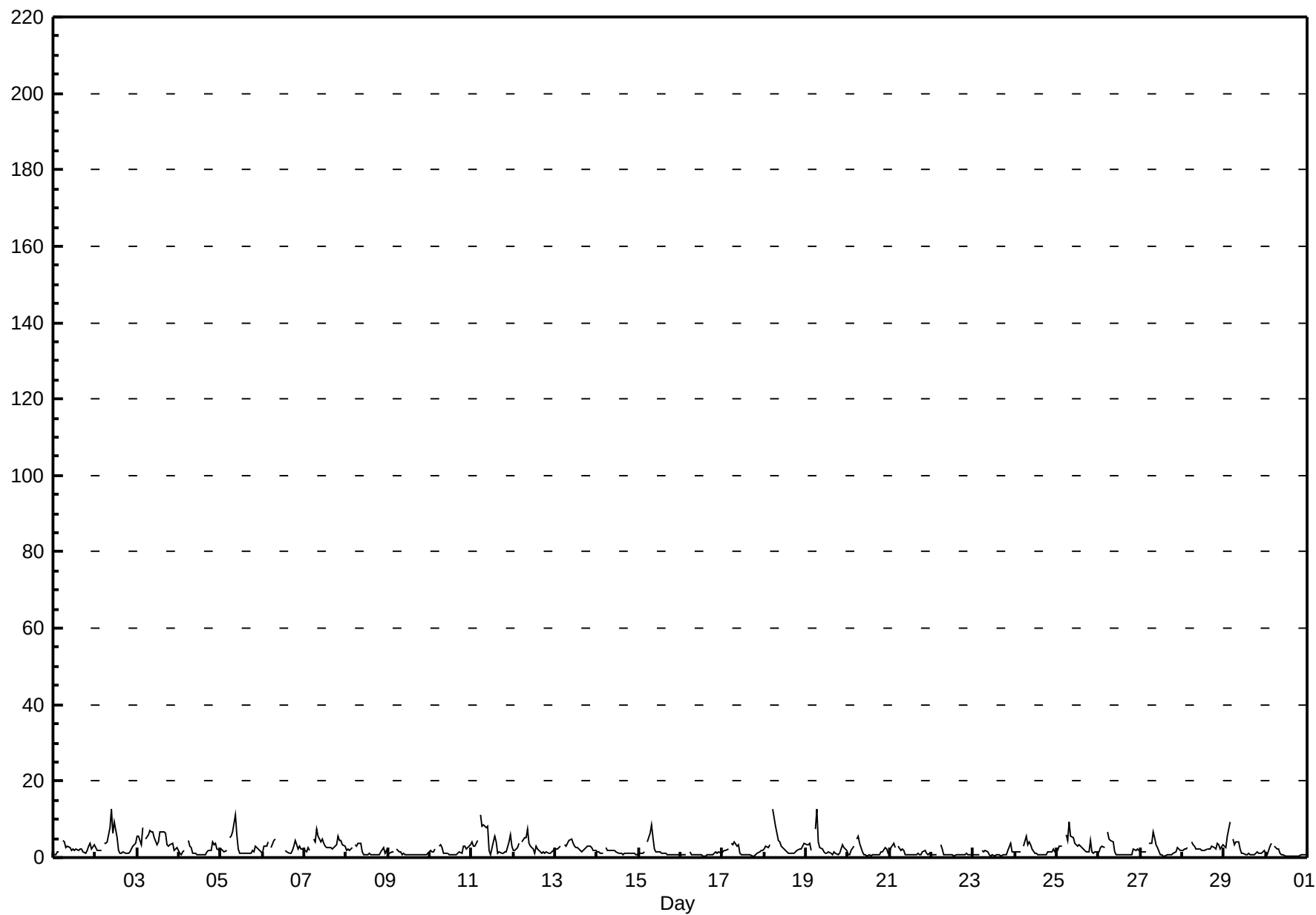
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Beaverlodge - April 2011

|                                                                                                                                    |                               |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|----|----|---|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 12.8 ppb on Apr 19 07:00 Maximum Daily Average: 4.9 ppb on Apr 3 |                               |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 35<br>Percent Operational Time: 100.0 |    |    |    |                 |               |               |
| Minimum Value: 0 ppb on Apr 30 18:00<br>Maximum Diurnal Average: 4.5 ppb at hour 6<br>Monthly Average: 2.26 ppb                    |                               |   |   |   |   |    |    |   |    | Minimum Daily Average: 0.9 ppb on Apr 16<br>Minimum Diurnal Average: 1.3 ppb at hour 18<br>Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 0.9 Median = 1.7 Q <sub>3</sub> = 3.0 P <sub>90</sub> = 4.5 P <sub>99</sub> = 9.2 |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |
| Day                                                                                                                                | Hourly Period Ending At (MST) |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                    | 1                             | 2 | 3 | 4 | 5 | 6  | 7  | 8 | 9  | 10                                                                                                                                                                                                                                                    | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                      | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                              | 1                             | 1 | 2 | 1 | A | 5  | 4  | 3 | 3  | 3                                                                                                                                                                                                                                                     | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 1  | 2                                                                                                                                       | 3  | 4  | 2  | 3               | 2.3           | 4.6           |
| 2-Apr                                                                                                                              | 3                             | 2 | 2 | 2 | A | 4  | 4  | 4 | 8  | 13                                                                                                                                                                                                                                                    | 7  | 9  | 5  | 2  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 3  | 3  | 4               | 3.6           | 12.7          |
| 3-Apr                                                                                                                              | 6                             | 6 | 3 | 8 | A | 5  | 6  | 7 | 7  | 7                                                                                                                                                                                                                                                     | 5  | 3  | 4  | 7  | 7  | 7  | 6  | 3  | 3  | 3                                                                                                                                       | 4  | 2  | 2  | 3               | 4.9           | 8.0           |
| 4-Apr                                                                                                                              | 1                             | 1 | 1 | 2 | A | 4  | 3  | 3 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 2  | 4                                                                                                                                       | 3  | 4  | 2  | 2               | 1.8           | 4.4           |
| 5-Apr                                                                                                                              | 2                             | 2 | 1 | 2 | A | 5  | 5  | 7 | 11 | 6                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1                                                                                                                                       | 3  | 2  | 2  | 2               | 2.8           | 11.2          |
| 6-Apr                                                                                                                              | 1                             | 3 | 3 | 4 | A | 3  | 4  | 5 | C  | C                                                                                                                                                                                                                                                     | C  | C  | C  | 2  | 1  | 1  | 1  | 2  | 3  | 5                                                                                                                                       | 2  | 3  | 2  | 2               | 2.6           | 4.9           |
| 7-Apr                                                                                                                              | 2                             | 2 | 3 | 2 | A | 5  | 4  | 7 | 6  | 4                                                                                                                                                                                                                                                     | 5  | 4  | 3  | 2  | 3  | 2  | 2  | 3  | 3  | 6                                                                                                                                       | 4  | 4  | 3  | 3               | 3.6           | 7.4           |
| 8-Apr                                                                                                                              | 2                             | 2 | 2 | 2 | A | 3  | 3  | 4 | 4  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 3  | 1  | 2               | 1.7           | 3.7           |
| 9-Apr                                                                                                                              | 1                             | 1 | 2 | 2 | A | 2  | 1  | 1 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.0           | 2.1           |
| 10-Apr                                                                                                                             | 2                             | 1 | 2 | 2 | A | 3  | 3  | 3 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 3                                                                                                                                       | 3  | 2  | 3  | 3               | 1.8           | 3.4           |
| 11-Apr                                                                                                                             | 4                             | 3 | 3 | 5 | A | 11 | 8  | 9 | 8  | 8                                                                                                                                                                                                                                                     | 2  | 1  | 4  | 6  | 4  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 4  | 6  | 3               | 4.2           | 11.1          |
| 12-Apr                                                                                                                             | 2                             | 2 | 3 | 4 | A | 4  | 5  | 5 | 8  | 4                                                                                                                                                                                                                                                     | 3  | 2  | 1  | 3  | 2  | 1  | 1  | 2  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 2               | 2.6           | 7.6           |
| 13-Apr                                                                                                                             | 2                             | 2 | 3 | 3 | A | 3  | 3  | 4 | 5  | 5                                                                                                                                                                                                                                                     | 4  | 3  | 3  | 2  | 2  | 2  | 2  | 2  | 3  | 3                                                                                                                                       | 3  | 2  | 2  | 2               | 2.8           | 5.0           |
| 14-Apr                                                                                                                             | 2                             | 2 | 1 | 1 | A | 3  | 2  | 2 | 2  | 2                                                                                                                                                                                                                                                     | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.4           | 2.7           |
| 15-Apr                                                                                                                             | 1                             | 1 | 1 | 2 | A | 4  | 6  | 8 | 5  | 2                                                                                                                                                                                                                                                     | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 2.0           | 8.4           |
| 16-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | A | 2  | 1  | 1 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 0.9           | 1.5           |
| 17-Apr                                                                                                                             | 1                             | 2 | 2 | 2 | A | 4  | 3  | 4 | 3  | 3                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 2  | 2               | 1.7           | 4.1           |
| 18-Apr                                                                                                                             | 2                             | 3 | 3 | 3 | A | 13 | 8  | 6 | 4  | 4                                                                                                                                                                                                                                                     | 3  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                       | 2  | 2  | 3  | 4               | 3.2           | 12.7          |
| 19-Apr                                                                                                                             | 4                             | 3 | 4 | 2 | A | 8  | 13 | 4 | 3  | 2                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 1                                                                                                                                       | 2  | 3  | 2  | 2               | 2.8           | 12.8          |
| 20-Apr                                                                                                                             | 1                             | 1 | 2 | 3 | A | 5  | 6  | 4 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 2  | 2  | 1               | 1.6           | 5.6           |
| 21-Apr                                                                                                                             | 1                             | 2 | 4 | 3 | A | 3  | 2  | 2 | 2  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                       | 2  | 1  | 1  | 1               | 1.5           | 3.7           |
| 22-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | A | 3  | 2  | 1 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 0.9           | 3.3           |
| 23-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | A | 2  | 2  | 2 | 2  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 4  | 2  | 1               | 1.1           | 3.6           |
| 24-Apr                                                                                                                             | 2                             | 2 | 2 | 2 | A | 3  | 5  | 3 | 4  | 3                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 1  | 2  | 1               | 1.9           | 5.5           |
| 25-Apr                                                                                                                             | 2                             | 3 | 3 | 3 | A | 6  | 5  | 9 | 6  | 5                                                                                                                                                                                                                                                     | 4  | 3  | 3  | 3  | 3  | 2  | 2  | 1  | 1  | 4                                                                                                                                       | 1  | 1  | 1  | 2               | 3.2           | 9.1           |
| 26-Apr                                                                                                                             | 2                             | 3 | 3 | 3 | A | 7  | 5  | 4 | 4  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 2  | 2  | 2  | 2               | 2.1           | 6.7           |
| 27-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | A | 4  | 4  | 7 | 5  | 3                                                                                                                                                                                                                                                     | 2  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                       | 1  | 3  | 2  | 2               | 2.0           | 6.6           |
| 28-Apr                                                                                                                             | 2                             | 2 | 2 | 3 | A | 4  | 3  | 3 | 2  | 2                                                                                                                                                                                                                                                     | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 3  | 3  | 2                                                                                                                                       | 4  | 3  | 2  | 3               | 2.6           | 4.2           |
| 29-Apr                                                                                                                             | 3                             | 3 | 6 | 9 | A | 5  | 3  | 4 | 4  | 2                                                                                                                                                                                                                                                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2                                                                                                                                       | 1  | 1  | 2  | 2               | 2.4           | 9.2           |
| 30-Apr                                                                                                                             | 1                             | 1 | 3 | 4 | A | 3  | 2  | 2 | 1  | 1                                                                                                                                                                                                                                                     | 1  | 1  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                       | 1  | 1  | 1  | 1               | 1.1           | 3.8           |
| 1.8 1.9 2.2 2.7 -- 4.5 4.2 4.3 3.8 3.1 2.0 1.7 1.5 1.6 1.4 1.3 1.3 1.3 1.3 1.8 2.0 2.2 2.0 2.0                                     |                               |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Average |               |               |
| 5.6 5.6 5.7 9.2 -- 12.7 12.8 9.1 11.2 12.7 6.5 9.2 5.2 6.6 6.8 6.7 6.4 3.5 3.3 5.6 4.5 4.4 6.1 3.7                                 |                               |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    | Diurnal Maximum |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                      |                               |   |   |   |   |    |    |   |    |                                                                                                                                                                                                                                                       |    |    |    |    |    |    |    |    |    |                                                                                                                                         |    |    |    |                 |               |               |

## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Beaverlodge - April 2011



## Hourly Maximums

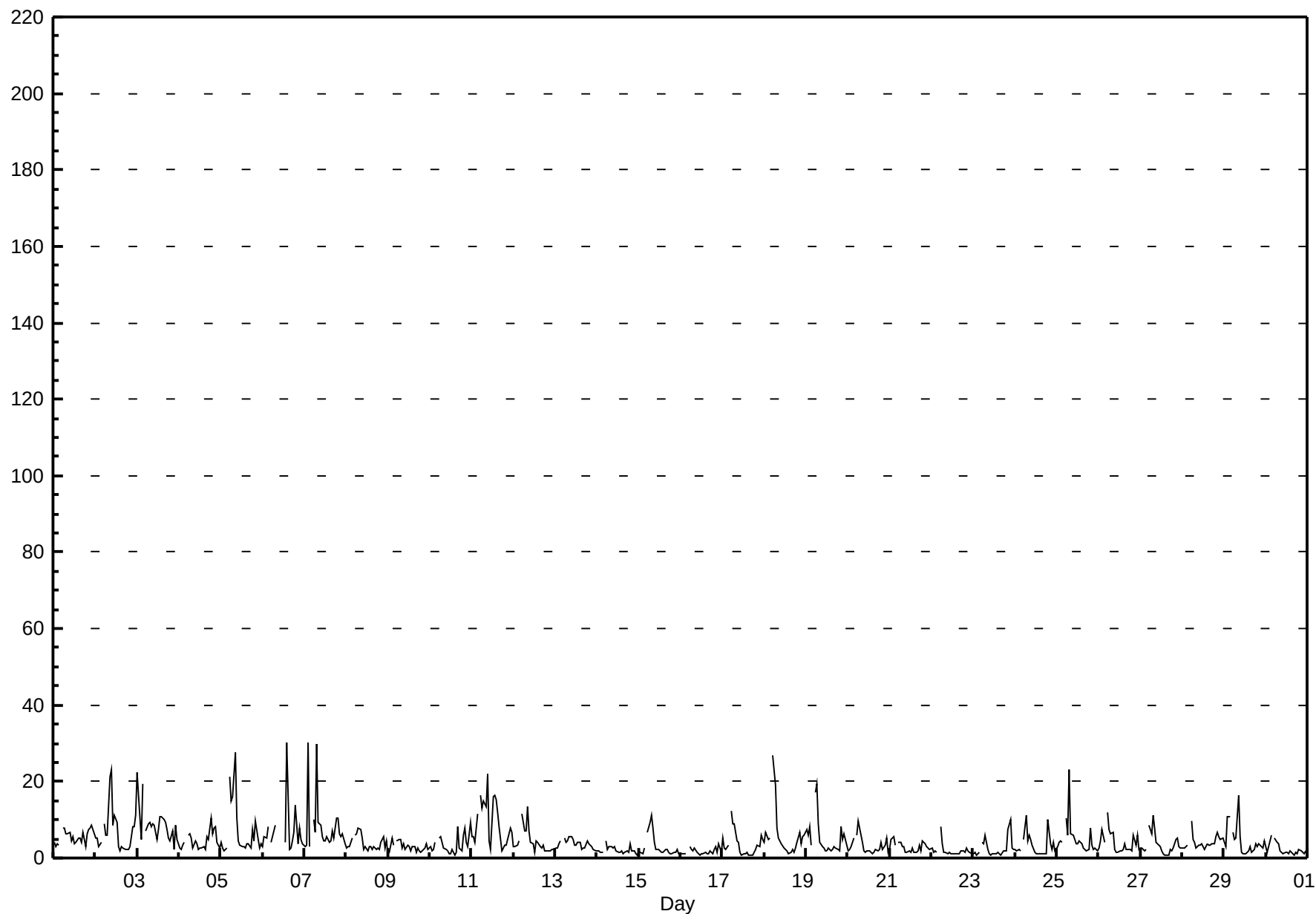
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Beaverlodge - April 2011

| Maximum Value: 30.1 ppb on Apr 7 03:00                                                                           |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 9.3 ppb on Apr 11                                                                                                                    |    |    |    |    |                               |               |  |  |  | Hours in Service: 720     |  |
|------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-------------------------------|---------------|--|--|--|---------------------------|--|
| Minimum Value: 1 ppb on Apr 27 15:00                                                                             |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 1.7 ppb on Apr 16                                                                                                                    |    |    |    |    |                               |               |  |  |  | Hours of Data: 685        |  |
| Maximum Diurnal Average: 8.8 ppb at hour 6                                                                       |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 2.8 ppb at hour 18                                                                                                                 |    |    |    |    |                               |               |  |  |  | Hours of Missing Data: 35 |  |
| Monthly Average: 4.45 ppb                                                                                        |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 1.3 Q <sub>1</sub> = 2.0 Median = 3.1 Q <sub>3</sub> = 5.4 P <sub>90</sub> = 8.6 P <sub>99</sub> = 23.0 |    |    |    |    |                               |               |  |  |  | Hours of Calibration: 35  |  |
|                                                                                                                  |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0                                                                                                                             |    |    |    |    |                               |               |  |  |  |                           |  |
| Day                                                                                                              | Hourly Period Ending At (MST) |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |    | Daily Average                 | Daily Maximum |  |  |  |                           |  |
|                                                                                                                  | 1                             | 2  | 3  | 4  | 5 | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                          | 21 | 22 | 23 | 24 |                               |               |  |  |  |                           |  |
| 1-Apr                                                                                                            | 4                             | 3  | 4  | 3  | A | 8  | 8  | 6  | 6  | 7  | 4  | 6  | 4  | 4  | 5  | 5  | 4  | 7  | 3  | 6                                                                                                                                                           | 8  | 8  | 8  | 6  | 5.5                           | 8.5           |  |  |  |                           |  |
| 2-Apr                                                                                                            | 5                             | 5  | 3  | 4  | A | 9  | 6  | 6  | 21 | 23 | 8  | 11 | 9  | 3  | 2  | 3  | 3  | 2  | 2  | 2                                                                                                                                                           | 3  | 8  | 8  | 11 | 6.9                           | 23.0          |  |  |  |                           |  |
| 3-Apr                                                                                                            | 22                            | 16 | 5  | 19 | A | 7  | 9  | 9  | 8  | 9  | 9  | 5  | 7  | 11 | 11 | 10 | 9  | 8  | 5  | 4                                                                                                                                                           | 7  | 2  | 9  | 5  | 9.0                           | 22.3          |  |  |  |                           |  |
| 4-Apr                                                                                                            | 3                             | 2  | 3  | 4  | A | 6  | 6  | 5  | 3  | 4  | 4  | 2  | 3  | 2  | 3  | 2  | 6  | 5  | 11 | 6                                                                                                                                                           | 8  | 8  | 4  | 2  | 4.5                           | 10.5          |  |  |  |                           |  |
| 5-Apr                                                                                                            | 4                             | 3  | 2  | 2  | A | 21 | 15 | 16 | 27 | 11 | 5  | 3  | 3  | 3  | 3  | 4  | 4  | 3  | 7  | 5                                                                                                                                                           | 10 | 5  | 3  | 4  | 7.0                           | 27.5          |  |  |  |                           |  |
| 6-Apr                                                                                                            | 3                             | 6  | 5  | 8  | A | 4  | 7  | 9  | C  | C  | C  | C  | C  | 4  | 30 | 2  | 3  | 5  | 7  | 14                                                                                                                                                          | 4  | 8  | 5  | 4  | 7.0                           | 30.1          |  |  |  |                           |  |
| 7-Apr                                                                                                            | 3                             | 3  | 30 | 3  | A | 10 | 7  | 30 | 9  | 9  | 6  | 4  | 4  | 6  | 4  | 4  | 7  | 5  | 11 | 10                                                                                                                                                          | 6  | 6  | 6  | 4  | 8.1                           | 30.1          |  |  |  |                           |  |
| 8-Apr                                                                                                            | 3                             | 3  | 3  | 5  | A | 6  | 7  | 8  | 8  | 5  | 2  | 3  | 2  | 3  | 3  | 2  | 3  | 2  | 2  | 2                                                                                                                                                           | 4  | 6  | 3  | 4  | 3.9                           | 7.7           |  |  |  |                           |  |
| 9-Apr                                                                                                            | 1                             | 1  | 5  | 3  | A | 4  | 5  | 5  | 3  | 4  | 2  | 3  | 3  | 2  | 3  | 3  | 2  | 3  | 2  | 2                                                                                                                                                           | 2  | 2  | 4  | 2  | 2.9                           | 5.1           |  |  |  |                           |  |
| 10-Apr                                                                                                           | 3                             | 2  | 2  | 4  | A | 5  | 5  | 4  | 3  | 2  | 2  | 1  | 1  | 2  | 1  | 1  | 8  | 2  | 2  | 6                                                                                                                                                           | 8  | 4  | 3  | 9  | 3.6                           | 9.4           |  |  |  |                           |  |
| 11-Apr                                                                                                           | 5                             | 6  | 4  | 12 | A | 16 | 13 | 15 | 14 | 22 | 4  | 2  | 16 | 17 | 15 | 12 | 8  | 2  | 3  | 3                                                                                                                                                           | 3  | 6  | 8  | 7  | 9.3                           | 21.8          |  |  |  |                           |  |
| 12-Apr                                                                                                           | 3                             | 3  | 3  | 5  | A | 12 | 7  | 7  | 13 | 7  | 4  | 4  | 2  | 4  | 4  | 3  | 3  | 3  | 2  | 2                                                                                                                                                           | 2  | 2  | 2  | 2  | 4.3                           | 13.4          |  |  |  |                           |  |
| 13-Apr                                                                                                           | 3                             | 3  | 4  | 4  | A | 5  | 4  | 4  | 5  | 6  | 5  | 3  | 3  | 4  | 4  | 2  | 3  | 3  | 4  | 4                                                                                                                                                           | 3  | 3  | 2  | 2  | 3.7                           | 5.7           |  |  |  |                           |  |
| 14-Apr                                                                                                           | 2                             | 2  | 1  | 1  | A | 4  | 2  | 3  | 3  | 2  | 3  | 2  | 2  | 2  | 2  | 1  | 2  | 2  | 1  | 4                                                                                                                                                           | 2  | 2  | 1  | 1  | 2.0                           | 4.4           |  |  |  |                           |  |
| 15-Apr                                                                                                           | 2                             | 2  | 1  | 2  | A | 7  | 9  | 11 | 8  | 4  | 2  | 2  | 2  | 1  | 1  | 2  | 2  | 2  | 1  | 1                                                                                                                                                           | 2  | 1  | 2  | 1  | 3.1                           | 11.2          |  |  |  |                           |  |
| 16-Apr                                                                                                           | 1                             | 1  | 1  | 1  | A | 3  | 2  | 2  | 3  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 2                                                                                                                                                           | 3  | 2  | 4  | 2  | 1.7                           | 3.6           |  |  |  |                           |  |
| 17-Apr                                                                                                           | 5                             | 3  | 2  | 3  | A | 12 | 9  | 9  | 4  | 4  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 2                                                                                                                                                           | 3  | 3  | 6  | 5  | 3.6                           | 12.5          |  |  |  |                           |  |
| 18-Apr                                                                                                           | 4                             | 7  | 5  | 5  | A | 27 | 19 | 8  | 5  | 4  | 4  | 3  | 2  | 2  | 1  | 2  | 2  | 1  | 2  | 4                                                                                                                                                           | 7  | 4  | 5  | 6  | 5.6                           | 26.8          |  |  |  |                           |  |
| 19-Apr                                                                                                           | 8                             | 6  | 8  | 3  | A | 17 | 19 | 9  | 4  | 3  | 3  | 2  | 2  | 3  | 2  | 2  | 3  | 3  | 2  | 2                                                                                                                                                           | 8  | 5  | 6  | 3  | 5.3                           | 19.4          |  |  |  |                           |  |
| 20-Apr                                                                                                           | 2                             | 2  | 3  | 5  | A | 6  | 10 | 8  | 4  | 2  | 1  | 2  | 2  | 2  | 1  | 2  | 2  | 2  | 2  | 4                                                                                                                                                           | 2  | 3  | 5  | 2  | 3.2                           | 9.5           |  |  |  |                           |  |
| 21-Apr                                                                                                           | 2                             | 5  | 5  | 4  | A | 4  | 4  | 3  | 3  | 2  | 1  | 2  | 1  | 3  | 1  | 2  | 2  | 3  | 2  | 4                                                                                                                                                           | 4  | 3  | 3  | 2  | 2.8                           | 5.4           |  |  |  |                           |  |
| 22-Apr                                                                                                           | 3                             | 2  | 2  | 2  | A | 8  | 4  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 2  | 1                                                                                                                                                           | 3  | 2  | 1  | 1  | 1.9                           | 8.2           |  |  |  |                           |  |
| 23-Apr                                                                                                           | 1                             | 1  | 1  | 1  | A | 4  | 4  | 6  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 2  | 2                                                                                                                                                           | 7  | 10 | 3  | 2  | 2.5                           | 10.1          |  |  |  |                           |  |
| 24-Apr                                                                                                           | 2                             | 2  | 2  | 2  | A | 5  | 11 | 5  | 6  | 5  | 3  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 10                                                                                                                                                          | 4  | 2  | 4  | 2  | 3.2                           | 11.1          |  |  |  |                           |  |
| 25-Apr                                                                                                           | 3                             | 4  | 4  | 4  | A | 10 | 6  | 23 | 6  | 6  | 5  | 4  | 4  | 5  | 4  | 3  | 2  | 2  | 2  | 8                                                                                                                                                           | 3  | 2  | 2  | 2  | 5.0                           | 23.0          |  |  |  |                           |  |
| 26-Apr                                                                                                           | 2                             | 4  | 7  | 4  | A | 12 | 8  | 6  | 7  | 2  | 2  | 1  | 2  | 2  | 2  | 4  | 2  | 2  | 2  | 2                                                                                                                                                           | 6  | 3  | 6  | 2  | 4.0                           | 11.9          |  |  |  |                           |  |
| 27-Apr                                                                                                           | 3                             | 3  | 2  | 2  | A | 9  | 7  | 11 | 8  | 4  | 4  | 3  | 2  | 1  | 1  | 1  | 1  | 2  | 2  | 3                                                                                                                                                           | 5  | 5  | 3  | 3  | 3.6                           | 11.2          |  |  |  |                           |  |
| 28-Apr                                                                                                           | 3                             | 3  | 3  | 3  | A | 10 | 5  | 4  | 3  | 3  | 3  | 4  | 3  | 2  | 4  | 3  | 4  | 4  | 4  | 6                                                                                                                                                           | 7  | 5  | 5  | 5  | 4.1                           | 9.7           |  |  |  |                           |  |
| 29-Apr                                                                                                           | 4                             | 3  | 11 | 11 | A | 7  | 5  | 5  | 17 | 6  | 1  | 1  | 1  | 2  | 2  | 3  | 1  | 2  | 4  | 3                                                                                                                                                           | 4  | 3  | 3  | 4  | 4.4                           | 16.6          |  |  |  |                           |  |
| 30-Apr                                                                                                           | 3                             | 1  | 4  | 6  | A | 5  | 4  | 4  | 2  | 2  | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 2                                                                                                                                                           | 2  | 2  | 1  | 2  | 2.2                           | 6.1           |  |  |  |                           |  |
| 3.7 3.5 4.6 4.6 -- 8.8 7.5 8.1 7.1 5.6 3.2 2.8 3.0 3.2 3.9 2.8 3.0 2.8 3.2 4.2 4.6 4.2 4.2 3.6                   |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |    | Diurnal Average               |               |  |  |  |                           |  |
| 22.3 16.4 30.1 19.3 -- 26.8 19.4 29.8 27.5 23.0 8.6 11.2 16.1 16.5 30.1 12.0 9.4 7.5 10.6 13.7 9.7 10.1 8.6 11.2 |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |    | Diurnal Maximum               |               |  |  |  |                           |  |
| C - Calibration                                                                                                  |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |    | A - Automated Daily Zero Span |               |  |  |  |                           |  |

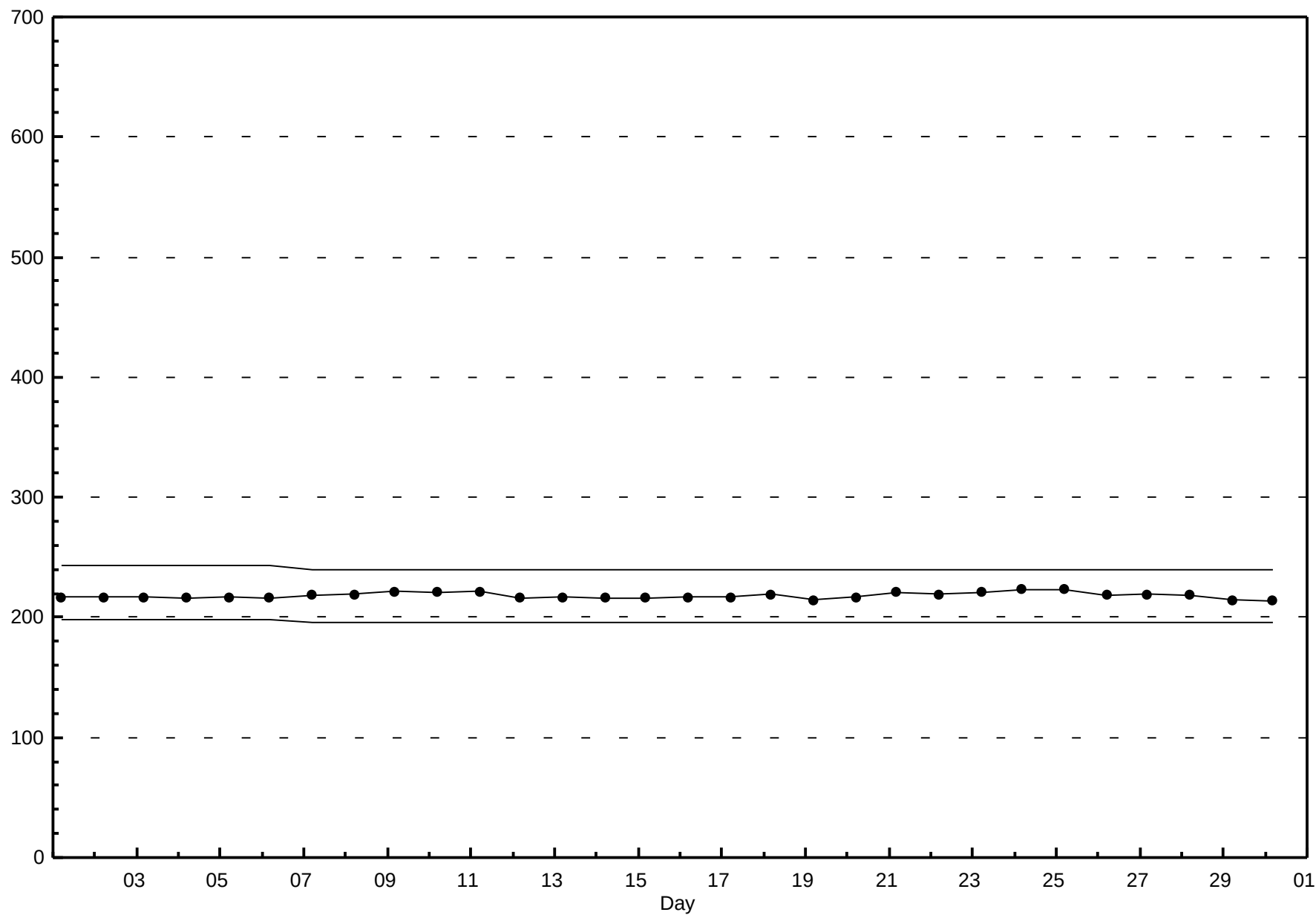
## Hourly Maximums

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Beaverlodge - April 2011



## Span Responses

Oxides of Nitrogen (NO<sub>x</sub>)  
Beaverlodge - April 2011





# Hourly Averages

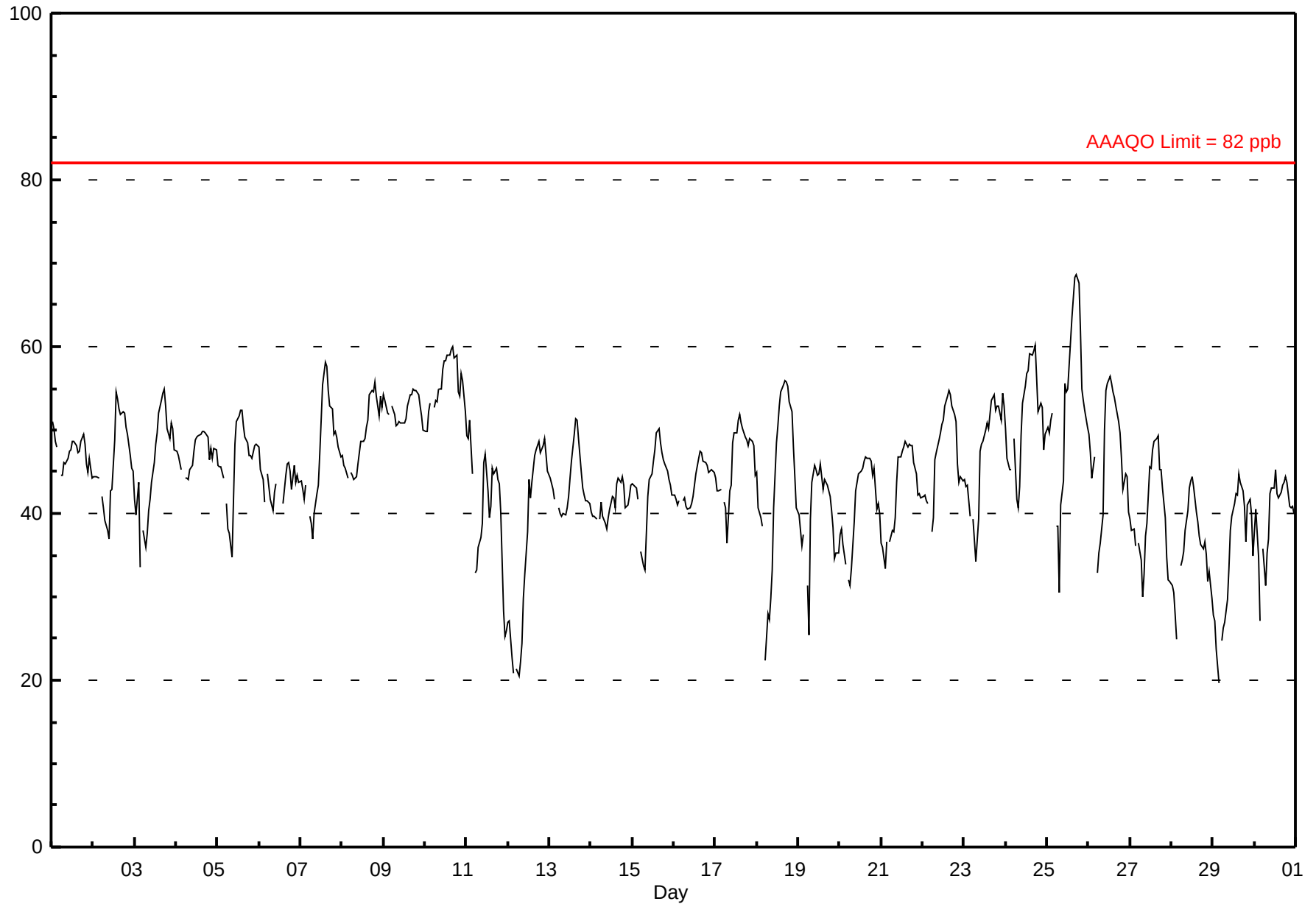
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 68.7 ppb on Apr 25 18:00 Maximum Daily Average: 55.5 ppb on Apr 10 |                               |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 687<br>Hours of Missing Data: 33<br>Hours of Calibration: 33<br>Percent Operational Time: 100.0 |               |               |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|---|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Minimum Value: 20 ppb on Apr 29 04:00<br>Maximum Diurnal Average: 50.4 ppb at hour 17<br>Monthly Average: 44.75 ppb                  |                               |    |    |    |   |    |    |    |    |    |    | Minimum Daily Average: 35.2 ppb on Apr 29<br>Minimum Diurnal Average: 37.5 ppb at hour 7<br>Percentiles: P <sub>1</sub> = 23.4 P <sub>10</sub> = 35.2 Q <sub>1</sub> = 40.7 Median = 44.8 Q <sub>3</sub> = 49.6 P <sub>90</sub> = 54.1 P <sub>99</sub> = 59.6 |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |
| Day                                                                                                                                  | Hourly Period Ending At (MST) |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         | Daily Average | Daily Maximum |
|                                                                                                                                      | 1                             | 2  | 3  | 4  | 5 | 6  | 7  | 8  | 9  | 10 | 11 | 12                                                                                                                                                                                                                                                            | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                      |               |               |
| 1-Apr                                                                                                                                | 51                            | 50 | 49 | 48 | A | 45 | 45 | 46 | 46 | 47 | 47 | 48                                                                                                                                                                                                                                                            | 49 | 49 | 48 | 47 | 47 | 49 | 49 | 48 | 46 | 45 | 47 | 44                                                                                                                                      | 47.3          | 51.0          |
| 2-Apr                                                                                                                                | 44                            | 44 | 44 | 44 | A | 42 | 41 | 39 | 38 | 37 | 43 | 43                                                                                                                                                                                                                                                            | 49 | 55 | 54 | 53 | 52 | 52 | 50 | 49 | 47 | 45 | 45 | 45                                                                                                                                      | 46.2          | 54.6          |
| 3-Apr                                                                                                                                | 42                            | 40 | 44 | 34 | A | 38 | 36 | 38 | 40 | 42 | 44 | 46                                                                                                                                                                                                                                                            | 48 | 50 | 52 | 54 | 54 | 55 | 53 | 50 | 49 | 51 | 50 | 48                                                                                                                                      | 45.9          | 54.9          |
| 4-Apr                                                                                                                                | 47                            | 47 | 46 | 45 | A | 44 | 44 | 44 | 45 | 46 | 47 | 49                                                                                                                                                                                                                                                            | 49 | 49 | 49 | 50 | 50 | 50 | 49 | 46 | 48 | 47 | 48 | 48                                                                                                                                      | 47.3          | 49.9          |
| 5-Apr                                                                                                                                | 46                            | 46 | 46 | 44 | A | 41 | 38 | 38 | 35 | 42 | 48 | 51                                                                                                                                                                                                                                                            | 52 | 52 | 52 | 51 | 49 | 49 | 47 | 47 | 47 | 48 | 48 | 48                                                                                                                                      | 46.3          | 52.5          |
| 6-Apr                                                                                                                                | 48                            | 45 | 44 | 41 | A | 45 | 42 | 41 | 40 | 43 | 44 | C                                                                                                                                                                                                                                                             | C  | C  | 41 | 45 | 46 | 46 | 45 | 43 | 46 | 44 | 45 | 44                                                                                                                                      | 43.8          | 47.9          |
| 7-Apr                                                                                                                                | 44                            | 43 | 42 | 43 | A | 40 | 39 | 37 | 40 | 42 | 43 | 47                                                                                                                                                                                                                                                            | 51 | 55 | 58 | 58 | 55 | 53 | 53 | 49 | 50 | 49 | 48 | 47                                                                                                                                      | 47.2          | 58.1          |
| 8-Apr                                                                                                                                | 47                            | 46 | 45 | 44 | A | 45 | 45 | 44 | 44 | 46 | 47 | 49                                                                                                                                                                                                                                                            | 49 | 49 | 50 | 51 | 54 | 55 | 55 | 56 | 54 | 52 | 54 | 53                                                                                                                                      | 49.3          | 55.7          |
| 9-Apr                                                                                                                                | 54                            | 54 | 52 | 52 | A | 53 | 52 | 50 | 51 | 51 | 51 | 51                                                                                                                                                                                                                                                            | 51 | 51 | 53 | 54 | 54 | 55 | 55 | 55 | 54 | 53 | 52 | 50                                                                                                                                      | 52.5          | 54.9          |
| 10-Apr                                                                                                                               | 50                            | 50 | 52 | 53 | A | 53 | 53 | 53 | 55 | 55 | 57 | 58                                                                                                                                                                                                                                                            | 58 | 59 | 59 | 60 | 60 | 59 | 59 | 55 | 54 | 57 | 56 | 52                                                                                                                                      | 55.5          | 60.1          |
| 11-Apr                                                                                                                               | 49                            | 49 | 51 | 45 | A | 33 | 33 | 36 | 37 | 39 | 46 | 47                                                                                                                                                                                                                                                            | 43 | 40 | 41 | 45 | 45 | 45 | 44 | 44 | 40 | 28 | 25 | 26                                                                                                                                      | 40.5          | 51.3          |
| 12-Apr                                                                                                                               | 27                            | 27 | 23 | 21 | A | 21 | 20 | 22 | 24 | 30 | 33 | 38                                                                                                                                                                                                                                                            | 44 | 42 | 44 | 47 | 48 | 48 | 49 | 47 | 48 | 49 | 47 | 45                                                                                                                                      | 36.7          | 49.0          |
| 13-Apr                                                                                                                               | 44                            | 44 | 43 | 42 | A | 41 | 40 | 40 | 40 | 40 | 41 | 42                                                                                                                                                                                                                                                            | 44 | 46 | 49 | 51 | 51 | 49 | 45 | 43 | 42 | 41 | 42 | 41                                                                                                                                      | 43.5          | 51.3          |
| 14-Apr                                                                                                                               | 40                            | 40 | 40 | 39 | A | 39 | 41 | 40 | 39 | 38 | 40 | 41                                                                                                                                                                                                                                                            | 42 | 42 | 41 | 44 | 44 | 44 | 44 | 43 | 41 | 41 | 42 | 43                                                                                                                                      | 41.2          | 44.5          |
| 15-Apr                                                                                                                               | 44                            | 43 | 43 | 42 | A | 35 | 34 | 33 | 38 | 42 | 44 | 45                                                                                                                                                                                                                                                            | 46 | 48 | 50 | 50 | 49 | 47 | 46 | 46 | 45 | 44 | 43 | 42                                                                                                                                      | 43.4          | 50.2          |
| 16-Apr                                                                                                                               | 42                            | 42 | 41 | 41 | A | 42 | 42 | 41 | 40 | 41 | 41 | 42                                                                                                                                                                                                                                                            | 43 | 45 | 47 | 47 | 47 | 46 | 46 | 46 | 45 | 45 | 45 | 45                                                                                                                                      | 43.6          | 47.4          |
| 17-Apr                                                                                                                               | 44                            | 43 | 43 | 43 | A | 41 | 41 | 36 | 43 | 43 | 48 | 50                                                                                                                                                                                                                                                            | 50 | 51 | 52 | 51 | 50 | 49 | 49 | 48 | 49 | 49 | 48 | 45                                                                                                                                      | 46.3          | 51.9          |
| 18-Apr                                                                                                                               | 45                            | 41 | 39 | 38 | A | 22 | 28 | 27 | 30 | 33 | 41 | 49                                                                                                                                                                                                                                                            | 51 | 53 | 55 | 55 | 56 | 56 | 55 | 53 | 52 | 48 | 44 | 41                                                                                                                                      | 44.0          | 56.0          |
| 19-Apr                                                                                                                               | 40                            | 38 | 36 | 38 | A | 31 | 25 | 39 | 44 | 46 | 45 | 44                                                                                                                                                                                                                                                            | 45 | 46 | 43 | 44 | 44 | 43 | 42 | 40 | 38 | 35 | 35 | 35                                                                                                                                      | 39.9          | 46.0          |
| 20-Apr                                                                                                                               | 37                            | 38 | 36 | 34 | A | 32 | 31 | 33 | 39 | 43 | 44 | 45                                                                                                                                                                                                                                                            | 45 | 45 | 46 | 47 | 47 | 47 | 46 | 45 | 46 | 40 | 41 | 40                                                                                                                                      | 41.2          | 46.8          |
| 21-Apr                                                                                                                               | 37                            | 36 | 33 | 37 | A | 37 | 38 | 38 | 39 | 44 | 47 | 47                                                                                                                                                                                                                                                            | 47 | 48 | 49 | 48 | 48 | 48 | 48 | 46 | 45 | 42 | 42 | 42                                                                                                                                      | 42.8          | 48.7          |
| 22-Apr                                                                                                                               | 42                            | 42 | 42 | 41 | A | 38 | 39 | 46 | 47 | 49 | 50 | 51                                                                                                                                                                                                                                                            | 51 | 53 | 54 | 55 | 54 | 53 | 52 | 51 | 46 | 44 | 44 | 44                                                                                                                                      | 47.3          | 54.8          |
| 23-Apr                                                                                                                               | 44                            | 43 | 43 | 40 | A | 39 | 37 | 34 | 39 | 47 | 48 | 49                                                                                                                                                                                                                                                            | 50 | 51 | 50 | 52 | 54 | 54 | 52 | 53 | 53 | 51 | 54 | 53                                                                                                                                      | 47.5          | 54.4          |
| 24-Apr                                                                                                                               | 50                            | 47 | 45 | 45 | A | 49 | 42 | 41 | 43 | 49 | 53 | 55                                                                                                                                                                                                                                                            | 57 | 57 | 59 | 59 | 60 | 60 | 56 | 52 | 53 | 53 | 48 | 49                                                                                                                                      | 51.4          | 60.2          |
| 25-Apr                                                                                                                               | 50                            | 50 | 51 | 52 | A | 39 | 38 | 30 | 41 | 44 | 56 | 55                                                                                                                                                                                                                                                            | 55 | 58 | 64 | 66 | 68 | 69 | 68 | 62 | 55 | 53 | 52 | 50                                                                                                                                      | 53.3          | 68.7          |
| 26-Apr                                                                                                                               | 50                            | 47 | 44 | 47 | A | 33 | 35 | 36 | 40 | 50 | 55 | 56                                                                                                                                                                                                                                                            | 56 | 56 | 55 | 54 | 53 | 51 | 50 | 47 | 43 | 45 | 44 | 40                                                                                                                                      | 47.2          | 56.4          |
| 27-Apr                                                                                                                               | 39                            | 38 | 38 | 36 | A | 36 | 34 | 30 | 33 | 37 | 39 | 46                                                                                                                                                                                                                                                            | 45 | 48 | 49 | 49 | 49 | 45 | 45 | 43 | 40 | 35 | 32 | 32                                                                                                                                      | 39.9          | 49.3          |
| 28-Apr                                                                                                                               | 31                            | 30 | 28 | 25 | A | 34 | 34 | 35 | 38 | 40 | 43 | 44                                                                                                                                                                                                                                                            | 44 | 43 | 40 | 39 | 37 | 36 | 36 | 37 | 35 | 32 | 33 | 30                                                                                                                                      | 35.9          | 44.5          |
| 29-Apr                                                                                                                               | 28                            | 27 | 24 | 20 | A | 25 | 26 | 27 | 30 | 33 | 38 | 40                                                                                                                                                                                                                                                            | 41 | 42 | 42 | 45 | 44 | 43 | 41 | 37 | 41 | 42 | 40 | 35                                                                                                                                      | 35.2          | 44.8          |
| 30-Apr                                                                                                                               | 38                            | 41 | 35 | 27 | A | 36 | 31 | 35 | 37 | 42 | 43 | 43                                                                                                                                                                                                                                                            | 45 | 42 | 42 | 43 | 43 | 44 | 44 | 44 | 41 | 41 | 41 | 40                                                                                                                                      | 39.9          | 45.2          |
| 43.2 42.3 41.4 40.0 -- 38.3 37.5 37.7 39.9 42.7 45.5 47.1 48.3 49.1 49.6 50.4 50.4 50.0 49.2 47.5 46.5 45.0 44.6 43.2                |                               |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                         |               |               |
| 54.2 53.6 52.1 53.3 -- 52.9 53.5 53.4 54.9 54.9 57.3 58.3 58.2 59.0 63.6 65.9 68.3 68.7 67.7 61.9 55.0 56.9 55.9 53.0                |                               |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                         |               |               |
| C - Calibration A - Automated Daily Zero Span                                                                                        |                               |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na                                                                 |                               |    |    |    |   |    |    |    |    |    |    |                                                                                                                                                                                                                                                               |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                         |               |               |

## Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - April 2011



# Hourly Maximums

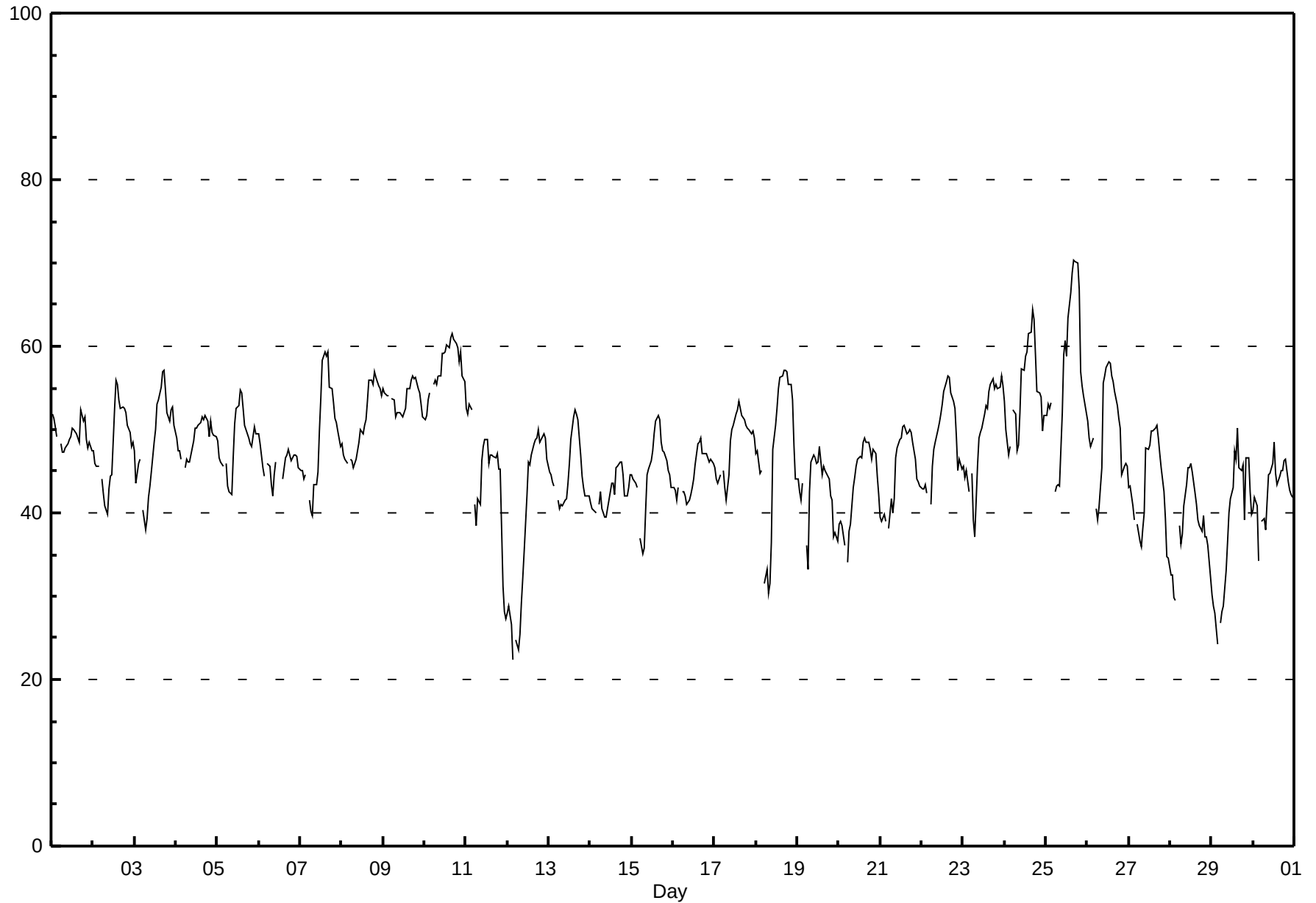
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - April 2011

| Maximum Value: 70.3 ppb on Apr 25 17:00                                                                               |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 57.5 ppb on Apr 10                                                                                                                         |    |    |    |    | Hours in Service: 720     |               |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------------------|---------------|--|--|--|
| Minimum Value: 22 ppb on Apr 12 04:00                                                                                 |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 38.4 ppb on Apr 29                                                                                                                         |    |    |    |    | Hours of Data: 687        |               |  |  |  |
| Maximum Diurnal Average: 52.2 ppb at hour 16                                                                          |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 40.9 ppb at hour 8                                                                                                                       |    |    |    |    | Hours of Missing Data: 33 |               |  |  |  |
| Monthly Average: 47.07 ppb                                                                                            |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 26.7 P <sub>10</sub> = 39.0 Q <sub>1</sub> = 43.1 Median = 47.0 Q <sub>3</sub> = 51.6 P <sub>90</sub> = 55.7 P <sub>99</sub> = 63.6 |    |    |    |    | Hours of Calibration: 33  |               |  |  |  |
|                                                                                                                       |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0                                                                                                                                   |    |    |    |    |                           |               |  |  |  |
| Day                                                                                                                   | Hourly Period Ending At (MST) |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Daily Average             | Daily Maximum |  |  |  |
|                                                                                                                       | 1                             | 2  | 3  | 4  | 5 | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                                | 21 | 22 | 23 | 24 |                           |               |  |  |  |
| 1-Apr                                                                                                                 | 52                            | 51 | 50 | 49 | A | 48 | 47 | 47 | 48 | 48 | 49 | 49 | 50 | 50 | 49 | 49 | 48 | 52 | 51 | 52                                                                                                                                                                | 49 | 48 | 48 | 48 | 49.3                      | 52.3          |  |  |  |
| 2-Apr                                                                                                                 | 48                            | 46 | 46 | 46 | A | 44 | 42 | 41 | 40 | 43 | 44 | 44 | 53 | 56 | 55 | 54 | 53 | 53 | 53 | 52                                                                                                                                                                | 51 | 50 | 48 | 49 | 48.2                      | 56.0          |  |  |  |
| 3-Apr                                                                                                                 | 48                            | 44 | 46 | 47 | A | 40 | 38 | 39 | 42 | 43 | 45 | 49 | 50 | 53 | 54 | 55 | 57 | 57 | 55 | 52                                                                                                                                                                | 51 | 52 | 53 | 51 | 48.7                      | 57.2          |  |  |  |
| 4-Apr                                                                                                                 | 49                            | 48 | 47 | 46 | A | 45 | 46 | 46 | 46 | 48 | 49 | 50 | 50 | 51 | 51 | 52 | 51 | 52 | 51 | 49                                                                                                                                                                | 51 | 50 | 49 | 49 | 49.0                      | 51.6          |  |  |  |
| 5-Apr                                                                                                                 | 49                            | 47 | 46 | 46 | A | 46 | 43 | 43 | 42 | 47 | 51 | 53 | 53 | 55 | 54 | 53 | 51 | 50 | 49 | 48                                                                                                                                                                | 48 | 50 | 50 | 50 | 48.7                      | 54.7          |  |  |  |
| 6-Apr                                                                                                                 | 49                            | 48 | 45 | 44 | A | 46 | 46 | 43 | 42 | 45 | 46 | C  | C  | C  | 44 | 47 | 47 | 48 | 47 | 46                                                                                                                                                                | 47 | 47 | 47 | 45 | 46.0                      | 49.5          |  |  |  |
| 7-Apr                                                                                                                 | 45                            | 45 | 44 | 45 | A | 42 | 40 | 40 | 43 | 43 | 45 | 50 | 54 | 58 | 59 | 59 | 59 | 55 | 55 | 53                                                                                                                                                                | 51 | 51 | 50 | 48 | 49.3                      | 59.4          |  |  |  |
| 8-Apr                                                                                                                 | 48                            | 47 | 46 | 46 | A | 46 | 46 | 45 | 46 | 47 | 48 | 50 | 49 | 50 | 51 | 53 | 56 | 56 | 55 | 57                                                                                                                                                                | 56 | 55 | 55 | 54 | 50.8                      | 57.0          |  |  |  |
| 9-Apr                                                                                                                 | 55                            | 54 | 54 | 54 | A | 54 | 54 | 52 | 52 | 52 | 52 | 52 | 53 | 55 | 55 | 56 | 56 | 56 | 56 | 56                                                                                                                                                                | 55 | 54 | 53 | 52 | 53.8                      | 56.5          |  |  |  |
| 10-Apr                                                                                                                | 51                            | 52 | 54 | 54 | A | 55 | 56 | 55 | 56 | 56 | 59 | 59 | 59 | 60 | 60 | 61 | 61 | 61 | 60 | 60                                                                                                                                                                | 58 | 59 | 57 | 56 | 57.5                      | 61.5          |  |  |  |
| 11-Apr                                                                                                                | 53                            | 52 | 53 | 52 | A | 41 | 38 | 42 | 41 | 46 | 48 | 49 | 49 | 46 | 47 | 47 | 47 | 47 | 47 | 45                                                                                                                                                                | 45 | 31 | 28 | 27 | 44.4                      | 53.0          |  |  |  |
| 12-Apr                                                                                                                | 28                            | 29 | 27 | 22 | A | 25 | 24 | 25 | 29 | 32 | 35 | 42 | 46 | 46 | 47 | 48 | 49 | 49 | 50 | 49                                                                                                                                                                | 49 | 50 | 49 | 47 | 39.0                      | 50.0          |  |  |  |
| 13-Apr                                                                                                                | 45                            | 45 | 44 | 43 | A | 42 | 41 | 41 | 41 | 42 | 42 | 43 | 46 | 49 | 52 | 52 | 52 | 51 | 47 | 44                                                                                                                                                                | 43 | 42 | 42 | 42 | 44.7                      | 52.4          |  |  |  |
| 14-Apr                                                                                                                | 41                            | 40 | 40 | 40 | A | 41 | 42 | 40 | 39 | 40 | 41 | 42 | 43 | 43 | 42 | 45 | 46 | 46 | 46 | 45                                                                                                                                                                | 42 | 42 | 43 | 45 | 42.4                      | 46.0          |  |  |  |
| 15-Apr                                                                                                                | 45                            | 44 | 44 | 43 | A | 37 | 35 | 36 | 40 | 45 | 45 | 46 | 48 | 50 | 51 | 52 | 51 | 49 | 48 | 47                                                                                                                                                                | 46 | 45 | 45 | 43 | 44.9                      | 51.7          |  |  |  |
| 16-Apr                                                                                                                | 43                            | 43 | 42 | 43 | A | 43 | 43 | 42 | 41 | 42 | 42 | 43 | 44 | 46 | 48 | 48 | 49 | 47 | 47 | 47                                                                                                                                                                | 47 | 46 | 46 | 46 | 44.7                      | 49.0          |  |  |  |
| 17-Apr                                                                                                                | 45                            | 44 | 44 | 45 | A | 45 | 43 | 42 | 45 | 49 | 50 | 51 | 52 | 52 | 53 | 53 | 52 | 51 | 50 | 50                                                                                                                                                                | 50 | 50 | 50 | 49 | 48.4                      | 53.3          |  |  |  |
| 18-Apr                                                                                                                | 47                            | 47 | 45 | 45 | A | 32 | 33 | 30 | 32 | 36 | 48 | 51 | 53 | 55 | 56 | 56 | 57 | 57 | 57 | 55                                                                                                                                                                | 55 | 54 | 48 | 44 | 47.5                      | 57.1          |  |  |  |
| 19-Apr                                                                                                                | 44                            | 43 | 42 | 44 | A | 36 | 33 | 43 | 46 | 47 | 47 | 46 | 46 | 48 | 45 | 46 | 45 | 45 | 44 | 42                                                                                                                                                                | 42 | 37 | 38 | 37 | 42.7                      | 48.1          |  |  |  |
| 20-Apr                                                                                                                | 39                            | 39 | 39 | 36 | A | 34 | 38 | 39 | 43 | 44 | 46 | 47 | 47 | 47 | 49 | 49 | 48 | 48 | 48 | 46                                                                                                                                                                | 48 | 47 | 44 | 42 | 43.7                      | 49.0          |  |  |  |
| 21-Apr                                                                                                                | 39                            | 39 | 40 | 39 | A | 38 | 42 | 40 | 42 | 47 | 48 | 49 | 49 | 50 | 50 | 50 | 50 | 50 | 50 | 48                                                                                                                                                                | 46 | 44 | 44 | 43 | 45.1                      | 50.5          |  |  |  |
| 22-Apr                                                                                                                | 43                            | 43 | 43 | 42 | A | 41 | 46 | 48 | 48 | 50 | 51 | 52 | 53 | 55 | 56 | 56 | 56 | 54 | 53 | 53                                                                                                                                                                | 49 | 45 | 47 | 45 | 49.1                      | 56.4          |  |  |  |
| 23-Apr                                                                                                                | 46                            | 44 | 45 | 43 | A | 45 | 39 | 37 | 46 | 49 | 50 | 50 | 52 | 53 | 53 | 55 | 55 | 56 | 55 | 55                                                                                                                                                                | 55 | 55 | 56 | 55 | 49.9                      | 56.4          |  |  |  |
| 24-Apr                                                                                                                | 53                            | 50 | 47 | 48 | A | 52 | 52 | 47 | 48 | 52 | 57 | 57 | 59 | 59 | 62 | 62 | 64 | 63 | 59 | 55                                                                                                                                                                | 54 | 54 | 50 | 52 | 54.7                      | 64.3          |  |  |  |
| 25-Apr                                                                                                                | 52                            | 53 | 53 | 53 | A | 43 | 43 | 43 | 43 | 52 | 59 | 61 | 59 | 63 | 66 | 69 | 70 | 70 | 70 | 67                                                                                                                                                                | 57 | 55 | 54 | 52 | 56.9                      | 70.3          |  |  |  |
| 26-Apr                                                                                                                | 51                            | 49 | 48 | 49 | A | 40 | 39 | 41 | 45 | 56 | 57 | 57 | 58 | 58 | 56 | 56 | 55 | 53 | 51 | 50                                                                                                                                                                | 45 | 46 | 46 | 46 | 50.1                      | 58.1          |  |  |  |
| 27-Apr                                                                                                                | 43                            | 43 | 41 | 39 | A | 39 | 37 | 36 | 38 | 40 | 48 | 48 | 48 | 50 | 50 | 50 | 51 | 49 | 47 | 45                                                                                                                                                                | 43 | 39 | 35 | 35 | 43.1                      | 50.5          |  |  |  |
| 28-Apr                                                                                                                | 32                            | 33 | 30 | 30 | A | 38 | 36 | 37 | 41 | 43 | 45 | 45 | 46 | 45 | 42 | 41 | 39 | 39 | 38 | 40                                                                                                                                                                | 37 | 37 | 36 | 32 | 38.4                      | 46.0          |  |  |  |
| 29-Apr                                                                                                                | 30                            | 29 | 28 | 24 | A | 27 | 28 | 29 | 33 | 36 | 40 | 42 | 43 | 47 | 46 | 50 | 45 | 45 | 46 | 39                                                                                                                                                                | 47 | 47 | 42 | 40 | 38.4                      | 50.1          |  |  |  |
| 30-Apr                                                                                                                | 40                            | 42 | 41 | 34 | A | 39 | 39 | 38 | 41 | 45 | 45 | 46 | 48 | 45 | 43 | 44 | 45 | 45 | 46 | 46                                                                                                                                                                | 44 | 43 | 42 | 42 | 42.8                      | 48.5          |  |  |  |
| 45.1 44.4 43.7 43.0 -- 41.5 41.0 40.9 42.7 45.5 47.7 49.0 50.3 51.5 51.6 52.2 52.2 51.8 51.0 49.9 48.7 47.5 46.5 45.4 |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Diurnal Average           |               |  |  |  |
| 55.0 54.5 54.0 54.5 -- 55.5 56.0 55.4 56.4 56.4 59.2 60.6 59.4 63.4 66.4 68.8 70.3 70.2 70.0 66.7 58.2 59.3 56.5 55.7 |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Diurnal Maximum           |               |  |  |  |
| C - Calibration A - Automated Daily Zero Span                                                                         |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    |                           |               |  |  |  |

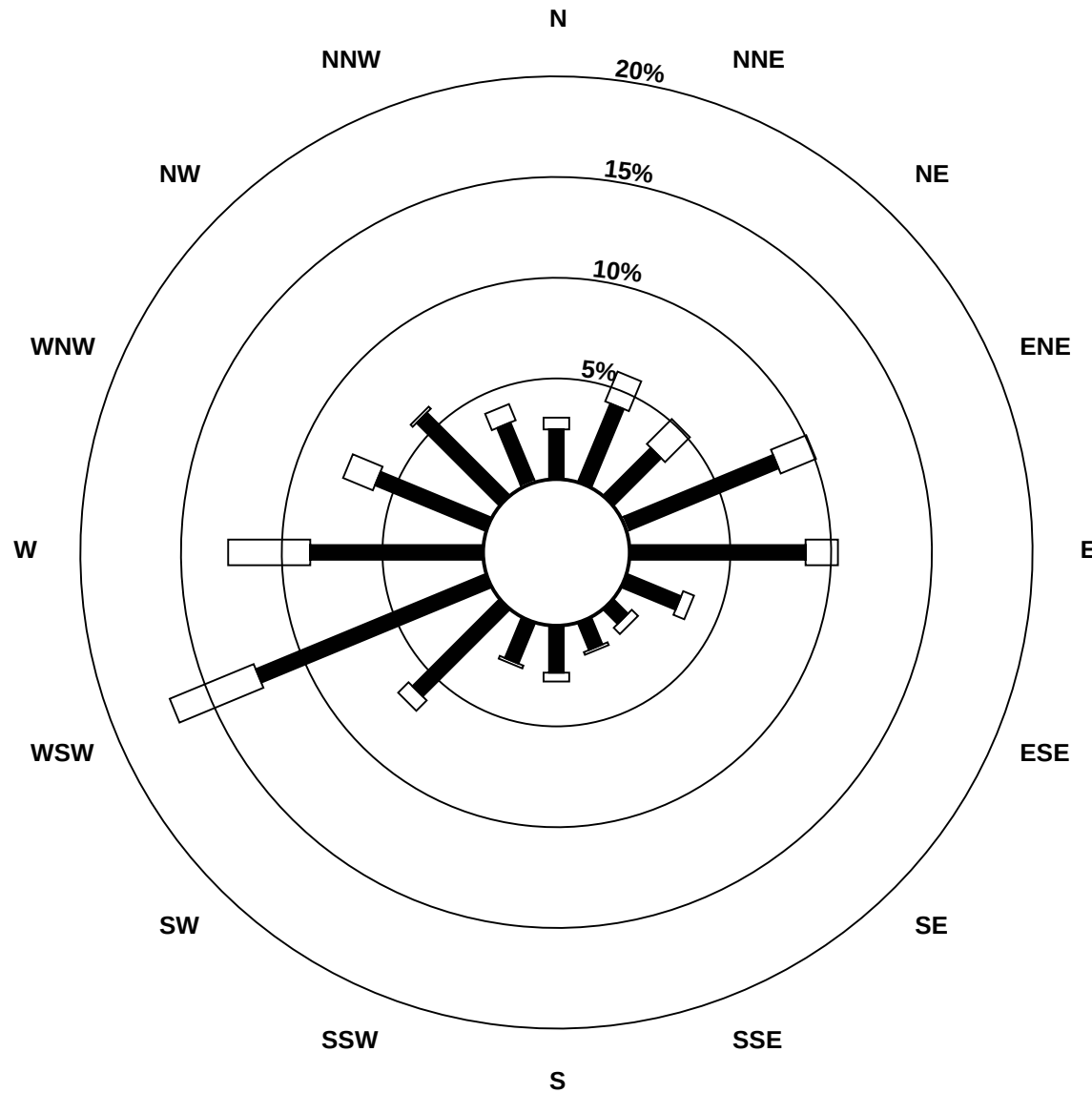
## Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - April 2011

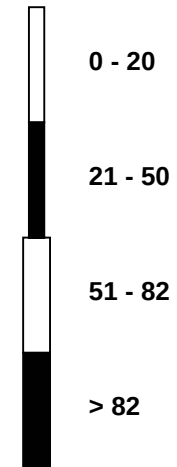


# Pollutant Rose

Ozone (O<sub>3</sub>) - ppb  
Beaverlodge - April 2011



## Pollutant Classes (ppb)



# Eight Hour Running Averages

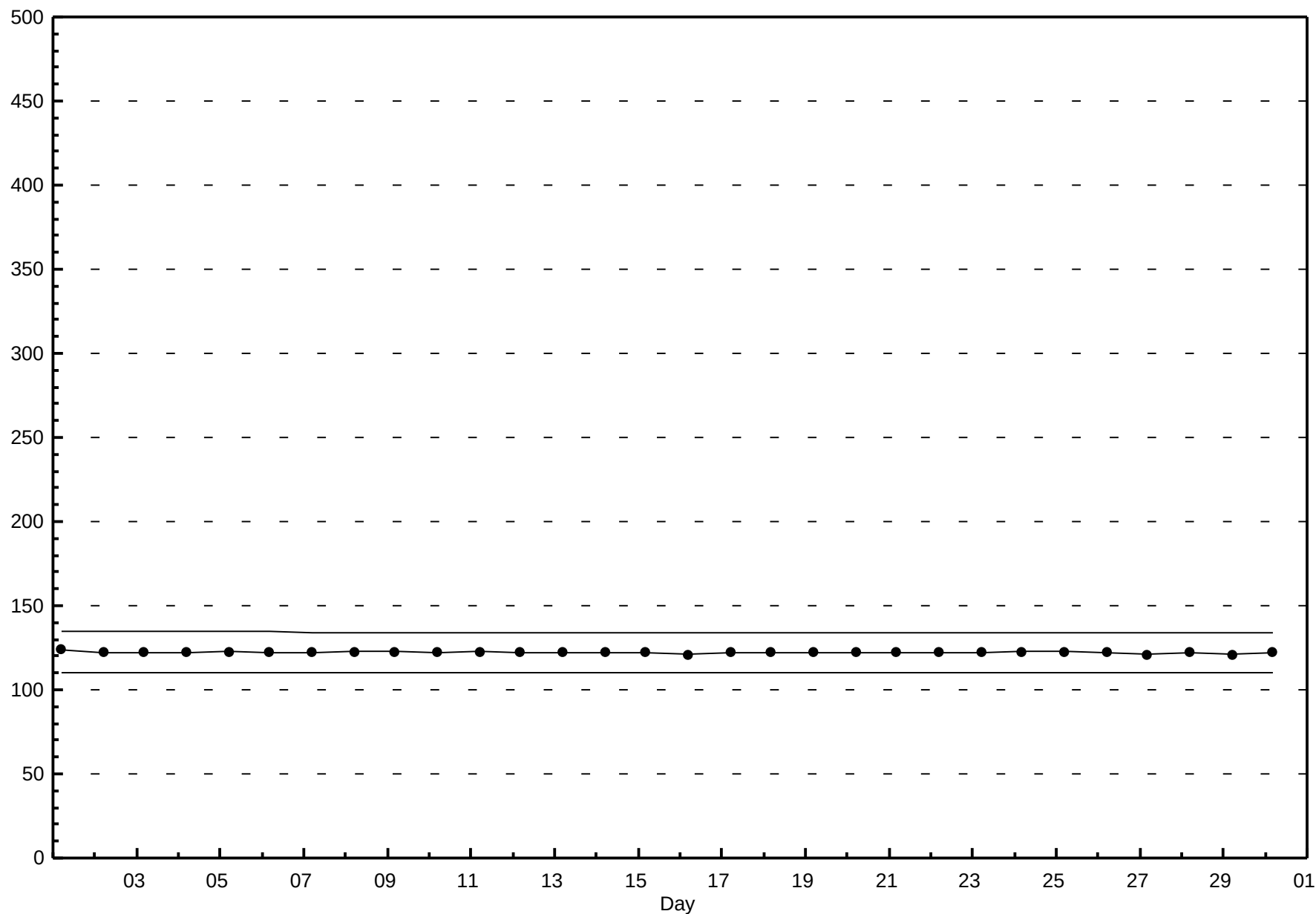
Ozone (O<sub>3</sub>) - ppb

Beaverlodge - April 2011

| Maximum Value: 63.6 ppb on Apr 25 20:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------|---------------|
| Minimum Value: 22.7 ppb on Apr 12 09:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 714              |               |
| Percentiles: P <sub>1</sub> = 25.3 P <sub>10</sub> = 36.6 Q <sub>1</sub> = 40.9 Median = 44.7 Q <sub>3</sub> = 48.9 P <sub>90</sub> = 52.8 P <sub>99</sub> = 58.8 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 6        |               |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 6         |               |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |               |
| Day                                                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 | Daily Maximum |
|                                                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |               |
| 1-Apr                                                                                                                                                             | 51                            | 51 | 51 | 50 | 50 | 49 | 48 | 48 | 47 | 46 | 46 | 46 | 46 | 47 | 47 | 48 | 48 | 48 | 48 | 48 | 48 | 48 | 47 | 47                              | 51.2          |
| 2-Apr                                                                                                                                                             | 47                            | 46 | 45 | 45 | 45 | 44 | 43 | 43 | 42 | 41 | 40 | 40 | 41 | 43 | 45 | 46 | 48 | 50 | 51 | 52 | 52 | 51 | 50 | 49                              | 52.1          |
| 3-Apr                                                                                                                                                             | 48                            | 46 | 45 | 43 | 42 | 41 | 40 | 39 | 38 | 39 | 39 | 41 | 41 | 43 | 45 | 47 | 49 | 50 | 51 | 52 | 52 | 52 | 52 | 51                              | 52.2          |
| 4-Apr                                                                                                                                                             | 50                            | 49 | 49 | 48 | 48 | 47 | 46 | 45 | 45 | 45 | 45 | 46 | 46 | 47 | 47 | 48 | 49 | 49 | 49 | 49 | 49 | 49 | 48 | 48                              | 50.4          |
| 5-Apr                                                                                                                                                             | 48                            | 47 | 47 | 46 | 46 | 45 | 44 | 43 | 41 | 40 | 41 | 42 | 43 | 44 | 46 | 48 | 50 | 51 | 50 | 50 | 49 | 49 | 48 | 48                              | 50.5          |
| 6-Apr                                                                                                                                                             | 48                            | 47 | 47 | 46 | 46 | 46 | 45 | 44 | 43 | 42 | 42 | 42 | 42 | N  | N  | N  | N  | N  | N  | 44 | 45 | 44 | 45 | 45                              | 47.7          |
| 7-Apr                                                                                                                                                             | 44                            | 44 | 44 | 44 | 43 | 43 | 42 | 41 | 40 | 40 | 41 | 41 | 42 | 44 | 47 | 49 | 51 | 53 | 54 | 54 | 54 | 53 | 52 | 50                              | 54.0          |
| 8-Apr                                                                                                                                                             | 49                            | 49 | 48 | 47 | 47 | 46 | 45 | 45 | 45 | 45 | 46 | 46 | 47 | 47 | 48 | 49 | 51 | 51 | 51 | 52 | 53 | 53 | 54 | 54                              | 54.0          |
| 9-Apr                                                                                                                                                             | 54                            | 54 | 54 | 53 | 53 | 53 | 53 | 52 | 52 | 52 | 51 | 51 | 51 | 51 | 51 | 52 | 52 | 53 | 53 | 53 | 54 | 54 | 54 | 53                              | 54.1          |
| 10-Apr                                                                                                                                                            | 53                            | 52 | 52 | 52 | 51 | 51 | 52 | 52 | 53 | 54 | 54 | 55 | 55 | 56 | 57 | 58 | 58 | 59 | 59 | 59 | 58 | 58 | 57 | 56                              | 59.0          |
| 11-Apr                                                                                                                                                            | 55                            | 54 | 53 | 52 | 51 | 48 | 45 | 42 | 41 | 39 | 38 | 39 | 39 | 40 | 41 | 42 | 43 | 44 | 44 | 43 | 43 | 42 | 40 | 37                              | 55.1          |
| 12-Apr                                                                                                                                                            | 35                            | 33 | 30 | 27 | 25 | 24 | 24 | 23 | 23 | 23 | 25 | 27 | 29 | 32 | 35 | 38 | 41 | 43 | 45 | 46 | 47 | 47 | 48 | 48                              | 47.8          |
| 13-Apr                                                                                                                                                            | 47                            | 47 | 46 | 45 | 45 | 44 | 43 | 42 | 41 | 41 | 40 | 40 | 41 | 42 | 43 | 44 | 46 | 47 | 47 | 47 | 47 | 47 | 46 | 44                              | 47.4          |
| 14-Apr                                                                                                                                                            | 43                            | 42 | 41 | 41 | 40 | 40 | 40 | 40 | 40 | 39 | 39 | 40 | 40 | 40 | 40 | 41 | 41 | 42 | 43 | 43 | 43 | 43 | 43 | 43                              | 43.0          |
| 15-Apr                                                                                                                                                            | 43                            | 43 | 43 | 42 | 43 | 42 | 41 | 39 | 38 | 38 | 38 | 39 | 40 | 41 | 43 | 45 | 47 | 47 | 48 | 48 | 48 | 47 | 46 | 45                              | 47.7          |
| 16-Apr                                                                                                                                                            | 45                            | 44 | 43 | 43 | 42 | 42 | 42 | 42 | 41 | 41 | 41 | 41 | 42 | 42 | 43 | 43 | 44 | 45 | 46 | 46 | 46 | 46 | 46 | 46                              | 46.2          |
| 17-Apr                                                                                                                                                            | 45                            | 45 | 44 | 44 | 44 | 43 | 43 | 42 | 41 | 41 | 42 | 43 | 44 | 45 | 47 | 48 | 49 | 50 | 50 | 50 | 50 | 50 | 49 | 48                              | 50.2          |
| 18-Apr                                                                                                                                                            | 48                            | 47 | 45 | 44 | 44 | 40 | 37 | 34 | 32 | 31 | 31 | 33 | 35 | 39 | 42 | 46 | 49 | 52 | 54 | 54 | 54 | 53 | 51 | 51                              | 54.5          |
| 19-Apr                                                                                                                                                            | 49                            | 46 | 44 | 42 | 41 | 38 | 36 | 35 | 36 | 37 | 38 | 39 | 40 | 42 | 44 | 45 | 45 | 44 | 44 | 43 | 43 | 41 | 40 | 39                              | 48.7          |
| 20-Apr                                                                                                                                                            | 38                            | 38 | 37 | 36 | 36 | 35 | 35 | 35 | 35 | 36 | 37 | 38 | 39 | 41 | 43 | 44 | 45 | 46 | 46 | 46 | 46 | 45 | 45 | 44                              | 46.0          |
| 21-Apr                                                                                                                                                            | 43                            | 41 | 40 | 39 | 38 | 37 | 37 | 36 | 37 | 38 | 40 | 41 | 42 | 43 | 45 | 46 | 47 | 48 | 48 | 48 | 47 | 47 | 46 | 45                              | 47.9          |
| 22-Apr                                                                                                                                                            | 44                            | 44 | 43 | 42 | 42 | 41 | 41 | 42 | 42 | 43 | 44 | 46 | 46 | 48 | 50 | 51 | 52 | 53 | 53 | 53 | 52 | 51 | 50 | 49                              | 52.9          |
| 23-Apr                                                                                                                                                            | 47                            | 46 | 45 | 44 | 43 | 43 | 41 | 40 | 39 | 40 | 41 | 42 | 43 | 44 | 46 | 48 | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 53                              | 53.0          |
| 24-Apr                                                                                                                                                            | 53                            | 52 | 51 | 50 | 49 | 49 | 47 | 46 | 45 | 45 | 46 | 48 | 49 | 50 | 52 | 54 | 56 | 58 | 58 | 58 | 57 | 57 | 55 | 54                              | 57.9          |
| 25-Apr                                                                                                                                                            | 53                            | 51 | 51 | 51 | 50 | 48 | 47 | 44 | 43 | 42 | 43 | 43 | 45 | 47 | 50 | 55 | 58 | 61 | 63 | 64 | 64 | 63 | 62 | 60                              | 63.6          |
| 26-Apr                                                                                                                                                            | 57                            | 55 | 52 | 50 | 49 | 46 | 44 | 42 | 40 | 41 | 42 | 44 | 45 | 48 | 50 | 53 | 54 | 54 | 54 | 53 | 51 | 50 | 48 | 47                              | 57.4          |
| 27-Apr                                                                                                                                                            | 45                            | 43 | 42 | 40 | 40 | 39 | 38 | 36 | 35 | 35 | 35 | 36 | 38 | 39 | 41 | 43 | 45 | 46 | 47 | 47 | 46 | 44 | 42 | 40                              | 47.0          |
| 28-Apr                                                                                                                                                            | 38                            | 36 | 34 | 32 | 30 | 30 | 31 | 31 | 32 | 34 | 36 | 38 | 39 | 40 | 41 | 42 | 41 | 41 | 40 | 39 | 38 | 36 | 36 | 34                              | 41.5          |
| 29-Apr                                                                                                                                                            | 33                            | 32 | 31 | 29 | 28 | 27 | 26 | 25 | 25 | 26 | 28 | 31 | 32 | 35 | 37 | 39 | 41 | 42 | 42 | 42 | 42 | 42 | 41 | 40                              | 42.2          |
| 30-Apr                                                                                                                                                            | 39                            | 39 | 38 | 37 | 37 | 36 | 35 | 35 | 35 | 35 | 36 | 38 | 39 | 40 | 41 | 42 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 42                              | 43.4          |
| 57.4 54.7 53.5 53.1 52.9 53.1 52.8 52.4 52.8 53.5 54.3 55.0 55.4 56.2 56.9 57.7 58.3 61.2 62.7 63.6 63.6 63.1 61.7 59.7                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |               |
| Diurnal Maximums                                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |               |
| N - Not Valid                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |               |

## Span Responses

Ozone (O<sub>3</sub>)  
Beaverlodge - April 2011



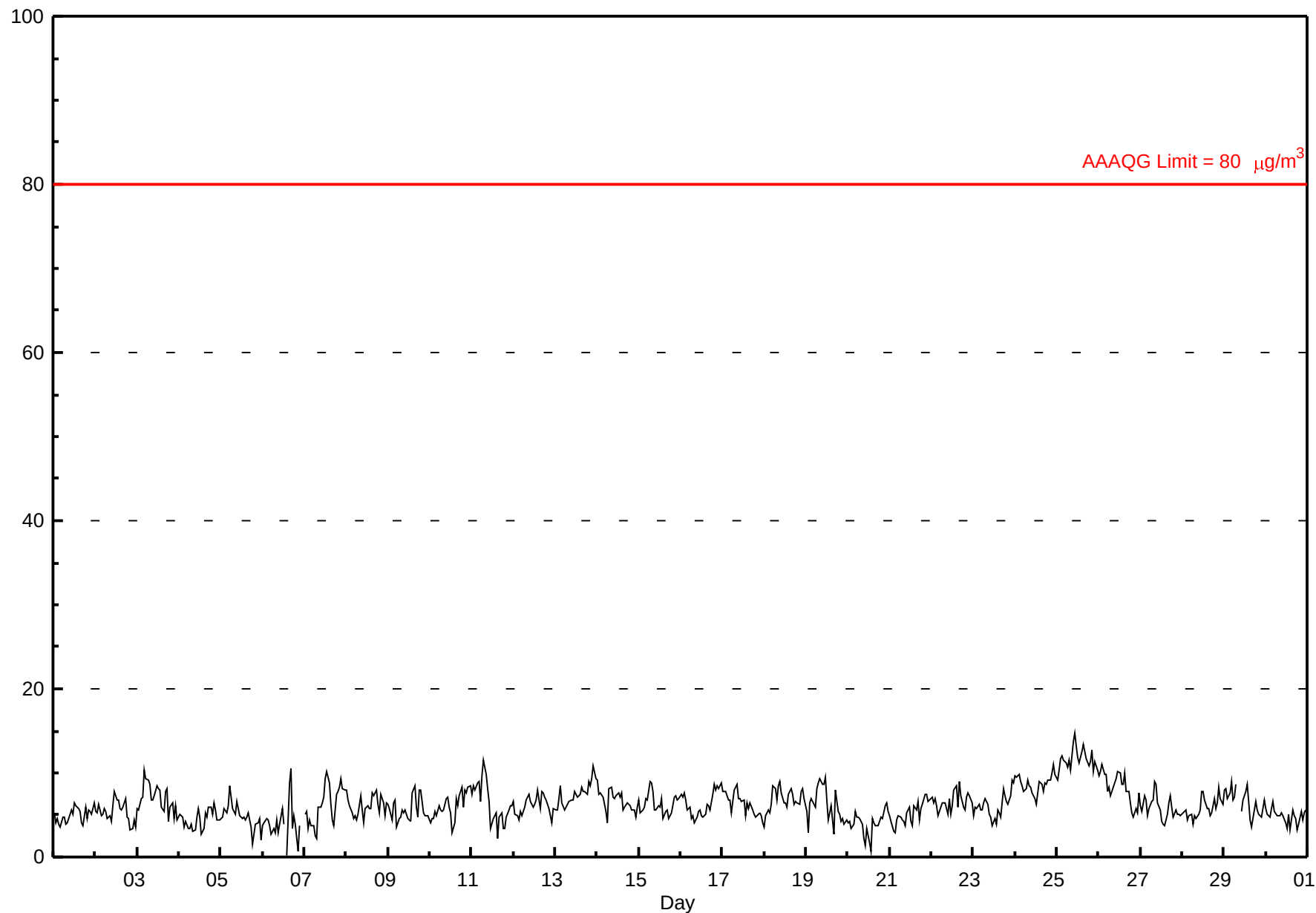
# Hourly Averages

Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Beaverlodge - April 2011

| Number of Exceedences: 1-hr: 0 24-hr: 0<br>Maximum Value: 14.7 µg/m³ on Apr 25 11:00<br>Minimum Value: 0 µg/m³ on Apr 6 15:00<br>Maximum Diurnal Average: 6.5 µg/m³ at hour 9<br>Monthly Average: 6.24 µg/m³                                                                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 715<br>Hours of Missing Data: 5<br>Hours of Calibration: 1<br>Percent Operational Time: 99.4 |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Maximum Daily Average: 11.7 µg/m³ on Apr 25<br>Minimum Daily Average: 4.0 µg/m³ on Apr 20<br>Minimum Diurnal Average: 5.9 µg/m³ at hour 20<br>Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 4.0 Q <sub>1</sub> = 4.8 Median = 5.9 Q <sub>3</sub> = 7.5 P <sub>90</sub> = 8.9 P <sub>99</sub> = 12.6 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |
| Day                                                                                                                                                                                                                                                                                                       | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                           | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                   |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                     | 5                             | 4  | 5  | 4  | 3  | 5  | 5  | 4  | 4  | 5  | 6  | 5  | 6  | 6  | 6  | 5  | 4  | 4  | 6  | 5  | 6  | 5  | 5  | 6                                                                                                                                    | 5.0           | 6.4           |
| 2-Apr                                                                                                                                                                                                                                                                                                     | 5                             | 5  | 6  | 5  | 5  | 6  | 5  | 5  | 5  | 4  | 6  | 8  | 7  | 7  | 6  | 6  | 6  | 7  | 5  | 5  | 3  | 3  | 4  | 4                                                                                                                                    | 5.3           | 7.8           |
| 3-Apr                                                                                                                                                                                                                                                                                                     | 6                             | 6  | 7  | 7  | 10 | 9  | 9  | 9  | 7  | 7  | 7  | 8  | 8  | 8  | 6  | 6  | 8  | 8  | 4  | 6  | 6  | 5  | 6  | 4                                                                                                                                    | 7.0           | 10.4          |
| 4-Apr                                                                                                                                                                                                                                                                                                     | 5                             | 5  | 5  | 4  | 4  | 3  | 3  | 4  | 3  | 3  | 5  | 6  | 5  | 3  | 3  | 5  | 5  | 6  | 6  | 5  | 6  | 6  | 4  | 4                                                                                                                                    | 4.5           | 6.5           |
| 5-Apr                                                                                                                                                                                                                                                                                                     | 5                             | 5  | 6  | 5  | 6  | 9  | 7  | 6  | 5  | 7  | 6  | 5  | 5  | 5  | 4  | 5  | 5  | 4  | 1  | 3  | 4  | 4  | 5  | 2                                                                                                                                    | 4.8           | 8.5           |
| 6-Apr                                                                                                                                                                                                                                                                                                     | 4                             | 4  | 5  | 4  | 4  | 3  | 3  | 3  | 4  | 3  | 4  | 6  | 4  | C  | 0  | 9  | 10 | 3  | 5  | 4  | 1  | 4  | BD | BD                                                                                                                                   | 4.1           | 10.5          |
| 7-Apr                                                                                                                                                                                                                                                                                                     | 5                             | 5  | 3  | 4  | 4  | 4  | 3  | 2  | 6  | 6  | 6  | 7  | 9  | 10 | 9  | 6  | 4  | 4  | 7  | 8  | 8  | 9  | 8  | 8                                                                                                                                    | 6.1           | 10.2          |
| 8-Apr                                                                                                                                                                                                                                                                                                     | 8                             | 7  | 6  | 5  | 5  | 5  | 4  | 5  | 7  | 6  | 4  | 6  | 6  | 6  | 6  | 8  | 7  | 8  | 6  | 5  | 7  | 6  | 5  | 6                                                                                                                                    | 6.1           | 8.0           |
| 9-Apr                                                                                                                                                                                                                                                                                                     | 6                             | 6  | 4  | 6  | 7  | 4  | 5  | 5  | 6  | 5  | 6  | 5  | 4  | 4  | 8  | 9  | 6  | 5  | 8  | 8  | 5  | 5  | 5  | 5                                                                                                                                    | 5.6           | 8.5           |
| 10-Apr                                                                                                                                                                                                                                                                                                    | 4                             | 5  | 5  | 5  | 5  | 6  | 6  | 5  | 6  | 7  | 7  | 6  | 5  | 3  | 4  | 7  | 6  | 7  | 8  | 6  | 8  | 8  | 8  | 8                                                                                                                                    | 6.1           | 8.4           |
| 11-Apr                                                                                                                                                                                                                                                                                                    | 8                             | 8  | 8  | 9  | 9  | 7  | 10 | 12 | 10 | 8  | 7  | 3  | 5  | 5  | 5  | 2  | 5  | 5  | 3  | 3  | 5  | 6  | 6  | 6                                                                                                                                    | 6.4           | 11.5          |
| 12-Apr                                                                                                                                                                                                                                                                                                    | 7                             | 5  | 5  | 4  | 5  | 5  | 6  | 7  | 7  | 7  | 7  | 6  | 6  | 7  | 8  | 6  | 8  | 8  | 7  | 7  | 6  | 5  | 4  | 6                                                                                                                                    | 6.2           | 8.0           |
| 13-Apr                                                                                                                                                                                                                                                                                                    | 6                             | 6  | 7  | 8  | 6  | 6  | 6  | 6  | 7  | 7  | 7  | 8  | 7  | 7  | 8  | 8  | 8  | 8  | 7  | 9  | 9  | 9  | 11 | 9                                                                                                                                    | 7.5           | 10.9          |
| 14-Apr                                                                                                                                                                                                                                                                                                    | 9                             | 7  | 8  | 7  | 6  | 5  | 4  | 8  | 8  | 7  | 7  | 7  | 8  | 7  | 8  | 6  | 6  | 7  | 6  | 6  | 6  | 6  | 5  | 6                                                                                                                                    | 6.7           | 9.1           |
| 15-Apr                                                                                                                                                                                                                                                                                                    | 7                             | 5  | 6  | 6  | 7  | 7  | 9  | 9  | 8  | 6  | 6  | 6  | 6  | 7  | 5  | 6  | 6  | 5  | 5  | 5  | 7  | 7  | 7  | 7                                                                                                                                    | 6.3           | 9.1           |
| 16-Apr                                                                                                                                                                                                                                                                                                    | 8                             | 7  | 8  | 7  | 6  | 6  | 5  | 5  | 4  | 5  | 5  | 6  | 5  | 5  | 5  | 6  | 6  | 6  | 8  | 9  | 8  | 9  | 8  | 9                                                                                                                                    | 6.3           | 8.8           |
| 17-Apr                                                                                                                                                                                                                                                                                                    | 8                             | 8  | 8  | 7  | 7  | 5  | 7  | 8  | 9  | 7  | 7  | 7  | 7  | 5  | 6  | 6  | 6  | 6  | 5  | 5  | 5  | 5  | 5  | 4                                                                                                                                    | 6.3           | 8.6           |
| 18-Apr                                                                                                                                                                                                                                                                                                    | 4                             | 5  | 6  | 5  | 6  | 8  | 8  | 7  | 8  | 9  | 8  | 6  | 6  | 6  | 7  | 8  | 7  | 6  | 7  | 6  | 6  | 8  | 8  | 7                                                                                                                                    | 6.9           | 9.1           |
| 19-Apr                                                                                                                                                                                                                                                                                                    | 5                             | 3  | 6  | 7  | 7  | 6  | 8  | 9  | 9  | 9  | 9  | 9  | 7  | 4  | 6  | 4  | 3  | 8  | 5  | 5  | 4  | 5  | 4  | 4                                                                                                                                    | 6.1           | 9.4           |
| 20-Apr                                                                                                                                                                                                                                                                                                    | 4                             | 4  | 3  | 4  | 5  | 5  | 5  | 5  | 4  | 2  | 1  | 3  | 2  | 1  | 5  | 4  | 4  | 4  | 4  | 5  | 5  | 6  | 6  | 5                                                                                                                                    | 4.0           | 6.5           |
| 21-Apr                                                                                                                                                                                                                                                                                                    | 5                             | 4  | 3  | 3  | 4  | 5  | 5  | 4  | 4  | 4  | 5  | 6  | 4  | 4  | 6  | 6  | 7  | 4  | 6  | 6  | 7  | 7  | 7  | 7                                                                                                                                    | 5.2           | 7.4           |
| 22-Apr                                                                                                                                                                                                                                                                                                    | 7                             | 6  | 7  | 6  | 5  | 6  | 6  | 6  | 7  | 5  | 7  | 5  | 6  | 8  | 9  | 6  | 9  | 7  | 6  | 6  | 7  | 8  | 7  | 6                                                                                                                                    | 6.6           | 9.0           |
| 23-Apr                                                                                                                                                                                                                                                                                                    | 5                             | 6  | 6  | 6  | 6  | 6  | 6  | 7  | 6  | 5  | 5  | 4  | 5  | 4  | 6  | 5  | 5  | 8  | 7  | 7  | 6  | 7  | 9  | 9                                                                                                                                    | 6.0           | 9.2           |
| 24-Apr                                                                                                                                                                                                                                                                                                    | 10                            | 10 | 10 | 9  | 9  | 8  | 8  | 9  | 9  | 8  | 8  | 7  | 6  | 8  | 9  | 9  | 8  | 9  | 9  | 9  | 9  | 10 | 11 | 10                                                                                                                                   | 8.7           | 11.1          |
| 25-Apr                                                                                                                                                                                                                                                                                                    | 9                             | 10 | 12 | 12 | 12 | 11 | 11 | 11 | 10 | 14 | 15 | 13 | 12 | 11 | 13 | 13 | 13 | 12 | 11 | 11 | 13 | 10 | 11 | 10                                                                                                                                   | 11.7          | 14.7          |
| 26-Apr                                                                                                                                                                                                                                                                                                    | 10                            | 10 | 11 | 10 | 10 | 8  | 8  | 7  | 8  | 9  | 9  | 10 | 10 | 9  | 9  | 10 | 8  | 8  | 7  | 5  | 5  | 6  | 5  | 8                                                                                                                                    | 8.3           | 10.9          |
| 27-Apr                                                                                                                                                                                                                                                                                                    | 6                             | 5  | 7  | 7  | 5  | 6  | 7  | 7  | 9  | 9  | 7  | 6  | 4  | 4  | 4  | 5  | 6  | 7  | 6  | 5  | 6  | 5  | 5  | 5                                                                                                                                    | 5.9           | 9.0           |
| 28-Apr                                                                                                                                                                                                                                                                                                    | 5                             | 5  | 6  | 4  | 5  | 5  | 4  | 5  | 5  | 5  | 6  | 8  | 8  | 7  | 6  | 6  | 5  | 5  | 7  | 6  | 7  | 8  | 7  | 6                                                                                                                                    | 5.8           | 8.3           |
| 29-Apr                                                                                                                                                                                                                                                                                                    | 8                             | 8  | 7  | 8  | 9  | 7  | 7  | 9  | N  | N  | 5  | 7  | 8  | 9  | 7  | 4  | 4  | 6  | 7  | 6  | 5  | 5  | 6  | 7                                                                                                                                    | 6.6           | 8.9           |
| 30-Apr                                                                                                                                                                                                                                                                                                    | 6                             | 5  | 5  | 6  | 7  | 5  | 5  | 5  | 5  | 5  | 5  | 4  | 3  | 5  | 3  | 6  | 5  | 5  | 3  | 4  | 5  | 4  | 5  | 6                                                                                                                                    | 4.9           | 6.6           |
| 6.3 6.0 6.3 6.2 6.3 6.0 6.1 6.4 6.5 6.3 6.3 6.4 6.1 5.9 6.1 6.4 6.3 6.2 6.1 5.9 6.2 6.4 6.5 6.4                                                                                                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                      |               |               |
| 9.7 10.3 11.8 12.0 11.6 11.2 10.7 11.5 10.3 13.8 14.7 13.2 11.9 11.3 12.6 13.4 12.6 11.8 10.9 11.4 12.8 10.2 11.4 10.4                                                                                                                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                      |               |               |
| C - Calibration N - Not Valid BD - Baseline Drift                                                                                                                                                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |
| Alberta Ambient Air Quality Guideline (AAQG): 1-hr 80 µg/m³ Alberta Ambient Air Quality Objective (AAQO): 24-hr 30 µg/m³                                                                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |               |               |





# Hourly Maximums

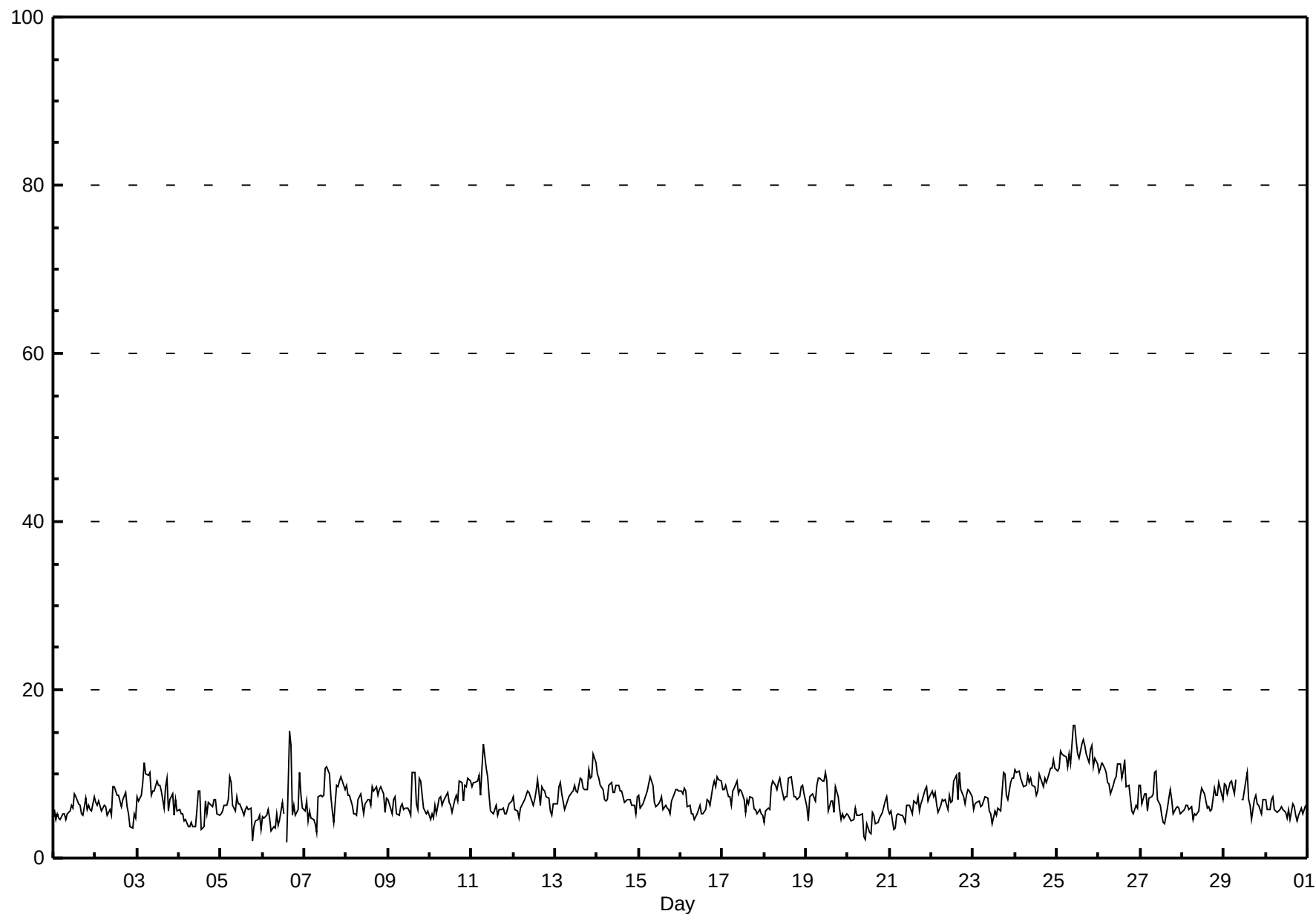
Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Beaverlodge - April 2011

| Maximum Value: 15.8 μg/m <sup>3</sup> on Apr 25 10:00                                                                   |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 12.5 μg/m <sup>3</sup> on Apr 25                                                                                                     |    |    |    |     |                 |               |  |  |  | Hours in Service: 720          |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----|-----------------|---------------|--|--|--|--------------------------------|--|
| Minimum Value: 2 μg/m <sup>3</sup> on Apr 6 15:00                                                                       |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 4.7 μg/m <sup>3</sup> on Apr 20                                                                                                      |    |    |    |     |                 |               |  |  |  | Hours of Data: 717             |  |
| Maximum Diurnal Average: 7.6 μg/m <sup>3</sup> at hour 16                                                               |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 6.8 μg/m <sup>3</sup> at hour 6                                                                                                    |    |    |    |     |                 |               |  |  |  | Hours of Missing Data: 3       |  |
| Monthly Average: 7.12 μg/m <sup>3</sup>                                                                                 |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 3.2 P <sub>10</sub> = 5.0 Q <sub>1</sub> = 5.6 Median = 6.9 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 9.7 P <sub>99</sub> = 13.6 |    |    |    |     |                 |               |  |  |  | Hours of Calibration: 1        |  |
|                                                                                                                         |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |     |                 |               |  |  |  | Percent Operational Time: 99.7 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |     | Daily Average   | Daily Maximum |  |  |  |                                |  |
|                                                                                                                         | 1                             | 2             | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                          | 21 | 22 | 23 | 24  |                 |               |  |  |  |                                |  |
| 1-Apr                                                                                                                   | 6                             | 5             | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 6  | 6  | 6  | 8  | 7  | 6  | 6  | 5  | 5  | 7  | 6                                                                                                                                                           | 6  | 6  | 6  | 7   | 5.8             | 7.7           |  |  |  |                                |  |
| 2-Apr                                                                                                                   | 7                             | 6             | 7  | 6  | 6  | 6  | 6  | 5  | 6  | 5  | 8  | 8  | 7  | 7  | 7  | 6  | 7  | 8  | 6  | 5                                                                                                                                                           | 4  | 4  | 5  | 5   | 6.1             | 8.4           |  |  |  |                                |  |
| 3-Apr                                                                                                                   | 7                             | 7             | 7  | 9  | 11 | 10 | 10 | 10 | 8  | 8  | 8  | 9  | 9  | 9  | 8  | 6  | 8  | 9  | 6  | 7                                                                                                                                                           | 8  | 5  | 7  | 6   | 8.0             | 11.4          |  |  |  |                                |  |
| 4-Apr                                                                                                                   | 6                             | 5             | 5  | 4  | 5  | 4  | 4  | 4  | 4  | 4  | 6  | 8  | 8  | 3  | 4  | 7  | 5  | 7  | 6  | 6                                                                                                                                                           | 7  | 7  | 5  | 5   | 5.4             | 8.0           |  |  |  |                                |  |
| 5-Apr                                                                                                                   | 5                             | 6             | 6  | 6  | 7  | 10 | 9  | 6  | 6  | 7  | 7  | 7  | 6  | 5  | 6  | 6  | 6  | 6  | 2  | 4                                                                                                                                                           | 4  | 5  | 5  | 3   | 5.8             | 9.6           |  |  |  |                                |  |
| 6-Apr                                                                                                                   | 5                             | 5             | 5  | 6  | 5  | 3  | 4  | 4  | 5  | 4  | 5  | 7  | 5  | C  | 2  | 15 | 13 | 5  | 6  | 5                                                                                                                                                           | 6  | 10 | 7  | 6   | 6.0             | 15.0          |  |  |  |                                |  |
| 7-Apr                                                                                                                   | 6                             | 7             | 4  | 6  | 5  | 5  | 4  | 3  | 7  | 8  | 7  | 7  | 11 | 11 | 10 | 7  | 6  | 4  | 9  | 8                                                                                                                                                           | 9  | 10 | 9  | 8   | 7.1             | 10.8          |  |  |  |                                |  |
| 8-Apr                                                                                                                   | 9                             | 7             | 7  | 6  | 5  | 5  | 5  | 7  | 8  | 7  | 5  | 6  | 7  | 7  | 6  | 8  | 8  | 8  | 7  | 8                                                                                                                                                           | 8  | 8  | 5  | 7   | 7.0             | 8.7           |  |  |  |                                |  |
| 9-Apr                                                                                                                   | 7                             | 6             | 5  | 7  | 7  | 5  | 5  | 6  | 7  | 6  | 6  | 6  | 6  | 5  | 10 | 10 | 6  | 6  | 9  | 9                                                                                                                                                           | 6  | 6  | 5  | 6   | 6.6             | 10.2          |  |  |  |                                |  |
| 10-Apr                                                                                                                  | 5                             | 5             | 5  | 6  | 5  | 7  | 7  | 6  | 7  | 7  | 8  | 7  | 6  | 5  | 7  | 7  | 7  | 9  | 9  | 7                                                                                                                                                           | 9  | 8  | 9  | 9   | 7.0             | 9.4           |  |  |  |                                |  |
| 11-Apr                                                                                                                  | 8                             | 9             | 9  | 9  | 10 | 8  | 11 | 14 | 11 | 10 | 7  | 6  | 5  | 6  | 6  | 5  | 6  | 6  | 6  | 5                                                                                                                                                           | 5  | 7  | 7  | 7   | 7.5             | 13.6          |  |  |  |                                |  |
| 12-Apr                                                                                                                  | 7                             | 6             | 6  | 5  | 6  | 6  | 7  | 7  | 8  | 8  | 7  | 6  | 7  | 8  | 9  | 6  | 8  | 8  | 8  | 7                                                                                                                                                           | 7  | 6  | 5  | 6   | 6.9             | 9.4           |  |  |  |                                |  |
| 13-Apr                                                                                                                  | 7                             | 6             | 8  | 9  | 8  | 6  | 6  | 7  | 7  | 8  | 8  | 9  | 8  | 8  | 9  | 9  | 8  | 8  | 8  | 10                                                                                                                                                          | 9  | 10 | 12 | 11  | 8.4             | 12.4          |  |  |  |                                |  |
| 14-Apr                                                                                                                  | 10                            | 9             | 9  | 8  | 7  | 7  | 7  | 9  | 9  | 8  | 8  | 9  | 9  | 8  | 8  | 7  | 7  | 7  | 7  | 7                                                                                                                                                           | 6  | 6  | 5  | 7   | 7.6             | 9.9           |  |  |  |                                |  |
| 15-Apr                                                                                                                  | 7                             | 6             | 7  | 7  | 8  | 8  | 10 | 9  | 9  | 7  | 6  | 7  | 7  | 7  | 6  | 6  | 6  | 6  | 5  | 7                                                                                                                                                           | 8  | 8  | 8  | 8   | 7.1             | 9.7           |  |  |  |                                |  |
| 16-Apr                                                                                                                  | 8                             | 8             | 8  | 8  | 6  | 6  | 5  | 5  | 5  | 5  | 6  | 6  | 5  | 5  | 6  | 7  | 7  | 6  | 8  | 9                                                                                                                                                           | 8  | 10 | 9  | 9   | 7.0             | 9.7           |  |  |  |                                |  |
| 17-Apr                                                                                                                  | 8                             | 8             | 9  | 7  | 7  | 6  | 8  | 8  | 9  | 8  | 8  | 8  | 7  | 5  | 7  | 7  | 7  | 7  | 6  | 6                                                                                                                                                           | 5  | 6  | 5  | 5   | 7.0             | 9.2           |  |  |  |                                |  |
| 18-Apr                                                                                                                  | 4                             | 6             | 6  | 6  | 8  | 9  | 9  | 8  | 9  | 9  | 8  | 7  | 7  | 7  | 9  | 10 | 8  | 7  | 7  | 7                                                                                                                                                           | 8  | 9  | 8  | 7.7 | 9.6             |               |  |  |  |                                |  |
| 19-Apr                                                                                                                  | 6                             | 4             | 7  | 8  | 8  | 7  | 9  | 9  | 9  | 9  | 9  | 10 | 9  | 6  | 7  | 7  | 5  | 8  | 7  | 6                                                                                                                                                           | 5  | 5  | 5  | 5   | 7.1             | 10.2          |  |  |  |                                |  |
| 20-Apr                                                                                                                  | 5                             | 5             | 4  | 5  | 6  | 5  | 5  | 5  | 5  | 3  | 2  | 4  | 3  | 3  | 5  | 5  | 4  | 4  | 5  | 5                                                                                                                                                           | 5  | 7  | 7  | 6   | 4.7             | 7.2           |  |  |  |                                |  |
| 21-Apr                                                                                                                  | 5                             | 6             | 3  | 4  | 5  | 5  | 5  | 5  | 5  | 4  | 6  | 6  | 6  | 5  | 7  | 6  | 7  | 6  | 7  | 7                                                                                                                                                           | 8  | 8  | 7  | 7   | 5.9             | 8.5           |  |  |  |                                |  |
| 22-Apr                                                                                                                  | 8                             | 7             | 8  | 7  | 5  | 6  | 7  | 7  | 7  | 6  | 7  | 7  | 7  | 9  | 10 | 7  | 10 | 8  | 7  | 7                                                                                                                                                           | 8  | 8  | 8  | 7   | 7.4             | 10.1          |  |  |  |                                |  |
| 23-Apr                                                                                                                  | 6                             | 6             | 7  | 7  | 6  | 6  | 7  | 7  | 7  | 6  | 5  | 4  | 6  | 5  | 6  | 6  | 6  | 10 | 10 | 7                                                                                                                                                           | 7  | 9  | 9  | 9   | 6.8             | 10.2          |  |  |  |                                |  |
| 24-Apr                                                                                                                  | 11                            | 10            | 10 | 9  | 9  | 8  | 9  | 10 | 9  | 10 | 9  | 8  | 7  | 8  | 10 | 9  | 8  | 9  | 9  | 9                                                                                                                                                           | 11 | 11 | 12 | 11  | 9.4             | 11.7          |  |  |  |                                |  |
| 25-Apr                                                                                                                  | 10                            | 11            | 13 | 12 | 12 | 12 | 11 | 12 | 11 | 16 | 16 | 14 | 12 | 12 | 14 | 14 | 13 | 12 | 11 | 13                                                                                                                                                          | 13 | 11 | 12 | 11  | 12.5            | 15.8          |  |  |  |                                |  |
| 26-Apr                                                                                                                  | 10                            | 11            | 11 | 11 | 10 | 9  | 9  | 8  | 9  | 9  | 10 | 11 | 11 | 9  | 10 | 12 | 8  | 9  | 7  | 6                                                                                                                                                           | 5  | 6  | 6  | 9   | 9.0             | 11.6          |  |  |  |                                |  |
| 27-Apr                                                                                                                  | 9                             | 7             | 8  | 8  | 6  | 7  | 7  | 8  | 10 | 10 | 7  | 6  | 5  | 4  | 4  | 6  | 7  | 8  | 7  | 5                                                                                                                                                           | 6  | 6  | 6  | 5   | 6.8             | 10.4          |  |  |  |                                |  |
| 28-Apr                                                                                                                  | 6                             | 6             | 6  | 6  | 6  | 6  | 5  | 5  | 5  | 6  | 7  | 8  | 8  | 8  | 6  | 6  | 6  | 6  | 8  | 7                                                                                                                                                           | 7  | 9  | 8  | 7   | 6.6             | 9.0           |  |  |  |                                |  |
| 29-Apr                                                                                                                  | 9                             | 9             | 8  | 9  | 9  | 8  | 8  | 9  | N  | N  | 7  | 7  | 9  | 10 | 7  | 6  | 5  | 7  | 7  | 7                                                                                                                                                           | 6  | 5  | 7  | 7   | 7.6             | 10.2          |  |  |  |                                |  |
| 30-Apr                                                                                                                  | 7                             | 6             | 6  | 7  | 7  | 6  | 5  | 6  | 6  | 6  | 6  | 5  | 5  | 6  | 5  | 6  | 6  | 5  | 4  | 5                                                                                                                                                           | 6  | 5  | 6  | 6   | 5.8             | 7.2           |  |  |  |                                |  |
| 7.1 6.8 7.0 7.0 7.0 6.8 6.9 7.2 7.3 7.1 7.2 7.3 7.2 6.9 7.2 7.6 7.2 7.2 7.1 6.9 7.1 7.3 7.3 7.2                         |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |     | Diurnal Average |               |  |  |  |                                |  |
| 10.6 10.7 12.6 12.4 12.1 12.1 10.9 13.6 11.2 15.8 15.8 13.9 12.4 11.9 13.6 15.0 13.4 12.4 11.4 12.8 13.3 10.9 12.4 11.4 |                               |               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |     | Diurnal Maximum |               |  |  |  |                                |  |
| C - Calibration                                                                                                         |                               | N - Not Valid |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                             |    |    |    |     |                 |               |  |  |  |                                |  |

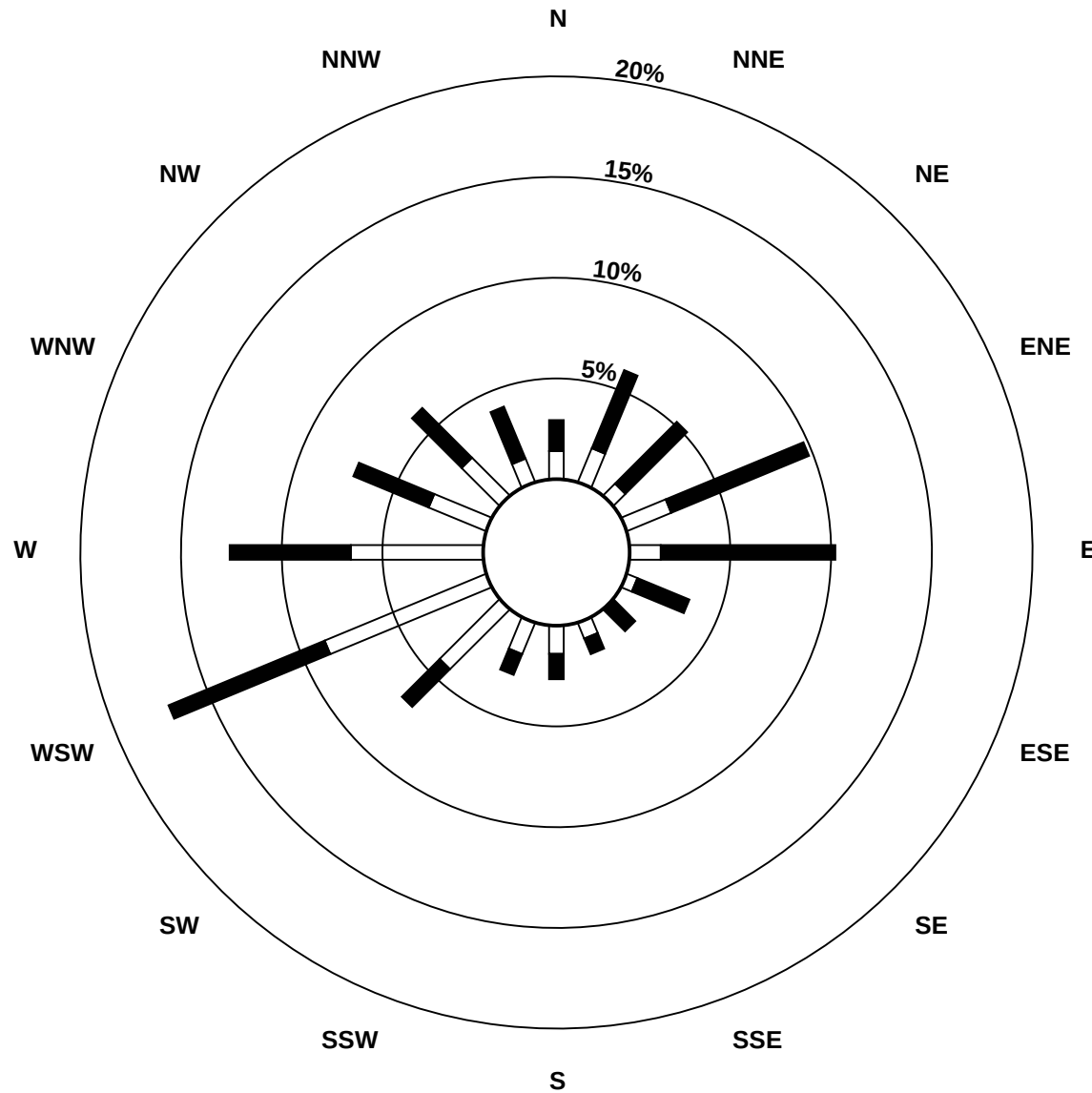
## Hourly Maximums

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Beaverlodge - April 2011

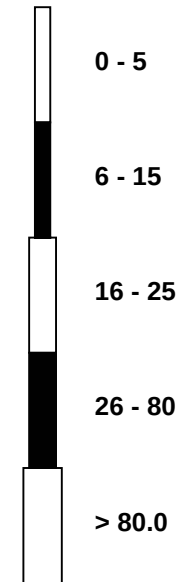


# Pollutant Rose

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Beaverlodge - April 2011



Pollutant Classes ( $\mu\text{g}/\text{m}^3$ )



# Hourly Averages

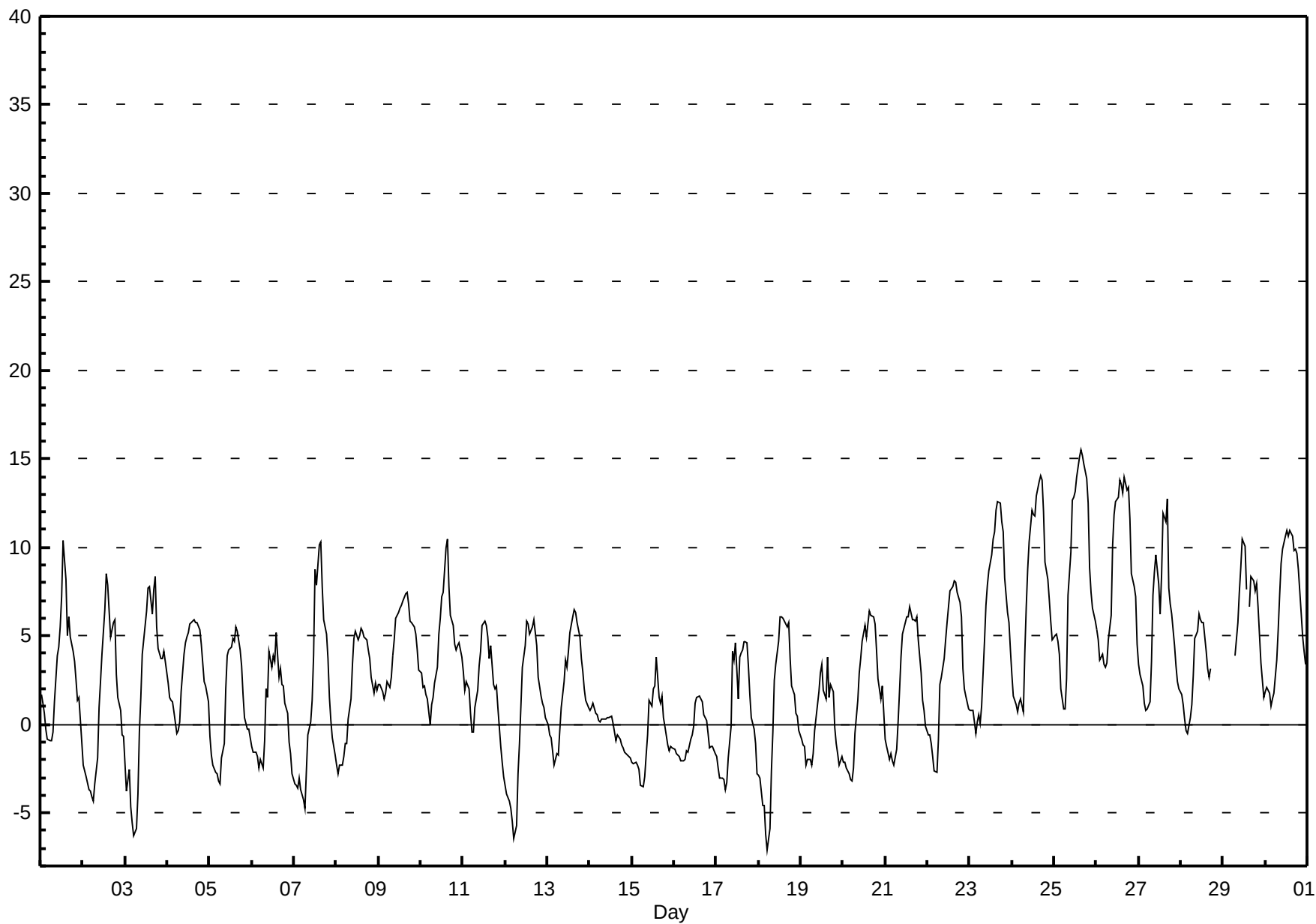
External Temperature (ET) - °C

Beaverlodge - April 2011

|                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 15.5 °C on Apr 25 16:00 Maximum Daily Average: 8.8 °C on Apr 25 |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 706<br>Hours of Missing Data: 14<br>Hours of Calibration: 0<br>Percent Operational Time: 98.1 |               |               |
| Minimum Value: -7 °C on Apr 18 06:00<br>Maximum Diurnal Average: 7.0 °C at hour 15<br>Monthly Average: 2.88 °C                    |                               |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: -0.7 °C on Apr 16<br>Minimum Diurnal Average: -1.6 °C at hour 6<br>Percentiles: P <sub>1</sub> = -5.6 P <sub>10</sub> = -2.3 Q <sub>1</sub> = -0.4 Median = 2.4 Q <sub>3</sub> = 5.7 P <sub>90</sub> = 8.4 P <sub>99</sub> = 13.9 |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       | Daily Average | Daily Maximum |
|                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12                                                                                                                                                                                                                                                       | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                    |               |               |
| 1-Apr                                                                                                                             | 2                             | 1  | 1  | 0  | -1 | -1 | -1 | 0  | 1  | 4  | 4  | 5                                                                                                                                                                                                                                                        | 7  | 10 | 8  | 5  | 6  | 5  | 4  | 4  | 3  | 1  | 2  | -1                                                                                                                                    | 2.9           | 10.4          |
| 2-Apr                                                                                                                             | -2                            | -3 | -3 | -4 | -4 | -4 | -4 | -3 | -2 | 1  | 2  | 4                                                                                                                                                                                                                                                        | 6  | 8  | 8  | 6  | 5  | 6  | 6  | 3  | 2  | 1  | -1 | -1                                                                                                                                    | 1.2           | 8.5           |
| 3-Apr                                                                                                                             | -2                            | -4 | -3 | -5 | -6 | -6 | -6 | -4 | 0  | 2  | 4  | 6                                                                                                                                                                                                                                                        | 6  | 8  | 8  | 6  | 8  | 8  | 6  | 4  | 4  | 4  | 4  | 4                                                                                                                                     | 1.9           | 8.3           |
| 4-Apr                                                                                                                             | 2                             | 2  | 1  | 1  | 1  | -1 | 0  | 0  | 2  | 4  | 5  | 5                                                                                                                                                                                                                                                        | 5  | 6  | 6  | 6  | 6  | 6  | 5  | 5  | 3  | 2  | 2  | 1                                                                                                                                     | 3.1           | 5.9           |
| 5-Apr                                                                                                                             | -1                            | -2 | -2 | -3 | -3 | -3 | -3 | -2 | -1 | 2  | 4  | 4                                                                                                                                                                                                                                                        | 4  | 5  | 5  | 6  | 5  | 4  | 3  | 2  | 0  | 0  | 0  | -1                                                                                                                                    | 1.0           | 5.5           |
| 6-Apr                                                                                                                             | -1                            | -2 | -2 | -2 | -2 | -2 | -2 | -1 | 2  | 1  | 4  | 3                                                                                                                                                                                                                                                        | 4  | 4  | 5  | 3  | 3  | 2  | 2  | 1  | 1  | -1 | -2 | -3                                                                                                                                    | 0.7           | 5.2           |
| 7-Apr                                                                                                                             | -3                            | -3 | -4 | -3 | -4 | -4 | -5 | -3 | -1 | 0  | 1  | 4                                                                                                                                                                                                                                                        | 9  | 8  | 10 | 10 | 8  | 6  | 5  | 4  | 1  | 0  | -1 | -2                                                                                                                                    | 1.5           | 10.3          |
| 8-Apr                                                                                                                             | -2                            | -3 | -2 | -2 | -2 | -1 | -1 | 0  | 1  | 3  | 5  | 5                                                                                                                                                                                                                                                        | 5  | 5  | 5  | 5  | 5  | 5  | 4  | 4  | 3  | 2  | 2  | 2                                                                                                                                     | 2.0           | 5.5           |
| 9-Apr                                                                                                                             | 2                             | 2  | 2  | 1  | 2  | 2  | 2  | 3  | 4  | 5  | 6  | 6                                                                                                                                                                                                                                                        | 7  | 7  | 7  | 7  | 7  | 6  | 6  | 5  | 5  | 4  | 3  | 3                                                                                                                                     | 4.5           | 7.5           |
| 10-Apr                                                                                                                            | 3                             | 2  | 2  | 2  | 1  | 0  | 1  | 1  | 2  | 3  | 5  | 6                                                                                                                                                                                                                                                        | 7  | 7  | 10 | 10 | 8  | 6  | 6  | 5  | 4  | 4  | 5  | 4                                                                                                                                     | 4.4           | 10.5          |
| 11-Apr                                                                                                                            | 3                             | 2  | 2  | 2  | 1  | 0  | 0  | 1  | 2  | 3  | 4  | 6                                                                                                                                                                                                                                                        | 6  | 6  | 5  | 4  | 4  | 2  | 2  | 2  | 1  | -1 | -2 | -3                                                                                                                                    | 2.1           | 5.8           |
| 12-Apr                                                                                                                            | -3                            | -4 | -4 | -5 | -5 | -6 | -6 | -3 | -1 | 1  | 3  | 4                                                                                                                                                                                                                                                        | 6  | 6  | 5  | 5  | 6  | 5  | 4  | 3  | 2  | 1  | 1  | 0                                                                                                                                     | 0.6           | 5.9           |
| 13-Apr                                                                                                                            | 0                             | -1 | -1 | -2 | -2 | -2 | -2 | 0  | 1  | 2  | 4  | 3                                                                                                                                                                                                                                                        | 4  | 5  | 6  | 6  | 6  | 6  | 5  | 4  | 3  | 2  | 1  | 1                                                                                                                                     | 2.1           | 6.5           |
| 14-Apr                                                                                                                            | 1                             | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                        | 0  | 0  | 0  | -1 | -1 | -1 | -1 | -1 | -2 | -2 | -2 | -2                                                                                                                                    | -0.2          | 1.2           |
| 15-Apr                                                                                                                            | -2                            | -2 | -2 | -2 | -3 | -3 | -4 | -3 | -2 | -1 | 1  | 1                                                                                                                                                                                                                                                        | 2  | 2  | 4  | 1  | 1  | 2  | 0  | 0  | -1 | -1 | -1 | -1                                                                                                                                    | -0.6          | 3.8           |
| 16-Apr                                                                                                                            | -1                            | -2 | -2 | -2 | -2 | -2 | -2 | -2 | -2 | -1 | -1 | 0                                                                                                                                                                                                                                                        | 1  | 2  | 2  | 1  | 1  | 1  | 0  | -1 | -1 | -1 | -1 | -2                                                                                                                                    | -0.7          | 1.6           |
| 17-Apr                                                                                                                            | -2                            | -2 | -3 | -3 | -3 | -4 | -3 | -2 | 0  | 4  | 4  | 5                                                                                                                                                                                                                                                        | 1  | 4  | 4  | 4  | 5  | 5  | 3  | 2  | 0  | 0  | -1 | -3                                                                                                                                    | 0.6           | 4.7           |
| 18-Apr                                                                                                                            | -3                            | -3 | -5 | -5 | -6 | -7 | -6 | -3 | 0  | 2  | 3  | 5                                                                                                                                                                                                                                                        | 6  | 6  | 6  | 6  | 5  | 6  | 4  | 2  | 2  | 1  | 0  | 0                                                                                                                                     | 0.7           | 6.1           |
| 19-Apr                                                                                                                            | -1                            | -1 | -1 | -2 | -2 | -2 | -2 | -2 | 0  | 1  | 2  | 3                                                                                                                                                                                                                                                        | 3  | 2  | 1  | 4  | 2  | 2  | 2  | 0  | -1 | -2 | -2 | -2                                                                                                                                    | 0.0           | 3.8           |
| 20-Apr                                                                                                                            | -2                            | -2 | -2 | -3 | -3 | -3 | -2 | -1 | 1  | 3  | 4  | 5                                                                                                                                                                                                                                                        | 6  | 5  | 6  | 6  | 6  | 6  | 6  | 4  | 3  | 1  | 2  | 1                                                                                                                                     | 1.9           | 6.4           |
| 21-Apr                                                                                                                            | -1                            | -1 | -2 | -2 | -2 | -2 | -1 | 0  | 2  | 4  | 5  | 6                                                                                                                                                                                                                                                        | 6  | 6  | 7  | 6  | 6  | 6  | 6  | 5  | 3  | 1  | 1  | 0                                                                                                                                     | 2.4           | 6.7           |
| 22-Apr                                                                                                                            | -1                            | -1 | -1 | -2 | -3 | -3 | -1 | 2  | 3  | 4  | 5  | 6                                                                                                                                                                                                                                                        | 7  | 8  | 8  | 8  | 8  | 7  | 7  | 6  | 3  | 2  | 2  | 1                                                                                                                                     | 3.1           | 8.1           |
| 23-Apr                                                                                                                            | 1                             | 1  | 1  | 0  | 0  | 1  | 0  | 1  | 5  | 7  | 8  | 9                                                                                                                                                                                                                                                        | 10 | 10 | 11 | 12 | 13 | 12 | 11 | 11 | 8  | 6  | 6  | 4                                                                                                                                     | 6.1           | 12.6          |
| 24-Apr                                                                                                                            | 3                             | 2  | 1  | 1  | 1  | 1  | 1  | 4  | 7  | 9  | 10 | 12                                                                                                                                                                                                                                                       | 12 | 12 | 13 | 14 | 14 | 14 | 12 | 9  | 8  | 7  | 6  | 5                                                                                                                                     | 7.3           | 14.0          |
| 25-Apr                                                                                                                            | 5                             | 5  | 5  | 4  | 2  | 1  | 1  | 3  | 7  | 10 | 13 | 13                                                                                                                                                                                                                                                       | 13 | 14 | 15 | 15 | 15 | 15 | 14 | 13 | 9  | 7  | 7  | 6                                                                                                                                     | 8.8           | 15.5          |
| 26-Apr                                                                                                                            | 5                             | 5  | 4  | 4  | 3  | 3  | 3  | 5  | 6  | 10 | 12 | 13                                                                                                                                                                                                                                                       | 13 | 14 | 14 | 13 | 14 | 13 | 13 | 12 | 8  | 8  | 7  | 5                                                                                                                                     | 8.6           | 13.9          |
| 27-Apr                                                                                                                            | 3                             | 3  | 2  | 1  | 1  | 1  | 1  | 4  | 7  | 9  | 10 | 8                                                                                                                                                                                                                                                        | 6  | 8  | 12 | 11 | 13 | 8  | 7  | 6  | 4  | 3  | 2  | 2                                                                                                                                     | 5.5           | 12.7          |
| 28-Apr                                                                                                                            | 2                             | 1  | 0  | 0  | 0  | 0  | 1  | 3  | 5  | 5  | 6  | 6                                                                                                                                                                                                                                                        | 6  | 6  | 4  | 3  | 3  | 3  | N  | N  | N  | N  | N  | N                                                                                                                                     | 3.0           | 6.3           |
| 29-Apr                                                                                                                            | N                             | N  | N  | N  | N  | N  | N  | 4  | 6  | 7  | 9  | 10                                                                                                                                                                                                                                                       | 10 | 8  | N  | 7  | 8  | 8  | 8  | 8  | 7  | 3  | 3  | 2                                                                                                                                     | --            | 10.5          |
| 30-Apr                                                                                                                            | 2                             | 2  | 2  | 1  | 1  | 2  | 4  | 5  | 7  | 9  | 10 | 11                                                                                                                                                                                                                                                       | 11 | 11 | 11 | 11 | 10 | 10 | 10 | 9  | 6  | 5  | 4  | 3                                                                                                                                     | 6.5           | 11.0          |
| 0.2 -0.2 -0.5 -1.0 -1.3 -1.6 -1.3 0.3 2.1 3.8 5.1 5.8 6.3 6.7 7.0 6.8 6.7 6.1 5.5 4.4 3.0 2.1 1.6 0.8                             |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                       |               |               |
| 5.4 5.1 4.7 4.0 3.4 3.2 3.7 5.3 7.3 10.1 12.7 12.8 13.2 14.0 15.1 15.5 15.2 14.7 13.9 12.5 8.9 7.8 7.2 5.8                        |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                       |               |               |
| N - Not Valid                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                       |               |               |

## Hourly Averages

External Temperature (ET) - °C  
Beaverlodge - April 2011



## Hourly Averages

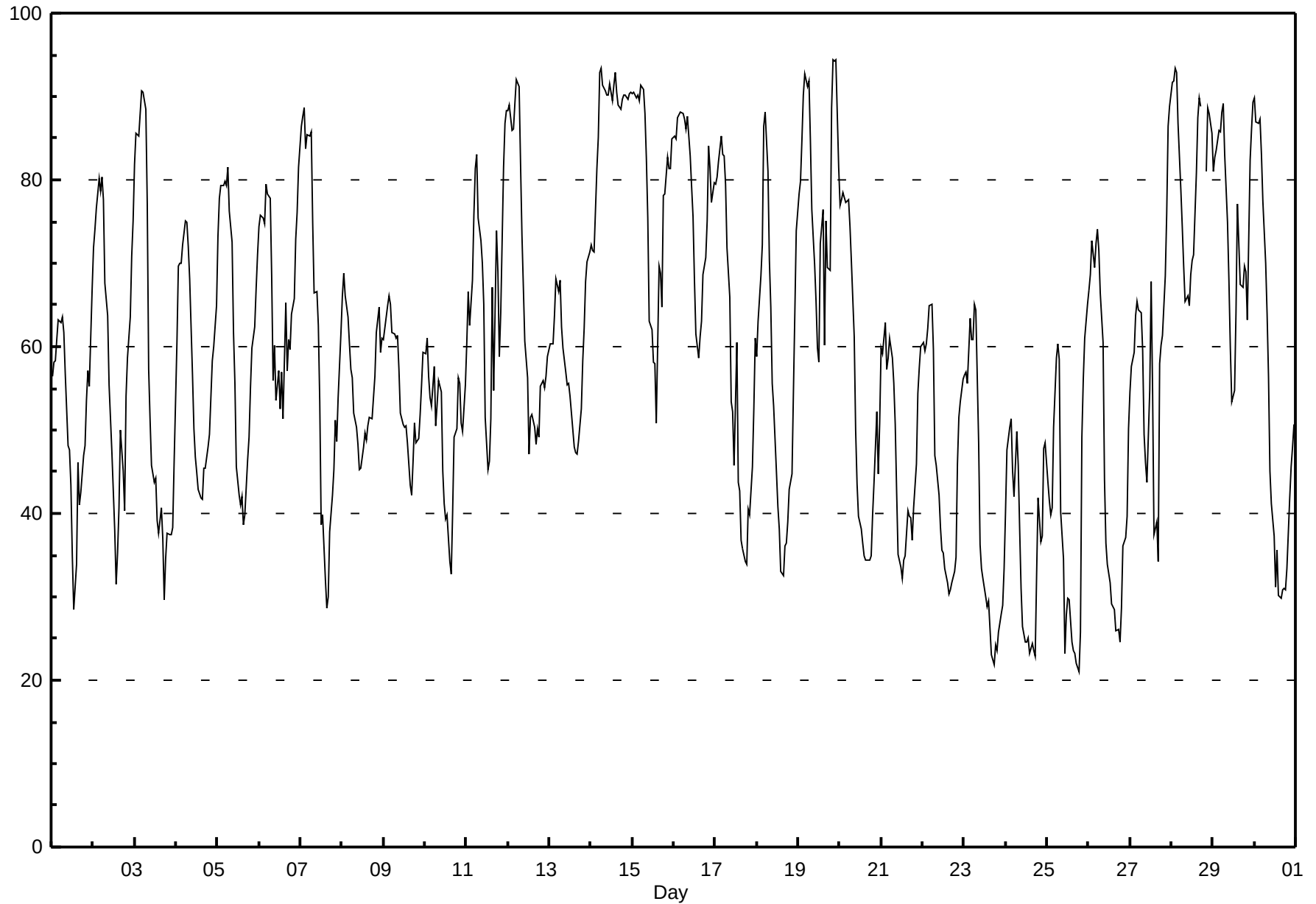
Relative Humidity (RH) - %

Beaverlodge - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720                                                                                                                                             |               |                                |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------|--|
| Maximum Value: 94.4 % on Apr 19 21:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 87.7 % on Apr 14                                                                                                                           |               | Hours of Data: 718             |  |
| Minimum Value: 21 % on Apr 25 19:00                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 36.7 % on Apr 24                                                                                                                           |               | Hours of Missing Data: 2       |  |
| Maximum Diurnal Average: 75.0 % at hour 6                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 44.8 % at hour 15                                                                                                                        |               | Hours of Calibration: 0        |  |
| Monthly Average: 59.27 %                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 23.2 P <sub>10</sub> = 34.3 Q <sub>1</sub> = 45.2 Median = 58.7 Q <sub>3</sub> = 74.1 P <sub>90</sub> = 86.8 P <sub>99</sub> = 92.9 |               | Percent Operational Time: 99.7 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   | Daily Average | Daily Maximum                  |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                                                |               |                                |  |
| 1-Apr                                                                                                                   | 56                            | 58 | 58 | 61 | 63 | 63 | 64 | 62 | 57 | 48 | 48 | 43 | 35 | 28 | 34 | 46 | 41 | 43 | 47 | 48 | 54 | 57 | 55 | 67                                                                                                                                                                | 51.5          | 66.8                           |  |
| 2-Apr                                                                                                                   | 72                            | 74 | 77 | 80 | 79 | 80 | 78 | 68 | 64 | 55 | 51 | 47 | 38 | 31 | 35 | 41 | 50 | 45 | 40 | 54 | 59 | 64 | 71 | 75                                                                                                                                                                | 59.5          | 80.4                           |  |
| 3-Apr                                                                                                                   | 82                            | 86 | 85 | 88 | 91 | 90 | 88 | 77 | 57 | 51 | 46 | 44 | 44 | 39 | 38 | 41 | 37 | 30 | 35 | 38 | 37 | 37 | 38 | 46                                                                                                                                                                | 56.0          | 90.7                           |  |
| 4-Apr                                                                                                                   | 60                            | 70 | 70 | 70 | 72 | 75 | 75 | 72 | 68 | 57 | 50 | 47 | 45 | 43 | 42 | 42 | 46 | 45 | 48 | 50 | 54 | 58 | 60 | 65                                                                                                                                                                | 57.6          | 75.1                           |  |
| 5-Apr                                                                                                                   | 73                            | 78 | 79 | 79 | 80 | 79 | 82 | 76 | 73 | 62 | 56 | 46 | 42 | 41 | 42 | 39 | 40 | 46 | 49 | 55 | 60 | 62 | 67 | 71                                                                                                                                                                | 61.5          | 81.6                           |  |
| 6-Apr                                                                                                                   | 74                            | 76 | 75 | 75 | 80 | 78 | 78 | 69 | 56 | 60 | 54 | 57 | 53 | 57 | 51 | 65 | 57 | 61 | 60 | 64 | 66 | 73 | 76 | 81                                                                                                                                                                | 66.5          | 81.5                           |  |
| 7-Apr                                                                                                                   | 86                            | 88 | 89 | 84 | 85 | 85 | 86 | 75 | 66 | 67 | 63 | 53 | 39 | 40 | 32 | 29 | 30 | 38 | 42 | 45 | 51 | 49 | 54 | 62                                                                                                                                                                | 59.9          | 88.7                           |  |
| 8-Apr                                                                                                                   | 66                            | 69 | 66 | 64 | 60 | 57 | 56 | 52 | 50 | 48 | 45 | 45 | 48 | 50 | 49 | 51 | 51 | 51 | 54 | 56 | 62 | 65 | 59 | 61                                                                                                                                                                | 55.7          | 68.8                           |  |
| 9-Apr                                                                                                                   | 61                            | 62 | 65 | 66 | 65 | 62 | 62 | 61 | 61 | 57 | 52 | 51 | 50 | 51 | 48 | 43 | 42 | 46 | 51 | 48 | 49 | 52 | 55 | 59                                                                                                                                                                | 55.1          | 66.1                           |  |
| 10-Apr                                                                                                                  | 59                            | 61 | 56 | 54 | 53 | 58 | 50 | 53 | 56 | 54 | 45 | 41 | 39 | 40 | 34 | 33 | 40 | 49 | 50 | 56 | 56 | 51 | 50 | 55                                                                                                                                                                | 49.8          | 60.9                           |  |
| 11-Apr                                                                                                                  | 60                            | 67 | 63 | 68 | 76 | 81 | 83 | 75 | 73 | 70 | 65 | 51 | 45 | 46 | 51 | 67 | 55 | 74 | 69 | 59 | 64 | 82 | 87 | 88                                                                                                                                                                | 67.5          | 88.4                           |  |
| 12-Apr                                                                                                                  | 88                            | 89 | 86 | 86 | 89 | 92 | 91 | 82 | 73 | 67 | 61 | 56 | 47 | 51 | 52 | 50 | 48 | 50 | 49 | 55 | 56 | 55 | 56 | 59                                                                                                                                                                | 66.3          | 92.0                           |  |
| 13-Apr                                                                                                                  | 60                            | 60 | 60 | 64 | 68 | 67 | 68 | 62 | 60 | 57 | 55 | 56 | 54 | 52 | 48 | 47 | 47 | 49 | 52 | 58 | 62 | 68 | 70 | 71                                                                                                                                                                | 59.1          | 71.3                           |  |
| 14-Apr                                                                                                                  | 72                            | 72 | 71 | 81 | 85 | 93 | 93 | 91 | 91 | 90 | 90 | 91 | 89 | 91 | 93 | 90 | 89 | 89 | 90 | 90 | 90 | 90 | 90 | 90                                                                                                                                                                | 87.7          | 93.3                           |  |
| 15-Apr                                                                                                                  | 90                            | 91 | 90 | 90 | 90 | 91 | 91 | 88 | 83 | 75 | 63 | 62 | 58 | 58 | 51 | 70 | 69 | 65 | 78 | 78 | 83 | 81 | 81 | 85                                                                                                                                                                | 77.5          | 91.4                           |  |
| 16-Apr                                                                                                                  | 85                            | 85 | 87 | 88 | 88 | 88 | 87 | 86 | 88 | 83 | 79 | 76 | 68 | 62 | 59 | 61 | 63 | 69 | 71 | 75 | 84 | 81 | 77 | 80                                                                                                                                                                | 77.9          | 88.1                           |  |
| 17-Apr                                                                                                                  | 79                            | 80 | 82 | 85 | 83 | 83 | 80 | 72 | 66 | 53 | 52 | 46 | 61 | 44 | 43 | 37 | 36 | 34 | 34 | 40 | 40 | 46 | 53 | 61                                                                                                                                                                | 57.9          | 85.3                           |  |
| 18-Apr                                                                                                                  | 59                            | 63 | 69 | 72 | 86 | 88 | 81 | 70 | 65 | 56 | 53 | 45 | 41 | 38 | 33 | 33 | 36 | 37 | 39 | 43 | 45 | 55 | 64 | 74                                                                                                                                                                | 56.0          | 88.1                           |  |
| 19-Apr                                                                                                                  | 78                            | 80 | 85 | 90 | 93 | 91 | 92 | 85 | 76 | 70 | 65 | 60 | 58 | 72 | 76 | 60 | 75 | 69 | 69 | 89 | 94 | 94 | 94 | 82                                                                                                                                                                | 79.1          | 94.4                           |  |
| 20-Apr                                                                                                                  | 77                            | 78 | 78 | 77 | 77 | 78 | 74 | 70 | 61 | 50 | 44 | 40 | 38 | 37 | 35 | 34 | 34 | 34 | 35 | 40 | 44 | 52 | 45 | 51                                                                                                                                                                | 53.5          | 78.4                           |  |
| 21-Apr                                                                                                                  | 60                            | 59 | 63 | 57 | 59 | 61 | 59 | 56 | 51 | 43 | 35 | 34 | 32 | 34 | 35 | 40 | 40 | 39 | 37 | 41 | 46 | 54 | 57 | 60                                                                                                                                                                | 48.0          | 62.9                           |  |
| 22-Apr                                                                                                                  | 61                            | 60 | 60 | 62 | 65 | 65 | 60 | 47 | 46 | 42 | 38 | 36 | 35 | 33 | 32 | 30 | 31 | 32 | 33 | 35 | 46 | 52 | 53 | 56                                                                                                                                                                | 46.2          | 65.1                           |  |
| 23-Apr                                                                                                                  | 57                            | 57 | 56 | 63 | 61 | 61 | 65 | 64 | 49 | 36 | 33 | 32 | 30 | 29 | 30 | 26 | 23 | 22 | 24 | 24 | 26 | 28 | 29 | 33                                                                                                                                                                | 39.9          | 65.0                           |  |
| 24-Apr                                                                                                                  | 40                            | 48 | 50 | 51 | 45 | 42 | 50 | 46 | 38 | 31 | 26 | 25 | 25 | 25 | 23 | 24 | 24 | 23 | 33 | 42 | 37 | 37 | 48 | 49                                                                                                                                                                | 36.7          | 51.4                           |  |
| 25-Apr                                                                                                                  | 44                            | 42 | 40 | 41 | 50 | 59 | 60 | 59 | 40 | 35 | 23 | 28 | 30 | 30 | 25 | 24 | 23 | 22 | 21 | 26 | 49 | 56 | 61 | 65                                                                                                                                                                | 39.6          | 65.1                           |  |
| 26-Apr                                                                                                                  | 67                            | 69 | 73 | 70 | 72 | 74 | 72 | 66 | 60 | 44 | 36 | 34 | 32 | 29 | 29 | 28 | 26 | 26 | 25 | 29 | 36 | 37 | 40 | 50                                                                                                                                                                | 46.8          | 74.1                           |  |
| 27-Apr                                                                                                                  | 55                            | 58 | 59 | 64 | 65 | 64 | 64 | 60 | 50 | 46 | 44 | 55 | 68 | 55 | 37 | 39 | 34 | 58 | 60 | 61 | 68 | 76 | 86 | 89                                                                                                                                                                | 59.0          | 88.9                           |  |
| 28-Apr                                                                                                                  | 92                            | 92 | 93 | 93 | 87 | 79 | 74 | 70 | 65 | 66 | 65 | 69 | 70 | 71 | 81 | 88 | 90 | 89 | N  | N  | 81 | 89 | 88 | 86                                                                                                                                                                | 80.7          | 93.5                           |  |
| 29-Apr                                                                                                                  | 81                            | 83 | 84 | 86 | 86 | 88 | 89 | 83 | 75 | 68 | 60 | 53 | 55 | 64 | 77 | 72 | 67 | 67 | 70 | 69 | 63 | 82 | 86 | 89                                                                                                                                                                | 74.9          | 89.3                           |  |
| 30-Apr                                                                                                                  | 90                            | 87 | 87 | 87 | 83 | 77 | 70 | 64 | 56 | 45 | 41 | 37 | 31 | 36 | 30 | 30 | 31 | 31 | 31 | 33 | 42 | 46 | 48 | 51                                                                                                                                                                | 52.7          | 89.9                           |  |
| 69.5 71.2 71.9 73.2 74.6 75.0 74.0 68.7 62.5 56.2 51.3 48.6 46.7 45.9 44.8 46.0 45.8 47.7 48.1 51.8 56.8 60.9 63.4 67.0 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                                                   |               |                                |  |
| 91.6 91.8 93.5 93.0 92.8 92.9 93.3 91.4 90.7 90.2 90.2 91.5 89.5 91.4 92.8 90.5 89.9 88.9 89.6 90.2 94.4 94.2 94.3 90.5 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                                                   |               |                                |  |
| N - Not Valid                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |               |                                |  |

## Hourly Averages

Relative Humidity (RH) - %  
Beaverlodge - April 2011





## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Beaverlodge - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 23                            | 18  | 12  | 5   | 3   | 12  | 12  | 10  | 10  | 6   | 16  | 14  | 7   | 3   | 7   | 11  | 7   | 9   | 10  | 8   | 7   | 6   | 7   | 2   | 8.8           | 23.4          |
| Dir    | 257                           | 259 | 265 | 238 | 255 | 266 | 269 | 245 | 258 | 224 | 275 | 270 | 255 | 196 | 247 | 227 | 216 | 289 | 280 | 273 | 269 | 309 | 305 | 148 | 261           | 257           |
| 2 Spd  | 2                             | 1   | 2   | 3   | 2   | 1   | 6   | 4   | 12  | 5   | 8   | 9   | 8   | 8   | 10  | 11  | 14  | 10  | 6   | 10  | 11  | 5   | 4   | 6   | 5.7           | 14.0          |
| Dir    | 83                            | 306 | 57  | 50  | 265 | 20  | 319 | 347 | 330 | 24  | 11  | 322 | 320 | 17  | 27  | 342 | 335 | 21  | 14  | 7   | 28  | 10  | 359 | 22  | 359           | 335           |
| 3 Spd  | 2                             | 4   | 6   | 1   | 0   | 3   | 2   | 3   | 3   | 4   | 4   | 5   | 8   | 8   | 9   | 12  | 9   | 4   | 2   | 3   | 3   | 1   | 5   | 10  | 2.3           | 11.7          |
| Dir    | 348                           | 24  | 42  | 217 | 139 | 108 | 109 | 97  | 189 | 119 | 116 | 87  | 93  | 115 | 121 | 125 | 129 | 206 | 183 | 224 | 72  | 332 | 238 | 272 | 120           | 125           |
| 4 Spd  | 10                            | 12  | 8   | 6   | 3   | 5   | 7   | 12  | 25  | 28  | 35  | 39  | 41  | 38  | 36  | 32  | 21  | 18  | 15  | 12  | 20  | 12  | 11  | 6   | 18.3          | 40.9          |
| Dir    | 239                           | 246 | 246 | 239 | 206 | 213 | 220 | 233 | 241 | 253 | 255 | 258 | 258 | 263 | 264 | 264 | 245 | 259 | 264 | 279 | 274 | 278 | 297 | 301 | 257           | 258           |
| 5 Spd  | 2                             | 5   | 3   | 3   | 4   | 2   | 2   | 2   | 1   | 3   | 10  | 25  | 22  | 18  | 24  | 19  | 18  | 20  | 14  | 17  | 12  | 11  | 7   | 8   | 8.6           | 25.2          |
| Dir    | 211                           | 65  | 94  | 99  | 27  | 67  | 215 | 269 | 220 | 213 | 238 | 266 | 273 | 275 | 263 | 255 | 257 | 251 | 244 | 240 | 224 | 223 | 223 | 220 | 252           | 266           |
| 6 Spd  | 10                            | 9   | 6   | 7   | 11  | 10  | 6   | 6   | 3   | 7   | 7   | 15  | 11  | 9   | 11  | 13  | 15  | 11  | 8   | 9   | 5   | 1   | 0   | 2   | 6.2           | 14.8          |
| Dir    | 221                           | 223 | 224 | 219 | 231 | 244 | 239 | 245 | 86  | 188 | 212 | 224 | 240 | 245 | 316 | 288 | 285 | 294 | 291 | 281 | 304 | 228 | 276 | 71  | 252           | 224           |
| 7 Spd  | 2                             | 3   | 3   | 3   | 3   | 5   | 4   | 6   | 9   | 11  | 9   | 5   | 4   | 4   | 3   | 3   | 5   | 9   | 6   | 3   | 3   | 3   | 4   | 3   | 1.4           | 10.6          |
| Dir    | 53                            | 243 | 320 | 320 | 320 | 332 | 357 | 316 | 323 | 318 | 303 | 297 | 98  | 103 | 162 | 111 | 174 | 224 | 237 | 178 | 108 | 158 | 176 | 160 | 283           | 318           |
| 8 Spd  | 5                             | 4   | 5   | 7   | 8   | 9   | 8   | 7   | 11  | 22  | 29  | 29  | 31  | 28  | 34  | 26  | 26  | 35  | 28  | 27  | 18  | 8   | 10  | 7   | 15.4          | 34.5          |
| Dir    | 132                           | 108 | 183 | 164 | 162 | 169 | 176 | 195 | 222 | 235 | 239 | 243 | 241 | 237 | 234 | 237 | 248 | 261 | 257 | 257 | 260 | 264 | 261 | 291 | 239           | 261           |
| 9 Spd  | 8                             | 13  | 8   | 6   | 7   | 5   | 10  | 15  | 25  | 22  | 27  | 29  | 25  | 27  | 27  | 28  | 30  | 31  | 29  | 24  | 26  | 19  | 11  | 7   | 18.4          | 30.5          |
| Dir    | 288                           | 285 | 271 | 186 | 199 | 216 | 233 | 244 | 245 | 233 | 239 | 244 | 243 | 245 | 241 | 246 | 253 | 247 | 253 | 257 | 259 | 254 | 255 | 265 | 248           | 247           |
| 10 Spd | 9                             | 6   | 6   | 7   | 8   | 4   | 11  | 8   | 13  | 8   | 10  | 11  | 6   | 8   | 4   | 3   | 6   | 8   | 3   | 4   | 3   | 6   | 4   | 1   | 2.8           | 13.1          |
| Dir    | 293                           | 300 | 277 | 268 | 264 | 227 | 274 | 250 | 248 | 263 | 281 | 295 | 0   | 49  | 74  | 47  | 50  | 93  | 86  | 328 | 270 | 66  | 76  | 124 | 294           | 248           |
| 11 Spd | 7                             | 7   | 10  | 5   | 1   | 4   | 3   | 2   | 4   | 2   | 23  | 32  | 45  | 46  | 40  | 21  | 28  | 17  | 19  | 14  | 14  | 8   | 7   | 10  | 11.8          | 46.3          |
| Dir    | 306                           | 31  | 23  | 24  | 251 | 266 | 224 | 265 | 111 | 156 | 235 | 244 | 245 | 246 | 251 | 277 | 261 | 305 | 298 | 265 | 275 | 340 | 343 | 351 | 266           | 246           |
| 12 Spd | 9                             | 8   | 9   | 5   | 3   | 4   | 4   | 5   | 7   | 10  | 9   | 10  | 11  | 12  | 13  | 14  | 16  | 15  | 18  | 19  | 24  | 24  | 24  | 21  | 10.7          | 23.8          |
| Dir    | 353                           | 357 | 10  | 17  | 48  | 59  | 64  | 85  | 136 | 106 | 103 | 102 | 100 | 109 | 112 | 97  | 93  | 94  | 89  | 86  | 89  | 90  | 93  | 98  | 88            | 90            |
| 13 Spd | 21                            | 17  | 14  | 12  | 11  | 11  | 13  | 13  | 15  | 14  | 12  | 15  | 16  | 21  | 23  | 24  | 28  | 29  | 29  | 27  | 27  | 32  | 27  | 25  | 19.5          | 31.8          |
| Dir    | 99                            | 100 | 98  | 98  | 90  | 78  | 79  | 72  | 85  | 83  | 86  | 76  | 78  | 80  | 71  | 75  | 78  | 80  | 79  | 83  | 83  | 86  | 83  | 81  | 83            | 86            |
| 14 Spd | 24                            | 24  | 26  | 26  | 26  | 29  | 38  | 41  | 41  | 37  | 35  | 33  | 35  | 30  | 19  | 27  | 27  | 23  | 19  | 17  | 16  | 15  | 12  | 11  | 25.8          | 40.7          |
| Dir    | 79                            | 77  | 77  | 78  | 87  | 85  | 89  | 92  | 92  | 93  | 97  | 94  | 92  | 89  | 77  | 69  | 70  | 74  | 72  | 68  | 67  | 73  | 69  | 54  | 83            | 92            |
| 15 Spd | 11                            | 10  | 10  | 9   | 6   | 12  | 9   | 8   | 7   | 8   | 7   | 6   | 7   | 6   | 7   | 14  | 10  | 13  | 13  | 15  | 11  | 12  | 11  | 13  | 7.0           | 15.1          |
| Dir    | 44                            | 34  | 27  | 19  | 344 | 325 | 321 | 313 | 314 | 320 | 333 | 336 | 301 | 3   | 27  | 21  | 36  | 60  | 73  | 80  | 72  | 71  | 69  | 79  | 28            | 80            |
| 16 Spd | 12                            | 9   | 13  | 13  | 13  | 11  | 15  | 19  | 15  | 18  | 21  | 22  | 20  | 24  | 26  | 23  | 20  | 19  | 16  | 13  | 11  | 10  | 10  | 11  | 15.5          | 25.9          |
| Dir    | 76                            | 52  | 67  | 67  | 75  | 60  | 81  | 74  | 64  | 79  | 70  | 70  | 75  | 70  | 66  | 67  | 57  | 56  | 59  | 46  | 29  | 28  | 35  | 30  | 63            | 66            |
| 17 Spd | 9                             | 11  | 10  | 7   | 8   | 4   | 5   | 4   | 4   | 3   | 6   | 6   | 13  | 9   | 10  | 9   | 6   | 6   | 8   | 5   | 4   | 8   | 7   | 2   | 6.1           | 13.4          |
| Dir    | 37                            | 32  | 33  | 25  | 25  | 352 | 19  | 47  | 51  | 67  | 33  | 10  | 33  | 21  | 33  | 21  | 74  | 110 | 117 | 103 | 34  | 21  | 32  | 80  | 39            | 33            |
| 18 Spd | 5                             | 1   | 2   | 2   | 3   | 2   | 2   | 2   | 3   | 3   | 5   | 4   | 7   | 8   | 8   | 9   | 8   | 4   | 7   | 6   | 4   | 1   | 7   | 6   | 2.4           | 8.8           |
| Dir    | 36                            | 312 | 11  | 338 | 243 | 356 | 68  | 111 | 121 | 96  | 154 | 138 | 93  | 93  | 70  | 47  | 41  | 80  | 18  | 22  | 336 | 359 | 291 | 304 | 49            | 47            |
| 19 Spd | 5                             | 1   | 4   | 2   | 5   | 5   | 7   | 10  | 10  | 9   | 10  | 9   | 11  | 6   | 16  | 9   | 9   | 4   | 6   | 6   | 1   | 1   | 2   | 9   | 4.7           | 16.3          |
| Dir    | 282                           | 259 | 298 | 74  | 271 | 298 | 289 | 310 | 291 | 296 | 291 | 311 | 346 | 344 | 222 | 301 | 327 | 259 | 204 | 356 | 73  | 174 | 161 | 237 | 292           | 222           |
| 20 Spd | 8                             | 9   | 6   | 7   | 6   | 8   | 8   | 9   | 18  | 26  | 27  | 29  | 28  | 27  | 24  | 20  | 21  | 19  | 17  | 7   | 4   | 1   | 5   | 3   | 12.9          | 28.7          |
| Dir    | 247                           | 239 | 219 | 231 | 213 | 223 | 232 | 228 | 244 | 268 | 274 | 266 | 262 | 266 | 267 | 284 | 283 | 293 | 283 | 300 | 24  | 173 | 267 | 233 | 265           | 266           |
| 21 Spd | 5                             | 6   | 4   | 5   | 6   | 4   | 11  | 10  | 13  | 21  | 21  | 15  | 13  | 20  | 17  | 18  | 16  | 20  | 18  | 14  | 11  | 14  | 16  | 12  | 11.2          | 21.5          |
| Dir    | 204                           | 191 | 171 | 202 | 210 | 233 | 231 | 171 | 214 | 239 | 277 | 289 | 291 | 287 | 254 | 290 | 290 | 269 | 266 | 270 | 255 | 244 | 246 | 244 | 256           | 277           |
| 22 Spd | 14                            | 18  | 14  | 10  | 9   | 7   | 10  | 22  | 26  | 30  | 25  | 20  | 19  | 21  | 23  | 28  | 26  | 28  | 24  | 19  | 13  | 14  | 13  | 8   | 17.8          | 30.0          |
| Dir    | 243                           | 244 | 244 | 245 | 242 | 229 | 248 | 272 | 272 | 271 | 280 | 289 | 283 | 265 | 268 | 260 | 269 | 254 | 252 | 255 | 246 | 244 | 242 | 237 | 261           | 271           |

## Hourly Averages

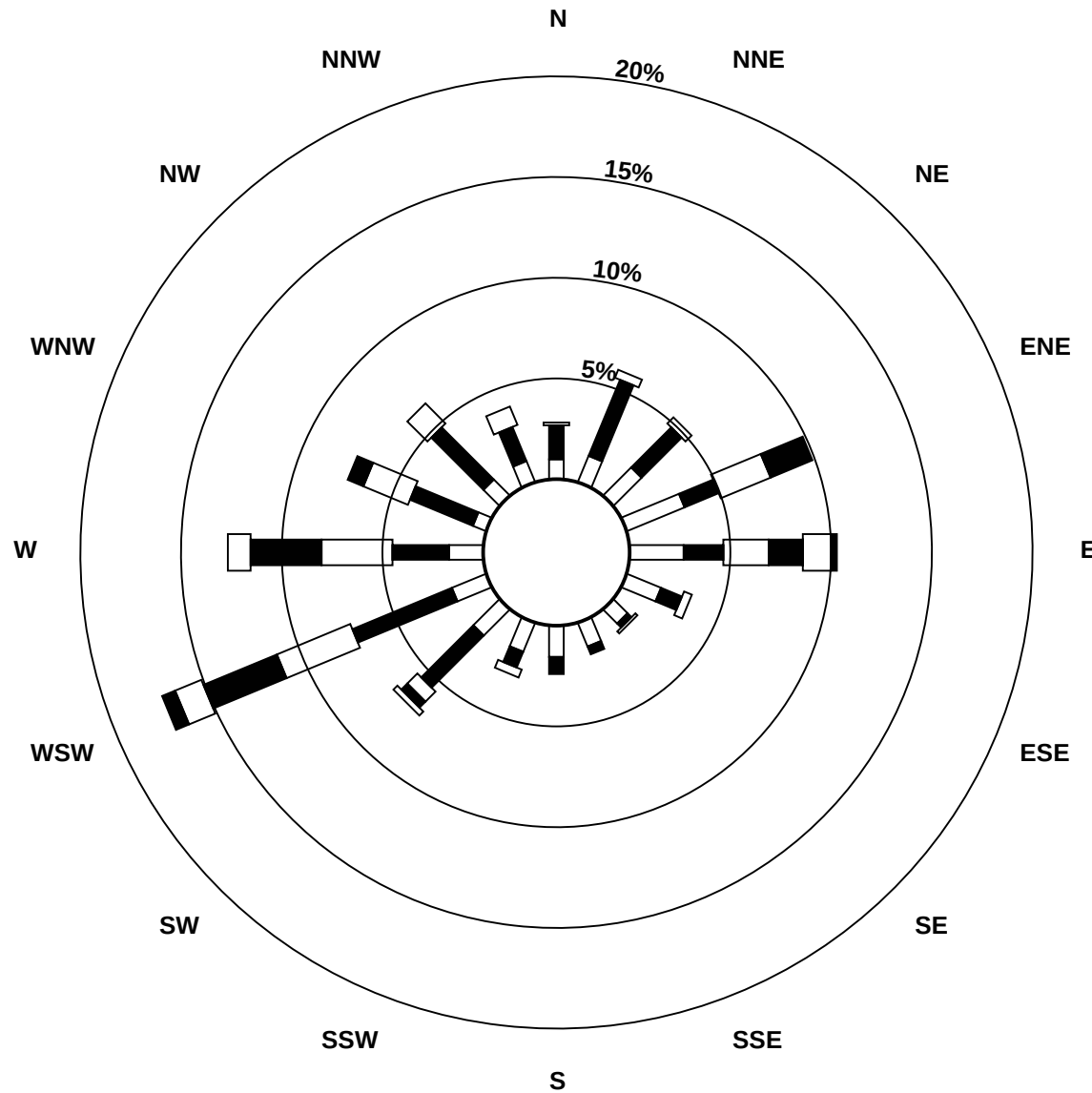
Wind Speed (km/h)  
Wind Direction (deg)  
Beaverlodge - April 2011

| Day                                                                                                                                                                 | Hourly Period Ending At (MST) |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 | Daily Average   | Daily Maximum |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------|---------|------|----------|------|----------|------|----------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|---------------------------------|-----------------|---------------|
|                                                                                                                                                                     | 1                             | 2    | 3       | 4    | 5        | 6    | 7        | 8    | 9        | 10   | 11   | 12   | 13    | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24                              |                 |               |
| 23 Spd                                                                                                                                                              | 11                            | 9    | 7       | 2    | 2        | 1    | 3        | 4    | 2        | 21   | 20   | 21   | 16    | 11   | 15   | 5    | 22   | 21   | 18   | 21   | 13   | 6    | 8    | 5                               | 8.6             | 21.8          |
| Dir                                                                                                                                                                 | 251                           | 244  | 238     | 49   | 319      | 20   | 65       | 54   | 190      | 275  | 281  | 282  | 275   | 334  | 26   | 3    | 262  | 265  | 259  | 258  | 266  | 255  | 255  | 252                             | 274             | 262           |
| 24 Spd                                                                                                                                                              | 3                             | 2    | 4       | 3    | 6        | 3    | 1        | 1    | 5        | 6    | 5    | 8    | 9     | 12   | 10   | 9    | 7    | 8    | 12   | 7    | 7    | 9    | 10   | 10                              | 5.9             | 12.0          |
| Dir                                                                                                                                                                 | 64                            | 126  | 94      | 90   | 51       | 23   | 241      | 256  | 39       | 56   | 65   | 87   | 43    | 52   | 64   | 71   | 73   | 72   | 112  | 83   | 74   | 65   | 82   | 87                              | 72              | 52            |
| 25 Spd                                                                                                                                                              | 9                             | 7    | 9       | 10   | 4        | 3    | 6        | 3    | 3        | 4    | 2    | 7    | 9     | 10   | 10   | 11   | 10   | 8    | 8    | 19   | 14   | 10   | 9    | 3.4                             | 18.6            |               |
| Dir                                                                                                                                                                 | 80                            | 85   | 91      | 94   | 237      | 272  | 44       | 256  | 88       | 81   | 83   | 47   | 42    | 43   | 47   | 34   | 36   | 10   | 356  | 317  | 258  | 286  | 286  | 312                             | 17              | 258           |
| 26 Spd                                                                                                                                                              | 9                             | 7    | 6       | 3    | 3        | 2    | 5        | 4    | 7        | 13   | 19   | 15   | 15    | 17   | 15   | 14   | 18   | 18   | 24   | 17   | 12   | 9    | 6    | 3                               | 10.0            | 23.6          |
| Dir                                                                                                                                                                 | 309                           | 302  | 258     | 270  | 264      | 204  | 232      | 207  | 214      | 261  | 278  | 282  | 296   | 272  | 277  | 278  | 292  | 280  | 254  | 252  | 255  | 263  | 280  | 190                             | 270             | 254           |
| 27 Spd                                                                                                                                                              | 1                             | 3    | 4       | 3    | 3        | 5    | 4        | 2    | 2        | 4    | 8    | 24   | 27    | 17   | 4    | 7    | 5    | 29   | 12   | 11   | 11   | 5    | 4    | 1                               | 5.0             | 29.3          |
| Dir                                                                                                                                                                 | 78                            | 61   | 52      | 75   | 61       | 49   | 58       | 134  | 126      | 231  | 220  | 239  | 239   | 248  | 161  | 124  | 124  | 224  | 253  | 261  | 247  | 193  | 183  | 160                             | 226             | 224           |
| 28 Spd                                                                                                                                                              | 2                             | 1    | 1       | 2    | 3        | 4    | 9        | 10   | 17       | 18   | 14   | 16   | 15    | 16   | 15   | 16   | 15   | 16   | 15   | 14   | 15   | 7    | 8    | 4                               | 9.8             | 17.9          |
| Dir                                                                                                                                                                 | 69                            | 123  | 83      | 60   | 12       | 338  | 319      | 325  | 313      | 322  | 344  | 342  | 337   | 351  | 339  | 326  | 325  | 322  | 338  | 323  | 310  | 287  | 275  | 302                             | 328             | 322           |
| 29 Spd                                                                                                                                                              | 5                             | 5    | 7       | 11   | 11       | 11   | 11       | 9    | 6        | 6    | 8    | 6    | 6     | 10   | 6    | 10   | 14   | 16   | 12   | 4    | 12   | 9    | 7    | 1                               | 4.4             | 15.6          |
| Dir                                                                                                                                                                 | 321                           | 336  | 343     | 328  | 318      | 314  | 324      | 326  | 291      | 256  | 265  | 227  | 241   | 288  | 326  | 152  | 195  | 201  | 199  | 191  | 315  | 12   | 252  | 83                              | 282             | 201           |
| 30 Spd                                                                                                                                                              | 4                             | 1    | 4       | 5    | 7        | 8    | 1        | 3    | 9        | 17   | 18   | 18   | 26    | 21   | 35   | 31   | 31   | 26   | 23   | 20   | 17   | 15   | 11   | 9                               | 14.4            | 34.9          |
| Dir                                                                                                                                                                 | 55                            | 220  | 276     | 258  | 256      | 254  | 245      | 242  | 255      | 284  | 284  | 278  | 266   | 290  | 255  | 265  | 270  | 259  | 258  | 250  | 245  | 252  | 249  | 234                             | 263             | 255           |
| Spd                                                                                                                                                                 | 0.8                           | 0.9  | 1.2     | 1.2  | 0.2      | 0.8  | 0.6      | 0.9  | 3.0      | 4.8  | 7.0  | 8.0  | 7.1   | 5.5  | 5.3  | 4.6  | 5.4  | 6.3  | 5.0  | 4.4  | 3.7  | 1.1  | 1.3  | 0.5                             | Diurnal Average |               |
| Dir                                                                                                                                                                 | 332                           | 321  | 25      | 70   | 251      | 300  | 296      | 262  | 253      | 262  | 268  | 270  | 271   | 280  | 271  | 290  | 284  | 270  | 268  | 279  | 282  | 313  | 287  | 3                               | Diurnal Maximum |               |
| Spd                                                                                                                                                                 | 24.4                          | 23.9 | 26.1    | 25.5 | 26.0     | 28.7 | 37.5     | 40.5 | 40.7     | 37.3 | 35.3 | 38.6 | 45.5  | 46.3 | 40.1 | 32.0 | 30.6 | 34.5 | 29.3 | 27.3 | 27.2 | 31.8 | 27.1 | 24.7                            | Diurnal Maximum |               |
| Dir                                                                                                                                                                 | 79                            | 77   | 77      | 78   | 87       | 85   | 89       | 92   | 92       | 93   | 97   | 258  | 245   | 246  | 251  | 264  | 270  | 261  | 253  | 83   | 83   | 86   | 83   | 81                              |                 |               |
| Maximum Speed Value: 46 km/h on Apr 11 14:00                                                                                                                        |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      | Hours in Service: 720           |                 |               |
| Maximum Daily Speed Average: 25.8 km/h on Apr 14                                                                                                                    |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      | Hours of Data: 720              |                 |               |
| Maximum Diurnal Speed Average: 8.0 km/h at hour 12                                                                                                                  |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      | Hours of Missing Data: 0        |                 |               |
| Minimum Speed Value: 0 km/h on Apr 3 05:00                                                                                                                          |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      | Percent Operational Time: 100.0 |                 |               |
| Minimum Daily Speed Average: 1.4 km/h on Apr 18                                                                                                                     |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Minimum Diurnal Speed Average: 0.2 km/h at hour 5                                                                                                                   |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Monthly Average Velocity: 3.07 km/h 276.7 deg                                                                                                                       |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Speed Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.8 Q <sub>1</sub> = 5.2 Median = 9.3 Q <sub>3</sub> = 15.7 P <sub>90</sub> = 25.1 P <sub>99</sub> = 37.6 |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| All monthly, daily, and diurnal averages have been calculated using vector methods                                                                                  |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
|                                                                                                                                                                     |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Frequency Distribution                                                                                                                                              |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Speed Range (km/h)                                                                                                                                                  |                               |      |         |      |          |      |          |      |          |      |      |      |       |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Direction                                                                                                                                                           | 0 to 5                        |      | 5 to 11 |      | 11 to 19 |      | 19 to 28 |      | 28 to 38 |      | > 38 |      | Total |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| North                                                                                                                                                               | 14                            |      | 31      |      | 8        |      | 0        |      | 0        |      | 0    |      | 53    |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| NorthEast                                                                                                                                                           | 30                            |      | 43      |      | 13       |      | 3        |      | 0        |      | 0    |      | 89    |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| East                                                                                                                                                                | 36                            |      | 26      |      | 33       |      | 27       |      | 10       |      | 2    |      | 134   |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| SouthEast                                                                                                                                                           | 15                            |      | 7       |      | 1        |      | 0        |      | 0        |      | 0    |      | 23    |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| South                                                                                                                                                               | 19                            |      | 13      |      | 3        |      | 0        |      | 0        |      | 0    |      | 35    |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| SouthWest                                                                                                                                                           | 27                            |      | 49      |      | 25       |      | 16       |      | 8        |      | 2    |      | 127   |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| West                                                                                                                                                                | 19                            |      | 48      |      | 51       |      | 45       |      | 15       |      | 4    |      | 182   |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| NorthWest                                                                                                                                                           | 11                            |      | 44      |      | 20       |      | 2        |      | 0        |      | 0    |      | 77    |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |
| Total                                                                                                                                                               | 171                           |      | 261     |      | 154      |      | 93       |      | 33       |      | 8    |      | 720   |      |      |      |      |      |      |      |      |      |      |                                 |                 |               |

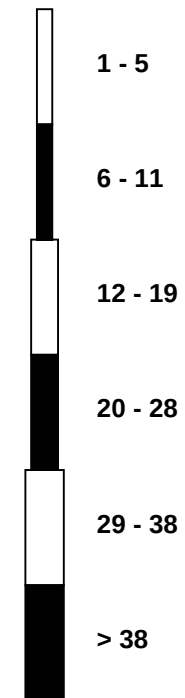
## Wind Rose

Wind Speed (WS) (km/h)

Beaverlodge - April 2011



## Wind Speed Classes (km/h)



## Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Beaverlodge - April 2011

| Maximum Speed: 46 km/h on Apr 11 14:00                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 26.3 km/h on Apr 14                                                                                                              |    |    |    |    |               |               |      |      |      | Hours in Service: 720           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
|------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------|---------------|------|------|------|---------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------|--|
| Minimum Speed: 2 km/h on Apr 30 02:00                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 5.1 km/h on Apr 7                                                                                                                |    |    |    |    |               |               |      |      |      | Hours of Data: 720              |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| Maximum Diurnal Speed Average: 17.7 km/h at hour 13                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 6.8 km/h at hour 4                                                                                                             |    |    |    |    |               |               |      |      |      | Hours of Missing Data: 0        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| Monthly Average Speed: 12.15 km/h                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 3.7 Q <sub>1</sub> = 5.9 Median = 9.6 Q <sub>3</sub> = 16.2 P <sub>90</sub> = 25.3 P <sub>99</sub> = 37.5 |    |    |    |    |               |               |      |      |      | Percent Operational Time: 100.0 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| Day                                                                                | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | Daily Average | Daily Maximum |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
|                                                                                    | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                            | 21 | 22 | 23 | 24 |               |               |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 1-Apr                                                                              | 23                            | 19 | 12 | 7  | 5  | 12 | 12 | 10 | 11 | 9  | 16 | 14 | 8  | 4  | 9  | 12 | 7  | 12 | 11 | 11                                                                                                                                                            | 7  | 7  | 8  | 3  | 10.4          | 23.4          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 2-Apr                                                                              | 3                             | 3  | 2  | 3  | 2  | 2  | 7  | 5  | 12 | 7  | 8  | 10 | 8  | 8  | 10 | 13 | 15 | 10 | 7  | 11                                                                                                                                                            | 11 | 7  | 5  | 7  | 7.2           | 14.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 3-Apr                                                                              | 6                             | 6  | 6  | 3  | 2  | 4  | 3  | 3  | 4  | 4  | 4  | 6  | 8  | 8  | 9  | 12 | 9  | 5  | 3  | 6                                                                                                                                                             | 3  | 2  | 6  | 10 | 5.4           | 11.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 4-Apr                                                                              | 10                            | 13 | 8  | 6  | 3  | 5  | 8  | 12 | 25 | 28 | 35 | 39 | 41 | 38 | 37 | 32 | 21 | 19 | 15 | 12                                                                                                                                                            | 20 | 12 | 11 | 7  | 19.1          | 41.1          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 5-Apr                                                                              | 5                             | 5  | 4  | 5  | 5  | 5  | 3  | 2  | 3  | 3  | 10 | 26 | 22 | 19 | 25 | 19 | 19 | 20 | 14 | 17                                                                                                                                                            | 12 | 11 | 7  | 8  | 11.2          | 25.7          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 6-Apr                                                                              | 10                            | 9  | 6  | 7  | 11 | 10 | 6  | 7  | 4  | 7  | 7  | 15 | 11 | 10 | 12 | 13 | 15 | 11 | 8  | 9                                                                                                                                                             | 5  | 4  | 3  | 3  | 8.4           | 14.9          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 7-Apr                                                                              | 2                             | 4  | 4  | 4  | 4  | 6  | 5  | 6  | 9  | 11 | 9  | 6  | 4  | 4  | 3  | 4  | 5  | 9  | 6  | 4                                                                                                                                                             | 4  | 3  | 4  | 4  | 5.1           | 10.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 8-Apr                                                                              | 6                             | 4  | 5  | 7  | 8  | 9  | 8  | 7  | 11 | 22 | 29 | 29 | 31 | 28 | 34 | 26 | 26 | 35 | 29 | 27                                                                                                                                                            | 18 | 8  | 10 | 7  | 17.7          | 34.7          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 9-Apr                                                                              | 8                             | 13 | 8  | 6  | 7  | 5  | 10 | 15 | 25 | 22 | 27 | 29 | 25 | 27 | 27 | 28 | 30 | 31 | 30 | 24                                                                                                                                                            | 26 | 19 | 11 | 8  | 19.3          | 30.6          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 10-Apr                                                                             | 9                             | 7  | 6  | 7  | 9  | 4  | 11 | 9  | 13 | 8  | 10 | 12 | 8  | 8  | 4  | 4  | 6  | 8  | 4  | 6                                                                                                                                                             | 4  | 6  | 5  | 2  | 7.1           | 13.1          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 11-Apr                                                                             | 8                             | 7  | 10 | 6  | 4  | 5  | 7  | 6  | 7  | 5  | 23 | 32 | 46 | 46 | 41 | 23 | 31 | 18 | 19 | 15                                                                                                                                                            | 16 | 8  | 7  | 10 | 16.7          | 46.5          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 12-Apr                                                                             | 9                             | 8  | 9  | 5  | 3  | 4  | 5  | 6  | 7  | 10 | 9  | 11 | 11 | 12 | 13 | 14 | 16 | 15 | 18 | 19                                                                                                                                                            | 24 | 24 | 24 | 21 | 12.4          | 23.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 13-Apr                                                                             | 21                            | 17 | 14 | 12 | 11 | 11 | 13 | 13 | 15 | 14 | 12 | 15 | 16 | 21 | 23 | 24 | 28 | 29 | 29 | 27                                                                                                                                                            | 27 | 32 | 27 | 25 | 19.8          | 31.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 14-Apr                                                                             | 24                            | 24 | 26 | 26 | 26 | 29 | 38 | 41 | 41 | 37 | 35 | 33 | 35 | 31 | 20 | 27 | 27 | 23 | 20 | 17                                                                                                                                                            | 16 | 15 | 12 | 11 | 26.3          | 40.7          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 15-Apr                                                                             | 11                            | 10 | 10 | 10 | 7  | 12 | 9  | 8  | 8  | 8  | 8  | 7  | 8  | 7  | 8  | 14 | 10 | 13 | 13 | 15                                                                                                                                                            | 12 | 12 | 11 | 13 | 10.2          | 15.4          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 16-Apr                                                                             | 12                            | 9  | 13 | 13 | 13 | 11 | 15 | 19 | 17 | 19 | 21 | 22 | 21 | 24 | 26 | 23 | 21 | 19 | 16 | 13                                                                                                                                                            | 11 | 10 | 10 | 11 | 16.2          | 26.0          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 17-Apr                                                                             | 9                             | 11 | 10 | 7  | 8  | 5  | 6  | 4  | 4  | 4  | 7  | 7  | 14 | 10 | 11 | 10 | 8  | 6  | 8  | 6                                                                                                                                                             | 4  | 8  | 7  | 4  | 7.3           | 13.7          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 18-Apr                                                                             | 5                             | 2  | 4  | 3  | 3  | 3  | 2  | 2  | 4  | 3  | 5  | 5  | 8  | 8  | 9  | 9  | 6  | 7  | 7  | 7                                                                                                                                                             | 6  | 4  | 8  | 7  | 5.3           | 9.1           |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 19-Apr                                                                             | 5                             | 2  | 5  | 3  | 6  | 5  | 7  | 11 | 10 | 10 | 10 | 11 | 13 | 11 | 16 | 11 | 10 | 8  | 7  | 9                                                                                                                                                             | 3  | 3  | 2  | 9  | 7.7           | 16.5          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 20-Apr                                                                             | 8                             | 10 | 6  | 7  | 7  | 8  | 8  | 9  | 18 | 27 | 27 | 29 | 29 | 27 | 25 | 21 | 22 | 20 | 17 | 9                                                                                                                                                             | 5  | 3  | 5  | 4  | 14.6          | 29.1          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 21-Apr                                                                             | 6                             | 7  | 7  | 5  | 6  | 4  | 12 | 10 | 14 | 22 | 22 | 16 | 14 | 21 | 19 | 19 | 16 | 21 | 19 | 15                                                                                                                                                            | 11 | 14 | 16 | 12 | 13.7          | 22.0          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 22-Apr                                                                             | 14                            | 18 | 14 | 10 | 9  | 7  | 10 | 22 | 27 | 30 | 25 | 21 | 20 | 22 | 24 | 28 | 27 | 28 | 24 | 19                                                                                                                                                            | 13 | 14 | 13 | 8  | 18.7          | 30.3          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 23-Apr                                                                             | 11                            | 9  | 7  | 4  | 5  | 5  | 3  | 4  | 5  | 21 | 21 | 21 | 17 | 15 | 15 | 12 | 23 | 22 | 18 | 21                                                                                                                                                            | 13 | 7  | 8  | 6  | 12.2          | 22.5          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 24-Apr                                                                             | 3                             | 3  | 4  | 4  | 6  | 3  | 2  | 3  | 5  | 6  | 6  | 8  | 10 | 12 | 11 | 10 | 8  | 8  | 12 | 7                                                                                                                                                             | 7  | 9  | 10 | 10 | 7.0           | 12.4          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 25-Apr                                                                             | 9                             | 8  | 9  | 10 | 8  | 5  | 6  | 5  | 4  | 4  | 4  | 8  | 10 | 11 | 11 | 10 | 11 | 10 | 8  | 9                                                                                                                                                             | 19 | 14 | 10 | 9  | 8.9           | 19.2          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 26-Apr                                                                             | 9                             | 7  | 7  | 4  | 4  | 3  | 5  | 4  | 7  | 13 | 19 | 15 | 16 | 18 | 16 | 15 | 19 | 18 | 24 | 17                                                                                                                                                            | 12 | 9  | 6  | 3  | 11.4          | 24.4          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 27-Apr                                                                             | 2                             | 4  | 4  | 3  | 4  | 5  | 5  | 3  | 3  | 5  | 9  | 24 | 27 | 18 | 7  | 9  | 7  | 29 | 12 | 11                                                                                                                                                            | 11 | 6  | 5  | 3  | 9.0           | 29.4          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 28-Apr                                                                             | 3                             | 2  | 2  | 2  | 4  | 5  | 9  | 10 | 18 | 18 | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 14                                                                                                                                                            | 15 | 9  | 8  | 5  | 11.0          | 18.2          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 29-Apr                                                                             | 6                             | 5  | 8  | 11 | 11 | 11 | 11 | 9  | 6  | 6  | 8  | 8  | 8  | 13 | 11 | 11 | 14 | 16 | 12 | 6                                                                                                                                                             | 17 | 11 | 7  | 4  | 9.6           | 16.8          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
| 30-Apr                                                                             | 4                             | 2  | 6  | 5  | 8  | 8  | 2  | 4  | 10 | 18 | 18 | 19 | 27 | 22 | 35 | 32 | 31 | 27 | 23 | 21                                                                                                                                                            | 17 | 16 | 11 | 9  | 15.5          | 35.3          |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |
|                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | 8.7           | 8.2           | 7.8  | 6.8  | 7.0  | 7.1                             | 8.3  | 8.9  | 11.4 | 13.4 | 15.4 | 17.1 | 17.7 | 17.3 | 17.6 | 16.6 | 16.9 | 17.0 | 14.9 | 13.4 | 12.3 | 10.3 | 9.3  | 8.1  | Diurnal Average |  |
|                                                                                    |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    | 24.5          | 23.9          | 26.1 | 25.7 | 26.2 | 28.8                            | 37.6 | 40.6 | 40.7 | 37.3 | 35.4 | 38.7 | 45.6 | 46.5 | 41.4 | 32.2 | 31.0 | 34.7 | 29.6 | 27.3 | 27.2 | 31.8 | 27.2 | 24.7 | Diurnal Maximum |  |
| All monthly, daily, and diurnal averages have been calculated using scalar methods |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |    |    |    |               |               |      |      |      |                                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                 |  |

# Hourly Standard Deviations

Wind Direction (WD) - deg

Beaverlodge - April 2011

|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                 |      |      |      |      |      |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------------------------------|------|------|------|------|------|---------------|
| Maximum Value: 92.7 deg on Apr 24 08:00                                                                                                                        |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours in Service: 720           |      |      |      |      |      |               |
| Minimum Value: 1.4 deg on Apr 12 21:00                                                                                                                         |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Data: 720              |      |      |      |      |      |               |
|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Missing Data: 0        |      |      |      |      |      |               |
|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Calibration: 0         |      |      |      |      |      |               |
|                                                                                                                                                                |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Percent Operational Time: 100.0 |      |      |      |      |      |               |
| Percentiles: P <sub>1</sub> = 2.3 P <sub>10</sub> = 4.4 Q <sub>1</sub> = 6.6 Median = 13.0 Q <sub>3</sub> = 30.6 P <sub>90</sub> = 53.2 P <sub>99</sub> = 83.8 |                               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                 |      |      |      |      |      |               |
| Day                                                                                                                                                            | Hourly Period Ending At (MST) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                 |      |      |      |      |      | Daily Maximum |
|                                                                                                                                                                | 1                             | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19                              | 20   | 21   | 22   | 23   | 24   |               |
| 1-Apr                                                                                                                                                          | 3                             | 4    | 4    | 66   | 61   | 7    | 12   | 8    | 43   | 38   | 6    | 9    | 23   | 37   | 47   | 15   | 22   | 46   | 18                              | 43   | 12   | 44   | 41   | 60   | 65.6          |
| 2-Apr                                                                                                                                                          | 80                            | 62   | 69   | 19   | 81   | 57   | 30   | 31   | 15   | 59   | 19   | 14   | 10   | 18   | 7    | 27   | 18   | 8    | 13                              | 16   | 3    | 49   | 60   | 74   | 80.8          |
| 3-Apr                                                                                                                                                          | 71                            | 43   | 7    | 76   | 88   | 46   | 41   | 28   | 36   | 21   | 20   | 10   | 7    | 9    | 11   | 4    | 19   | 45   | 57                              | 74   | 19   | 71   | 41   | 13   | 88.3          |
| 4-Apr                                                                                                                                                          | 9                             | 5    | 7    | 29   | 22   | 41   | 38   | 11   | 3    | 7    | 5    | 4    | 5    | 4    | 7    | 6    | 4    | 12   | 6                               | 6    | 4    | 4    | 9    | 60   | 59.6          |
| 5-Apr                                                                                                                                                          | 65                            | 26   | 31   | 46   | 47   | 80   | 65   | 56   | 78   | 51   | 8    | 13   | 9    | 17   | 17   | 9    | 18   | 5    | 10                              | 7    | 6    | 8    | 8    | 12   | 79.9          |
| 6-Apr                                                                                                                                                          | 6                             | 5    | 15   | 24   | 9    | 7    | 8    | 42   | 48   | 8    | 50   | 6    | 18   | 31   | 52   | 9    | 14   | 6    | 11                              | 7    | 16   | 84   | 85   | 67   | 84.8          |
| 7-Apr                                                                                                                                                          | 59                            | 60   | 39   | 41   | 43   | 39   | 35   | 6    | 28   | 11   | 5    | 45   | 18   | 10   | 20   | 28   | 8    | 13   | 12                              | 33   | 20   | 11   | 16   | 37   | 60.4          |
| 8-Apr                                                                                                                                                          | 34                            | 34   | 18   | 10   | 9    | 5    | 5    | 11   | 7    | 7    | 3    | 4    | 2    | 6    | 4    | 7    | 6    | 5    | 6                               | 5    | 5    | 72   | 8    | 13   | 72.3          |
| 9-Apr                                                                                                                                                          | 11                            | 7    | 31   | 17   | 10   | 35   | 22   | 7    | 5    | 12   | 10   | 4    | 5    | 7    | 4    | 4    | 5    | 4    | 9                               | 4    | 5    | 4    | 5    | 32   | 34.8          |
| 10-Apr                                                                                                                                                         | 7                             | 10   | 12   | 12   | 42   | 24   | 9    | 35   | 4    | 10   | 11   | 13   | 43   | 17   | 21   | 39   | 12   | 13   | 53                              | 64   | 66   | 17   | 19   | 61   | 66.5          |
| 11-Apr                                                                                                                                                         | 39                            | 14   | 5    | 68   | 91   | 33   | 68   | 84   | 49   | 72   | 8    | 10   | 5    | 5    | 19   | 23   | 34   | 19   | 11                              | 16   | 41   | 15   | 20   | 11   | 91.1          |
| 12-Apr                                                                                                                                                         | 10                            | 9    | 6    | 7    | 14   | 21   | 24   | 34   | 10   | 8    | 6    | 5    | 8    | 5    | 5    | 4    | 3    | 3    | 2                               | 3    | 1    | 1    | 3    | 3    | 34.0          |
| 13-Apr                                                                                                                                                         | 4                             | 3    | 5    | 4    | 5    | 4    | 5    | 6    | 5    | 9    | 12   | 9    | 6    | 6    | 3    | 5    | 5    | 3    | 3                               | 3    | 3    | 3    | 5    | 3    | 12.3          |
| 14-Apr                                                                                                                                                         | 4                             | 4    | 3    | 5    | 6    | 4    | 3    | 3    | 2    | 3    | 7    | 3    | 3    | 8    | 28   | 6    | 5    | 5    | 5                               | 6    | 7    | 5    | 12   | 6    | 28.0          |
| 15-Apr                                                                                                                                                         | 3                             | 6    | 6    | 7    | 38   | 4    | 6    | 6    | 10   | 10   | 28   | 31   | 43   | 33   | 16   | 5    | 16   | 13   | 10                              | 12   | 16   | 7    | 12   | 5    | 42.9          |
| 16-Apr                                                                                                                                                         | 5                             | 11   | 6    | 6    | 9    | 13   | 21   | 5    | 37   | 6    | 5    | 5    | 10   | 8    | 5    | 8    | 7    | 6    | 9                               | 7    | 7    | 6    | 7    | 6    | 36.9          |
| 17-Apr                                                                                                                                                         | 5                             | 3    | 4    | 3    | 9    | 66   | 20   | 20   | 20   | 34   | 18   | 24   | 13   | 14   | 15   | 12   | 45   | 13   | 7                               | 39   | 13   | 5    | 3    | 43   | 66.4          |
| 18-Apr                                                                                                                                                         | 9                             | 71   | 54   | 57   | 37   | 36   | 48   | 30   | 31   | 13   | 37   | 46   | 14   | 17   | 21   | 15   | 23   | 42   | 4                               | 10   | 42   | 80   | 29   | 19   | 79.6          |
| 19-Apr                                                                                                                                                         | 30                            | 80   | 64   | 48   | 17   | 14   | 9    | 14   | 13   | 19   | 21   | 31   | 30   | 70   | 10   | 41   | 30   | 57   | 16                              | 50   | 69   | 76   | 48   | 13   | 79.5          |
| 20-Apr                                                                                                                                                         | 11                            | 14   | 14   | 10   | 28   | 10   | 9    | 6    | 12   | 8    | 6    | 10   | 14   | 9    | 16   | 13   | 19   | 12   | 10                              | 42   | 21   | 85   | 22   | 44   | 84.6          |
| 21-Apr                                                                                                                                                         | 32                            | 31   | 65   | 21   | 13   | 19   | 19   | 20   | 24   | 15   | 14   | 19   | 23   | 12   | 27   | 20   | 15   | 19   | 16                              | 10   | 4    | 4    | 2    | 4    | 64.6          |
| 22-Apr                                                                                                                                                         | 2                             | 2    | 5    | 7    | 11   | 21   | 8    | 5    | 5    | 7    | 9    | 15   | 19   | 20   | 15   | 14   | 16   | 8    | 5                               | 7    | 5    | 2    | 3    | 7    | 21.4          |
| 23-Apr                                                                                                                                                         | 4                             | 8    | 15   | 67   | 69   | 74   | 19   | 12   | 72   | 10   | 15   | 15   | 17   | 43   | 8    | 62   | 15   | 12   | 5                               | 4    | 10   | 19   | 3    | 22   | 74.2          |
| 24-Apr                                                                                                                                                         | 53                            | 41   | 29   | 33   | 12   | 45   | 76   | 93   | 23   | 23   | 33   | 16   | 34   | 15   | 24   | 21   | 31   | 27   | 6                               | 13   | 6    | 7    | 10   | 5    | 92.7          |
| 25-Apr                                                                                                                                                         | 4                             | 22   | 13   | 7    | 69   | 61   | 9    | 69   | 69   | 23   | 62   | 29   | 21   | 25   | 27   | 18   | 13   | 9    | 11                              | 13   | 15   | 6    | 13   | 5    | 69.4          |
| 26-Apr                                                                                                                                                         | 14                            | 10   | 26   | 40   | 47   | 43   | 23   | 15   | 10   | 22   | 13   | 17   | 20   | 17   | 29   | 40   | 19   | 17   | 15                              | 6    | 11   | 3    | 6    | 30   | 46.8          |
| 27-Apr                                                                                                                                                         | 80                            | 30   | 20   | 42   | 65   | 9    | 19   | 41   | 26   | 45   | 30   | 13   | 7    | 27   | 61   | 42   | 54   | 7    | 18                              | 6    | 8    | 36   | 33   | 61   | 80.0          |
| 28-Apr                                                                                                                                                         | 41                            | 46   | 37   | 58   | 42   | 40   | 5    | 12   | 5    | 9    | 13   | 12   | 12   | 11   | 13   | 7    | 6    | 8    | 7                               | 7    | 5    | 51   | 14   | 17   | 58.3          |
| 29-Apr                                                                                                                                                         | 19                            | 20   | 34   | 5    | 5    | 7    | 2    | 8    | 28   | 35   | 25   | 42   | 42   | 41   | 63   | 25   | 12   | 8    | 9                               | 40   | 43   | 43   | 24   | 74   | 73.7          |
| 30-Apr                                                                                                                                                         | 22                            | 47   | 39   | 27   | 8    | 5    | 86   | 17   | 24   | 12   | 9    | 13   | 14   | 17   | 9    | 12   | 7    | 12   | 12                              | 6    | 4    | 6    | 9    | 8    | 85.6          |
|                                                                                                                                                                | 80.0                          | 79.5 | 68.7 | 76.4 | 91.1 | 79.9 | 85.6 | 92.7 | 77.8 | 72.1 | 61.8 | 46.1 | 43.4 | 69.8 | 62.8 | 62.2 | 54.1 | 57.5 | 57.1                            | 74.2 | 69.4 | 84.6 | 84.8 | 74.3 |               |

PAZA

Portable – Bonanza Station

Monthly Summary Tables, Graphs and  
Roses

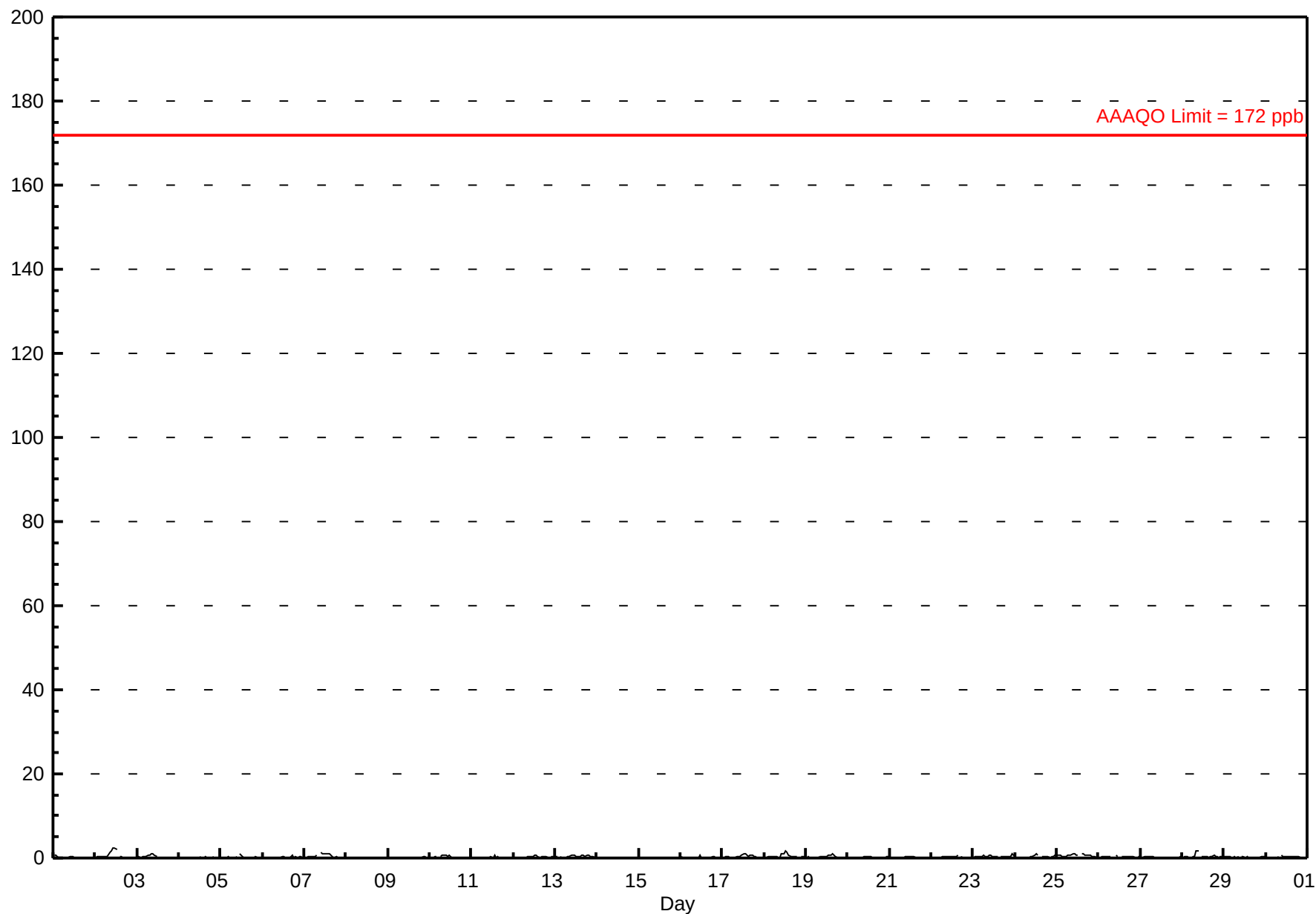
## Hourly Averages

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Portable-Bonanza - April 2011**

|                                                                                                                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 |               |               |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 2.5 ppb on Apr 2 11:00<br>Maximum Daily Average: 0.6 ppb on Apr 25 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 33<br>Percent Operational Time: 99.9                                                                                                               |    |    |    |    |                 |               |               |
| Minimum Value: 0 ppb on Apr 9 13:00<br>Maximum Diurnal Average: 0.5 ppb at hour 12<br>Monthly Average: 0.24 ppb                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.0 ppb on Apr 8<br>Minimum Diurnal Average: 0.1 ppb at hour 21<br>Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.6 P <sub>99</sub> = 1.6 |    |    |    |    |                 |               |               |
| Day                                                                                                                                  | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 | Daily Average | Daily Maximum |
|                                                                                                                                      | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                                                                                                                   | 20 | 21 | 22 | 23 | 24              |               |               |
| 1-Apr                                                                                                                                | 1                             | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.6           |
| 2-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2  | 2  | 2  | 2  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.6           | 2.5           |
| 3-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.3           | 1.0           |
| 4-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | P                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.2           |
| 5-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | A  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 1.0           |
| 6-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.5           |
| 7-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.5           | 1.4           |
| 8-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | A | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.0           | 0.1           |
| 9-Apr                                                                                                                                | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | A | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.0           | 0.2           |
| 10-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | A | 0 | 1 | 1 | 1  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.6           |
| 11-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | A | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.5           |
| 12-Apr                                                                                                                               | 0                             | 0 | 0 | A | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.7           |
| 13-Apr                                                                                                                               | 0                             | 0 | A | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 0  | 0  | 0  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0  | 0               | 0.4           | 0.7           |
| 14-Apr                                                                                                                               | 0                             | A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.1           |
| 15-Apr                                                                                                                               | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | A               | 0.1           | 0.1           |
| 16-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | A  | 0               | 0.1           | 0.8           |
| 17-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 0                                                                                                                                                                                                                                                    | 0  | 0  | A  | 0  | 0               | 0.4           | 0.9           |
| 18-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 2  | 1  | 1  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | A  | 0  | 0  | 0               | 0.5           | 1.7           |
| 19-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 0                                                                                                                                                                                                                                                    | A  | 0  | 0  | 0  | 0               | 0.3           | 1.0           |
| 20-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.5           |
| 21-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.5           |
| 22-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | A  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.5           |
| 23-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1  | 1  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 1  | 1               | 0.4           | 0.9           |
| 24-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 1  | 1  | 1  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 1               | 0.3           | 0.9           |
| 25-Apr                                                                                                                               | 1                             | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                    | 1  | 0  | 0  | 0  | 0               | 0.6           | 1.0           |
| 26-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | C | C  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.3           | 0.7           |
| 27-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.1           | 0.5           |
| 28-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.4           | 1.7           |
| 29-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.5           |
| 30-Apr                                                                                                                               | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | A | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                    | 0  | 0  | 0  | 0  | 0               | 0.2           | 0.7           |
| 0.1 0.1 0.2 0.2 0.1 0.1 0.2 0.2 0.3 0.5 0.5 0.5 0.5 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.1 0.1 0.2 0.2                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    | Diurnal Average |               |               |
| 0.6 0.6 0.7 0.5 0.5 0.5 0.5 0.8 1.6 1.8 2.5 2.4 1.9 1.3 1.0 1.0 0.8 0.7 0.6 0.6 0.5 0.5 0.9 0.8                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    | Diurnal Maximum |               |               |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb                                                            |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                      |    |    |    |    |                 |               |               |

## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011





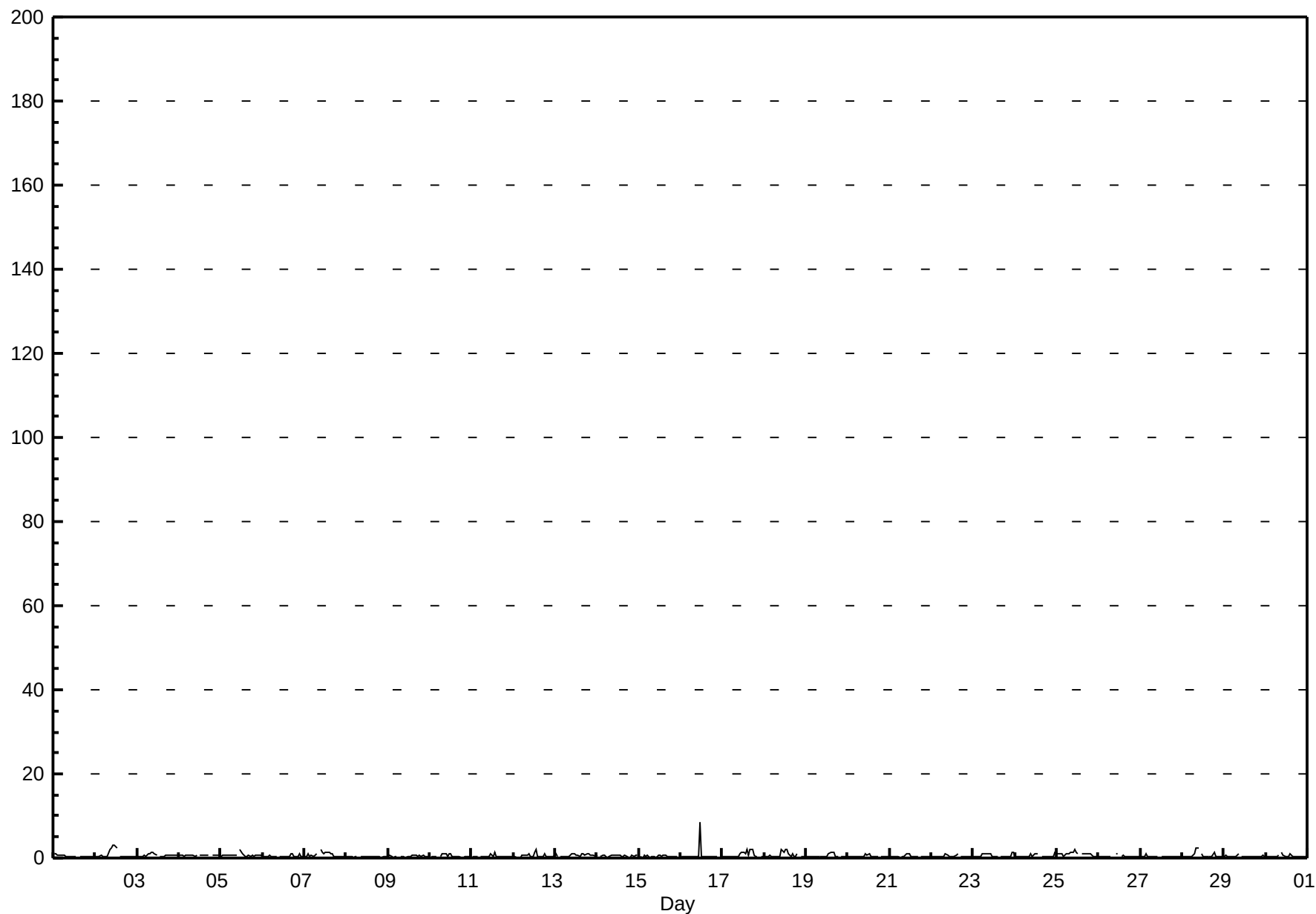
# Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011

| Maximum Value: 8.5 ppb on Apr 16 12:00      |                               |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     | Maximum Daily Average: 1.0 ppb on Apr 25                                                                                                                   |     |     |     |     |     |                 |               |  |  | Hours in Service: 720          |  |
|---------------------------------------------|-------------------------------|-----|-----|-------------------|-----|-----|-----|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----------------|---------------|--|--|--------------------------------|--|
| Minimum Value: 0 ppb on Apr 11 01:00        |                               |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     | Minimum Daily Average: 0.4 ppb on Apr 15                                                                                                                   |     |     |     |     |     |                 |               |  |  | Hours of Data: 686             |  |
| Maximum Diurnal Average: 1.2 ppb at hour 12 |                               |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     | Minimum Diurnal Average: 0.5 ppb at hour 3                                                                                                                 |     |     |     |     |     |                 |               |  |  | Hours of Missing Data: 34      |  |
| Monthly Average: 0.62 ppb                   |                               |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.5 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 1.0 P <sub>99</sub> = 2.4 |     |     |     |     |     |                 |               |  |  | Hours of Calibration: 33       |  |
|                                             |                               |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     |     |                 |               |  |  | Percent Operational Time: 99.9 |  |
| Day                                         | Hourly Period Ending At (MST) |     |     |                   |     |     |     |                               |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     |     | Daily Average   | Daily Maximum |  |  |                                |  |
|                                             | 1                             | 2   | 3   | 4                 | 5   | 6   | 7   | 8                             | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19                                                                                                                                                         | 20  | 21  | 22  | 23  | 24  |                 |               |  |  |                                |  |
| 1-Apr                                       | 1                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1                             | 1   | 1   | 0   | 0   | 0   | 0   | A   | 1   | 0   | 1   | 1                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 2-Apr                                       | 0                             | 0   | 0   | 1                 | 0   | 0   | 0   | 0                             | 2   | 2   | 3   | 3   | 2   | A   | 0   | 1   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 1.0             | 3.0           |  |  |                                |  |
| 3-Apr                                       | 0                             | 1   | 0   | 1                 | 1   | 0   | 1   | 1                             | 1   | 1   | 1   | 1   | A   | 0   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1   | 0.7             | 1.5           |  |  |                                |  |
| 4-Apr                                       | 1                             | 1   | 1   | 0                 | 1   | 1   | 1   | 1                             | 1   | 0   | 1   | A   | 1   | 1   | 1   | 1   | 1   | 1   | P                                                                                                                                                          | 1   | 1   | 1   | 1   | 1   | 0.5             | 0.6           |  |  |                                |  |
| 5-Apr                                       | 0                             | 1   | 1   | 1                 | 1   | 1   | 1   | 1                             | 1   | 1   | A   | 2   | 1   | 1   | 0   | 0   | 1   | 0   | 1                                                                                                                                                          | 0   | 1   | 1   | 1   | 1   | 0.6             | 1.9           |  |  |                                |  |
| 6-Apr                                       | 0                             | 0   | 0   | 0                 | 1   | 0   | 1   | 1                             | 0   | A   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 0                                                                                                                                                          | 0   | 0   | 1   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 7-Apr                                       | 0                             | 0   | 1   | 0                 | 1   | 0   | 1   | 1                             | A   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.8             | 2.0           |  |  |                                |  |
| 8-Apr                                       | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | A                             | 0   | 0   | 0   | 1   | 1   | 1   | 1   | 1   | 0   | 1   | 1                                                                                                                                                          | 1   | 0   | 0   | 1   | 1   | 0.4             | 0.5           |  |  |                                |  |
| 9-Apr                                       | 0                             | 1   | 0   | 0                 | 1   | 0   | A   | 1                             | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1   | 0.4             | 0.5           |  |  |                                |  |
| 10-Apr                                      | 0                             | 1   | 0   | 1                 | 1   | A   | 1   | 1                             | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 1   | 0.5             | 1.0           |  |  |                                |  |
| 11-Apr                                      | 0                             | 0   | 0   | 1                 | A   | 0   | 0   | 0                             | 0   | 0   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 1   | 0   | 0.5             | 1.5           |  |  |                                |  |
| 12-Apr                                      | 1                             | 0   | 0   | A                 | 0   | 1   | 1   | 1                             | 1   | 1   | 0   | 0   | 1   | 2   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1   | 0.6             | 2.2           |  |  |                                |  |
| 13-Apr                                      | 1                             | 1   | A   | 1                 | 1   | 0   | 1   | 0                             | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 1   | 1   | 1   | 0.7             | 1.0           |  |  |                                |  |
| 14-Apr                                      | 1                             | A   | 1   | 1                 | 1   | 1   | 0   | 0                             | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0   | 1   | 0   | 0                                                                                                                                                          | 0   | 1   | 0   | 1   | 1   | 0.4             | 0.6           |  |  |                                |  |
| 15-Apr                                      | A                             | 0   | 0   | 1                 | 0   | 1   | 0   | 0                             | 0   | 0   | 0   | 1   | 1   | 0   | 1   | 1   | 0   | 0   | 0                                                                                                                                                          | 0   | 1   | 0   | 0   | A   | 0.4             | 0.5           |  |  |                                |  |
| 16-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 0   | 0   | 8   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | A   | 0   | 0.8             | 8.5           |  |  |                                |  |
| 17-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 0   | 1   | 1   | 1   | 1   | 2   | 1   | 2   | 2   | 1                                                                                                                                                          | 0   | 0   | A   | 0   | 0   | 0.8             | 2.1           |  |  |                                |  |
| 18-Apr                                      | 0                             | 0   | 0   | 1                 | 0   | 0   | 0   | 0                             | 0   | 0   | 2   | 1   | 2   | 2   | 1   | 0   | 1   | 0   | 0                                                                                                                                                          | 1   | A   | 0   | 0   | 0   | 0.8             | 2.0           |  |  |                                |  |
| 19-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 1   | 1   | 0   | 0                                                                                                                                                          | A   | 1   | 0   | 0   | 0   | 0.6             | 1.5           |  |  |                                |  |
| 20-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 0   | 1   | 1   | 1   | 0   | 1   | 1   | 1   | 0   | A                                                                                                                                                          | 1   | 0   | 0   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 21-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 1   | 1   | 1   | 0   | 0   | 0   | 0   | 0   | A   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 22-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 1   | 1   | 0   | 0   | 0   | 0   | 1   | 1   | A   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 23-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 1   | 1   | 1                             | 1   | 1   | 1   | 0   | 0   | 0   | 0   | A   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 1   | 1   | 0.7             | 1.5           |  |  |                                |  |
| 24-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | 0   | 1   | 0   | 1   | 1   | 1   | A   | 1   | 1   | 1   | 0                                                                                                                                                          | 1   | 0   | 0   | 0   | 1   | 0.6             | 1.5           |  |  |                                |  |
| 25-Apr                                      | 1                             | 1   | 1   | 1                 | 0   | 1   | 1   | 1                             | 1   | 1   | 2   | 1   | 1   | A   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1   | 0   | 0   | 0   | 1.0             | 2.0           |  |  |                                |  |
| 26-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 0                             | C   | C   | 1   | 1   | A   | 0   | 1   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.1           |  |  |                                |  |
| 27-Apr                                      | 0                             | 0   | 0   | 1                 | 0   | 0   | 0   | 0                             | 0   | 0   | 0   | A   | 0   | 0   | 0   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.0           |  |  |                                |  |
| 28-Apr                                      | 0                             | 1   | 1   | 1                 | 0   | 1   | 1   | 1                             | 2   | 2   | A   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 1                                                                                                                                                          | 1   | 0   | 0   | 0   | 0   | 0.8             | 2.5           |  |  |                                |  |
| 29-Apr                                      | 0                             | 1   | 0   | 0                 | 0   | 0   | 0   | 0                             | 1   | A   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 1   | 0                                                                                                                                                          | 0   | 0   | 0   | 1   | 0   | 0.5             | 0.9           |  |  |                                |  |
| 30-Apr                                      | 0                             | 0   | 0   | 0                 | 0   | 0   | 0   | 1                             | A   | 1   | 1   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0                                                                                                                                                          | 0   | 0   | 0   | 0   | 0   | 0.5             | 1.3           |  |  |                                |  |
| 0.5                                         |                               | 0.5 | 0.5 | 0.5               | 0.5 | 0.5 | 0.5 | 0.6                           | 0.8 | 0.9 | 0.8 | 1.2 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5                                                                                                                                                        | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | Diurnal Average |               |  |  |                                |  |
| 1.0                                         |                               | 1.0 | 1.0 | 1.0               | 0.8 | 1.0 | 1.0 | 1.0                           | 2.5 | 2.5 | 3.0 | 8.5 | 2.5 | 2.2 | 2.1 | 1.4 | 2.0 | 2.0 | 1.5                                                                                                                                                        | 1.0 | 0.7 | 1.0 | 1.5 | 1.5 | Diurnal Maximum |               |  |  |                                |  |
| C - Calibration                             |                               |     |     | P - Power Failure |     |     |     | A - Automated Daily Zero Span |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |     |     |     |     |                 |               |  |  |                                |  |

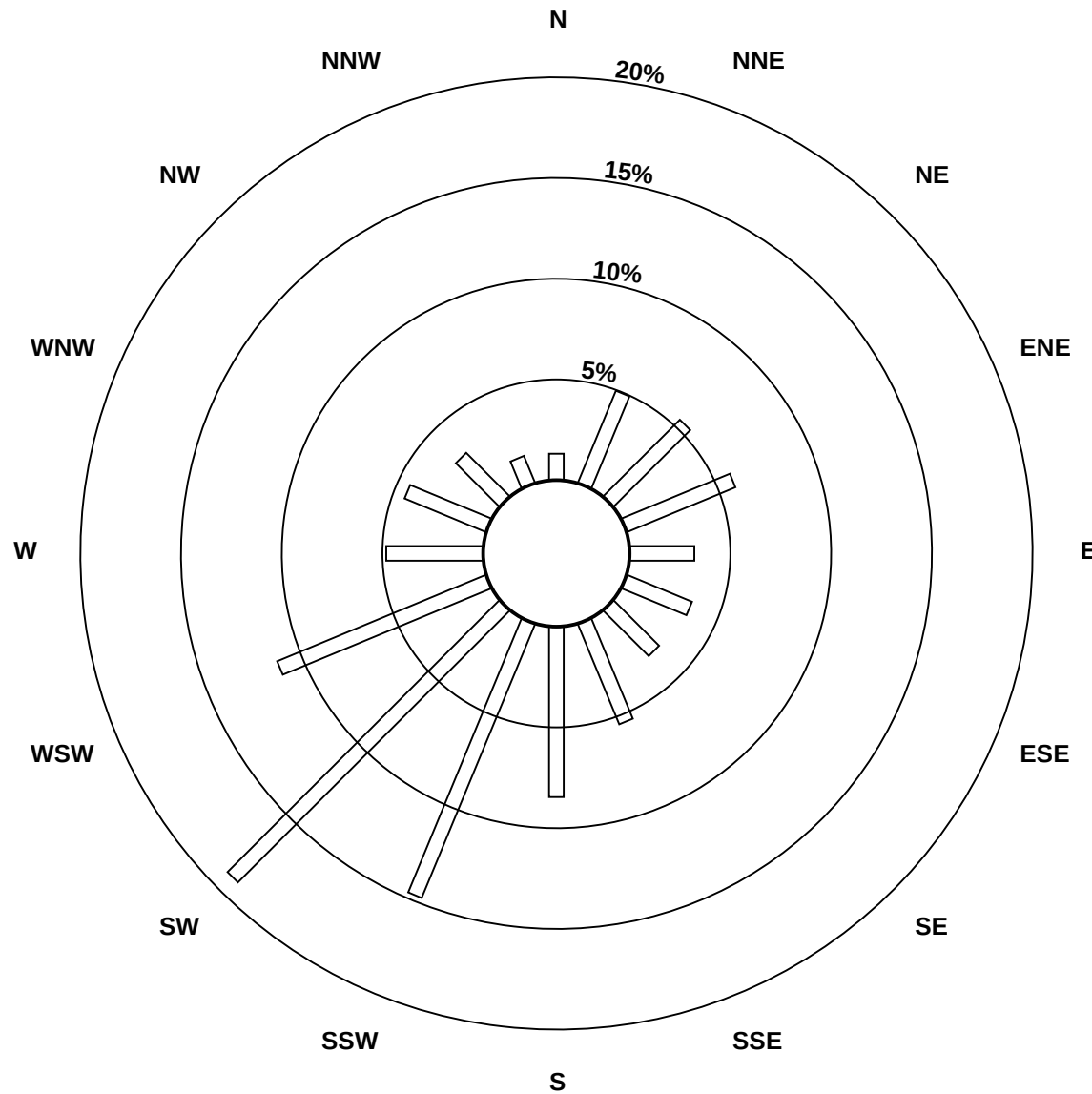
## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011

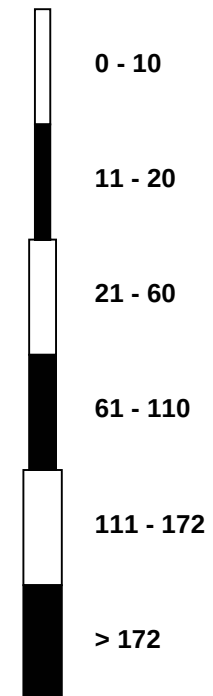


## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011

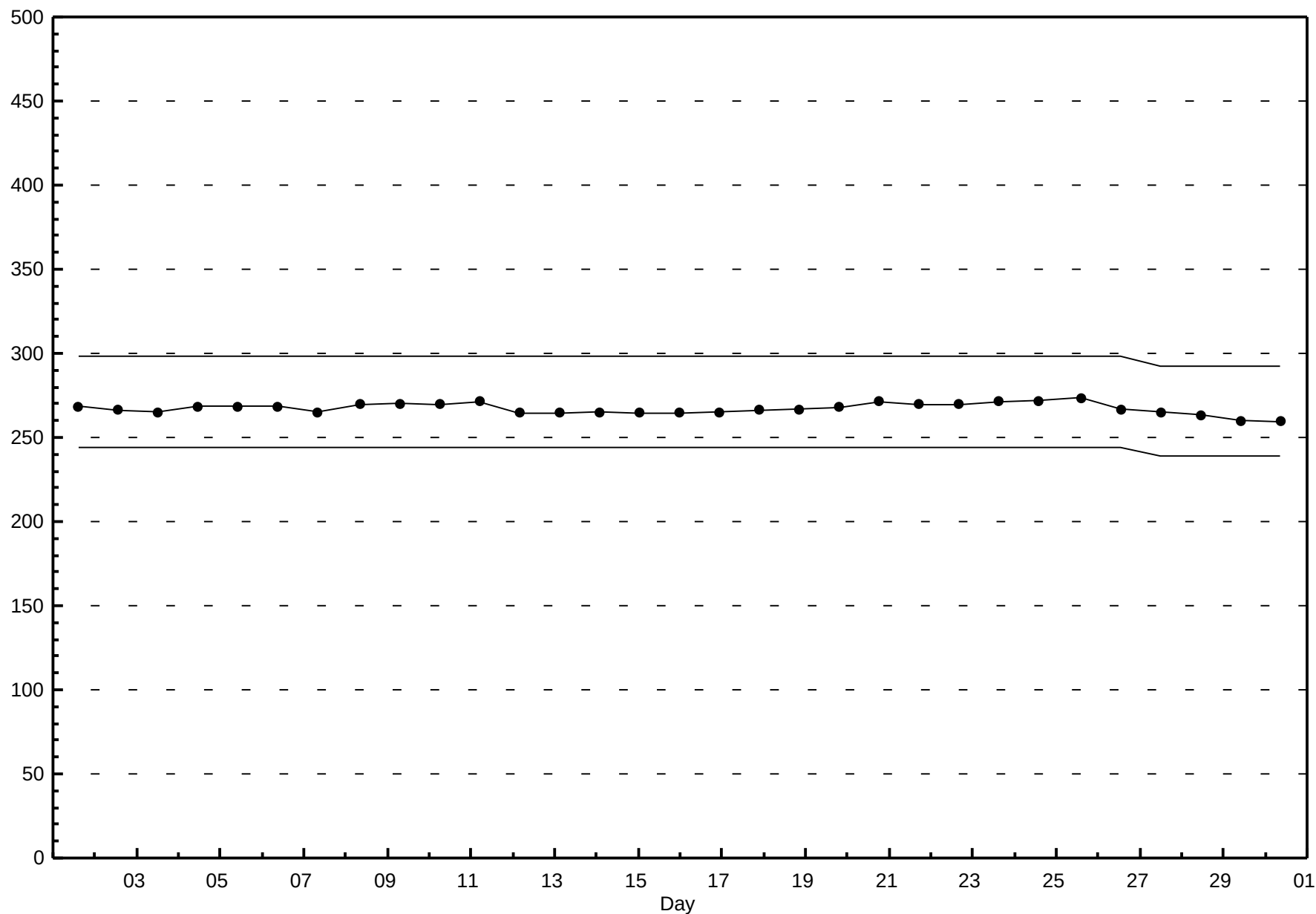


## Pollutant Classes (ppb)



## Span Responses

Sulphur Dioxide (SO<sub>2</sub>)  
Portable-Bonanza - April 2011



## Hourly Averages

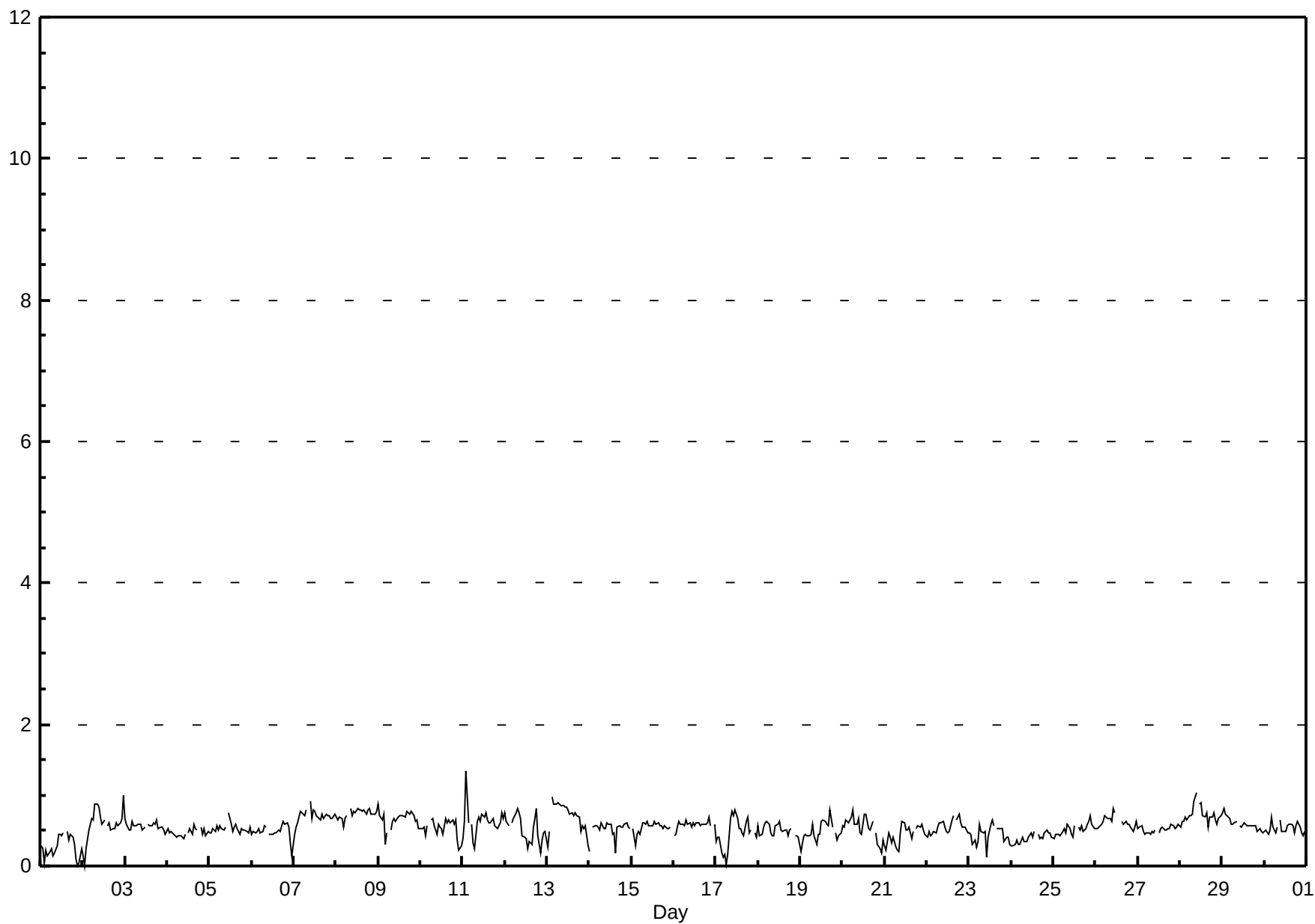
Total Reduced Sulphur (TRS) - ppb

Portable-Bonanza - April 2011

|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|-----------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 1.3 ppb on Apr 11 03:00 Maximum Daily Average: 0.7 ppb on Apr 8 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 686<br>Hours of Missing Data: 34<br>Hours of Calibration: 33<br>Percent Operational Time: 99.9                                                                                                              |    |    |    |    |    |                 |               |
| Minimum Value: 0 ppb on Apr 1 22:00<br>Maximum Diurnal Average: 0.6 ppb at hour 10<br>Monthly Average: 0.55 ppb                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.3 ppb on Apr 1<br>Minimum Diurnal Average: 0.5 ppb at hour 1<br>Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 0.5 Median = 0.6 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 0.7 P <sub>99</sub> = 0.9 |    |    |    |    |    |                 |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    | Daily Average   | Daily Maximum |
|                                                                                                                                   | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                                                                                                                  | 20 | 21 | 22 | 23 | 24 |                 |               |
| 1-Apr                                                                                                                             | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                   | 0  | 0  | 0  | 0  | 0  | 0.3             | 0.5           |
| 2-Apr                                                                                                                             | 0                             | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.6             | 1.0           |
| 3-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 0  | 0.6             | 0.7           |
| 4-Apr                                                                                                                             | 1                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 1  | 0  | 1  | 1  | 1  | P                                                                                                                                                                                                                                                   | 1  | 0  | 1  | 0  | 0  | 0.5             | 0.6           |
| 5-Apr                                                                                                                             | 0                             | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1  | A  | 1  | 1  | 0  | 1  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 0  | 0  | 1  | 0.5             | 0.8           |
| 6-Apr                                                                                                                             | 0                             | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | A  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 0  | 0  | 0.5             | 0.6           |
| 7-Apr                                                                                                                             | 0                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.7             | 0.9           |
| 8-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | A | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.7             | 0.8           |
| 9-Apr                                                                                                                             | 1                             | 1 | 1 | 1 | 0 | 0 | A | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.7             | 0.9           |
| 10-Apr                                                                                                                            | 1                             | 1 | 1 | 0 | 1 | A | 1 | 1 | 1 | 0  | 1  | 1  | 1  | 0  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 0  | 0  | 0  | 0.5             | 0.7           |
| 11-Apr                                                                                                                            | 0                             | 1 | 1 | 1 | A | 1 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.6             | 1.3           |
| 12-Apr                                                                                                                            | 1                             | 1 | 1 | A | 1 | 1 | 1 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 0  | 0  | 0  | 0  | 0  | 0.5             | 0.8           |
| 13-Apr                                                                                                                            | 0                             | 0 | A | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 0  | 1  | 1  | 1  | 0  | 0.7             | 1.0           |
| 14-Apr                                                                                                                            | 0                             | A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 0  | 0  | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.5             | 0.6           |
| 15-Apr                                                                                                                            | A                             | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | A  | 0.5             | 0.6           |
| 16-Apr                                                                                                                            | 0                             | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | A  | 1  | 0.6             | 0.7           |
| 17-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1                                                                                                                                                                                                                                                   | 0  | 0  | A  | 0  | 0  | 0.5             | 0.8           |
| 18-Apr                                                                                                                            | 1                             | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                   | 1  | A  | 0  | 0  | 0  | 0.5             | 0.6           |
| 19-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | A  | 0  | 0  | 0  | 0  | 0.5             | 0.8           |
| 20-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | A                                                                                                                                                                                                                                                   | 0  | 0  | 0  | 0  | 0  | 0.5             | 0.8           |
| 21-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 0  | 1  | 1  | 0  | 0  | A  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 0  | 0.4             | 0.6           |
| 22-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 1  | 1  | A  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 0  | 0.5             | 0.7           |
| 23-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0  | 0  | 0  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 0  | 0  | 0  | 0  | 0.4             | 0.6           |
| 24-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                                                                                                                                   | 0  | 1  | 0  | 0  | 0  | 0.4             | 0.5           |
| 25-Apr                                                                                                                            | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 0  | 0  | 1  | A  | 1  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.5             | 0.7           |
| 26-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | C  | C  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 0  | 1  | 1  | 0.6             | 0.8           |
| 27-Apr                                                                                                                            | 1                             | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | A  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.5             | 0.6           |
| 28-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 1  | 1  | 1  | 0.7             | 1.0           |
| 29-Apr                                                                                                                            | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                                                                                                                   | 1  | 0  | 1  | 0  | 0  | 0.6             | 0.8           |
| 30-Apr                                                                                                                            | 0                             | 0 | 0 | 1 | 1 | 1 | 0 | 1 | A | 1  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                                                                                                                   | 1  | 1  | 0  | 0  | 0  | 0.5             | 0.7           |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    | Diurnal Average |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    | Diurnal Maximum |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
|                                                                                                                                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                     |    |    |    |    |    |                 |               |
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## Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Portable-Bonanza - April 2011



# Hourly Maximums

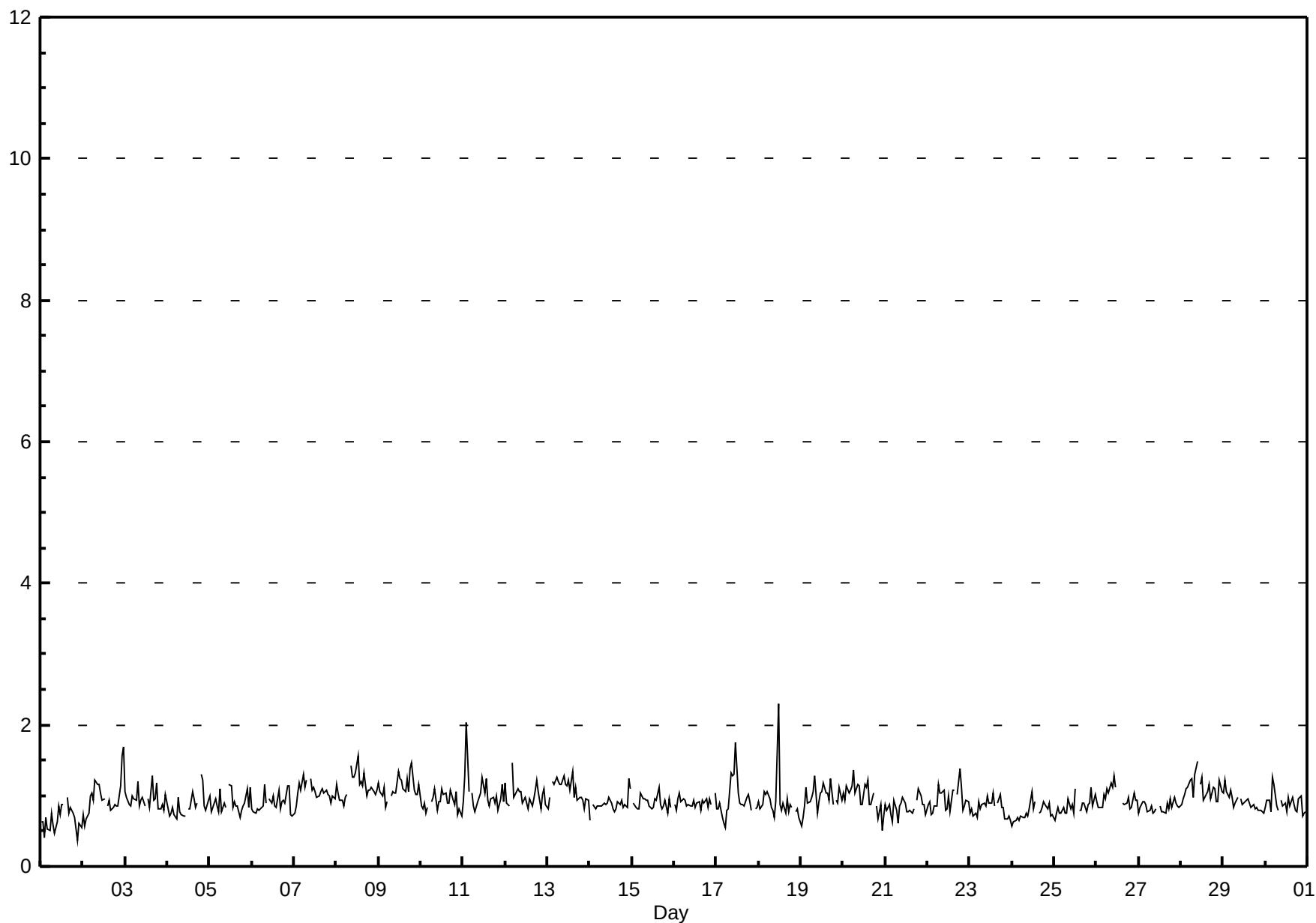
Total Reduced Sulphur (TRS) - ppb

Portable-Bonanza - April 2011

|                                                                                                 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    |                                |               |
|-------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|--------------------------------|---------------|
| Maximum Value: 2.3 ppb on Apr 18 12:00                                                          |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 1.1 ppb on Apr 8                                                                                                                    |    |    |    |    |    | Hours in Service: 720          |               |
| Minimum Value: 0 ppb on Apr 1 22:00                                                             |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.7 ppb on Apr 1                                                                                                                    |    |    |    |    |    | Hours of Data: 686             |               |
| Maximum Diurnal Average: 1.1 ppb at hour 12                                                     |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.9 ppb at hour 1                                                                                                                 |    |    |    |    |    | Hours of Missing Data: 34      |               |
| Monthly Average: 0.93 ppb                                                                       |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 0.8 Median = 0.9 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.2 P <sub>99</sub> = 1.4 |    |    |    |    |    | Hours of Calibration: 33       |               |
|                                                                                                 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    | Percent Operational Time: 99.9 |               |
| Day                                                                                             | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    | Daily Average                  | Daily Maximum |
|                                                                                                 | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                         | 20 | 21 | 22 | 23 | 24 |                                |               |
| 1-Apr                                                                                           | 1                             | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 0  | 1  | 1  | 0.7                            | 1.0           |
| 2-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 2  | 2  | 1.0                            | 1.7           |
| 3-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.3           |
| 4-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | P                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.3           |
| 5-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.2           |
| 6-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.2           |
| 7-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.3           |
| 8-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | A | 1 | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.1                            | 1.6           |
| 9-Apr                                                                                           | 1                             | 1 | 1 | 1 | 1 | 1 | A | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.1                            | 1.5           |
| 10-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | A | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.1           |
| 11-Apr                                                                                          | 1                             | 1 | 2 | 1 | A | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 2.0           |
| 12-Apr                                                                                          | 1                             | 1 | 1 | A | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.5           |
| 13-Apr                                                                                          | 1                             | 1 | A | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.1                            | 1.4           |
| 14-Apr                                                                                          | 1                             | A | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.2           |
| 15-Apr                                                                                          | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | A  | 0.9                            | 1.1           |
| 16-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | A  | 1  | 0.9                            | 1.0           |
| 17-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | A  | 1  | 1  | 0.9                            | 1.7           |
| 18-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | A  | 1  | 1  | 1  | 0.9                            | 2.3           |
| 19-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | A  | 1  | 1  | 1  | 1  | 1.0                            | 1.3           |
| 20-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.4           |
| 21-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.8                            | 1.1           |
| 22-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.4           |
| 23-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.8                            | 1.0           |
| 24-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.8                            | 1.1           |
| 25-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.8                            | 1.1           |
| 26-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | A  | C  | C  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.0                            | 1.3           |
| 27-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.8                            | 1.0           |
| 28-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 1.1                            | 1.5           |
| 29-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.2           |
| 30-Apr                                                                                          | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 1  | 0.9                            | 1.3           |
| 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 1.0 1.0 1.1 1.0 0.9 1.0 0.9 0.9 0.9 1.0 0.9 0.9 0.9 0.9 0.9 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    | Diurnal Average                |               |
| 1.2 1.3 2.0 1.2 1.5 1.3 1.4 1.2 1.4 1.5 1.3 2.3 1.6 1.2 1.4 1.3 1.3 1.2 1.4 1.5 1.2 1.1 1.6 1.7 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    | Diurnal Maximum                |               |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |    |                                |               |

## Hourly Maximums

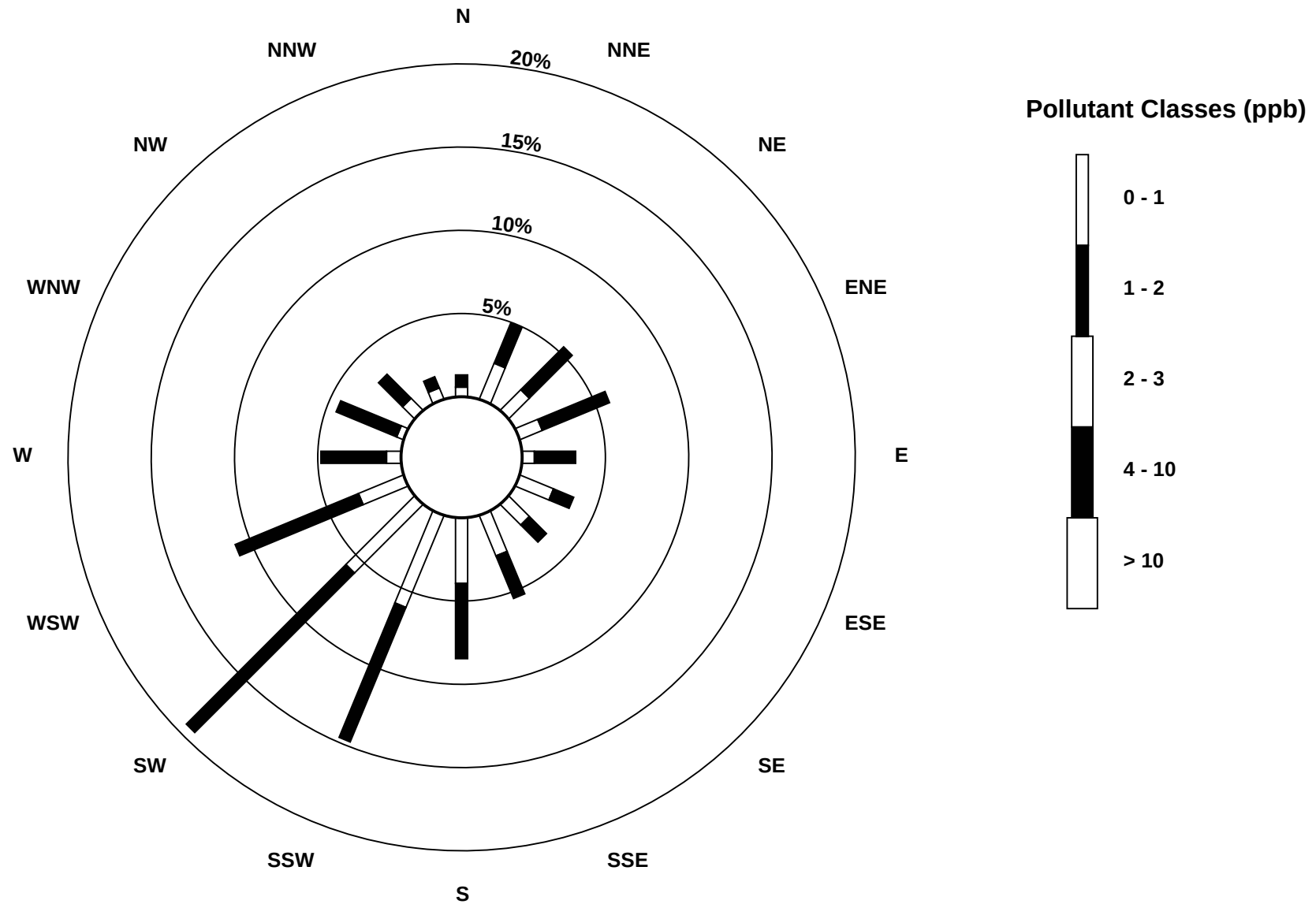
Total Reduced Sulphur (TRS) - ppb  
Portable-Bonanza - April 2011





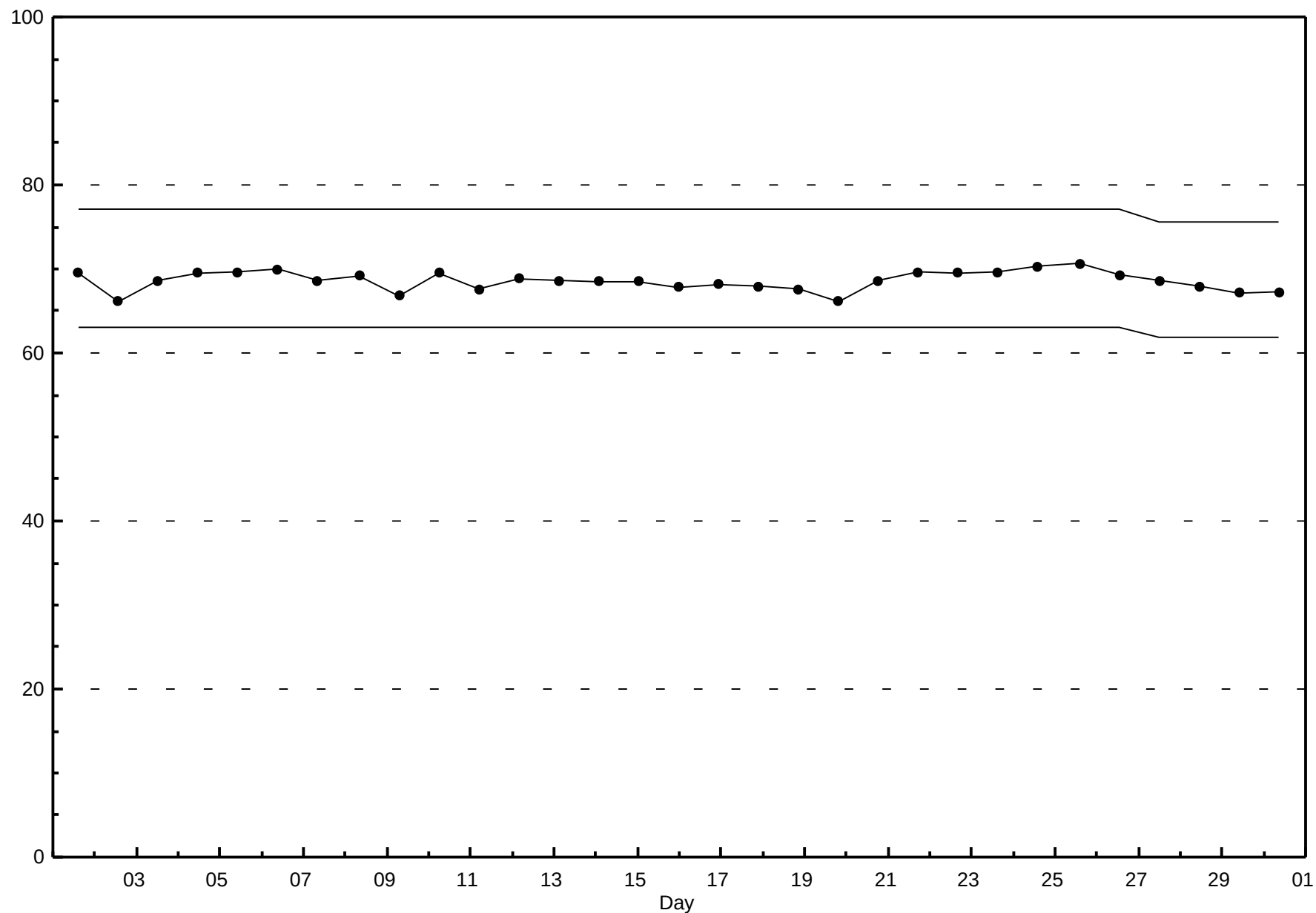
# Pollutant Rose

Total Reduced Sulphur (TRS) - ppb  
Portable-Bonanza - April 2011



## Span Responses

Total Reduced Sulphur (TRS)  
Portable-Bonanza - April 2011



## Hourly Averages

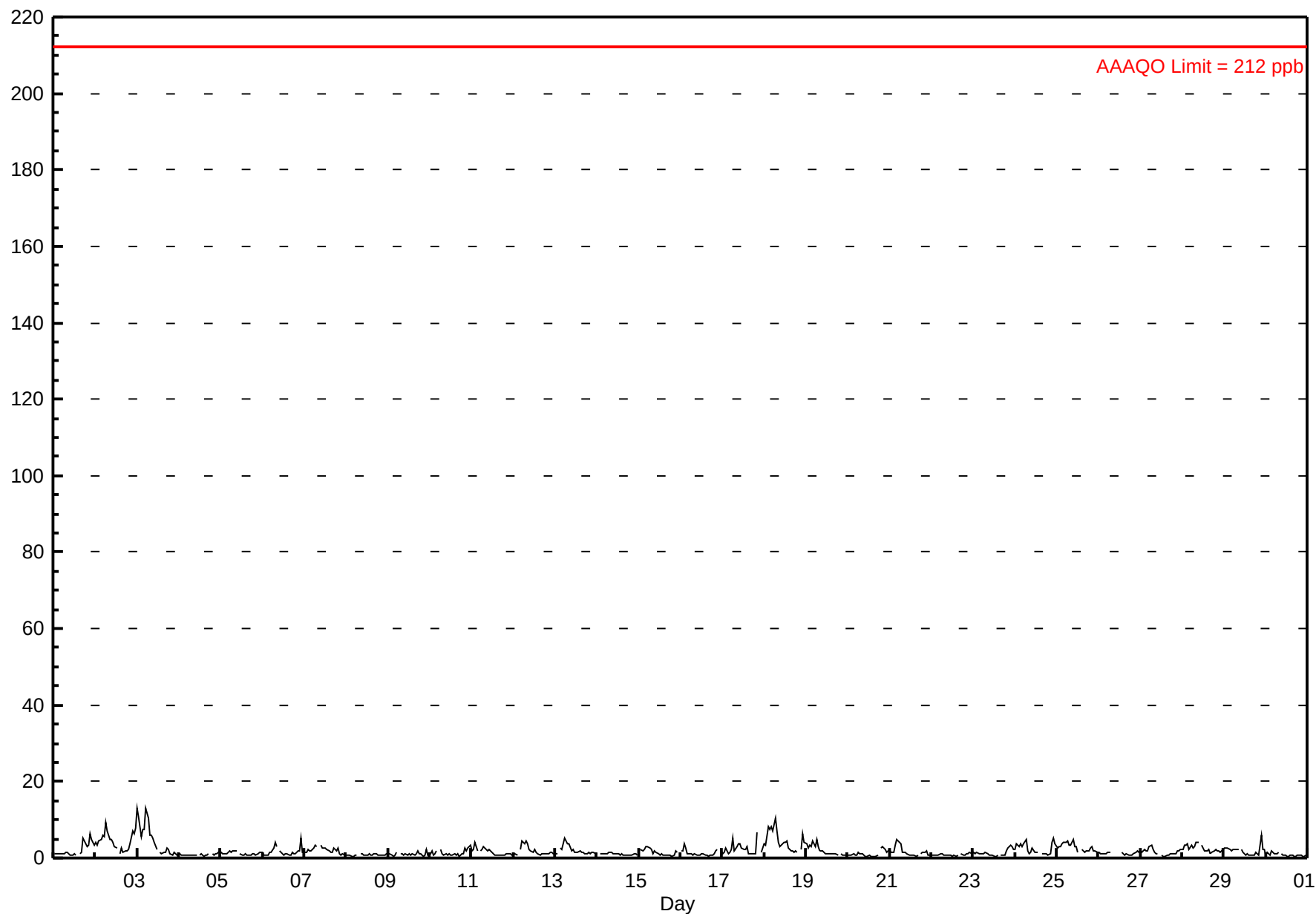
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Portable-Bonanza - April 2011

|                                                                            |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     |               |                 |  |
|----------------------------------------------------------------------------|-------------------------------|------|------|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------|-----|-----|---------------|-----------------|--|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                            |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     | Hours in Service: 720                                                                                                                                      |     |                                |     |     |               |                 |  |
| Maximum Value: 13.1 ppb on Apr 3 06:00                                     |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     | Maximum Daily Average: 4.6 ppb on Apr 3                                                                                                                    |     | Hours of Data: 684             |     |     |               |                 |  |
| Minimum Value: 0 ppb on Apr 20 15:00                                       |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     | Minimum Daily Average: 0.8 ppb on Apr 22                                                                                                                   |     | Hours of Missing Data: 36      |     |     |               |                 |  |
| Maximum Diurnal Average: 3.3 ppb at hour 7                                 |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     | Minimum Diurnal Average: 1.0 ppb at hour 17                                                                                                                |     | Hours of Calibration: 35       |     |     |               |                 |  |
| Monthly Average: 1.87 ppb                                                  |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     | Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.9 Median = 1.3 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 3.7 P <sub>99</sub> = 7.9 |     | Percent Operational Time: 99.9 |     |     |               |                 |  |
| Day                                                                        | Hourly Period Ending At (MST) |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     | Daily Average | Daily Maximum   |  |
|                                                                            | 1                             | 2    | 3    | 4   | 5   | 6   | 7    | 8    | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20                                                                                                                                                         | 21  | 22                             | 23  | 24  |               |                 |  |
| 1-Apr                                                                      | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | 2    | 1   | 1   | 1   | 1   | 1   | 1   | A   | 1   | 2   | 5   | 4   | 3                                                                                                                                                          | 4   | 6                              | 5   | 3   | 2.1           | 6.3             |  |
| 2-Apr                                                                      | 4                             | 3    | 4    | 5   | 6   | 6   | 9    | 7    | 5   | 5   | 4   | 3   | 2   | A   | 1   | 3   | 1   | 2   | 2   | 2                                                                                                                                                          | 4   | 7                              | 6   | 8   | 4.3           | 9.3             |  |
| 3-Apr                                                                      | 13                            | 11   | 6    | 7   | 7   | 13  | 10   | 6    | 6   | 5   | 4   | 2   | A   | 1   | 1   | 1   | 2   | 3   | 2   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 4.6           | 13.1            |  |
| 4-Apr                                                                      | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | 1    | 1   | 1   | 1   | A   | 1   | 1   | 1   | 1   | 1   | 1   | P   | 1                                                                                                                                                          | 1   | 1                              | 1   | 2   | 0.9           | 1.8             |  |
| 5-Apr                                                                      | 1                             | 1    | 1    | 1   | 1   | 2   | 2    | 2    | 2   | 2   | A   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 1.2           | 1.9             |  |
| 6-Apr                                                                      | 2                             | 1    | 1    | 1   | 1   | 1   | 3    | 4    | 3   | A   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 2   | 2                              | 5   | 2   | 1.6           | 5.2             |  |
| 7-Apr                                                                      | 1                             | 2    | 2    | 2   | 2   | 2   | 3    | 3    | A   | 3   | 3   | 3   | 3   | 2   | 2   | 2   | 2   | 3   | 2   | 3                                                                                                                                                          | 1   | 1                              | 1   | 1   | 2.1           | 3.2             |  |
| 8-Apr                                                                      | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | A    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.8           | 1.2             |  |
| 9-Apr                                                                      | 1                             | 1    | 1    | 1   | 1   | 1   | A    | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 2   | 1   | 1                                                                                                                                                          | 1   | 1                              | 2   | 1   | 1.0           | 2.3             |  |
| 10-Apr                                                                     | 1                             | 2    | 1    | 1   | 2   | A   | 2    | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 3   | 2                              | 2   | 3   | 1.3           | 3.2             |  |
| 11-Apr                                                                     | 2                             | 2    | 4    | 2   | A   | 2   | 2    | 3    | 2   | 2   | 2   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 1.5           | 4.1             |  |
| 12-Apr                                                                     | 1                             | 1    | 1    | A   | 2   | 5   | 4    | 5    | 4   | 2   | 2   | 2   | 2   | 2   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 2                              | 1   | 1   | 1.9           | 4.6             |  |
| 13-Apr                                                                     | 1                             | 1    | A    | 3   | 2   | 5   | 5    | 4    | 4   | 2   | 2   | 2   | 2   | 1   | 2   | 2   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 2.0           | 5.2             |  |
| 14-Apr                                                                     | 1                             | A    | 1    | 1   | 1   | 1   | 1    | 2    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 1.0           | 1.7             |  |
| 15-Apr                                                                     | A                             | 2    | 2    | 2   | 3   | 3   | 3    | 2    | 1   | 2   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 2                              | 1   | A   | 1.5           | 3.1             |  |
| 16-Apr                                                                     | 2                             | 2    | 4    | 3   | 1   | 1   | 1    | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 1   | 1   | 1                                                                                                                                                          | 2   | 2                              | A   | 2   | 1.3           | 3.6             |  |
| 17-Apr                                                                     | 1                             | 2    | 3    | 1   | 2   | 2   | 5    | 2    | 3   | 4   | 4   | 3   | 2   | 2   | 3   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 7   | A                              | 1   | 2   | 2.3           | 6.8             |  |
| 18-Apr                                                                     | 4                             | 3    | 8    | 7   | 8   | 7   | 10   | 7    | 4   | 3   | 3   | 4   | 4   | 4   | 2   | 2   | 2   | 2   | 2   | 1                                                                                                                                                          | A   | 2                              | 7   | 4   | 4.4           | 10.5            |  |
| 19-Apr                                                                     | 4                             | 3    | 3    | 3   | 4   | 3   | 5    | 3    | 2   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | A                                                                                                                                                          | 1   | 1                              | 1   | 1   | 2.0           | 4.8             |  |
| 20-Apr                                                                     | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | 1    | 1   | 1   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 1   | A   | 3                                                                                                                                                          | 3   | 2                              | 1   | 2   | 1.1           | 3.1             |  |
| 21-Apr                                                                     | 2                             | 1    | 2    | 3   | 5   | 5   | 4    | 2    | 1   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | A   | 1   | 2                                                                                                                                                          | 2   | 2                              | 1   | 1   | 1.7           | 4.7             |  |
| 22-Apr                                                                     | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | 1    | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | A   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 1   | 1   | 0.8           | 1.5             |  |
| 23-Apr                                                                     | 1                             | 1    | 1    | 1   | 1   | 1   | 1    | 1    | 1   | 1   | 1   | 1   | 0   | 0   | 1   | A   | 1   | 1   | 1   | 2                                                                                                                                                          | 3   | 3                              | 3   | 2   | 1.3           | 3.2             |  |
| 24-Apr                                                                     | 2                             | 4    | 3    | 4   | 3   | 4   | 5    | 2    | 1   | 1   | 2   | 1   | 2   | 1   | A   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 4                              | 5   | 4   | 2.4           | 5.0             |  |
| 25-Apr                                                                     | 3                             | 3    | 3    | 4   | 4   | 4   | 5    | 3    | 3   | 5   | 3   | 3   | 2   | A   | 2   | 2   | 2   | 2   | 2   | 3                                                                                                                                                          | 3   | 2                              | 2   | 1   | 2.8           | 4.9             |  |
| 26-Apr                                                                     | 1                             | 1    | 1    | 1   | 1   | 2   | 1    | 1    | C   | C   | C   | C   | C   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 1                              | 2   | 1   | 1.2           | 2.0             |  |
| 27-Apr                                                                     | 2                             | 1    | 2    | 2   | 2   | 3   | 3    | 2    | 2   | 1   | 1   | A   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1                                                                                                                                                          | 1   | 2                              | 2   | 2   | 1.5           | 3.3             |  |
| 28-Apr                                                                     | 2                             | 3    | 3    | 4   | 2   | 3   | 3    | 3    | 4   | 4   | A   | 3   | 3   | 2   | 2   | 2   | 1   | 1   | 2   | 2                                                                                                                                                          | 2   | 2                              | 2   | 2   | 2.5           | 4.3             |  |
| 29-Apr                                                                     | 3                             | 3    | 3    | 2   | 2   | 2   | 2    | 2    | 2   | A   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 2   | 1                                                                                                                                                          | 1   | 6                              | 2   | 2   | 1.9           | 5.9             |  |
| 30-Apr                                                                     | 1                             | 2    | 1    | 2   | 2   | 1   | 1    | 1    | A   | 1   | 1   | 1   | 0   | 0   | 1   | 1   | 0   | 0   | 1   | 1                                                                                                                                                          | 1   | 0                              | 1   | 1   | 0.8           | 1.7             |  |
|                                                                            |                               | 2.1  | 2.1  | 2.2 | 2.3 | 2.4 | 2.9  | 3.3  | 2.6 | 2.2 | 2.0 | 1.8 | 1.6 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 1.3 | 1.3                                                                                                                                                        | 1.4 | 1.7                            | 2.1 | 2.2 | 1.9           | Diurnal Average |  |
|                                                                            |                               | 13.0 | 10.6 | 8.2 | 7.3 | 8.3 | 13.1 | 10.5 | 7.2 | 5.9 | 5.3 | 4.1 | 4.1 | 4.1 | 4.4 | 2.8 | 2.7 | 1.7 | 5.1 | 3.7                                                                                                                                                        | 3.0 | 6.8                            | 6.9 | 6.5 | 8.0           | Diurnal Maximum |  |
| C - Calibration P - Power Failure A - Automated Daily Zero Span            |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     |               |                 |  |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 212 ppb 24-hr 106 ppb |                               |      |      |     |     |     |      |      |     |     |     |     |     |     |     |     |     |     |     |                                                                                                                                                            |     |                                |     |     |               |                 |  |

## Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011



## Hourly Maximums

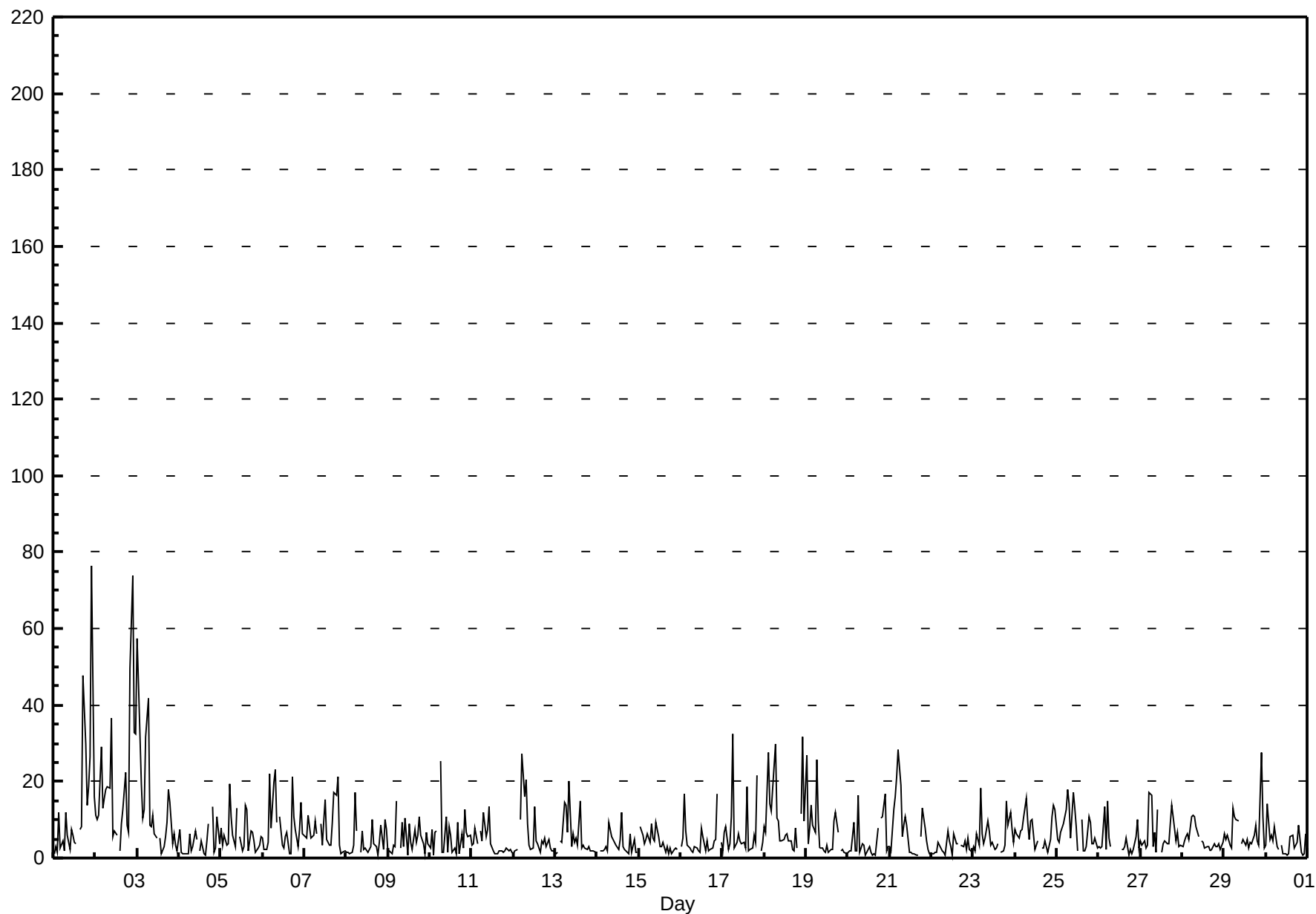
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Portable-Bonanza - April 2011

| Maximum Value: 76.4 ppb on Apr 1 23:00      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 19.5 ppb on Apr 2                                                                                                                     |    |    |    |                   |               |               |  |                               |  | Hours in Service: 720     |  |  |  |  |  |  |  |
|---------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-------------------|---------------|---------------|--|-------------------------------|--|---------------------------|--|--|--|--|--|--|--|
| Minimum Value: 1 ppb on Apr 20 17:00        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 2.9 ppb on Apr 22                                                                                                                     |    |    |    |                   |               |               |  |                               |  | Hours of Data: 684        |  |  |  |  |  |  |  |
| Maximum Diurnal Average: 13.5 ppb at hour 7 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 3.5 ppb at hour 14                                                                                                                  |    |    |    |                   |               |               |  |                               |  | Hours of Missing Data: 36 |  |  |  |  |  |  |  |
| Monthly Average: 6.82 ppb                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.4 Median = 4.3 Q <sub>3</sub> = 8.4 P <sub>90</sub> = 14.4 P <sub>99</sub> = 40.3 |    |    |    |                   |               |               |  |                               |  | Hours of Calibration: 35  |  |  |  |  |  |  |  |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.9                                                                                                                               |    |    |    |                   |               |               |  |                               |  |                           |  |  |  |  |  |  |  |
| Day                                         | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |                   | Daily Average | Daily Maximum |  |                               |  |                           |  |  |  |  |  |  |  |
|                                             | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                           | 21 | 22 | 23 | 24                |               |               |  |                               |  |                           |  |  |  |  |  |  |  |
| 1-Apr                                       | 1                             | 3  | 1  | 12 | 2  | 4  | 2  | 12 | 6  | 2  | 7  | 6  | 4  | 4  | A  | 7  | 8  | 48 | 30 | 14                                                                                                                                                           | 19 | 26 | 76 | 16                | 13.6          | 76.4          |  |                               |  |                           |  |  |  |  |  |  |  |
| 2-Apr                                       | 11                            | 10 | 11 | 29 | 13 | 16 | 18 | 19 | 18 | 36 | 6  | 7  | 6  | A  | 2  | 9  | 13 | 22 | 9  | 7                                                                                                                                                            | 49 | 74 | 33 | 32                | 19.5          | 73.8          |  |                               |  |                           |  |  |  |  |  |  |  |
| 3-Apr                                       | 58                            | 45 | 20 | 10 | 13 | 32 | 42 | 9  | 8  | 11 | 6  | 5  | A  | 5  | 1  | 3  | 6  | 9  | 18 | 15                                                                                                                                                           | 4  | 6  | 3  | 2                 | 14.4          | 57.5          |  |                               |  |                           |  |  |  |  |  |  |  |
| 4-Apr                                       | 8                             | 2  | 1  | 1  | 1  | 1  | 6  | 2  | 3  | 7  | 5  | A  | 2  | 5  | 1  | 1  | 4  | 9  | P  | 13                                                                                                                                                           | 1  | 3  | 11 | 4                 | 4.1           | 13.5          |  |                               |  |                           |  |  |  |  |  |  |  |
| 5-Apr                                       | 8                             | 3  | 6  | 3  | 4  | 19 | 11 | 6  | 3  | 13 | A  | 6  | 2  | 3  | 14 | 13 | 2  | 7  | 7  | 4                                                                                                                                                            | 1  | 3  | 4  | 6                 | 6.4           | 19.4          |  |                               |  |                           |  |  |  |  |  |  |  |
| 6-Apr                                       | 5                             | 2  | 2  | 4  | 22 | 8  | 20 | 23 | 9  | A  | 11 | 3  | 3  | 6  | 7  | 1  | 1  | 21 | 11 | 8                                                                                                                                                            | 3  | 7  | 14 | 6                 | 8.6           | 23.0          |  |                               |  |                           |  |  |  |  |  |  |  |
| 7-Apr                                       | 6                             | 5  | 11 | 8  | 5  | 6  | 10 | 6  | A  | 9  | 3  | 10 | 15 | 5  | 3  | 3  | 9  | 17 | 16 | 21                                                                                                                                                           | 3  | 1  | 1  | 2                 | 7.7           | 21.2          |  |                               |  |                           |  |  |  |  |  |  |  |
| 8-Apr                                       | 2                             | 2  | 1  | 2  | 4  | 17 | 7  | A  | 1  | 7  | 2  | 3  | 1  | 2  | 3  | 10 | 4  | 3  | 1  | 4                                                                                                                                                            | 8  | 2  | 10 | 7                 | 4.5           | 17.2          |  |                               |  |                           |  |  |  |  |  |  |  |
| 9-Apr                                       | 2                             | 2  | 1  | 3  | 3  | 15 | A  | 3  | 9  | 3  | 10 | 1  | 9  | 4  | 2  | 7  | 4  | 6  | 11 | 6                                                                                                                                                            | 4  | 1  | 7  | 4                 | 5.0           | 15.1          |  |                               |  |                           |  |  |  |  |  |  |  |
| 10-Apr                                      | 3                             | 8  | 1  | 7  | 7  | A  | 26 | 2  | 1  | 11 | 1  | 8  | 6  | 1  | 2  | 1  | 9  | 1  | 6  | 3                                                                                                                                                            | 13 | 7  | 6  | 6                 | 5.9           | 25.5          |  |                               |  |                           |  |  |  |  |  |  |  |
| 11-Apr                                      | 3                             | 4  | 8  | 4  | A  | 7  | 4  | 12 | 5  | 8  | 13 | 4  | 2  | 1  | 1  | 1  | 2  | 2  | 2  | 2                                                                                                                                                            | 2  | 2  | 2  | 2                 | 4.0           | 13.3          |  |                               |  |                           |  |  |  |  |  |  |  |
| 12-Apr                                      | 1                             | 2  | 2  | A  | 10 | 27 | 16 | 21 | 9  | 3  | 2  | 3  | 13 | 5  | 4  | 2  | 4  | 4  | 5  | 3                                                                                                                                                            | 5  | 2  | 2  | 2                 | 6.4           | 27.2          |  |                               |  |                           |  |  |  |  |  |  |  |
| 13-Apr                                      | 1                             | 2  | A  | 5  | 4  | 14 | 14 | 7  | 20 | 3  | 6  | 4  | 5  | 3  | 15 | 2  | 3  | 3  | 2  | 3                                                                                                                                                            | 2  | 2  | 2  | 1                 | 5.4           | 20.1          |  |                               |  |                           |  |  |  |  |  |  |  |
| 14-Apr                                      | 2                             | A  | 2  | 2  | 2  | 3  | 2  | 9  | 6  | 5  | 4  | 3  | 2  | 5  | 12 | 3  | 2  | 1  | 1  | 6                                                                                                                                                            | 1  | 5  | 2  | 2                 | 3.6           | 11.8          |  |                               |  |                           |  |  |  |  |  |  |  |
| 15-Apr                                      | A                             | 8  | 6  | 4  | 5  | 6  | 4  | 9  | 5  | 5  | 9  | 6  | 3  | 3  | 4  | 2  | 3  | 1  | 3  | 1                                                                                                                                                            | 2  | 3  | 2  | A                 | 4.2           | 9.4           |  |                               |  |                           |  |  |  |  |  |  |  |
| 16-Apr                                      | 3                             | 5  | 17 | 7  | 4  | 3  | 2  | 1  | 3  | 3  | 2  | 1  | 8  | 6  | 2  | 5  | 2  | 2  | 3  | 5                                                                                                                                                            | 5  | 17 | A  | 4                 | 4.6           | 16.9          |  |                               |  |                           |  |  |  |  |  |  |  |
| 17-Apr                                      | 2                             | 7  | 8  | 2  | 4  | 11 | 32 | 3  | 4  | 6  | 4  | 4  | 4  | 3  | 19 | 2  | 2  | 3  | 6  | 4                                                                                                                                                            | 22 | A  | 2  | 4                 | 6.8           | 32.4          |  |                               |  |                           |  |  |  |  |  |  |  |
| 18-Apr                                      | 8                             | 7  | 27 | 14 | 12 | 18 | 30 | 10 | 10 | 4  | 4  | 5  | 6  | 6  | 5  | 4  | 2  | 2  | 8  | 3                                                                                                                                                            | A  | 12 | 32 | 10                | 10.4          | 31.5          |  |                               |  |                           |  |  |  |  |  |  |  |
| 19-Apr                                      | 27                            | 4  | 8  | 14 | 8  | 7  | 26 | 10 | 3  | 3  | 2  | 1  | 3  | 2  | 2  | 10 | 12 | 7  | A  | 2                                                                                                                                                            | 2  | 2  | 2  | 1                 | 6.8           | 26.7          |  |                               |  |                           |  |  |  |  |  |  |  |
| 20-Apr                                      | 1                             | 2  | 2  | 9  | 2  | 2  | 16 | 1  | 4  | 3  | 1  | 2  | 3  | 1  | 1  | 1  | 1  | 8  | A  | 11                                                                                                                                                           | 11 | 17 | 2  | 3                 | 4.5           | 16.8          |  |                               |  |                           |  |  |  |  |  |  |  |
| 21-Apr                                      | 3                             | 2  | 13 | 16 | 21 | 28 | 19 | 6  | 9  | 11 | 8  | 1  | 2  | 1  | 1  | 1  | 1  | A  | 5  | 13                                                                                                                                                           | 8  | 5  | 2  | 1                 | 7.7           | 28.4          |  |                               |  |                           |  |  |  |  |  |  |  |
| 22-Apr                                      | 1                             | 1  | 2  | 1  | 4  | 3  | 2  | 2  | 1  | 7  | 4  | 3  | 1  | 6  | 4  | 4  | A  | 3  | 3  | 4                                                                                                                                                            | 2  | 5  | 2  | 2                 | 2.9           | 6.9           |  |                               |  |                           |  |  |  |  |  |  |  |
| 23-Apr                                      | 3                             | 2  | 6  | 3  | 18 | 6  | 4  | 5  | 10 | 7  | 3  | 4  | 2  | 2  | 4  | A  | 1  | 2  | 3  | 15                                                                                                                                                           | 9  | 12 | 7  | 4                 | 5.9           | 18.2          |  |                               |  |                           |  |  |  |  |  |  |  |
| 24-Apr                                      | 7                             | 6  | 5  | 7  | 7  | 10 | 16 | 9  | 5  | 10 | 10 | 2  | 3  | 4  | A  | 3  | 3  | 4  | 3  | 1                                                                                                                                                            | 5  | 11 | 14 | 13                | 6.9           | 15.7          |  |                               |  |                           |  |  |  |  |  |  |  |
| 25-Apr                                      | 5                             | 4  | 7  | 8  | 9  | 13 | 18 | 14 | 5  | 17 | 13 | 8  | 2  | A  | 10 | 2  | 2  | 3  | 11 | 9                                                                                                                                                            | 4  | 4  | 5  | 3                 | 7.6           | 17.9          |  |                               |  |                           |  |  |  |  |  |  |  |
| 26-Apr                                      | 3                             | 3  | 3  | 14 | 2  | 15 | 5  | 3  | C  | C  | C  | C  | C  | 2  | 2  | 3  | 5  | 1  | 2  | 1                                                                                                                                                            | 2  | 6  | 10 | 3                 | 4.5           | 15.0          |  |                               |  |                           |  |  |  |  |  |  |  |
| 27-Apr                                      | 5                             | 3  | 4  | 3  | 3  | 17 | 17 | 3  | 7  | 2  | 13 | A  | 2  | 4  | 4  | 4  | 4  | 9  | 14 | 11                                                                                                                                                           | 4  | 7  | 3  | 3                 | 6.3           | 17.3          |  |                               |  |                           |  |  |  |  |  |  |  |
| 28-Apr                                      | 3                             | 4  | 6  | 6  | 5  | 11 | 11 | 11 | 8  | 6  | A  | 5  | 4  | 2  | 3  | 3  | 2  | 2  | 4  | 3                                                                                                                                                            | 3  | 4  | 2  | 4                 | 4.9           | 11.3          |  |                               |  |                           |  |  |  |  |  |  |  |
| 29-Apr                                      | 6                             | 5  | 6  | 3  | 3  | 13 | 11 | 10 | 10 | A  | 4  | 5  | 3  | 5  | 3  | 4  | 4  | 6  | 9  | 4                                                                                                                                                            | 3  | 28 | 11 | 3                 | 6.8           | 27.5          |  |                               |  |                           |  |  |  |  |  |  |  |
| 30-Apr                                      | 3                             | 14 | 5  | 6  | 4  | 8  | 3  | 2  | A  | 3  | 1  | 1  | 1  | 1  | 6  | 6  | 3  | 4  | 4  | 9                                                                                                                                                            | 2  | 1  | 1  | 6                 | 4.1           | 14.2          |  |                               |  |                           |  |  |  |  |  |  |  |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    | Diurnal Average   |               |               |  |                               |  |                           |  |  |  |  |  |  |  |
|                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    | Diurnal Maximum   |               |               |  |                               |  |                           |  |  |  |  |  |  |  |
| C - Calibration                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    | P - Power Failure |               |               |  | A - Automated Daily Zero Span |  |                           |  |  |  |  |  |  |  |

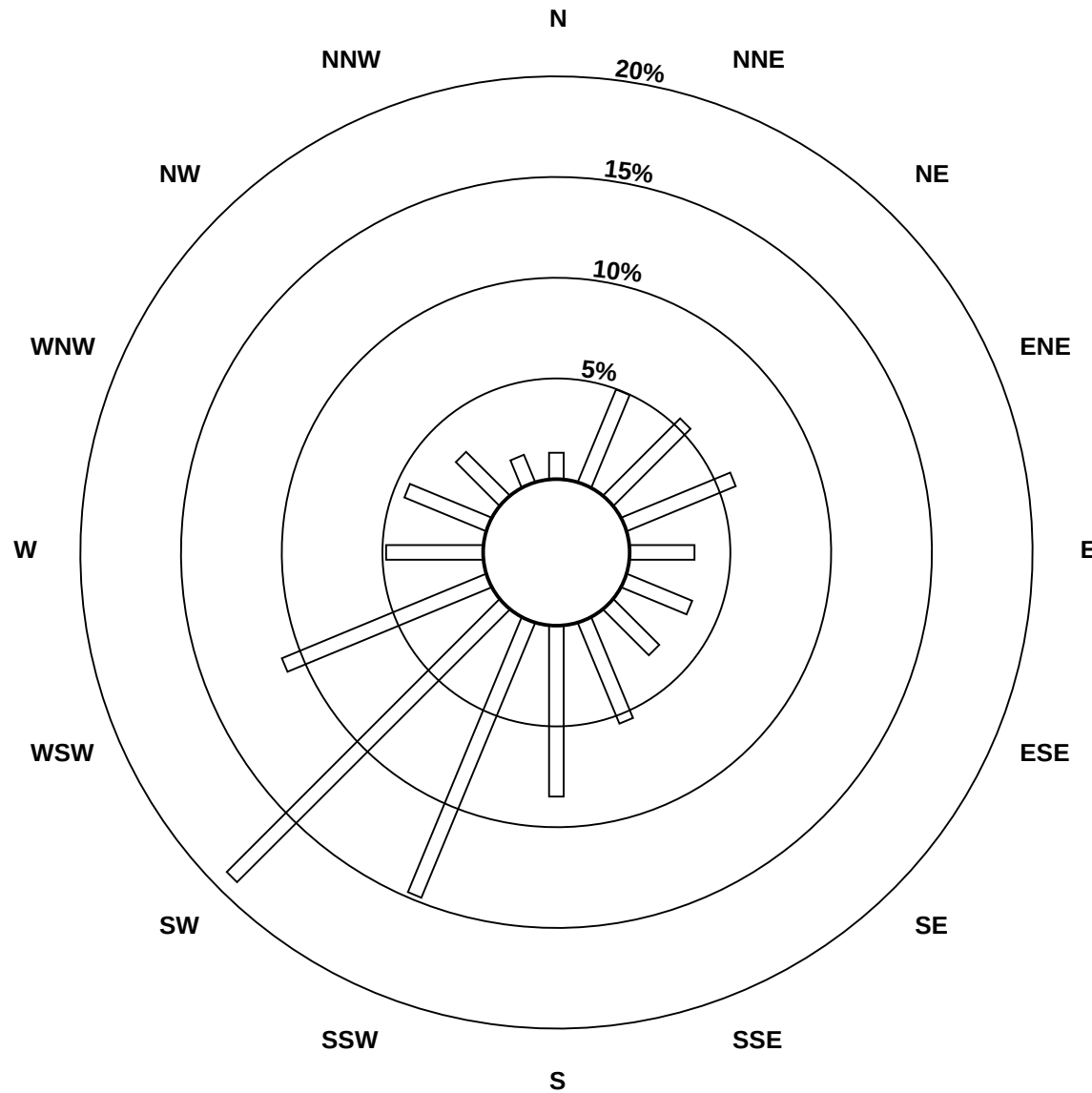
## Hourly Maximums

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011

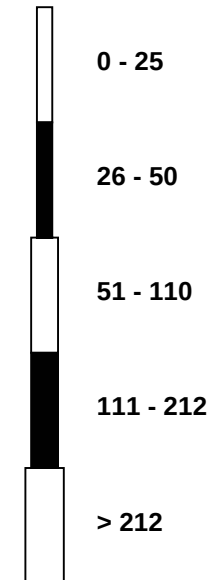


## Pollutant Rose

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Portable-Bonanza - April 2011

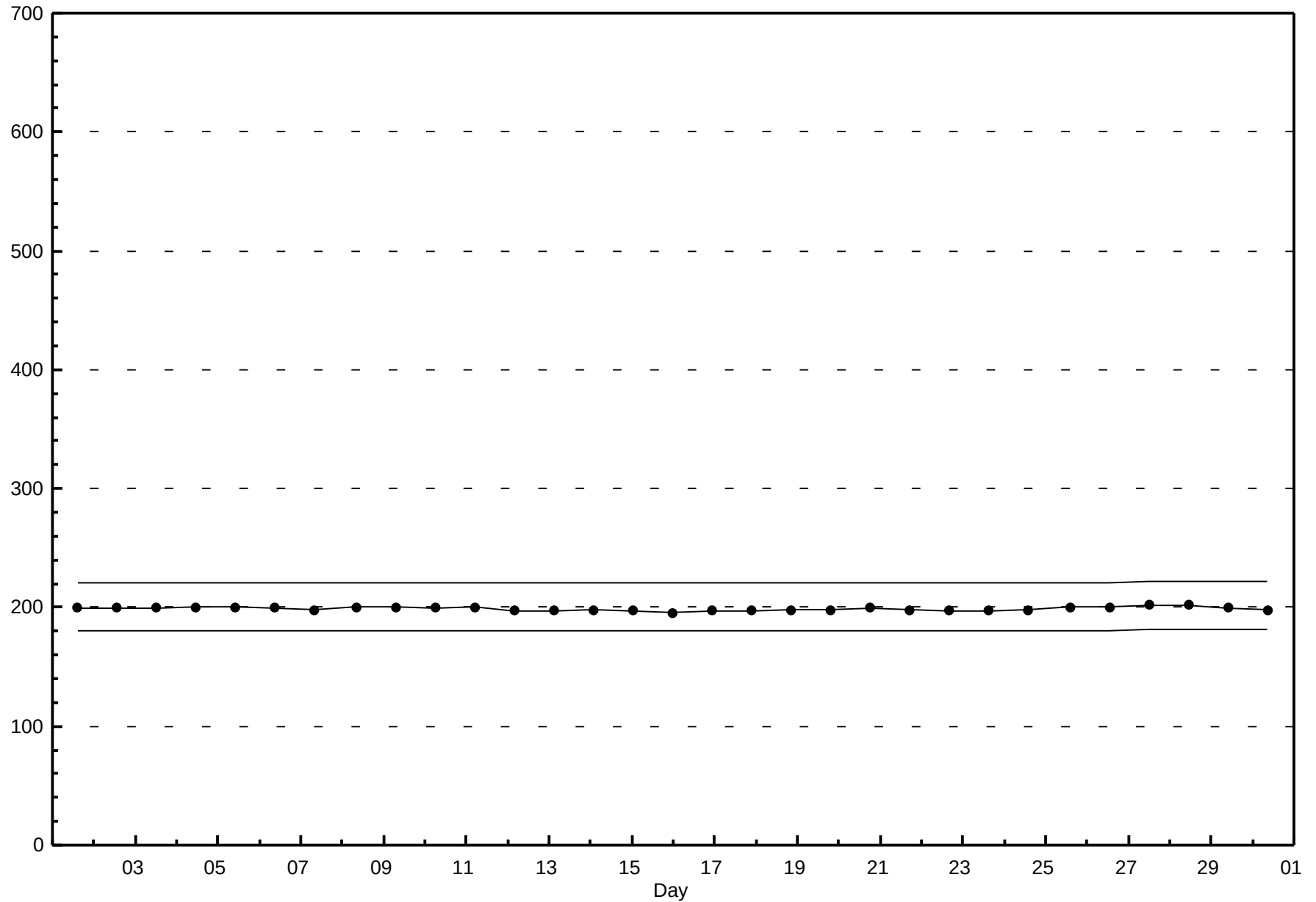


### Pollutant Classes (ppb)



## Span Responses

Nitrogen Dioxide (NO<sub>2</sub>)  
Portable-Bonanza - April 2011





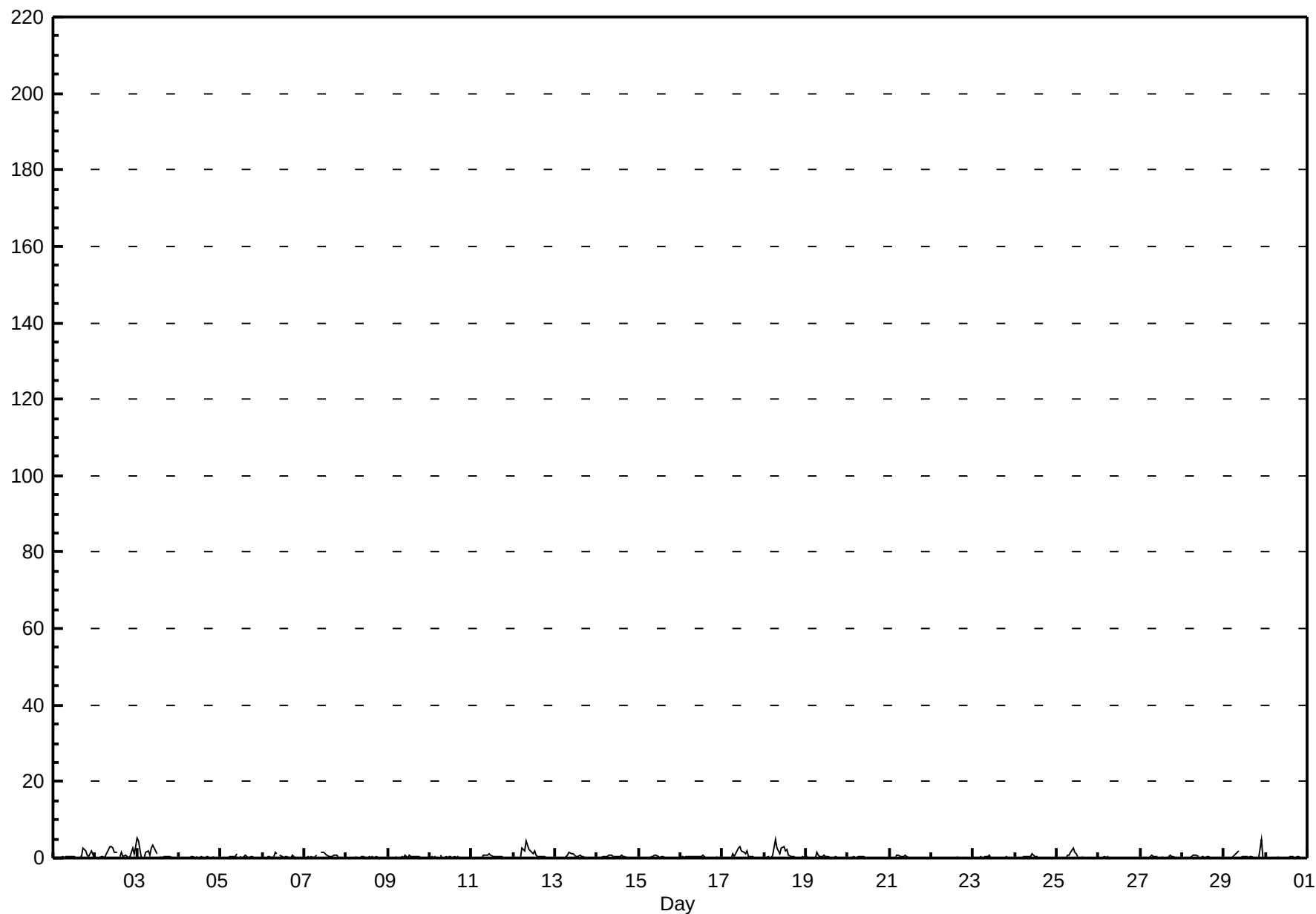
## Hourly Averages

Nitrogen Oxide (NO) - ppb  
Portable-Bonanza - April 2011

|                                                                                                                                                                                                                                                                                                                                                                |                               |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    |                 |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|-------------------|---|---|---|---|---|-------------------------------|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|-----------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 5.3 ppb on Apr 3 01:00 Maximum Daily Average: 1.2 ppb on Apr 3                                                                                                                                                                                                                               |                               |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 684<br>Hours of Missing Data: 36<br>Hours of Calibration: 35<br>Percent Operational Time: 99.9 |    |    |    |    |    |                 |               |
| Minimum Value: 0 ppb on Apr 1 02:00 Minimum Daily Average: 0.1 ppb on Apr 26<br>Maximum Diurnal Average: 1.0 ppb at hour 10 Minimum Diurnal Average: 0.1 ppb at hour 3<br>Monthly Average: 0.37 ppb Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.9 P <sub>99</sub> = 3.4 |                               |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    |                 |               |
| Day                                                                                                                                                                                                                                                                                                                                                            | Hourly Period Ending At (MST) |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    | Daily Average   | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                                                | 1                             | 2 | 3                 | 4 | 5 | 6 | 7 | 8 | 9                             | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                     | 20 | 21 | 22 | 23 | 24 |                 |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 1                             | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 2  | 2                                                                                                                                      | 1  | 0  | 1  | 2  | 0  | 0.5             | 2.5           |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 2 | 3                             | 3  | 3  | 2  | 1  | A  | 0  | 1  | 0  | 1  | 0                                                                                                                                      | 0  | 0  | 2  | 1  | 3  | 1.1             | 3.1           |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                          | 5                             | 5 | 0                 | 0 | 0 | 2 | 2 | 1 | 3                             | 3  | 2  | 1  | A  | 0  | 0  | 0  | 0  | 1  | 1                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 1.2             | 5.3           |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | P                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.5           |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 1  | A  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 1.1           |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 1 | 1                             | A  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.3             | 1.3           |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 1 | A                             | 2  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 1                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.5             | 1.6           |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | A | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                          | 0                             | 0 | 0                 | 0 | 0 | 0 | A | 0 | 0                             | 0  | 1  | 0  | 1  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.8           |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | A | 1 | 0 | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.7           |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | A | 0 | 0 | 1 | 1                             | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 1.0           |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | A | 0 | 3 | 2 | 4 | 3                             | 2  | 2  | 1  | 2  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 1.0             | 4.4           |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | A                 | 0 | 0 | 0 | 0 | 1 | 2                             | 1  | 1  | 1  | 0  | 0  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.4             | 1.6           |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | A | 0                 | 0 | 0 | 0 | 0 | 1 | 1                             | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.3             | 0.8           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | A  | 0.2             | 0.8           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | A  | 0  | 0.2             | 0.6           |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 0 | 2                             | 2  | 3  | 2  | 2  | 1  | 2  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | A  | 0  | 0  | 0.7             | 3.0           |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 1 | 5 | 2 | 2                             | 1  | 2  | 3  | 2  | 2  | 1  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | A  | 0  | 0  | 0  | 1.0             | 4.8           |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 1 | 0                             | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | A  | 0  | 0  | 0  | 0  | 0.2             | 1.5           |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 1 | 1 | 0 | 0 | 1                             | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.8           |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 1  | 0  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.6           |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | 0                             | 0  | 1  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 1.0           |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 1 | 1                             | 3  | 1  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.4             | 2.7           |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | C                             | C  | C  | C  | C  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.3           |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 0 | 1                             | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.8           |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 1 | 1                             | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.2             | 0.7           |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 1 | 1 | 2                             | A  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 5  | 0  | 0  | 0.5             | 4.7           |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0                 | 0 | 0 | 0 | 0 | 0 | A                             | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0  | 0  | 0  | 0  | 0  | 0.1             | 0.4           |
| 0.2 0.2 0.1 0.1 0.1 0.3 0.7 0.7 1.0 1.0 0.9 0.6 0.5 0.4 0.3 0.2 0.2 0.3 0.2 0.2 0.1 0.3 0.1 0.1                                                                                                                                                                                                                                                                |                               |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    | Diurnal Average |               |
| 5.3 4.5 0.4 0.3 0.7 2.6 4.8 4.4 3.4 3.5 3.0 3.1 2.0 2.2 1.7 1.5 0.5 2.5 2.0 0.7 0.4 4.7 1.8 3.0                                                                                                                                                                                                                                                                |                               |   |                   |   |   |   |   |   |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    | Diurnal Maximum |               |
| C - Calibration                                                                                                                                                                                                                                                                                                                                                |                               |   | P - Power Failure |   |   |   |   |   | A - Automated Daily Zero Span |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |    |    |                 |               |

## Hourly Averages

Nitrogen Oxide (NO) - ppb  
Portable-Bonanza - April 2011



## Hourly Maximums

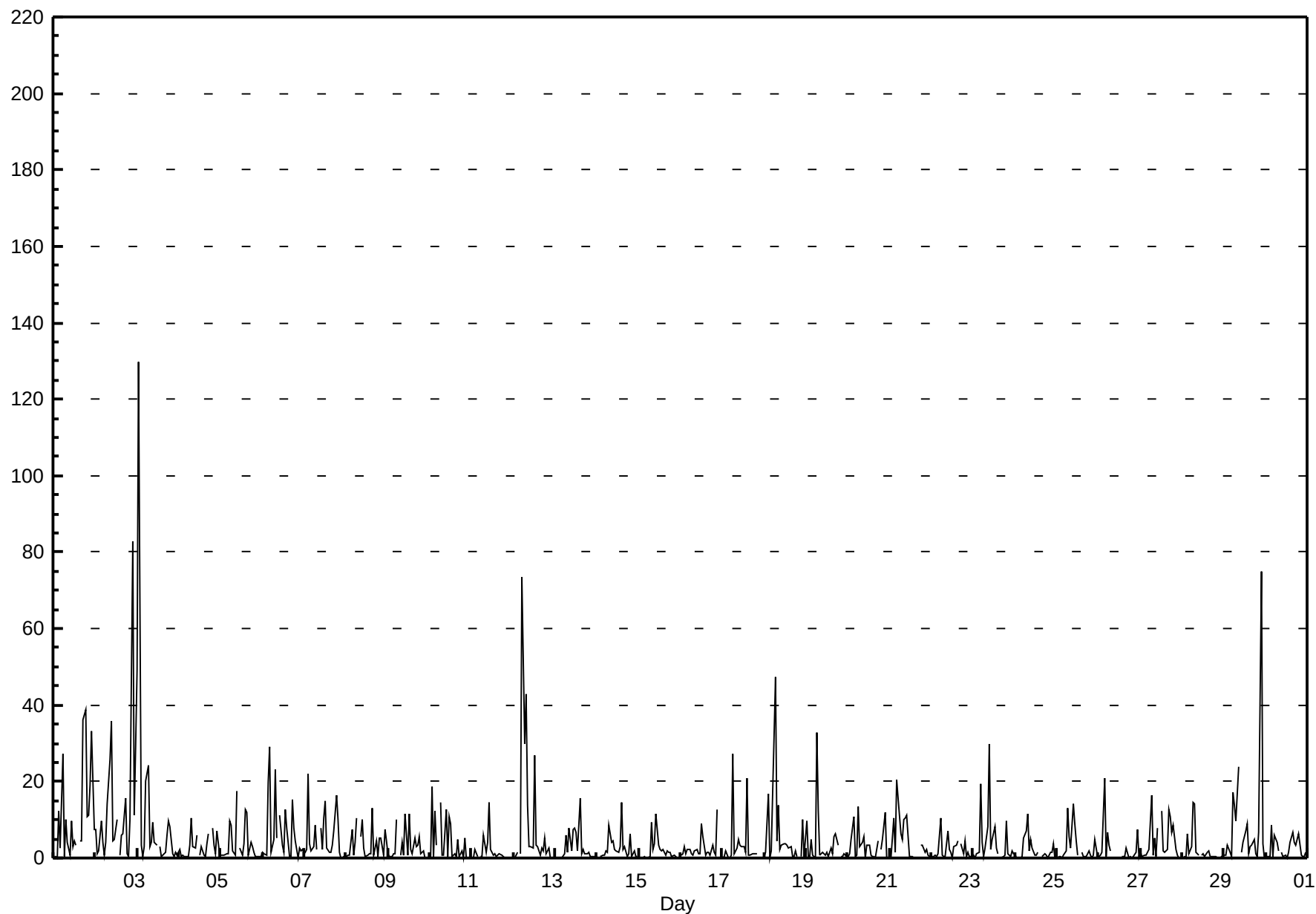
Nitrogen Oxide (NO) - ppb

Portable-Bonanza - April 2011

| Maximum Value: 129.8 ppb on Apr 3 02:00                                                                                  |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 12.5 ppb on Apr 2                                                                                                                     |    |    |    |    |                 |               |  |  |  | Hours in Service: 720     |  |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|--|--|--|---------------------------|--|
| Minimum Value: 0 ppb on Apr 24 02:00                                                                                     |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 1.7 ppb on Apr 11                                                                                                                     |    |    |    |    |                 |               |  |  |  | Hours of Data: 684        |  |
| Maximum Diurnal Average: 11.0 ppb at hour 7                                                                              |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 1.8 ppb at hour 24                                                                                                                  |    |    |    |    |                 |               |  |  |  | Hours of Missing Data: 36 |  |
| Monthly Average: 4.66 ppb                                                                                                |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.5 Median = 1.6 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 11.5 P <sub>99</sub> = 41.3 |    |    |    |    |                 |               |  |  |  | Hours of Calibration: 35  |  |
|                                                                                                                          |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.9                                                                                                                               |    |    |    |    |                 |               |  |  |  |                           |  |
| Day                                                                                                                      | Hourly Period Ending At (MST) |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | Daily Average   | Daily Maximum |  |  |  |                           |  |
|                                                                                                                          | 1                             | 2   | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                           | 21 | 22 | 23 | 24 |                 |               |  |  |  |                           |  |
| 1-Apr                                                                                                                    | 0                             | 0   | 0  | 12 | 3  | 27 | 0  | 10 | 4  | 1  | 10 | 3  | 5  | 3  | A  | 4  | 4  | 36 | 39 | 11                                                                                                                                                           | 11 | 19 | 33 | 8  | 10.6            | 38.8          |  |  |  |                           |  |
| 2-Apr                                                                                                                    | 7                             | 1   | 2  | 10 | 4  | 1  | 4  | 14 | 26 | 36 | 4  | 5  | 10 | A  | 1  | 6  | 6  | 16 | 1  | 0                                                                                                                                                            | 10 | 83 | 11 | 29 | 12.5            | 83.0          |  |  |  |                           |  |
| 3-Apr                                                                                                                    | 49                            | 130 | 3  | 0  | 3  | 20 | 24 | 3  | 4  | 9  | 4  | 3  | A  | 3  | 0  | 1  | 1  | 6  | 10 | 8                                                                                                                                                            | 1  | 0  | 1  | 1  | 12.5            | 129.8         |  |  |  |                           |  |
| 4-Apr                                                                                                                    | 2                             | 0   | 1  | 0  | 0  | 0  | 3  | 11 | 3  | 3  | 6  | A  | 1  | 3  | 1  | 0  | 4  | 6  | P  | 8                                                                                                                                                            | 3  | 1  | 7  | 1  | 2.9             | 10.6          |  |  |  |                           |  |
| 5-Apr                                                                                                                    | 1                             | 1   | 1  | 1  | 1  | 10 | 9  | 2  | 1  | 17 | A  | 3  | 1  | 4  | 13 | 12 | 1  | 4  | 3  | 2                                                                                                                                                            | 1  | 1  | 0  | 0  | 3.8             | 17.5          |  |  |  |                           |  |
| 6-Apr                                                                                                                    | 1                             | 1   | 1  | 20 | 29 | 1  | 5  | 23 | 5  | A  | 11 | 3  | 1  | 13 | 8  | 0  | 0  | 15 | 8  | 5                                                                                                                                                            | 0  | 3  | 2  | 2  | 6.9             | 29.0          |  |  |  |                           |  |
| 7-Apr                                                                                                                    | 2                             | 2   | 22 | 4  | 2  | 3  | 8  | 2  | A  | 8  | 2  | 10 | 15 | 2  | 2  | 2  | 3  | 7  | 16 | 10                                                                                                                                                           | 1  | 0  | 0  | 1  | 5.4             | 22.1          |  |  |  |                           |  |
| 8-Apr                                                                                                                    | 1                             | 1   | 1  | 8  | 1  | 4  | 11 | A  | 5  | 10 | 3  | 1  | 1  | 1  | 1  | 13 | 1  | 4  | 0  | 5                                                                                                                                                            | 5  | 1  | 7  | 5  | 3.8             | 13.1          |  |  |  |                           |  |
| 9-Apr                                                                                                                    | 1                             | 0   | 0  | 1  | 1  | 10 | A  | 1  | 4  | 1  | 11 | 1  | 12 | 2  | 1  | 5  | 3  | 3  | 6  | 1                                                                                                                                                            | 2  | 0  | 0  | 0  | 2.9             | 11.7          |  |  |  |                           |  |
| 10-Apr                                                                                                                   | 1                             | 19  | 0  | 12 | 3  | A  | 15 | 1  | 1  | 13 | 1  | 11 | 9  | 0  | 1  | 0  | 5  | 0  | 2  | 0                                                                                                                                                            | 5  | 0  | 0  | 0  | 4.3             | 18.7          |  |  |  |                           |  |
| 11-Apr                                                                                                                   | 0                             | 0   | 2  | 0  | A  | 0  | 0  | 6  | 2  | 4  | 15 | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                                            | 0  | 0  | 0  | 0  | 1.7             | 14.7          |  |  |  |                           |  |
| 12-Apr                                                                                                                   | 0                             | 0   | 2  | A  | 1  | 73 | 30 | 43 | 14 | 3  | 3  | 3  | 27 | 3  | 3  | 1  | 3  | 2  | 5  | 1                                                                                                                                                            | 2  | 0  | 0  | 0  | 9.5             | 73.3          |  |  |  |                           |  |
| 13-Apr                                                                                                                   | 0                             | 0   | A  | 0  | 0  | 1  | 6  | 2  | 8  | 2  | 8  | 8  | 7  | 2  | 16 | 1  | 2  | 1  | 1  | 2                                                                                                                                                            | 0  | 0  | 0  | 0  | 2.9             | 15.7          |  |  |  |                           |  |
| 14-Apr                                                                                                                   | 0                             | A   | 0  | 1  | 1  | 2  | 2  | 9  | 4  | 5  | 2  | 2  | 1  | 3  | 14 | 2  | 3  | 0  | 1  | 6                                                                                                                                                            | 0  | 2  | 0  | 0  | 2.7             | 14.4          |  |  |  |                           |  |
| 15-Apr                                                                                                                   | A                             | 0   | 0  | 0  | 0  | 0  | 0  | 9  | 2  | 4  | 12 | 3  | 2  | 2  | 2  | 1  | 2  | 1  | 1  | 0                                                                                                                                                            | 1  | 0  | 0  | A  | 2.0             | 11.5          |  |  |  |                           |  |
| 16-Apr                                                                                                                   | 1                             | 1   | 3  | 1  | 2  | 2  | 1  | 1  | 2  | 2  | 1  | 1  | 9  | 6  | 1  | 2  | 2  | 1  | 3  | 1                                                                                                                                                            | 1  | 13 | A  | 0  | 2.4             | 12.7          |  |  |  |                           |  |
| 17-Apr                                                                                                                   | 0                             | 0   | 2  | 0  | 0  | 1  | 27 | 1  | 3  | 5  | 3  | 3  | 3  | 2  | 21 | 1  | 1  | 1  | 1  | 1                                                                                                                                                            | 1  | A  | 0  | 0  | 3.3             | 27.1          |  |  |  |                           |  |
| 18-Apr                                                                                                                   | 0                             | 2   | 17 | 0  | 2  | 17 | 47 | 5  | 14 | 2  | 4  | 4  | 4  | 3  | 2  | 3  | 1  | 0  | 2  | 0                                                                                                                                                            | A  | 0  | 10 | 0  | 6.1             | 47.5          |  |  |  |                           |  |
| 19-Apr                                                                                                                   | 10                            | 0   | 0  | 5  | 1  | 0  | 33 | 12 | 1  | 2  | 1  | 1  | 1  | 0  | 2  | 1  | 6  | 6  | 3  | A                                                                                                                                                            | 1  | 1  | 1  | 0  | 3.8             | 32.8          |  |  |  |                           |  |
| 20-Apr                                                                                                                   | 0                             | 1   | 5  | 11 | 0  | 1  | 13 | 3  | 4  | 5  | 0  | 3  | 4  | 1  | 0  | 0  | 0  | 4  | A  | 2                                                                                                                                                            | 5  | 12 | 0  | 0  | 3.3             | 13.4          |  |  |  |                           |  |
| 21-Apr                                                                                                                   | 0                             | 0   | 10 | 1  | 21 | 16 | 6  | 5  | 10 | 10 | 11 | 0  | 1  | 0  | 0  | 0  | 0  | A  | 4  | 3                                                                                                                                                            | 2  | 2  | 1  | 0  | 4.5             | 20.5          |  |  |  |                           |  |
| 22-Apr                                                                                                                   | 0                             | 0   | 1  | 1  | 1  | 11 | 1  | 0  | 0  | 7  | 2  | 2  | 0  | 3  | 3  | 5  | A  | 4  | 1  | 5                                                                                                                                                            | 1  | 2  | 0  | 0  | 2.2             | 10.6          |  |  |  |                           |  |
| 23-Apr                                                                                                                   | 1                             | 0   | 1  | 1  | 19 | 4  | 0  | 2  | 8  | 30 | 2  | 5  | 8  | 3  | 1  | A  | 0  | 0  | 1  | 10                                                                                                                                                           | 1  | 0  | 2  | 1  | 4.4             | 29.7          |  |  |  |                           |  |
| 24-Apr                                                                                                                   | 1                             | 0   | 0  | 0  | 1  | 5  | 7  | 12 | 2  | 5  | 2  | 1  | 1  | 2  | A  | 0  | 1  | 1  | 1  | 0                                                                                                                                                            | 2  | 2  | 4  | 0  | 2.1             | 11.5          |  |  |  |                           |  |
| 25-Apr                                                                                                                   | 0                             | 0   | 0  | 0  | 1  | 2  | 13 | 6  | 3  | 14 | 9  | 4  | 1  | A  | 1  | 0  | 0  | 0  | 2  | 1                                                                                                                                                            | 0  | 1  | 5  | 0  | 2.8             | 14.1          |  |  |  |                           |  |
| 26-Apr                                                                                                                   | 0                             | 1   | 1  | 21 | 0  | 7  | 3  | 2  | C  | C  | C  | C  | C  | 0  | 1  | 1  | 3  | 0  | 0  | 0                                                                                                                                                            | 0  | 1  | 7  | 0  | 2.6             | 21.0          |  |  |  |                           |  |
| 27-Apr                                                                                                                   | 2                             | 1   | 1  | 1  | 1  | 2  | 16 | 1  | 5  | 1  | 8  | A  | 12 | 2  | 2  | 2  | 13 | 11 | 7  | 9                                                                                                                                                            | 2  | 1  | 0  | 0  | 4.3             | 16.2          |  |  |  |                           |  |
| 28-Apr                                                                                                                   | 0                             | 0   | 0  | 6  | 1  | 3  | 14 | 14 | 2  | 1  | A  | 1  | 1  | 0  | 1  | 2  | 0  | 0  | 0  | 0                                                                                                                                                            | 0  | 0  | 0  | 1  | 2.1             | 14.5          |  |  |  |                           |  |
| 29-Apr                                                                                                                   | 1                             | 1   | 3  | 1  | 0  | 17 | 14 | 10 | 24 | A  | 2  | 4  | 7  | 9  | 1  | 3  | 3  | 5  | 1  | 0                                                                                                                                                            | 7  | 75 | 4  | 0  | 8.3             | 74.9          |  |  |  |                           |  |
| 30-Apr                                                                                                                   | 0                             | 0   | 0  | 9  | 1  | 6  | 4  | 2  | A  | 2  | 0  | 1  | 0  | 1  | 4  | 7  | 4  | 4  | 5  | 6                                                                                                                                                            | 1  | 0  | 0  | 1  | 2.5             | 8.5           |  |  |  |                           |  |
| 2.8 5.6 2.8 4.4 3.5 8.5 11.0 7.2 5.9 7.4 5.1 3.2 5.1 2.7 3.7 2.6 2.5 4.9 4.5 3.4 2.3 7.6 3.4 1.8                         |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | Diurnal Average |               |  |  |  |                           |  |
| 49.1 129.8 22.1 21.0 29.0 73.3 47.5 42.9 25.9 35.9 14.7 10.7 27.0 12.6 20.9 13.1 12.6 36.3 38.8 10.8 11.0 83.0 33.2 29.3 |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | Diurnal Maximum |               |  |  |  |                           |  |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                                          |                               |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    |                 |               |  |  |  |                           |  |

## Hourly Maximums

Nitrogen Oxide (NO) - ppb  
Portable-Bonanza - April 2011



## Hourly Averages

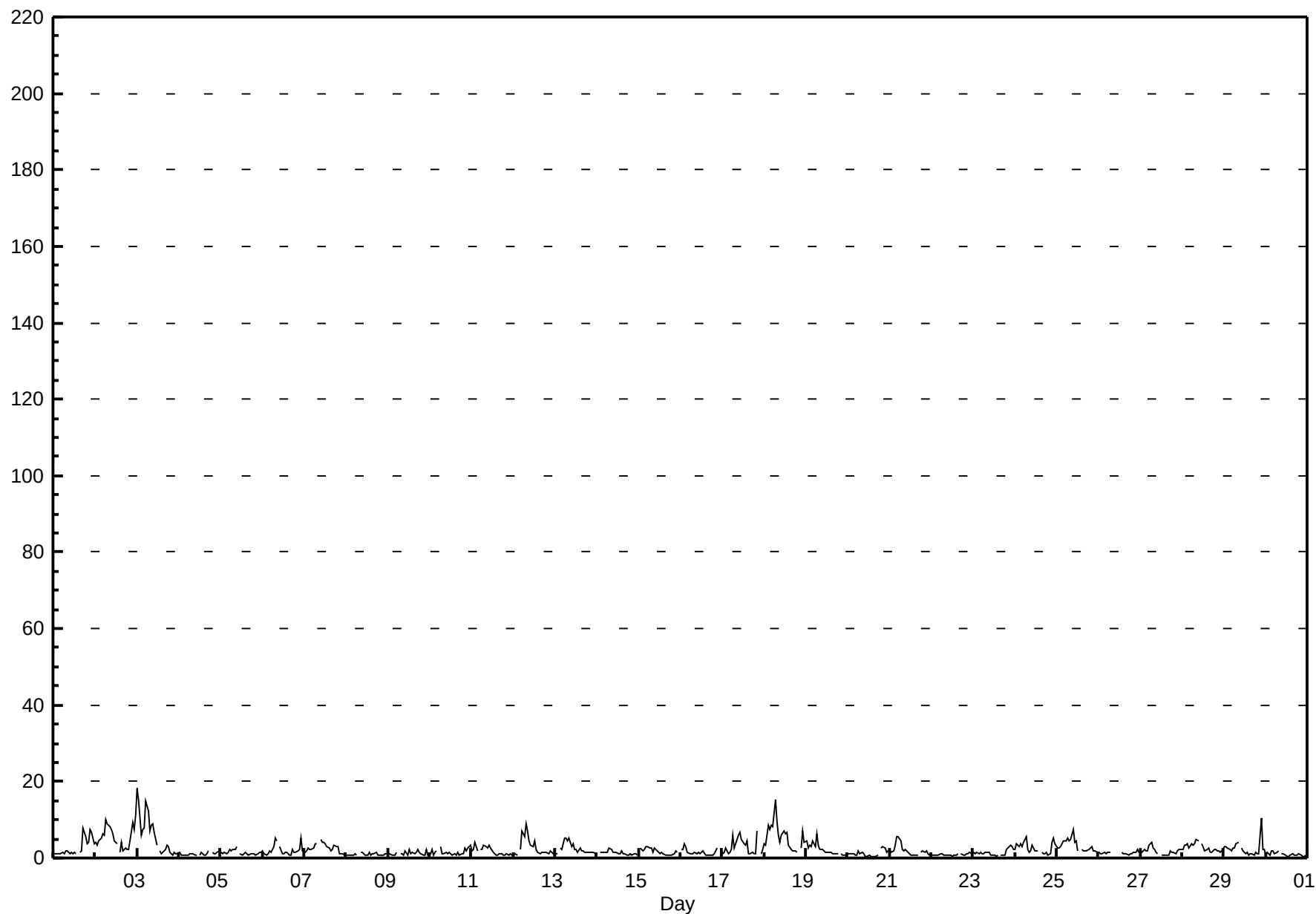
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Portable-Bonanza - April 2011

|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     |                 |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|---|---|---|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------|----|----|----|-----|-----------------|-----------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 18.4 ppb on Apr 3 01:00 Maximum Daily Average: 5.9 ppb on Apr 3                                                                                                                                                                                                                                |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 684<br>Hours of Missing Data: 36<br>Hours of Calibration: 35<br>Percent Operational Time: 99.9 |    |    |    |     |                 |                 |
| Minimum Value: 0 ppb on Apr 20 15:00 Minimum Daily Average: 0.8 ppb on Apr 22<br>Maximum Diurnal Average: 4.0 ppb at hour 7 Minimum Diurnal Average: 1.2 ppb at hour 17<br>Monthly Average: 2.27 ppb Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.0 Median = 1.5 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 4.4 P <sub>99</sub> = 10.4 |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     |                 |                 |
| Day                                                                                                                                                                                                                                                                                                                                                              | Hourly Period Ending At (MST) |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | Daily Average   | Daily Maximum   |
|                                                                                                                                                                                                                                                                                                                                                                  | 1                             | 2  | 3 | 4 | 5 | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                     | 21 | 22 | 23 | 24  |                 |                 |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 1  | 1 | 1 | 1 | 2  | 1  | 2  | 2 | 1  | 1  | 1  | 2  | 1  | A  | 1  | 2  | 8  | 6  | 4                                                                                                                                      | 4  | 8  | 7  | 4   | 2.6             | 7.6             |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                            | 4                             | 3  | 5 | 5 | 6 | 6  | 10 | 9  | 8 | 8  | 7  | 5  | 4  | A  | 2  | 4  | 2  | 3  | 2  | 2                                                                                                                                      | 4  | 10 | 7  | 11  | 5.5             | 11.1            |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                            | 18                            | 15 | 6 | 8 | 8 | 15 | 12 | 7  | 9 | 9  | 7  | 3  | A  | 2  | 1  | 2  | 2  | 3  | 3  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 5.9             | 18.4            |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 1  | 1 | 1 | 1 | 1  | 1  | 1  | 1 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 2  | P  | 2                                                                                                                                      | 1  | 1  | 1  | 2   | 1.1             | 1.8             |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                            | 2                             | 1  | 1 | 1 | 1 | 2  | 2  | 2  | 2 | 3  | A  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 2  | 1   | 1.4             | 3.0             |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                            | 2                             | 1  | 1 | 1 | 2 | 1  | 3  | 5  | 4 | A  | 3  | 1  | 1  | 1  | 2  | 1  | 1  | 2  | 2  | 1                                                                                                                                      | 2  | 2  | 5  | 2   | 2.0             | 5.4             |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                            | 2                             | 2  | 3 | 2 | 2 | 3  | 4  | 4  | A | 5  | 4  | 4  | 4  | 3  | 3  | 2  | 2  | 3  | 3  | 3                                                                                                                                      | 1  | 1  | 1  | 1   | 2.6             | 4.8             |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 1  | 1 | 1 | 1 | 1  | 1  | A  | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 1.0             | 1.4             |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 1  | 1 | 1 | 1 | 2  | A  | 1  | 1 | 1  | 2  | 1  | 2  | 1  | 1  | 1  | 2  | 2  | 2  | 1                                                                                                                                      | 1  | 1  | 2  | 1   | 1.2             | 2.4             |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 2  | 1 | 1 | 2 | A  | 3  | 1  | 1 | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 3  | 2  | 2  | 3   | 1.5             | 3.3             |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 2  | 4 | 2 | A | 2  | 2  | 3  | 3 | 3  | 3  | 3  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 1.8             | 4.3             |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | 1 | A | 2 | 7  | 6  | 9  | 7 | 4  | 3  | 3  | 4  | 2  | 2  | 1  | 2  | 2  | 2  | 1                                                                                                                                      | 1  | 2  | 1  | 1   | 2.9             | 9.0             |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | A | 3 | 2 | 5  | 5  | 4  | 5 | 3  | 4  | 2  | 2  | 2  | 3  | 2  | 2  | 1  | 2  | 2                                                                                                                                      | 1  | 2  | 2  | 1   | 2.4             | 5.3             |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | A  | 2 | 1 | 1 | 1  | 1  | 3  | 2 | 2  | 1  | 1  | 1  | 1  | 2  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 1.3             | 2.5             |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                           | A                             | 2  | 2 | 2 | 3 | 3  | 3  | 3  | 1 | 3  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 2  | 1  | A   | 1.7             | 3.1             |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 2  | 4 | 3 | 1 | 1  | 1  | 1  | 1 | 1  | 1  | 1  | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 2  | 2  | A  | 2   | 1.6             | 3.8             |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 2  | 3 | 1 | 2 | 2  | 6  | 2  | 5 | 6  | 7  | 5  | 4  | 3  | 5  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 7  | A  | 1  | 2   | 3.1             | 7.0             |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                           | 4                             | 3  | 9 | 7 | 9 | 8  | 15 | 10 | 6 | 4  | 6  | 7  | 6  | 7  | 3  | 2  | 2  | 2  | 2  | 1                                                                                                                                      | A  | 2  | 7  | 4   | 5.5             | 15.4            |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                           | 4                             | 3  | 3 | 3 | 4 | 3  | 6  | 3  | 2 | 2  | 2  | 2  | 1  | 2  | 1  | 1  | 1  | 1  | 1  | A                                                                                                                                      | 1  | 1  | 1  | 1   | 2.2             | 6.3             |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | 1 | 1 | 1 | 1  | 2  | 1  | 1 | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 1  | A  | 3                                                                                                                                      | 3  | 3  | 1  | 2   | 1.2             | 3.2             |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 1  | 2 | 3 | 5 | 5  | 4  | 2  | 2 | 2  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 2                                                                                                                                      | 2  | 2  | 1  | 1   | 2.0             | 5.5             |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | 1 | 1 | 1 | 1  | 1  | 1  | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 0.8             | 1.5             |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 1  | 1 | 1 | 2 | 1  | 1  | 2  | 1 | 1  | 1  | 1  | 1  | 1  | 1  | A  | 1  | 1  | 1  | 2                                                                                                                                      | 3  | 3  | 3  | 2   | 1.4             | 3.2             |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 4  | 3 | 4 | 3 | 4  | 6  | 2  | 1 | 2  | 4  | 2  | 2  | 2  | A  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 4  | 5  | 4   | 2.6             | 5.5             |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                           | 3                             | 3  | 3 | 4 | 4 | 4  | 5  | 4  | 5 | 8  | 4  | 4  | 2  | A  | 2  | 2  | 2  | 2  | 2  | 3                                                                                                                                      | 3  | 2  | 2  | 1   | 3.2             | 7.6             |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 1  | 1 | 1 | 1 | 2  | 1  | 2  | C | C  | C  | C  | C  | 2  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 2  | 1  | 1.3 | 2.2             |                 |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 2  | 2 | 2 | 2 | 3  | 4  | 3  | 2 | 1  | 1  | A  | 1  | 1  | 1  | 1  | 1  | 2  | 1  | 1                                                                                                                                      | 1  | 2  | 2  | 2   | 1.7             | 4.2             |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                           | 2                             | 3  | 3 | 4 | 2 | 4  | 3  | 4  | 5 | 4  | A  | 4  | 3  | 2  | 2  | 2  | 1  | 1  | 2  | 2                                                                                                                                      | 2  | 2  | 2  | 2   | 2.8             | 4.9             |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                           | 3                             | 3  | 3 | 2 | 2 | 3  | 3  | 4  | 4 | A  | 3  | 2  | 1  | 1  | 1  | 1  | 1  | 1  | 2  | 1                                                                                                                                      | 1  | 11 | 2  | 2   | 2.4             | 10.6            |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                           | 1                             | 2  | 1 | 2 | 2 | 1  | 1  | 2  | A | 1  | 1  | 1  | 0  | 0  | 1  | 1  | 1  | 1  | 1  | 1                                                                                                                                      | 1  | 1  | 1  | 1   | 1.0             | 1.9             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | Diurnal Average | Diurnal Maximum |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.4             | 18.4            |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.3             | 15.3            |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.3             | 8.7             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.4             | 7.5             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.6             | 8.5             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 3.3             | 15.0            |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 4.0             | 15.4            |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 3.3             | 9.8             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 3.2             | 8.7             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 3.0             | 8.8             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.7             | 6.7             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.2             | 7.2             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.8             | 6.2             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.6             | 6.6             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.5             | 4.6             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.3             | 4.3             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.2             | 2.1             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.6             | 7.6             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.6             | 5.7             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.6             | 3.7             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 1.8             | 7.0             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.5             | 10.6            |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.3             | 7.3             |
|                                                                                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     | 2.1             | 11.1            |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                                                                                                                                                                                                                                                                                  |                               |    |   |   |   |    |    |    |   |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |    |    |    |     |                 |                 |

## Hourly Averages

Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Portable-Bonanza - April 2011



## Hourly Maximums

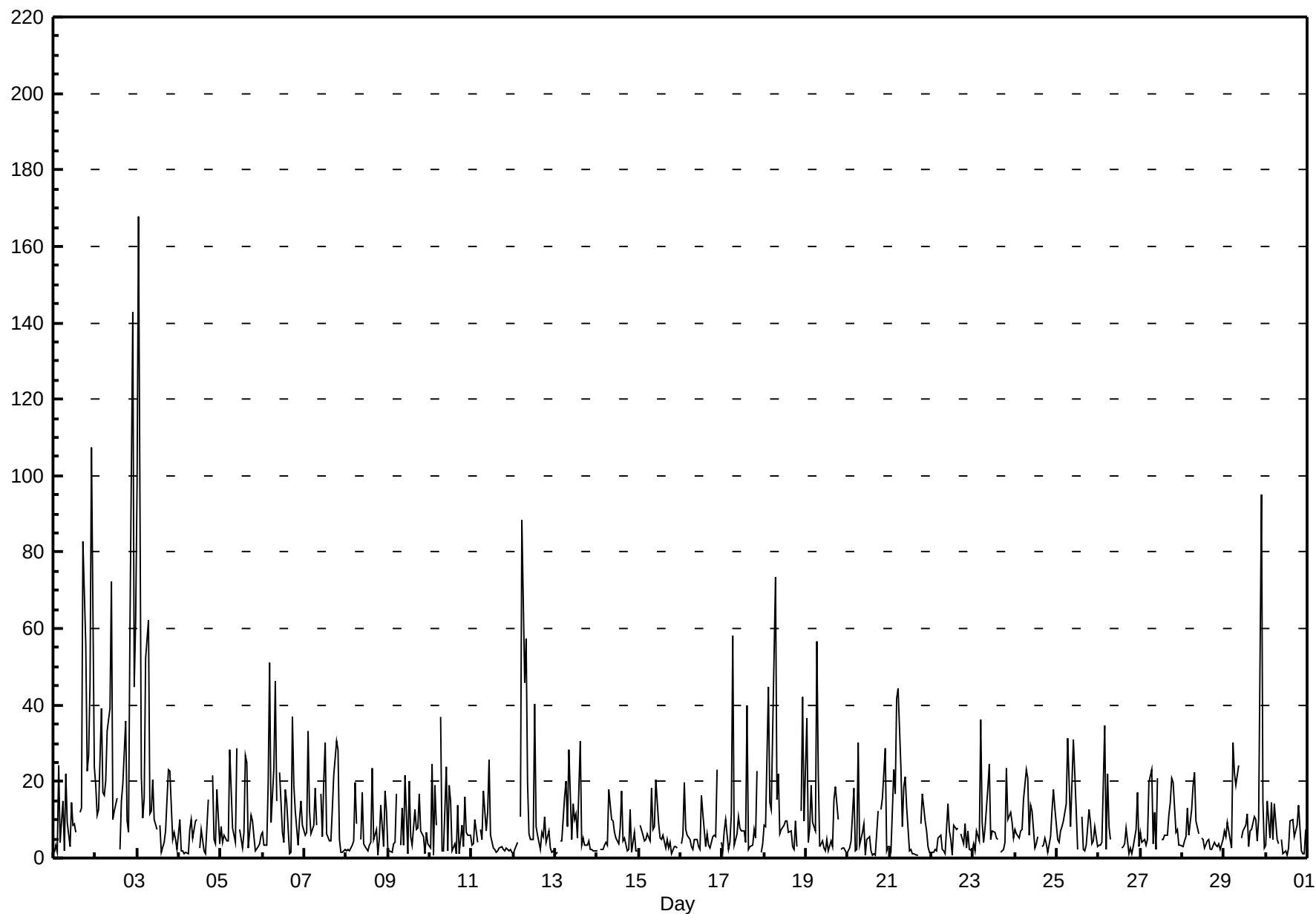
Oxides of Nitrogen (NO<sub>x</sub>) - ppb

Portable-Bonanza - April 2011

| Maximum Value: 167.9 ppb on Apr 3 02:00                                                                                    |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 31.2 ppb on Apr 2                                                                                                                      |    |     |     |    |                 |               |  |  |  | Hours in Service: 720     |  |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----|----|----|-------------------|----|----|----|----|-------------------------------|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|-----|----|-----------------|---------------|--|--|--|---------------------------|--|
| Minimum Value: 1 ppb on Apr 20 17:00                                                                                       |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 4.6 ppb on Apr 22                                                                                                                      |    |     |     |    |                 |               |  |  |  | Hours of Data: 684        |  |
| Maximum Diurnal Average: 22.7 ppb at hour 7                                                                                |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 5.9 ppb at hour 14                                                                                                                   |    |     |     |    |                 |               |  |  |  | Hours of Missing Data: 36 |  |
| Monthly Average: 10.97 ppb                                                                                                 |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 3.1 Median = 6.2 Q <sub>3</sub> = 12.8 P <sub>90</sub> = 23.0 P <sub>99</sub> = 80.9 |    |     |     |    |                 |               |  |  |  | Hours of Calibration: 35  |  |
|                                                                                                                            |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.9                                                                                                                                |    |     |     |    |                 |               |  |  |  |                           |  |
| Day                                                                                                                        | Hourly Period Ending At (MST) |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |     |     |    | Daily Average   | Daily Maximum |  |  |  |                           |  |
|                                                                                                                            | 1                             | 2   | 3  | 4  | 5                 | 6  | 7  | 8  | 9  | 10                            | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                            | 21 | 22  | 23  | 24 |                 |               |  |  |  |                           |  |
| 1-Apr                                                                                                                      | 1                             | 3   | 2  | 24 | 4                 | 15 | 2  | 22 | 9  | 3                             | 15 | 9  | 9  | 7  | A  | 12 | 13 | 83 | 56 | 23                                                                                                                                                            | 27 | 46  | 107 | 24 | 22.4            | 107.3         |  |  |  |                           |  |
| 2-Apr                                                                                                                      | 19                            | 11  | 13 | 39 | 17                | 16 | 20 | 33 | 39 | 72                            | 10 | 12 | 16 | A  | 2  | 15 | 19 | 36 | 10 | 7                                                                                                                                                             | 60 | 143 | 45  | 62 | 31.2            | 142.9         |  |  |  |                           |  |
| 3-Apr                                                                                                                      | 98                            | 168 | 21 | 11 | 16                | 52 | 62 | 12 | 12 | 21                            | 10 | 8  | A  | 8  | 1  | 4  | 7  | 15 | 23 | 23                                                                                                                                                            | 5  | 7   | 5   | 2  | 25.7            | 167.9         |  |  |  |                           |  |
| 4-Apr                                                                                                                      | 10                            | 2   | 2  | 1  | 1                 | 1  | 7  | 10 | 5  | 10                            | 10 | A  | 3  | 7  | 2  | 1  | 8  | 15 | P  | 21                                                                                                                                                            | 5  | 4   | 18  | 4  | 6.8             | 21.5          |  |  |  |                           |  |
| 5-Apr                                                                                                                      | 8                             | 4   | 6  | 4  | 5                 | 28 | 18 | 8  | 4  | 29                            | A  | 8  | 3  | 7  | 27 | 25 | 3  | 11 | 10 | 6                                                                                                                                                             | 2  | 3   | 4   | 6  | 9.8             | 28.6          |  |  |  |                           |  |
| 6-Apr                                                                                                                      | 7                             | 3   | 3  | 20 | 51                | 9  | 23 | 46 | 15 | A                             | 22 | 7  | 4  | 18 | 15 | 1  | 1  | 37 | 19 | 12                                                                                                                                                            | 3  | 10  | 15  | 9  | 15.3            | 51.3          |  |  |  |                           |  |
| 7-Apr                                                                                                                      | 6                             | 7   | 33 | 12 | 6                 | 9  | 18 | 9  | A  | 17                            | 6  | 20 | 30 | 6  | 5  | 4  | 13 | 22 | 31 | 28                                                                                                                                                            | 5  | 1   | 1   | 2  | 12.7            | 33.3          |  |  |  |                           |  |
| 8-Apr                                                                                                                      | 2                             | 2   | 2  | 3  | 4                 | 20 | 9  | A  | 5  | 17                            | 4  | 3  | 2  | 3  | 4  | 23 | 5  | 7  | 1  | 5                                                                                                                                                             | 14 | 3   | 18  | 12 | 7.3             | 23.4          |  |  |  |                           |  |
| 9-Apr                                                                                                                      | 2                             | 2   | 2  | 4  | 4                 | 17 | A  | 3  | 13 | 4                             | 22 | 1  | 20 | 6  | 3  | 13 | 7  | 8  | 17 | 7                                                                                                                                                             | 6  | 1   | 7   | 4  | 7.4             | 21.7          |  |  |  |                           |  |
| 10-Apr                                                                                                                     | 3                             | 24  | 1  | 19 | 9                 | A  | 37 | 2  | 2  | 24                            | 2  | 19 | 15 | 2  | 4  | 1  | 14 | 1  | 9  | 3                                                                                                                                                             | 16 | 7   | 6   | 6  | 9.8             | 37.0          |  |  |  |                           |  |
| 11-Apr                                                                                                                     | 3                             | 4   | 10 | 4  | A                 | 7  | 5  | 17 | 7  | 12                            | 26 | 6  | 3  | 2  | 1  | 2  | 2  | 3  | 2  | 2                                                                                                                                                             | 3  | 2   | 2   | 1  | 5.5             | 25.7          |  |  |  |                           |  |
| 12-Apr                                                                                                                     | 1                             | 2   | 4  | A  | 11                | 88 | 46 | 58 | 20 | 6                             | 5  | 5  | 40 | 8  | 6  | 2  | 7  | 6  | 11 | 4                                                                                                                                                             | 7  | 2   | 2   | 2  | 14.9            | 88.4          |  |  |  |                           |  |
| 13-Apr                                                                                                                     | 1                             | 2   | A  | 5  | 4                 | 16 | 20 | 8  | 28 | 5                             | 14 | 10 | 11 | 5  | 31 | 3  | 5  | 3  | 3  | 5                                                                                                                                                             | 2  | 2   | 2   | 2  | 8.2             | 30.7          |  |  |  |                           |  |
| 14-Apr                                                                                                                     | 2                             | A   | 2  | 2  | 3                 | 4  | 3  | 18 | 10 | 10                            | 7  | 5  | 4  | 8  | 18 | 4  | 5  | 2  | 2  | 13                                                                                                                                                            | 2  | 7   | 2   | 2  | 5.8             | 17.8          |  |  |  |                           |  |
| 15-Apr                                                                                                                     | A                             | 8   | 6  | 4  | 5                 | 6  | 4  | 18 | 7  | 8                             | 21 | 9  | 5  | 5  | 6  | 2  | 5  | 2  | 4  | 1                                                                                                                                                             | 3  | 3   | 2   | A  | 6.2             | 20.6          |  |  |  |                           |  |
| 16-Apr                                                                                                                     | 4                             | 6   | 20 | 8  | 6                 | 5  | 3  | 2  | 5  | 5                             | 3  | 2  | 17 | 11 | 3  | 6  | 3  | 3  | 6  | 6                                                                                                                                                             | 6  | 23  | A   | 4  | 6.8             | 23.1          |  |  |  |                           |  |
| 17-Apr                                                                                                                     | 2                             | 7   | 10 | 2  | 4                 | 12 | 58 | 3  | 6  | 11                            | 8  | 7  | 7  | 4  | 40 | 2  | 3  | 3  | 7  | 5                                                                                                                                                             | 23 | A   | 2   | 4  | 10.1            | 58.3          |  |  |  |                           |  |
| 18-Apr                                                                                                                     | 9                             | 8   | 45 | 15 | 13                | 33 | 73 | 15 | 22 | 6                             | 8  | 9  | 10 | 10 | 7  | 7  | 3  | 2  | 10 | 3                                                                                                                                                             | A  | 12  | 42  | 10 | 16.1            | 73.4          |  |  |  |                           |  |
| 19-Apr                                                                                                                     | 36                            | 4   | 8  | 19 | 9                 | 7  | 57 | 22 | 3  | 4                             | 3  | 2  | 5  | 2  | 5  | 3  | 15 | 19 | 10 | A                                                                                                                                                             | 2  | 3   | 2   | 1  | 10.5            | 56.6          |  |  |  |                           |  |
| 20-Apr                                                                                                                     | 2                             | 3   | 5  | 18 | 2                 | 2  | 30 | 3  | 7  | 9                             | 1  | 5  | 6  | 2  | 1  | 1  | 1  | 12 | A  | 13                                                                                                                                                            | 16 | 29  | 2   | 3  | 7.4             | 30.1          |  |  |  |                           |  |
| 21-Apr                                                                                                                     | 3                             | 2   | 23 | 17 | 42                | 44 | 23 | 8  | 19 | 21                            | 14 | 2  | 2  | 1  | 1  | 1  | 1  | A  | 9  | 17                                                                                                                                                            | 10 | 7   | 3   | 1  | 11.8            | 44.3          |  |  |  |                           |  |
| 22-Apr                                                                                                                     | 2                             | 1   | 2  | 2  | 5                 | 6  | 2  | 2  | 1  | 14                            | 7  | 5  | 1  | 9  | 7  | 8  | A  | 6  | 4  | 9                                                                                                                                                             | 3  | 7   | 2   | 2  | 4.6             | 14.2          |  |  |  |                           |  |
| 23-Apr                                                                                                                     | 4                             | 2   | 7  | 4  | 36                | 9  | 4  | 8  | 18 | 25                            | 5  | 7  | 7  | 5  | 5  | A  | 1  | 2  | 4  | 24                                                                                                                                                            | 10 | 12  | 9   | 5  | 9.3             | 36.1          |  |  |  |                           |  |
| 24-Apr                                                                                                                     | 8                             | 6   | 5  | 7  | 7                 | 15 | 23 | 21 | 6  | 14                            | 12 | 3  | 4  | 6  | A  | 3  | 3  | 5  | 4  | 1                                                                                                                                                             | 6  | 12  | 18  | 13 | 8.8             | 23.0          |  |  |  |                           |  |
| 25-Apr                                                                                                                     | 5                             | 4   | 7  | 8  | 10                | 14 | 31 | 20 | 8  | 31                            | 22 | 12 | 2  | A  | 11 | 2  | 2  | 3  | 13 | 9                                                                                                                                                             | 4  | 5   | 8   | 3  | 10.3            | 31.3          |  |  |  |                           |  |
| 26-Apr                                                                                                                     | 3                             | 4   | 4  | 35 | 2                 | 22 | 8  | 5  | C  | C                             | C  | C  | C  | 2  | 3  | 4  | 8  | 1  | 3  | 1                                                                                                                                                             | 3  | 7   | 17  | 3  | 7.1             | 34.6          |  |  |  |                           |  |
| 27-Apr                                                                                                                     | 7                             | 4   | 5  | 3  | 5                 | 20 | 23 | 4  | 12 | 2                             | 21 | A  | 5  | 5  | 6  | 6  | 11 | 14 | 21 | 20                                                                                                                                                            | 7  | 8   | 3   | 3  | 9.3             | 23.2          |  |  |  |                           |  |
| 28-Apr                                                                                                                     | 3                             | 5   | 6  | 13 | 6                 | 13 | 19 | 22 | 10 | 6                             | A  | 5  | 5  | 3  | 4  | 5  | 2  | 2  | 4  | 3                                                                                                                                                             | 3  | 4   | 2   | 5  | 6.5             | 22.3          |  |  |  |                           |  |
| 29-Apr                                                                                                                     | 7                             | 6   | 9  | 5  | 3                 | 30 | 22 | 19 | 24 | A                             | 5  | 7  | 9  | 11 | 3  | 7  | 7  | 11 | 10 | 5                                                                                                                                                             | 10 | 95  | 15  | 3  | 14.1            | 95.2          |  |  |  |                           |  |
| 30-Apr                                                                                                                     | 3                             | 15  | 5  | 14 | 5                 | 14 | 5  | 4  | A  | 5                             | 1  | 2  | 1  | 2  | 10 | 10 | 6  | 7  | 9  | 14                                                                                                                                                            | 2  | 1   | 1   | 8  | 6.3             | 14.8          |  |  |  |                           |  |
| 9.0 11.0 9.2 11.1 10.2 18.5 22.7 14.6 11.8 14.4 10.4 7.0 8.7 5.9 8.2 6.2 6.3 11.9 11.1 10.0 9.0 16.0 12.5 7.1              |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |     |     |    | Diurnal Average |               |  |  |  |                           |  |
| 98.1 167.9 44.6 39.2 51.3 88.4 73.4 57.6 39.1 72.4 25.7 20.0 40.4 17.9 39.7 24.9 19.3 82.8 56.0 28.2 60.0 142.9 107.3 61.9 |                               |     |    |    |                   |    |    |    |    |                               |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |     |     |    | Diurnal Maximum |               |  |  |  |                           |  |
| C - Calibration                                                                                                            |                               |     |    |    | P - Power Failure |    |    |    |    | A - Automated Daily Zero Span |    |    |    |    |    |    |    |    |    |                                                                                                                                                               |    |     |     |    |                 |               |  |  |  |                           |  |

## Hourly Maximums

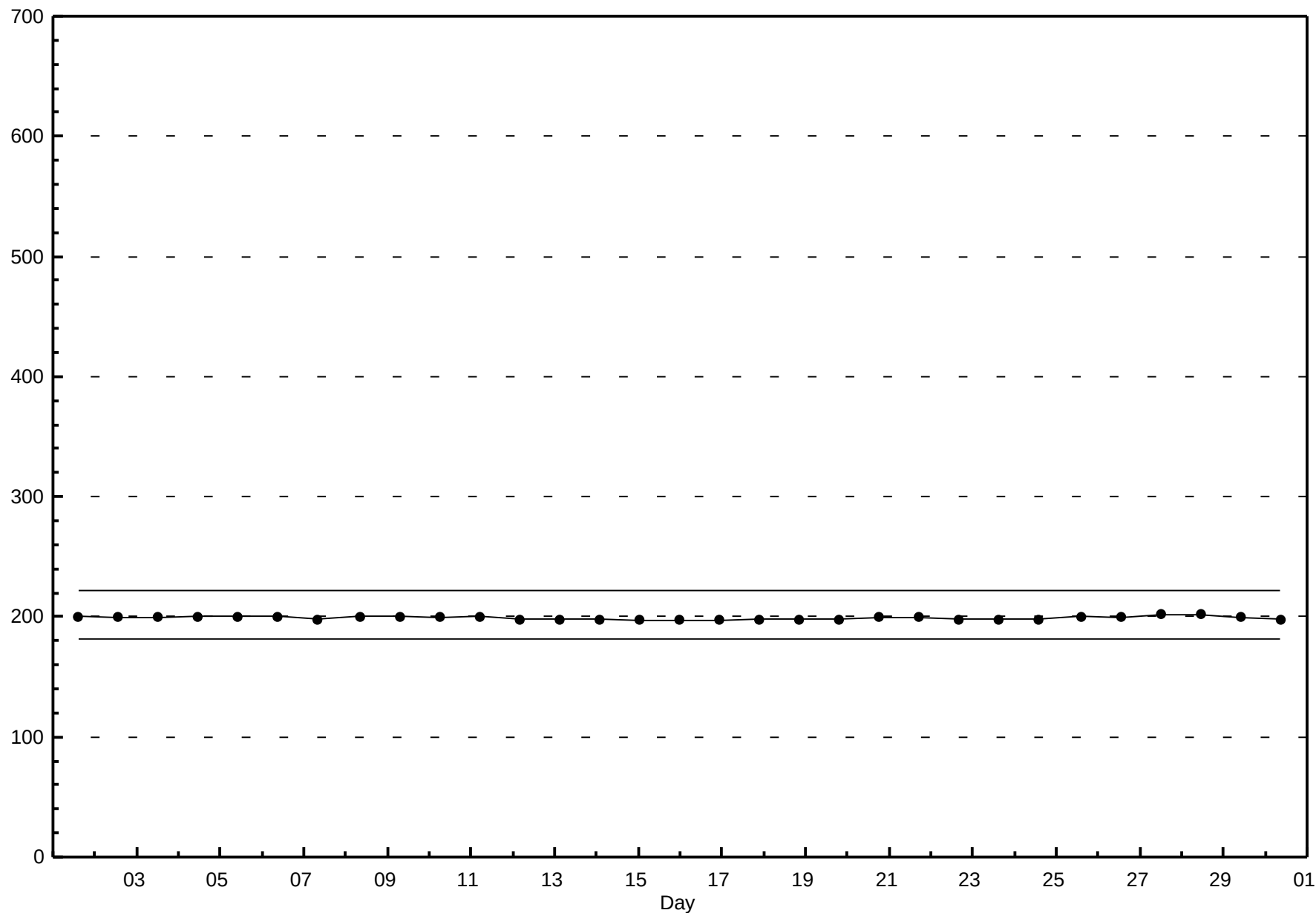
Oxides of Nitrogen (NO<sub>x</sub>) - ppb  
Portable-Bonanza - April 2011





## Span Responses

Oxides of Nitrogen ( $\text{NO}_x$ )  
Portable-Bonanza - April 2011



## Hourly Averages

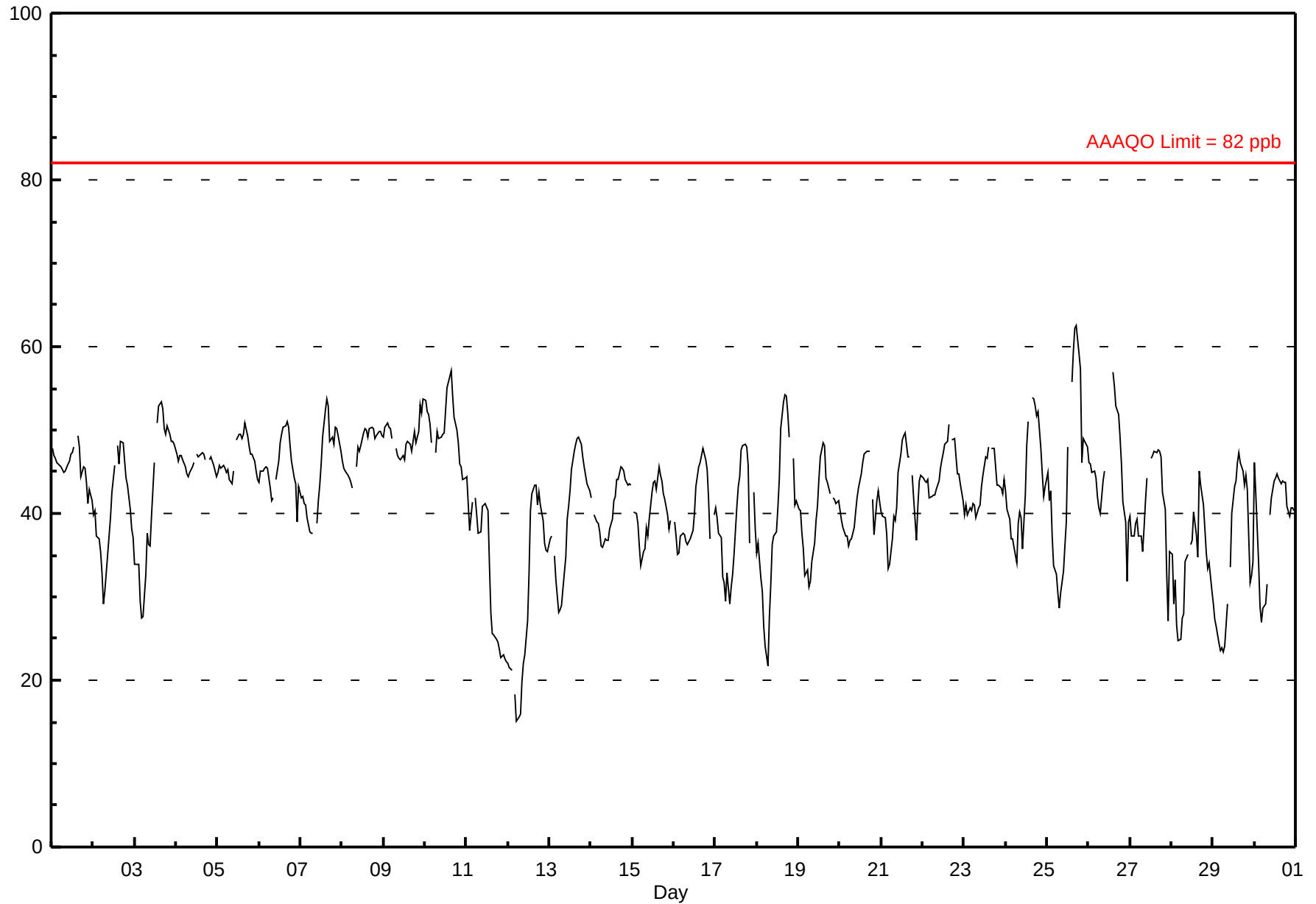
Ozone (O<sub>3</sub>) - ppb

Portable-Bonanza - April 2011

|                                                                                                                                                                                                                                                                                                                                                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 62.5 ppb on Apr 25 18:00 Maximum Daily Average: 50.3 ppb on Apr 10                                                                                                                                                                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 685<br>Hours of Missing Data: 35<br>Hours of Calibration: 34<br>Percent Operational Time: 99.9 |               |               |
| Minimum Value: 15 ppb on Apr 12 06:00 Minimum Daily Average: 30.2 ppb on Apr 12<br>Maximum Diurnal Average: 48.1 ppb at hour 17 Minimum Diurnal Average: 35.3 ppb at hour 7<br>Monthly Average: 41.84 ppb Percentiles: P <sub>1</sub> = 21.4 P <sub>10</sub> = 31.9 Q <sub>1</sub> = 37.6 Median = 43.3 Q <sub>3</sub> = 46.9 P <sub>90</sub> = 49.6 P <sub>99</sub> = 57.0 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                                         | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                                                             | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                     |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                                       | 48                            | 47 | 47 | 46 | 46 | 46 | 45 | 45 | 45 | 46 | 46 | 47 | 47 | 48 | A  | 49 | 48 | 44 | 46 | 45 | 44 | 41 | 43 | 42                                                                                                                                     | 45.7          | 49.3          |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                                       | 40                            | 40 | 37 | 37 | 35 | 33 | 29 | 31 | 35 | 37 | 40 | 43 | 46 | A  | 48 | 46 | 49 | 48 | 46 | 44 | 43 | 41 | 38 | 37                                                                                                                                     | 40.2          | 48.7          |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                                       | 34                            | 34 | 34 | 29 | 27 | 28 | 33 | 38 | 36 | 36 | 40 | 46 | A  | 51 | 53 | 53 | 53 | 50 | 50 | 50 | 49 | 49 | 49 | 48                                                                                                                                     | 42.2          | 53.4          |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                                       | 47                            | 46 | 47 | 47 | 47 | 46 | 45 | 44 | 45 | 46 | 46 | A  | 47 | 47 | 47 | 47 | 47 | 46 | P  | 46 | 47 | 46 | 46 | 44                                                                                                                                     | 46.2          | 47.3          |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                                       | 45                            | 46 | 45 | 46 | 45 | 45 | 45 | 44 | 44 | 45 | A  | 49 | 50 | 49 | 49 | 50 | 51 | 49 | 48 | 47 | 47 | 46 | 45 | 44                                                                                                                                     | 46.7          | 50.8          |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                                       | 44                            | 45 | 45 | 45 | 46 | 45 | 43 | 42 | 42 | A  | 44 | 46 | 48 | 50 | 50 | 51 | 51 | 50 | 48 | 46 | 44 | 43 | 39 | 43                                                                                                                                     | 45.7          | 51.0          |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                                       | 42                            | 42 | 41 | 41 | 40 | 38 | 38 | 38 | A  | 39 | 41 | 43 | 46 | 49 | 52 | 54 | 53 | 49 | 49 | 48 | 50 | 50 | 49 | 47                                                                                                                                     | 45.2          | 53.8          |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                                       | 46                            | 45 | 45 | 44 | 44 | 44 | 43 | A  | 46 | 48 | 47 | 48 | 50 | 50 | 50 | 49 | 50 | 50 | 50 | 49 | 49 | 50 | 50 | 49                                                                                                                                     | 47.8          | 50.4          |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                                       | 49                            | 50 | 51 | 50 | 50 | 49 | A  | 48 | 47 | 47 | 46 | 47 | 46 | 48 | 49 | 48 | 47 | 49 | 50 | 48 | 50 | 53 | 52 | 54                                                                                                                                     | 49.1          | 53.8          |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                                      | 54                            | 52 | 52 | 51 | 48 | A  | 47 | 50 | 49 | 49 | 50 | 50 | 52 | 55 | 56 | 57 | 54 | 52 | 50 | 49 | 46 | 46 | 44 | 44                                                                                                                                     | 50.3          | 57.1          |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                                      | 44                            | 41 | 38 | 41 | A  | 42 | 40 | 38 | 38 | 41 | 41 | 41 | 40 | 34 | 28 | 26 | 25 | 25 | 25 | 24 | 23 | 23 | 23 | 22                                                                                                                                     | 33.2          | 44.5          |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                                      | 22                            | 22 | 21 | A  | 18 | 15 | 16 | 16 | 20 | 22 | 23 | 27 | 33 | 40 | 42 | 43 | 43 | 41 | 43 | 41 | 39 | 36 | 36 | 35                                                                                                                                     | 30.2          | 43.4          |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                                      | 37                            | 37 | A  | 35 | 32 | 28 | 29 | 29 | 31 | 35 | 39 | 41 | 43 | 45 | 47 | 48 | 49 | 49 | 48 | 47 | 46 | 45 | 44 | 43                                                                                                                                     | 40.3          | 49.1          |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                                      | 42                            | A  | 40 | 39 | 39 | 38 | 36 | 36 | 37 | 37 | 37 | 38 | 39 | 41 | 42 | 44 | 44 | 46 | 46 | 45 | 44 | 43 | 44 | 43                                                                                                                                     | 40.8          | 45.5          |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                                      | A                             | 40 | 40 | 39 | 36 | 34 | 35 | 36 | 38 | 37 | 39 | 43 | 44 | 44 | 43 | 46 | 45 | 44 | 42 | 42 | 40 | 38 | 39 | A                                                                                                                                      | 40.1          | 45.6          |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                                      | 39                            | 37 | 35 | 35 | 37 | 38 | 37 | 37 | 36 | 37 | 37 | 38 | 40 | 43 | 46 | 46 | 47 | 48 | 46 | 45 | 42 | 37 | A  | 40                                                                                                                                     | 40.2          | 47.8          |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                                      | 41                            | 40 | 38 | 37 | 32 | 32 | 30 | 33 | 29 | 31 | 33 | 35 | 41 | 43 | 44 | 48 | 48 | 48 | 48 | 46 | 36 | A  | 43 | 38                                                                                                                                     | 38.8          | 48.3          |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                                      | 35                            | 36 | 32 | 31 | 26 | 24 | 22 | 28 | 31 | 36 | 37 | 38 | 41 | 44 | 50 | 53 | 54 | 54 | 52 | 49 | A  | 47 | 41 | 41                                                                                                                                     | 39.3          | 54.2          |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                                      | 40                            | 40 | 38 | 36 | 33 | 33 | 31 | 32 | 34 | 36 | 39 | 41 | 44 | 47 | 48 | 48 | 44 | 44 | 42 | A  | 42 | 42 | 41 | 42                                                                                                                                     | 39.9          | 48.4          |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                                      | 40                            | 39 | 38 | 37 | 37 | 36 | 37 | 37 | 38 | 40 | 42 | 43 | 45 | 46 | 47 | 47 | 47 | 47 | A  | 42 | 38 | 42 | 43 | 41                                                                                                                                     | 41.3          | 47.4          |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                                      | 40                            | 40 | 39 | 37 | 33 | 34 | 37 | 40 | 39 | 41 | 45 | 47 | 49 | 49 | 50 | 47 | 47 | A  | 45 | 42 | 37 | 41 | 44 | 45                                                                                                                                     | 42.0          | 49.7          |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                                      | 44                            | 44 | 44 | 44 | 42 | 42 | 42 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 51 | A  | 49 | 49 | 47 | 45 | 45 | 44 | 42                                                                                                                                     | 45.1          | 50.7          |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                                      | 40                            | 41 | 40 | 41 | 40 | 41 | 41 | 39 | 41 | 41 | 43 | 45 | 47 | 47 | 48 | A  | 48 | 48 | 46 | 43 | 43 | 43 | 42 | 44                                                                                                                                     | 43.1          | 48.0          |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                                      | 43                            | 41 | 39 | 37 | 37 | 36 | 34 | 39 | 40 | 40 | 36 | 42 | 48 | 51 | A  | 54 | 54 | 53 | 52 | 52 | 48 | 45 | 42 | 43                                                                                                                                     | 43.7          | 53.9          |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                                      | 45                            | 42 | 43 | 37 | 34 | 33 | 30 | 29 | 31 | 33 | 36 | 39 | 48 | A  | 56 | 59 | 62 | 63 | 59 | 57 | 46 | 49 | 49 | 48                                                                                                                                     | 44.7          | 62.5          |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                                      | 46                            | 46 | 45 | 45 | 44 | 42 | 41 | 40 | 44 | 45 | C  | C  | C  | C  | 57 | 55 | 53 | 52 | 49 | 46 | 41 | 39 | 32 | 39                                                                                                                                     | 45.1          | 57.0          |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                                      | 40                            | 37 | 37 | 39 | 39 | 37 | 37 | 35 | 38 | 41 | 44 | A  | 47 | 47 | 47 | 47 | 48 | 48 | 47 | 42 | 41 | 33 | 27 | 35                                                                                                                                     | 40.7          | 47.7          |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                                      | 35                            | 29 | 32 | 27 | 25 | 25 | 28 | 28 | 34 | 35 | A  | 36 | 37 | 40 | 37 | 35 | 45 | 43 | 41 | 38 | 35 | 33 | 34 | 31                                                                                                                                     | 34.1          | 45.1          |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                                      | 29                            | 27 | 27 | 24 | 24 | 24 | 23 | 24 | 29 | A  | 34 | 40 | 43 | 44 | 46 | 47 | 46 | 45 | 43 | 44 | 43 | 32 | 33 | 34                                                                                                                                     | 35.0          | 47.3          |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                                      | 46                            | 42 | 34 | 29 | 27 | 29 | 29 | 32 | A  | 40 | 42 | 44 | 44 | 45 | 44 | 44 | 44 | 44 | 44 | 41 | 40 | 41 | 41 | 40                                                                                                                                     | 39.3          | 46.1          |
| 41.3 40.3 39.4 38.9 36.7 35.7 35.3 36.1 37.9 39.5 40.5 42.3 44.7 46.2 47.4 48.0 48.1 47.5 46.5 45.1 42.7 42.0 41.2 41.4                                                                                                                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                        |               |               |
| 53.6 52.1 51.9 50.7 50.2 49.0 47.3 49.8 49.0 49.2 49.5 49.7 52.4 55.0 57.0 59.5 62.2 62.5 59.2 57.3 50.3 53.0 52.0 53.8                                                                                                                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                        |               |               |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                                                                                                                                                                                                                                                                                             |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 82 ppb 24-hr na                                                                                                                                                                                                                                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |

## Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Portable-Bonanza - April 2011



## Hourly Maximums

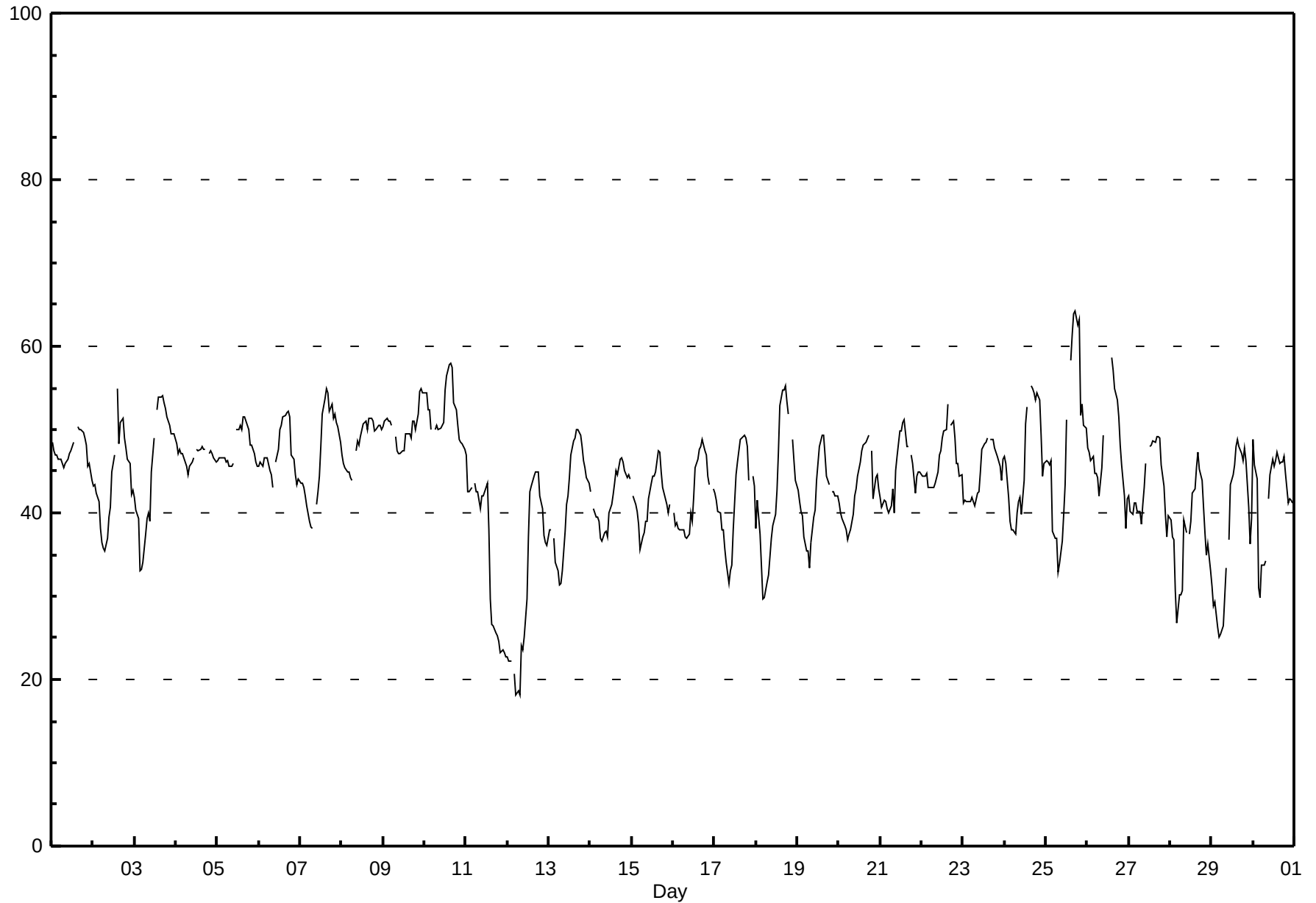
Ozone (O<sub>3</sub>) - ppb

Portable-Bonanza - April 2011

| Maximum Value: 64.2 ppb on Apr 25 18:00                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 52.1 ppb on Apr 10                                                                                                                         |    |    |    |    | Hours in Service: 720          |                 |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|--------------------------------|-----------------|
| Minimum Value: 18 ppb on Apr 12 08:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 32.2 ppb on Apr 12                                                                                                                         |    |    |    |    | Hours of Data: 685             |                 |
| Maximum Diurnal Average: 49.7 ppb at hour 16                                                                            |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 38.1 ppb at hour 8                                                                                                                       |    |    |    |    | Hours of Missing Data: 35      |                 |
| Monthly Average: 43.93 ppb                                                                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 22.3 P <sub>10</sub> = 35.8 Q <sub>1</sub> = 40.1 Median = 45.0 Q <sub>3</sub> = 48.4 P <sub>90</sub> = 51.4 P <sub>99</sub> = 58.1 |    |    |    |    | Hours of Calibration: 34       |                 |
|                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Percent Operational Time: 99.9 |                 |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Daily Average                  | Daily Maximum   |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                                | 21 | 22 | 23 | 24 |                                |                 |
| 1-Apr                                                                                                                   | 48                            | 47 | 47 | 47 | 46 | 46 | 46 | 45 | 46 | 46 | 47 | 47 | 48 | 48 | A  | 50 | 50 | 50 | 50 | 49                                                                                                                                                                | 48 | 46 | 46 | 44 | 47.4                           | 50.4            |
| 2-Apr                                                                                                                   | 43                            | 43 | 42 | 41 | 38 | 37 | 36 | 36 | 37 | 39 | 41 | 45 | 47 | A  | 55 | 48 | 51 | 51 | 49 | 48                                                                                                                                                                | 46 | 46 | 42 | 43 | 43.7                           | 54.9            |
| 3-Apr                                                                                                                   | 42                            | 40 | 39 | 33 | 33 | 34 | 37 | 39 | 40 | 39 | 45 | 49 | A  | 52 | 54 | 54 | 54 | 53 | 52 | 51                                                                                                                                                                | 50 | 50 | 49 | 50 | 45.3                           | 54.1            |
| 4-Apr                                                                                                                   | 48                            | 47 | 48 | 47 | 47 | 46 | 46 | 45 | 46 | 46 | 47 | A  | 48 | 48 | 48 | 48 | 48 | 48 | P  | 47                                                                                                                                                                | 47 | 47 | 47 | 46 | 46.9                           | 48.2            |
| 5-Apr                                                                                                                   | 46                            | 47 | 47 | 47 | 47 | 46 | 46 | 46 | 46 | 46 | A  | 50 | 50 | 51 | 50 | 52 | 52 | 51 | 50 | 48                                                                                                                                                                | 48 | 47 | 46 | 46 | 47.9                           | 51.5            |
| 6-Apr                                                                                                                   | 46                            | 46 | 46 | 47 | 47 | 47 | 45 | 45 | 43 | A  | 46 | 48 | 50 | 51 | 52 | 52 | 52 | 52 | 51 | 47                                                                                                                                                                | 46 | 45 | 43 | 44 | 47.3                           | 52.2            |
| 7-Apr                                                                                                                   | 43                            | 43 | 43 | 42 | 41 | 39 | 38 | 38 | A  | 41 | 43 | 44 | 48 | 52 | 54 | 55 | 54 | 52 | 53 | 51                                                                                                                                                                | 52 | 51 | 50 | 48 | 46.9                           | 54.9            |
| 8-Apr                                                                                                                   | 47                            | 46 | 45 | 45 | 45 | 44 | 44 | A  | 47 | 49 | 48 | 49 | 51 | 51 | 51 | 50 | 51 | 51 | 51 | 50                                                                                                                                                                | 50 | 50 | 50 | 50 | 48.6                           | 51.4            |
| 9-Apr                                                                                                                   | 50                            | 51 | 51 | 51 | 51 | 50 | A  | 49 | 47 | 47 | 47 | 47 | 49 | 49 | 49 | 49 | 49 | 51 | 51 | 50                                                                                                                                                                | 52 | 55 | 55 | 54 | 50.3                           | 54.9            |
| 10-Apr                                                                                                                  | 54                            | 54 | 52 | 52 | 50 | A  | 50 | 50 | 50 | 50 | 50 | 51 | 55 | 56 | 58 | 58 | 57 | 53 | 52 | 50                                                                                                                                                                | 49 | 48 | 48 | 48 | 52.1                           | 57.9            |
| 11-Apr                                                                                                                  | 47                            | 43 | 43 | 43 | A  | 44 | 42 | 43 | 41 | 42 | 42 | 42 | 43 | 38 | 30 | 27 | 26 | 26 | 25 | 25                                                                                                                                                                | 23 | 24 | 23 | 23 | 34.9                           | 47.0            |
| 12-Apr                                                                                                                  | 23                            | 22 | 22 | A  | 21 | 18 | 19 | 18 | 24 | 24 | 25 | 30 | 37 | 42 | 43 | 44 | 45 | 45 | 45 | 42                                                                                                                                                                | 41 | 37 | 36 | 36 | 32.2                           | 45.0            |
| 13-Apr                                                                                                                  | 38                            | 38 | A  | 37 | 34 | 33 | 31 | 32 | 33 | 38 | 41 | 42 | 44 | 47 | 49 | 49 | 50 | 50 | 49 | 48                                                                                                                                                                | 46 | 45 | 44 | 44 | 41.9                           | 50.0            |
| 14-Apr                                                                                                                  | 43                            | A  | 41 | 40 | 40 | 39 | 37 | 37 | 38 | 38 | 37 | 40 | 41 | 42 | 44 | 45 | 45 | 46 | 47 | 46                                                                                                                                                                | 45 | 44 | 45 | 44 | 41.8                           | 46.5            |
| 15-Apr                                                                                                                  | A                             | 42 | 41 | 40 | 39 | 36 | 37 | 38 | 39 | 39 | 42 | 44 | 44 | 44 | 45 | 47 | 47 | 45 | 43 | 42                                                                                                                                                                | 41 | 40 | 41 | A  | 41.7                           | 47.4            |
| 16-Apr                                                                                                                  | 40                            | 38 | 39 | 38 | 38 | 38 | 38 | 37 | 37 | 37 | 40 | 39 | 42 | 45 | 46 | 48 | 48 | 49 | 47 | 47                                                                                                                                                                | 44 | 43 | A  | 43 | 41.9                           | 48.9            |
| 17-Apr                                                                                                                  | 42                            | 41 | 40 | 40 | 38 | 38 | 36 | 34 | 32 | 33 | 34 | 38 | 45 | 46 | 47 | 49 | 49 | 49 | 49 | 48                                                                                                                                                                | 44 | A  | 44 | 43 | 41.7                           | 49.3            |
| 18-Apr                                                                                                                  | 38                            | 42 | 37 | 34 | 30 | 30 | 32 | 32 | 35 | 37 | 38 | 40 | 43 | 47 | 53 | 55 | 55 | 55 | 53 | 52                                                                                                                                                                | A  | 49 | 46 | 44 | 42.4                           | 55.3            |
| 19-Apr                                                                                                                  | 43                            | 41 | 40 | 40 | 37 | 35 | 35 | 33 | 36 | 39 | 40 | 44 | 46 | 48 | 49 | 49 | 47 | 44 | 43 | A                                                                                                                                                                 | 42 | 42 | 42 | 42 | 41.8                           | 49.4            |
| 20-Apr                                                                                                                  | 41                            | 40 | 39 | 38 | 38 | 37 | 37 | 38 | 40 | 42 | 43 | 44 | 46 | 47 | 48 | 48 | 48 | 49 | A  | 47                                                                                                                                                                | 42 | 44 | 45 | 43 | 42.9                           | 49.3            |
| 21-Apr                                                                                                                  | 42                            | 41 | 41 | 41 | 40 | 40 | 41 | 43 | 40 | 45 | 47 | 50 | 50 | 51 | 51 | 48 | 48 | A  | 47 | 46                                                                                                                                                                | 42 | 44 | 45 | 45 | 44.7                           | 51.2            |
| 22-Apr                                                                                                                  | 44                            | 44 | 44 | 45 | 43 | 43 | 43 | 43 | 44 | 45 | 47 | 47 | 49 | 50 | 50 | 53 | A  | 50 | 51 | 49                                                                                                                                                                | 46 | 46 | 44 | 45 | 46.3                           | 53.1            |
| 23-Apr                                                                                                                  | 41                            | 41 | 41 | 41 | 41 | 42 | 41 | 41 | 42 | 43 | 45 | 48 | 48 | 49 | 49 | A  | 49 | 49 | 48 | 47                                                                                                                                                                | 47 | 46 | 44 | 46 | 44.8                           | 49.0            |
| 24-Apr                                                                                                                  | 47                            | 46 | 42 | 39 | 38 | 38 | 37 | 40 | 41 | 42 | 40 | 44 | 51 | 53 | A  | 55 | 55 | 54 | 54 | 54                                                                                                                                                                | 54 | 49 | 44 | 46 | 46.2                           | 55.2            |
| 25-Apr                                                                                                                  | 46                            | 46 | 46 | 46 | 38 | 37 | 37 | 33 | 34 | 37 | 40 | 43 | 51 | A  | 58 | 61 | 64 | 64 | 63 | 63                                                                                                                                                                | 52 | 53 | 50 | 50 | 48.4                           | 64.2            |
| 26-Apr                                                                                                                  | 48                            | 47 | 46 | 47 | 45 | 45 | 44 | 42 | 45 | 49 | C  | C  | C  | C  | 59 | 57 | 55 | 54 | 52 | 48                                                                                                                                                                | 46 | 42 | 38 | 42 | 47.5                           | 58.6            |
| 27-Apr                                                                                                                  | 42                            | 40 | 40 | 41 | 41 | 40 | 40 | 39 | 41 | 43 | 46 | A  | 48 | 48 | 49 | 49 | 49 | 49 | 49 | 46                                                                                                                                                                | 43 | 40 | 37 | 40 | 43.5                           | 49.2            |
| 28-Apr                                                                                                                  | 39                            | 37 | 37 | 31 | 27 | 30 | 30 | 31 | 39 | 38 | A  | 37 | 39 | 42 | 43 | 45 | 47 | 45 | 44 | 41                                                                                                                                                                | 38 | 35 | 36 | 33 | 37.6                           | 47.2            |
| 29-Apr                                                                                                                  | 31                            | 29 | 29 | 26 | 25 | 25 | 26 | 26 | 33 | A  | 37 | 43 | 45 | 46 | 48 | 49 | 48 | 47 | 46 | 48                                                                                                                                                                | 46 | 41 | 36 | 39 | 37.8                           | 48.8            |
| 30-Apr                                                                                                                  | 49                            | 46 | 44 | 31 | 30 | 34 | 34 | 34 | A  | 42 | 45 | 46 | 46 | 46 | 47 | 46 | 46 | 46 | 47 | 45                                                                                                                                                                | 41 | 42 | 42 | 41 | 42.1                           | 48.8            |
| 43.2 42.4 41.9 41.0 38.8 38.3 38.2 38.1 39.9 41.3 42.3 44.2 46.5 47.8 49.2 49.7 49.6 49.3 48.6 47.5 45.3 44.5 43.5 43.5 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    | Diurnal Average                | Diurnal Maximum |
| 54.4 54.4 52.4 52.4 50.9 50.4 50.0 50.4 50.0 50.1 50.4 50.8 54.8 56.4 58.6 61.3 63.9 64.2 62.6 63.2 53.6 54.6 54.9 54.4 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    |                                |                 |
| C - Calibration P - Power Failure A - Automated Daily Zero Span                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |    |    |    |    |                                |                 |

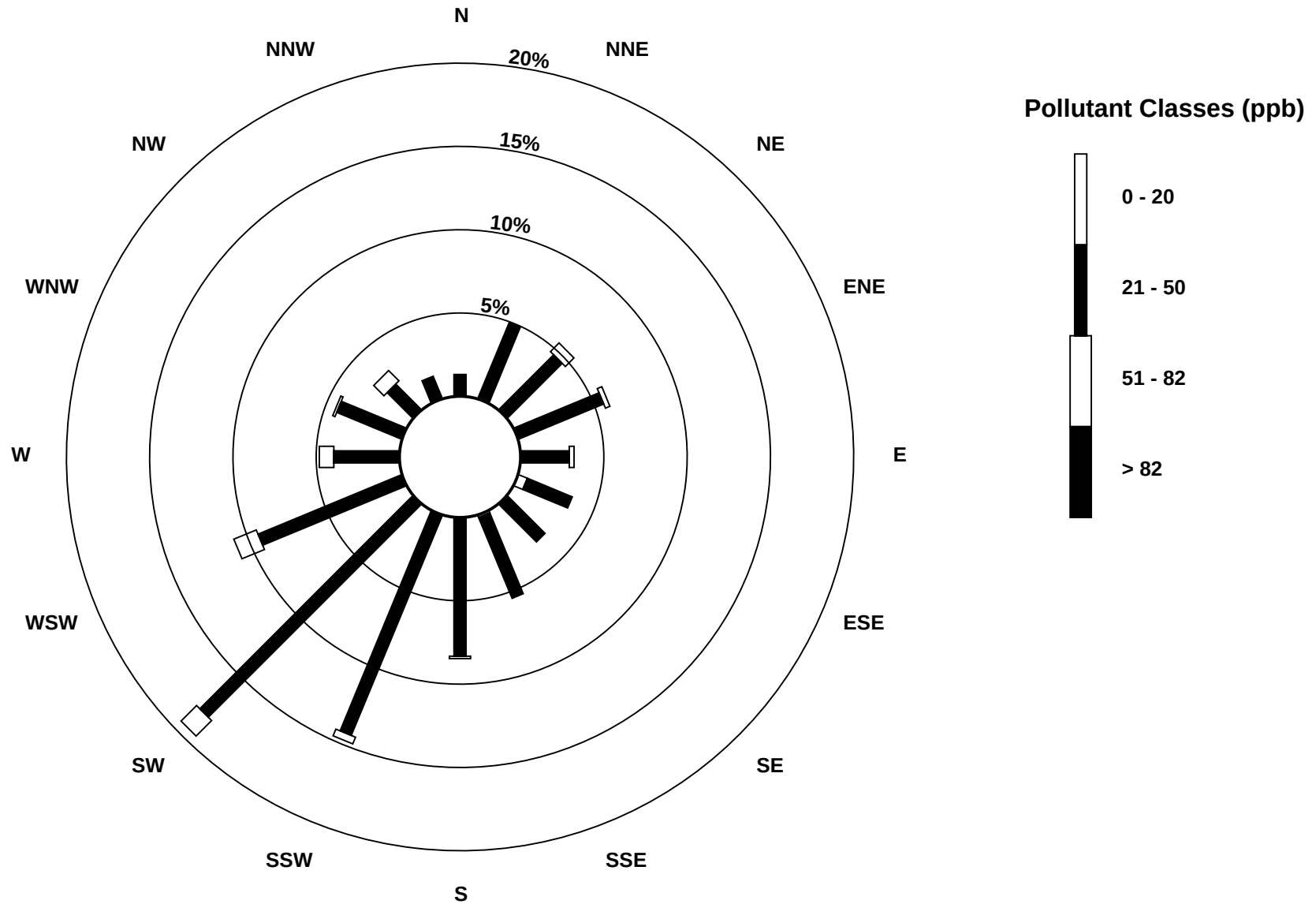
## Hourly Maximums

Ozone (O<sub>3</sub>) - ppb  
Portable-Bonanza - April 2011



# Pollutant Rose

Ozone (O<sub>3</sub>) - ppb  
Portable-Bonanza - April 2011



# Eight Hour Running Averages

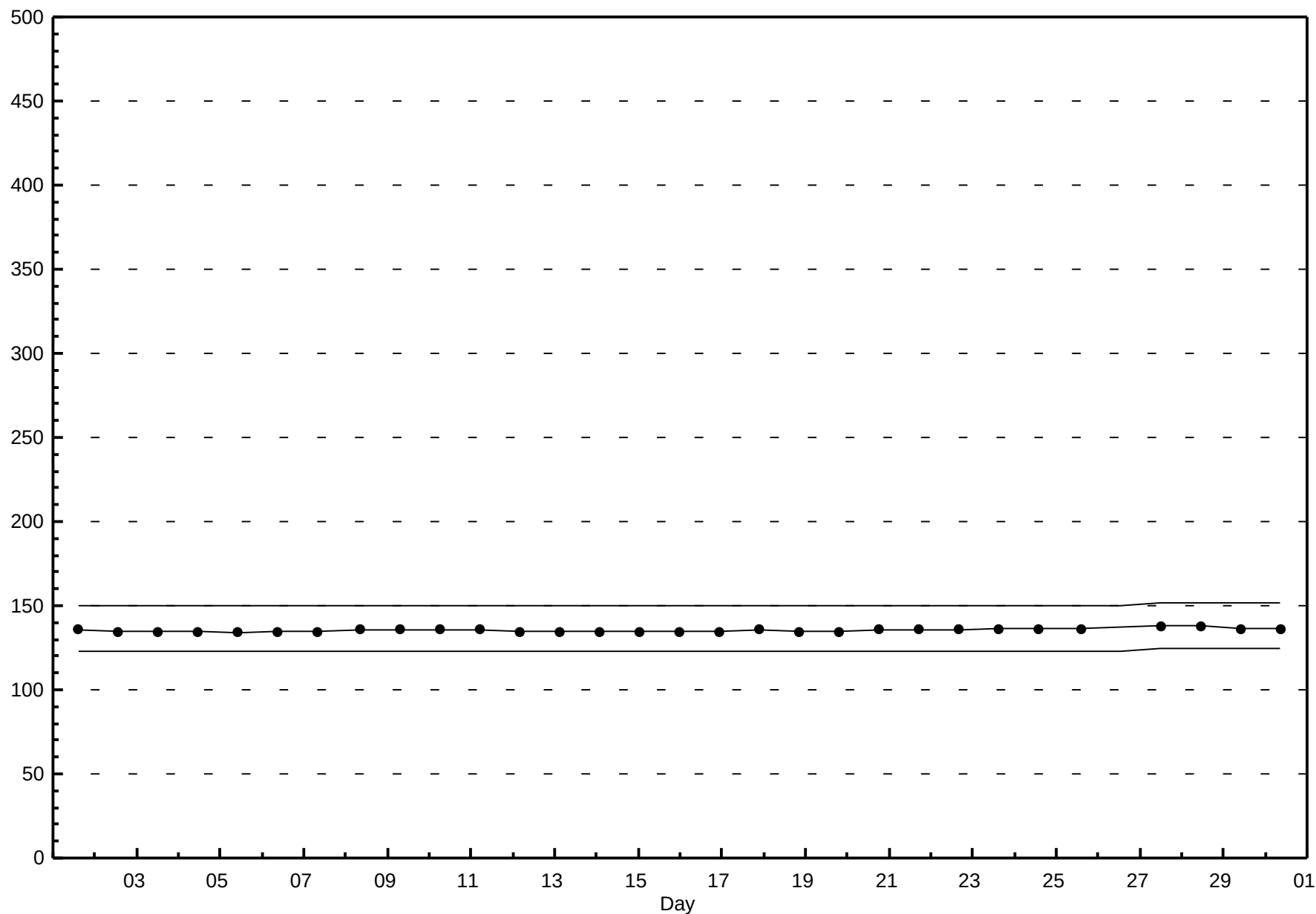
Ozone (O<sub>3</sub>) - ppb

Portable-Bonanza - April 2011

| Maximum Value: 57.8 ppb on Apr 25 20:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720           |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------|---------------|
| Minimum Value: 18.2 ppb on Apr 12 09:00                                                                                                                           |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 713              |               |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 7        |               |
| Percentiles: P <sub>1</sub> = 21.4 P <sub>10</sub> = 33.3 Q <sub>1</sub> = 38.1 Median = 43.1 Q <sub>3</sub> = 46.5 P <sub>90</sub> = 49.3 P <sub>99</sub> = 52.8 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 7         |               |
|                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 100.0 |               |
| Day                                                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 | Daily Maximum |
|                                                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                              |               |
| 1-Apr                                                                                                                                                             | 48                            | 48 | 48 | 48 | 47 | 47 | 47 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 | 46 | 45 | 45 | 44                              | 48.4          |
| 2-Apr                                                                                                                                                             | 43                            | 43 | 42 | 40 | 39 | 38 | 37 | 35 | 35 | 34 | 35 | 35 | 37 | 37 | 40 | 42 | 44 | 46 | 47 | 47 | 46 | 46 | 44 | 43                              | 46.8          |
| 3-Apr                                                                                                                                                             | 42                            | 40 | 38 | 36 | 34 | 33 | 32 | 32 | 32 | 33 | 33 | 35 | 37 | 40 | 43 | 45 | 47 | 49 | 51 | 51 | 51 | 51 | 50 | 50                              | 51.4          |
| 4-Apr                                                                                                                                                             | 49                            | 49 | 48 | 48 | 47 | 47 | 47 | 46 | 46 | 46 | 46 | 45 | 45 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 46                              | 49.0          |
| 5-Apr                                                                                                                                                             | 46                            | 46 | 46 | 46 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 46 | 47 | 47 | 48 | 49 | 49 | 49 | 49 | 49 | 48 | 48 | 47                              | 49.5          |
| 6-Apr                                                                                                                                                             | 46                            | 46 | 45 | 45 | 45 | 45 | 45 | 44 | 44 | 44 | 44 | 44 | 44 | 45 | 46 | 47 | 49 | 49 | 49 | 49 | 49 | 48 | 47 | 46                              | 49.3          |
| 7-Apr                                                                                                                                                             | 45                            | 44 | 43 | 42 | 41 | 41 | 41 | 40 | 40 | 39 | 39 | 39 | 40 | 42 | 44 | 46 | 47 | 48 | 49 | 50 | 51 | 51 | 50 | 50                              | 50.7          |
| 8-Apr                                                                                                                                                             | 49                            | 48 | 48 | 47 | 47 | 46 | 45 | 45 | 45 | 45 | 46 | 47 | 47 | 47 | 48 | 49 | 49 | 49 | 50 | 50 | 50 | 50 | 50 | 50                              | 49.8          |
| 9-Apr                                                                                                                                                             | 50                            | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 49 | 49 | 48 | 48 | 47 | 47 | 47 | 47 | 48 | 48 | 48 | 48 | 49 | 49 | 50 | 50                              | 50.4          |
| 10-Apr                                                                                                                                                            | 51                            | 52 | 52 | 52 | 52 | 52 | 51 | 51 | 50 | 49 | 49 | 49 | 50 | 50 | 51 | 52 | 53 | 53 | 53 | 53 | 52 | 51 | 50 | 48                              | 53.3          |
| 11-Apr                                                                                                                                                            | 47                            | 45 | 44 | 43 | 43 | 42 | 42 | 41 | 40 | 40 | 40 | 40 | 40 | 39 | 38 | 36 | 35 | 33 | 31 | 28 | 26 | 25 | 24 | 24                              | 46.8          |
| 12-Apr                                                                                                                                                            | 23                            | 23 | 22 | 22 | 22 | 20 | 19 | 19 | 18 | 18 | 19 | 20 | 21 | 25 | 28 | 31 | 34 | 37 | 39 | 41 | 42 | 41 | 40 | 39                              | 41.6          |
| 13-Apr                                                                                                                                                            | 38                            | 38 | 37 | 37 | 36 | 34 | 33 | 32 | 32 | 31 | 32 | 33 | 34 | 36 | 39 | 41 | 43 | 45 | 46 | 47 | 47 | 47 | 47 | 46                              | 47.5          |
| 14-Apr                                                                                                                                                            | 45                            | 45 | 44 | 42 | 41 | 41 | 39 | 38 | 38 | 38 | 37 | 37 | 37 | 38 | 38 | 39 | 40 | 41 | 43 | 43 | 44 | 44 | 44 | 44                              | 45.3          |
| 15-Apr                                                                                                                                                            | 44                            | 44 | 43 | 42 | 41 | 39 | 38 | 37 | 37 | 37 | 37 | 37 | 38 | 40 | 40 | 42 | 42 | 43 | 44 | 44 | 43 | 42 | 42 | 41                              | 44.4          |
| 16-Apr                                                                                                                                                            | 41                            | 40 | 39 | 38 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 38 | 39 | 40 | 42 | 43 | 44 | 45 | 45 | 45 | 44 | 44                              | 45.4          |
| 17-Apr                                                                                                                                                            | 43                            | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 32 | 33 | 34 | 36 | 38 | 40 | 43 | 44 | 46 | 45 | 46 | 45 | 44                              | 45.8          |
| 18-Apr                                                                                                                                                            | 42                            | 40 | 38 | 36 | 35 | 33 | 31 | 29 | 29 | 29 | 30 | 32 | 35 | 38 | 41 | 44 | 46 | 48 | 50 | 51 | 51 | 50 | 48 | 48                              | 51.4          |
| 19-Apr                                                                                                                                                            | 46                            | 44 | 42 | 40 | 39 | 38 | 37 | 35 | 35 | 34 | 34 | 35 | 36 | 38 | 40 | 42 | 43 | 44 | 45 | 45 | 45 | 44 | 43 | 42                              | 46.4          |
| 20-Apr                                                                                                                                                            | 42                            | 41 | 41 | 40 | 40 | 39 | 38 | 38 | 38 | 38 | 38 | 39 | 40 | 41 | 42 | 44 | 45 | 46 | 46 | 46 | 45 | 44 | 44 | 43                              | 46.1          |
| 21-Apr                                                                                                                                                            | 42                            | 41 | 41 | 40 | 39 | 39 | 38 | 38 | 37 | 38 | 38 | 40 | 41 | 43 | 45 | 46 | 47 | 48 | 48 | 47 | 45 | 44 | 43 | 43                              | 47.6          |
| 22-Apr                                                                                                                                                            | 42                            | 43 | 42 | 43 | 43 | 44 | 43 | 43 | 43 | 43 | 43 | 43 | 44 | 45 | 46 | 47 | 47 | 48 | 48 | 49 | 48 | 48 | 47 | 46                              | 48.5          |
| 23-Apr                                                                                                                                                            | 45                            | 44 | 43 | 42 | 41 | 41 | 41 | 40 | 41 | 41 | 41 | 41 | 42 | 43 | 44 | 44 | 45 | 46 | 47 | 47 | 46 | 46 | 45 | 45                              | 46.7          |
| 24-Apr                                                                                                                                                            | 44                            | 43 | 42 | 42 | 41 | 40 | 39 | 38 | 38 | 38 | 37 | 38 | 39 | 41 | 42 | 44 | 46 | 48 | 51 | 52 | 52 | 51 | 50 | 49                              | 51.9          |
| 25-Apr                                                                                                                                                            | 47                            | 46 | 45 | 43 | 41 | 40 | 38 | 37 | 35 | 34 | 33 | 33 | 35 | 35 | 39 | 43 | 48 | 52 | 55 | 58 | 57 | 56 | 56 | 54                              | 57.8          |
| 26-Apr                                                                                                                                                            | 52                            | 50 | 48 | 47 | 46 | 46 | 45 | 44 | 43 | 43 | 43 | 43 | N  | N  | N  | N  | N  | N  | N  | 52 | 50 | 49 | 46 | 44                              | 52.1          |
| 27-Apr                                                                                                                                                            | 42                            | 40 | 39 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 39 | 39 | 40 | 41 | 43 | 45 | 46 | 47 | 47 | 47 | 46 | 44 | 42 | 40                              | 47.2          |
| 28-Apr                                                                                                                                                            | 38                            | 36 | 34 | 32 | 30 | 29 | 29 | 29 | 28 | 29 | 29 | 30 | 32 | 34 | 35 | 36 | 38 | 39 | 39 | 40 | 39 | 39 | 38 | 38                              | 39.6          |
| 29-Apr                                                                                                                                                            | 36                            | 34 | 32 | 30 | 29 | 27 | 26 | 25 | 25 | 25 | 26 | 28 | 31 | 34 | 37 | 40 | 43 | 43 | 44 | 45 | 45 | 43 | 42 | 40                              | 45.0          |
| 30-Apr                                                                                                                                                            | 40                            | 40 | 39 | 37 | 35 | 34 | 34 | 33 | 32 | 31 | 32 | 35 | 37 | 39 | 41 | 43 | 43 | 44 | 44 | 44 | 43 | 43 | 42 | 42                              | 44.0          |
| Diurnal Maximums                                                                                                                                                  |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |               |
| N - Not Valid                                                                                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                 |               |

## Span Responses

Ozone (O<sub>3</sub>)  
Portable-Bonanza - April 2011





# Hourly Averages

External Temperature (ET) - °C

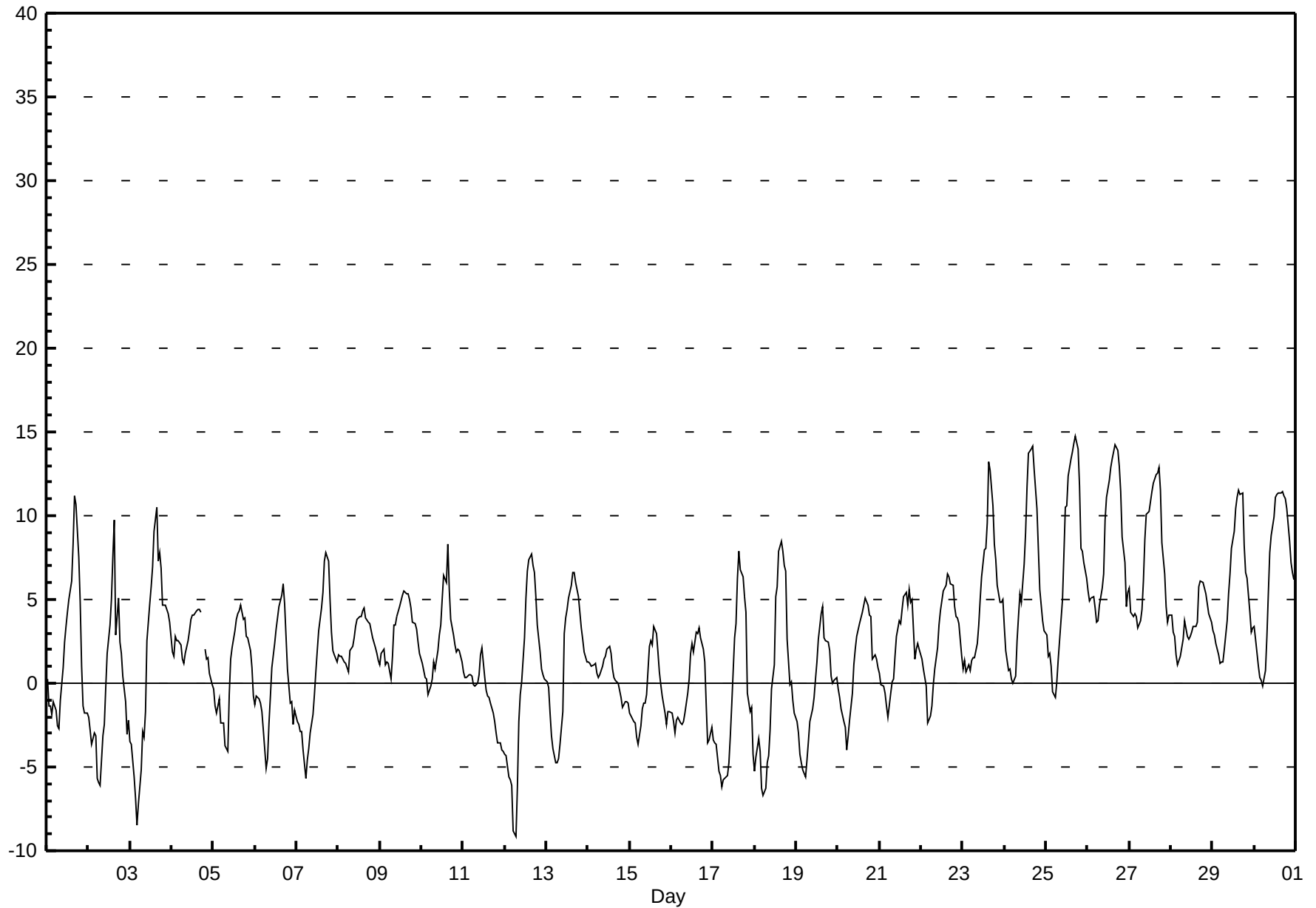
Portable-Bonanza - April 2011

|                                                                                                                                   |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 14.7 °C on Apr 25 18:00 Maximum Daily Average: 8.4 °C on Apr 26 |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 719<br>Hours of Missing Data: 1<br>Hours of Calibration: 0<br>Percent Operational Time: 99.9 |    |    |    |    |               |               |
| Minimum Value: -9 °C on Apr 12 07:00<br>Maximum Diurnal Average: 7.2 °C at hour 16<br>Monthly Average: 2.36 °C                    |                               |    |    |    |    |    |    |    |    | Minimum Daily Average: -0.8 °C on Apr 17<br>Minimum Diurnal Average: -1.9 °C at hour 6<br>Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -3.1 Q <sub>1</sub> = -0.7 Median = 2.1 Q <sub>3</sub> = 4.8 P <sub>90</sub> = 8.1 P <sub>99</sub> = 13.8 |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |
| Day                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    | Daily Average | Daily Maximum |
|                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10                                                                                                                                                                                                                                                       | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                   | 21 | 22 | 23 | 24 |               |               |
| 1-Apr                                                                                                                             | 0                             | -1 | -1 | -2 | -1 | -2 | -3 | -3 | -1 | 1                                                                                                                                                                                                                                                        | 2  | 3  | 4  | 5  | 6  | 8  | 11 | 11 | 8  | 5                                                                                                                                    | 1  | -1 | -2 | -2 | 2.0           | 11.2          |
| 2-Apr                                                                                                                             | -2                            | -3 | -4 | -3 | -3 | -6 | -6 | -6 | -3 | -2                                                                                                                                                                                                                                                       | 0  | 2  | 3  | 5  | 8  | 10 | 3  | 5  | 2  | 2                                                                                                                                    | 0  | -1 | -3 | -2 | -0.2          | 9.7           |
| 3-Apr                                                                                                                             | -3                            | -4 | -6 | -7 | -8 | -7 | -5 | -3 | -3 | -2                                                                                                                                                                                                                                                       | 3  | 5  | 6  | 7  | 9  | 10 | 7  | 8  | 7  | 5                                                                                                                                    | 5  | 4  | 4  | 4  | 1.5           | 10.5          |
| 4-Apr                                                                                                                             | 2                             | 2  | 3  | 3  | 3  | 2  | 1  | 1  | 2  | 3                                                                                                                                                                                                                                                        | 3  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | P  | 2                                                                                                                                    | 1  | 2  | 1  | 0  | 2.5           | 4.4           |
| 5-Apr                                                                                                                             | 0                             | -1 | -2 | -1 | -2 | -2 | -2 | -4 | -4 | -1                                                                                                                                                                                                                                                       | 1  | 2  | 3  | 4  | 4  | 4  | 5  | 4  | 4  | 3                                                                                                                                    | 3  | 2  | 1  | -1 | 0.8           | 4.6           |
| 6-Apr                                                                                                                             | -1                            | -1 | -1 | -1 | -2 | -3 | -5 | -4 | -2 | -1                                                                                                                                                                                                                                                       | 1  | 2  | 3  | 4  | 5  | 5  | 6  | 5  | 3  | 1                                                                                                                                    | -1 | -1 | -2 | -2 | 0.3           | 5.9           |
| 7-Apr                                                                                                                             | -2                            | -2 | -3 | -3 | -4 | -6 | -5 | -4 | -3 | -2                                                                                                                                                                                                                                                       | -1 | 1  | 2  | 3  | 4  | 5  | 7  | 8  | 7  | 5                                                                                                                                    | 3  | 2  | 2  | 1  | 0.7           | 7.8           |
| 8-Apr                                                                                                                             | 2                             | 2  | 2  | 1  | 1  | 1  | 1  | 2  | 2  | 3                                                                                                                                                                                                                                                        | 3  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 3                                                                                                                                    | 3  | 2  | 2  | 1  | 2.6           | 4.5           |
| 9-Apr                                                                                                                             | 1                             | 2  | 2  | 1  | 1  | 1  | 0  | 2  | 3  | 3                                                                                                                                                                                                                                                        | 4  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 4                                                                                                                                    | 4  | 3  | 2  | 2  | 3.2           | 5.5           |
| 10-Apr                                                                                                                            | 1                             | 1  | 0  | 0  | -1 | 0  | 0  | 1  | 1  | 2                                                                                                                                                                                                                                                        | 3  | 4  | 5  | 6  | 6  | 8  | 6  | 4  | 3  | 2                                                                                                                                    | 2  | 2  | 2  | 1  | 2.5           | 8.3           |
| 11-Apr                                                                                                                            | 1                             | 0  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 1                                                                                                                                                                                                                                                        | 2  | 2  | 0  | 0  | -1 | -1 | -1 | -2 | -2 | -3                                                                                                                                   | -4 | -4 | -4 | -4 | -0.8          | 2.2           |
| 12-Apr                                                                                                                            | -4                            | -4 | -6 | -6 | -6 | -9 | -9 | -6 | -2 | -1                                                                                                                                                                                                                                                       | 0  | 3  | 5  | 7  | 7  | 8  | 7  | 7  | 5  | 3                                                                                                                                    | 2  | 1  | 1  | 0  | 0.1           | 7.7           |
| 13-Apr                                                                                                                            | 0                             | 0  | -2 | -3 | -4 | -5 | -5 | -4 | -4 | -2                                                                                                                                                                                                                                                       | 3  | 4  | 4  | 5  | 6  | 7  | 7  | 6  | 5  | 4                                                                                                                                    | 3  | 3  | 2  | 1  | 1.3           | 6.6           |
| 14-Apr                                                                                                                            | 1                             | 1  | 1  | 1  | 1  | 1  | 0  | 1  | 1  | 1                                                                                                                                                                                                                                                        | 2  | 2  | 2  | 2  | 1  | 0  | 0  | 0  | 0  | -1                                                                                                                                   | -1 | -1 | -1 | -1 | 0.5           | 2.2           |
| 15-Apr                                                                                                                            | -2                            | -2 | -2 | -2 | -3 | -4 | -3 | -2 | -1 | -1                                                                                                                                                                                                                                                       | -1 | 2  | 3  | 2  | 3  | 3  | 2  | 1  | 0  | -1                                                                                                                                   | -2 | -2 | -2 | -2 | -0.6          | 3.4           |
| 16-Apr                                                                                                                            | -2                            | -2 | -3 | -2 | -2 | -2 | -2 | -2 | -2 | -1                                                                                                                                                                                                                                                       | 0  | 2  | 2  | 2  | 3  | 3  | 3  | 3  | 2  | 1                                                                                                                                    | -1 | -4 | -3 | -3 | -0.4          | 3.3           |
| 17-Apr                                                                                                                            | -3                            | -4 | -4 | -5 | -5 | -6 | -6 | -6 | -6 | -5                                                                                                                                                                                                                                                       | -3 | -1 | 3  | 4  | 6  | 8  | 7  | 6  | 5  | 4                                                                                                                                    | -1 | -2 | -1 | -4 | -0.8          | 7.9           |
| 18-Apr                                                                                                                            | -5                            | -4 | -3 | -4 | -6 | -7 | -6 | -5 | -4 | -3                                                                                                                                                                                                                                                       | 0  | 1  | 5  | 6  | 8  | 8  | 8  | 7  | 7  | 3                                                                                                                                    | 0  | 0  | -1 | -2 | 0.0           | 8.4           |
| 19-Apr                                                                                                                            | -2                            | -3 | -4 | -5 | -5 | -6 | -5 | -4 | -2 | -1                                                                                                                                                                                                                                                       | -1 | 0  | 1  | 3  | 4  | 5  | 3  | 3  | 2  | 2                                                                                                                                    | 0  | 0  | 0  | 0  | -0.6          | 4.6           |
| 20-Apr                                                                                                                            | 0                             | -1 | -1 | -2 | -3 | -4 | -3 | -2 | -1 | 1                                                                                                                                                                                                                                                        | 2  | 3  | 4  | 4  | 4  | 5  | 5  | 5  | 4  | 4                                                                                                                                    | 1  | 2  | 1  | 1  | 1.2           | 5.1           |
| 21-Apr                                                                                                                            | 1                             | 0  | 0  | -1 | -1 | -2 | -1 | 0  | 0  | 2                                                                                                                                                                                                                                                        | 3  | 4  | 4  | 4  | 5  | 5  | 5  | 6  | 5  | 5                                                                                                                                    | 1  | 2  | 2  | 2  | 2.1           | 5.6           |
| 22-Apr                                                                                                                            | 1                             | 1  | 0  | 0  | -2 | -2 | -1 | 0  | 1  | 2                                                                                                                                                                                                                                                        | 3  | 4  | 5  | 5  | 6  | 7  | 6  | 6  | 6  | 5                                                                                                                                    | 4  | 4  | 4  | 2  | 2.8           | 6.5           |
| 23-Apr                                                                                                                            | 1                             | 1  | 1  | 1  | 1  | 1  | 2  | 2  | 2  | 3                                                                                                                                                                                                                                                        | 5  | 6  | 8  | 8  | 10 | 13 | 13 | 11 | 8  | 7                                                                                                                                    | 6  | 5  | 5  | 5  | 5.2           | 13.2          |
| 24-Apr                                                                                                                            | 3                             | 2  | 1  | 1  | 0  | 0  | 0  | 3  | 4  | 5                                                                                                                                                                                                                                                        | 5  | 7  | 9  | 12 | 14 | 14 | 14 | 13 | 12 | 10                                                                                                                                   | 6  | 5  | 4  | 3  | 6.1           | 14.1          |
| 25-Apr                                                                                                                            | 3                             | 2  | 2  | 1  | 0  | -1 | 0  | 1  | 3  | 5                                                                                                                                                                                                                                                        | 8  | 11 | 11 | 12 | 13 | 14 | 14 | 15 | 14 | 12                                                                                                                                   | 8  | 8  | 7  | 6  | 7.0           | 14.7          |
| 26-Apr                                                                                                                            | 6                             | 5  | 5  | 5  | 5  | 4  | 4  | 5  | 6  | 7                                                                                                                                                                                                                                                        | 10 | 11 | 12 | 13 | 13 | 14 | 14 | 14 | 13 | 11                                                                                                                                   | 9  | 7  | 5  | 5  | 8.4           | 14.2          |
| 27-Apr                                                                                                                            | 6                             | 4  | 4  | 4  | 4  | 3  | 4  | 4  | 6  | 9                                                                                                                                                                                                                                                        | 10 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 12 | 8                                                                                                                                    | 7  | 5  | 4  | 4  | 7.5           | 12.9          |
| 28-Apr                                                                                                                            | 4                             | 3  | 3  | 2  | 1  | 2  | 2  | 3  | 4  | 3                                                                                                                                                                                                                                                        | 3  | 3  | 3  | 3  | 3  | 4  | 6  | 6  | 6  | 6                                                                                                                                    | 5  | 5  | 4  | 4  | 3.6           | 6.1           |
| 29-Apr                                                                                                                            | 3                             | 3  | 2  | 2  | 1  | 1  | 1  | 2  | 4  | 5                                                                                                                                                                                                                                                        | 7  | 8  | 9  | 10 | 11 | 12 | 11 | 11 | 8  | 7                                                                                                                                    | 6  | 4  | 3  | 3  | 5.7           | 11.5          |
| 30-Apr                                                                                                                            | 3                             | 3  | 1  | 0  | 0  | 0  | 1  | 3  | 5  | 8                                                                                                                                                                                                                                                        | 9  | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 10                                                                                                                                   | 8  | 7  | 7  | 6  | 6.7           | 11.4          |
| 0.4 -0.1 -0.5 -0.8 -1.4 -1.9 -1.7 -0.9 0.2 1.4 2.8 4.1 5.1 5.7 6.6 7.2 6.9 6.5 5.7 4.3 2.6 1.9 1.4 1.0 Diurnal Average            |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |
| 5.7 5.0 5.1 5.1 4.5 3.6 3.7 4.7 6.1 8.5 10.1 11.1 12.2 12.9 13.7 14.0 14.3 14.7 14.0 11.8 8.7 7.9 7.2 6.3 Diurnal Maximum         |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |
| P - Power Failure                                                                                                                 |                               |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                          |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |    |    |               |               |

## Hourly Averages

External Temperature (ET) - °C

Portable-Bonanza - April 2011



## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Portable-Bonanza - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 20                            | 13  | 18  | 16  | 15  | 17  | 15  | 14  | 16  | 19  | 16  | 13  | 12  | 11  | 7   | 4   | 3   | 3   | 4   | 5   | 6   | 6   | 5   | 5   | 9.7           | 19.5          |
| Dir    | 216                           | 227 | 215 | 215 | 209 | 211 | 214 | 217 | 218 | 229 | 235 | 231 | 227 | 227 | 243 | 235 | 101 | 76  | 124 | 179 | 160 | 144 | 144 | 156 | 213           | 216           |
| 2 Spd  | 6                             | 6   | 4   | 6   | 7   | 7   | 5   | 5   | 6   | 6   | 6   | 7   | 8   | 7   | 7   | 4   | 24  | 4   | 6   | 4   | 4   | 1   | 4   | 7   | 2.2           | 23.6          |
| Dir    | 156                           | 157 | 161 | 184 | 203 | 221 | 199 | 195 | 197 | 215 | 214 | 215 | 217 | 269 | 358 | 14  | 326 | 333 | 2   | 11  | 76  | 52  | 185 | 171 | 225           | 326           |
| 3 Spd  | 4                             | 4   | 2   | 2   | 2   | 6   | 9   | 10  | 3   | 2   | 1   | 5   | 8   | 8   | 5   | 3   | 6   | 5   | 7   | 13  | 9   | 10  | 10  | 17  | 4.5           | 17.3          |
| Dir    | 186                           | 202 | 179 | 123 | 251 | 129 | 138 | 141 | 200 | 286 | 247 | 243 | 239 | 231 | 259 | 318 | 316 | 128 | 181 | 203 | 175 | 165 | 182 | 205 | 192           | 205           |
| 4 Spd  | 12                            | 13  | 17  | 17  | 20  | 22  | 22  | 21  | 24  | 29  | 29  | 31  | 30  | 27  | 26  | 24  | 18  | 19  | P   | 18  | 18  | 15  | 15  | 5   | 19.5          | 31.3          |
| Dir    | 211                           | 209 | 197 | 198 | 198 | 202 | 207 | 209 | 228 | 242 | 240 | 243 | 240 | 235 | 238 | 241 | 245 | 245 | P   | 222 | 217 | 206 | 210 | 181 | 225           | 243           |
| 5 Spd  | 8                             | 6   | 7   | 10  | 7   | 8   | 12  | 6   | 11  | 14  | 15  | 19  | 16  | 13  | 14  | 11  | 9   | 11  | 8   | 8   | 12  | 11  | 8   | 8   | 9.3           | 19.2          |
| Dir    | 175                           | 206 | 206 | 192 | 215 | 219 | 210 | 231 | 244 | 223 | 234 | 238 | 251 | 246 | 251 | 226 | 247 | 252 | 242 | 192 | 156 | 175 | 215 | 220 | 223           | 238           |
| 6 Spd  | 8                             | 11  | 10  | 12  | 10  | 7   | 7   | 6   | 7   | 10  | 10  | 11  | 11  | 10  | 10  | 6   | 4   | 9   | 14  | 10  | 7   | 11  | 4   | 9   | 8.2           | 14.1          |
| Dir    | 185                           | 183 | 181 | 189 | 176 | 189 | 225 | 235 | 215 | 231 | 230 | 240 | 253 | 247 | 233 | 255 | 242 | 222 | 215 | 218 | 236 | 227 | 190 | 187 | 217           | 215           |
| 7 Spd  | 6                             | 7   | 8   | 10  | 9   | 8   | 8   | 8   | 8   | 8   | 8   | 8   | 7   | 7   | 6   | 5   | 2   | 4   | 5   | 6   | 9   | 12  | 13  | 13  | 7.1           | 13.1          |
| Dir    | 181                           | 179 | 208 | 204 | 198 | 207 | 206 | 206 | 201 | 217 | 222 | 223 | 215 | 216 | 192 | 203 | 240 | 142 | 152 | 158 | 156 | 163 | 161 | 166 | 191           | 161           |
| 8 Spd  | 15                            | 16  | 21  | 21  | 19  | 17  | 14  | 17  | 22  | 23  | 28  | 32  | 32  | 26  | 25  | 24  | 23  | 28  | 28  | 30  | 32  | 27  | 26  | 22  | 21.7          | 32.1          |
| Dir    | 187                           | 179 | 175 | 169 | 174 | 171 | 166 | 196 | 219 | 230 | 236 | 238 | 236 | 234 | 241 | 222 | 229 | 232 | 226 | 222 | 226 | 230 | 230 | 231 | 218           | 236           |
| 9 Spd  | 18                            | 14  | 14  | 10  | 11  | 8   | 8   | 17  | 21  | 22  | 15  | 20  | 20  | 21  | 19  | 20  | 19  | 18  | 17  | 16  | 21  | 25  | 23  | 21  | 16.4          | 25.1          |
| Dir    | 220                           | 201 | 191 | 179 | 173 | 162 | 176 | 207 | 206 | 219 | 225 | 222 | 232 | 236 | 232 | 235 | 225 | 227 | 234 | 247 | 242 | 243 | 236 | 226 | 222           | 243           |
| 10 Spd | 21                            | 20  | 20  | 17  | 10  | 7   | 10  | 19  | 10  | 19  | 16  | 10  | 9   | 6   | 7   | 2   | 7   | 8   | 8   | 4   | 4   | 2   | 2   | 6   | 8.9           | 20.7          |
| Dir    | 233                           | 222 | 218 | 210 | 240 | 274 | 211 | 202 | 220 | 215 | 225 | 230 | 224 | 227 | 269 | 262 | 216 | 242 | 241 | 294 | 55  | 185 | 135 | 329 | 226           | 233           |
| 11 Spd | 7                             | 5   | 2   | 2   | 4   | 3   | 1   | 5   | 10  | 5   | 10  | 23  | 27  | 32  | 30  | 28  | 24  | 19  | 19  | 18  | 13  | 12  | 7   | 9   | 11.3          | 32.2          |
| Dir    | 312                           | 298 | 75  | 66  | 22  | 30  | 322 | 166 | 255 | 218 | 231 | 252 | 275 | 282 | 283 | 288 | 301 | 312 | 312 | 301 | 307 | 308 | 298 | 273 | 288           | 282           |
| 12 Spd | 9                             | 8   | 5   | 5   | 6   | 6   | 6   | 6   | 6   | 8   | 10  | 9   | 9   | 11  | 12  | 12  | 11  | 10  | 15  | 16  | 19  | 22  | 20  | 21  | 6.5           | 21.6          |
| Dir    | 260                           | 272 | 266 | 199 | 168 | 121 | 108 | 109 | 109 | 24  | 19  | 16  | 27  | 30  | 43  | 39  | 27  | 67  | 102 | 100 | 109 | 117 | 115 | 112 | 85            | 117           |
| 13 Spd | 24                            | 23  | 4   | 5   | 3   | 2   | 2   | 2   | 2   | 5   | 20  | 20  | 23  | 23  | 22  | 19  | 17  | 17  | 17  | 17  | 17  | 16  | 16  | 19  | 11.9          | 23.7          |
| Dir    | 110                           | 113 | 122 | 281 | 281 | 295 | 283 | 279 | 311 | 330 | 92  | 99  | 102 | 100 | 93  | 86  | 87  | 80  | 81  | 77  | 71  | 76  | 71  | 67  | 88            | 110           |
| 14 Spd | 17                            | 16  | 16  | 15  | 16  | 20  | 18  | 19  | 22  | 21  | 20  | 20  | 20  | 21  | 19  | 20  | 20  | 21  | 20  | 17  | 12  | 9   | 9   | 7   | 17.1          | 22.3          |
| Dir    | 73                            | 76  | 71  | 74  | 73  | 59  | 70  | 80  | 86  | 81  | 84  | 85  | 78  | 73  | 71  | 71  | 62  | 64  | 64  | 63  | 59  | 63  | 75  | 44  | 72            | 86            |
| 15 Spd | 8                             | 8   | 7   | 5   | 5   | 2   | 3   | 1   | 2   | 6   | 8   | 8   | 13  | 15  | 15  | 15  | 19  | 19  | 18  | 16  | 10  | 9   | 8   | 9   | 8.1           | 19.1          |
| Dir    | 14                            | 9   | 17  | 25  | 16  | 342 | 14  | 282 | 261 | 230 | 241 | 18  | 18  | 17  | 25  | 41  | 41  | 44  | 41  | 41  | 40  | 33  | 29  | 32  | 27            | 44            |
| 16 Spd | 9                             | 8   | 8   | 8   | 11  | 16  | 16  | 15  | 17  | 15  | 13  | 14  | 15  | 16  | 14  | 15  | 15  | 12  | 12  | 7   | 6   | 3   | 1   | 4   | 10.5          | 16.6          |
| Dir    | 29                            | 31  | 20  | 28  | 43  | 61  | 59  | 56  | 56  | 61  | 55  | 50  | 29  | 29  | 59  | 45  | 46  | 90  | 100 | 64  | 52  | 75  | 353 | 344 | 50            | 56            |
| 17 Spd | 9                             | 3   | 4   | 3   | 1   | 4   | 3   | 2   | 2   | 4   | 3   | 3   | 4   | 3   | 5   | 5   | 3   | 3   | 2   | 4   | 4   | 6   | 8   | 5   | 0.4           | 9.2           |
| Dir    | 322                           | 336 | 1   | 313 | 209 | 182 | 218 | 308 | 303 | 284 | 294 | 226 | 339 | 277 | 25  | 53  | 24  | 63  | 170 | 48  | 118 | 154 | 166 | 127 | 345           | 322           |
| 18 Spd | 5                             | 5   | 6   | 7   | 5   | 4   | 5   | 4   | 5   | 3   | 3   | 4   | 6   | 3   | 6   | 6   | 3   | 2   | 7   | 9   | 10  | 10  | 11  | 7   | 2.2           | 11.1          |
| Dir    | 52                            | 192 | 148 | 156 | 179 | 188 | 168 | 215 | 217 | 216 | 319 | 332 | 59  | 23  | 56  | 55  | 35  | 324 | 46  | 39  | 48  | 40  | 19  | 28  | 59            | 19            |
| 19 Spd | 7                             | 8   | 8   | 2   | 3   | 2   | 3   | 5   | 4   | 5   | 8   | 8   | 7   | 4   | 4   | 6   | 16  | 12  | 11  | 13  | 12  | 9   | 13  | 17  | 4.7           | 17.4          |
| Dir    | 39                            | 49  | 8   | 7   | 16  | 26  | 203 | 231 | 258 | 220 | 268 | 233 | 243 | 282 | 205 | 184 | 209 | 188 | 218 | 202 | 185 | 191 | 190 | 200 | 210           | 200           |
| 20 Spd | 16                            | 15  | 14  | 14  | 13  | 11  | 14  | 15  | 17  | 20  | 22  | 19  | 15  | 18  | 20  | 18  | 18  | 15  | 9   | 2   | 6   | 8   | 9   | 11  | 11.9          | 22.4          |
| Dir    | 204                           | 205 | 210 | 210 | 212 | 222 | 211 | 216 | 223 | 243 | 247 | 244 | 245 | 258 | 262 | 261 | 254 | 265 | 279 | 219 | 149 | 151 | 148 | 147 | 230           | 247           |
| 21 Spd | 10                            | 8   | 7   | 5   | 4   | 5   | 6   | 8   | 13  | 11  | 12  | 12  | 13  | 10  | 10  | 13  | 12  | 10  | 8   | 1   | 6   | 8   | 13  | 18  | 6.5           | 17.6          |
| Dir    | 154                           | 164 | 170 | 184 | 170 | 189 | 200 | 200 | 215 | 227 | 251 | 253 | 293 | 287 | 275 | 261 | 277 | 257 | 278 | 115 | 133 | 167 | 193 | 205 | 226           | 205           |
| 22 Spd | 17                            | 18  | 16  | 16  | 14  | 13  | 13  | 14  | 18  | 20  | 21  | 19  | 16  | 17  | 17  | 20  | 16  | 16  | 17  | 17  | 13  | 11  | 16  | 14  | 15.5          | 20.6          |
| Dir    | 205                           | 206 | 205 | 207 | 216 | 211 | 208 | 221 | 235 | 242 | 251 | 246 | 238 | 235 | 231 | 243 | 236 | 236 | 220 | 220 | 213 | 198 | 202 | 212 | 224           | 251           |

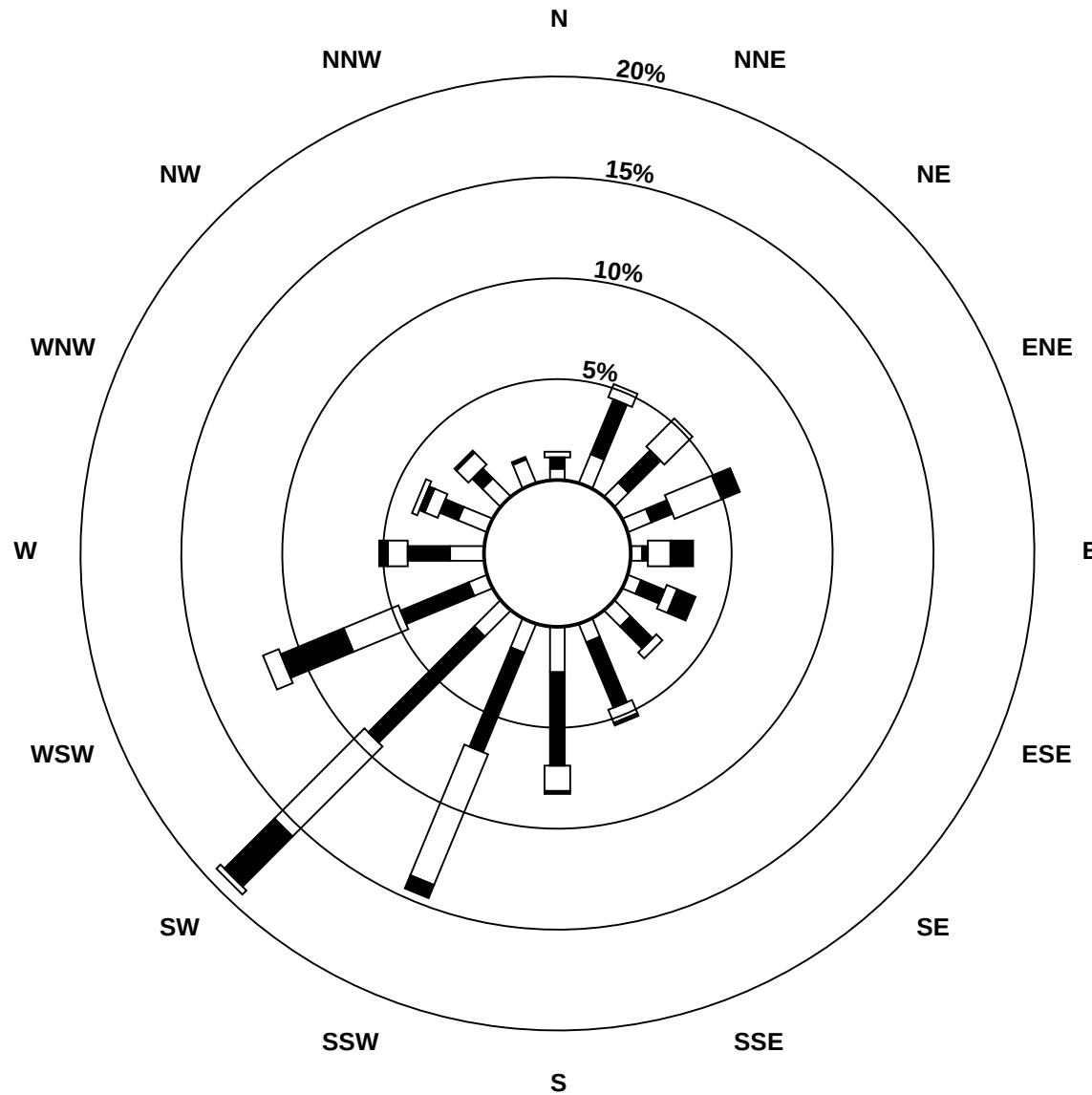
## Hourly Averages

**Wind Speed (km/h)**  
**Wind Direction (deg)**  
**Portable-Bonanza - April 2011**

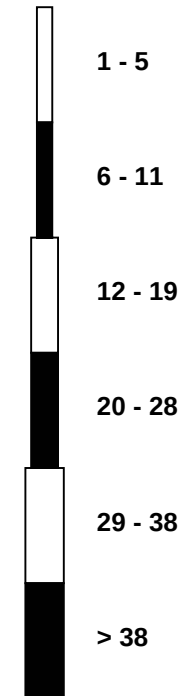
| Day                                                                                                                                                                 | Hourly Period Ending At (MST) |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                | Daily Average   | Daily Maximum |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|----------|----------|----------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------------------------------|-----------------|---------------|
|                                                                                                                                                                     | 1                             | 2       | 3        | 4        | 5        | 6    | 7     | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24                             |                 |               |
| 23 Spd                                                                                                                                                              | 13                            | 13      | 8        | 10       | 9        | 12   | 12    | 10   | 10   | 12   | 12   | 11   | 8    | 10   | 4    | 9    | 10   | 11   | 8    | 6    | 11   | 15   | 13   | 7                              | 5.3             | 15.4          |
| Dir                                                                                                                                                                 | 213                           | 201     | 198      | 195      | 194      | 197  | 199   | 207  | 211  | 218  | 227  | 226  | 218  | 238  | 313  | 46   | 48   | 52   | 57   | 74   | 112  | 125  | 137  | 167                            | 184             | 125           |
| 24 Spd                                                                                                                                                              | 3                             | 3       | 14       | 20       | 9        | 2    | 9     | 17   | 19   | 9    | 8    | 6    | 4    | 2    | 5    | 5    | 9    | 12   | 9    | 6    | 6    | 11   | 10   | 9                              | 6.2             | 19.7          |
| Dir                                                                                                                                                                 | 187                           | 346     | 129      | 123      | 95       | 153  | 128   | 116  | 119  | 122  | 235  | 248  | 232  | 85   | 66   | 58   | 40   | 48   | 63   | 89   | 105  | 119  | 123  | 127                            | 111             | 123           |
| 25 Spd                                                                                                                                                              | 10                            | 1       | 4        | 3        | 3        | 1    | 5     | 0    | 3    | 9    | 11   | 8    | 5    | 8    | 4    | 6    | 5    | 4    | 3    | 8    | 9    | 10   | 10   | 12                             | 1.6             | 11.7          |
| Dir                                                                                                                                                                 | 130                           | 288     | 121      | 44       | 35       | 329  | 140   | 300  | 277  | 13   | 20   | 20   | 274  | 223  | 273  | 307  | 302  | 306  | 272  | 310  | 292  | 234  | 203  | 205                            | 281             | 205           |
| 26 Spd                                                                                                                                                              | 11                            | 10      | 9        | 12       | 12       | 11   | 8     | 10   | 17   | 16   | 22   | 23   | 21   | 21   | 20   | 22   | 21   | 20   | 18   | 16   | 9    | 8    | 2    | 8                              | 13.4            | 23.3          |
| Dir                                                                                                                                                                 | 201                           | 190     | 196      | 199      | 200      | 215  | 221   | 221  | 232  | 224  | 242  | 245  | 248  | 244  | 246  | 253  | 253  | 262  | 246  | 266  | 246  | 219  | 188  | 174                            | 235             | 245           |
| 27 Spd                                                                                                                                                              | 8                             | 6       | 7        | 10       | 11       | 8    | 6     | 3    | 5    | 14   | 19   | 17   | 13   | 9    | 8    | 10   | 10   | 7    | 5    | 16   | 6    | 4    | 3    | 9                              | 7.7             | 19.5          |
| Dir                                                                                                                                                                 | 193                           | 184     | 179      | 176      | 181      | 176  | 195   | 223  | 243  | 240  | 234  | 226  | 206  | 227  | 192  | 163  | 158  | 161  | 203  | 199  | 179  | 132  | 84   | 149                            | 196             | 234           |
| 28 Spd                                                                                                                                                              | 7                             | 5       | 6        | 8        | 5        | 5    | 9     | 8    | 13   | 13   | 10   | 10   | 9    | 8    | 10   | 9    | 16   | 16   | 14   | 10   | 7    | 10   | 10   | 5                              | 6.4             | 15.9          |
| Dir                                                                                                                                                                 | 138                           | 87      | 174      | 169      | 213      | 166  | 208   | 240  | 297  | 288  | 264  | 278  | 260  | 265  | 229  | 248  | 312  | 306  | 282  | 293  | 291  | 297  | 299  | 272                            | 269             | 306           |
| 29 Spd                                                                                                                                                              | 5                             | 6       | 6        | 8        | 8        | 7    | 7     | 6    | 6    | 7    | 7    | 10   | 15   | 16   | 20   | 18   | 18   | 13   | 17   | 1    | 8    | 7    | 7    | 6                              | 7.3             | 19.8          |
| Dir                                                                                                                                                                 | 227                           | 232     | 208      | 205      | 205      | 196  | 188   | 212  | 211  | 244  | 246  | 235  | 236  | 223  | 223  | 229  | 232  | 238  | 358  | 35   | 165  | 142  | 134  | 274                            | 223             | 223           |
| 30 Spd                                                                                                                                                              | 19                            | 5       | 7        | 6        | 8        | 6    | 8     | 12   | 11   | 17   | 15   | 12   | 22   | 24   | 27   | 27   | 26   | 21   | 19   | 17   | 17   | 18   | 18   | 16                             | 13.0            | 27.0          |
| Dir                                                                                                                                                                 | 356                           | 59      | 241      | 218      | 202      | 172  | 188   | 206  | 231  | 256  | 278  | 269  | 247  | 248  | 249  | 238  | 239  | 231  | 230  | 220  | 206  | 200  | 202  | 201                            | 233             | 249           |
| Spd                                                                                                                                                                 | 4.6                           | 4.9     | 5.6      | 6.5      | 5.3      | 4.8  | 5.9   | 6.3  | 6.9  | 8.0  | 8.3  | 8.5  | 7.9  | 7.4  | 6.0  | 4.8  | 4.7  | 3.4  | 2.2  | 3.2  | 3.8  | 5.2  | 5.4  | 5.7                            | Diurnal Average |               |
| Dir                                                                                                                                                                 | 192                           | 187     | 187      | 185      | 189      | 186  | 186   | 196  | 217  | 233  | 240  | 240  | 245  | 249  | 251  | 250  | 268  | 250  | 236  | 216  | 179  | 178  | 180  | 187                            | Diurnal Maximum |               |
| Spd                                                                                                                                                                 | 23.7                          | 23.4    | 21.1     | 20.7     | 19.9     | 22.3 | 21.9  | 21.0 | 24.2 | 28.6 | 29.2 | 31.9 | 32.1 | 32.2 | 30.3 | 27.7 | 25.6 | 27.8 | 27.6 | 29.9 | 31.5 | 26.9 | 26.2 | 22.1                           | Diurnal Maximum |               |
| Dir                                                                                                                                                                 | 110                           | 113     | 175      | 169      | 198      | 202  | 207   | 209  | 228  | 242  | 240  | 238  | 236  | 282  | 283  | 288  | 239  | 232  | 226  | 222  | 226  | 230  | 230  | 231                            |                 |               |
| Maximum Speed Value: 32 km/h on Apr 11 14:00                                                                                                                        |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours in Service: 720          |                 |               |
| Maximum Daily Speed Average: 21.7 km/h on Apr 8                                                                                                                     |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Data: 719             |                 |               |
| Maximum Diurnal Speed Average: 8.5 km/h at hour 12                                                                                                                  |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Hours of Missing Data: 1       |                 |               |
| Minimum Speed Value: 0 km/h on Apr 25 08:00                                                                                                                         |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | Percent Operational Time: 99.9 |                 |               |
| Minimum Daily Speed Average: 0.4 km/h on Apr 17                                                                                                                     |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Minimum Diurnal Speed Average: 2.2 km/h at hour 19                                                                                                                  |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Monthly Average Velocity: 4.93 km/h 215.0 deg                                                                                                                       |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Speed Percentiles: P <sub>1</sub> = 1.2 P <sub>10</sub> = 3.6 Q <sub>1</sub> = 6.1 Median = 9.9 Q <sub>3</sub> = 16.1 P <sub>90</sub> = 20.3 P <sub>99</sub> = 29.5 |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| All monthly, daily, and diurnal averages have been calculated using vector methods                                                                                  |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| P - Power Failure                                                                                                                                                   |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Frequency Distribution                                                                                                                                              |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Speed Range (km/h)                                                                                                                                                  |                               |         |          |          |          |      |       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Direction                                                                                                                                                           | 0 to 5                        | 5 to 11 | 11 to 19 | 19 to 28 | 28 to 38 | > 38 | Total |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| North                                                                                                                                                               | 12                            | 13      | 6        | 0        | 0        | 0    | 31    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| NorthEast                                                                                                                                                           | 17                            | 33      | 24       | 7        | 0        | 0    | 81    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| East                                                                                                                                                                | 7                             | 10      | 18       | 17       | 0        | 0    | 52    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| SouthEast                                                                                                                                                           | 13                            | 30      | 5        | 5        | 0        | 0    | 53    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| South                                                                                                                                                               | 21                            | 67      | 35       | 4        | 0        | 0    | 127   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| SouthWest                                                                                                                                                           | 20                            | 92      | 89       | 48       | 9        | 0    | 258   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| West                                                                                                                                                                | 20                            | 25      | 17       | 11       | 2        | 0    | 75    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| NorthWest                                                                                                                                                           | 19                            | 12      | 8        | 3        | 0        | 0    | 42    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |
| Total                                                                                                                                                               | 129                           | 282     | 202      | 95       | 11       | 0    | 719   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |                                |                 |               |

## Wind Rose

Wind Speed (WS) (km/h)  
Portable-Bonanza - April 2011



### Wind Speed Classes (km/h)



## Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Portable-Bonanza - April 2011

| Maximum Speed: 32 km/h on Apr 8 13:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 23.8 km/h on Apr 8                                                                                                                |    |    |    |    |                 |               |  |  |  | Hours in Service: 720          |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------|--|--|--|--------------------------------|--|
| Minimum Speed: 1 km/h on Apr 15 08:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 4.5 km/h on Apr 17                                                                                                                |    |    |    |    |                 |               |  |  |  | Hours of Data: 719             |  |
| Maximum Diurnal Speed Average: 14.3 km/h at hour 13                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 8.7 km/h at hour 6                                                                                                              |    |    |    |    |                 |               |  |  |  | Hours of Missing Data: 1       |  |
| Monthly Average Speed: 11.68 km/h                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 2.3 P <sub>10</sub> = 4.5 Q <sub>1</sub> = 6.5 Median = 10.3 Q <sub>3</sub> = 16.3 P <sub>90</sub> = 20.6 P <sub>99</sub> = 29.5 |    |    |    |    |                 |               |  |  |  | Percent Operational Time: 99.9 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |    | Daily Average   | Daily Maximum |  |  |  |                                |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                             | 21 | 22 | 23 | 24 |                 |               |  |  |  |                                |  |
| 1-Apr                                                                                                                   | 20                            | 13 | 18 | 16 | 15 | 17 | 15 | 14 | 16 | 19 | 16 | 13 | 12 | 11 | 8  | 4  | 4  | 3  | 4  | 5                                                                                                                                                              | 6  | 6  | 5  | 6  | 11.1            | 19.5          |  |  |  |                                |  |
| 2-Apr                                                                                                                   | 6                             | 6  | 5  | 7  | 8  | 7  | 5  | 5  | 6  | 6  | 6  | 7  | 8  | 8  | 9  | 5  | 24 | 7  | 7  | 4                                                                                                                                                              | 6  | 4  | 6  | 7  | 7.0             | 24.2          |  |  |  |                                |  |
| 3-Apr                                                                                                                   | 5                             | 4  | 2  | 3  | 3  | 6  | 9  | 10 | 4  | 2  | 2  | 5  | 8  | 8  | 5  | 4  | 7  | 5  | 7  | 13                                                                                                                                                             | 10 | 10 | 10 | 18 | 6.7             | 17.5          |  |  |  |                                |  |
| 4-Apr                                                                                                                   | 12                            | 13 | 17 | 17 | 20 | 22 | 22 | 21 | 24 | 29 | 29 | 31 | 30 | 27 | 27 | 24 | 18 | 19 | P  | 18                                                                                                                                                             | 18 | 15 | 15 | 6  | 20.6            | 31.4          |  |  |  |                                |  |
| 5-Apr                                                                                                                   | 8                             | 6  | 7  | 10 | 9  | 8  | 12 | 6  | 11 | 14 | 16 | 19 | 16 | 13 | 14 | 11 | 10 | 11 | 8  | 8                                                                                                                                                              | 12 | 11 | 10 | 8  | 10.7            | 19.3          |  |  |  |                                |  |
| 6-Apr                                                                                                                   | 8                             | 11 | 10 | 12 | 10 | 7  | 7  | 6  | 7  | 11 | 10 | 11 | 12 | 10 | 10 | 7  | 4  | 9  | 14 | 10                                                                                                                                                             | 8  | 11 | 7  | 9  | 9.3             | 14.1          |  |  |  |                                |  |
| 7-Apr                                                                                                                   | 6                             | 8  | 8  | 10 | 9  | 8  | 8  | 8  | 8  | 8  | 8  | 8  | 7  | 7  | 6  | 5  | 3  | 5  | 6  | 6                                                                                                                                                              | 9  | 12 | 13 | 13 | 7.9             | 13.2          |  |  |  |                                |  |
| 8-Apr                                                                                                                   | 15                            | 17 | 21 | 21 | 19 | 17 | 14 | 17 | 22 | 23 | 29 | 32 | 32 | 26 | 26 | 24 | 24 | 28 | 28 | 30                                                                                                                                                             | 32 | 27 | 26 | 22 | 23.8            | 32.4          |  |  |  |                                |  |
| 9-Apr                                                                                                                   | 19                            | 14 | 14 | 10 | 11 | 9  | 9  | 17 | 21 | 22 | 15 | 20 | 20 | 21 | 19 | 20 | 19 | 19 | 17 | 17                                                                                                                                                             | 21 | 25 | 23 | 21 | 17.6            | 25.1          |  |  |  |                                |  |
| 10-Apr                                                                                                                  | 21                            | 20 | 20 | 17 | 12 | 8  | 11 | 19 | 11 | 19 | 16 | 10 | 9  | 6  | 7  | 3  | 8  | 8  | 8  | 6                                                                                                                                                              | 5  | 3  | 4  | 7  | 10.7            | 20.7          |  |  |  |                                |  |
| 11-Apr                                                                                                                  | 7                             | 5  | 3  | 3  | 4  | 3  | 2  | 6  | 12 | 6  | 10 | 23 | 28 | 32 | 30 | 28 | 24 | 19 | 19 | 18                                                                                                                                                             | 13 | 12 | 8  | 9  | 13.7            | 32.4          |  |  |  |                                |  |
| 12-Apr                                                                                                                  | 9                             | 8  | 6  | 6  | 6  | 6  | 6  | 6  | 7  | 8  | 10 | 9  | 9  | 11 | 12 | 12 | 11 | 12 | 15 | 16                                                                                                                                                             | 19 | 22 | 20 | 21 | 11.3            | 21.7          |  |  |  |                                |  |
| 13-Apr                                                                                                                  | 24                            | 23 | 10 | 5  | 3  | 2  | 2  | 3  | 3  | 6  | 20 | 21 | 23 | 24 | 22 | 19 | 17 | 17 | 17 | 18                                                                                                                                                             | 17 | 16 | 16 | 19 | 14.4            | 23.7          |  |  |  |                                |  |
| 14-Apr                                                                                                                  | 17                            | 16 | 16 | 15 | 16 | 20 | 19 | 20 | 23 | 22 | 20 | 21 | 20 | 22 | 20 | 21 | 20 | 21 | 20 | 17                                                                                                                                                             | 12 | 9  | 9  | 7  | 17.6            | 22.6          |  |  |  |                                |  |
| 15-Apr                                                                                                                  | 8                             | 8  | 7  | 5  | 5  | 2  | 3  | 1  | 3  | 6  | 8  | 9  | 13 | 15 | 15 | 15 | 19 | 19 | 18 | 16                                                                                                                                                             | 10 | 9  | 8  | 9  | 9.7             | 19.2          |  |  |  |                                |  |
| 16-Apr                                                                                                                  | 9                             | 8  | 8  | 8  | 12 | 17 | 16 | 15 | 17 | 15 | 13 | 14 | 15 | 17 | 15 | 16 | 15 | 13 | 12 | 7                                                                                                                                                              | 6  | 3  | 2  | 5  | 11.5            | 16.9          |  |  |  |                                |  |
| 17-Apr                                                                                                                  | 9                             | 4  | 5  | 4  | 1  | 4  | 3  | 2  | 3  | 5  | 4  | 4  | 4  | 4  | 6  | 5  | 4  | 5  | 3  | 4                                                                                                                                                              | 5  | 7  | 8  | 6  | 4.5             | 9.4           |  |  |  |                                |  |
| 18-Apr                                                                                                                  | 5                             | 6  | 7  | 7  | 5  | 6  | 5  | 4  | 5  | 4  | 3  | 4  | 6  | 4  | 6  | 6  | 4  | 3  | 7  | 9                                                                                                                                                              | 10 | 10 | 11 | 7  | 6.0             | 11.2          |  |  |  |                                |  |
| 19-Apr                                                                                                                  | 7                             | 8  | 8  | 3  | 3  | 3  | 4  | 5  | 5  | 5  | 8  | 8  | 7  | 5  | 5  | 6  | 16 | 13 | 11 | 13                                                                                                                                                             | 12 | 9  | 13 | 17 | 8.2             | 17.5          |  |  |  |                                |  |
| 20-Apr                                                                                                                  | 16                            | 15 | 14 | 15 | 13 | 11 | 14 | 15 | 17 | 20 | 22 | 19 | 16 | 19 | 20 | 18 | 18 | 16 | 9  | 4                                                                                                                                                              | 6  | 8  | 9  | 11 | 14.3            | 22.4          |  |  |  |                                |  |
| 21-Apr                                                                                                                  | 10                            | 8  | 7  | 5  | 4  | 5  | 6  | 8  | 13 | 11 | 13 | 13 | 13 | 10 | 10 | 14 | 13 | 11 | 8  | 4                                                                                                                                                              | 6  | 8  | 14 | 18 | 9.6             | 17.6          |  |  |  |                                |  |
| 22-Apr                                                                                                                  | 17                            | 18 | 16 | 16 | 14 | 13 | 13 | 14 | 18 | 20 | 21 | 19 | 16 | 17 | 17 | 20 | 16 | 16 | 17 | 17                                                                                                                                                             | 13 | 11 | 16 | 15 | 16.2            | 20.6          |  |  |  |                                |  |
| 23-Apr                                                                                                                  | 13                            | 13 | 8  | 10 | 10 | 12 | 12 | 10 | 10 | 12 | 12 | 11 | 9  | 11 | 8  | 9  | 10 | 11 | 8  | 6                                                                                                                                                              | 11 | 15 | 13 | 8  | 10.4            | 15.5          |  |  |  |                                |  |
| 24-Apr                                                                                                                  | 4                             | 7  | 15 | 20 | 10 | 5  | 9  | 17 | 19 | 12 | 8  | 6  | 5  | 5  | 6  | 7  | 9  | 12 | 9  | 6                                                                                                                                                              | 6  | 11 | 10 | 9  | 9.5             | 19.8          |  |  |  |                                |  |
| 25-Apr                                                                                                                  | 10                            | 5  | 5  | 6  | 4  | 5  | 6  | 4  | 3  | 9  | 11 | 8  | 7  | 8  | 6  | 6  | 5  | 4  | 4  | 10                                                                                                                                                             | 11 | 11 | 10 | 12 | 7.1             | 12.1          |  |  |  |                                |  |
| 26-Apr                                                                                                                  | 12                            | 10 | 9  | 12 | 12 | 11 | 9  | 10 | 17 | 16 | 22 | 23 | 22 | 21 | 21 | 23 | 21 | 20 | 18 | 16                                                                                                                                                             | 9  | 9  | 4  | 8  | 14.8            | 23.5          |  |  |  |                                |  |
| 27-Apr                                                                                                                  | 8                             | 6  | 7  | 10 | 11 | 8  | 6  | 5  | 6  | 14 | 20 | 18 | 14 | 12 | 9  | 11 | 11 | 8  | 5  | 17                                                                                                                                                             | 7  | 4  | 5  | 9  | 9.6             | 19.6          |  |  |  |                                |  |
| 28-Apr                                                                                                                  | 7                             | 7  | 6  | 9  | 6  | 6  | 9  | 8  | 13 | 13 | 10 | 11 | 9  | 9  | 11 | 12 | 16 | 16 | 14 | 11                                                                                                                                                             | 7  | 11 | 10 | 6  | 9.8             | 16.1          |  |  |  |                                |  |
| 29-Apr                                                                                                                  | 5                             | 6  | 6  | 8  | 8  | 8  | 7  | 6  | 7  | 8  | 8  | 10 | 16 | 17 | 20 | 19 | 18 | 13 | 20 | 12                                                                                                                                                             | 8  | 7  | 7  | 12 | 10.6            | 20.3          |  |  |  |                                |  |
| 30-Apr                                                                                                                  | 20                            | 7  | 8  | 7  | 8  | 6  | 8  | 12 | 12 | 18 | 15 | 14 | 23 | 25 | 28 | 27 | 26 | 22 | 19 | 17                                                                                                                                                             | 17 | 18 | 18 | 16 | 16.3            | 27.5          |  |  |  |                                |  |
| 11.3 10.0 9.8 9.8 9.0 8.7 9.1 9.9 11.4 12.8 13.5 14.0 14.3 14.1 13.9 13.4 13.8 12.8 12.2 11.8 11.0 11.2 11.0 11.4       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |    | Diurnal Average |               |  |  |  |                                |  |
| 23.7 23.4 21.2 20.8 20.0 22.3 21.9 21.1 24.4 28.7 29.2 32.0 32.4 32.4 30.4 28.2 26.1 27.9 27.7 29.9 31.5 27.0 26.2 22.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |    | Diurnal Maximum |               |  |  |  |                                |  |
| P - Power Failure                                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |    |                 |               |  |  |  |                                |  |
| All monthly, daily, and diurnal averages have been calculated using scalar methods                                      |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                |    |    |    |    |                 |               |  |  |  |                                |  |

# Hourly Standard Deviations

Wind Direction (WD) - deg  
Portable-Bonanza - April 2011

| Maximum Value: 92.4 deg on Apr 13 03:00                                                                                                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720          |    |    |    |    |    |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------|----|----|----|----|----|---------------|
| Minimum Value: 1.8 deg on Apr 22 05:00                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 719             |    |    |    |    |    |               |
|                                                                                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 1       |    |    |    |    |    |               |
| Percentiles: P <sub>1</sub> = 2.9 P <sub>10</sub> = 4.2 Q <sub>1</sub> = 6.4 Median = 10.5 Q <sub>3</sub> = 18.7 P <sub>90</sub> = 41.6 P <sub>99</sub> = 78.7 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 0        |    |    |    |    |    |               |
|                                                                                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.9 |    |    |    |    |    |               |
| Day                                                                                                                                                            | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    | Daily Maximum |
|                                                                                                                                                                | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                             | 20 | 21 | 22 | 23 | 24 |               |
| 1-Apr                                                                                                                                                          | 4                             | 10 | 3  | 3  | 3  | 3  | 3  | 2  | 5  | 3  | 5  | 6  | 5  | 7  | 8  | 12 | 57 | 23 | 10                             | 13 | 9  | 8  | 19 | 28 | 57.2          |
| 2-Apr                                                                                                                                                          | 14                            | 14 | 30 | 11 | 16 | 17 | 17 | 23 | 13 | 13 | 23 | 4  | 8  | 26 | 46 | 40 | 14 | 60 | 38                             | 47 | 48 | 92 | 55 | 11 | 91.8          |
| 3-Apr                                                                                                                                                          | 31                            | 12 | 29 | 79 | 72 | 10 | 4  | 7  | 37 | 39 | 47 | 16 | 9  | 5  | 15 | 20 | 56 | 21 | 13                             | 8  | 7  | 6  | 10 | 11 | 78.9          |
| 4-Apr                                                                                                                                                          | 5                             | 7  | 4  | 4  | 4  | 4  | 4  | 5  | 8  | 4  | 3  | 3  | 4  | 5  | 4  | 4  | 5  | 4  | P                              | 6  | 4  | 5  | 8  | 17 | 16.6          |
| 5-Apr                                                                                                                                                          | 16                            | 27 | 17 | 12 | 42 | 11 | 4  | 14 | 8  | 7  | 9  | 5  | 5  | 12 | 11 | 12 | 27 | 12 | 11                             | 20 | 12 | 8  | 43 | 20 | 43.3          |
| 6-Apr                                                                                                                                                          | 7                             | 6  | 10 | 8  | 8  | 17 | 8  | 17 | 9  | 18 | 7  | 4  | 9  | 10 | 6  | 31 | 14 | 21 | 4                              | 5  | 6  | 9  | 81 | 8  | 80.9          |
| 7-Apr                                                                                                                                                          | 15                            | 13 | 7  | 4  | 10 | 9  | 6  | 6  | 6  | 7  | 5  | 6  | 4  | 6  | 12 | 15 | 44 | 26 | 12                             | 8  | 7  | 6  | 5  | 8  | 43.6          |
| 8-Apr                                                                                                                                                          | 7                             | 7  | 4  | 5  | 5  | 6  | 6  | 11 | 6  | 3  | 6  | 4  | 8  | 4  | 12 | 6  | 6  | 5  | 4                              | 3  | 2  | 3  | 3  | 4  | 12.4          |
| 9-Apr                                                                                                                                                          | 9                             | 9  | 11 | 7  | 8  | 19 | 23 | 17 | 9  | 4  | 6  | 7  | 3  | 5  | 5  | 7  | 7  | 9  | 8                              | 7  | 3  | 3  | 3  | 3  | 23.2          |
| 10-Apr                                                                                                                                                         | 4                             | 7  | 4  | 7  | 32 | 58 | 18 | 4  | 31 | 10 | 7  | 6  | 8  | 8  | 12 | 40 | 31 | 5  | 9                              | 59 | 42 | 63 | 62 | 15 | 63.3          |
| 11-Apr                                                                                                                                                         | 9                             | 25 | 59 | 58 | 12 | 43 | 63 | 44 | 45 | 36 | 20 | 6  | 11 | 6  | 6  | 10 | 13 | 10 | 10                             | 5  | 7  | 10 | 21 | 13 | 62.6          |
| 12-Apr                                                                                                                                                         | 7                             | 8  | 39 | 20 | 12 | 14 | 10 | 16 | 15 | 19 | 4  | 5  | 12 | 8  | 7  | 6  | 8  | 33 | 8                              | 8  | 7  | 3  | 4  | 4  | 39.0          |
| 13-Apr                                                                                                                                                         | 4                             | 3  | 92 | 17 | 27 | 37 | 30 | 33 | 46 | 26 | 18 | 11 | 11 | 12 | 10 | 11 | 12 | 13 | 10                             | 10 | 9  | 10 | 9  | 6  | 92.4          |
| 14-Apr                                                                                                                                                         | 9                             | 10 | 10 | 11 | 12 | 6  | 9  | 12 | 10 | 10 | 11 | 12 | 10 | 9  | 10 | 10 | 8  | 8  | 6                              | 6  | 7  | 14 | 12 | 13 | 13.9          |
| 15-Apr                                                                                                                                                         | 6                             | 4  | 6  | 8  | 7  | 16 | 32 | 51 | 18 | 4  | 4  | 33 | 4  | 4  | 8  | 9  | 6  | 6  | 4                              | 3  | 5  | 8  | 6  | 4  | 51.5          |
| 16-Apr                                                                                                                                                         | 6                             | 13 | 7  | 8  | 13 | 9  | 8  | 7  | 5  | 11 | 8  | 10 | 11 | 16 | 14 | 13 | 14 | 17 | 16                             | 8  | 19 | 35 | 70 | 42 | 70.1          |
| 17-Apr                                                                                                                                                         | 11                            | 57 | 31 | 60 | 44 | 12 | 17 | 31 | 17 | 25 | 38 | 45 | 26 | 28 | 36 | 17 | 57 | 42 | 66                             | 17 | 21 | 25 | 5  | 37 | 65.7          |
| 18-Apr                                                                                                                                                         | 39                            | 24 | 12 | 12 | 30 | 42 | 17 | 24 | 11 | 37 | 23 | 20 | 12 | 49 | 11 | 12 | 56 | 20 | 11                             | 10 | 6  | 15 | 8  | 27 | 56.4          |
| 19-Apr                                                                                                                                                         | 12                            | 8  | 9  | 56 | 23 | 58 | 17 | 30 | 25 | 12 | 20 | 13 | 19 | 32 | 35 | 28 | 13 | 15 | 4                              | 7  | 14 | 9  | 11 | 3  | 58.0          |
| 20-Apr                                                                                                                                                         | 4                             | 4  | 4  | 4  | 5  | 8  | 3  | 5  | 3  | 10 | 4  | 5  | 9  | 12 | 10 | 10 | 11 | 9  | 13                             | 53 | 4  | 5  | 5  | 4  | 52.6          |
| 21-Apr                                                                                                                                                         | 9                             | 6  | 8  | 16 | 26 | 13 | 7  | 6  | 6  | 12 | 17 | 22 | 10 | 15 | 18 | 20 | 19 | 18 | 23                             | 88 | 8  | 10 | 11 | 4  | 88.3          |
| 22-Apr                                                                                                                                                         | 4                             | 3  | 3  | 4  | 2  | 5  | 5  | 10 | 4  | 4  | 4  | 5  | 5  | 6  | 6  | 6  | 8  | 7  | 7                              | 3  | 5  | 9  | 4  | 9  | 9.7           |
| 23-Apr                                                                                                                                                         | 7                             | 6  | 48 | 10 | 6  | 5  | 3  | 6  | 6  | 4  | 6  | 11 | 16 | 17 | 58 | 11 | 7  | 7  | 8                              | 16 | 8  | 5  | 5  | 15 | 58.4          |
| 24-Apr                                                                                                                                                         | 47                            | 76 | 9  | 5  | 46 | 81 | 9  | 8  | 4  | 53 | 7  | 19 | 26 | 77 | 39 | 43 | 15 | 10 | 13                             | 16 | 17 | 16 | 9  | 6  | 80.6          |
| 25-Apr                                                                                                                                                         | 4                             | 92 | 60 | 57 | 55 | 77 | 39 | 84 | 38 | 14 | 8  | 19 | 47 | 7  | 42 | 10 | 12 | 23 | 49                             | 70 | 33 | 23 | 13 | 16 | 91.9          |
| 26-Apr                                                                                                                                                         | 13                            | 4  | 12 | 7  | 6  | 7  | 12 | 6  | 4  | 8  | 6  | 6  | 8  | 12 | 12 | 12 | 11 | 10 | 11                             | 7  | 15 | 14 | 79 | 10 | 78.9          |
| 27-Apr                                                                                                                                                         | 7                             | 10 | 9  | 8  | 5  | 9  | 17 | 56 | 31 | 8  | 8  | 17 | 21 | 40 | 30 | 28 | 25 | 43 | 22                             | 17 | 31 | 39 | 54 | 11 | 56.1          |
| 28-Apr                                                                                                                                                         | 15                            | 41 | 19 | 10 | 21 | 23 | 13 | 19 | 8  | 13 | 7  | 16 | 16 | 21 | 19 | 39 | 9  | 8  | 18                             | 16 | 18 | 13 | 14 | 30 | 40.8          |
| 29-Apr                                                                                                                                                         | 21                            | 14 | 9  | 7  | 9  | 8  | 10 | 8  | 18 | 23 | 22 | 16 | 17 | 14 | 14 | 13 | 8  | 17 | 43                             | 91 | 19 | 12 | 11 | 68 | 90.8          |
| 30-Apr                                                                                                                                                         | 14                            | 48 | 26 | 15 | 22 | 30 | 11 | 9  | 11 | 18 | 18 | 23 | 12 | 17 | 11 | 10 | 11 | 12 | 8                              | 7  | 5  | 4  | 4  | 4  | 48.0          |
| 47.2 91.9 92.4 78.9 71.5 80.6 62.6 84.2 46.3 52.7 46.8 44.6 47.2 77.0 58.4 43.2 57.2 60.3 65.7 90.8 47.9 91.8 80.9 68.0                                        |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |               |
| P - Power Failure                                                                                                                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |               |

PAZA  
Valleyview Station  
Monthly Summary Tables, Graphs and  
Roses



## Hourly Averages

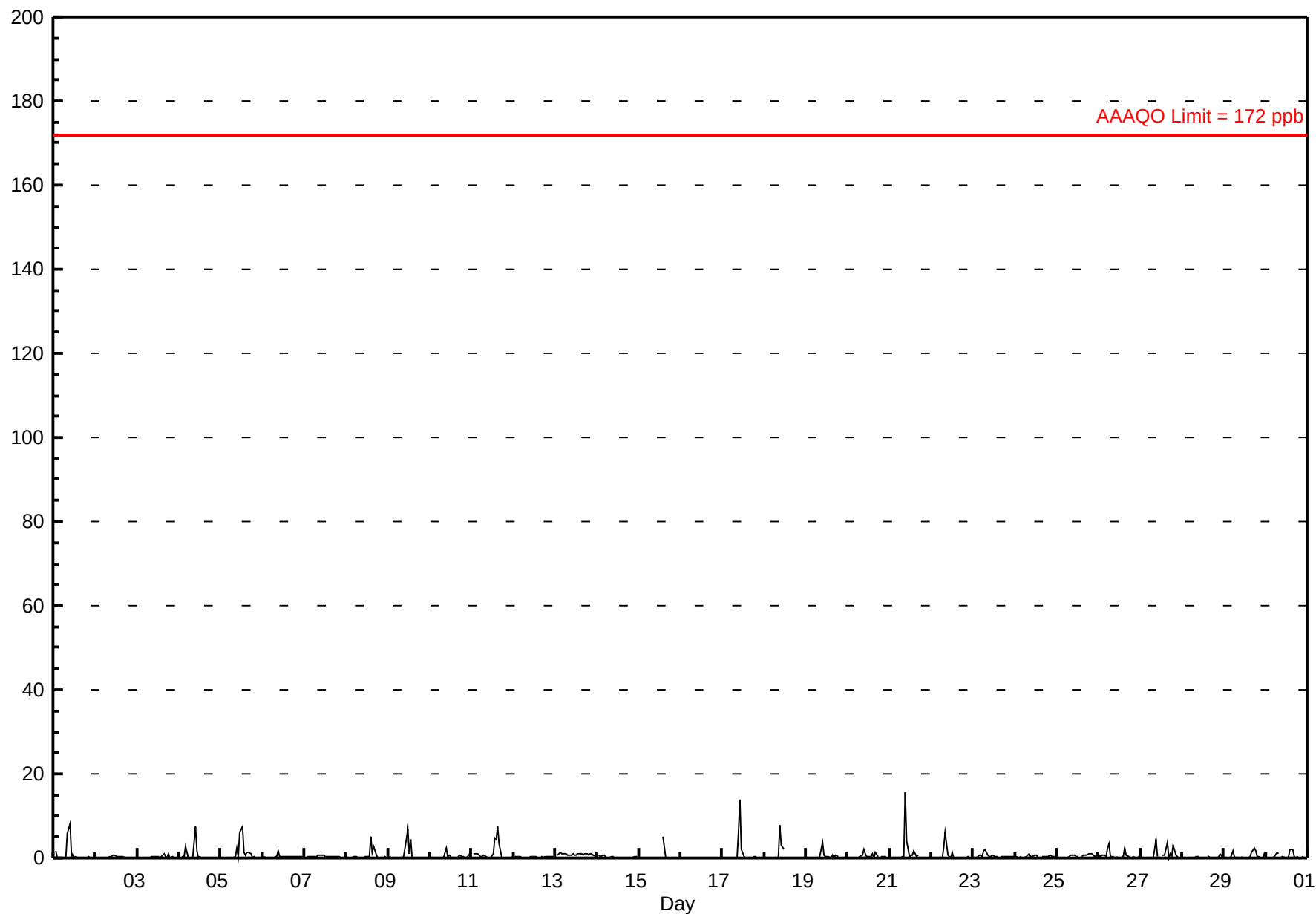
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Valleyview - April 2011

|                                                                                                                                                                                                                                                                                                                                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 15.5 ppb on Apr 21 10:00 Maximum Daily Average: 1.2 ppb on Apr 11                                                                                                                                                                                                                            |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 680<br>Hours of Missing Data: 40<br>Hours of Calibration: 34<br>Percent Operational Time: 99.2 |               |               |
| Minimum Value: 0 ppb on Apr 1 03:00 Minimum Daily Average: 0.0 ppb on Apr 16<br>Maximum Diurnal Average: 2.4 ppb at hour 10 Minimum Diurnal Average: 0.1 ppb at hour 1<br>Monthly Average: 0.52 ppb Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 1.1 P <sub>99</sub> = 7.5 |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                            | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                                                | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                     |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 8  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.8           | 8.2           |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.2           | 0.5           |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.2           | 1.1           |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 7  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.6           | 7.5           |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2  | 0  | 6  | 7  | 1  | 1  | 2  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 1.0           | 7.5           |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.3           | 1.5           |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.3           | 0.8           |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 5  | 1  | 3  | 1  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.6           | 4.9           |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                          | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 3  | 7  | 1  | 4  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.7           | 6.9           |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                      | 0.3           | 2.2           |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0  | 0  | 0  | 1  | 5  | 4  | 8  | 3  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 1.2           | 7.5           |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.2           | 0.5           |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0                                                                                                                                      | 0.9           | 1.3           |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.2           | 0.7           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                         | A                             | 0 | 0 | 0 | 0 | 0 | 0 | M | M | M  | M  | 0  | C  | C  | 5  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A                                                                                                                                      | --            | 5.2           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 0                                                                                                                                      | 0.0           | 0.1           |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6  | 14 | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 1.0           | 14.0          |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | A | 0 | 0 | 8  | 3  | 2  | M  | M  | 0  | 0  | 0  | 0  | 0  | 0  | A  | A  | 0  | 0                                                                                                                                      | 0.7           | 7.7           |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4  | 1  | 0  | 0  | 0  | 0  | 1  | 0  | 1  | 0  | A  | 0  | 0  | 0  | 0                                                                                                                                      | 0.3           | 3.9           |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2  | 1  | 0  | 0  | 0  | 1  | 0  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.4           | 2.1           |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 4  | 0  | 1  | 1  | 2  | 0  | 1  | A  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 1.1           | 15.5          |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 1  | 0  | 0  | 1  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.5           | 6.2           |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 1 | 0  | 0  | 1  | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.4           | 2.0           |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0  | 0  | 1  | 1  | 0  | A  | 0  | 0  | 0  | 0  | 1  | 1  | 0  | 0  | 0                                                                                                                                      | 0.4           | 1.0           |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1  | 1  | 0  | 0  | A  | 0  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                      | 0.5           | 1.2           |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                         | 1                             | 0 | 1 | 1 | 0 | 2 | 3 | 0 | 0 | 0  | 0  | 0  | A  | 0  | 0  | 2  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.6           | 3.3           |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4  | 0  | A  | 1  | 1  | 1  | 4  | 0  | 1  | 0  | 3  | 1  | 0  | 0  | 0                                                                                                                                      | 0.8           | 4.4           |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                      | 0.1           | 1.2           |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | A  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 2  | 2  | 0  | 0  | 0  | 0  | 1                                                                                                                                      | 0.5           | 2.2           |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                         | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 1 | A | 0  | 0  | 0  | 0  | 0  | 2  | 2  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                      | 0.4           | 2.1           |
| 0.1 0.2 0.2 0.2 0.3 0.3 0.3 0.3 0.8 2.4 1.2 0.9 0.7 0.6 0.9 0.8 0.5 0.4 0.3 0.3 0.2 0.2 0.2 0.2                                                                                                                                                                                                                                                                |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                        |               |               |
| 0.7 1.8 1.2 1.3 2.6 2.4 3.3 2.3 6.2 15.5 14.0 6.9 7.5 4.7 5.2 7.5 3.3 2.2 1.6 2.9 1.1 1.0 1.2 1.3                                                                                                                                                                                                                                                              |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                        |               |               |
| C - Calibration M - Maintenance A - Automated Daily Zero Span                                                                                                                                                                                                                                                                                                  |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |
| Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb                                                                                                                                                                                                                                                                                      |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                        |               |               |

## Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Valleyview - April 2011



# Hourly Maximums

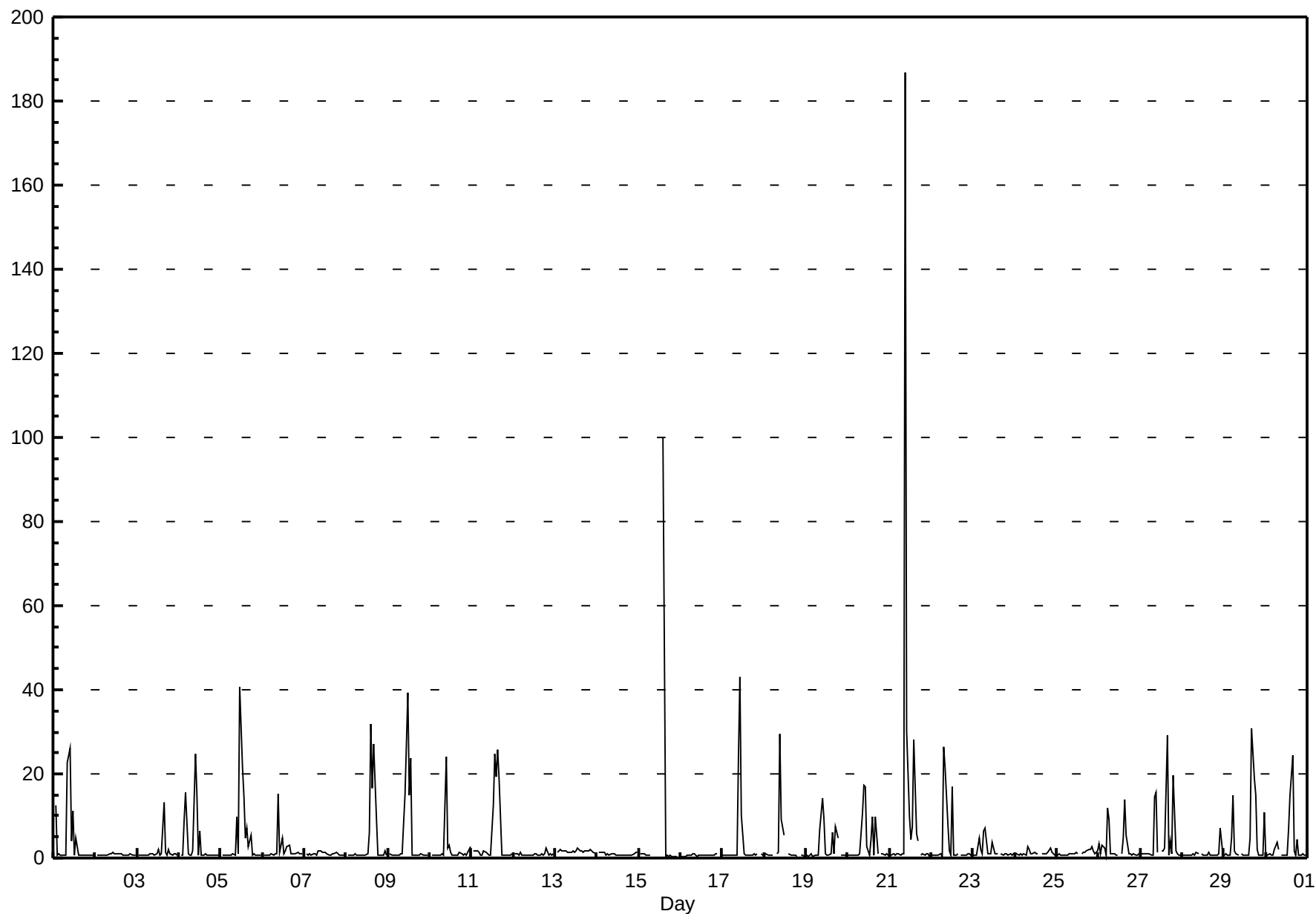
Sulphur Dioxide (SO<sub>2</sub>) - ppb

Valleyview - April 2011

| Maximum Value: 186.8 ppb on Apr 21 10:00     |                               |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      | Maximum Daily Average: 12.6 ppb on Apr 21                                                                                                                   |     |     |     |      | Hours in Service: 720     |               |
|----------------------------------------------|-------------------------------|-----------------|-----|-----|------|------|-----|-------------------------------|------|-------|------|------|------|------|------|------|------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------|---------------------------|---------------|
| Minimum Value: 0 ppb on Apr 19 00:00         |                               |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      | Minimum Daily Average: 0.7 ppb on Apr 16                                                                                                                    |     |     |     |      | Hours of Data: 680        |               |
| Maximum Diurnal Average: 14.9 ppb at hour 10 |                               |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      | Minimum Diurnal Average: 0.8 ppb at hour 1                                                                                                                  |     |     |     |      | Hours of Missing Data: 40 |               |
| Monthly Average: 3.17 ppb                    |                               |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      | Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 0.7 Median = 0.9 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 7.0 P <sub>99</sub> = 30.4 |     |     |     |      | Hours of Calibration: 34  |               |
|                                              |                               |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      | Percent Operational Time: 99.2                                                                                                                              |     |     |     |      |                           |               |
| Day                                          | Hourly Period Ending At (MST) |                 |     |     |      |      |     |                               |      |       |      |      |      |      |      |      |      |      |      |                                                                                                                                                             |     |     |     |      | Daily Average             | Daily Maximum |
|                                              | 1                             | 2               | 3   | 4   | 5    | 6    | 7   | 8                             | 9    | 10    | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20                                                                                                                                                          | 21  | 22  | 23  | 24   |                           |               |
| 1-Apr                                        | A                             | 13              | 1   | 1   | 1    | 1    | 1   | 1                             | 23   | 26    | 4    | 11   | 1    | 5    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 4.1                       | 26.1          |
| 2-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 0.9                       | 1.4           |
| 3-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 2    | 1    | 1    | 13   | 1    | 1    | 2    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 1.5                       | 13.3          |
| 4-Apr                                        | A                             | 1               | 1   | 9   | 16   | 1    | 1   | 1                             | 2    | 25    | 15   | 1    | 6    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 3.6                       | 24.8          |
| 5-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 10    | 1    | 41   | 21   | 15   | 5    | 7    | 3    | 5    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 5.1                       | 40.6          |
| 6-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 15    | 1    | 5    | 1    | 2    | 3    | 3    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 1.9                       | 15.2          |
| 7-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 2    | 2     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 1.0                       | 1.8           |
| 8-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 1    | 6    | 32   | 17   | 27   | 9    | 1    | 1                                                                                                                                                           | 1   | 1   | 2   | 1    | 4.6                       | 31.8          |
| 9-Apr                                        | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 8     | 15   | 39   | 15   | 24   | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 5.0                       | 39.4          |
| 10-Apr                                       | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 24    | 2    | 3    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 3    | 2.1                       | 24.0          |
| 11-Apr                                       | A                             | 2               | 2   | 2   | 1    | 1    | 1   | 2                             | 1    | 1     | 1    | 1    | 13   | 25   | 19   | 26   | 19   | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 5.2                       | 25.6          |
| 12-Apr                                       | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 2                                                                                                                                                           | 1   | 1   | 1   | 1    | 0.9                       | 2.3           |
| 13-Apr                                       | A                             | 2               | 2   | 2   | 2    | 2    | 2   | 1                             | 1    | 1     | 2    | 1    | 2    | 2    | 2    | 2    | 1    | 2    | 2    | 2                                                                                                                                                           | 2   | 2   | 2   | 1    | 1.6                       | 2.2           |
| 14-Apr                                       | A                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 0.9                       | 1.3           |
| 15-Apr                                       | A                             | 1               | 1   | 1   | 1    | 1    | 1   | M                             | M    | M     | M    | 1    | C    | C    | 100  | 0    | 1    | 0    | 1    | 1                                                                                                                                                           | 1   | 0   | 1   | A    | --                        | 99.9          |
| 16-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 0     | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 0.7                       | 1.0           |
| 17-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 24    | 43   | 10   | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 4.0                       | 42.9          |
| 18-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | A   | 1                             | 1    | 29    | 9    | 5    | M    | M    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | A   | 1   | 1   | 0    | 2.8                       | 29.4          |
| 19-Apr                                       | 1                             | 0               | 1   | 1   | 1    | 1    | 1   | 1                             | 7    | 14    | 9    | 1    | 1    | 1    | 1    | 6    | 1    | 7    | 5    | A                                                                                                                                                           | 1   | 1   | 1   | 1    | 2.6                       | 14.3          |
| 20-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 10   | 17    | 17   | 3    | 1    | 5    | 10   | 1    | 10   | 1    | A    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 3.7                       | 17.1          |
| 21-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 187   | 30   | 10   | 4    | 7    | 28   | 6    | 4    | A    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 0    | 12.6                      | 186.8         |
| 22-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 0   | 26                            | 21   | 8     | 2    | 1    | 17   | 1    | 1    | 1    | A    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 3.8                       | 26.3          |
| 23-Apr                                       | 1                             | 1               | 1   | 5   | 2    | 1    | 7   | 7                             | 1    | 1     | 1    | 4    | 1    | 1    | 1    | A    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 1.8                       | 7.1           |
| 24-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 3                             | 2    | 1     | 1    | 1    | 1    | 1    | A    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 2   | 1   | 1   | 1    | 1.2                       | 2.6           |
| 25-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | 1    | 1    | A    | 1    | 1    | 1    | 2    | 2    | 2                                                                                                                                                           | 3   | 2   | 1   | 2    | 1.3                       | 2.8           |
| 26-Apr                                       | 3                             | 1               | 3   | 2   | 1    | 12   | 9   | 1                             | 1    | 1     | 1    | 1    | A    | 1    | 5    | 14   | 6    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 2.9                       | 13.7          |
| 27-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 14   | 15    | 1    | A    | 2    | 2    | 3    | 29   | 1    | 4    | 1    | 20                                                                                                                                                          | 2   | 1   | 1   | 1    | 4.5                       | 29.1          |
| 28-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 1    | 1   | 1                             | 1    | 1     | 1    | A    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1                                                                                                                                                           | 1   | 1   | 7   | 1    | 1.0                       | 7.0           |
| 29-Apr                                       | 1                             | 1               | 1   | 1   | 5    | 15   | 2   | 1                             | 1    | A     | 1    | 1    | 1    | 1    | 1    | 5    | 31   | 19   | 15   | 2                                                                                                                                                           | 1   | 1   | 1   | 11   | 5.0                       | 30.7          |
| 30-Apr                                       | 1                             | 1               | 1   | 1   | 1    | 2    | 4   | 2                             | A    | 1     | 1    | 1    | 1    | 7    | 15   | 24   | 2    | 1    | 4    | 1                                                                                                                                                           | 1   | 1   | 1   | 1    | 3.1                       | 24.3          |
| 0.8                                          |                               | 1.2             | 0.9 | 1.3 | 1.5  | 1.7  | 1.4 | 2.1                           | 3.6  | 14.9  | 5.9  | 5.1  | 3.7  | 4.1  | 8.1  | 5.7  | 4.1  | 2.2  | 1.7  | 1.6                                                                                                                                                         | 1.0 | 0.9 | 1.1 | 1.2  | Diurnal Average           |               |
| 3.4                                          |                               | 12.6            | 3.0 | 8.7 | 15.6 | 14.9 | 9.3 | 26.3                          | 22.6 | 186.8 | 42.9 | 40.6 | 21.3 | 24.7 | 99.9 | 29.1 | 30.7 | 18.9 | 14.9 | 19.6                                                                                                                                                        | 2.8 | 1.7 | 7.0 | 11.0 | Diurnal Maximum           |               |
| C - Calibration                              |                               | M - Maintenance |     |     |      |      |     | A - Automated Daily Zero Span |      |       |      |      |      |      |      |      |      |      |      |                                                                                                                                                             |     |     |     |      |                           |               |

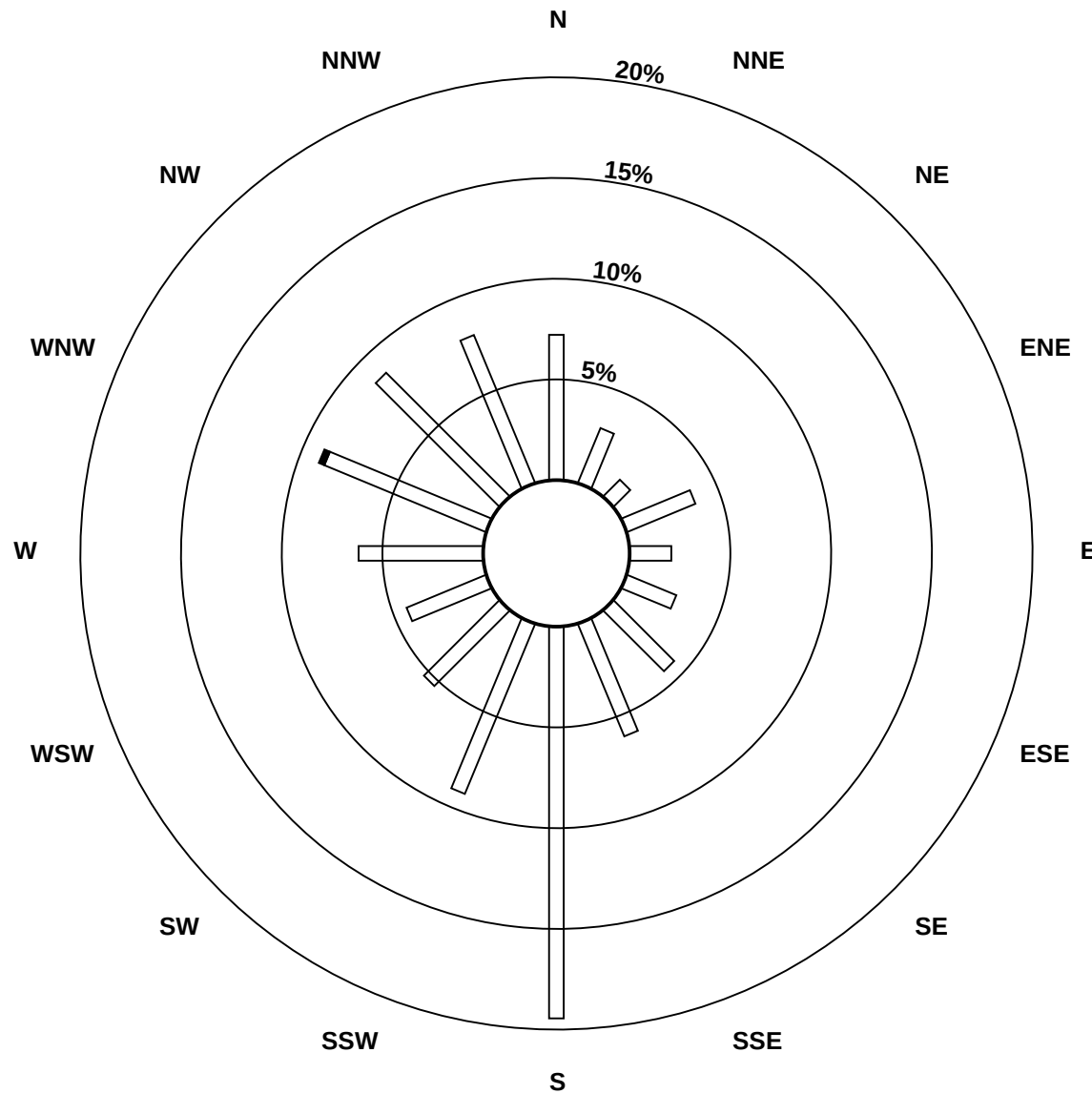
## Hourly Maximums

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Valleyview - April 2011

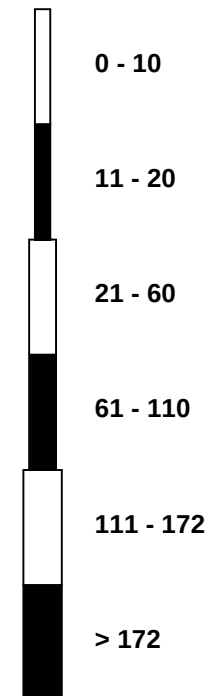


## Pollutant Rose

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Valleyview - April 2011

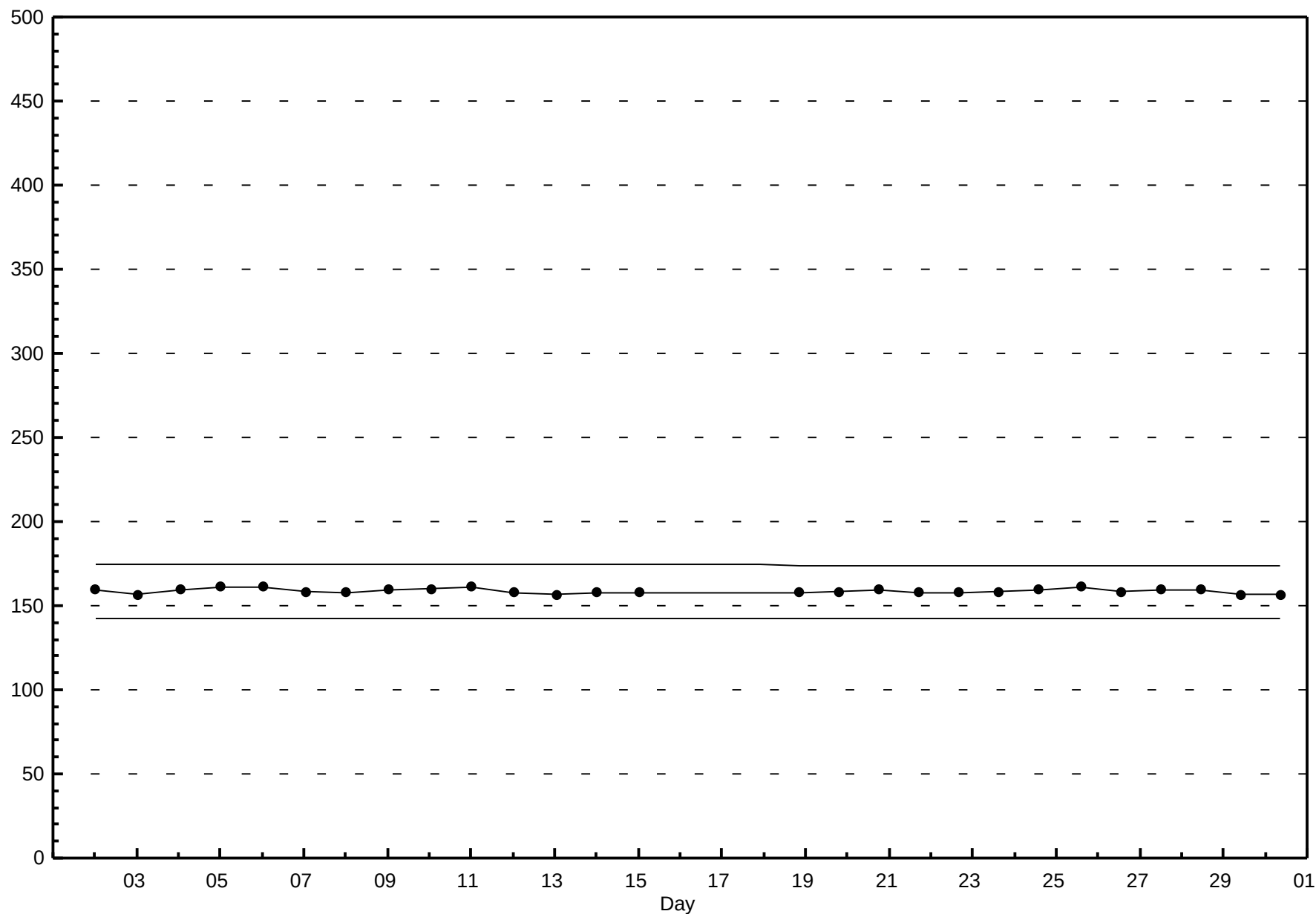


## Pollutant Classes (ppb)



## Span Responses

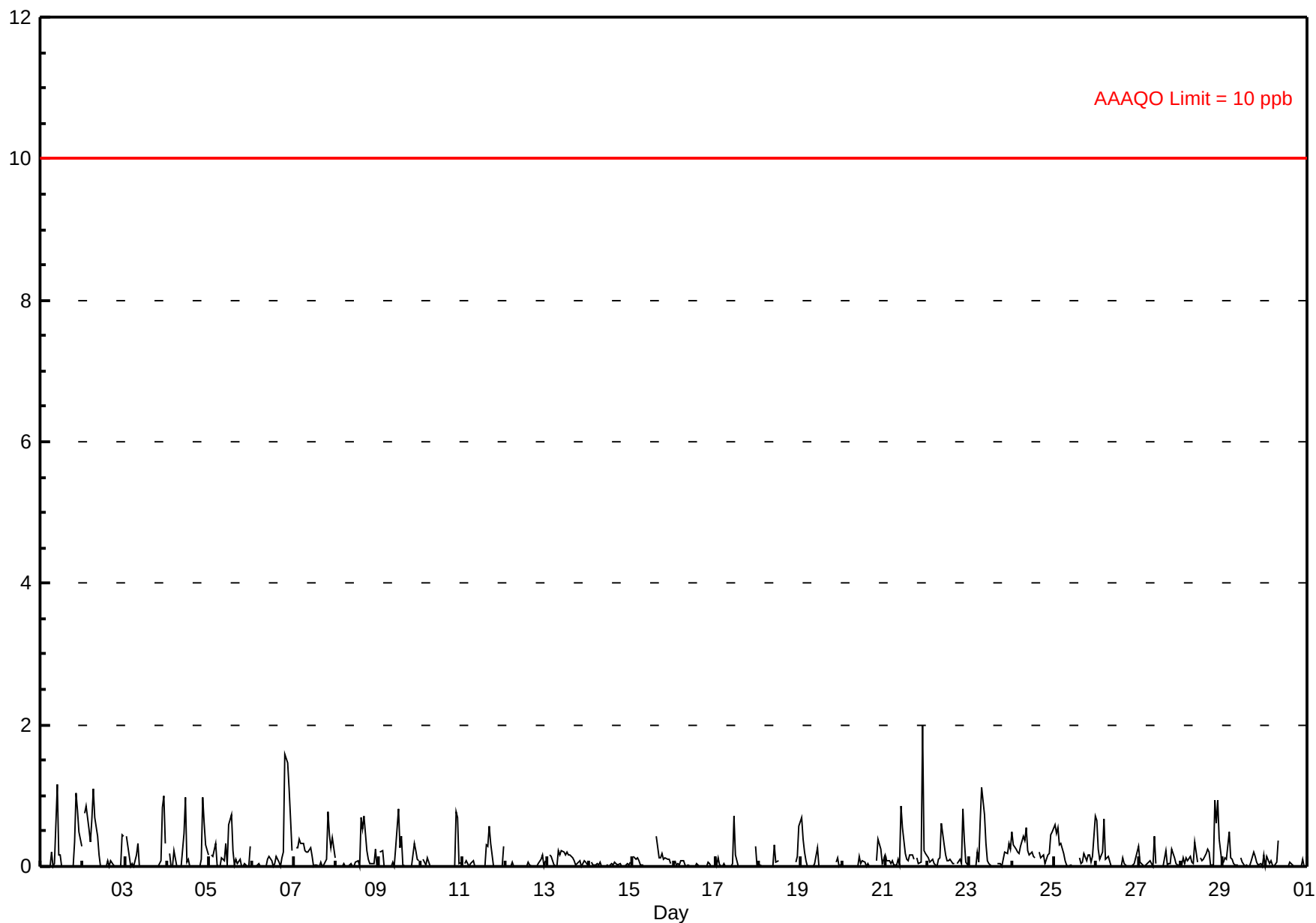
Sulphur Dioxide (SO<sub>2</sub>)  
Valleyview - April 2011



[illegible]

## Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - April 2011





# Hourly Maximums

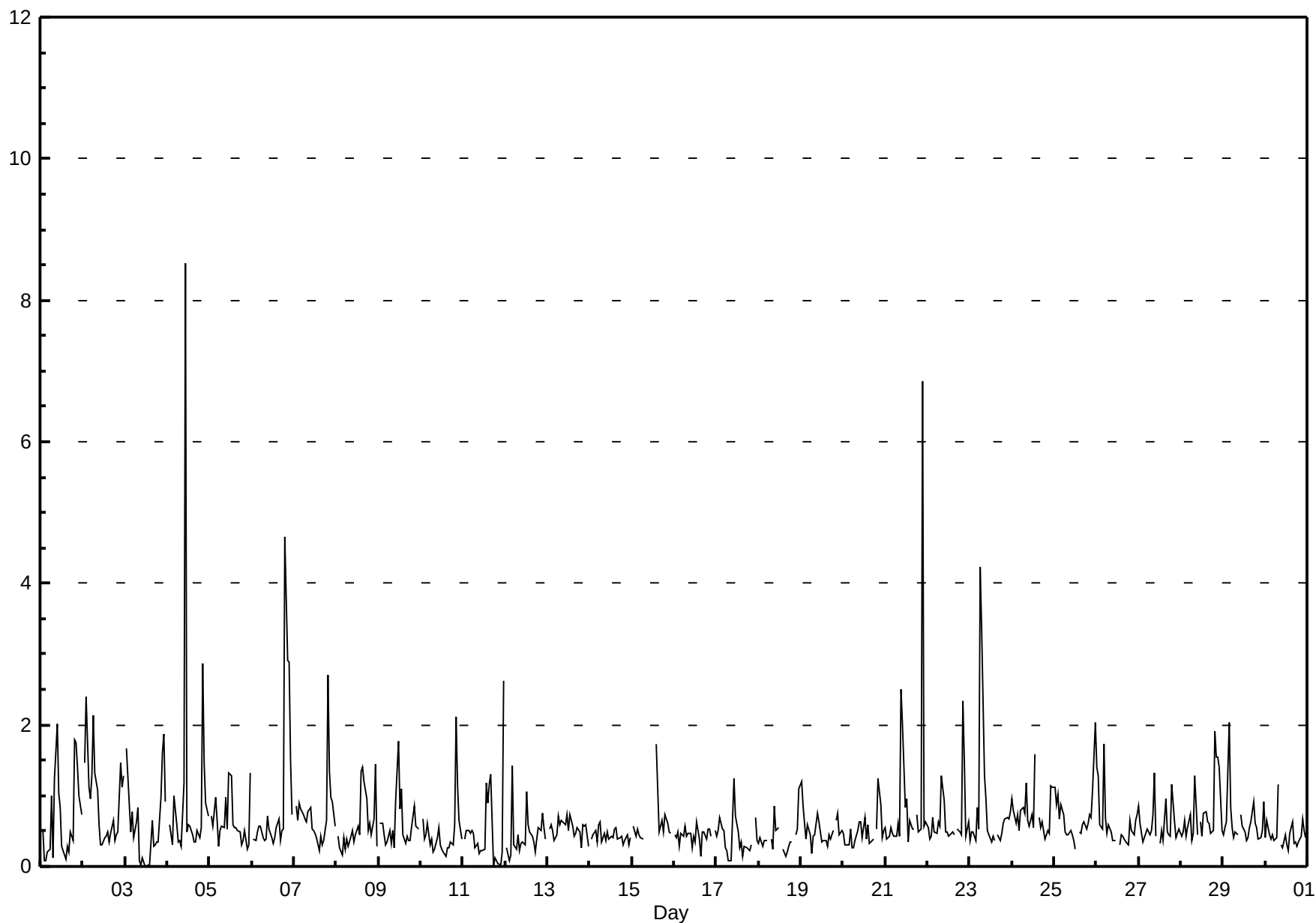
Hydrogen Sulphide (H<sub>2</sub>S) - ppb

Valleyview - April 2011

| Maximum Value: 8.5 ppb on Apr 4 11:00                         |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 1.0 ppb on Apr 4                                                                                                                    |    |    |    |    |                 | Hours in Service: 720     |               |
|---------------------------------------------------------------|-------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|-----------------|---------------------------|---------------|
| Minimum Value: 0 ppb on Apr 3 12:00                           |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 0.4 ppb on Apr 18                                                                                                                   |    |    |    |    |                 | Hours of Data: 679        |               |
| Maximum Diurnal Average: 1.1 ppb at hour 22                   |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 0.4 ppb at hour 19                                                                                                                |    |    |    |    |                 | Hours of Missing Data: 41 |               |
| Monthly Average: 0.63 ppb                                     |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.5 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.1 P <sub>99</sub> = 2.9 |    |    |    |    |                 | Hours of Calibration: 36  |               |
|                                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.3                                                                                                                             |    |    |    |    |                 |                           |               |
| Day                                                           | Hourly Period Ending At (MST) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                 | Daily Average             | Daily Maximum |
|                                                               | 1                             | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19                                                                                                                                                         | 20 | 21 | 22 | 23 | 24              |                           |               |
| 1-Apr                                                         | A                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 2  | 2  | 1  | 1  | 1               | 0.7                       | 2.0           |
| 2-Apr                                                         | A                             | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0                                                                                                                                                          | 0  | 0  | 1  | 1  | 1               | 0.9                       | 2.4           |
| 3-Apr                                                         | A                             | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0                                                                                                                                                          | 0  | 1  | 2  | 2  | 1               | 0.6                       | 1.9           |
| 4-Apr                                                         | A                             | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1  | 9  | 0  | 1  | 1  | 0  | 0  | 0  | 1  | 0                                                                                                                                                          | 1  | 3  | 1  | 1  | 1               | 1.0                       | 8.5           |
| 5-Apr                                                         | A                             | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0                                                                                                                                                          | 0  | 1  | 0  | 0  | 1               | 0.6                       | 1.3           |
| 6-Apr                                                         | A                             | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1  | 1  | 0  | 0  | 0  | 1  | 1  | 0  | 1  | 1                                                                                                                                                          | 5  | 3  | 3  | 2  | 1               | 0.9                       | 4.7           |
| 7-Apr                                                         | A                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                          | 3  | 1  | 1  | 1  | 1               | 0.7                       | 2.7           |
| 8-Apr                                                         | A                             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 1  | 0  | 1  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 1  | 1  | 0               | 0.6                       | 1.4           |
| 9-Apr                                                         | A                             | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0  | 1  | 2  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.6                       | 1.8           |
| 10-Apr                                                        | A                             | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 1  | 2  | 1  | 1  | 0               | 0.5                       | 2.1           |
| 11-Apr                                                        | A                             | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 3               | 0.5                       | 2.6           |
| 12-Apr                                                        | A                             | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 1  | 1  | 0               | 0.4                       | 1.4           |
| 13-Apr                                                        | A                             | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 0  | 0  | 1  | 0                                                                                                                                                          | 0  | 1  | 1  | 1  | 0               | 0.5                       | 0.7           |
| 14-Apr                                                        | A                             | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 0  | 0  | 0               | 0.4                       | 0.6           |
| 15-Apr                                                        | A                             | 1 | 0 | 1 | 0 | 0 | 0 | M | M | M  | C  | C  | C  | C  | 2  | 0  | 1  | 1  | 0                                                                                                                                                          | 1  | 1  | 0  | 0  | A               | --                        | 1.7           |
| 16-Apr                                                        | 0                             | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 0  | A  | 1               | 0.4                       | 0.6           |
| 17-Apr                                                        | 0                             | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1  | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | A  | 1  | 0               | 0.4                       | 1.2           |
| 18-Apr                                                        | 0                             | 0 | 0 | 0 | 0 | 0 | A | 0 | 0 | 1  | 1  | 1  | M  | M  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 0  | A  | 0  | 1  | 1               | 0.4                       | 1.1           |
| 19-Apr                                                        | 1                             | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1                                                                                                                                                          | A  | 1  | 1  | 0  | 1               | 0.5                       | 1.2           |
| 20-Apr                                                        | 0                             | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1  | 1  | 0  | 1  | 0  | 1  | 0  | 0  | 0  | A                                                                                                                                                          | 1  | 1  | 1  | 0  | 1               | 0.5                       | 1.2           |
| 21-Apr                                                        | 1                             | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 3  | 2  | 1  | 1  | 0  | 1  | 1  | 1  | A  | 1                                                                                                                                                          | 0  | 1  | 7  | 1  | 1               | 1.0                       | 6.9           |
| 22-Apr                                                        | 1                             | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | A  | 1  | 0                                                                                                                                                          | 0  | 2  | 1  | 0  | 1               | 0.7                       | 2.3           |
| 23-Apr                                                        | 0                             | 0 | 0 | 0 | 1 | 1 | 4 | 3 | 1 | 1  | 1  | 0  | 0  | 0  | 0  | A  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 1  | 1  | 1               | 0.9                       | 4.2           |
| 24-Apr                                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 2  | A  | 1  | 1  | 1  | 1                                                                                                                                                          | 0  | 1  | 0  | 1  | 1               | 0.7                       | 1.6           |
| 25-Apr                                                        | 1                             | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | A  | 0  | 0  | 1  | 1  | 1                                                                                                                                                          | 1  | 1  | 1  | 1  | 2               | 0.7                       | 2.0           |
| 26-Apr                                                        | 1                             | 1 | 1 | 1 | 2 | 1 | 0 | 1 | 0 | 0  | 0  | 0  | A  | 0  | 0  | 0  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 0  | 1  | 1               | 0.6                       | 1.7           |
| 27-Apr                                                        | 1                             | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1  | 0  | A  | 0  | 1  | 0  | 1  | 0  | 0  | 0                                                                                                                                                          | 1  | 1  | 0  | 0  | 1               | 0.6                       | 1.3           |
| 28-Apr                                                        | 0                             | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0  | A  | 1  | 0  | 1  | 1  | 1  | 1  | 0  | 1                                                                                                                                                          | 2  | 2  | 2  | 1  | 1               | 0.8                       | 1.9           |
| 29-Apr                                                        | 0                             | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | A  | 1  | 1  | 0  | 0  | 0  | 1  | 1  | 1  | 1                                                                                                                                                          | 1  | 0  | 0  | 1  | 1               | 0.6                       | 2.0           |
| 30-Apr                                                        | 0                             | 1 | 0 | 0 | 0 | 0 | 0 | 1 | A | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 0                                                                                                                                                          | 0  | 0  | 1  | 1  | 0               | 0.4                       | 1.2           |
|                                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Average |                           |               |
|                                                               |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    | Diurnal Maximum |                           |               |
| C - Calibration M - Maintenance A - Automated Daily Zero Span |                               |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |                                                                                                                                                            |    |    |    |    |                 |                           |               |

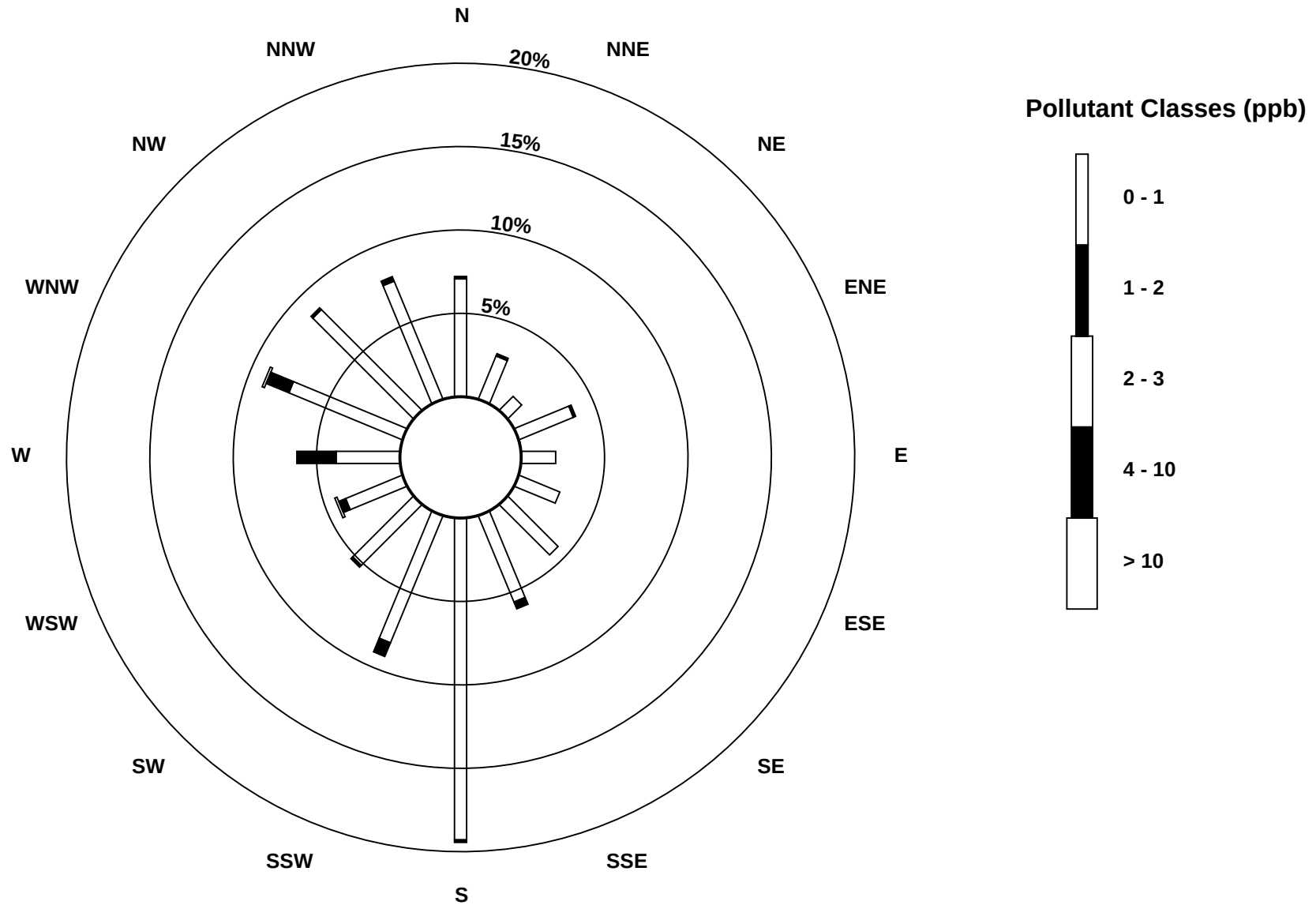
## Hourly Maximums

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - April 2011



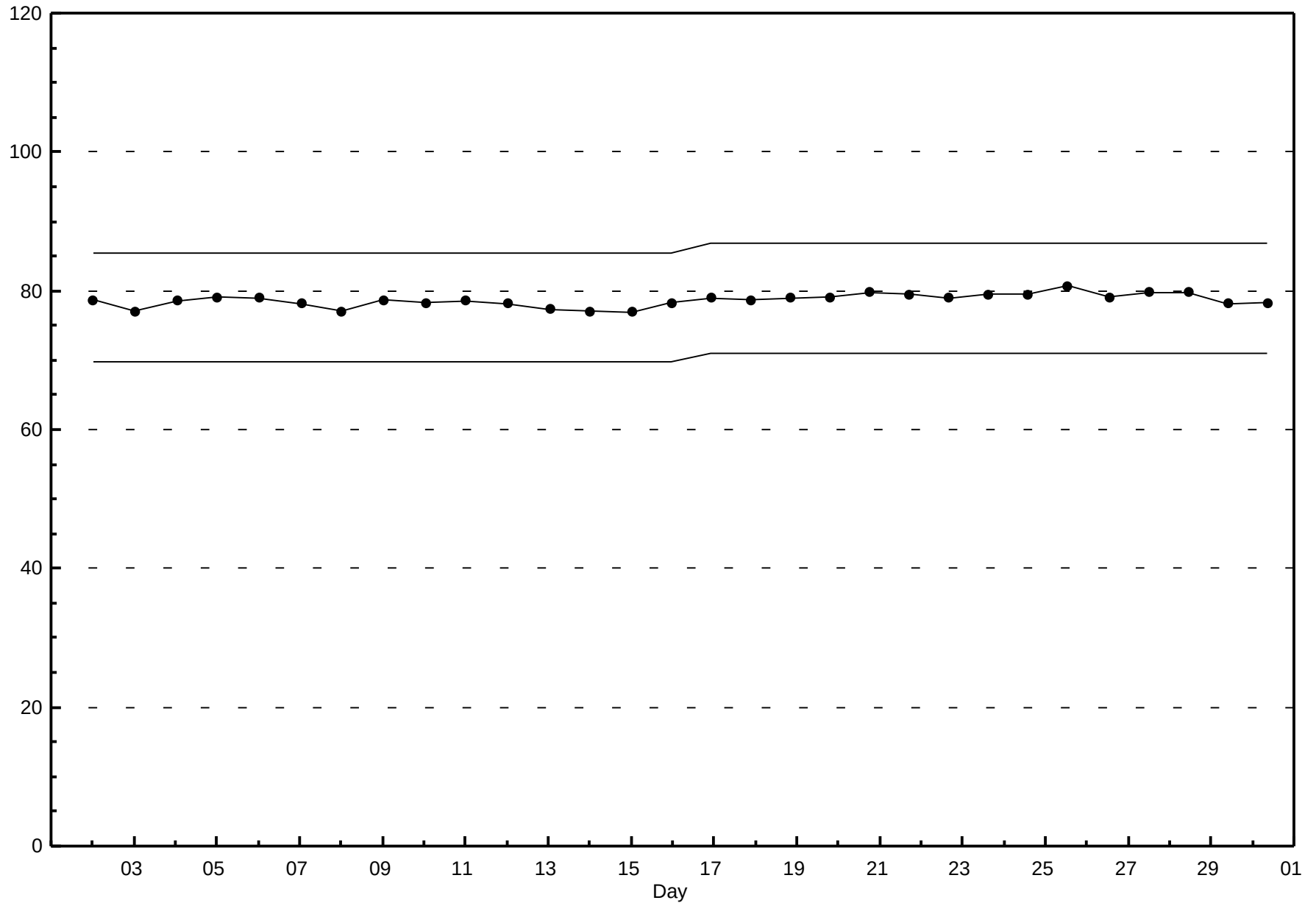
# Pollutant Rose

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Valleyview - April 2011



## Span Responses

Hydrogen Sulphide (H<sub>2</sub>S)  
Valleyview - April 2011



# Hourly Averages

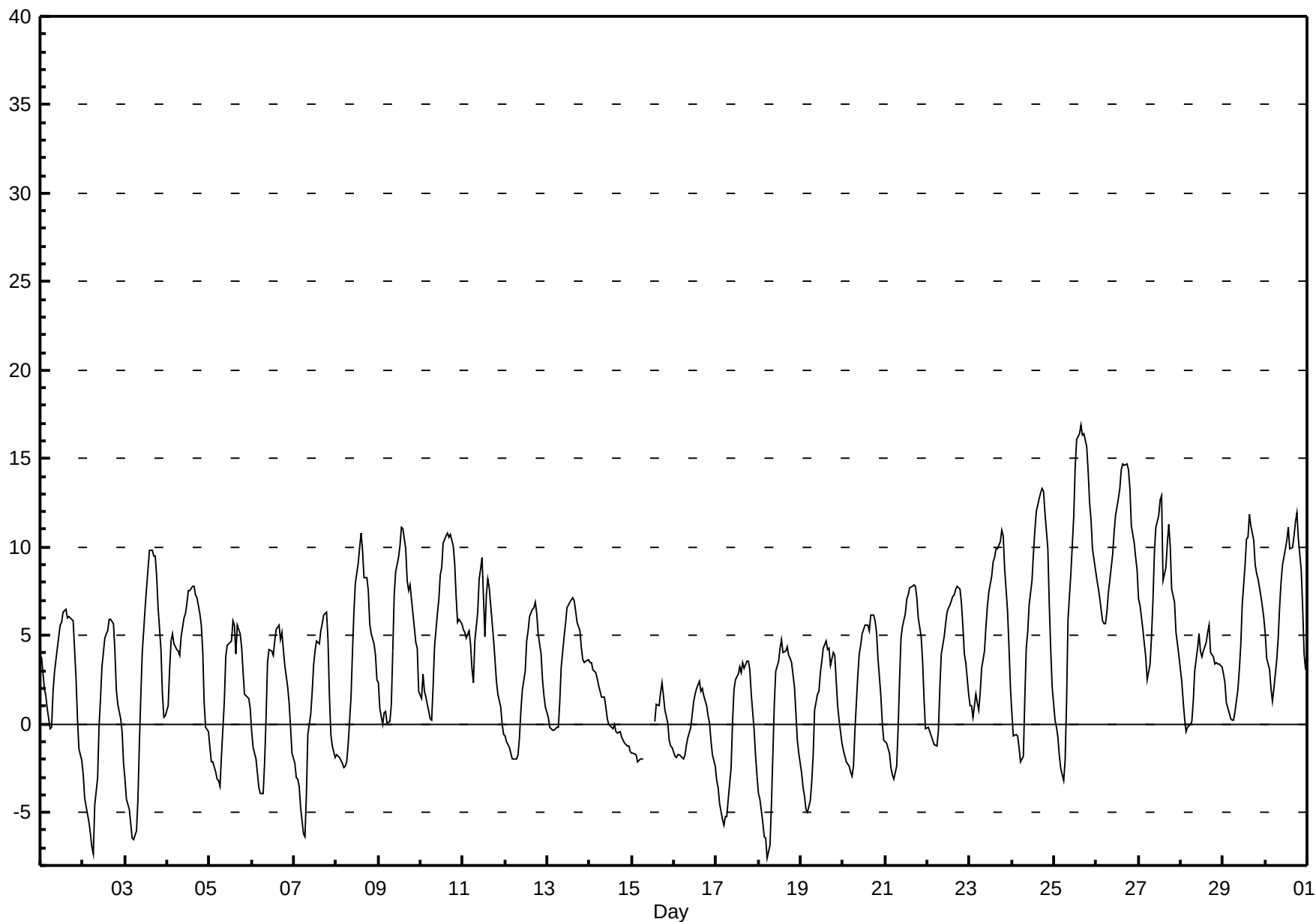
External Temperature (ET) - °C

Valleyview - April 2011

| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0<br>Maximum Value: 16.9 °C on Apr 25 16:00 Maximum Daily Average: 10.3 °C on Apr 26                                                                                                                                                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720<br>Hours of Data: 714<br>Hours of Missing Data: 6<br>Hours of Calibration: 0<br>Percent Operational Time: 99.2 |    |    |               |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------|----|----|---------------|---------------|
| Minimum Value: -8 °C on Apr 18 06:00 Minimum Daily Average: -0.5 °C on Apr 17<br>Maximum Diurnal Average: 7.4 °C at hour 16 Minimum Diurnal Average: -1.5 °C at hour 6<br>Monthly Average: 3.35 °C Percentiles: P <sub>1</sub> = -6.3 P <sub>10</sub> = -2.2 Q <sub>1</sub> = -0.2 Median = 3.5 Q <sub>3</sub> = 6.3 P <sub>90</sub> = 9.8 P <sub>99</sub> = 14.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |               |               |
| Day                                                                                                                                                                                                                                                                                                                                                               | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    | Daily Average | Daily Maximum |
|                                                                                                                                                                                                                                                                                                                                                                   | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22                                                                                                                                   | 23 | 24 |               |               |
| 1-Apr                                                                                                                                                                                                                                                                                                                                                             | 4                             | 3  | 2  | 2  | 1  | 0  | 0  | 2  | 3  | 4  | 5  | 6  | 6  | 6  | 6  | 6  | 6  | 6  | 6  | 4  | 3  | 0                                                                                                                                    | -1 | -2 | 3.2           | 6.5           |
| 2-Apr                                                                                                                                                                                                                                                                                                                                                             | -3                            | -4 | -5 | -6 | -6 | -7 | -7 | -5 | -3 | 0  | 1  | 3  | 5  | 5  | 5  | 6  | 6  | 6  | 4  | 2  | 1  | 0                                                                                                                                    | 0  | -2 | -0.1          | 5.9           |
| 3-Apr                                                                                                                                                                                                                                                                                                                                                             | -3                            | -4 | -5 | -6 | -6 | -7 | -6 | -4 | -1 | 2  | 4  | 7  | 8  | 9  | 10 | 10 | 9  | 9  | 8  | 7  | 4  | 2                                                                                                                                    | 0  | 0  | 1.9           | 9.8           |
| 4-Apr                                                                                                                                                                                                                                                                                                                                                             | 1                             | 3  | 5  | 5  | 5  | 4  | 4  | 4  | 5  | 6  | 6  | 7  | 8  | 8  | 8  | 8  | 7  | 7  | 6  | 6  | 4  | 1                                                                                                                                    | 0  | 0  | 4.8           | 7.8           |
| 5-Apr                                                                                                                                                                                                                                                                                                                                                             | -1                            | -2 | -2 | -3 | -3 | -3 | -4 | -2 | 1  | 4  | 4  | 4  | 5  | 6  | 6  | 4  | 6  | 5  | 4  | 3  | 2  | 1                                                                                                                                    | 1  | 1  | 1.6           | 5.8           |
| 6-Apr                                                                                                                                                                                                                                                                                                                                                             | 0                             | -1 | -2 | -3 | -4 | -4 | -4 | -2 | 0  | 3  | 4  | 4  | 4  | 5  | 5  | 6  | 5  | 5  | 4  | 3  | 2  | 1                                                                                                                                    | 0  | -2 | 1.3           | 5.6           |
| 7-Apr                                                                                                                                                                                                                                                                                                                                                             | -2                            | -3 | -3 | -4 | -5 | -6 | -6 | -4 | -1 | 1  | 2  | 3  | 4  | 5  | 5  | 5  | 6  | 6  | 6  | 5  | 2  | -1                                                                                                                                   | -1 | -2 | 0.5           | 6.3           |
| 8-Apr                                                                                                                                                                                                                                                                                                                                                             | -2                            | -2 | -2 | -2 | -2 | -2 | -2 | -1 | 1  | 4  | 6  | 8  | 9  | 10 | 11 | 10 | 8  | 8  | 8  | 6  | 5  | 5                                                                                                                                    | 4  | 2  | 3.7           | 10.8          |
| 9-Apr                                                                                                                                                                                                                                                                                                                                                             | 2                             | 1  | 0  | 1  | 1  | 0  | 0  | 1  | 4  | 7  | 9  | 9  | 10 | 11 | 11 | 10 | 8  | 8  | 8  | 7  | 5  | 5                                                                                                                                    | 4  | 2  | 5.2           | 11.1          |
| 10-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 3  | 2  | 2  | 1  | 0  | 0  | 2  | 4  | 6  | 7  | 8  | 9  | 10 | 11 | 11 | 11 | 11 | 10 | 9  | 7  | 6                                                                                                                                    | 6  | 6  | 6.0           | 10.8          |
| 11-Apr                                                                                                                                                                                                                                                                                                                                                            | 5                             | 5  | 5  | 5  | 4  | 3  | 2  | 5  | 6  | 8  | 9  | 9  | 5  | 7  | 8  | 8  | 7  | 5  | 4  | 2  | 2  | 1                                                                                                                                    | 0  | -1 | 4.8           | 9.4           |
| 12-Apr                                                                                                                                                                                                                                                                                                                                                            | -1                            | -1 | -1 | -2 | -2 | -2 | -2 | -2 | -1 | 1  | 2  | 3  | 5  | 5  | 6  | 6  | 7  | 7  | 6  | 5  | 4  | 3                                                                                                                                    | 2  | 1  | 2.0           | 6.9           |
| 13-Apr                                                                                                                                                                                                                                                                                                                                                            | 0                             | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 3  | 5  | 6  | 7  | 7  | 7  | 7  | 7  | 6  | 6  | 5  | 4  | 4  | 3                                                                                                                                    | 4  | 4  | 3.5           | 7.1           |
| 14-Apr                                                                                                                                                                                                                                                                                                                                                            | 3                             | 3  | 3  | 3  | 3  | 2  | 2  | 1  | 2  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | -1 | 0  | -1 | -1 | -1 | -1                                                                                                                                   | -1 | -2 | 0.6           | 3.5           |
| 15-Apr                                                                                                                                                                                                                                                                                                                                                            | -2                            | -2 | -2 | -2 | -2 | -2 | -2 | M  | M  | M  | M  | M  | M  | 0  | 1  | 1  | 2  | 2  | 2  | 1  | 0  | -1                                                                                                                                   | -1 | -1 | -0.4          | 2.3           |
| 16-Apr                                                                                                                                                                                                                                                                                                                                                            | -2                            | -2 | -2 | -2 | -2 | -2 | -2 | -1 | -1 | 0  | 1  | 1  | 2  | 2  | 2  | 2  | 2  | 2  | 1  | 1  | 0  | -1                                                                                                                                   | -2 | -2 | -0.2          | 2.4           |
| 17-Apr                                                                                                                                                                                                                                                                                                                                                            | -3                            | -4 | -5 | -5 | -6 | -5 | -5 | -4 | -2 | 0  | 2  | 2  | 3  | 3  | 3  | 3  | 3  | 4  | 4  | 3  | 2  | 0                                                                                                                                    | -2 | -3 | -0.5          | 3.6           |
| 18-Apr                                                                                                                                                                                                                                                                                                                                                            | -4                            | -4 | -6 | -6 | -6 | -8 | -7 | -5 | -2 | 1  | 3  | 4  | 4  | 5  | 4  | 4  | 4  | 4  | 4  | 3  | 2  | 1                                                                                                                                    | -1 | -2 | -0.3          | 4.8           |
| 19-Apr                                                                                                                                                                                                                                                                                                                                                            | -3                            | -4 | -4 | -5 | -5 | -4 | -3 | -2 | 1  | 2  | 2  | 3  | 4  | 4  | 5  | 4  | 4  | 3  | 4  | 4  | 2  | 1                                                                                                                                    | 0  | -1 | 0.5           | 4.7           |
| 20-Apr                                                                                                                                                                                                                                                                                                                                                            | -1                            | -2 | -2 | -2 | -3 | -3 | -2 | 0  | 3  | 4  | 4  | 5  | 6  | 6  | 6  | 5  | 6  | 6  | 6  | 5  | 4  | 2                                                                                                                                    | 0  | -1 | 2.1           | 6.2           |
| 21-Apr                                                                                                                                                                                                                                                                                                                                                            | -1                            | -1 | -2 | -2 | -3 | -3 | -2 | 0  | 2  | 5  | 5  | 6  | 7  | 7  | 8  | 8  | 8  | 8  | 7  | 6  | 5  | 4                                                                                                                                    | 1  | 0  | 3.0           | 7.9           |
| 22-Apr                                                                                                                                                                                                                                                                                                                                                            | 0                             | 0  | -1 | -1 | -1 | -1 | 0  | 2  | 4  | 5  | 6  | 6  | 7  | 7  | 7  | 7  | 8  | 8  | 8  | 7  | 6  | 4                                                                                                                                    | 3  | 2  | 3.8           | 7.8           |
| 23-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | 1  | 0  | 2  | 1  | 1  | 2  | 3  | 4  | 6  | 7  | 7  | 8  | 9  | 9  | 10 | 10 | 10 | 11 | 11 | 9  | 6                                                                                                                                    | 4  | 2  | 5.6           | 10.9          |
| 24-Apr                                                                                                                                                                                                                                                                                                                                                            | 1                             | -1 | -1 | -1 | -1 | -2 | -2 | 1  | 4  | 5  | 7  | 8  | 10 | 11 | 12 | 13 | 13 | 13 | 13 | 12 | 10 | 7                                                                                                                                    | 4  | 2  | 5.8           | 13.3          |
| 25-Apr                                                                                                                                                                                                                                                                                                                                                            | 0                             | 0  | -1 | -2 | -3 | -3 | -2 | 1  | 6  | 8  | 10 | 12 | 15 | 16 | 16 | 17 | 16 | 16 | 16 | 14 | 13 | 12                                                                                                                                   | 10 | 9  | 8.2           | 16.9          |
| 26-Apr                                                                                                                                                                                                                                                                                                                                                            | 8                             | 8  | 7  | 6  | 6  | 6  | 6  | 7  | 9  | 10 | 11 | 12 | 13 | 13 | 14 | 15 | 15 | 15 | 14 | 13 | 11 | 10                                                                                                                                   | 9  | 9  | 10.3          | 14.7          |
| 27-Apr                                                                                                                                                                                                                                                                                                                                                            | 7                             | 7  | 5  | 4  | 4  | 3  | 3  | 5  | 7  | 10 | 11 | 12 | 13 | 13 | 8  | 9  | 10 | 11 | 10 | 8  | 7  | 5                                                                                                                                    | 5  | 4  | 7.5           | 12.9          |
| 28-Apr                                                                                                                                                                                                                                                                                                                                                            | 2                             | 1  | 0  | 0  | 0  | 0  | 0  | 1  | 3  | 4  | 5  | 4  | 4  | 4  | 5  | 5  | 6  | 4  | 4  | 3  | 3  | 3                                                                                                                                    | 3  | 3  | 2.9           | 5.6           |
| 29-Apr                                                                                                                                                                                                                                                                                                                                                            | 3                             | 2  | 1  | 1  | 0  | 0  | 0  | 1  | 2  | 3  | 4  | 7  | 9  | 10 | 11 | 12 | 11 | 10 | 9  | 9  | 8  | 7                                                                                                                                    | 7  | 6  | 5.6           | 11.8          |
| 30-Apr                                                                                                                                                                                                                                                                                                                                                            | 5                             | 4  | 3  | 2  | 1  | 2  | 4  | 5  | 7  | 8  | 9  | 10 | 10 | 11 | 10 | 10 | 11 | 11 | 12 | 10 | 9  | 7                                                                                                                                    | 4  | 3  | 7.0           | 11.9          |
| 0.6 0.1 -0.3 -0.7 -1.1 -1.5 -1.2 0.4 2.5 4.2 5.3 6.1 6.7 7.2 7.3 7.4 7.3 7.2 6.8 5.7 4.4 3.1 2.1 1.1 Diurnal Average                                                                                                                                                                                                                                              |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |               |               |
| 8.2 7.7 7.2 5.8 5.7 5.7 6.3 7.3 8.8 9.6 11.1 11.8 14.6 16.0 16.4 16.9 16.3 16.4 15.7 14.3 12.5 11.5 9.9 8.8 Diurnal Maximum                                                                                                                                                                                                                                       |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |               |               |
| M - Maintenance                                                                                                                                                                                                                                                                                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                      |    |    |               |               |

## Hourly Averages

External Temperature (ET) - °C  
Valleyview - April 2011



## Hourly Averages

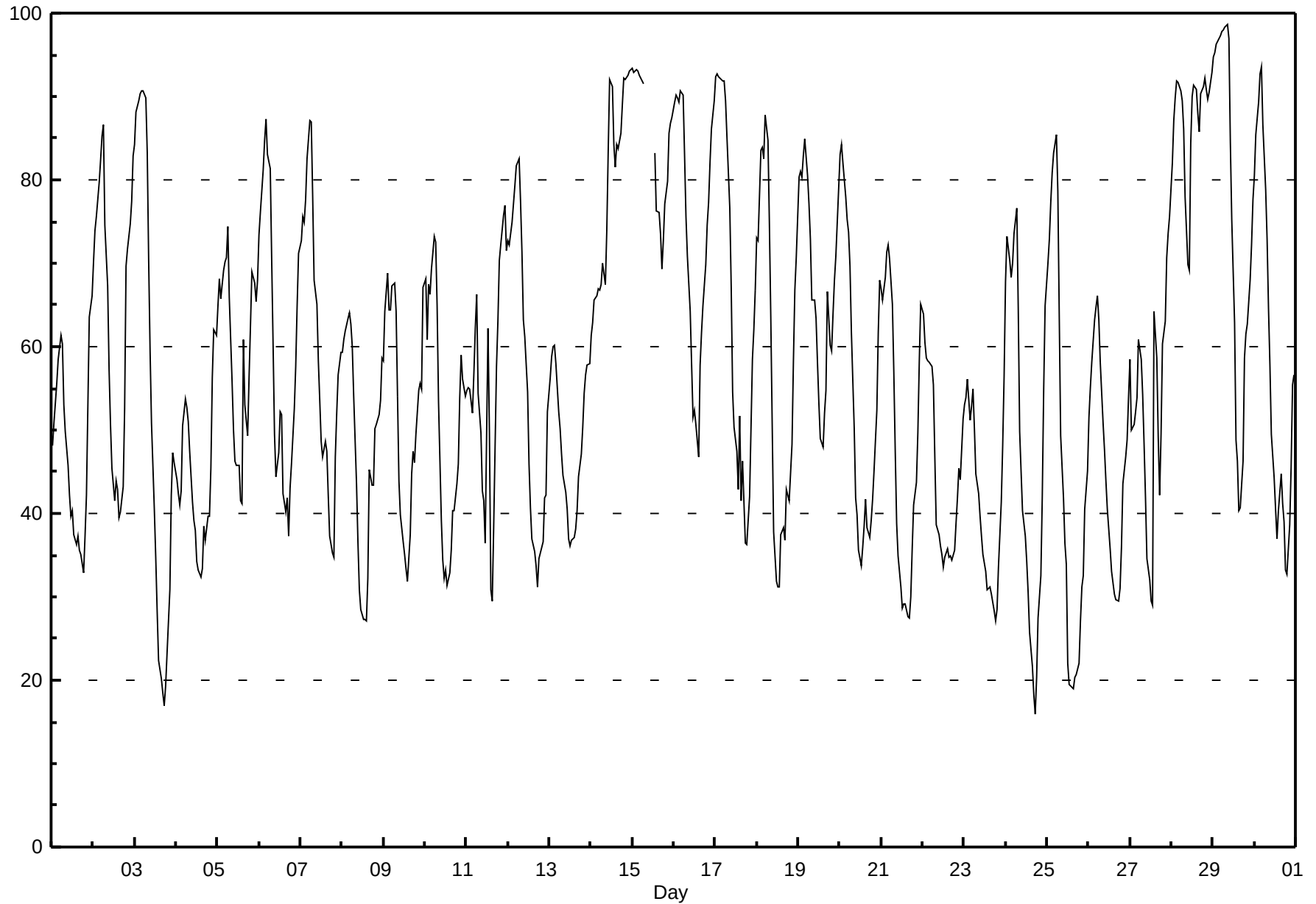
Relative Humidity (RH) - %

Valleyview - April 2011

|                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |               |                                |  |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------|--|
| Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720                                                                                                                                             |               |                                |  |
| Maximum Value: 98.6 % on Apr 29 09:00                                                                                   |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Average: 87.2 % on Apr 28                                                                                                                           |               | Hours of Data: 714             |  |
| Minimum Value: 16 % on Apr 24 18:00                                                                                     |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Average: 41.3 % on Apr 23                                                                                                                           |               | Hours of Missing Data: 6       |  |
| Maximum Diurnal Average: 75.3 % at hour 6                                                                               |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Average: 41.9 % at hour 15                                                                                                                        |               | Hours of Calibration: 0        |  |
| Monthly Average: 57.27 %                                                                                                |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 19.3 P <sub>10</sub> = 33.2 Q <sub>1</sub> = 41.2 Median = 55.0 Q <sub>3</sub> = 72.2 P <sub>90</sub> = 86.7 P <sub>99</sub> = 96.9 |               | Percent Operational Time: 99.2 |  |
| Day                                                                                                                     | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   | Daily Average | Daily Maximum                  |  |
|                                                                                                                         | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24                                                                                                                                                                |               |                                |  |
| 1-Apr                                                                                                                   | 48                            | 51 | 53 | 56 | 58 | 61 | 60 | 53 | 50 | 46 | 42 | 40 | 40 | 37 | 36 | 37 | 36 | 35 | 33 | 37 | 42 | 53 | 64 | 66                                                                                                                                                                | 47.3          | 66.1                           |  |
| 2-Apr                                                                                                                   | 70                            | 74 | 76 | 80 | 82 | 85 | 87 | 75 | 67 | 57 | 51 | 45 | 42 | 44 | 43 | 40 | 40 | 43 | 53 | 70 | 72 | 75 | 77 | 83                                                                                                                                                                | 63.7          | 86.5                           |  |
| 3-Apr                                                                                                                   | 84                            | 88 | 89 | 90 | 91 | 91 | 90 | 83 | 70 | 59 | 51 | 41 | 35 | 28 | 22 | 20 | 18 | 17 | 19 | 23 | 31 | 42 | 47 | 46                                                                                                                                                                | 53.2          | 90.7                           |  |
| 4-Apr                                                                                                                   | 44                            | 42 | 41 | 43 | 50 | 54 | 53 | 51 | 47 | 41 | 39 | 38 | 34 | 33 | 32 | 33 | 38 | 37 | 40 | 40 | 45 | 56 | 62 | 61                                                                                                                                                                | 44.0          | 62.0                           |  |
| 5-Apr                                                                                                                   | 65                            | 68 | 66 | 69 | 70 | 71 | 74 | 66 | 56 | 50 | 46 | 46 | 46 | 42 | 41 | 61 | 53 | 49 | 56 | 62 | 69 | 68 | 65 | 68                                                                                                                                                                | 59.5          | 74.4                           |  |
| 6-Apr                                                                                                                   | 73                            | 76 | 81 | 85 | 87 | 83 | 81 | 71 | 60 | 50 | 44 | 47 | 52 | 52 | 42 | 40 | 42 | 37 | 43 | 46 | 53 | 58 | 65 | 71                                                                                                                                                                | 60.0          | 87.3                           |  |
| 7-Apr                                                                                                                   | 73                            | 76 | 75 | 78 | 83 | 87 | 87 | 78 | 68 | 65 | 58 | 54 | 49 | 47 | 49 | 48 | 42 | 37 | 35 | 35 | 47 | 52 | 57 | 59                                                                                                                                                                | 59.9          | 87.2                           |  |
| 8-Apr                                                                                                                   | 59                            | 61 | 62 | 63 | 64 | 63 | 60 | 54 | 44 | 37 | 31 | 28 | 27 | 27 | 32 | 45 | 43 | 43 | 50 | 51 | 52 | 54 | 59 | 47.4                                                                                                                                                              | 64.1          |                                |  |
| 9-Apr                                                                                                                   | 58                            | 64 | 69 | 64 | 64 | 67 | 68 | 64 | 54 | 44 | 40 | 37 | 35 | 33 | 32 | 37 | 45 | 47 | 46 | 49 | 55 | 56 | 55 | 67                                                                                                                                                                | 52.1          | 68.8                           |  |
| 10-Apr                                                                                                                  | 68                            | 61 | 67 | 66 | 69 | 73 | 73 | 65 | 53 | 39 | 34 | 32 | 33 | 31 | 33 | 36 | 40 | 40 | 44 | 46 | 54 | 59 | 56 | 54                                                                                                                                                                | 51.2          | 73.1                           |  |
| 11-Apr                                                                                                                  | 55                            | 55 | 55 | 52 | 57 | 62 | 66 | 54 | 50 | 43 | 41 | 36 | 62 | 50 | 31 | 30 | 38 | 58 | 63 | 70 | 72 | 76 | 77 | 72                                                                                                                                                                | 55.2          | 76.9                           |  |
| 12-Apr                                                                                                                  | 73                            | 72 | 75 | 77 | 79 | 82 | 83 | 78 | 71 | 63 | 61 | 55 | 46 | 41 | 37 | 36 | 34 | 31 | 35 | 35 | 37 | 42 | 42 | 52                                                                                                                                                                | 55.6          | 82.6                           |  |
| 13-Apr                                                                                                                  | 56                            | 59 | 60 | 60 | 58 | 52 | 50 | 47 | 45 | 42 | 40 | 37 | 36 | 37 | 37 | 38 | 40 | 44 | 47 | 50 | 54 | 57 | 58 | 58                                                                                                                                                                | 48.5          | 60.1                           |  |
| 14-Apr                                                                                                                  | 61                            | 63 | 66 | 66 | 67 | 67 | 67 | 70 | 67 | 74 | 83 | 92 | 91 | 84 | 82 | 84 | 84 | 86 | 89 | 92 | 92 | 93 | 93 | 93                                                                                                                                                                | 79.4          | 93.2                           |  |
| 15-Apr                                                                                                                  | 93                            | 93 | 93 | 93 | 93 | 92 | 92 | M  | M  | M  | M  | M  | M  | 83 | 76 | 76 | 73 | 69 | 73 | 77 | 80 | 86 | 87 | 87                                                                                                                                                                | 84.3          | 93.5                           |  |
| 16-Apr                                                                                                                  | 89                            | 90 | 90 | 89 | 91 | 90 | 83 | 76 | 71 | 64 | 58 | 52 | 52 | 51 | 47 | 58 | 62 | 65 | 70 | 75 | 77 | 82 | 86 | 90                                                                                                                                                                | 73.2          | 90.7                           |  |
| 17-Apr                                                                                                                  | 92                            | 93 | 92 | 92 | 92 | 92 | 90 | 85 | 77 | 67 | 55 | 50 | 48 | 43 | 52 | 41 | 46 | 36 | 36 | 39 | 42 | 58 | 62 | 67                                                                                                                                                                | 64.5          | 92.8                           |  |
| 18-Apr                                                                                                                  | 73                            | 73 | 84 | 84 | 83 | 88 | 85 | 75 | 63 | 51 | 38 | 32 | 31 | 31 | 37 | 38 | 37 | 43 | 42 | 41 | 48 | 58 | 67 | 71                                                                                                                                                                | 57.2          | 87.9                           |  |
| 19-Apr                                                                                                                  | 80                            | 81 | 80 | 83 | 85 | 80 | 77 | 73 | 66 | 66 | 63 | 58 | 53 | 49 | 48 | 52 | 55 | 67 | 60 | 59 | 64 | 68 | 71 | 79                                                                                                                                                                | 67.4          | 84.8                           |  |
| 20-Apr                                                                                                                  | 83                            | 84 | 82 | 78 | 75 | 74 | 70 | 62 | 50 | 42 | 40 | 36 | 34 | 36 | 38 | 42 | 38 | 37 | 39 | 42 | 45 | 52 | 62 | 68                                                                                                                                                                | 54.5          | 84.2                           |  |
| 21-Apr                                                                                                                  | 67                            | 66 | 68 | 71 | 72 | 70 | 65 | 57 | 47 | 39 | 35 | 31 | 29 | 29 | 29 | 28 | 28 | 30 | 36 | 41 | 44 | 50 | 58 | 65                                                                                                                                                                | 48.1          | 72.2                           |  |
| 22-Apr                                                                                                                  | 64                            | 60 | 59 | 58 | 58 | 58 | 55 | 47 | 39 | 37 | 36 | 35 | 34 | 35 | 36 | 35 | 35 | 34 | 36 | 39 | 42 | 45 | 44 | 51                                                                                                                                                                | 44.7          | 63.9                           |  |
| 23-Apr                                                                                                                  | 53                            | 54 | 56 | 51 | 53 | 55 | 50 | 45 | 42 | 40 | 37 | 35 | 33 | 31 | 31 | 31 | 30 | 28 | 27 | 28 | 34 | 41 | 48 | 56                                                                                                                                                                | 41.3          | 56.4                           |  |
| 24-Apr                                                                                                                  | 68                            | 73 | 70 | 68 | 70 | 74 | 77 | 65 | 50 | 45 | 40 | 37 | 34 | 30 | 26 | 22 | 18 | 16 | 20 | 27 | 33 | 42 | 55 | 65                                                                                                                                                                | 46.9          | 76.7                           |  |
| 25-Apr                                                                                                                  | 70                            | 73 | 77 | 81 | 83 | 86 | 79 | 64 | 49 | 42 | 36 | 34 | 22 | 20 | 19 | 19 | 20 | 21 | 22 | 27 | 31 | 33 | 41 | 45                                                                                                                                                                | 45.5          | 85.5                           |  |
| 26-Apr                                                                                                                  | 52                            | 55 | 58 | 63 | 65 | 66 | 63 | 58 | 51 | 48 | 44 | 40 | 36 | 33 | 32 | 30 | 30 | 29 | 31 | 36 | 44 | 47 | 49 | 54                                                                                                                                                                | 46.4          | 66.1                           |  |
| 27-Apr                                                                                                                  | 58                            | 50 | 51 | 52 | 54 | 61 | 58 | 54 | 48 | 42 | 35 | 32 | 30 | 29 | 64 | 59 | 49 | 42 | 50 | 60 | 63 | 71 | 74 | 76                                                                                                                                                                | 52.5          | 75.5                           |  |
| 28-Apr                                                                                                                  | 82                            | 87 | 90 | 92 | 92 | 91 | 90 | 86 | 78 | 70 | 69 | 84 | 90 | 91 | 91 | 88 | 86 | 90 | 91 | 92 | 91 | 90 | 90 | 93                                                                                                                                                                | 87.2          | 92.9                           |  |
| 29-Apr                                                                                                                  | 95                            | 95 | 96 | 97 | 97 | 98 | 98 | 98 | 99 | 97 | 85 | 75 | 63 | 49 | 46 | 40 | 41 | 46 | 59 | 61 | 63 | 68 | 72 | 78                                                                                                                                                                | 75.7          | 98.6                           |  |
| 30-Apr                                                                                                                  | 80                            | 85 | 89 | 93 | 93 | 87 | 79 | 73 | 65 | 58 | 49 | 44 | 40 | 37 | 40 | 45 | 41 | 39 | 33 | 33 | 39 | 46 | 55 | 57                                                                                                                                                                | 58.4          | 93.5                           |  |
| 69.6 70.8 72.4 73.2 74.5 75.3 73.6 66.4 58.5 52.3 47.7 45.0 43.3 42.1 41.9 42.5 42.9 43.3 45.7 49.5 53.7 59.1 63.1 67.0 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Average                                                                                                                                                   |               |                                |  |
| 94.8 95.2 96.3 96.9 97.4 97.7 97.9 98.3 98.6 96.9 84.6 92.1 91.2 91.3 90.8 88.0 85.8 90.3 91.1 92.2 92.1 92.6 93.1 93.2 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Diurnal Maximum                                                                                                                                                   |               |                                |  |
| M - Maintenance                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                   |               |                                |  |

## Hourly Averages

Relative Humidity (RH) - %  
Valleyview - April 2011





## Hourly Averages

Wind Speed (km/h)  
Wind Direction (deg)  
Valleyview - April 2011

| Day    | Hourly Period Ending At (MST) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Daily Average | Daily Maximum |
|--------|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|---------------|
|        | 1                             | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  |               |               |
| 1 Spd  | 15                            | 10  | 9   | 8   | 4   | 3   | 3   | 3   | 10  | 11  | 12  | 10  | 8   | 8   | 9   | 11  | 10  | 8   | 7   | 1   | 0   | 1   | 1   | 1   | 5.0           | 14.9          |
| Dir    | 263                           | 256 | 253 | 252 | 226 | 174 | 200 | 221 | 260 | 276 | 292 | 296 | 323 | 316 | 332 | 350 | 350 | 342 | 324 | 290 | 196 | 199 | 155 | 189 | 290           | 263           |
| 2 Spd  | 2                             | 1   | 1   | 0   | 0   | 0   | 0   | 0   | 1   | 1   | 3   | 4   | 8   | 15  | 15  | 14  | 14  | 10  | 12  | 7   | 4   | 2   | 1   | 1   | 4.4           | 15.0          |
| Dir    | 173                           | 265 | 198 | 335 | 182 | 168 | 147 | 58  | 3   | 3   | 333 | 342 | 342 | 353 | 4   | 6   | 4   | 10  | 1   | 354 | 330 | 318 | 317 | 216 | 356           | 353           |
| 3 Spd  | 2                             | 2   | 1   | 1   | 1   | 1   | 2   | 3   | 4   | 3   | 5   | 4   | 2   | 4   | 3   | 0   | 4   | 2   | 3   | 3   | 1   | 1   | 3   | 2   | 1.5           | 5.4           |
| Dir    | 182                           | 185 | 179 | 202 | 191 | 175 | 195 | 182 | 170 | 163 | 163 | 164 | 183 | 166 | 171 | 295 | 0   | 77  | 63  | 3   | 232 | 209 | 163 | 172 | 166           | 163           |
| 4 Spd  | 3                             | 3   | 5   | 7   | 5   | 2   | 2   | 3   | 7   | 16  | 20  | 16  | 15  | 15  | 14  | 12  | 10  | 11  | 10  | 5   | 1   | 2   | 3   | 2   | 6.3           | 19.6          |
| Dir    | 205                           | 218 | 236 | 243 | 261 | 229 | 215 | 199 | 243 | 267 | 286 | 295 | 291 | 300 | 301 | 308 | 338 | 332 | 335 | 323 | 218 | 204 | 193 | 186 | 286           | 286           |
| 5 Spd  | 2                             | 3   | 3   | 2   | 3   | 2   | 1   | 2   | 2   | 3   | 7   | 9   | 9   | 5   | 6   | 4   | 2   | 1   | 3   | 2   | 2   | 3   | 3   | 1   | 2.2           | 9.3           |
| Dir    | 203                           | 167 | 168 | 205 | 201 | 177 | 189 | 188 | 189 | 276 | 306 | 270 | 267 | 274 | 326 | 236 | 179 | 225 | 189 | 205 | 214 | 188 | 190 | 255 | 240           | 267           |
| 6 Spd  | 2                             | 2   | 1   | 0   | 1   | 1   | 2   | 2   | 3   | 4   | 8   | 7   | 6   | 6   | 6   | 7   | 8   | 7   | 8   | 5   | 5   | 4   | 1   | 2   | 2.5           | 8.1           |
| Dir    | 195                           | 178 | 202 | 186 | 181 | 230 | 185 | 187 | 184 | 232 | 303 | 304 | 218 | 203 | 342 | 320 | 330 | 311 | 314 | 284 | 289 | 279 | 244 | 165 | 281           | 330           |
| 7 Spd  | 2                             | 2   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 3   | 3   | 3   | 5   | 7   | 9   | 8   | 5   | 4   | 2   | 1   | 2   | 2   | 2   | 3   | 1.2           | 9.5           |
| Dir    | 168                           | 156 | 135 | 177 | 188 | 194 | 170 | 189 | 22  | 3   | 356 | 7   | 332 | 354 | 352 | 11  | 31  | 32  | 320 | 279 | 177 | 203 | 203 | 186 | 1             | 352           |
| 8 Spd  | 4                             | 3   | 5   | 6   | 7   | 7   | 8   | 9   | 8   | 7   | 7   | 6   | 8   | 9   | 10  | 16  | 11  | 7   | 11  | 7   | 5   | 4   | 2   | 2   | 4.3           | 16.0          |
| Dir    | 178                           | 183 | 177 | 176 | 173 | 175 | 174 | 173 | 177 | 175 | 186 | 198 | 234 | 251 | 285 | 285 | 280 | 258 | 296 | 332 | 300 | 300 | 235 | 201 | 231           | 285           |
| 9 Spd  | 4                             | 2   | 3   | 3   | 3   | 3   | 3   | 3   | 4   | 3   | 5   | 9   | 8   | 6   | 13  | 12  | 12  | 8   | 3   | 1   | 2   | 1   | 2   | 1   | 2.7           | 12.6          |
| Dir    | 250                           | 189 | 179 | 201 | 214 | 191 | 184 | 188 | 185 | 181 | 266 | 287 | 295 | 290 | 296 | 331 | 337 | 341 | 324 | 195 | 207 | 172 | 212 | 181 | 280           | 296           |
| 10 Spd | 1                             | 1   | 1   | 1   | 2   | 2   | 2   | 3   | 3   | 4   | 3   | 1   | 4   | 1   | 4   | 4   | 4   | 3   | 2   | 2   | 1   | 2   | 3   | 3   | 1.8           | 4.5           |
| Dir    | 174                           | 209 | 169 | 171 | 190 | 185 | 192 | 189 | 180 | 233 | 249 | 300 | 31  | 131 | 173 | 160 | 152 | 168 | 207 | 171 | 306 | 172 | 155 | 172 | 180           | 173           |
| 11 Spd | 3                             | 4   | 3   | 3   | 1   | 2   | 1   | 6   | 4   | 10  | 10  | 15  | 19  | 13  | 21  | 24  | 15  | 11  | 13  | 8   | 9   | 6   | 7   | 6   | 7.1           | 24.1          |
| Dir    | 173                           | 191 | 184 | 181 | 198 | 189 | 200 | 181 | 214 | 248 | 236 | 245 | 291 | 283 | 281 | 275 | 288 | 316 | 312 | 317 | 316 | 309 | 320 | 296 | 276           | 275           |
| 12 Spd | 5                             | 3   | 5   | 4   | 3   | 1   | 2   | 3   | 2   | 2   | 1   | 2   | 2   | 4   | 3   | 5   | 5   | 4   | 3   | 3   | 3   | 1   | 5   | 4   | 1.5           | 5.5           |
| Dir    | 303                           | 311 | 323 | 302 | 300 | 344 | 68  | 62  | 79  | 133 | 8   | 69  | 89  | 54  | 51  | 64  | 62  | 86  | 88  | 75  | 81  | 80  | 139 | 154 | 57            | 62            |
| 13 Spd | 3                             | 4   | 6   | 6   | 6   | 6   | 5   | 8   | 8   | 11  | 15  | 15  | 16  | 15  | 14  | 14  | 16  | 14  | 12  | 9   | 6   | 4   | 2   | 7   | 9.2           | 15.9          |
| Dir    | 152                           | 156 | 152 | 154 | 143 | 164 | 167 | 154 | 160 | 147 | 140 | 131 | 133 | 129 | 132 | 138 | 131 | 133 | 129 | 124 | 130 | 140 | 132 | 134 | 139           | 133           |
| 14 Spd | 9                             | 13  | 12  | 11  | 9   | 10  | 9   | 10  | 11  | 10  | 8   | 5   | 11  | 11  | 12  | 11  | 9   | 6   | 6   | 4   | 3   | 3   | 2   | 3   | 8.0           | 12.7          |
| Dir    | 135                           | 141 | 135 | 131 | 122 | 122 | 118 | 122 | 124 | 124 | 123 | 108 | 122 | 127 | 126 | 125 | 123 | 122 | 120 | 109 | 85  | 59  | 64  | 54  | 123           | 141           |
| 15 Spd | 3                             | 3   | 3   | 3   | 4   | 4   | 5   | M   | M   | M   | M   | M   | 11  | 9   | 7   | 11  | 12  | 6   | 7   | 5   | 4   | 5   | 5   | 4   | 5.3           | 11.6          |
| Dir    | 41                            | 48  | 32  | 358 | 356 | 334 | 343 | M   | M   | M   | M   | M   | 354 | 340 | 322 | 341 | 348 | 23  | 45  | 18  | 24  | 5   | 10  | 20  | 360           | 348           |
| 16 Spd | 4                             | 3   | 3   | 4   | 3   | 3   | 5   | 6   | 5   | 9   | 7   | 7   | 6   | 6   | 7   | 7   | 7   | 5   | 6   | 4   | 2   | 2   | 2   | 0   | 3.7           | 8.6           |
| Dir    | 18                            | 25  | 11  | 11  | 15  | 29  | 64  | 61  | 93  | 128 | 119 | 104 | 100 | 110 | 122 | 74  | 75  | 83  | 76  | 93  | 82  | 25  | 328 | 2   | 80            | 128           |
| 17 Spd | 1                             | 0   | 0   | 0   | 1   | 1   | 2   | 3   | 3   | 1   | 2   | 4   | 9   | 10  | 12  | 9   | 13  | 11  | 9   | 4   | 1   | 0   | 1   | 1   | 2.8           | 13.1          |
| Dir    | 340                           | 265 | 158 | 205 | 190 | 216 | 196 | 173 | 183 | 44  | 292 | 349 | 345 | 352 | 27  | 357 | 341 | 337 | 347 | 343 | 157 | 169 | 177 | 172 | 348           | 341           |
| 18 Spd | 1                             | 0   | 1   | 1   | 2   | 1   | 2   | 4   | 3   | 3   | 1   | 4   | 4   | 4   | 12  | 9   | 7   | 11  | 8   | 3   | 2   | 1   | 1   | 1   | 2.0           | 12.3          |
| Dir    | 183                           | 229 | 168 | 193 | 195 | 184 | 192 | 173 | 144 | 154 | 83  | 1   | 350 | 7   | 351 | 349 | 349 | 345 | 348 | 17  | 41  | 348 | 222 | 339 | 354           | 351           |
| 19 Spd | 1                             | 1   | 1   | 1   | 1   | 1   | 1   | 2   | 2   | 5   | 8   | 9   | 10  | 9   | 8   | 9   | 7   | 5   | 3   | 2   | 1   | 2   | 1   | 3   | 2.6           | 10.1          |
| Dir    | 7                             | 181 | 216 | 182 | 210 | 179 | 169 | 164 | 202 | 281 | 297 | 312 | 323 | 317 | 313 | 278 | 233 | 304 | 242 | 218 | 186 | 197 | 226 | 173 | 282           | 323           |
| 20 Spd | 3                             | 3   | 3   | 3   | 3   | 3   | 4   | 4   | 5   | 12  | 12  | 13  | 13  | 7   | 7   | 11  | 5   | 7   | 6   | 3   | 1   | 2   | 2   | 1   | 3.6           | 13.1          |
| Dir    | 175                           | 191 | 190 | 192 | 191 | 183 | 187 | 184 | 228 | 285 | 298 | 294 | 299 | 319 | 323 | 332 | 272 | 305 | 318 | 297 | 210 | 201 | 181 | 148 | 281           | 294           |
| 21 Spd | 2                             | 3   | 2   | 3   | 3   | 3   | 3   | 4   | 4   | 5   | 9   | 8   | 3   | 8   | 4   | 7   | 8   | 8   | 8   | 6   | 4   | 1   | 2   | 2   | 2.7           | 8.9           |
| Dir    | 182                           | 178 | 179 | 174 | 175 | 182 | 179 | 163 | 179 | 288 | 298 | 322 | 270 | 301 | 242 | 280 | 307 | 310 | 319 | 317 | 304 | 255 | 197 | 192 | 277           | 298           |
| 22 Spd | 2                             | 2   | 2   | 3   | 3   | 3   | 4   | 7   | 14  | 15  | 15  | 14  | 13  | 13  | 14  | 14  | 16  | 15  | 14  | 9   | 3   | 4   | 5   | 2   | 6.4           | 16.0          |
| Dir    | 188                           | 183 | 189 | 193 | 202 | 199 | 213 | 245 | 281 | 286 | 295 | 297 | 289 | 327 | 328 | 340 | 337 | 341 | 336 | 330 | 280 | 244 | 244 | 204 | 302           | 337           |



## Hourly Averages

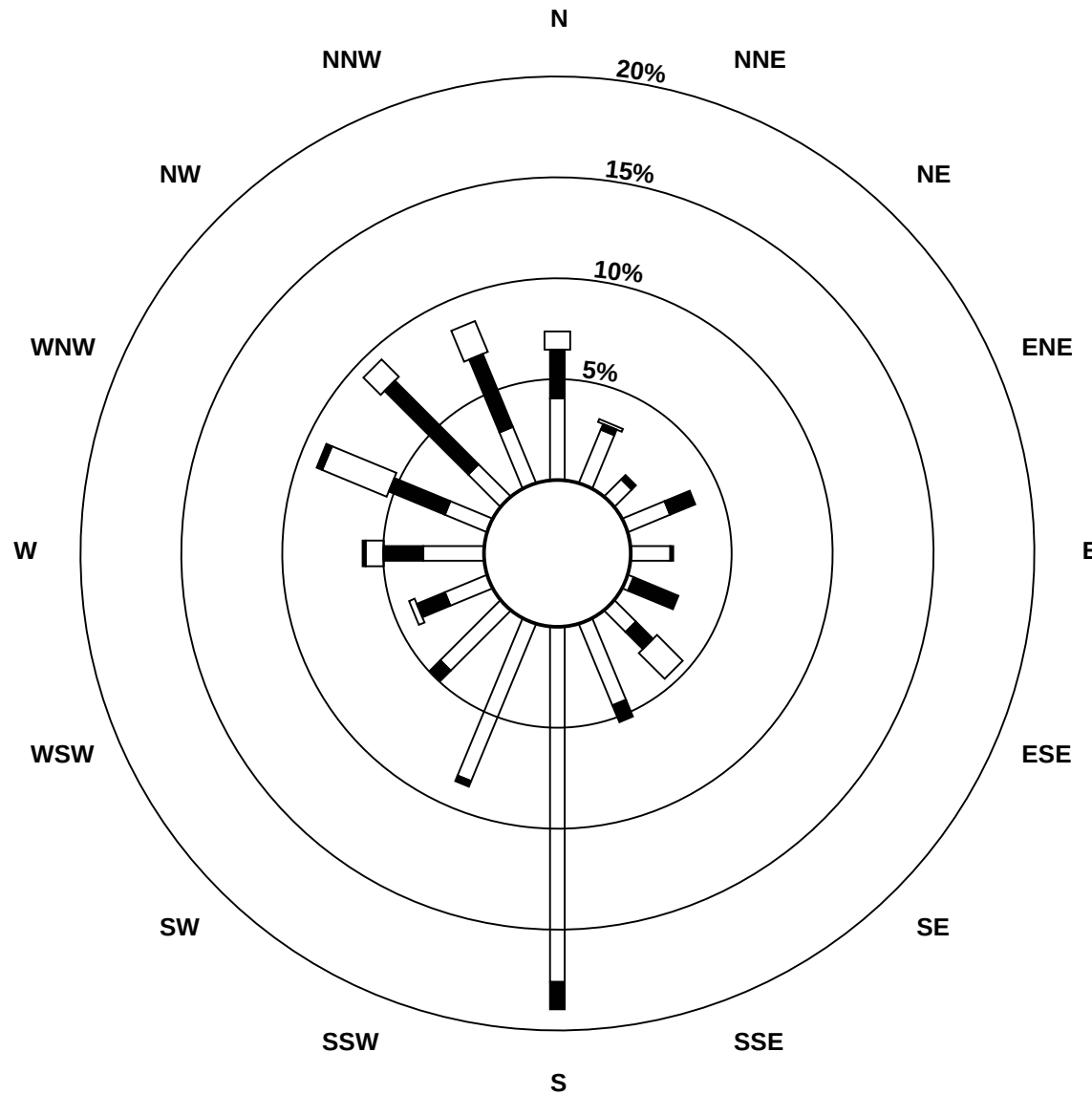
Wind Speed (km/h)  
Wind Direction (deg)  
Valleyview - April 2011

| Day                                                                                | Hourly Period Ending At (MST) |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    | Daily Average   | Daily Maximum |  |                           |  |  |  |      |  |
|------------------------------------------------------------------------------------|-------------------------------|------|---------|------|----------|-----|----------|------|----------|------|------|------|-------|------|------|------|------|------|------|------|-----|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|--|---------------------------|--|--|--|------|--|
|                                                                                    | 1                             | 2    | 3       | 4    | 5        | 6   | 7        | 8    | 9        | 10   | 11   | 12   | 13    | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21  | 22  | 23  | 24                                                                                                                                                                 |                 |               |  |                           |  |  |  |      |  |
| 23 Spd                                                                             | 2                             | 3    | 3       | 3    | 3        | 3   | 4        | 12   | 13       | 11   | 9    | 9    | 10    | 10   | 10   | 10   | 9    | 8    | 3    | 1    | 1   | 0   | 2   | 1                                                                                                                                                                  | 4.2             | 13.1          |  |                           |  |  |  |      |  |
| Dir                                                                                | 208                           | 208  | 185     | 235  | 235      | 218 | 248      | 274  | 280      | 288  | 301  | 308  | 322   | 321  | 354  | 0    | 355  | 348  | 334  | 266  | 201 | 4   | 177 | 178                                                                                                                                                                | 304             | 280           |  |                           |  |  |  |      |  |
| 24 Spd                                                                             | 1                             | 2    | 2       | 0    | 2        | 3   | 2        | 2    | 2        | 4    | 4    | 5    | 6     | 5    | 5    | 5    | 5    | 6    | 4    | 4    | 1   | 2   | 2   | 0                                                                                                                                                                  | 2.1             | 6.2           |  |                           |  |  |  |      |  |
| Dir                                                                                | 2                             | 177  | 175     | 285  | 215      | 39  | 336      | 170  | 32       | 12   | 331  | 5    | 337   | 0    | 348  | 344  | 12   | 2    | 27   | 75   | 74  | 350 | 336 | 156                                                                                                                                                                | 3               | 2             |  |                           |  |  |  |      |  |
| 25 Spd                                                                             | 1                             | 0    | 1       | 1    | 1        | 1   | 1        | 2    | 3        | 0    | 3    | 7    | 4     | 8    | 10   | 7    | 9    | 8    | 9    | 7    | 3   | 2   | 1   | 5                                                                                                                                                                  | 2.3             | 9.9           |  |                           |  |  |  |      |  |
| Dir                                                                                | 194                           | 225  | 242     | 181  | 158      | 170 | 199      | 180  | 177      | 281  | 2    | 344  | 356   | 26   | 45   | 70   | 59   | 64   | 58   | 59   | 67  | 81  | 193 | 270                                                                                                                                                                | 49              | 45            |  |                           |  |  |  |      |  |
| 26 Spd                                                                             | 6                             | 2    | 1       | 1    | 2        | 5   | 5        | 5    | 11       | 12   | 10   | 13   | 13    | 13   | 7    | 11   | 7    | 6    | 8    | 5    | 4   | 4   | 3   | 1                                                                                                                                                                  | 5.1             | 13.4          |  |                           |  |  |  |      |  |
| Dir                                                                                | 269                           | 308  | 244     | 173  | 264      | 243 | 281      | 282  | 302      | 307  | 306  | 312  | 313   | 323  | 302  | 275  | 268  | 308  | 336  | 349  | 67  | 146 | 208 | 347                                                                                                                                                                | 301             | 323           |  |                           |  |  |  |      |  |
| 27 Spd                                                                             | 2                             | 2    | 3       | 3    | 3        | 2   | 2        | 2    | 2        | 3    | 2    | 4    | 4     | 1    | 17   | 12   | 10   | 2    | 7    | 11   | 1   | 3   | 3   | 2                                                                                                                                                                  | 2.6             | 16.6          |  |                           |  |  |  |      |  |
| Dir                                                                                | 176                           | 200  | 188     | 176  | 191      | 169 | 146      | 171  | 165      | 353  | 4    | 335  | 266   | 185  | 238  | 279  | 339  | 277  | 223  | 262  | 205 | 190 | 183 | 184                                                                                                                                                                | 245             | 238           |  |                           |  |  |  |      |  |
| 28 Spd                                                                             | 2                             | 2    | 1       | 2    | 2        | 1   | 1        | 1    | 3        | 6    | 4    | 8    | 7     | 9    | 12   | 15   | 12   | 16   | 8    | 8    | 9   | 5   | 1   | 3                                                                                                                                                                  | 4.4             | 15.7          |  |                           |  |  |  |      |  |
| Dir                                                                                | 207                           | 187  | 169     | 170  | 160      | 189 | 153      | 195  | 280      | 336  | 14   | 335  | 300   | 293  | 289  | 282  | 291  | 347  | 313  | 284  | 286 | 276 | 295 | 327                                                                                                                                                                | 299             | 347           |  |                           |  |  |  |      |  |
| 29 Spd                                                                             | 4                             | 4    | 5       | 3    | 3        | 3   | 2        | 2    | 3        | 4    | 4    | 3    | 4     | 4    | 4    | 4    | 7    | 8    | 8    | 3    | 1   | 1   | 1   | 2                                                                                                                                                                  | 2.3             | 8.2           |  |                           |  |  |  |      |  |
| Dir                                                                                | 325                           | 319  | 313     | 267  | 246      | 244 | 204      | 190  | 203      | 207  | 191  | 149  | 140   | 163  | 201  | 242  | 261  | 255  | 281  | 225  | 225 | 186 | 182 | 302                                                                                                                                                                | 240             | 255           |  |                           |  |  |  |      |  |
| 30 Spd                                                                             | 4                             | 3    | 1       | 1    | 2        | 2   | 1        | 5    | 12       | 13   | 13   | 11   | 11    | 11   | 9    | 10   | 5    | 1    | 8    | 13   | 4   | 2   | 2   | 2                                                                                                                                                                  | 5.0             | 13.4          |  |                           |  |  |  |      |  |
| Dir                                                                                | 322                           | 241  | 170     | 154  | 170      | 218 | 192      | 276  | 300      | 308  | 295  | 305  | 310   | 310  | 288  | 305  | 354  | 11   | 308  | 324  | 310 | 182 | 176 | 193                                                                                                                                                                | 301             | 308           |  |                           |  |  |  |      |  |
| Spd                                                                                | 1.3                           | 1.6  | 1.6     | 1.6  | 1.6      | 1.6 | 1.6      | 2.3  | 2.4      | 3.1  | 3.8  | 4.4  | 4.6   | 4.2  | 4.6  | 5.5  | 4.8  | 4.3  | 3.8  | 2.3  | 0.8 | 0.6 | 0.9 | 0.9                                                                                                                                                                | Diurnal Average |               |  |                           |  |  |  |      |  |
| Dir                                                                                | 219                           | 196  | 188     | 196  | 194      | 185 | 182      | 188  | 226      | 267  | 287  | 303  | 307   | 321  | 319  | 320  | 337  | 342  | 335  | 331  | 308 | 237 | 204 | 196                                                                                                                                                                |                 |               |  |                           |  |  |  |      |  |
| Spd                                                                                | 14.9                          | 12.7 | 11.7    | 11.3 | 9.2      | 9.6 | 9.4      | 12.0 | 13.6     | 16.5 | 19.6 | 15.6 | 19.3  | 15.2 | 21.4 | 24.1 | 16.0 | 15.7 | 13.8 | 13.0 | 8.6 | 5.8 | 6.7 | 6.5                                                                                                                                                                | Diurnal Maximum |               |  |                           |  |  |  |      |  |
| Dir                                                                                | 263                           | 141  | 135     | 131  | 122      | 122 | 118      | 274  | 281      | 267  | 286  | 295  | 291   | 129  | 281  | 275  | 337  | 347  | 336  | 324  | 286 | 309 | 320 | 134                                                                                                                                                                |                 |               |  |                           |  |  |  |      |  |
| Maximum Speed Value: 24 ppb on Apr 11 16:00                                        |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     | Minimum Speed Value: 0 ppb on Apr 25 10:00                                                                                                                         |                 |               |  | Hours in Service:         |  |  |  | 720  |  |
| Maximum Daily Speed Average: 9.2 ppb on Apr 13                                     |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     | Minimum Daily Speed Average: 1.2 ppb on Apr 3                                                                                                                      |                 |               |  | Hours of Data:            |  |  |  | 715  |  |
| Maximum Diurnal Speed Average: 5.5 ppb at hour 16                                  |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     | Minimum Diurnal Speed Average: 0.6 ppb at hour 22                                                                                                                  |                 |               |  | Hours of Missing Data:    |  |  |  | 5    |  |
| Monthly Average Velocity: 1.60 ppb 293.5 deg                                       |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     | Speed Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 1.1 Q <sub>1</sub> = 1.9 Median = 3.7 Q <sub>3</sub> = 7.7 P <sub>90</sub> = 11.5 P <sub>99</sub> = 15.7 |                 |               |  | Percent Operational Time: |  |  |  | 99.3 |  |
| All monthly, daily, and diurnal averages have been calculated using vector methods |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| M - Maintenance                                                                    |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| Frequency Distribution                                                             |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| Speed Range (ppb)                                                                  |                               |      |         |      |          |     |          |      |          |      |      |      |       |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| Direction                                                                          | 0 to 5                        |      | 5 to 11 |      | 11 to 19 |     | 19 to 28 |      | 28 to 38 |      | > 38 |      | Total |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| North                                                                              | 44                            |      | 35      |      | 13       |     | 0        |      | 0        |      | 0    |      | 92    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| NorthEast                                                                          | 26                            |      | 11      |      | 1        |     | 0        |      | 0        |      | 0    |      | 38    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| East                                                                               | 20                            |      | 8       |      | 0        |     | 0        |      | 0        |      | 0    |      | 28    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| SouthEast                                                                          | 24                            |      | 22      |      | 17       |     | 0        |      | 0        |      | 0    |      | 63    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| South                                                                              | 189                           |      | 15      |      | 0        |     | 0        |      | 0        |      | 0    |      | 204   |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| SouthWest                                                                          | 68                            |      | 10      |      | 2        |     | 0        |      | 0        |      | 0    |      | 80    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| West                                                                               | 29                            |      | 29      |      | 21       |     | 4        |      | 0        |      | 0    |      | 83    |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| NorthWest                                                                          | 37                            |      | 61      |      | 29       |     | 0        |      | 0        |      | 0    |      | 127   |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |
| Total                                                                              | 437                           |      | 191     |      | 83       |     | 4        |      | 0        |      | 0    |      | 715   |      |      |      |      |      |      |      |     |     |     |                                                                                                                                                                    |                 |               |  |                           |  |  |  |      |  |

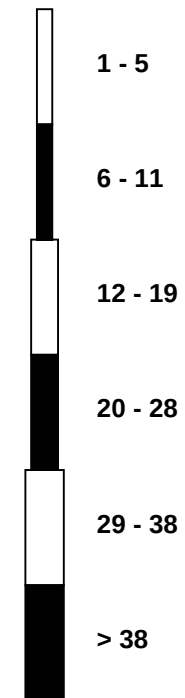
## Wind Rose

Wind Speed (WS) (km/h)

Valleyview - April 2011



## Wind Speed Classes (km/h)



# Hourly Averages - Wind Speed (Scalar)

Wind Speed (km/h)

Valleyview - April 2011

| Maximum Speed: 24 km/h on Apr 11 16:00                                             |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Maximum Daily Speed Average: 9.5 km/h on Apr 13                                                                                                              |    |    |    |    |               |               |      |      |     | Hours in Service: 720          |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
|------------------------------------------------------------------------------------|-------------------------------|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|---------------|---------------|------|------|-----|--------------------------------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----------------|
| Minimum Speed: 1 km/h on Apr 17 02:00                                              |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Daily Speed Average: 2.9 km/h on Apr 10                                                                                                              |    |    |    |    |               |               |      |      |     | Hours of Data: 715             |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| Maximum Diurnal Speed Average: 10.7 km/h at hour 16                                |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Minimum Diurnal Speed Average: 2.6 km/h at hour 23                                                                                                           |    |    |    |    |               |               |      |      |     | Hours of Missing Data: 5       |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| Monthly Average Speed: 5.63 km/h                                                   |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percentiles: P <sub>1</sub> = 0.8 P <sub>10</sub> = 1.5 Q <sub>1</sub> = 2.4 Median = 4.1 Q <sub>3</sub> = 8.5 P <sub>90</sub> = 11.9 P <sub>99</sub> = 16.0 |    |    |    |    |               |               |      |      |     | Percent Operational Time: 99.3 |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| Day                                                                                | Hourly Period Ending At (MST) |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | Daily Average | Daily Maximum |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
|                                                                                    | 1                             | 2  | 3  | 4  | 5 | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20                                                                                                                                                           | 21 | 22 | 23 | 24 |               |               |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 1-Apr                                                                              | 15                            | 10 | 9  | 8  | 4 | 3  | 3  | 4  | 10 | 11 | 13 | 10 | 9  | 9  | 9  | 11 | 10 | 8  | 7  | 2                                                                                                                                                            | 1  | 1  | 1  | 1  | 7.0           | 15.0          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 2-Apr                                                                              | 2                             | 3  | 1  | 2  | 1 | 1  | 1  | 1  | 1  | 2  | 4  | 4  | 8  | 15 | 15 | 14 | 14 | 10 | 12 | 7                                                                                                                                                            | 4  | 2  | 1  | 1  | 5.2           | 15.1          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 3-Apr                                                                              | 2                             | 2  | 1  | 1  | 1 | 1  | 2  | 3  | 4  | 3  | 5  | 4  | 4  | 4  | 4  | 6  | 4  | 3  | 3  | 3                                                                                                                                                            | 2  | 2  | 3  | 2  | 2.9           | 5.5           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 4-Apr                                                                              | 3                             | 4  | 5  | 7  | 6 | 3  | 2  | 3  | 8  | 17 | 20 | 16 | 16 | 15 | 15 | 12 | 10 | 11 | 10 | 5                                                                                                                                                            | 1  | 2  | 3  | 2  | 8.1           | 19.9          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 5-Apr                                                                              | 2                             | 3  | 3  | 2  | 3 | 2  | 1  | 2  | 3  | 4  | 7  | 9  | 10 | 6  | 7  | 6  | 3  | 3  | 3  | 2                                                                                                                                                            | 3  | 3  | 3  | 2  | 3.8           | 9.9           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 6-Apr                                                                              | 2                             | 2  | 1  | 1  | 1 | 2  | 2  | 2  | 3  | 5  | 8  | 8  | 7  | 7  | 7  | 8  | 8  | 8  | 8  | 5                                                                                                                                                            | 5  | 4  | 3  | 2  | 4.5           | 8.5           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 7-Apr                                                                              | 2                             | 2  | 2  | 1  | 1 | 1  | 1  | 1  | 2  | 3  | 3  | 3  | 5  | 7  | 10 | 9  | 6  | 4  | 2  | 2                                                                                                                                                            | 2  | 2  | 2  | 3  | 3.2           | 9.8           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 8-Apr                                                                              | 4                             | 3  | 5  | 6  | 7 | 7  | 8  | 9  | 9  | 7  | 7  | 7  | 8  | 9  | 11 | 16 | 12 | 8  | 11 | 8                                                                                                                                                            | 5  | 4  | 2  | 2  | 7.3           | 16.1          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 9-Apr                                                                              | 4                             | 2  | 3  | 3  | 3 | 3  | 3  | 3  | 4  | 3  | 6  | 9  | 8  | 8  | 13 | 13 | 12 | 8  | 3  | 1                                                                                                                                                            | 2  | 1  | 2  | 2  | 5.0           | 13.0          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 10-Apr                                                                             | 1                             | 2  | 1  | 1  | 2 | 2  | 2  | 3  | 4  | 4  | 4  | 3  | 5  | 3  | 5  | 5  | 4  | 4  | 2  | 2                                                                                                                                                            | 3  | 2  | 3  | 3  | 2.9           | 4.9           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 11-Apr                                                                             | 3                             | 4  | 3  | 4  | 1 | 2  | 2  | 6  | 5  | 10 | 10 | 15 | 22 | 13 | 22 | 24 | 16 | 11 | 13 | 9                                                                                                                                                            | 9  | 6  | 7  | 6  | 9.3           | 24.4          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 12-Apr                                                                             | 5                             | 4  | 5  | 4  | 4 | 2  | 2  | 3  | 3  | 3  | 3  | 4  | 3  | 5  | 4  | 6  | 6  | 4  | 3  | 4                                                                                                                                                            | 3  | 2  | 5  | 4  | 3.8           | 5.8           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 13-Apr                                                                             | 3                             | 4  | 7  | 6  | 6 | 6  | 5  | 8  | 8  | 12 | 15 | 16 | 16 | 15 | 15 | 14 | 16 | 14 | 12 | 9                                                                                                                                                            | 7  | 5  | 3  | 7  | 9.5           | 16.1          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 14-Apr                                                                             | 9                             | 13 | 12 | 11 | 9 | 10 | 10 | 10 | 11 | 11 | 8  | 5  | 11 | 11 | 12 | 12 | 10 | 7  | 6  | 4                                                                                                                                                            | 3  | 3  | 2  | 3  | 8.5           | 13.0          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 15-Apr                                                                             | 3                             | 3  | 3  | 3  | 4 | 4  | 6  | M  | M  | M  | M  | M  | 11 | 9  | 7  | 12 | 12 | 8  | 7  | 5                                                                                                                                                            | 4  | 5  | 5  | 4  | 6.0           | 12.1          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 16-Apr                                                                             | 4                             | 3  | 3  | 4  | 3 | 3  | 5  | 7  | 6  | 9  | 8  | 8  | 7  | 7  | 8  | 7  | 7  | 5  | 6  | 4                                                                                                                                                            | 2  | 2  | 2  | 1  | 5.1           | 8.7           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 17-Apr                                                                             | 1                             | 1  | 1  | 1  | 1 | 2  | 2  | 3  | 3  | 2  | 3  | 5  | 9  | 11 | 12 | 10 | 13 | 11 | 9  | 4                                                                                                                                                            | 1  | 1  | 1  | 1  | 4.5           | 13.2          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 18-Apr                                                                             | 1                             | 1  | 1  | 1  | 2 | 1  | 2  | 4  | 3  | 4  | 3  | 4  | 5  | 5  | 13 | 10 | 8  | 11 | 8  | 3                                                                                                                                                            | 2  | 1  | 1  | 1  | 4.0           | 12.6          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 19-Apr                                                                             | 1                             | 1  | 1  | 1  | 1 | 1  | 1  | 2  | 2  | 6  | 9  | 10 | 11 | 10 | 8  | 11 | 7  | 6  | 4  | 2                                                                                                                                                            | 1  | 2  | 2  | 3  | 4.3           | 10.7          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 20-Apr                                                                             | 3                             | 3  | 3  | 3  | 3 | 3  | 4  | 4  | 6  | 13 | 12 | 14 | 14 | 10 | 10 | 11 | 7  | 8  | 7  | 3                                                                                                                                                            | 1  | 2  | 2  | 2  | 6.2           | 13.9          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 21-Apr                                                                             | 2                             | 3  | 2  | 3  | 3 | 3  | 3  | 4  | 4  | 6  | 9  | 9  | 7  | 9  | 7  | 8  | 9  | 9  | 8  | 6                                                                                                                                                            | 4  | 2  | 2  | 3  | 5.2           | 9.4           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 22-Apr                                                                             | 2                             | 2  | 2  | 3  | 3 | 3  | 4  | 8  | 14 | 15 | 15 | 15 | 14 | 14 | 14 | 15 | 16 | 15 | 14 | 9                                                                                                                                                            | 3  | 4  | 5  | 3  | 8.8           | 16.3          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 23-Apr                                                                             | 2                             | 3  | 3  | 4  | 4 | 3  | 5  | 12 | 13 | 11 | 9  | 10 | 11 | 11 | 11 | 10 | 10 | 9  | 4  | 1                                                                                                                                                            | 1  | 2  | 2  | 1  | 6.3           | 13.2          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 24-Apr                                                                             | 1                             | 2  | 2  | 2  | 2 | 3  | 3  | 2  | 3  | 5  | 5  | 6  | 6  | 6  | 7  | 6  | 6  | 7  | 5  | 4                                                                                                                                                            | 2  | 3  | 2  | 2  | 3.8           | 6.6           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 25-Apr                                                                             | 1                             | 1  | 1  | 1  | 1 | 1  | 1  | 2  | 3  | 3  | 4  | 7  | 6  | 9  | 11 | 8  | 10 | 9  | 9  | 7                                                                                                                                                            | 3  | 3  | 2  | 5  | 4.5           | 11.3          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 26-Apr                                                                             | 6                             | 4  | 2  | 2  | 3 | 5  | 5  | 5  | 11 | 12 | 11 | 13 | 14 | 14 | 9  | 11 | 8  | 7  | 8  | 6                                                                                                                                                            | 5  | 4  | 4  | 3  | 7.2           | 14.3          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 27-Apr                                                                             | 2                             | 2  | 3  | 3  | 3 | 2  | 2  | 2  | 2  | 4  | 3  | 5  | 6  | 4  | 17 | 14 | 10 | 4  | 8  | 12                                                                                                                                                           | 3  | 4  | 3  | 2  | 4.9           | 17.2          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 28-Apr                                                                             | 2                             | 2  | 2  | 2  | 2 | 2  | 2  | 1  | 4  | 6  | 4  | 9  | 8  | 9  | 12 | 15 | 13 | 16 | 9  | 8                                                                                                                                                            | 9  | 5  | 2  | 4  | 6.1           | 16.0          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 29-Apr                                                                             | 5                             | 4  | 5  | 3  | 3 | 3  | 2  | 2  | 3  | 4  | 4  | 4  | 5  | 5  | 5  | 5  | 9  | 9  | 8  | 3                                                                                                                                                            | 2  | 1  | 2  | 4  | 4.2           | 8.8           |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| 30-Apr                                                                             | 5                             | 3  | 1  | 2  | 2 | 2  | 2  | 6  | 13 | 14 | 13 | 12 | 12 | 13 | 13 | 12 | 8  | 4  | 9  | 13                                                                                                                                                           | 5  | 2  | 2  | 2  | 7.0           | 13.9          |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
|                                                                                    |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | 3.4           | 3.2           | 3.2  | 3.2  | 3.0 | 2.9                            | 3.1 | 4.1  | 5.7  | 7.2  | 7.8  | 8.4  | 9.2  | 9.1  | 10.3 | 10.7 | 9.5  | 8.0  | 7.3  | 5.1  | 3.2 | 2.7 | 2.6 | 2.6 | Diurnal Average |
|                                                                                    |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    | 15.0          | 13.0          | 11.9 | 11.4 | 9.3 | 9.6                            | 9.5 | 12.1 | 13.9 | 16.8 | 19.9 | 15.8 | 21.5 | 15.4 | 21.7 | 24.4 | 16.3 | 16.0 | 13.9 | 13.2 | 8.7 | 6.0 | 6.8 | 6.7 | Diurnal Maximum |
| M - Maintenance                                                                    |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    |               |               |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |
| All monthly, daily, and diurnal averages have been calculated using scalar methods |                               |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                              |    |    |    |    |               |               |      |      |     |                                |     |      |      |      |      |      |      |      |      |      |      |      |      |      |     |     |     |     |                 |

## Hourly Standard Deviations

Wind Direction (WD) - deg

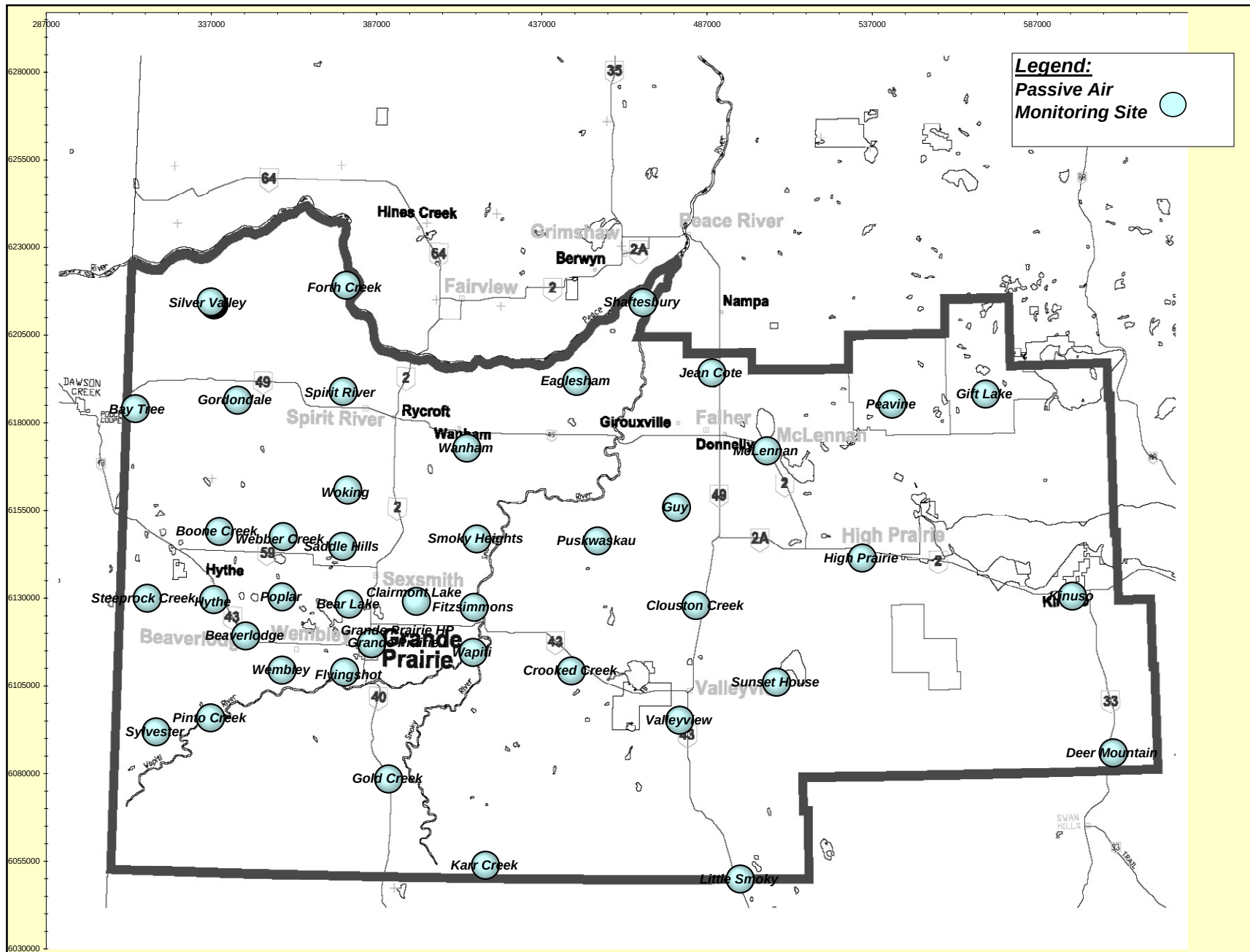
Valleyview - April 2011

|                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------|----|----|----|----|----|----|---------------|
| Maximum Value: 97.6 deg on Apr 17 00:00                                                                                                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours in Service: 720          |    |    |    |    |    |    |               |
| Minimum Value: 4.0 deg on Apr 18 19:00                                                                                                                          |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Data: 715             |    |    |    |    |    |    |               |
|                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Missing Data: 5       |    |    |    |    |    |    |               |
| Percentiles: P <sub>1</sub> = 4.8 P <sub>10</sub> = 8.5 Q <sub>1</sub> = 11.8 Median = 19.2 Q <sub>3</sub> = 35.8 P <sub>90</sub> = 57.8 P <sub>99</sub> = 86.1 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours of Calibration: 0        |    |    |    |    |    |    |               |
|                                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Percent Operational Time: 99.3 |    |    |    |    |    |    |               |
| Day                                                                                                                                                             | Hourly Period Ending At (MST) |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    | Daily Maximum |
|                                                                                                                                                                 | 1                             | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18                             | 19 | 20 | 21 | 22 | 23 | 24 |               |
| 1-Apr                                                                                                                                                           | 7                             | 9  | 9  | 9  | 28 | 13 | 7  | 19 | 14 | 12 | 14 | 17 | 22 | 14 | 14 | 7  | 6  | 11                             | 12 | 62 | 80 | 38 | 56 | 38 | 79.5          |
| 2-Apr                                                                                                                                                           | 41                            | 69 | 42 | 85 | 80 | 89 | 78 | 80 | 39 | 61 | 24 | 12 | 15 | 6  | 5  | 7  | 5  | 7                              | 7  | 14 | 9  | 31 | 41 | 24 | 89.5          |
| 3-Apr                                                                                                                                                           | 23                            | 15 | 21 | 61 | 11 | 17 | 14 | 11 | 10 | 23 | 11 | 29 | 62 | 30 | 52 | 89 | 26 | 31                             | 17 | 25 | 58 | 68 | 12 | 19 | 88.6          |
| 4-Apr                                                                                                                                                           | 14                            | 25 | 16 | 18 | 26 | 39 | 12 | 13 | 20 | 11 | 10 | 9  | 11 | 10 | 11 | 11 | 9  | 9                              | 4  | 11 | 56 | 16 | 11 | 12 | 56.2          |
| 5-Apr                                                                                                                                                           | 16                            | 16 | 10 | 23 | 11 | 21 | 32 | 14 | 31 | 39 | 17 | 18 | 26 | 36 | 35 | 79 | 37 | 69                             | 8  | 23 | 24 | 16 | 10 | 54 | 79.4          |
| 6-Apr                                                                                                                                                           | 10                            | 16 | 13 | 68 | 37 | 54 | 20 | 15 | 9  | 35 | 15 | 28 | 27 | 30 | 39 | 18 | 15 | 11                             | 6  | 10 | 15 | 19 | 77 | 15 | 76.6          |
| 7-Apr                                                                                                                                                           | 14                            | 27 | 36 | 54 | 26 | 25 | 48 | 24 | 84 | 26 | 12 | 18 | 16 | 13 | 16 | 12 | 20 | 30                             | 28 | 49 | 14 | 14 | 7  | 7  | 83.9          |
| 8-Apr                                                                                                                                                           | 6                             | 7  | 6  | 5  | 5  | 5  | 5  | 5  | 7  | 8  | 10 | 20 | 20 | 19 | 17 | 8  | 24 | 21                             | 12 | 16 | 19 | 18 | 20 | 13 | 24.2          |
| 9-Apr                                                                                                                                                           | 22                            | 12 | 13 | 12 | 13 | 9  | 8  | 8  | 10 | 25 | 44 | 19 | 18 | 35 | 11 | 18 | 5  | 8                              | 45 | 43 | 36 | 38 | 30 | 18 | 44.7          |
| 10-Apr                                                                                                                                                          | 23                            | 61 | 24 | 23 | 34 | 16 | 11 | 11 | 9  | 29 | 36 | 82 | 31 | 76 | 23 | 15 | 11 | 17                             | 22 | 16 | 70 | 20 | 36 | 17 | 81.9          |
| 11-Apr                                                                                                                                                          | 26                            | 25 | 9  | 7  | 15 | 20 | 54 | 12 | 24 | 12 | 14 | 11 | 24 | 15 | 10 | 8  | 18 | 10                             | 10 | 13 | 10 | 16 | 10 | 17 | 54.4          |
| 12-Apr                                                                                                                                                          | 19                            | 21 | 16 | 15 | 19 | 50 | 28 | 28 | 60 | 59 | 83 | 67 | 67 | 34 | 49 | 46 | 23 | 26                             | 20 | 18 | 14 | 64 | 9  | 8  | 83.5          |
| 13-Apr                                                                                                                                                          | 15                            | 13 | 8  | 9  | 10 | 12 | 11 | 11 | 19 | 12 | 13 | 10 | 9  | 8  | 12 | 11 | 10 | 11                             | 10 | 12 | 17 | 37 | 51 | 14 | 50.6          |
| 14-Apr                                                                                                                                                          | 13                            | 11 | 9  | 9  | 7  | 9  | 10 | 11 | 9  | 15 | 12 | 25 | 17 | 8  | 9  | 10 | 12 | 18                             | 16 | 25 | 23 | 16 | 42 | 13 | 42.0          |
| 15-Apr                                                                                                                                                          | 13                            | 11 | 12 | 16 | 11 | 7  | 10 | M  | M  | M  | M  | M  | 10 | 13 | 16 | 7  | 17 | 31                             | 16 | 10 | 8  | 8  | 11 | 9  | 30.9          |
| 16-Apr                                                                                                                                                          | 11                            | 10 | 14 | 9  | 10 | 9  | 15 | 11 | 36 | 11 | 14 | 24 | 25 | 28 | 27 | 22 | 28 | 35                             | 23 | 25 | 35 | 45 | 45 | 98 | 97.6          |
| 17-Apr                                                                                                                                                          | 55                            | 46 | 78 | 86 | 20 | 37 | 16 | 14 | 27 | 55 | 72 | 38 | 22 | 18 | 20 | 33 | 8  | 9                              | 8  | 7  | 67 | 86 | 36 | 24 | 86.4          |
| 18-Apr                                                                                                                                                          | 10                            | 71 | 52 | 11 | 14 | 73 | 11 | 14 | 14 | 14 | 69 | 36 | 46 | 48 | 17 | 16 | 26 | 6                              | 4  | 19 | 22 | 17 | 67 | 42 | 72.8          |
| 19-Apr                                                                                                                                                          | 72                            | 36 | 26 | 57 | 53 | 50 | 22 | 41 | 53 | 35 | 20 | 14 | 19 | 22 | 26 | 32 | 24 | 50                             | 35 | 20 | 17 | 15 | 46 | 9  | 71.6          |
| 20-Apr                                                                                                                                                          | 10                            | 6  | 5  | 6  | 6  | 4  | 5  | 7  | 38 | 17 | 14 | 16 | 19 | 57 | 70 | 13 | 43 | 26                             | 15 | 35 | 11 | 7  | 26 | 50 | 70.2          |
| 21-Apr                                                                                                                                                          | 16                            | 11 | 20 | 5  | 6  | 5  | 7  | 9  | 17 | 54 | 19 | 24 | 70 | 32 | 56 | 37 | 28 | 24                             | 10 | 8  | 10 | 52 | 12 | 13 | 70.0          |
| 22-Apr                                                                                                                                                          | 8                             | 5  | 6  | 7  | 10 | 10 | 13 | 21 | 14 | 11 | 14 | 14 | 16 | 18 | 16 | 14 | 11 | 12                             | 8  | 10 | 24 | 17 | 9  | 17 | 23.9          |
| 23-Apr                                                                                                                                                          | 11                            | 16 | 7  | 24 | 24 | 47 | 49 | 8  | 8  | 12 | 15 | 16 | 20 | 22 | 27 | 21 | 18 | 29                             | 32 | 36 | 54 | 91 | 14 | 45 | 91.4          |
| 24-Apr                                                                                                                                                          | 85                            | 29 | 31 | 85 | 53 | 55 | 54 | 29 | 64 | 35 | 51 | 37 | 33 | 43 | 43 | 59 | 45 | 23                             | 44 | 17 | 62 | 61 | 69 | 82 | 85.3          |
| 25-Apr                                                                                                                                                          | 27                            | 77 | 67 | 30 | 56 | 16 | 17 | 15 | 25 | 90 | 43 | 23 | 50 | 34 | 33 | 30 | 20 | 22                             | 14 | 8  | 45 | 53 | 45 | 31 | 90.4          |
| 26-Apr                                                                                                                                                          | 16                            | 68 | 83 | 45 | 65 | 14 | 23 | 18 | 16 | 16 | 22 | 18 | 17 | 21 | 44 | 21 | 37 | 44                             | 19 | 25 | 43 | 29 | 49 | 87 | 87.0          |
| 27-Apr                                                                                                                                                          | 46                            | 10 | 14 | 11 | 7  | 24 | 20 | 19 | 22 | 53 | 71 | 51 | 51 | 85 | 19 | 24 | 14 | 57                             | 19 | 18 | 59 | 33 | 8  | 13 | 85.3          |
| 28-Apr                                                                                                                                                          | 8                             | 34 | 22 | 29 | 32 | 52 | 43 | 25 | 51 | 17 | 25 | 29 | 14 | 15 | 10 | 11 | 16 | 10                             | 28 | 12 | 10 | 23 | 69 | 41 | 68.8          |
| 29-Apr                                                                                                                                                          | 18                            | 15 | 11 | 22 | 16 | 26 | 33 | 30 | 32 | 25 | 24 | 70 | 41 | 57 | 34 | 57 | 50 | 15                             | 28 | 41 | 63 | 22 | 61 | 65 | 69.6          |
| 30-Apr                                                                                                                                                          | 58                            | 32 | 32 | 35 | 23 | 43 | 68 | 47 | 14 | 16 | 17 | 23 | 19 | 31 | 60 | 38 | 76 | 88                             | 72 | 11 | 25 | 14 | 21 | 23 | 88.3          |
| 85.3 76.9 82.8 86.4 80.5 89.5 77.5 79.9 83.9 90.4 83.5 81.9 70.0 85.3 70.2 88.6 76.3 88.3 72.2 61.5 79.5 91.4 76.6 97.6                                         |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |
| M - Maintenance                                                                                                                                                 |                               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                                |    |    |    |    |    |    |               |

PAZA

## Monthly Passive Data Summary

## Location of PAZA Passive Monitoring Stations



## PAZA Passive Results for April 2011

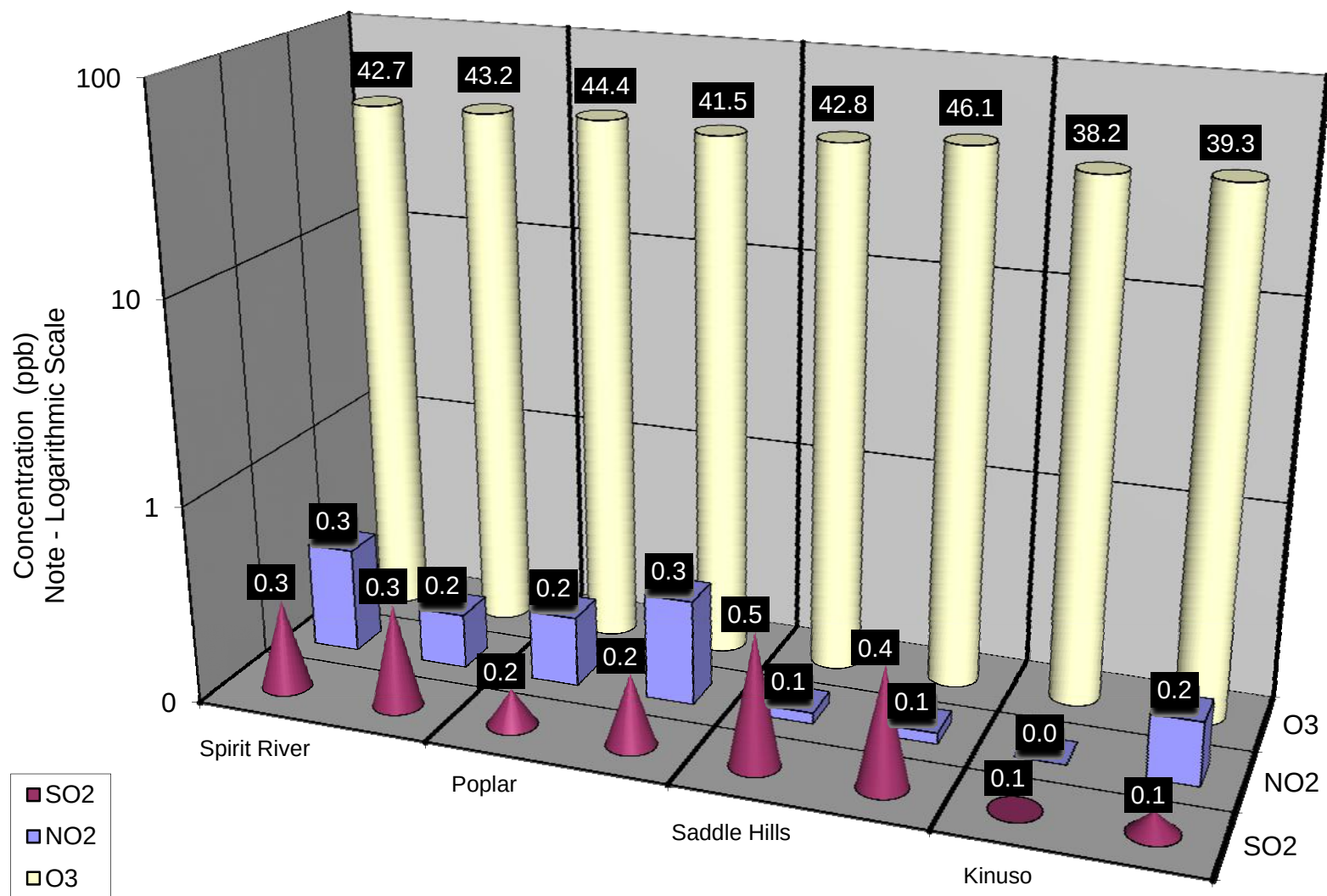
| Station Number    | Station Name    | SO2<br>ppb | O3<br>ppb | NO2<br>ppb | Site<br>Legal    |
|-------------------|-----------------|------------|-----------|------------|------------------|
| <b>Duplicates</b> |                 |            |           |            |                  |
| 9a                | Spirit River    | 0.3        | 42.7      | 0.3        |                  |
| 9b                | Spirit River    | 0.3        | 43.2      | 0.2        |                  |
| 17a               | Poplar          | 0.2        | 44.4      | 0.2        |                  |
| 17b               | Poplar          | 0.2        | 41.5      | 0.3        |                  |
| 18a               | Saddle Hills    | 0.5        | 42.8      | 0.1        |                  |
| 18b               | Saddle Hills    | 0.4        | 46.1      | 0.1        |                  |
| 47a               | Kinuso          | 0.1        | 38.2      | 0.0        |                  |
| 47b               | Kinuso          | 0.1        | 39.3      | 0.2        |                  |
| 1                 | Silver Valley   | 0.4        | 51.9      | 0.1        | 08-27-081-11 W6M |
| 2                 | Bay Tree        | 0.2        | 43.2      | 0.3        | 13-16-078-13 W6M |
| 3                 | Fourth Creek    | 0.3        | 43.8      | 0.0        | 04-13-082-07 W6M |
| 4                 | Gordondale      | 0.3        | 46.1      | 0.2        | 04-34-078-10 W6M |
| 5                 | Boone Creek     | 0.3        | 46.7      | 0.2        | 16-36-074-11 W6M |
| 7                 | Steeprock Creek | 0.2        | 46.9      | 0.0        | 09-35-072-13 W6M |
| 9                 | Spirit River    | 0.3        | 43.0      | 0.3        | 08-12-079-07 W6M |
| 10                | Woking          | 0.4        | 44.6      | 0.0        | 01-13-076-07 W6M |
| 11                | Webber Creek    | 0.3        | 41.1      | 0.5        | 09-36-074-09 W6M |
| 12                | Hythe           | 0.2        | 41.3      | 0.4        | 14-36-072-11 W6M |
| 14                | Sylvester       | 0.1        | 39.1      | 0.2        | 08-06-069-12 W6M |
| 16                | Beaverlodge     | 0.3        | 45.5      | 0.6        | 15-36-071-10 W6M |
| 17                | Poplar          | 0.2        | 43.0      | 0.3        | 13-06-073-08 W6M |
| 18                | Saddle Hills    | 0.4        | 44.4      | 0.1        | 04-25-074-07 W6M |
| 19                | Wanham          | 0.4        | N/A       | 0.4        | 16-22-077-03 W6M |
| 20                | Shaftesbury     | 0.2        | 48.9      | 0.2        | 04-03-082-23 W5M |
| 21                | Eaglesham       | 0.2        | 38.3      | 0.3        | 16-21-079-25 W5M |
| 23                | Bear Lake       | 0.2        | 45.8      | 0.6        | 15-31-072-06 W6M |



## PAZA Passive Results for April 2011 (Continued)

| Station Number | Station Name      | SO2<br>ppb | O3<br>ppb | NO2<br>ppb | Site<br>Legal    |
|----------------|-------------------|------------|-----------|------------|------------------|
| 24             | Wembley           | 0.2        | 42.4      | 0.5        | 12-31-070-08 W6M |
| 25             | Pinto Creek       | 0.1        | 39.8      | 0.3        | 04-24-069-11 W6M |
| 26             | Flyingshot        | 0.2        | 41.2      | 0.3        | 15-36-070-07 W6M |
| 27             | Grande Prairie I  | 0.2        | 37.3      | 2.2        | 08-15-071-06 W6M |
| 28             | Clairmont Lake    | 0.3        | 41.5      | 0.4        | 09-06-073-04 W6M |
| 29             | Smoky Heights     | 0.5        | 45.3      | 0.5        | 04-06-075-02 W6M |
| 30             | Fitzsimmons       | 0.2        | 41.4      | 0.2        | 15-36-072-03 W6M |
| 32             | Gold Creek        | 0.2        | 34.3      | 0.5        | 06-33-067-05 W6M |
| 33             | Wapiti            | 0.2        | 38.2      | 0.5        | 02-25-071-03 W6M |
| 34             | Puskwaskau        | 0.1        | 42.3      | 0.0        | 15-35-074-25 W5M |
| 35             | Jean Cote         | 0.2        | 50.8      | 0.0        | 12-35-079-21 W5M |
| 36             | Guy               | 0.2        | 40.0      | 0.2        | 03-04-076-22 W5M |
| 37             | Crooked Creek     | 0.2        | 45.0      | 0.0        | 16-01-071-26 W5M |
| 38             | Karr Creek        | 0.2        | 36.4      | 0.0        | 10-16-065-02 W6M |
| 39             | Clouston Creek    | 0.2        | 41.7      | 0.2        | 12-01-073-22 W5M |
| 40             | McLennan          | 0.2        | 21.6      | 0.0        | 03-29-077-19 W5M |
| 41             | Valleyview        | 0.2        | 44.2      | 0.0        | 09-30-069-22 W5M |
| 42             | Sunset House      | 0.2        | 49.7      | 0.0        | 05-32-070-19 W5M |
| 43             | High Prairie      | 0.2        | 38.9      | 0.4        | 16-13-074-17 W5M |
| 44             | Peavine           | 0.2        | 41.3      | 0.1        | 03-05-079-15 W5M |
| 45             | Gift Lake         | 0.1        | 38.3      | 0.0        | 10-07-079-12 W5M |
| 46             | Little Smoky      | 0.2        | 39.4      | 0.5        | 12-01-065-21 W5M |
| 47             | Kinuso            | 0.1        | 38.7      | 0.1        | 12-10-073-10 W5M |
| 48             | Deer Mountain     | 0.2        | 45.5      | 0.1        | 15-22-068-09 W5M |
| 49             | Grande Prairie HP | 0.2        | 39.1      | 2.6        | 17-26-071-06 W6M |

\*BDL = Below Detection Level



Duplicate Summary Chart

## Passive Summary for April 2011

| Stats | Sulphur Dioxide<br>SO <sub>2</sub> | Ozone<br>O <sub>3</sub> | Nitrogen Dioxide<br>NO <sub>2</sub> |
|-------|------------------------------------|-------------------------|-------------------------------------|
|       | ppb                                | ppb                     | ppb                                 |

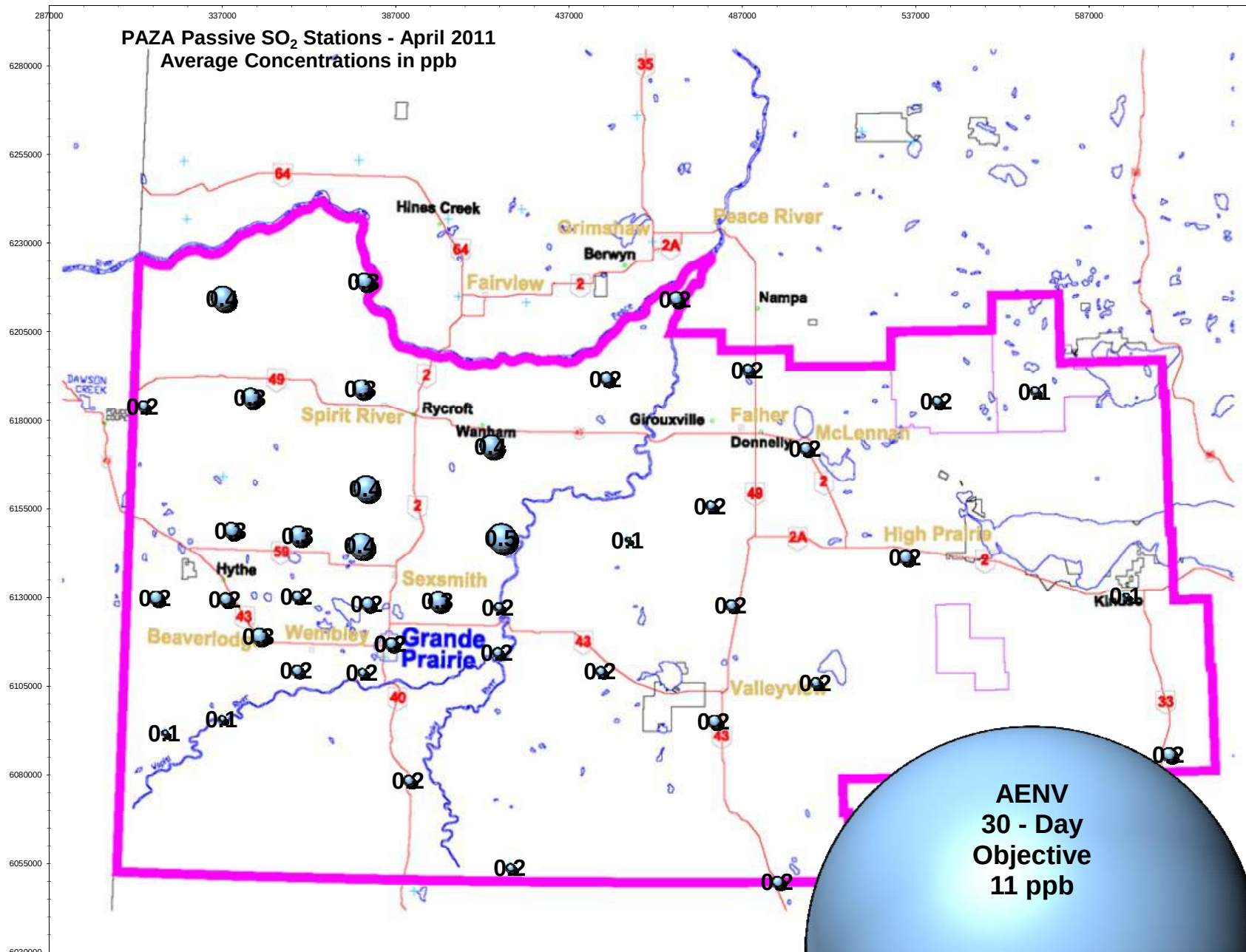
| Passive Summary for April 2011 (PAZA Zone) |                     |                    |                   |
|--------------------------------------------|---------------------|--------------------|-------------------|
| Mean                                       | 0.2                 | 42.1               | 0.3               |
| Standard Deviation                         | 0.1                 | 5.1                | 0.5               |
| Minimum                                    | 0.1                 | 21.6               | 0.0               |
| Minimum At                                 | Puskwaskau (#34)    | McLennan (#40)     | Karr Creek (#38)  |
| Maximum                                    | 0.5                 | 51.9               | 2.6               |
| Maximum At                                 | Smoky Heights (#29) | Silver Valley (#1) | Grande Prairie HP |

### Comparison between Continuous and Passive monitoring at Beaverlodge (passive #16 Beaverlodge)

|                           | SO <sub>2</sub> | O <sub>3</sub> | NO <sub>2</sub> |
|---------------------------|-----------------|----------------|-----------------|
| PASZA Beaverlodge station | 0.2             | 44.8           | 2.0             |
| PASZA Beaverlodge passive | 0.3             | 45.5           | 0.6             |

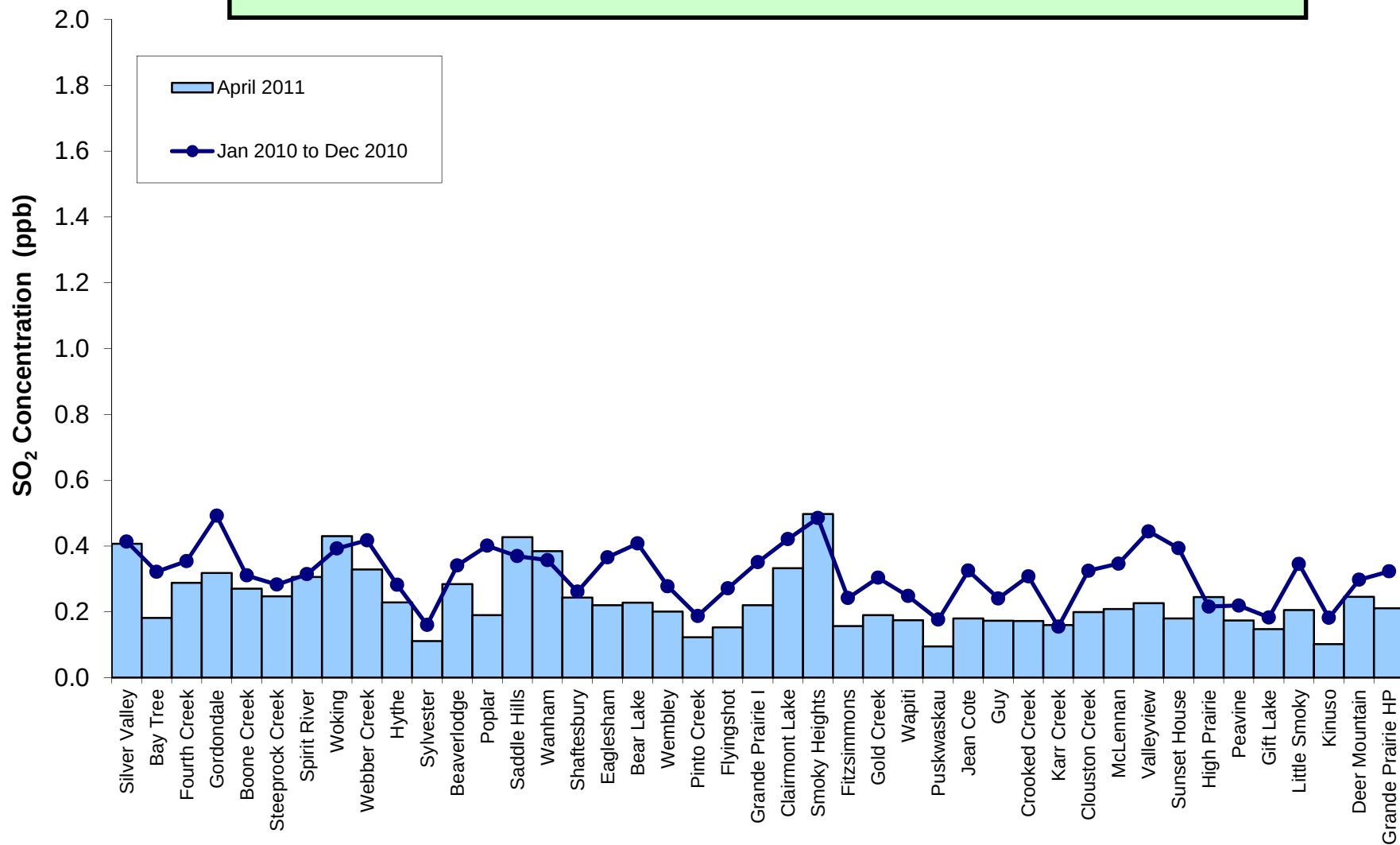
### Comparison between Continuous and Passive monitoring at Henry Pirker (passive #49 Grande Prairie HP)

|                              | SO <sub>2</sub> | O <sub>3</sub> | NO <sub>2</sub> |
|------------------------------|-----------------|----------------|-----------------|
| PASZA Henry Pirker station   | 0.2             | 36.6           | 7.2             |
| PASZA Grande Prairie passive | 0.2             | 39.1           | 2.6             |



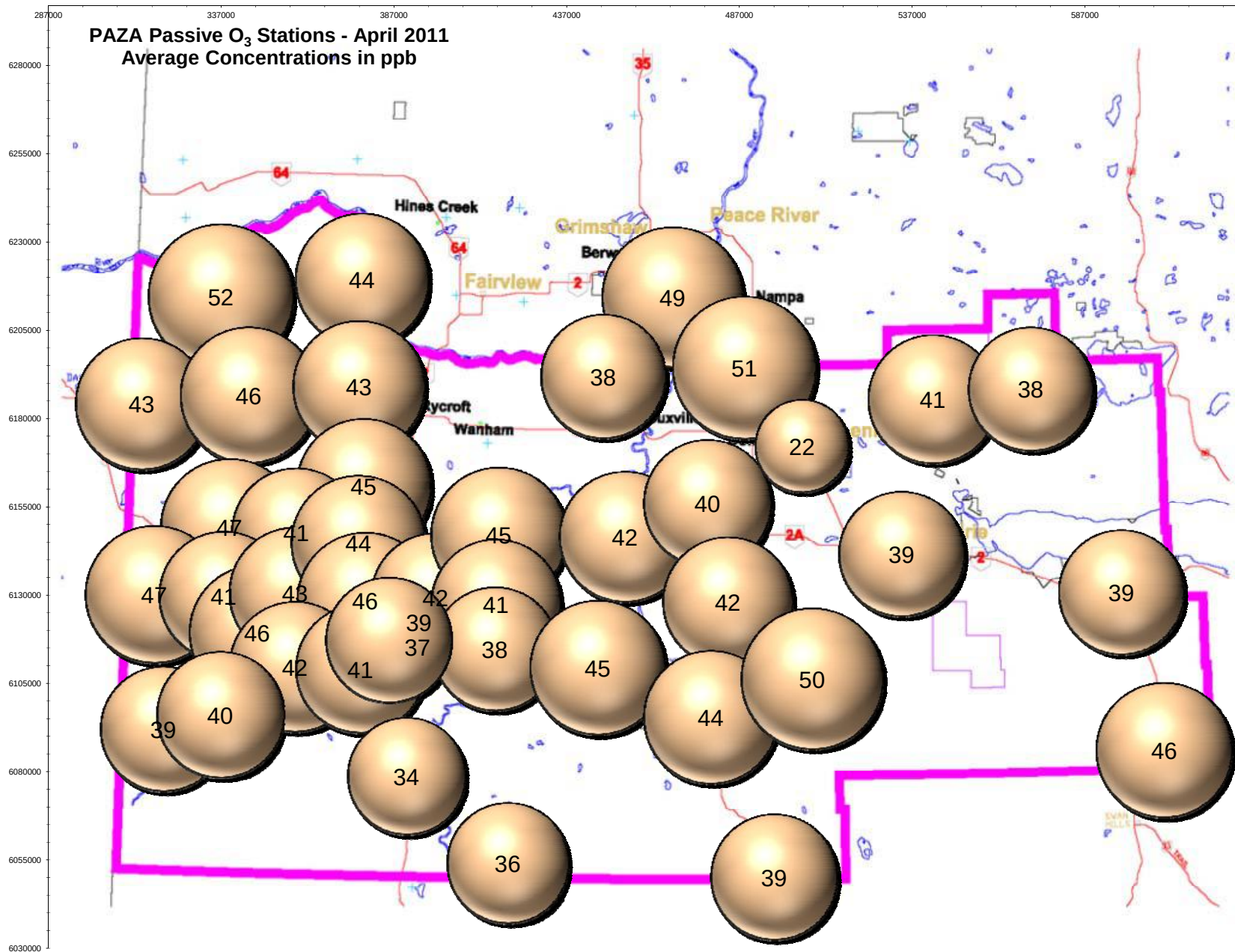
SO<sub>2</sub> Bubble Chart

**Alberta Ambient Air Quality Objective - Annual SO<sub>2</sub> Objective is 8 ppb**



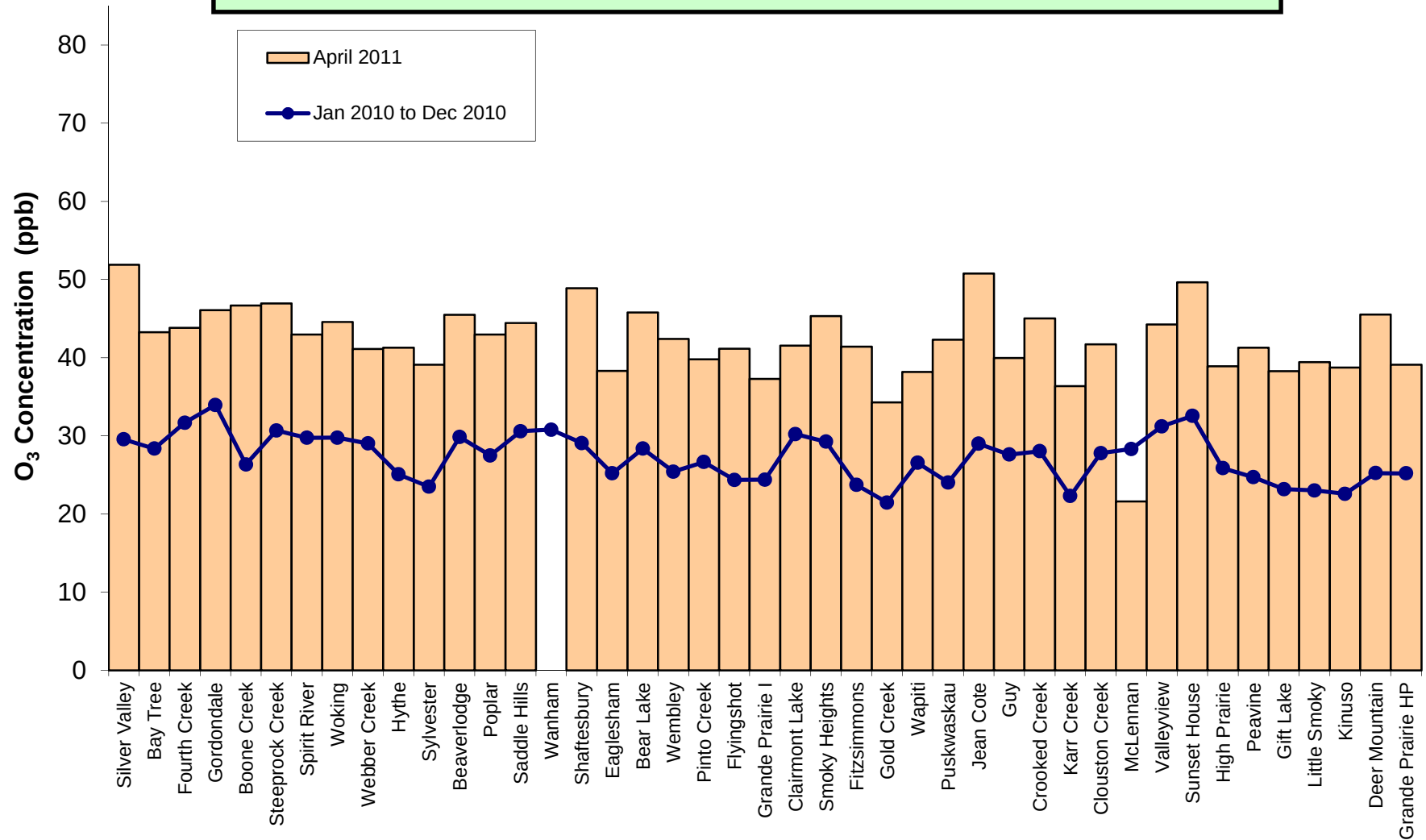
**SO<sub>2</sub> Summary Chart**



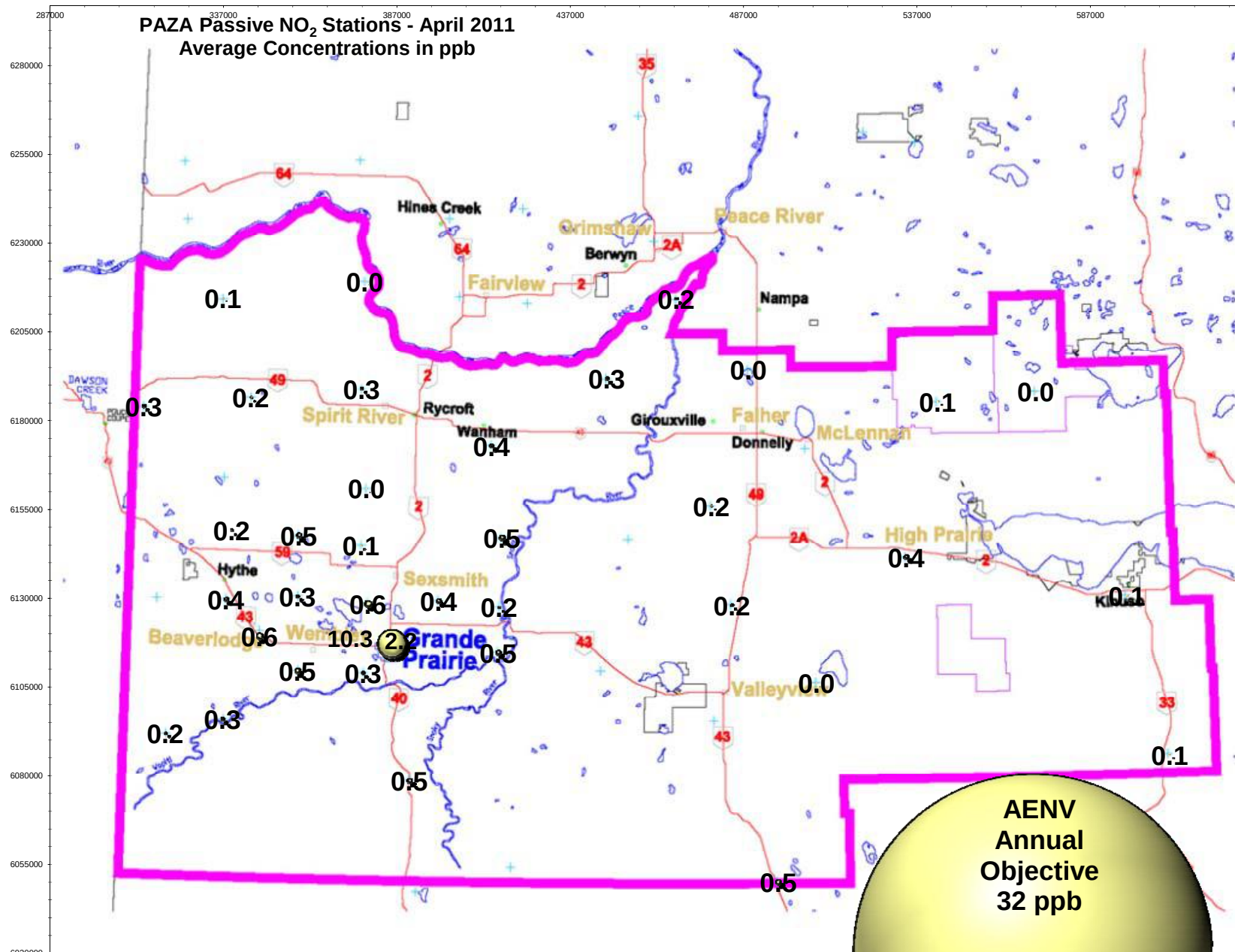


**O<sub>3</sub> Bubble Chart**

## Alberta Ambient Air Quality Objective - No Annual O<sub>3</sub> Objective

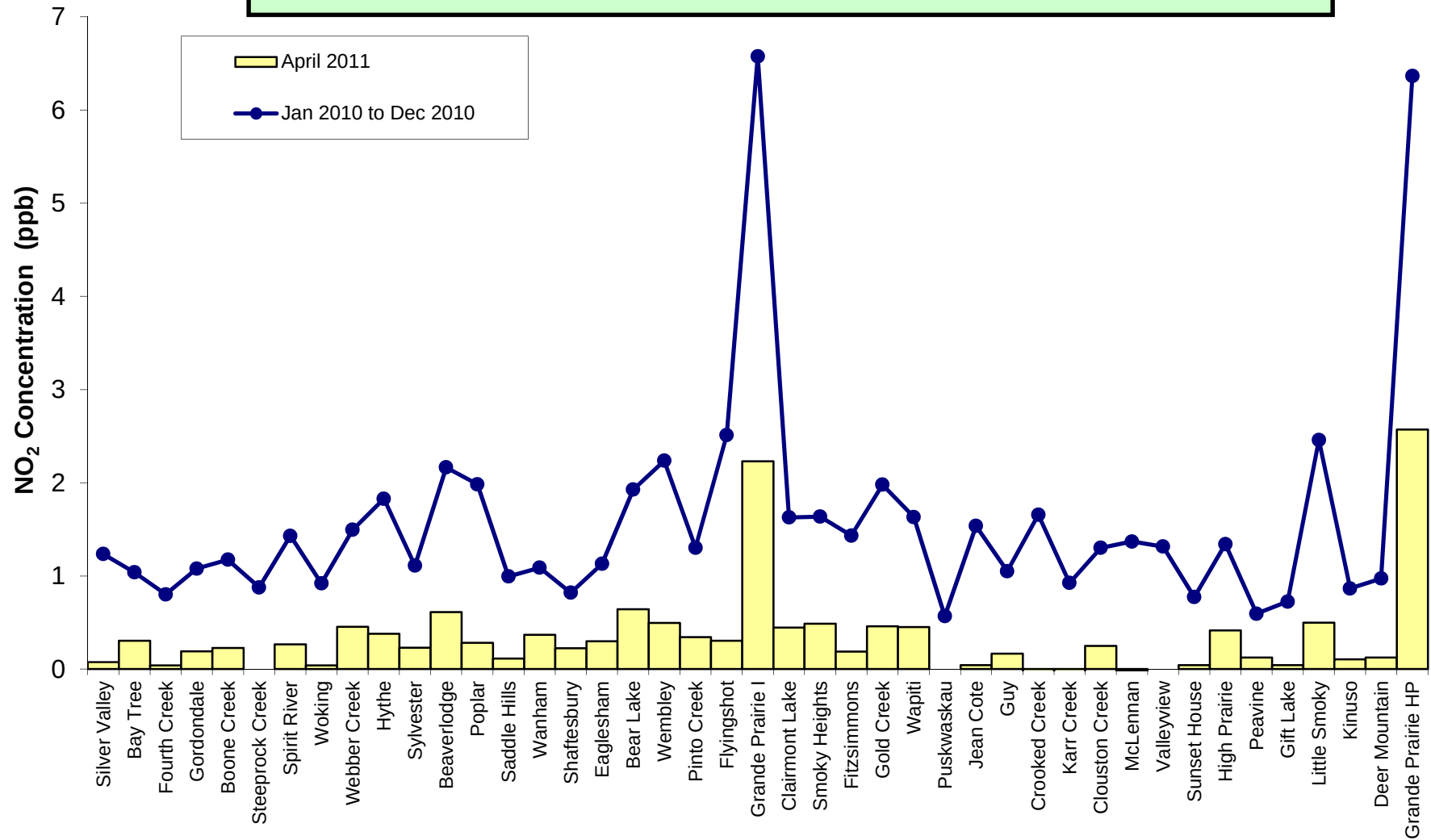


**O<sub>3</sub> Summary Chart**





**Alberta Ambient Air Quality Objective - Annual NO<sub>2</sub> Objective is 32 ppb**



**NO<sub>2</sub> Summary Chart**

# **April 2011 Calibration Reports**

**PAZA - Henry Pirker Station with the following calibrations:**

**SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>, CO, THC, TRS**

**PAZA – Evergreen Park Station with the following calibrations:**

**SO<sub>2</sub>, TRS**

**PAZA – Smoky Heights Station with the following calibrations:**

**SO<sub>2</sub>, TRS**

**PAZA – Beaverlodge Station with the following calibrations:**

**SO<sub>2</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, O<sub>3</sub>**

**PAZA – Kinuso (Portable) Station with the following calibrations:**

**SO<sub>2</sub>, TRS, NO, NO<sub>2</sub>, NO<sub>x</sub> & O<sub>3</sub>,**

**PAZA – Valleyview Station with the following calibrations:**

**SO<sub>2</sub> & H<sub>2</sub>S**

# Calibration Report

Parameter SO2

Air Monitoring Network PASZA



## Station Information

|                      |                                             |                                  |                                  |
|----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date     | April 21, 2011                              | Previous Calibration             | March 16, 2011                   |
| Station Number       | 1                                           | Station Location                 | Henry Pirker                     |
| Reason:              | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                      |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)     | 8:35                                        | End Time (MST)                   | 11:00                            |
| Barometric Pressure  | 0.923 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator           | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Conc         | 50.6 ppb                                    | Cal Gas Cert Date                | 4/6/2012                         |
|                      |                                             | Cal Gas Cylinder #               | LL34002                          |
| DACS make            | Focus AP1000                                | DACS serial No.                  | 1                                |
| DACS voltage range   | 0 - 1 volt                                  | DACS channel #                   | 10                               |
|                      | Before                                      |                                  | After                            |
| Calculated slope     | 1.001551                                    | Calculated slope                 | 1.000862                         |
| Calculated intercept | -0.164281                                   | Calculated intercept             | 0.287816                         |
| Analyzer make        | TEI 43C                                     | Analyzer serial #                | 610816292                        |

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 500 | ppb   | 0 - 500 | ppb   |
| Background          | 8.1     |       | 8.7     |       |
| Coefficient         | .809    |       | .809    |       |
| Pressure            | 640.9   | mm Hg | 642.5   | mm Hg |
| Flow                | 0.476   | lpm   | 0.474   | lpm   |
| Lamp Voltage        | 44176   | Hz    | 43721   | Hz    |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.00                          | 0.0                                 | 0.4                                | N/A                       |
| 4989                            | 39.83                         | 400.8                               | 400.6                              | 1.0004                    |
| 4989                            | 19.90                         | 201.0                               | 199.9                              | 1.0058                    |
| 4989                            | 9.93                          | 100.5                               | 99.6                               | 1.0088                    |
|                                 |                               |                                     |                                    |                           |
|                                 |                               |                                     |                                    |                           |
| 4989                            | 0.00                          | 0.0                                 | 0.4                                | As Found Zero             |
| 4989                            | 39.83                         | 400.8                               | 400.1                              | As Found Span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0050                    |

Calculated value of As Found Response: 400.1 ppb

Percent Change of As Found: 0.2%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.1                | ppb | 0.1               | ppb |
| Auto span | 241.8              | ppb | 241.0             | ppb |

Notes:

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



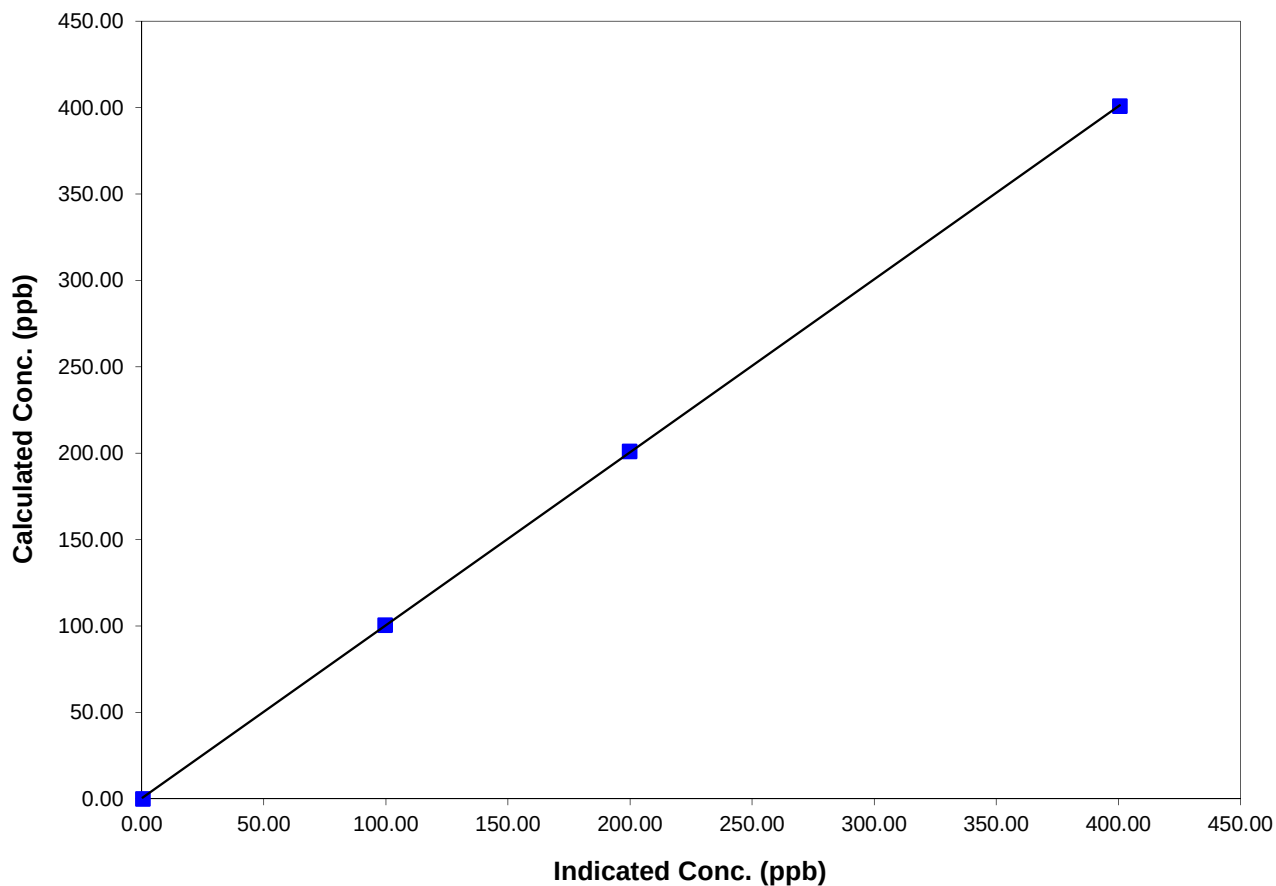
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 21, 2011 | Previous Calibration | March 16, 2011 |
| Station Number      | 1              | Station Location     | Henry Pirker   |
| Start Time (MST)    | 8:35           | End Time (MST)       | 11:00          |
| Analyzer make/model | TEI 43C        | Analyzer serial #    | 610816292      |

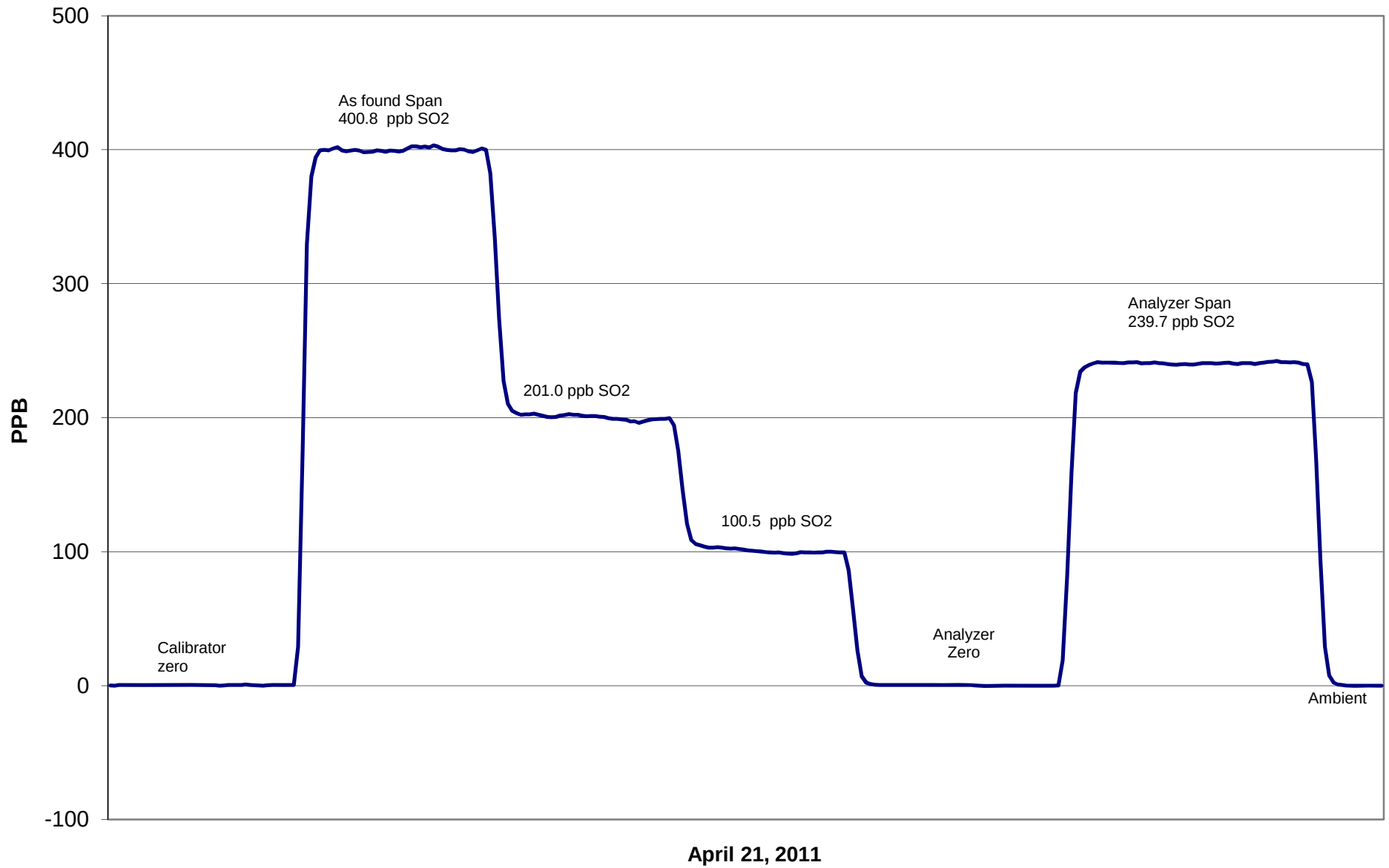
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.4                                | N/A                       | Correlation Coefficient | 0.999983 |
| 400.8                               | 400.6                              | 1.0004                    |                         |          |
| 201.0                               | 199.9                              | 1.0058                    |                         |          |
| 100.5                               | 99.6                               | 1.0088                    | Slope                   | 1.000862 |
|                                     |                                    |                           | Intercept               | 0.287816 |

### SO2 Calibration Curve



## Henry Pirker SO<sub>2</sub> Calibration



## Air Monitoring Network PASZA

## Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



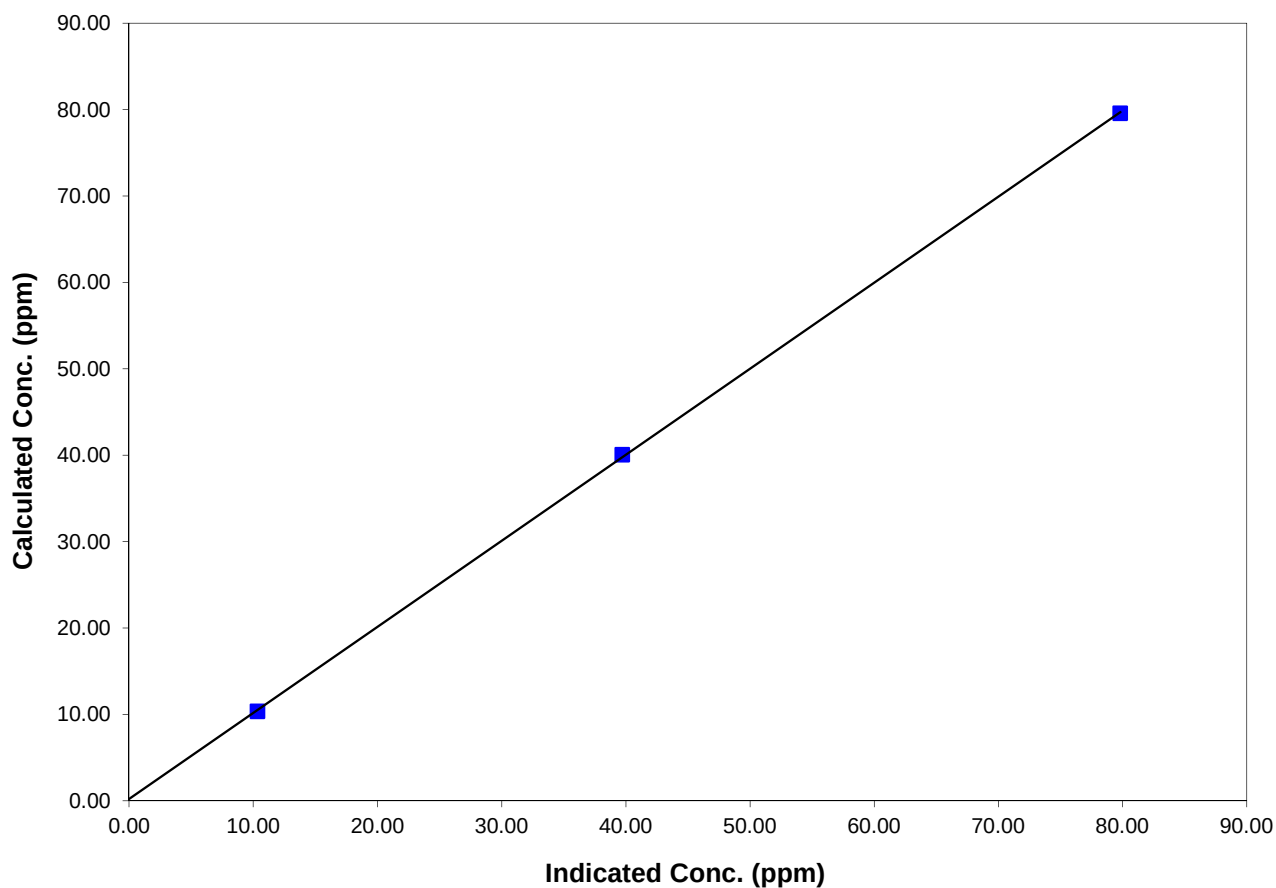
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 20, 2011 | Previous Calibration | March 14, 2011 |
| Station Number      | 1              | Station Location     | Henry Pirker   |
| Start Time (MST)    | 11:00          | End Time (MST)       | 13:30          |
| Analyzer make/model | TEI 45C        | Analyzer serial #    | 630718528      |

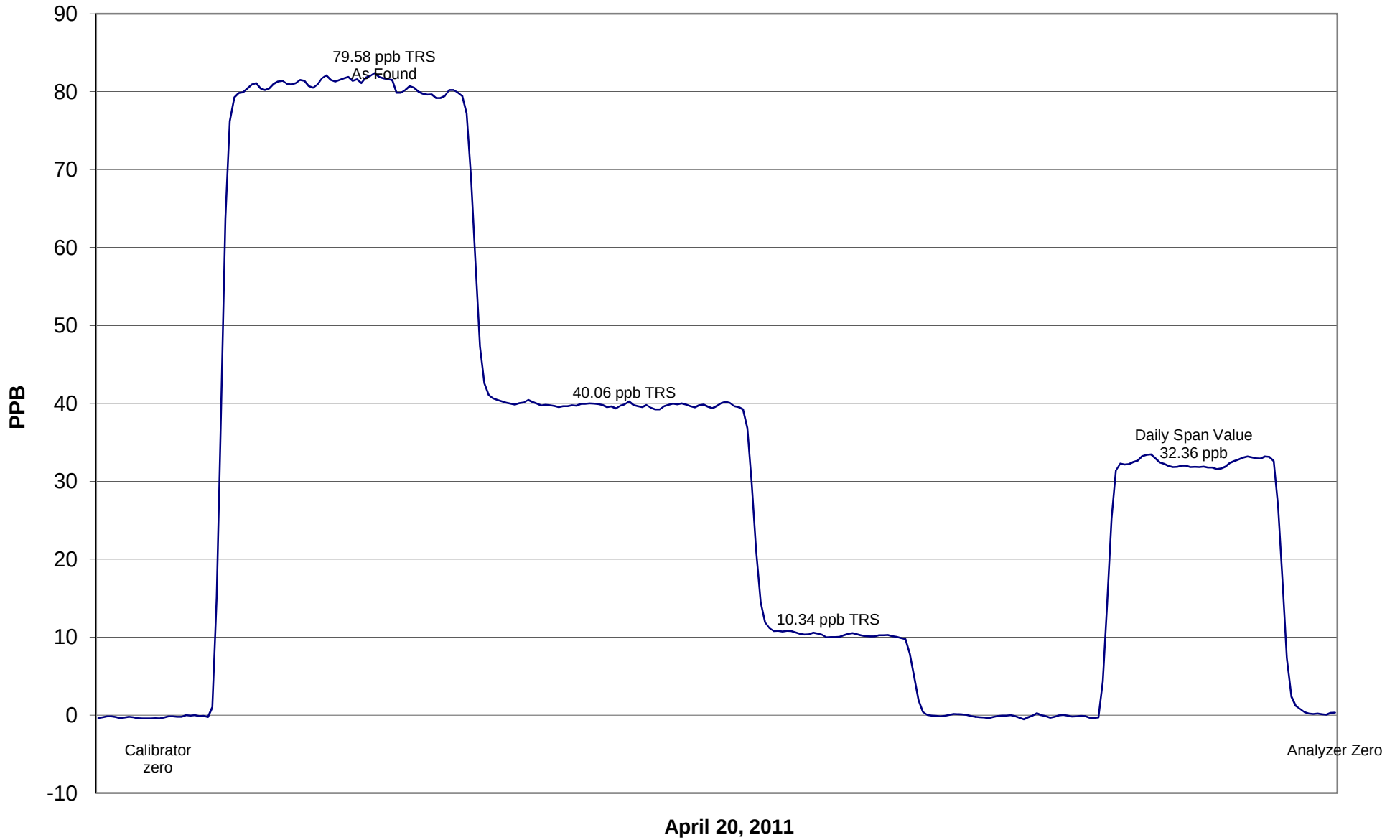
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.000                               | -0.217                             | N/A                       |                         |          |
| 79.579                              | 79.828                             | 0.9969                    | Correlation Coefficient | 0.999968 |
| 40.060                              | 39.728                             | 1.0084                    |                         |          |
| 10.344                              | 10.336                             | 1.0008                    | Slope                   | 0.995695 |
|                                     |                                    |                           |                         |          |
|                                     |                                    |                           | Intercept               | 0.216689 |
|                                     |                                    |                           |                         |          |

### TRS Calibration Curve



## Henry Pirker TRS Calibration





# Calibration Report

Parameter

NO<sub>x</sub>-NO-NO<sub>2</sub>

Air Monitoring Network

PASZA



## Station Information

|                     |                                             |                                       |                                  |
|---------------------|---------------------------------------------|---------------------------------------|----------------------------------|
| Calibration Date    | April 21, 2011                              | Previous Calibration                  | March 16, 2011                   |
| Station Number      | 1                                           | Station Location                      | Henry Pirker                     |
| Reason:             | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Installation | <input type="checkbox"/> Removal |
| Start Time (MST)    | 8:35                                        | End Time (MST)                        | 12:20                            |
| Barometric Pressure | 0.923                                       | Station Temperature                   | 20.0                             |
| Calibrator          | EnviroNics                                  | Serial Number                         | 3474                             |
| NO Cal Gas Conc     | 51.4                                        | Cal Gas Expiry Date                   | April 6, 2012                    |
| NOx Cal Gas Conc    | 51.4                                        | Cal Gas Serial #                      | LL34002                          |

## DACS Information

|           |              |                 |  |
|-----------|--------------|-----------------|--|
| DACS make | Focus AP1000 | DACS serial No. |  |
|-----------|--------------|-----------------|--|

| Parameter     |             | NO2       | NOx       | NO        |
|---------------|-------------|-----------|-----------|-----------|
| Before        | Data Slope  | 1.001131  | 1.003659  | 1.003257  |
|               | Data Offset | 0.338660  | -2.606314 | -2.542975 |
| After         | Data Slope  | 1.000724  | 1.003147  | 1.003435  |
|               | Data Offset | -0.376700 | -2.275240 | -2.475293 |
| Channel #     |             | 8         | 6         | 7         |
| Voltage Range |             | 0 - 5 VDC | 0 - 5 VDC | 0 - 5 VDC |

## Analyzer Information

|                     |         |                   |           |
|---------------------|---------|-------------------|-----------|
| Analyzer make/model | TEI 42C | Analyzer serial # | 508011073 |
|---------------------|---------|-------------------|-----------|

| Test Point          | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 500 | ppb   | 0 - 500 | ppb   |
| NO offset           | 10.7    | mV    | 10.2    | mV    |
| NOx bkgnd           | 10.9    | mV    | 10.3    | mV    |
| NO coefficient      | 0.786   |       | 0.759   |       |
| NOx coefficient     | 1.000   |       | 0.998   |       |
| NO2 conv temp       | 318.0   | Deg C | 318.0   | Deg C |
| PMT Temp            | -2.5    | Deg C | -2.5    | Deg C |
| PMT Volt            | -786.0  | mV    | -786.0  | mV    |
| R Cell Press        | 178.7   | in Hg | 178.6   | in Hg |
| Sample Flow         | 0.756   | ccm   | 0.759   | ccm   |

Notes: Span adjustment made.

# Calibration Report

Parameter **NOx-NO-NO<sub>2</sub>**  
Air Monitoring Network **PASZA**



## Station Information

Calibration Date: April 21, 2011 Station Location: Henry Pirker

## Calibration Data

|                           | Dilution flow rate (ccm) | Source gas flow rate (ccm) | Calculated NOx conc (ppb) | Calculated NO conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor |
|---------------------------|--------------------------|----------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|
| zero                      | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | 0.0                      | 0.0                     | 0.0                      | N/A                   | N/A                  |
| 1                         | 4989                     | 39.83                      | 407.1                     | 407.1                    | 0.0                       | 406.9                    | 406.9                   | 0.1                      | 1.0004                | 1.0006               |
| 2                         | 4989                     | 19.90                      | 204.2                     | 204.2                    | 0.0                       | 206.9                    | 207.3                   | -0.5                     | 0.9872                | 0.9853               |
| 3                         | 4989                     | 9.93                       | 102.1                     | 102.1                    | 0.0                       | 106.5                    | 106.7                   | -0.3                     | 0.9589                | 0.9565               |
| AFZ                       | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | 0.0                      | 0.0                     | 0.0                      | 0.0000                | 0.0000               |
| AFS                       | 4989                     | 39.83                      | 407.1                     | 407.1                    | 0.0                       | 421.6                    | 420.9                   | 0.6                      | 0.9657                | 0.9672               |
| Average Correction Factor |                          |                            |                           |                          |                           |                          |                         |                          | 0.9822                | 0.9808               |

As Found Concentrations: NO<sub>x</sub>= 419.0 NO= 418.4 As Found Percent Change NO<sub>x</sub>= 2.9% NO= 2.8%

## GPT Calibration Data

Dilution Flow 4989 ccm Source Gas Flow 39.85 ccm

| O3 Setpoint (ppb)         | Indicated NO high point (ppb) | Indicated NO drop conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor | NO2 Correction factor | Converter Efficiency |
|---------------------------|-------------------------------|------------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|-----------------------|----------------------|
| 0                         | 0.0                           | 0.0                          | 0.0                       | 0.0                      | 0.0                     | 0.0                      | N/A                   | N/A                  | N/A                   | N/A                  |
| NO point                  | 407.1                         | 407.1                        | 0.0                       | 406.7                    | 407.1                   | -0.4                     | 1.0009                | 1.0000               | N/A                   | N/A                  |
| 300                       | 407.1                         | 157.7                        | 249.3                     | 407.0                    | 157.7                   | 249.2                    | 1.0002                | 1.0000               | 1.0007                | 99.9%                |
| 200                       | 407.1                         | 236.8                        | 170.2                     | 407.6                    | 236.8                   | 170.7                    | 0.9987                | 1.0000               | 0.9969                | 100.3%               |
| 100                       | 407.1                         | 314.3                        | 92.7                      | 407.8                    | 314.3                   | 93.5                     | 0.9982                | 1.0000               | 0.9917                | 100.8%               |
| Average Correction Factor |                               |                              |                           |                          |                         |                          | 0.9991                | 1.0000               | 0.9964                | 100.4%               |

## AIC Data

|           | Previous calibration |       |     |     | Current calibration |       |     |     |
|-----------|----------------------|-------|-----|-----|---------------------|-------|-----|-----|
| Parameter | NOx                  | NO2   | NO  |     | NOx                 | NO2   | NO  |     |
| Auto zero | -0.1                 | 0.0   | 0.0 | ppb | 0.1                 | 0.0   | 0.0 | ppb |
| Auto span | 168.4                | 169.5 | 1.2 | ppb | 169.4               | 168.5 | 0.1 | ppb |

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PASZA



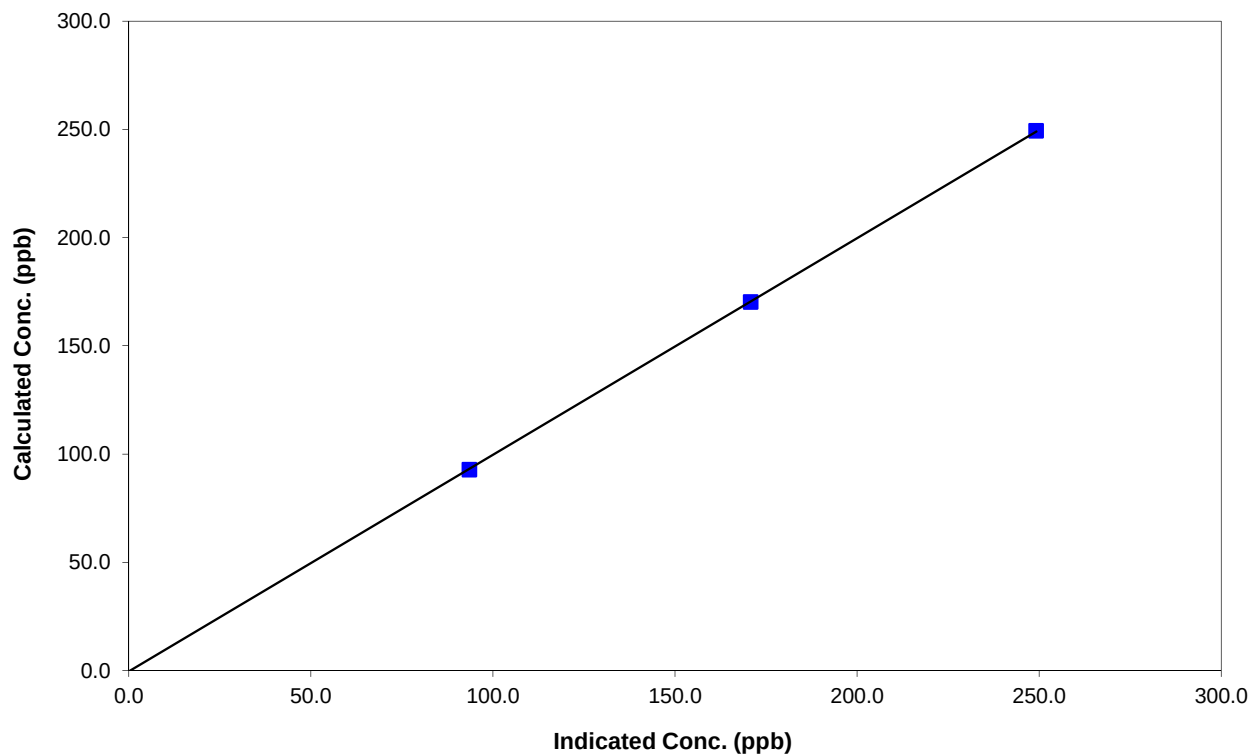
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 21, 2011 | Previous Calibration | March 16, 2011 |
| Station Number   | 1              | Station Location     | Henry Pirker   |
| Start Time (MST) | 8:35           | End Time (MST)       | 12:20          |
| Analyzer make    | TEI 42C        | Analyzer serial #    | 508011073      |

### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                           | 0.0                                   | N/A                       | Correlation Coefficient | 0.999983  |
| 249.3                         | 249.2                                 | 1.0007                    |                         |           |
| 170.2                         | 170.7                                 | 0.9969                    |                         |           |
| 92.7                          | 93.5                                  | 0.9917                    | Slope                   | 1.000724  |
|                               |                                       |                           |                         |           |
|                               |                                       |                           |                         |           |
|                               |                                       |                           | Intercept               | -0.376700 |
|                               |                                       |                           |                         |           |

### NO<sub>2</sub> Calibration Curve



## Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PASZA



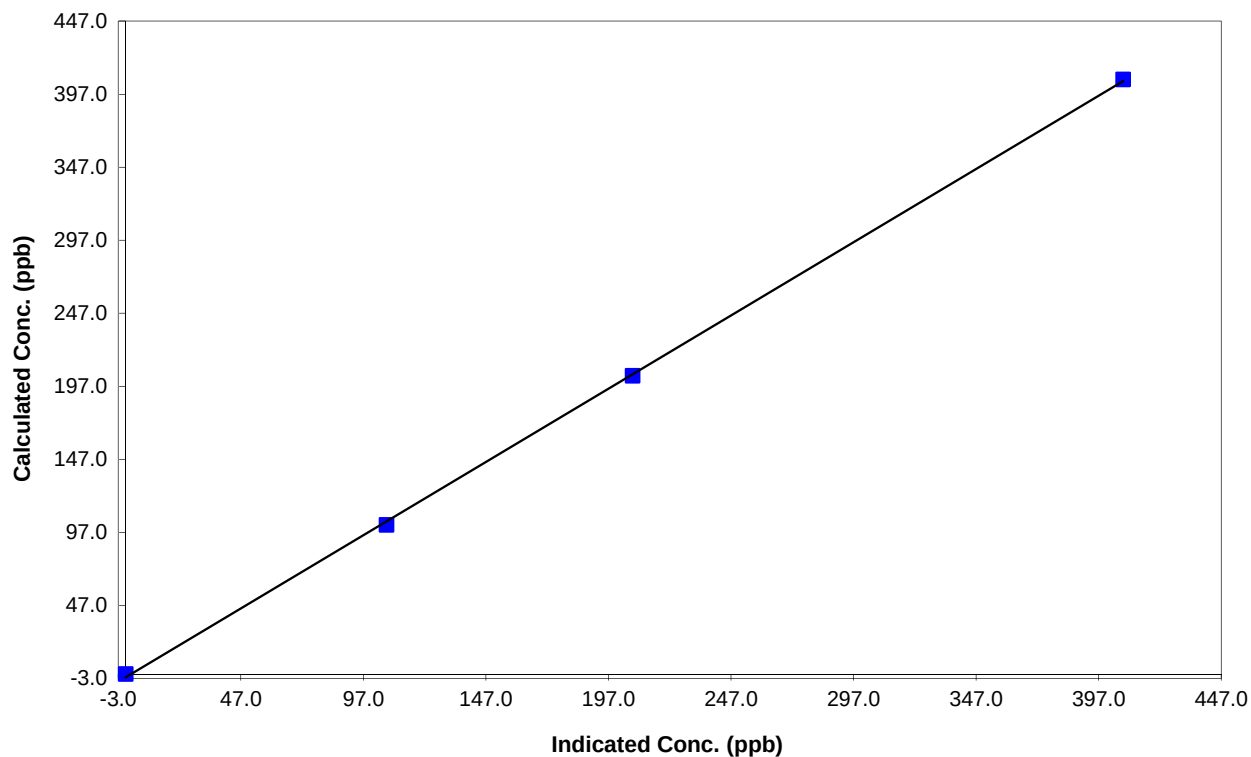
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 21, 2011 | Previous Calibration | March 16, 2011 |
| Station Number   | 1              | Station Location     | Henry Pirker   |
| Start Time (MST) | 8:35           | End Time (MST)       | 12:20          |
| Analyzer make    | TEI 42C        | Analyzer serial #    | 508011073      |

### Calibration Data

| Calculated conc (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|----------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                        | 0.0                                | N/A                       | Correlation Coefficient | 0.999850  |
| 407.1                      | 406.9                              | 1.0004                    |                         |           |
| 204.2                      | 206.9                              | 0.9872                    |                         |           |
| 102.1                      | 106.5                              | 0.9589                    | Slope                   | 1.003147  |
|                            |                                    |                           |                         |           |
|                            |                                    |                           |                         |           |
|                            |                                    |                           | Intercept               | -2.275240 |
|                            |                                    |                           |                         |           |

### NO<sub>x</sub> Calibration Curve



## Calibration Summary

Parameter NO

Air Monitoring Network PASZA



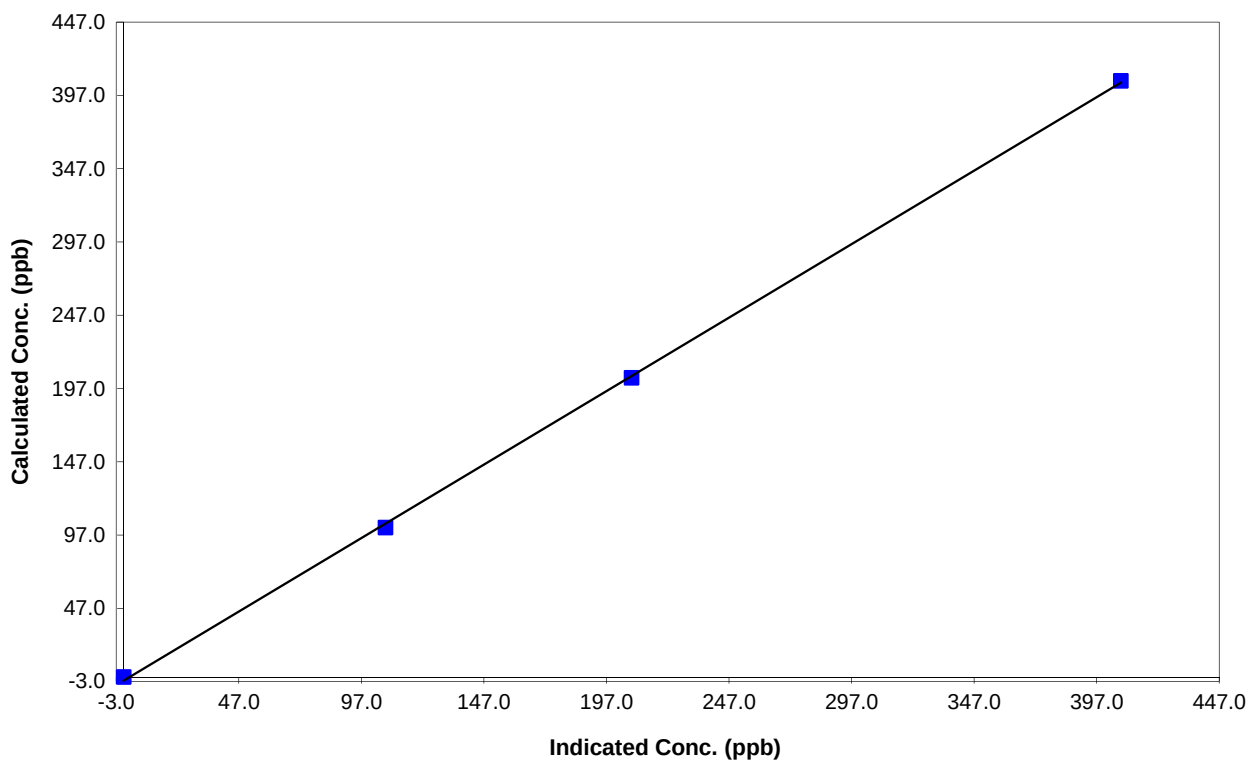
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 21, 2011 | Previous Calibration | March 16, 2011 |
| Station Number   | 1              | Station Location     | Henry Pirker   |
| Start Time (MST) | 8:35           | End Time (MST)       | 12:20          |
| Analyzer make    | TEI 42C        | Analyzer serial #    | 508011073      |

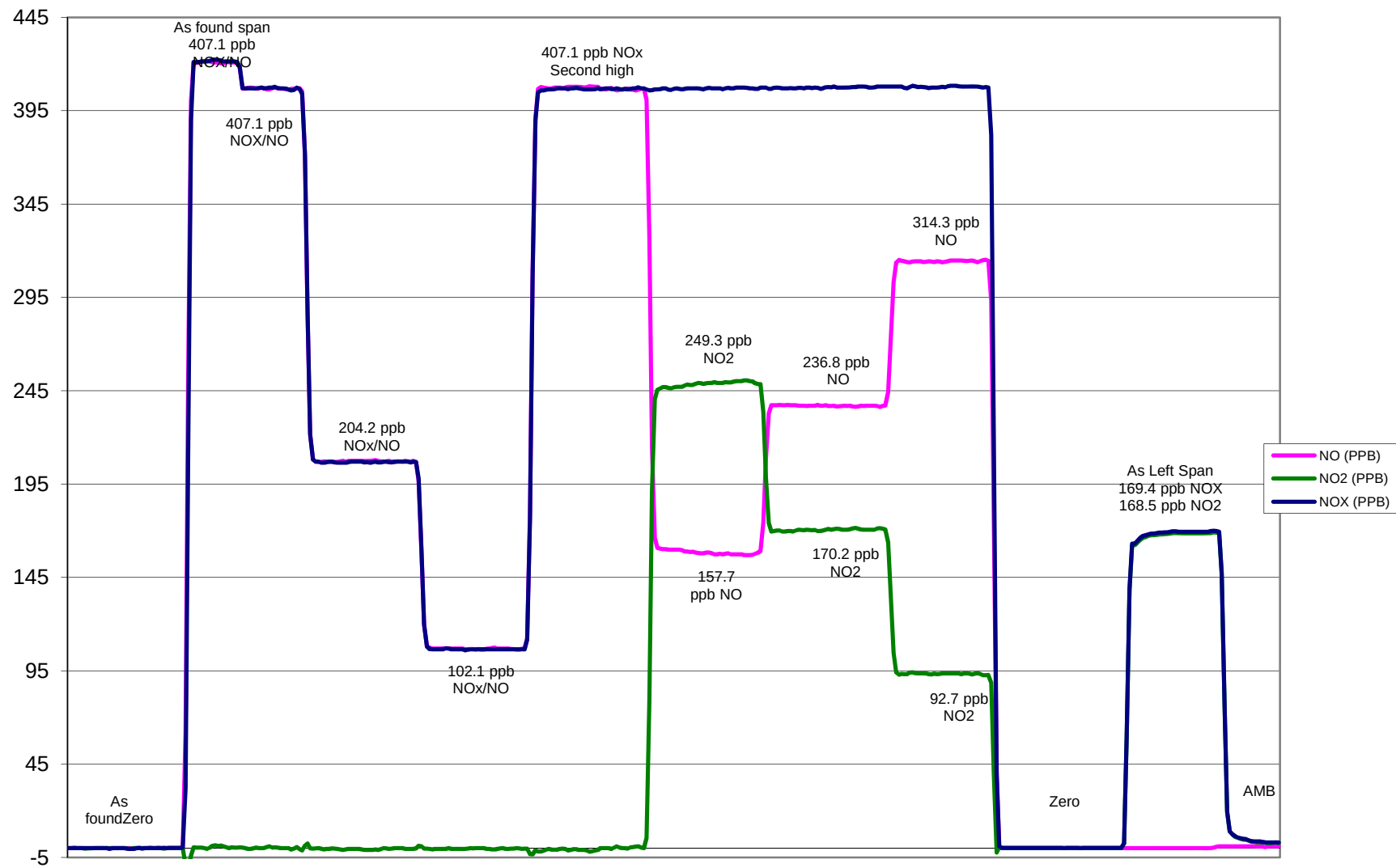
### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                           | 0.0                                   | N/A                       | Correlation Coefficient | 0.999823  |
| 407.1                         | 406.9                                 | 1.0006                    |                         |           |
| 204.2                         | 207.3                                 | 0.9853                    |                         |           |
| 102.1                         | 106.7                                 | 0.9565                    | Slope                   | 1.003435  |
|                               |                                       |                           |                         |           |
|                               |                                       |                           | Intercept               | -2.475293 |
|                               |                                       |                           |                         |           |

### NO Calibration Curve



## Henry Pirker NO<sub>x</sub> Calibration



April 21, 2011

# Calibration Report



Parameter 03

Air Monitoring Network PASZA

## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 12, 2011                              | Previous Calibration             | March 16, 2011                   |
| Station Number        | 1                                           | Station Location                 | Henry Pirker                     |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | Other:                           |                                  |
| Start Time (MST)      | 14:15                                       | End Time (MST)                   | 15:00                            |
| Barometric Pressure   | 0.915 atm                                   | Station Temperature              | 0.6 Deg C                        |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | NA                                          | Cal Gas Expiry Date              | NA                               |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 45269                            |
| DACS voltage range    | 0 - 1 volt                                  | DACS channel #                   | 5                                |
|                       | Before                                      |                                  | After                            |
| Calculated slope      | 1.006492                                    | Calculated slope                 | 1.006292                         |
| Calculated intercept  | 0.450874                                    | Calculated intercept             | -0.001921                        |
| Analyzer make         | TECO 49C                                    | Analyzer serial #                | 607415761                        |

|                     | before      |           | after       |           |
|---------------------|-------------|-----------|-------------|-----------|
| Concentration range | 500         | ppb       | 500         | ppb       |
| offset              | -0.6        | ppb       | -0.6        | ppb       |
| slope               | 0.985       |           | 0.986       |           |
| O3 Lamp temp        | 71.1        | Deg C     | 71.1        | Deg C     |
| Intensities         | 83742/73205 | mV        | 85134/74092 | mV        |
| Pressure            | 674.9       | inches Hg | 689.8       | inches Hg |
| Flow A              | 0.712       | ccm       | 0.722       | ccm       |
| Flow B              | 0.727       | ccm       | 0.737       | ccm       |

## Calibration Data

| Referenced concentration (ppb) | Dilution air flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|--------------------------------|---------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 0                              | 4989                            | 0.0                                 | 0.0                                | N/A                       |
| 300                            | 4989                            | 231.4                               | 230.0                              | 1.0063                    |
|                                |                                 |                                     |                                    |                           |
|                                |                                 |                                     |                                    |                           |
|                                |                                 |                                     |                                    |                           |
| 0                              | 4989                            | 0.0                                 | 0.0                                | As found zero             |
| 300                            | 4989                            | 231.4                               | 230.0                              | As found span             |
| Average Correction Factor      |                                 |                                     |                                    | 1.0063                    |

Calculated value of As Found Response: 231.9 ppm Percent Change of As Found: 0.2%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.3                | ppb | 0.3               | ppb |
| Auto span | 160.1              | ppb | 157.8             | ppb |

Notes: Used last GPT point value as calibrator output. After span was from next day.

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter           O3          

Air Monitoring Network                           PASZA                          



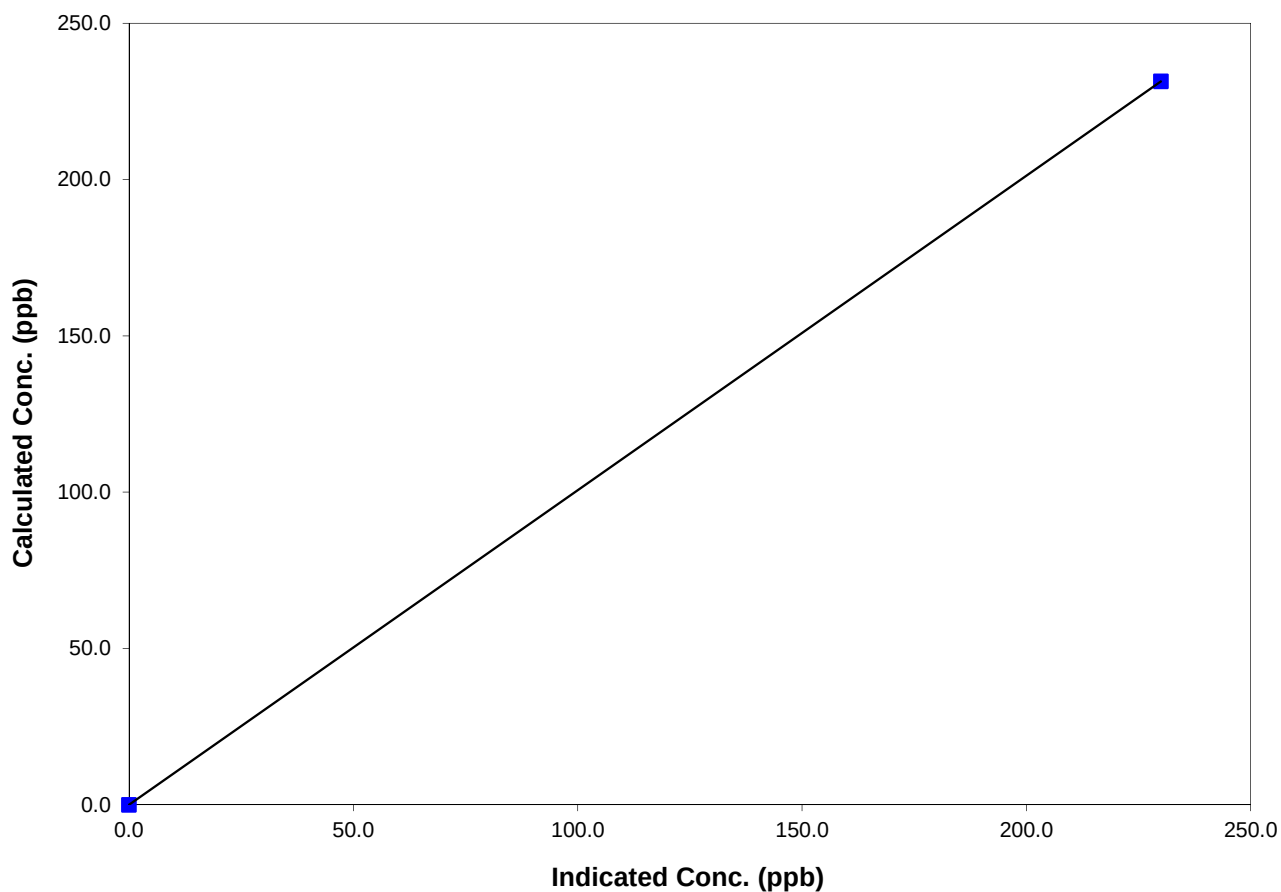
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 12, 2011 | Previous Calibration | March 16, 2011 |
| Station Number      | 1              | Station Location     | Henry Pirker   |
| Start Time (MST)    | 14:15          | End Time (MST)       | 15:00          |
| Analyzer make/model | TECO 49C       | Analyzer serial #    | 607415761      |

### Calibration Data

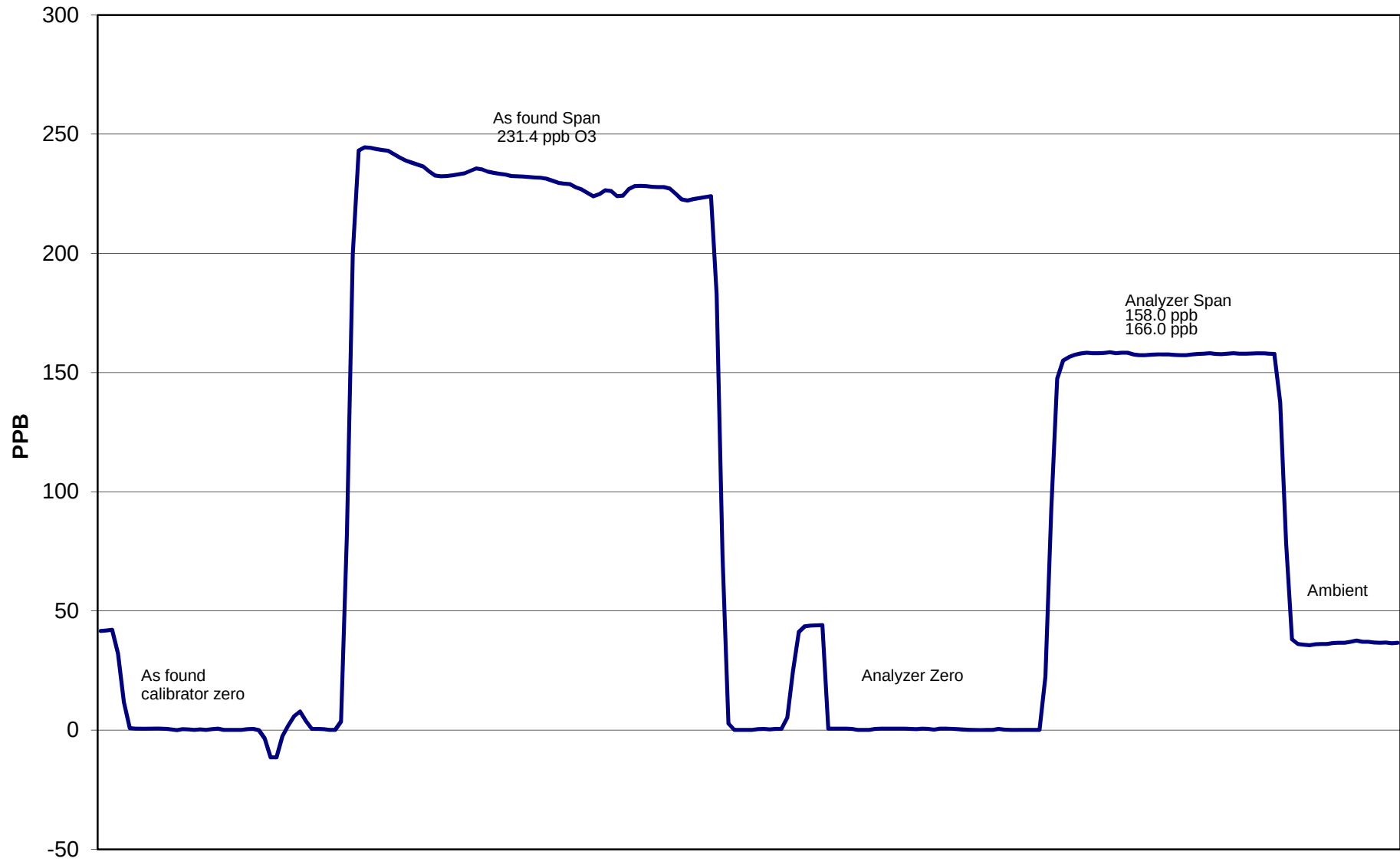
| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                                 | 0.0                                | NA                        |                         |           |
| 231.4                               | 230.0                              | 1.0063                    | Correlation Coefficient | 1.000000  |
|                                     |                                    |                           | Slope                   | 1.006292  |
|                                     |                                    |                           | Intercept               | -0.001921 |

### O3 Calibration Curve





## Henry Pirker O<sub>3</sub> Calibration



April 12, 2011

# Calibration Report



Parameter 03

Air Monitoring Network PASZA

## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 21, 2011                              | Previous Calibration             | March 16, 2011                   |
| Station Number        | 1                                           | Station Location                 | Henry Pirker                     |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | Other:                           |                                  |
| Start Time (MST)      | 11:00                                       | End Time (MST)                   | 13:50                            |
| Barometric Pressure   | 0.923 atm                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | NA                                          | Cal Gas Expiry Date              | NA                               |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 45269                            |
| DACS voltage range    | 0 - 1 volt                                  | DACS channel #                   | 5                                |
|                       | Before                                      |                                  | After                            |
| Calculated slope      | 1.006292                                    | Calculated slope                 | 0.995187                         |
| Calculated intercept  | -0.001921                                   | Calculated intercept             | -0.127780                        |
| Analyzer make         | TECO 49C                                    | Analyzer serial #                | 607415761                        |

|                     | before      |           | after       |           |
|---------------------|-------------|-----------|-------------|-----------|
| Concentration range | 500         | ppb       | 500         | ppb       |
| offset              | -0.6        | ppb       | -0.6        | ppb       |
| slope               | 0.985       |           | 1.009       |           |
| O3 Lamp temp        | 71.1        | Deg C     | 71.1        | Deg C     |
| Intensities         | 83709/73205 | mV        | 83134/73092 | mV        |
| Pressure            | 694.8       | inches Hg | 698.3       | inches Hg |
| Flow A              | 0.723       | ccm       | 0.726       | ccm       |
| Flow B              | 0.740       | ccm       | 0.743       | ccm       |

## Calibration Data

| Referenced concentration (ppb) | Dilution air flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|--------------------------------|---------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 0                              | 4989                            | 0.0                                 | 0.2                                | N/A                       |
| 300                            | 4989                            | 249.3                               | 250.9                              | 0.9935                    |
| 200                            | 4989                            | 170.2                               | 170.6                              | 0.9975                    |
| 100                            | 4989                            | 92.7                                | 93.4                               | 0.9922                    |
| 0                              | 4989                            | 0.0                                 | 0.5                                | As found zero             |
| 300                            | 4989                            | 249.3                               | 244.6                              | As found span             |
| Average Correction Factor      |                                 |                                     |                                    | 0.9944                    |

Calculated value of As Found Response: 245.6 ppm Percent Change of As Found: -1.5%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.3                | ppb | 0.3               | ppb |
| Auto span | 160.1              | ppb | 159.5             | ppb |

Notes:

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter 03

Air Monitoring Network PASZA



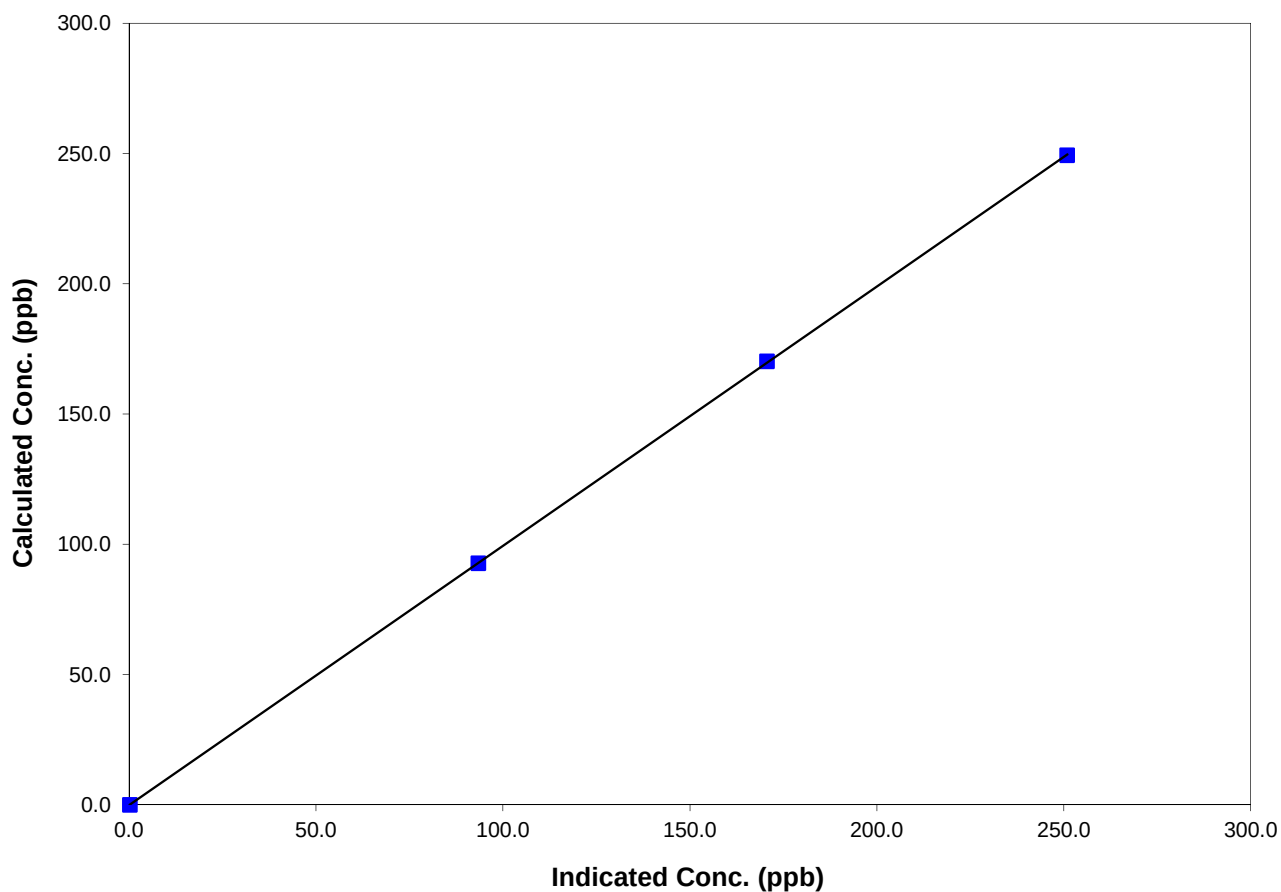
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 21, 2011 | Previous Calibration | March 16, 2011 |
| Station Number      | 1              | Station Location     | Henry Pirker   |
| Start Time (MST)    | 11:00          | End Time (MST)       | 13:50          |
| Analyzer make/model | TECO 49C       | Analyzer serial #    | 607415761      |

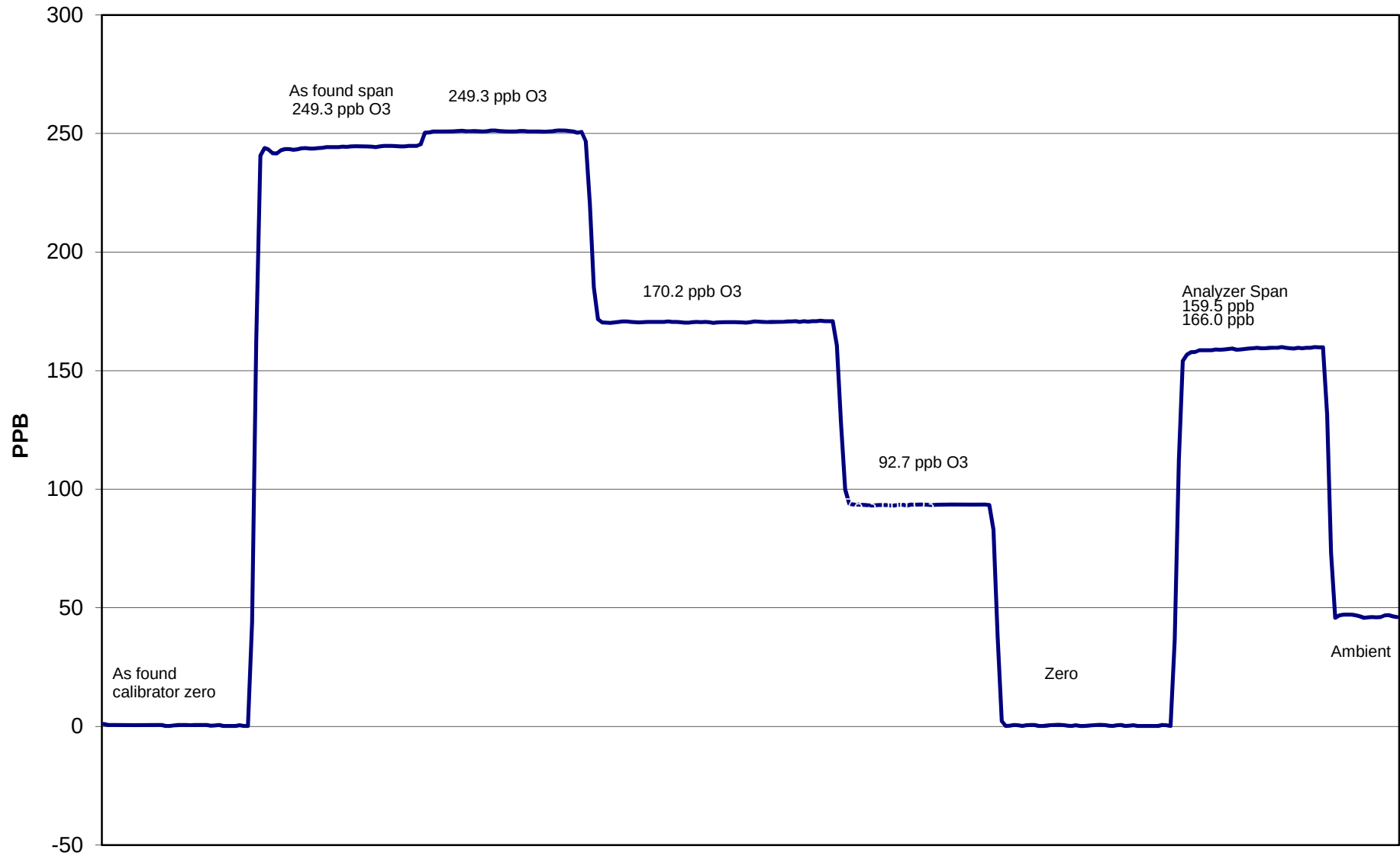
### Calibration Data

| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                                 | 0.2                                | NA                        | Correlation Coefficient | 0.999988  |
| 249.3                               | 250.9                              | 0.9935                    |                         |           |
| 170.2                               | 170.6                              | 0.9975                    |                         |           |
| 92.7                                | 93.4                               | 0.9922                    | Slope                   | 0.995187  |
|                                     |                                    |                           | Intercept               | -0.127780 |
|                                     |                                    |                           |                         |           |
|                                     |                                    |                           |                         |           |

### O3 Calibration Curve



## Henry Pirker O<sub>3</sub> Calibration



April 21, 2011

# Calibration Report

Parameter CO

Air Monitoring Network PASZA



## Station Information

|                      |                                             |                                  |                                  |
|----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date     | April 20, 2011                              | Previous Calibration             | March 14, 2011                   |
| Station Number       | 1                                           | Station Location                 | Henry Pirker                     |
| Reason:              | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                      |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)     | 8:00                                        | End Time (MST)                   | 10:25                            |
| Barometric Pressure  | 0.923 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator           | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Conc         | 3000 ppm                                    | Cal Gas Expiry Date              | AUG 28/05                        |
|                      |                                             | Cal Gas Cylinder #               | AAL20565                         |
| DACS make            | Focus AP1000                                | DACS serial No.                  | 1                                |
| DACS voltage range   | 0 - 1 volt                                  | DACS channel #                   | 9                                |
|                      | Before                                      |                                  | After                            |
| Calculated slope     | 1.007165                                    | Calculated slope                 | 1.009126                         |
| Calculated intercept | -0.747373                                   | Calculated intercept             | -0.547081                        |
| Analyzer make        | TEI Model 48C                               | Analyzer serial #                | 508011062                        |

|                     |        |       |        |       |
|---------------------|--------|-------|--------|-------|
|                     | before |       | after  |       |
| Concentration range | 0 - 50 | ppm   | 0 - 50 | ppm   |
| CO span setting     | 1.077  |       | 1.077  |       |
| CO zero setting     | 0.759  |       | 0.894  |       |
| Sample pressure     | 681.6  | mm Hg | 671.5  | mm Hg |
| Sample Flow         | 1.140  | LPM   | 1.130  | LPM   |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4988                            | 0.00                          | 0.00                                | 0.47                               | N/A                       |
| 4988                            | 39.84                         | 23.77                               | 24.06                              | 0.9881                    |
| 4988                            | 19.90                         | 11.92                               | 12.40                              | 0.9611                    |
| 4988                            | 9.93                          | 5.96                                | 6.51                               | 0.9155                    |
|                                 |                               |                                     |                                    |                           |
|                                 |                               |                                     |                                    |                           |
| 4988                            | 0.00                          | 0.00                                | 0.47                               | As Found Zero             |
| 4988                            | 39.84                         | 23.77                               | 24.06                              | As Found Span             |
| Average Correction Factor       |                               |                                     |                                    | 0.9549                    |

Calculated value of As Found Response: 23.008 ppm Percent Change of As Found: 3.2%

|           |                    |     |                   |     |
|-----------|--------------------|-----|-------------------|-----|
|           | before calibration |     | after calibration |     |
| Auto zero | 0.03               | ppm | 0.03              | ppm |
| Auto span | 19.12              | ppm | 19.01             | ppm |

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter CO

Air Monitoring Network PASZA



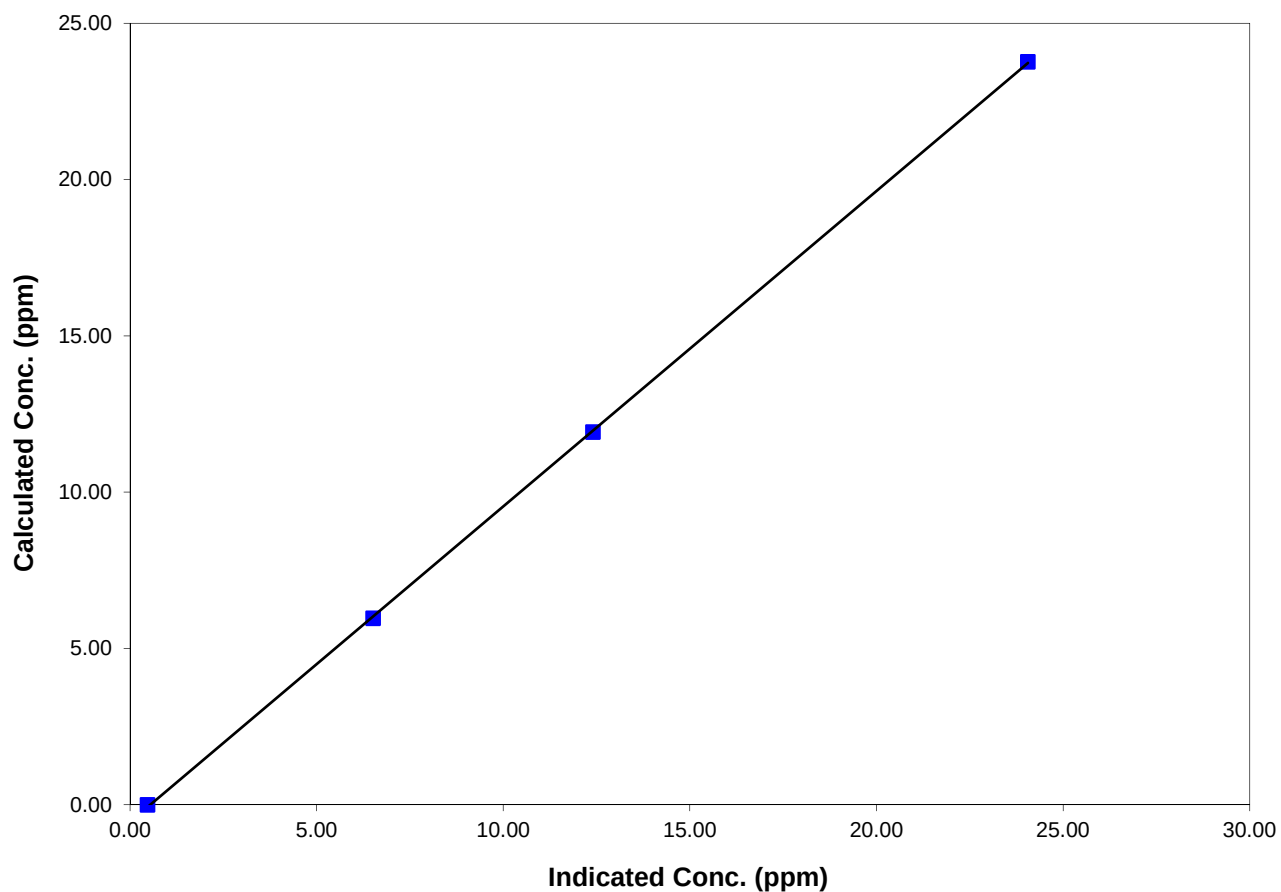
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 20, 2011 | Previous Calibration | March 14, 2011 |
| Station Number      | 1              | Station Location     | Henry Pirker   |
| Start Time (MST)    | 8:00           | End Time (MST)       | 10:25          |
| Analyzer make/model | TEI Model 48C  | Analyzer serial #    | 508011062      |

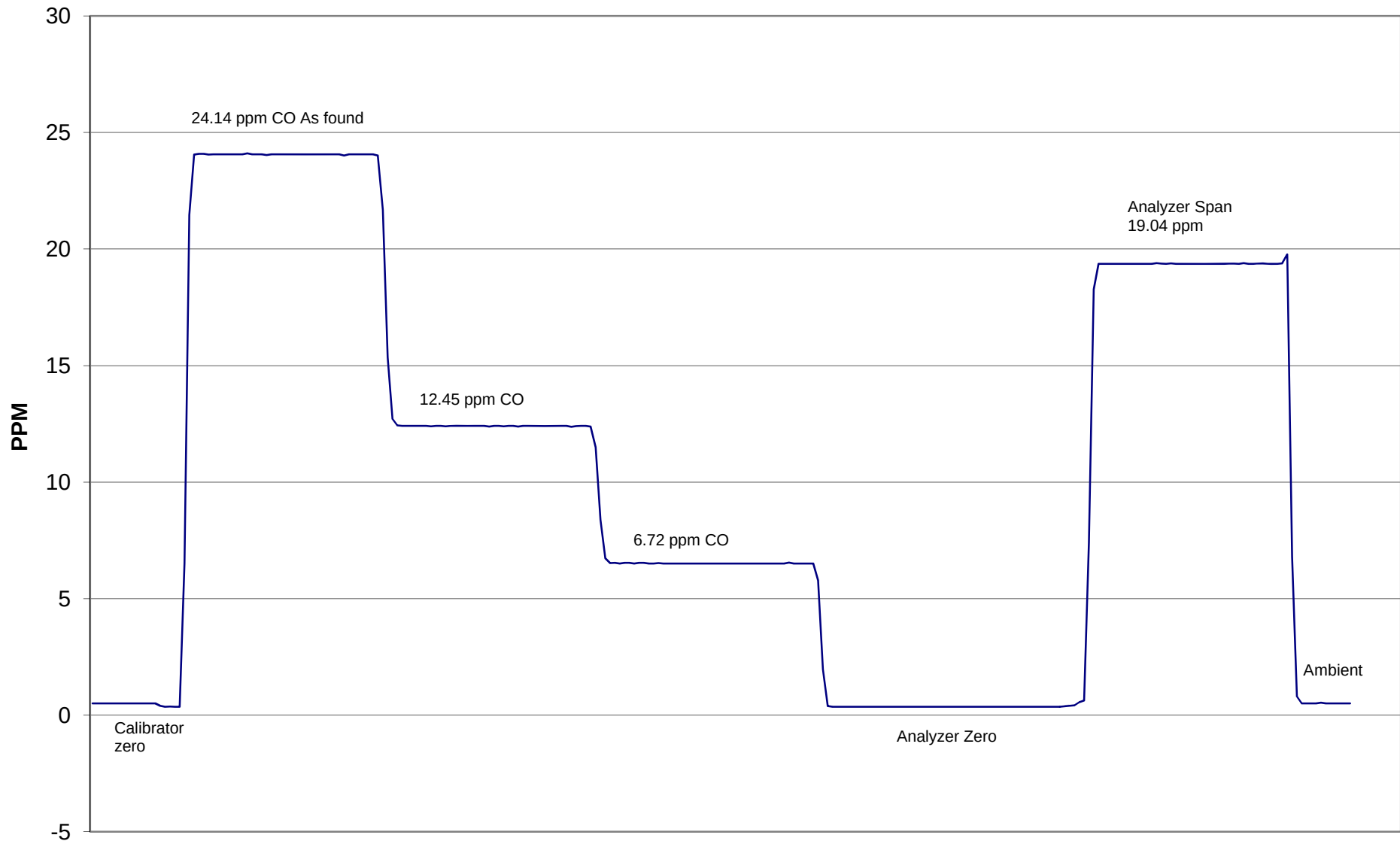
### Calibration Data

| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.000                               | 0.472                              | N/A                       | Correlation Coefficient | 0.999958  |
| 23.772                              | 24.058                             | 0.9881                    |                         |           |
| 11.921                              | 12.404                             | 0.9611                    |                         |           |
| 5.960                               | 6.511                              | 0.9155                    | Slope                   | 1.009126  |
|                                     |                                    |                           | Intercept               | -0.547081 |
|                                     |                                    |                           |                         |           |
|                                     |                                    |                           |                         |           |

### CO Calibration Curve



## Henry Pirker CO Calibration



April 20, 2011

# Calibration Report

Parameter THC

Air Monitoring Network PASZA



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 20, 2011                              | Previous Calibration             | March 14, 2011                   |
| Station Number        | 1                                           | Station Location                 | Henry Pirker                     |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             |                                  | <input type="checkbox"/> Other:  |
| Start Time (MST)      | 9:35                                        | End Time (MST)                   | 12:00                            |
| Barometric Pressure   | 0.923 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 701 ppm CH4/ 299 ppm C3H8                   | Cal Gas Expiry Date              | 2/4/2010                         |
| Cal Gas CH4 equiv     | 1523.25 ppm                                 | Cal Gas Cylinder #               | ALM 004476                       |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 1                                |
| DACS voltage range    | 0 - 1 volt                                  | DACS channel #                   | 9                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| Calculated slope      | 1.062736                                    | Calculated slope                 | 1.058697                         |
| Calculated intercept  | 0.188112                                    | Calculated intercept             | 0.152195                         |
| Analyzer make         | TEI Model 51C-LT                            | Analyzer serial #                | 51CLT-79009-390                  |

|                     |               |         |              |         |
|---------------------|---------------|---------|--------------|---------|
|                     | <u>before</u> |         | <u>after</u> |         |
| Concentration range | 0 - 25        | ppm     | 0 - 25       | ppm     |
| THC sample pressure | 6.50          | psi     | 6.50         | psi     |
| THC span counts     | 9617          | capture | 9616         | capture |
| THC zero counts     | 448           | capture | 447          | capture |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4988                            | 0.00                          | 0.00                                | -0.15                              | N/A                       |
| 4988                            | 69.75                         | 21.01                               | 19.72                              | 1.0653                    |
| 4988                            | 29.87                         | 9.07                                | 8.36                               | 1.0852                    |
| 4988                            | 9.92                          | 3.02                                | 2.76                               | 1.0956                    |
|                                 |                               |                                     |                                    |                           |
|                                 |                               |                                     |                                    |                           |
| 4988                            | 0.00                          | 0.00                                | -0.15                              | As Found Zero             |
| 4988                            | 69.75                         | 21.01                               | 19.72                              | As Found Span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0820                    |

Calculated value of As Found Response: 21.301 ppm Percent Change of As Found: -1.4%

|           |                           |     |                          |     |
|-----------|---------------------------|-----|--------------------------|-----|
|           | <u>before calibration</u> |     | <u>after calibration</u> |     |
| Auto zero | 0.10                      | ppm | -0.01                    | ppm |
| Auto span | 20.65                     | ppm | 22.91                    | ppm |

Notes:

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Calibration Performed By: Grover Christiansen



## Calibration Summary

Parameter THC

Air Monitoring Network PASZA



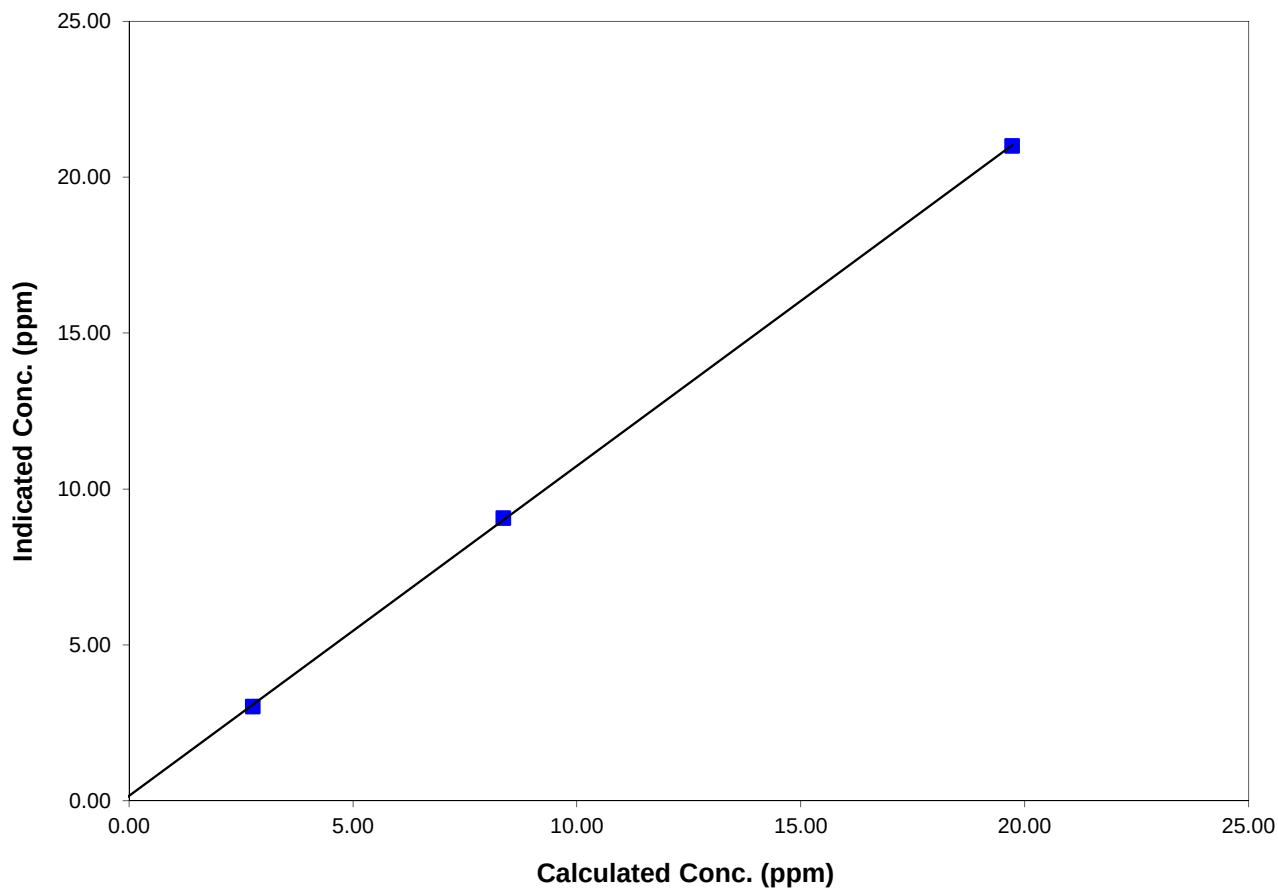
### Station Information

|                     |                  |                      |                 |
|---------------------|------------------|----------------------|-----------------|
| Calibration Date    | April 20, 2011   | Previous Calibration | March 14, 2011  |
| Station Number      | 1                | Station Location     | Henry Pirker    |
| Start Time (MST)    | 9:35             | End Time (MST)       | 12:00           |
| Analyzer make/model | TEI Model 51C-LT | Analyzer serial #    | 51CLT-79009-390 |

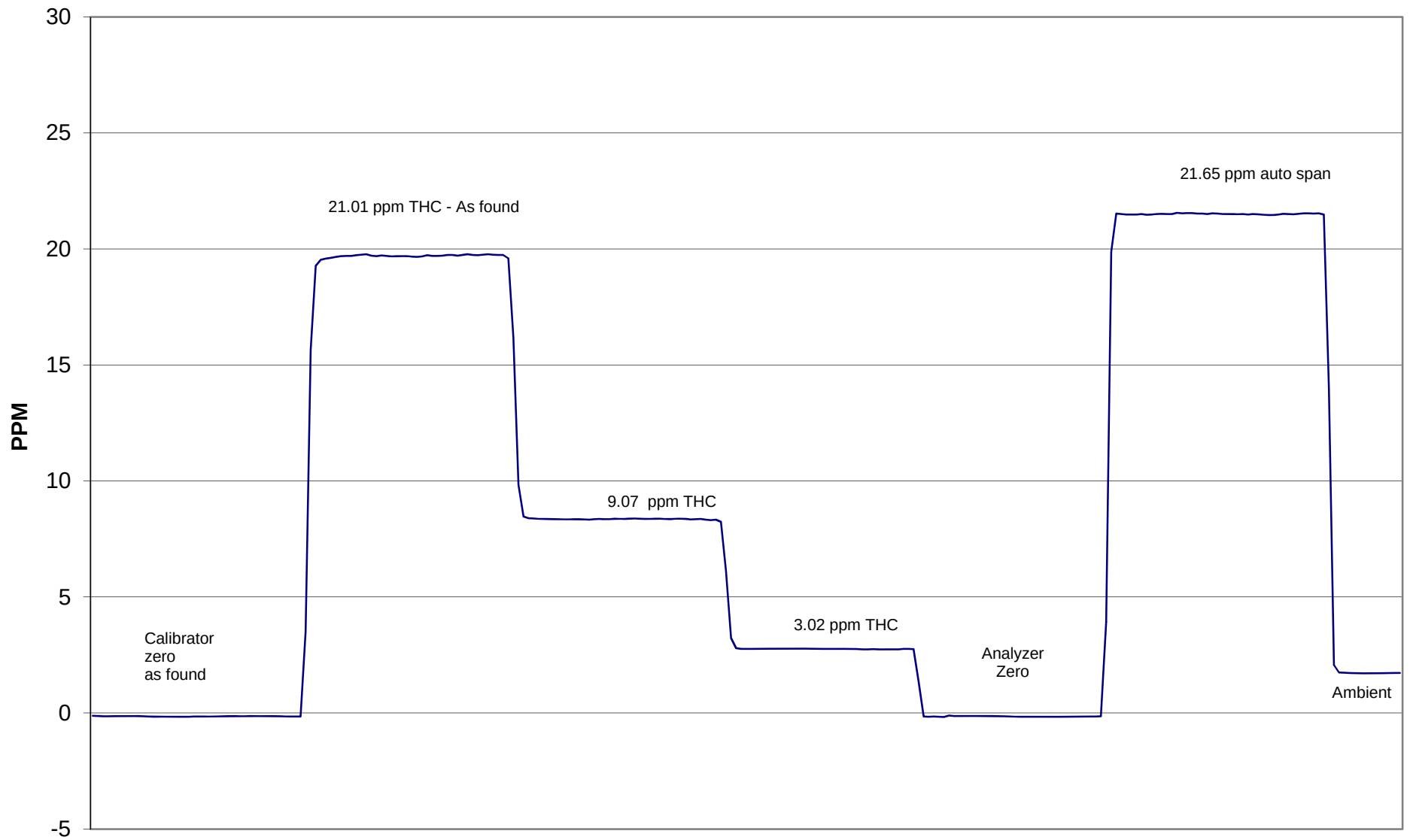
### Calibration Data

| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.000                               | -0.147                             | N/A                       |                         |          |
| 21.007                              | 19.719                             | 1.0653                    | Correlation Coefficient | 0.999970 |
| 9.067                               | 8.356                              | 1.0852                    |                         |          |
| 3.023                               | 2.759                              | 1.0956                    | Slope                   | 1.058697 |
|                                     |                                    |                           |                         |          |
|                                     |                                    |                           | Intercept               | 0.152195 |
|                                     |                                    |                           |                         |          |

### THC Calibration Curve



## Henry Pirker THC Calibration



April 20, 2011

# Calibration Report



Parameter SO<sub>2</sub>

Air Monitoring Network PASZA

## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 13, 2011                              | Previous Calibration             | March 22, 2011                   |
| Station Number        | 2                                           | Station Location                 | Evergreen Park                   |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 10:50                                       | End Time (MST)                   | 13:50                            |
| Barometric Pressure   | 0.924 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 50.6 ppm                                    | Cal Gas Expiry Date              | 4/6/2012                         |
| Correction factor     | 0.031409                                    | Cal Gas Cylinder #               | SGAL3245                         |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 52620                            |
| DACS voltage range    | 0 - 10 volt                                 | DACS channel #                   | 6                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| Calculated slope      | 0.995861                                    | Calculated slope                 | 1.002660                         |
| Calculated intercept  | -0.806875                                   | Calculated intercept             | 0.161642                         |
| Analyzer make         | Teco 43i                                    | Analyzer serial #                | 701120008                        |

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 500 | ppb   | 0 - 500 | ppb   |
| Background          | 11.1    |       | 11.3    |       |
| coefficient         | 1.081   |       | 1.09    |       |
| Lamp Voltage        | 831     | volts | 833     | volts |
| Chamber Temp        | 45.1    | Deg C | 45.2    | Deg C |
| Perm Gas Temp       | 45      | Deg C | 45      | Deg C |
| Pressure            | 668.9   | mm Hg | 665.6   | mm Hg |
| Sample Flow         | 0.455   | ccm   | 0.455   | ccm   |
| Lamp Intensity      | 90      | %     | 90      | %     |

| Dilution air flow rate (cc/min) | Corrected gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.0                              | 0.00                                | 0.5                                | N/A                       |
| 4989                            | 39.83                            | 400.8                               | 399.9                              | 1.0021                    |
| 4989                            | 19.91                            | 201.1                               | 199.9                              | 1.0059                    |
| 4989                            | 9.96                             | 100.8                               | 99.9                               | 1.0096                    |
|                                 | 0.0                              |                                     |                                    |                           |
|                                 |                                  |                                     |                                    |                           |
| 4989                            | 0.0                              | 0.0                                 | 0.5                                | As Found Zero             |
| 4989                            | 39.83                            | 400.8                               | 392.9                              | As Found Span             |
| Average Correction Factor       |                                  |                                     |                                    | 1.0059                    |

Calculated value of As Found Response: 389.994 ppm Percent Change of As Found: 2.7%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.7                | ppm | 0.5               | ppm |
| Auto span | 286.9              | ppm | 294.3             | ppm |

Notes:

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



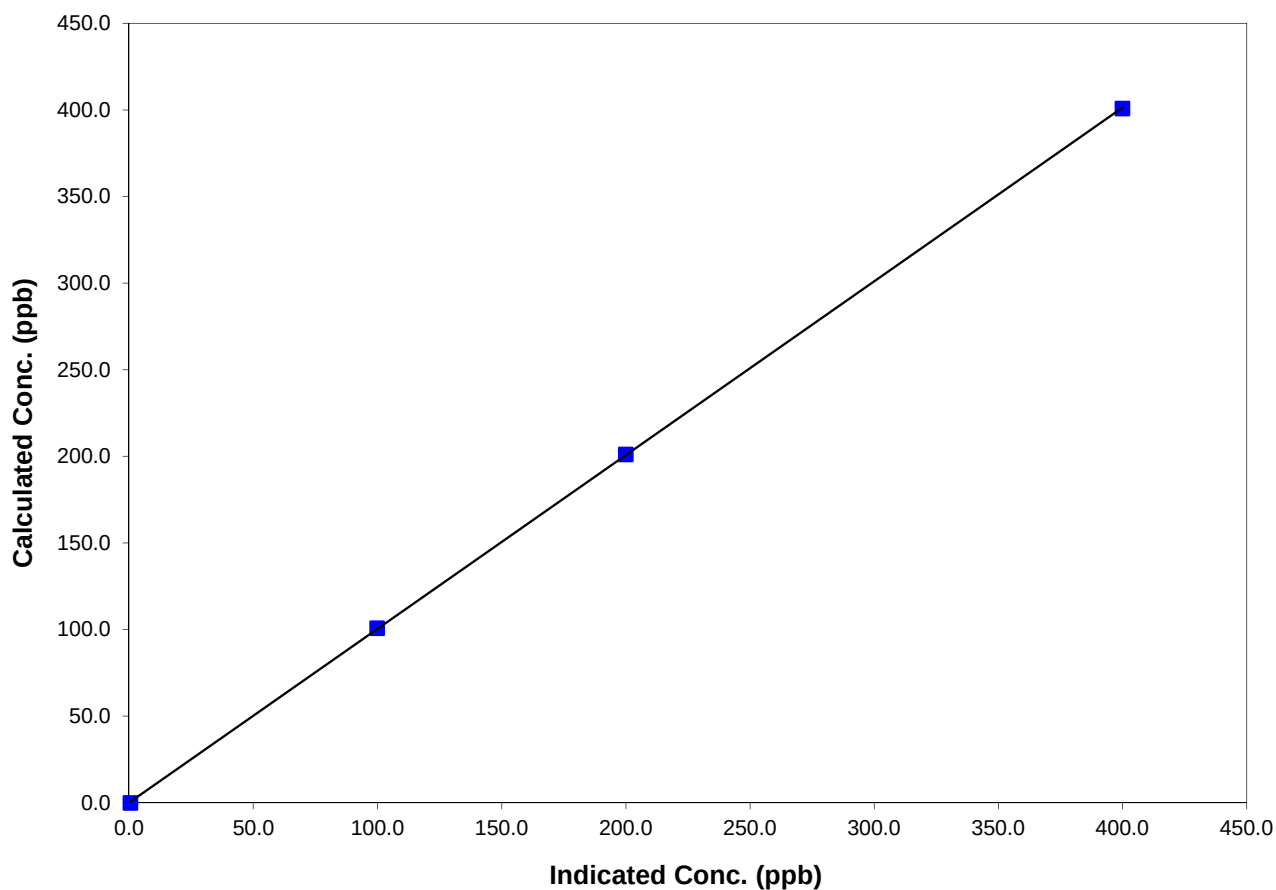
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 13, 2011 | Previous Calibration | March 22, 2011 |
| Station Number      | 2              | Station Location     | Evergreen Park |
| Start Time (MST)    | 10:50          | End Time (MST)       | 13:50          |
| Analyzer make/model | Teco 43i       | Analyzer serial #    | 701120008      |

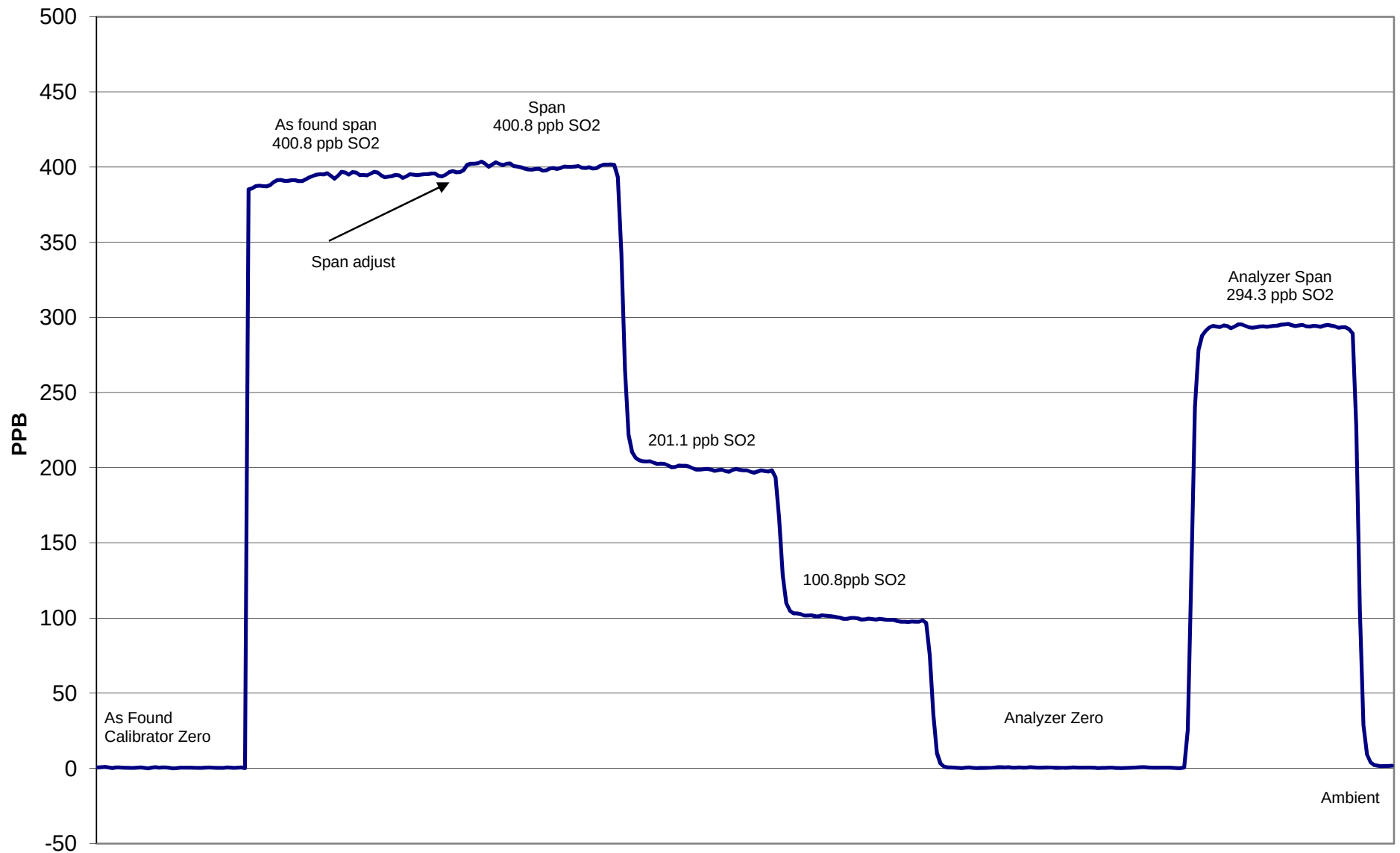
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.5                                | N/A                       | Correlation Coefficient | 0.999988 |
| 400.8                               | 399.9                              | 1.0021                    |                         |          |
| 201.1                               | 199.9                              | 1.0059                    |                         |          |
| 100.8                               | 99.9                               | 1.0096                    | Slope                   | 1.002660 |
|                                     |                                    |                           | Intercept               | 0.161642 |

### SO2 Calibration Curve



## Evergreen Park SO<sub>2</sub> Calibration



April 13, 2011

# Calibration Report



Parameter TRS

Air Monitoring Network PASZA

## Station Information

|                      |                                             |                                  |                                  |
|----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date     | April 13, 2011                              | Previous Calibration             | March 22, 2011                   |
| Station Number       | 2                                           | Station Location                 | Evergreen Park                   |
| Reason:              | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                      |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)     | 12:30                                       | End Time (MST)                   | 15:20                            |
| Barometric Pressure  | 0.924 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator           | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Conc         | 5.77 ppm                                    | Cal Gas Expiry Date              | 9/3/2011                         |
| Correction factor    | 0.031409                                    | Cal Gas Cylinder #               | BLM001434                        |
| DACS make            | Focus AP1000                                | DACS serial No.                  | 52620                            |
| DACS voltage range   | 0 - 10 volt                                 | DACS channel #                   | 5                                |
|                      | <u>Before</u>                               |                                  | <u>After</u>                     |
| Calculated slope     | 1.004846                                    | Calculated slope                 | 1.016012                         |
| Calculated intercept | -0.345593                                   | Calculated intercept             | -0.506276                        |

Analyzer make TEI Model 43C Analyzer serial # 436610005

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 100 | ppb   | 0 - 100 | ppb   |
| Background          | 17.1    | ppb   | 17.1    | ppb   |
| coefficient         | 0.903   |       | 0.903   |       |
| Lamp Voltage        | 809     | volts | 809     | volts |
| Chamber Temp        | 44.4    | Deg C | 45      | Deg C |
| Perm Gas Temp       | 45      | Deg C | 45.01   | Deg C |
| Pressure            | 644     | mm Hg | 641.3   | mm Hg |
| Sample Flow         | 0.478   | ccm   | 0.477   | ccm   |
| Lamp Intensity      | 45,600  | mv    | 46,421  | mv    |

## Calibration Data

| Dilution air flow rate (cc/min) | Corrected gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4987                            | 0.00                             | 0.00                                | 0.6                                | N/A                       |
| 4987                            | 69.73                            | 79.57                               | 78.9                               | 1.0088                    |
| 4987                            | 34.86                            | 40.05                               | 39.8                               | 1.0058                    |
| 4988                            | 8.94                             | 10.32                               | 10.6                               | 0.9784                    |
|                                 |                                  |                                     |                                    |                           |
|                                 |                                  |                                     |                                    |                           |
| 4987                            | 0.00                             | 0.00                                | 0.5                                | As Found Zero             |
| 4987                            | 69.73                            | 79.57                               | 78.9                               | As Found Span             |
| Average Correction Factor       |                                  |                                     |                                    | 0.9976                    |

Calculated value of As Found Response: 78.44 ppm Percent Change of As Found: 1.4%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | -0.5               | ppm | 0.1               | ppm |
| Auto span | 62.0               | ppm | 70.5              | ppm |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



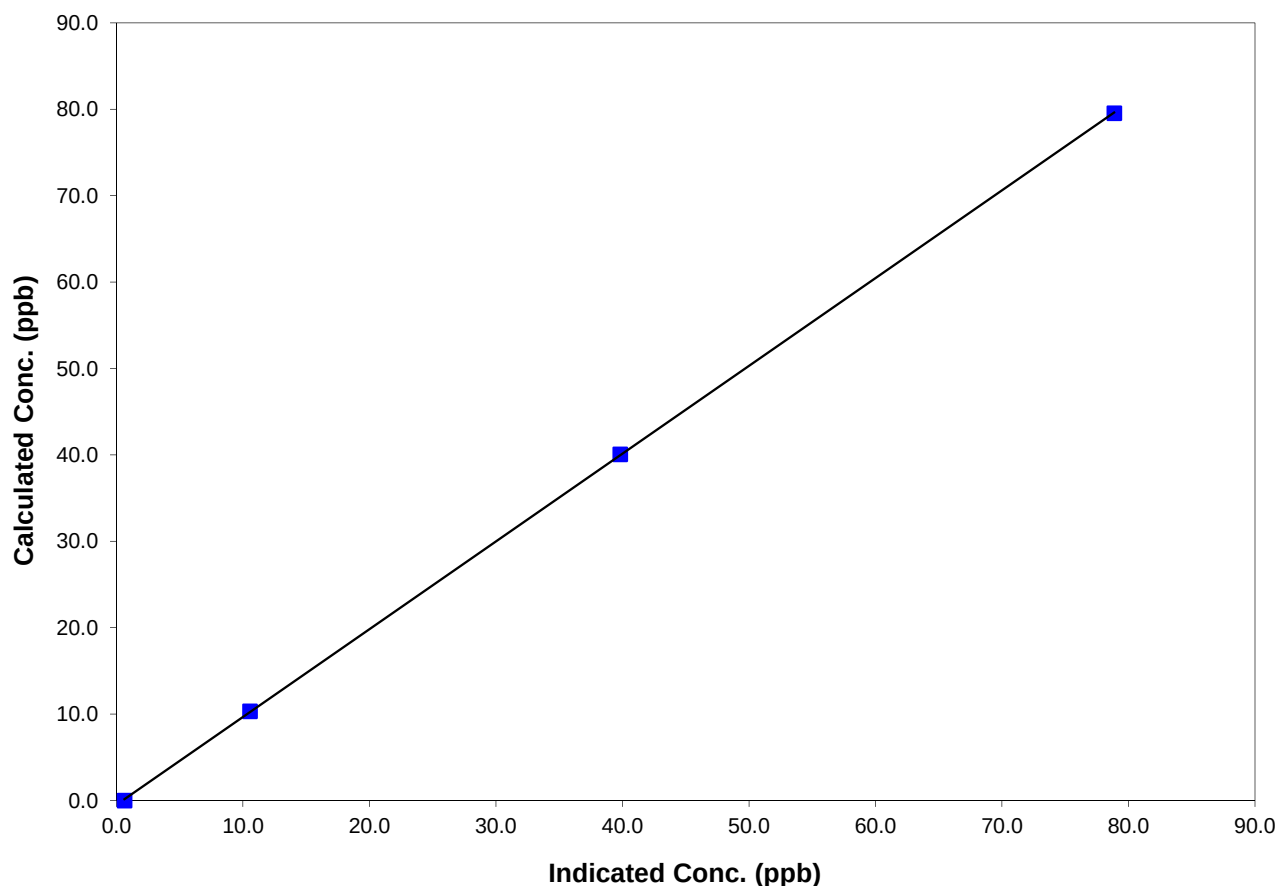
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 13, 2011 | Previous Calibration | March 22, 2011 |
| Station Number      | 2              | Station Location     | Evergreen Park |
| Start Time (MST)    | 12:30          | End Time (MST)       | 15:20          |
| Analyzer make/model | TEI Model 43C  | Analyzer serial #    | 436610005      |

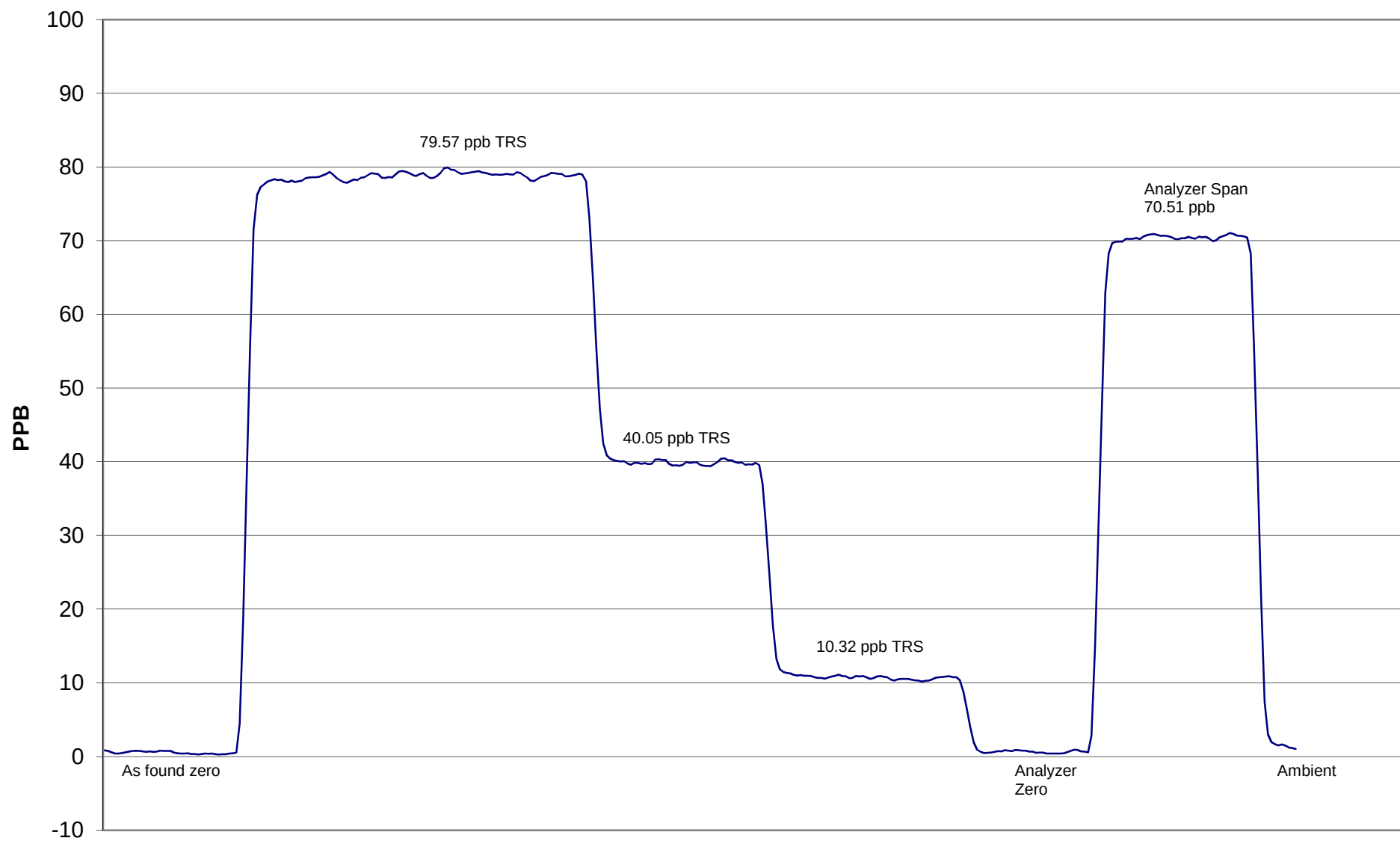
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                                 | 0.6                                | N/A                       | Correlation Coefficient | 0.999988  |
| 79.6                                | 78.9                               | 1.0088                    |                         |           |
| 40.1                                | 39.8                               | 1.0058                    |                         |           |
| 10.3                                | 10.6                               | 0.9784                    | Slope                   | 1.016012  |
|                                     |                                    |                           | Intercept               | -0.506276 |
|                                     |                                    |                           |                         |           |
|                                     |                                    |                           |                         |           |

### TRS Calibration Curve



## Evergreen Park TRS Calibration



April 13, 2011



# Calibration Report



Parameter SO<sub>2</sub>

Air Monitoring Network PASZA

## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 14, 2011                              | Previous Calibration             | March 18, 2011                   |
| Station Number        | 3                                           | Station Location                 | Smokey Heights                   |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 10:30                                       | End Time (MST)                   | 12:55                            |
| Barometric Pressure   | 0.924 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 50.6 ppm                                    | Cal Gas Cert Date                | 11/29/2010                       |
| Correction factor     | 0.031409                                    | Cal Gas Cylinder #               | LL34002                          |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 45272                            |
| DACS voltage range    | 0 - 10 volt                                 | DACS channel #                   | 6                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| Calculated slope      | 0.998218                                    | Calculated slope                 | 0.999384                         |
| Calculated intercept  | -0.479661                                   | Calculated intercept             | 0.582956                         |
| Analyzer make         | Teco 43i                                    | Analyzer serial #                | 701120009                        |

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 500 | ppb   | 0 - 500 | ppb   |
| Background          | 9.5     |       | 9.7     |       |
| coefficient         | 0.998   |       | 1.008   |       |
| Lamp Voltage        | 927     | volts | 923     | volts |
| Chamber Temp        | 45      | Deg C | 45.01   | Deg C |
| Perm Gas Temp       | 45      | Deg C | 45      | Deg C |
| Pressure            | 669.6   | mm Hg | 666.6   | mm Hg |
| Sample Flow         | 0.442   | ccm   | 0.440   | ccm   |
| Lamp Intensity      | 88      | %     | 88      | %     |

## Calibration Data

| Dilution air flow rate (cc/min) | Corrected gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.0                              | 0.00                                | 0.4                                | N/A                       |
| 4989                            | 39.84                            | 400.87                              | 401.1                              | 0.9993                    |
| 4989                            | 19.91                            | 201.13                              | 199.8                              | 1.0066                    |
| 4989                            | 9.95                             | 100.72                              | 99.5                               | 1.0122                    |
|                                 |                                  |                                     |                                    |                           |
| 4989                            | 0.0                              | 0.00                                | 0.4                                | As Found Zero             |
| 4989                            | 39.84                            | 400.87                              | 401.1                              | As Found Span             |
| Average Correction Factor       |                                  |                                     |                                    | 1.0060                    |

Calculated value of As Found Response: 399.569 ppm Percent Change of As Found: 0.3%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.4                | ppb | 0.3               | ppb |
| Auto span | 306.6              | ppb | 311.6             | ppb |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



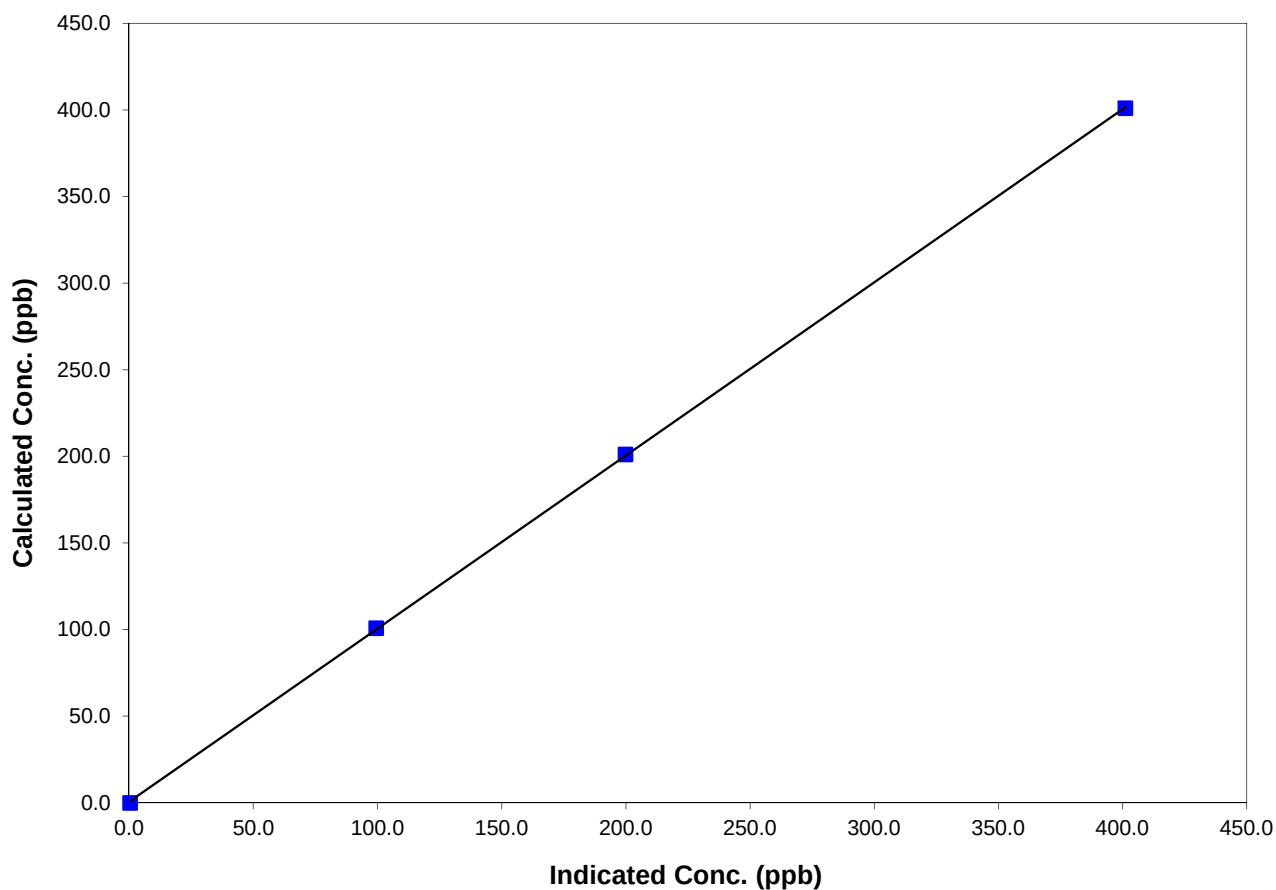
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 14, 2011 | Previous Calibration | March 18, 2011 |
| Station Number      | 3              | Station Location     | Smokey Heights |
| Start Time (MST)    | 10:30          | End Time (MST)       | 12:55          |
| Analyzer make/model | Teco 43i       | Analyzer serial #    | 701120009      |

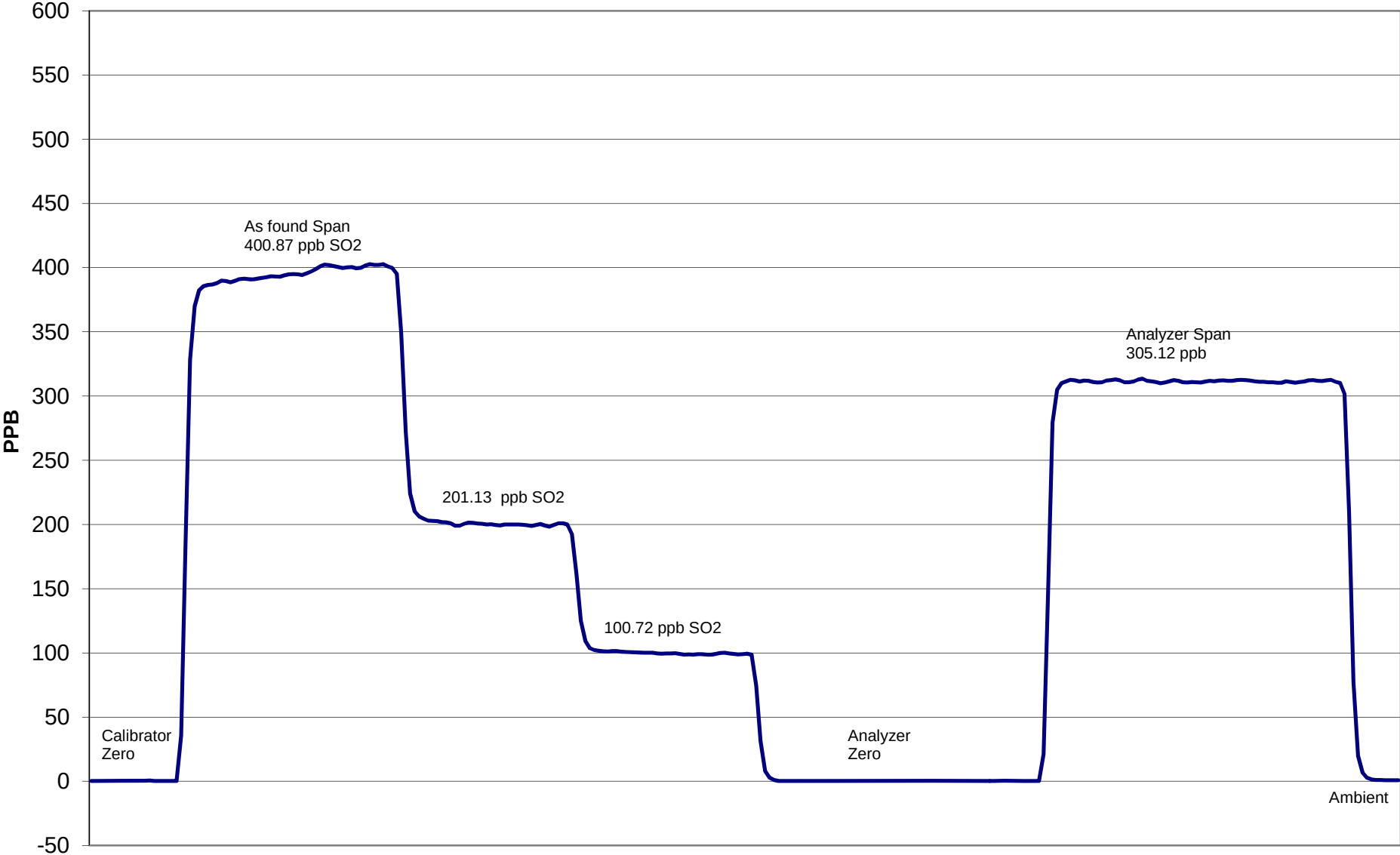
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.4                                | N/A                       | Correlation Coefficient | 0.999972 |
| 400.9                               | 401.1                              | 0.9993                    |                         |          |
| 201.1                               | 199.8                              | 1.0066                    |                         |          |
| 100.7                               | 99.5                               | 1.0122                    | Slope                   | 0.999384 |
|                                     |                                    |                           | Intercept               | 0.582956 |

### SO2 Calibration Curve



Smoky Heights SO<sub>2</sub> Calibration



April 14, 2011

# Calibration Report



Parameter TRS

Air Monitoring Network PASZA

## Station Information

|                      |                                             |                                  |                                  |
|----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date     | April 14, 2011                              | Previous Calibration             | March 18, 2011                   |
| Station Number       | 3                                           | Station Location                 | Smoky Heights                    |
| Reason:              | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                      |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)     | 11:40                                       | End Time (MST)                   | 14:00                            |
| Barometric Pressure  | 0.924 ATM                                   | Station Temperature              | 20.0 Deg C                       |
| Calibrator           | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Conc         | 5.77 ppm                                    | Cal Gas Expiry Date              | 9/3/2011                         |
| Correction factor    | 0.031409                                    | Cal Gas Cylinder #               | BLM001434                        |
| DACS make            | Focus AP1000                                | DACS serial No.                  | 52620                            |
| DACS voltage range   | 0 - 10 volt                                 | DACS channel #                   | 5                                |
|                      | <u>Before</u>                               |                                  | <u>After</u>                     |
| Calculated slope     | 0.997347                                    | Calculated slope                 | 1.002429                         |
| Calculated intercept | 0.152751                                    | Calculated intercept             | 0.041791                         |

Analyzer make TEI Model 43C Analyzer serial # 0436610005

|                     | before |       | after  |       |
|---------------------|--------|-------|--------|-------|
| Concentration range | 100    | ppb   | 100    | ppb   |
| Background          | 16.5   | ppb   | 16     | ppb   |
| coefficient         | 1.120  |       | 1.089  |       |
| Lamp Voltage        | 769    | volts | 769    | volts |
| Chamber Temp        | 44     | Deg C | 44.99  | Deg C |
| Perm Gas Temp       | 45     | Deg C | 45     | Deg C |
| Pressure            | 484.2  | mm Hg | 483.2  | mm Hg |
| Sample Flow         | 0.721  | ccm   | 0.716  | ccm   |
| Lamp Intensity      | 32,403 | mv    | 32,325 | mv    |

| Dilution air flow rate (cc/min) | Corrected gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|----------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.0                              | 0.00                                | -0.1                               | N/A                       |
| 4989                            | 69.77                            | 79.58                               | 79.3                               | 1.0031                    |
| 4989                            | 34.88                            | 40.06                               | 39.9                               | 1.0034                    |
| 4989                            | 8.96                             | 10.34                               | 10.4                               | 0.9971                    |
|                                 |                                  |                                     |                                    |                           |
| 4989                            | 0.0                              | 0.00                                | -0.1                               | As Found Zero             |
| 4989                            | 69.77                            | 79.58                               | 81.2                               | As Found Span             |
| Average Correction Factor       |                                  |                                     |                                    | 1.0012                    |

Calculated value of As Found Response: 81.28 ppm Percent Change of As Found: -2.1%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.0                | ppm | 0.0               | ppm |
| Auto span | 41.9               | ppm | 44.6              | ppm |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



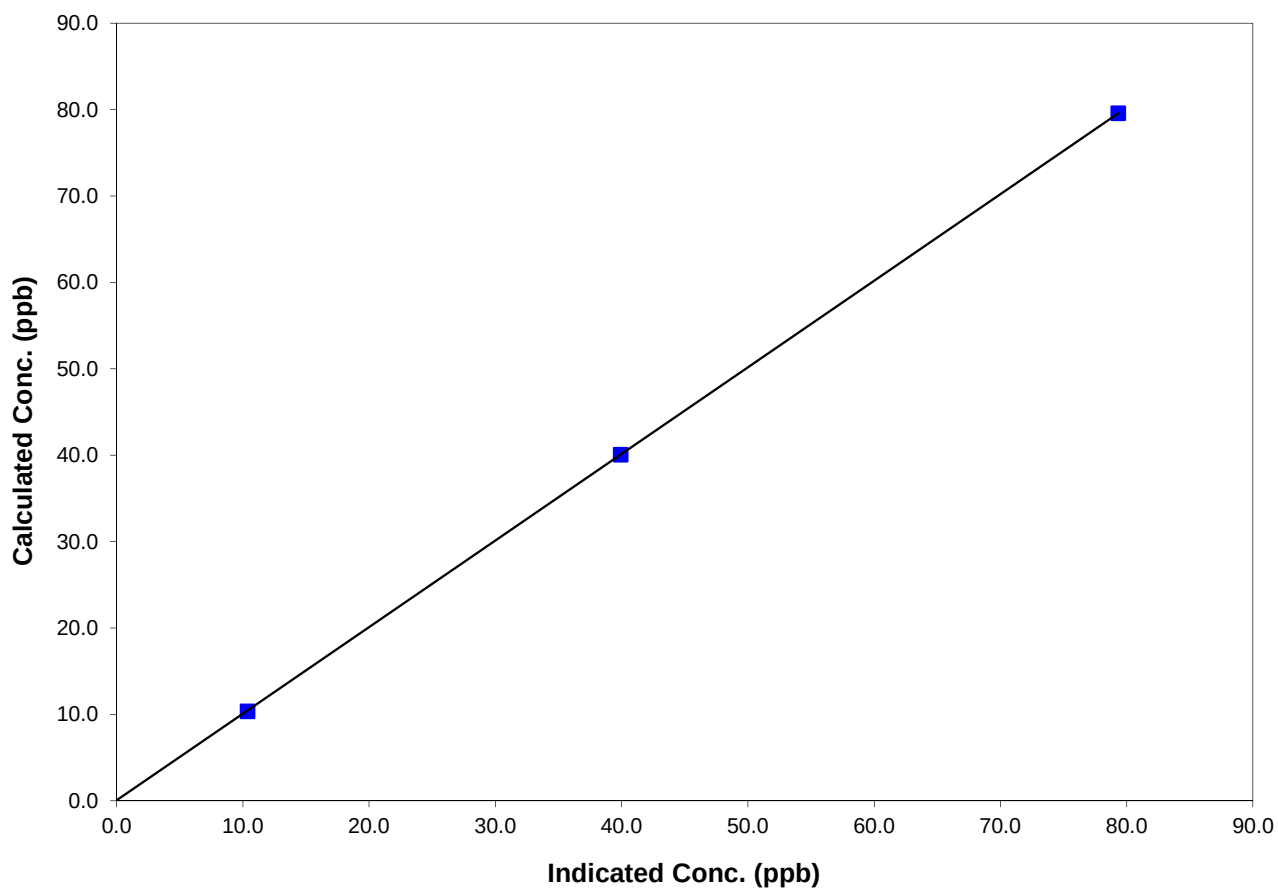
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 14, 2011 | Previous Calibration | March 18, 2011 |
| Station Number      | 3              | Station Location     | Smoky Heights  |
| Start Time (MST)    | 11:40          | End Time (MST)       | 14:00          |
| Analyzer make/model | TEI Model 43C  | Analyzer serial #    | 0436610005     |

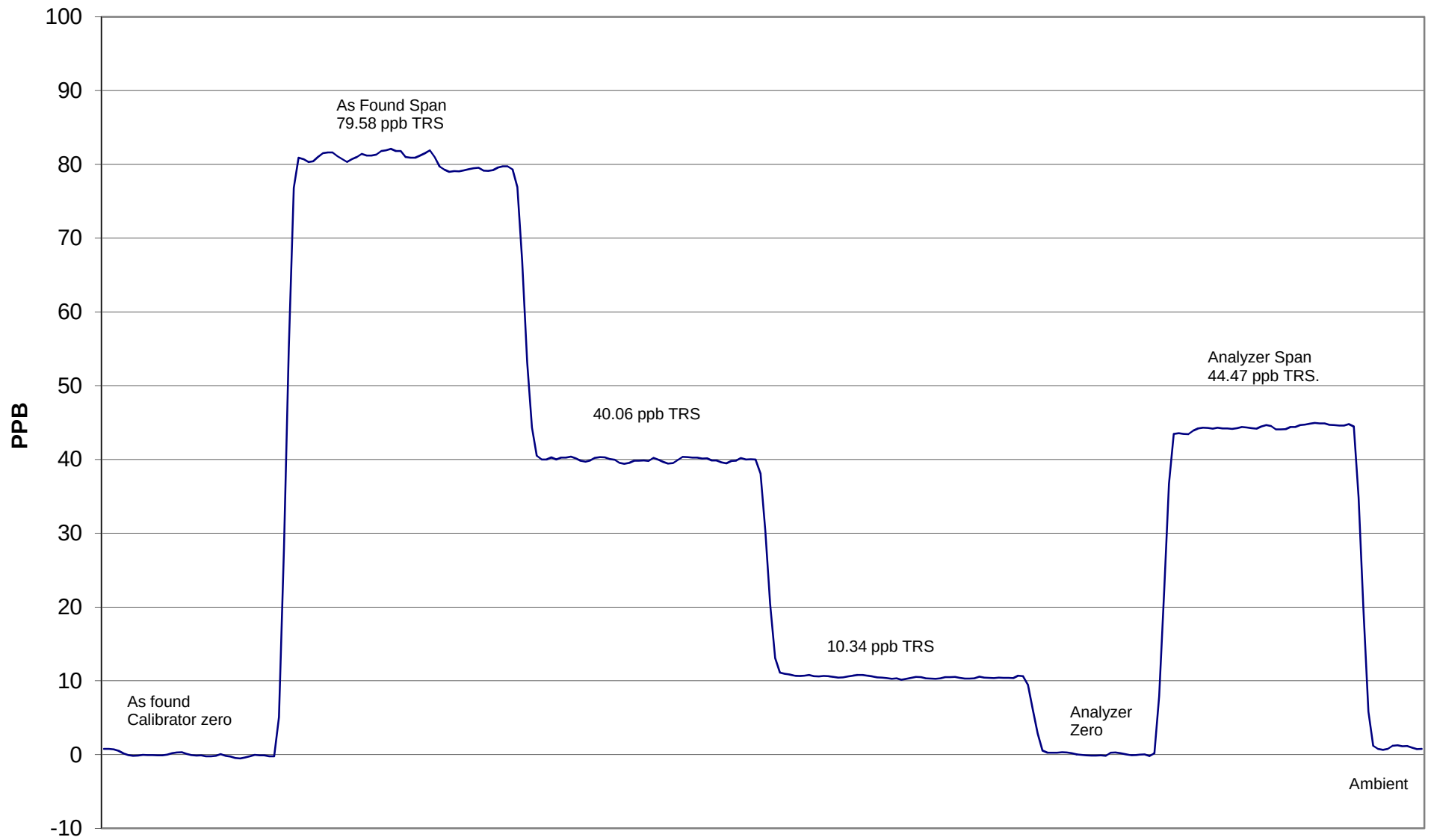
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | -0.1                               | N/A                       | Correlation Coefficient | 0.999996 |
| 79.6                                | 79.3                               | 1.0031                    |                         |          |
| 40.1                                | 39.9                               | 1.0034                    |                         |          |
| 10.3                                | 10.4                               | 0.9971                    | Slope                   | 1.002429 |
|                                     |                                    |                           | Intercept               | 0.041791 |
|                                     |                                    |                           |                         |          |

### TRS Calibration Curve



## Smoky Heights TRS Calibration



April 14, 2011

# Calibration Report

Parameter SO2  
Air Monitoring Network PASZA



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 6, 2011                               | Previous Calibration             | March 10, 2011                   |
| Station Number        | 4                                           | Station Location                 | Beaverlodge                      |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 9:00                                        | End Time (MST)                   | 11:20                            |
| Barometric Pressure   | 0.900 atm                                   | Station Temperature              | 23.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 10.06 ppm                                   | Cal Gas Expiry Date              | 7/27/2009                        |
| Gas Cert Reference    | CC 114395                                   |                                  |                                  |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 45269                            |
| DACS voltage range    | 0 - 10 volt                                 | DACS channel #                   | 5                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| DACS Scale High       | 100                                         | DACS slope                       | 100                              |
| DACS Scale Low        | 0                                           | DACS intercept                   | 0                                |
| Calculated slope      | 0.989072                                    | Calculated slope                 | 1.010092                         |
| Calculated intercept  | 0.284381                                    | Calculated intercept             | 0.195843                         |
| Analyzer make         | TEI Model 43i-TLE                           | Analyzer serial #                | 713021137                        |

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 100 | ppb   | 0 - 100 | ppb   |
| Background          | 2.68    |       | 2.69    |       |
| Coefficient         | 0.988   |       | 0.988   |       |
| PMT                 | -787.7  | V     | -787.7  | V     |
| UV Lamp Voltage     | 1175    | V     | 1160    | V     |
| Chamber Temp        | 45      | Deg C | 45.2    | Deg C |
| Pressure            | 654.7   | mm Hg | 651     | mm Hg |
| Sample Flow         | 0.525   | LPM   | 0.523   | LPM   |
| Lamp Intesity       | 95%     | %     | 78%     | %     |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppb) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.00                          | 0.0                                 | -0.1                               | N/A                       |
| 4989                            | 39.83                         | 79.7                                | 78.7                               | 1.0126                    |
| 4989                            | 19.90                         | 40.0                                | 39.4                               | 1.0137                    |
| 4989                            | 9.93                          | 20.0                                | 19.5                               | 1.0257                    |
| 4989                            | 0.00                          | 0.0                                 | -0.1                               | As found zero             |
| 4989                            | 39.83                         | 79.7                                | 78.7                               | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0173                    |

Calculated value of As Found Response: 78.258 ppm Percent Change of As Found: 1.8%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | -0.3               | ppb | 0.1               | ppb |
| Auto span | 59.7               | ppb | 60.7              | ppb |

Notes: Lamp Voltage & lamp intensity readings are not stable. Flashlamp or board needed.

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



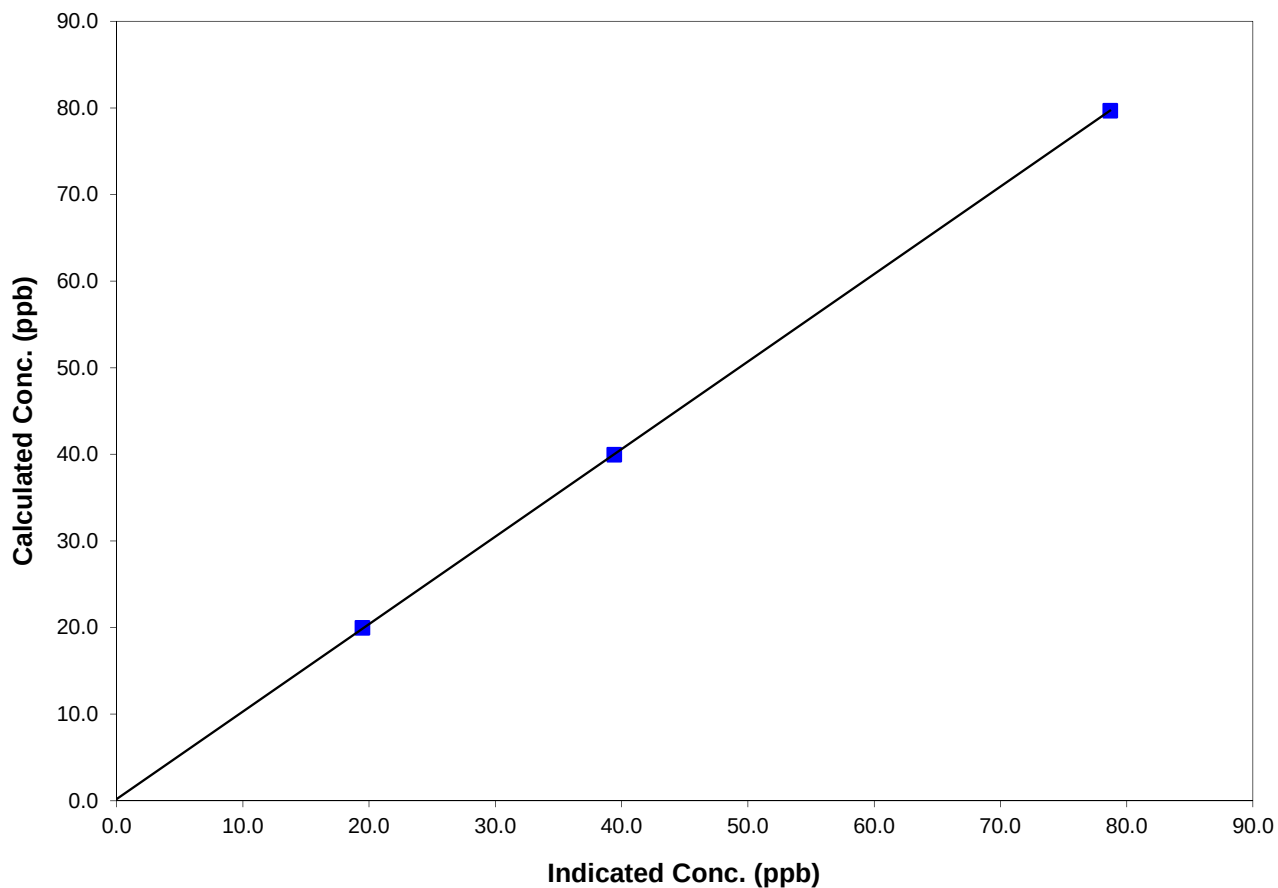
### Station Information

|                     |                   |                      |                |
|---------------------|-------------------|----------------------|----------------|
| Calibration Date    | April 6, 2011     | Previous Calibration | March 10, 2011 |
| Station Number      | 4                 | Station Location     | Beaverlodge    |
| Start Time (MST)    | 9:00              | End Time (MST)       | 11:20          |
| Analyzer make/model | TEI Model 43i-TLE | Analyzer serial #    | 713021137      |

### Calibration Data

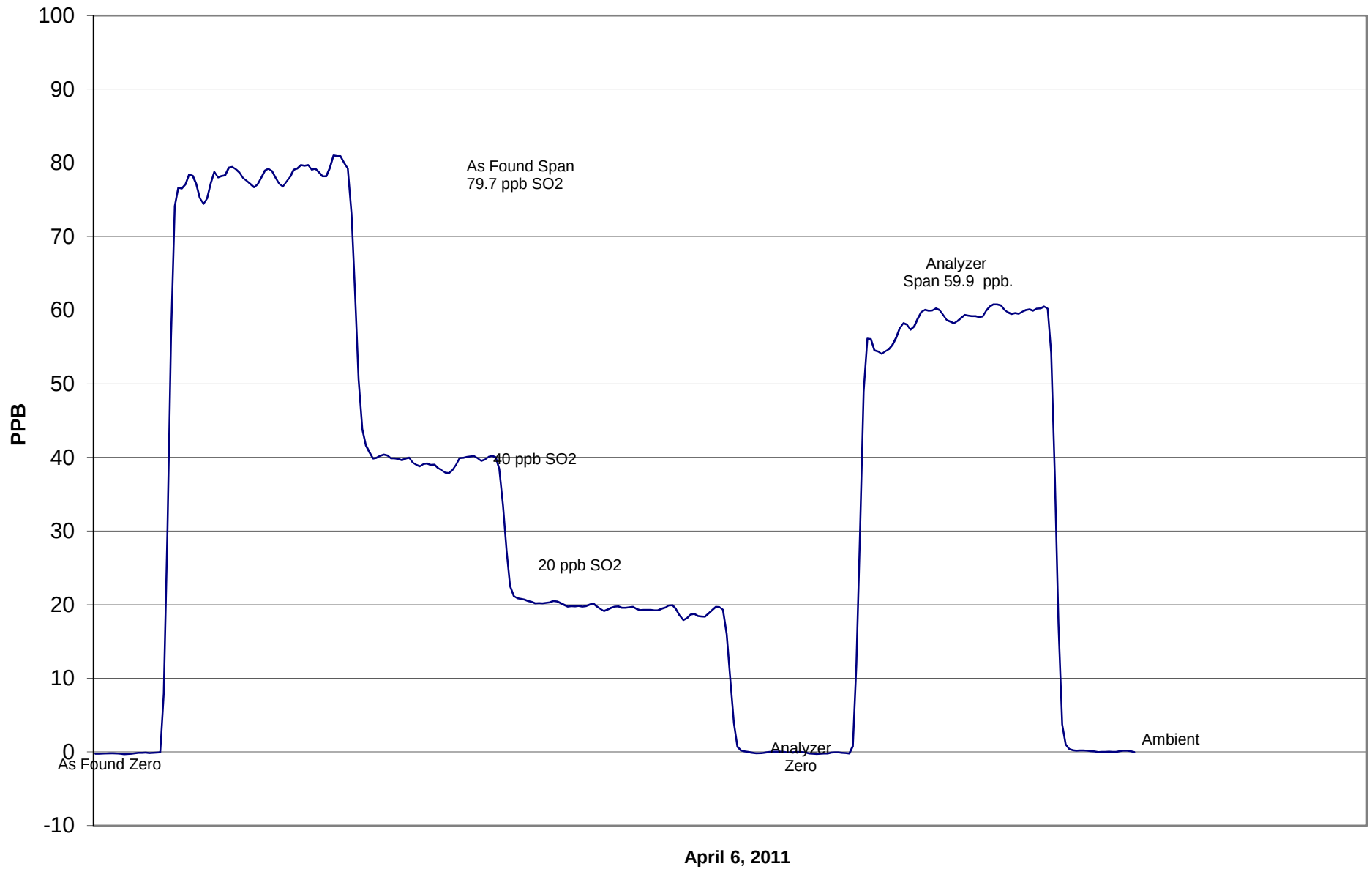
| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | -0.1                               | N/A                       | Correlation Coefficient | 0.999995 |
| 79.7                                | 78.7                               | 1.0126                    |                         |          |
| 40.0                                | 39.4                               | 1.0137                    |                         |          |
| 20.0                                | 19.5                               | 1.0257                    | Slope                   | 1.010092 |
|                                     |                                    |                           | Intercept               | 0.195843 |
|                                     |                                    |                           |                         |          |

### SO2 Calibration Curve





## Beaverlodge SO<sub>2</sub> Calibration



# Calibration Report

Parameter

NO<sub>x</sub>-NO-NO<sub>2</sub>

Air Monitoring Network

PASZA



## Station Information

Calibration Date April 6, 2011

Previous Calibration March 10, 2011

Station Number 4

Station Location BeaverLodge

Reason:

**Routine**

Installation

Removal

Other:

Start Time (MST) 8:45

End Time (MST) 12:50

Barometric Pressure 0.900 Atm

Station Temperature 23.0 Deg C

Calibrator EnviroNics

Serial Number 2844

NO Cal Gas Conc 50.1 ppm

Cal Gas Expiry Date

NOx Cal Gas Conc 50.2 ppm

Cal Gas Serial # CC-114395

## DACS Information

DACS make AP1000

DACS serial No.

| Parameter     |             | NO2        | NOx        | NO         |
|---------------|-------------|------------|------------|------------|
| Before        | Data Slope  | 0.998577   | 1.005646   | 1.002086   |
|               | Data Offset | 0.228378   | -2.188839  | -2.463466  |
| After         | Data Slope  | 0.991112   | 1.006595   | 1.002428   |
|               | Data Offset | 0.391741   | -2.378625  | -2.183490  |
| Channel #     |             | 8          | 6          | 7          |
| Voltage Range |             | 0 - 10 VDC | 0 - 10 VDC | 0 - 10 VDC |

## Analyzer Information

Analyzer make/model

TEI 42i

Analyzer serial #

906535068

| Test Point          | before |       | after  |       |
|---------------------|--------|-------|--------|-------|
| Concentration range | 0-500  | ppb   | 0-500  | ppb   |
| NO offset           | 2.2    | mV    | 2.2    | mV    |
| NOx bkgnd           | 2.5    | mV    | 2.5    | mV    |
| NO coefficient      | 1.430  |       | 1.430  |       |
| NOx coefficient     | 0.999  |       | 0.999  |       |
| NO2 conv temp       | 322.6  | Deg C | 326.2  | Deg C |
| PMT Temp            | -3.1   | Deg C | -3.0   | Deg C |
| PMT Volt            | -676.4 | mV    | -676.4 | mV    |
| R Cell Press        | 180.1  | in Hg | 180.3  | in Hg |
| Sample Flow         | 0.702  | ccm   | 0.704  | ccm   |

# Calibration Report

Parameter **NOX-NO-NO2**  
Air Monitoring Network **PASZA**



## Station Information

Calibration Date: April 6, 2011 Station Location: BeaverLodge

## Calibration Data

|                           | Dilution flow rate (ccm) | Source gas flow rate (ccm) | Calculated NOx conc (ppb) | Calculated NO conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor |
|---------------------------|--------------------------|----------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|
| zero                      | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | -0.1                     | -0.1                    | -0.2                     | N/A                   | N/A                  |
| 1                         | 4989                     | 39.83                      | 397.6                     | 396.8                    | 0.8                       | 395.9                    | 396.9                   | -1.1                     | 1.0043                | 0.9998               |
| 2                         | 4989                     | 19.90                      | 199.4                     | 199.0                    | 0.4                       | 202.3                    | 201.7                   | 0.1                      | 0.9860                | 0.9868               |
| 3                         | 4989                     | 9.93                       | 99.7                      | 99.5                     | 0.2                       | 103.6                    | 103.9                   | -0.2                     | 0.9629                | 0.9577               |
| AFZ                       | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | -0.1                     | -0.1                    | -0.2                     | 0.0000                | 0.0000               |
| AFS                       | 4989                     | 39.83                      | 397.6                     | 396.8                    | 0.8                       | 386.1                    | 386.3                   | -0.3                     | 1.0299                | 1.0271               |
| Average Correction Factor |                          |                            |                           |                          |                           |                          |                         |                          | 0.9844                | 0.9814               |

As Found Concentrations: NO<sub>x</sub>= 384.0 NO= 384.0 As Found Percent Change NO<sub>x</sub>= -3.4% NO= -3.2%

## GPT Calibration Data

Dilution Flow 4989 ccm Source Gas Flow 39.84 ccm

| O3 Setpoint (ppb)         | Indicated NO high point (ppb) | Indicated NO drop conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor | NO2 Correction factor | Converter Efficiency |
|---------------------------|-------------------------------|------------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|-----------------------|----------------------|
| 0                         | -0.1                          | -0.1                         | 0.0                       | -0.1                     | -0.1                    | -0.2                     | N/A                   | N/A                  | N/A                   | N/A                  |
| NO point                  | 396.4                         | 396.4                        | 0.0                       | 396.3                    | 396.4                   | 0.0                      | 1.0003                | 1.0000               | N/A                   | N/A                  |
| 300                       | 396.4                         | 181.0                        | 215.5                     | 397.6                    | 181.0                   | 217.0                    | 0.9971                | 1.0000               | 0.9931                | 100.7%               |
| 200                       | 396.4                         | 251.5                        | 144.9                     | 397.3                    | 251.5                   | 146.1                    | 0.9979                | 1.0000               | 0.9918                | 100.8%               |
| 100                       | 396.4                         | 317.6                        | 78.9                      | 395.8                    | 317.6                   | 78.8                     | 1.0017                | 1.0000               | 1.0014                | 99.9%                |
| Average Correction Factor |                               |                              |                           |                          |                         |                          | 0.9989                | 1.0000               | 0.9955                | 100.5%               |

## AIC Data

|           | Previous calibration |       |      |     | Current calibration |       |     |     |
|-----------|----------------------|-------|------|-----|---------------------|-------|-----|-----|
| Parameter | NOx                  | NO2   | NO   |     | NOx                 | NO2   | NO  |     |
| Auto zero | -0.2                 | -0.3  | -0.2 | ppb | 0.0                 | 0.0   | 0.3 | ppb |
| Auto span | 238.0                | 235.5 | 1.6  | ppb | 226.4               | 224.5 | 1.2 | ppb |

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PASZA



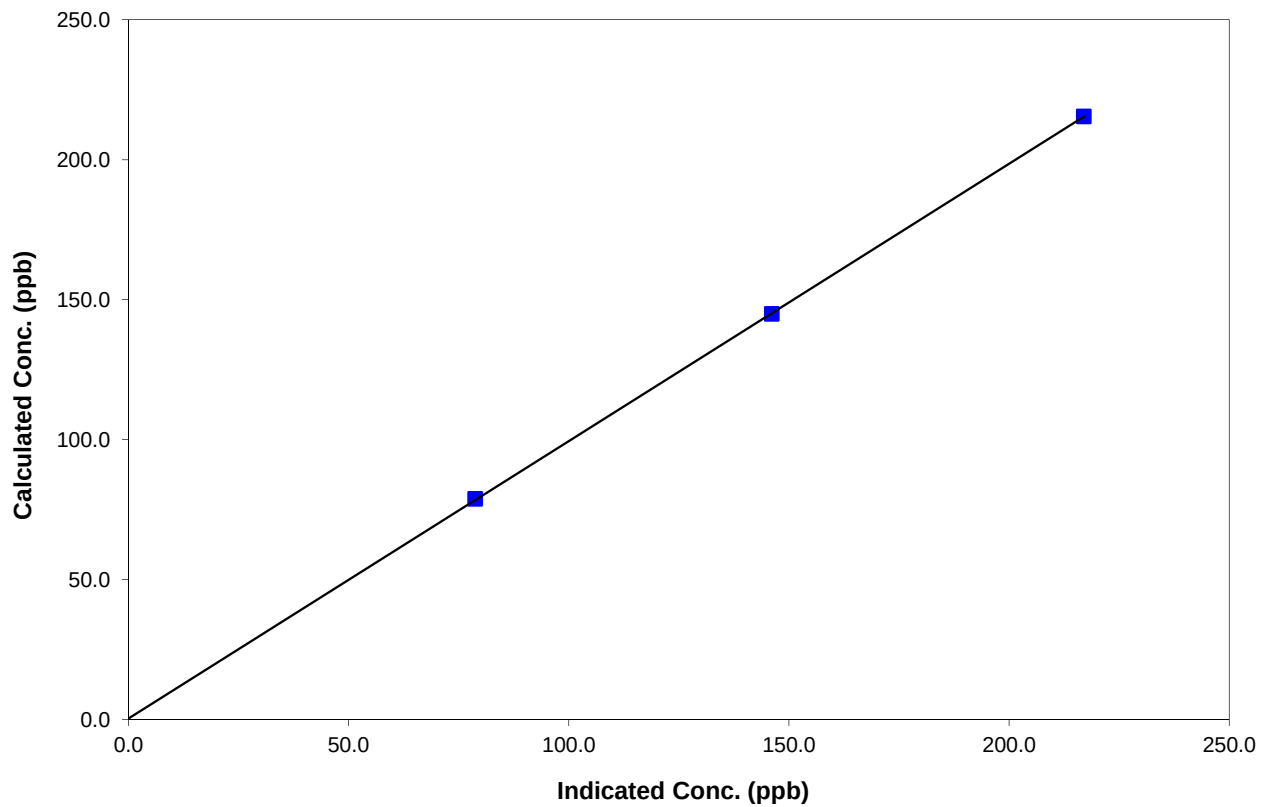
### Station Information

|                  |               |                      |                |
|------------------|---------------|----------------------|----------------|
| Calibration Date | April 6, 2011 | Previous Calibration | March 10, 2011 |
| Station Number   | 4             | Station Location     | BeaverLodge    |
| Start Time (MST) | 8:45          | End Time (MST)       | 12:50          |
| Analyzer make    | TEI 42i       | Analyzer serial #    | 906535068      |

### Calibration Data

| Calculated conc (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|----------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                        | -0.2                               | N/A                       | Correlation Coefficient | 0.999989 |
| 215.5                      | 217.0                              | 0.9931                    |                         |          |
| 144.9                      | 146.1                              | 0.9918                    |                         |          |
| 78.9                       | 78.8                               | 1.0014                    | Slope                   | 0.991112 |
|                            |                                    |                           | Intercept               | 0.391741 |
|                            |                                    |                           |                         |          |
|                            |                                    |                           |                         |          |

**NO<sub>2</sub> Calibration Curve**



## Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PASZA



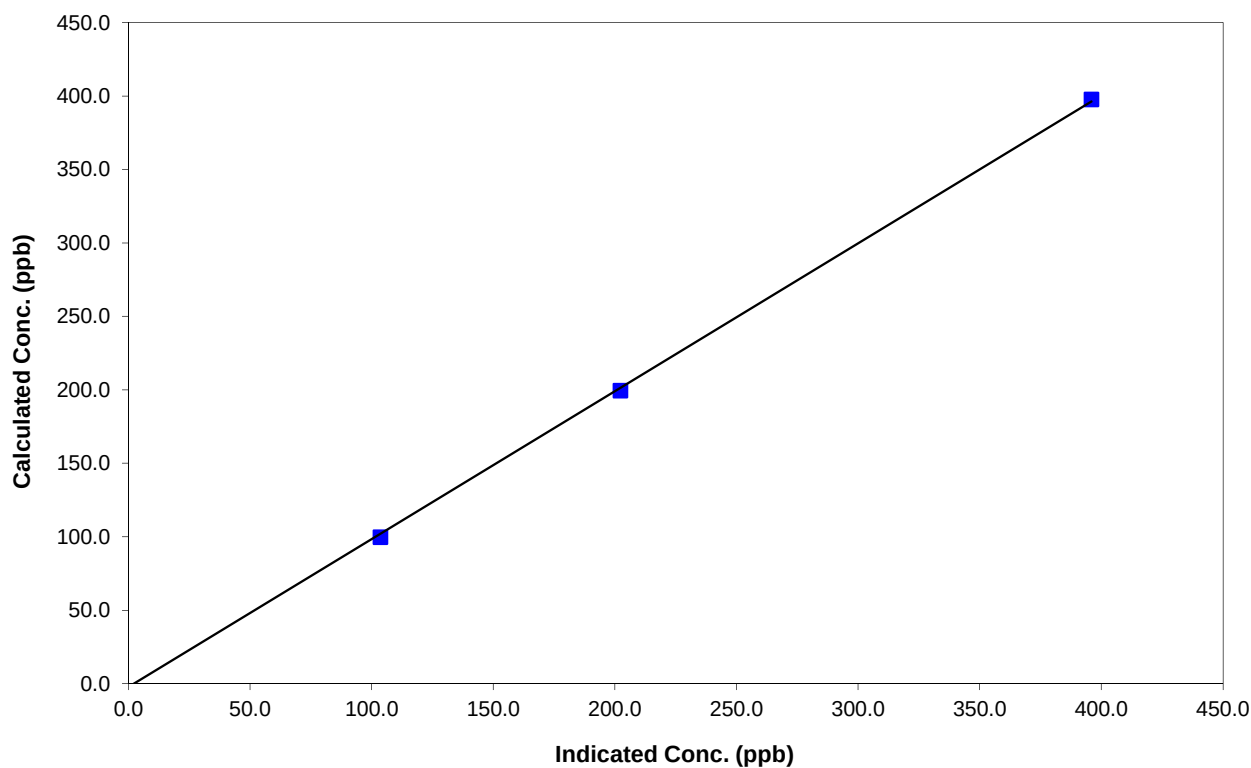
### Station Information

|                  |               |                      |                |
|------------------|---------------|----------------------|----------------|
| Calibration Date | April 6, 2011 | Previous Calibration | March 10, 2011 |
| Station Number   | 4             | Station Location     | BeaverLodge    |
| Start Time (MST) | 8:45          | End Time (MST)       | 12:50          |
| Analyzer make    | TEI 42i       | Analyzer serial #    | 906535068      |

### Calibration Data

| Calculated conc (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|----------------------------|------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                        | -0.1                               | N/A                       | Correlation Coefficient | 0.999814  |
| 397.6                      | 395.9                              | 1.0043                    |                         |           |
| 199.4                      | 202.3                              | 0.9860                    |                         |           |
| 99.7                       | 103.6                              | 0.9629                    | Slope                   | 1.006595  |
|                            |                                    |                           |                         |           |
|                            |                                    |                           | Intercept               | -2.378625 |
|                            |                                    |                           |                         |           |

### NO<sub>x</sub> Calibration Curve



## Calibration Summary

Parameter NO

Air Monitoring Network PASZA



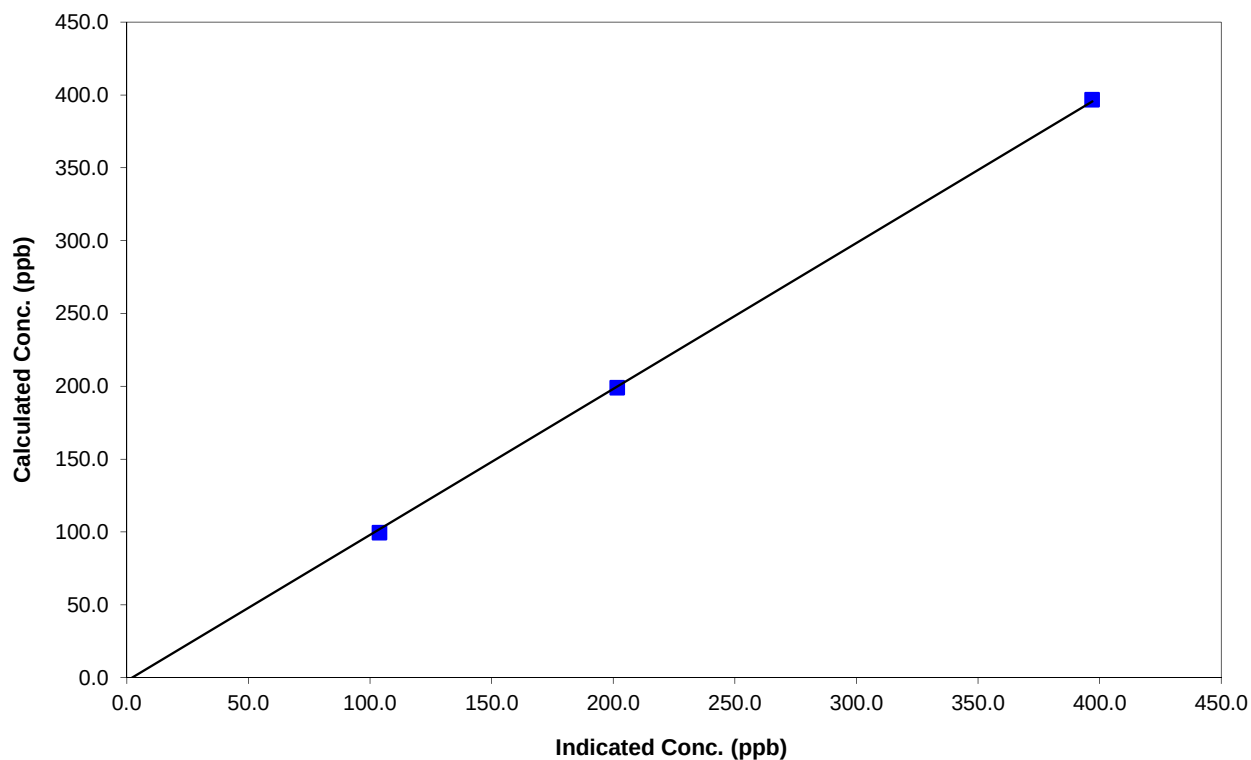
### Station Information

|                  |               |                      |                |
|------------------|---------------|----------------------|----------------|
| Calibration Date | April 6, 2011 | Previous Calibration | March 10, 2011 |
| Station Number   | 4             | Station Location     | BeaverLodge    |
| Start Time (MST) | 8:45          | End Time (MST)       | 12:50          |
| Analyzer make    | TEI 42i       | Analyzer serial #    | 906535068      |

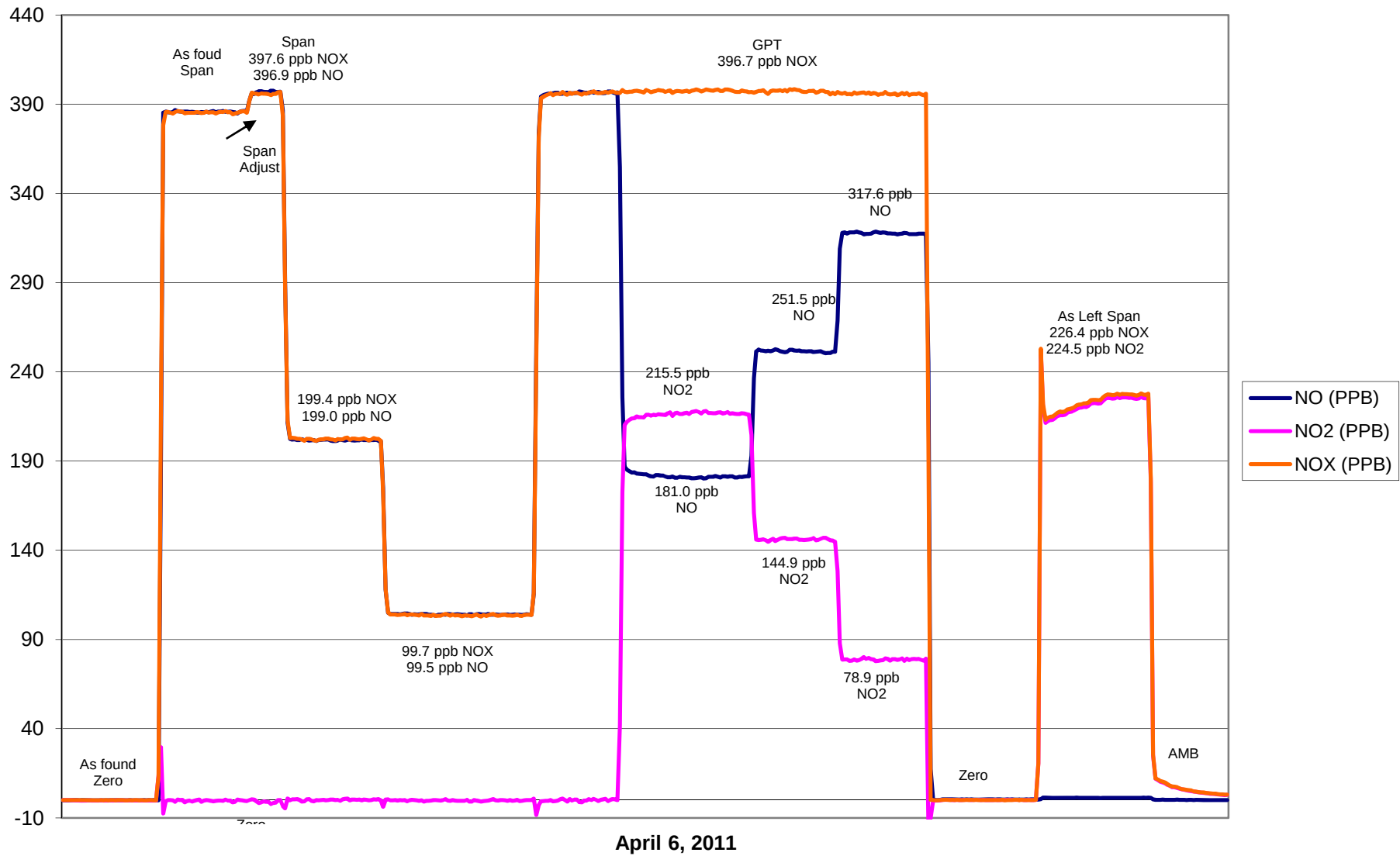
### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                           | -0.1                                  | N/A                       | Correlation Coefficient | 0.999842  |
| 396.8                         | 396.9                                 | 0.9998                    |                         |           |
| 199.0                         | 201.7                                 | 0.9868                    |                         |           |
| 99.5                          | 103.9                                 | 0.9577                    | Slope                   | 1.002428  |
|                               |                                       |                           |                         |           |
|                               |                                       |                           | Intercept               | -2.183490 |
|                               |                                       |                           |                         |           |

### NO Calibration Curve



## Beaverlodge NO<sub>x</sub> Calibration



# Calibration Report



Parameter 03

Air Monitoring Network PASZA

## Station Information

|                  |                                             |                                  |                                  |
|------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date | April 6, 2011                               | Previous Calibration             | March 10, 2011                   |
| Station Number   | 4                                           | Station Location                 | Beaverlodge                      |
| Reason:          | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                  |                                             | <input type="checkbox"/> Other:  |                                  |

|                       |                |                     |            |
|-----------------------|----------------|---------------------|------------|
| Start Time (MST)      | 11:30          | End Time (MST)      | 14:00      |
| Barometric Pressure   | 0.900 atm      | Station Temperature | 23.0 Deg C |
| Calibrator            | Envionics 6100 | Serial Number       | 3474       |
| Cal Gas Concentration | NA             | Cal Gas Expiry Date | NA         |

|                      |              |                      |          |
|----------------------|--------------|----------------------|----------|
| DACS make            | Focus AP1000 | DACS serial No.      | 45269    |
| DACS voltage range   | 0 - 1 volt   | DACS channel #       | 9        |
|                      | Before       |                      | After    |
| Calculated slope     | 0.997813     | Calculated slope     | 0.990936 |
| Calculated intercept | 0.442791     | Calculated intercept | 0.217131 |

|               |          |                   |               |
|---------------|----------|-------------------|---------------|
| Analyzer make | Teco 49C | Analyzer serial # | 49C-76443-383 |
|---------------|----------|-------------------|---------------|

|                     | before      |       | after       |       |
|---------------------|-------------|-------|-------------|-------|
| Concentration range | 0 - 500     | ppb   | 0 - 500     | ppb   |
| offset              | -1.10       | ppb   | -1.10       | ppb   |
| slope               | 1.016       |       | 1.016       |       |
| Lamp temp           | 56.3        | mV    | 56.5        | mV    |
| Lamp Intensity A/B  | 61809/64244 | mV    | 61643/64081 | mV    |
| Pressure            | 683.9       | mm Hg | 683.9       | mm Hg |
| Flow A              | 0.710       | ccm   | 0.717       | ccm   |
| Flow B              | 0.663       | ccm   | 0.666       | ccm   |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.00                          | 0.0                                 | 0.4                                | N/A                       |
| 4989                            | 0.00                          | 215.5                               | 217.3                              | 0.9919                    |
| 4989                            | 0.00                          | 144.9                               | 146.7                              | 0.9880                    |
| 4989                            | 0.00                          | 78.9                                | 78.2                               | 1.0096                    |
|                                 |                               |                                     |                                    |                           |
| 4989                            | 0.00                          | 0.0                                 | 0.4                                | As found zero             |
| 4989                            | 0.00                          | 215.5                               | 210.9                              | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 0.9965                    |

Calculated value of As Found Response: 210.6 ppm Percent Change of As Found: -2.3%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.1                | ppb | 0.3               | ppb |
| Auto span | 114.3              | ppb | 122.0             | ppb |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen



## Calibration Summary

Parameter           O3          

Air Monitoring Network                           PASZA                          



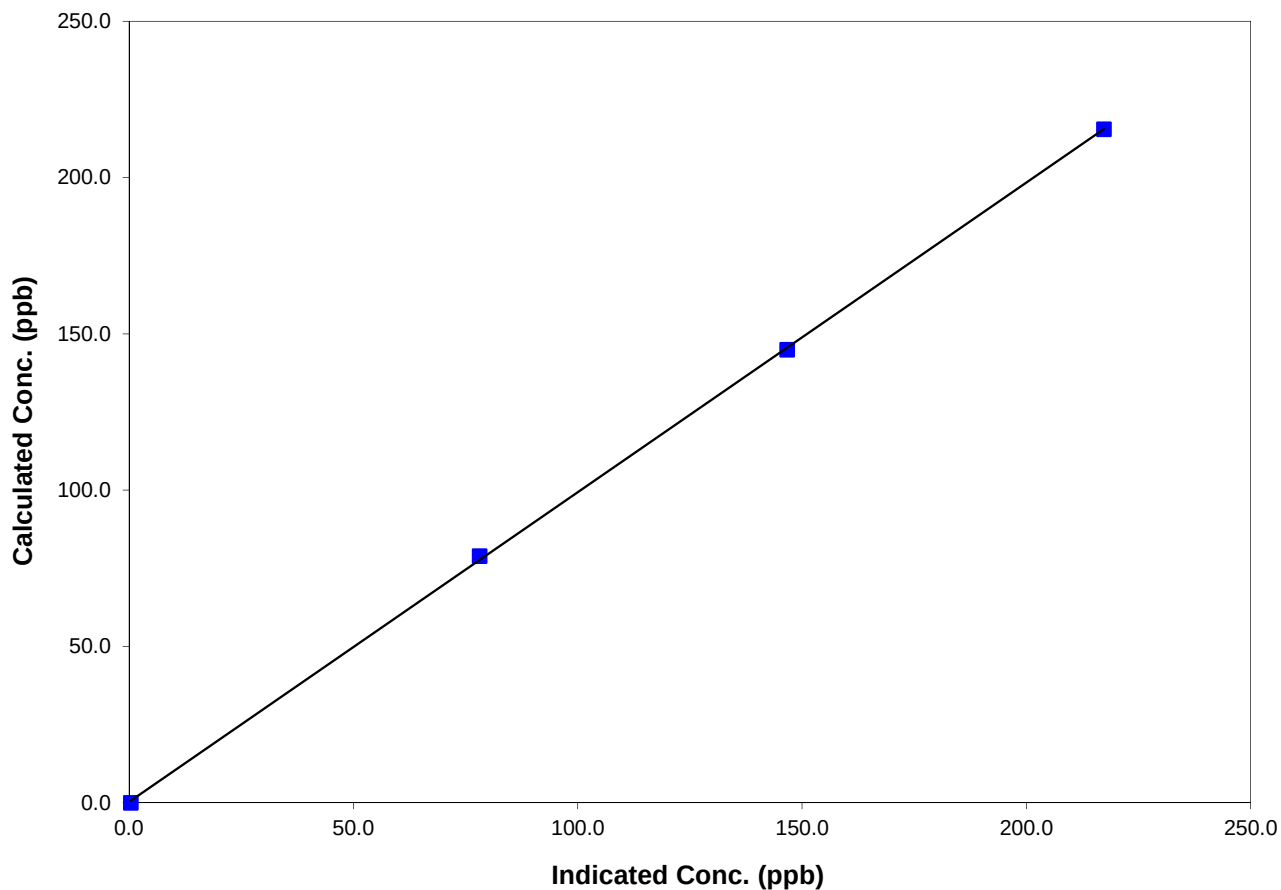
### Station Information

|                     |                                              |                      |                                           |
|---------------------|----------------------------------------------|----------------------|-------------------------------------------|
| Calibration Date    | <u>          April 6, 2011          </u>     | Previous Calibration | <u>          March 10, 2011          </u> |
| Station Number      | <u>                  4                  </u> | Station Location     | <u>          Beaverlodge          </u>    |
| Start Time (MST)    | <u>          11:30          </u>             | End Time (MST)       | <u>          14:00          </u>          |
| Analyzer make/model | <u>          Teco 49C          </u>          | Analyzer serial #    | <u>          49C-76443-383          </u>  |

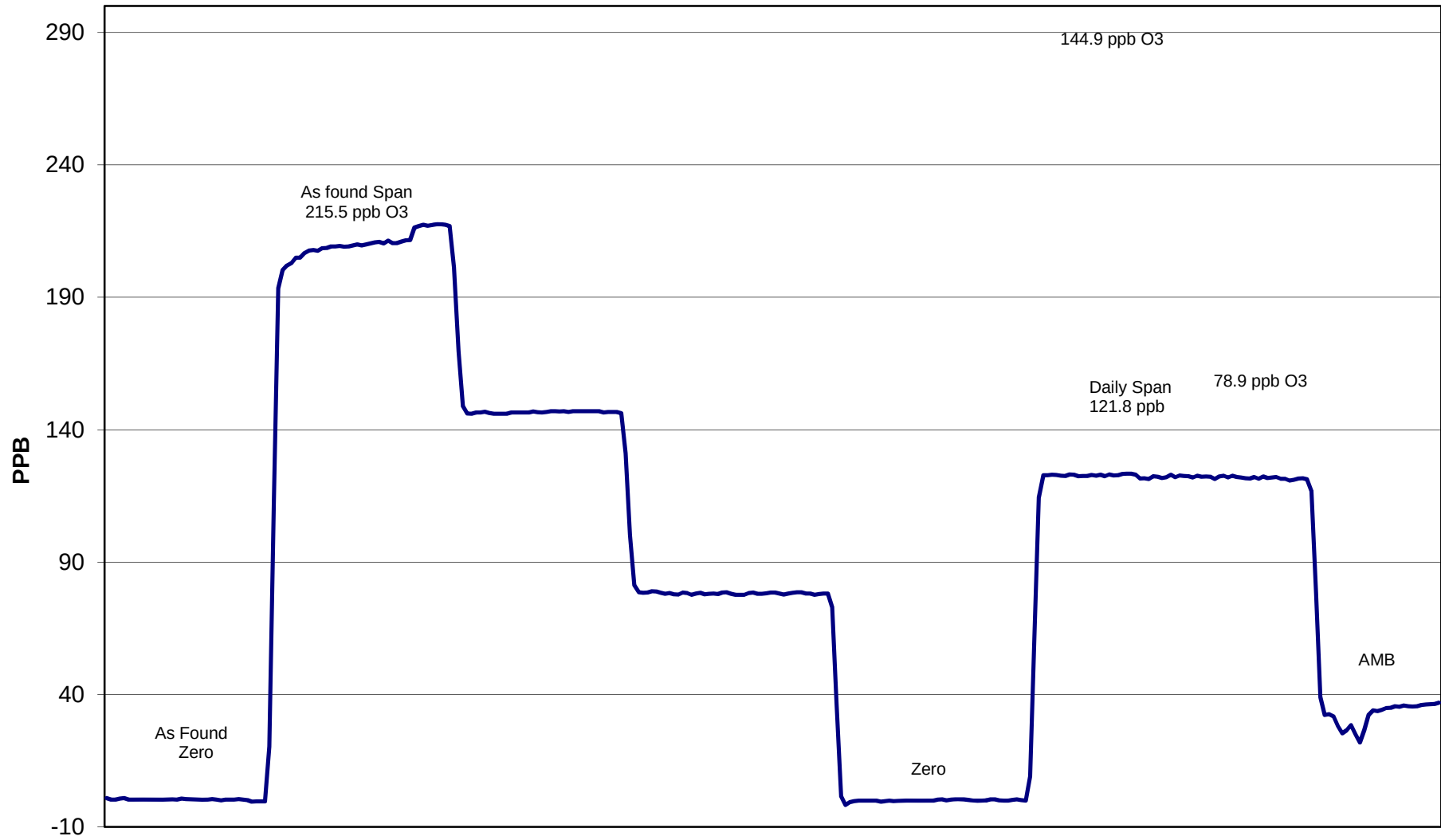
### Calibration Data

| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.4                                | NA                        | Correlation Coefficient | 0.999910 |
| 215.5                               | 217.3                              | 0.9919                    |                         |          |
| 144.9                               | 146.7                              | 0.9880                    |                         |          |
| 78.9                                | 78.2                               | 1.0096                    | Slope                   | 0.990936 |
|                                     |                                    |                           | Intercept               | 0.217131 |
|                                     |                                    |                           |                         |          |

### O3 Calibration Curve



## Beaverlodge O<sub>3</sub> Calibration



April 6, 2011

# Calibration Report

Parameter SO2

Air Monitoring Network PASZA



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 15, 2011                              | Previous Calibration             | March 24, 2011                   |
| Station Number        | 6                                           | Station Location                 | Valleyview                       |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 12:40                                       | End Time (MST)                   | 14:10                            |
| Barometric Pressure   | 702.00 mm                                   | Station Temperature              | 14.7 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 50.6 ppm                                    | Cal Gas Cert Date                | 7/23/2010                        |
| Gas Cert Reference    | SGAL3245                                    |                                  |                                  |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 45274                            |
| DACS voltage range    | 0 - 10 volt                                 | DACS channel #                   | 4                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| DACS Scale High       | 500                                         | DACS slope                       | 500                              |
| DACS Scale Low        | 0                                           | DACS intercept                   | 0                                |
| Calculated slope      | 0.999304                                    | Calculated slope                 | 1.001170                         |
| Calculated intercept  | -0.210459                                   | Calculated intercept             | 0.555384                         |
| Analyzer make         | TEI 45C                                     | Analyzer serial #                | 45C-57531-313                    |

|                     |               |       |              |       |
|---------------------|---------------|-------|--------------|-------|
|                     | <u>before</u> |       | <u>after</u> |       |
| Concentration range | 0 - 1000      | ppb   | 0 - 1000     | ppb   |
| Background          | 28.1          |       | 28.4         |       |
| Coefficient         | 0.882         |       | 0.882        |       |
| UV Lamp Voltage     | 951           | LPM   | 951          | LPM   |
| Chamber Temp        | 44.3          | V     | 44.5         | V     |
| Perm Gas Temp       | 35.1          | C     | 35.1         | C     |
| Pressure            | 614.9         | in Hg | 616.9        | in Hg |
| Sample Flow         | 0.564         | LPM   | 0.565        | LPM   |
| Lamp Intensity      | 48565         | Hz    | 48314        | Hz    |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.00                          | 0.0                                 | 0.2                                | N/A                       |
| 4989                            | 39.84                         | 400.9                               | 400.4                              | 1.0011                    |
| 4989                            | 19.89                         | 200.9                               | 199.1                              | 1.0093                    |
| 4989                            | 9.94                          | 100.6                               | 99.7                               | 1.0096                    |
| 4989                            | 0.00                          | 0.0                                 | 0.2                                | As found zero             |
| 4989                            | 39.84                         | 400.9                               | 400.4                              | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0067                    |

Calculated value of As Found Response: 399.761 ppm Percent Change of As Found: 0.3%

|           |                           |     |                          |     |
|-----------|---------------------------|-----|--------------------------|-----|
|           | <u>before calibration</u> |     | <u>after calibration</u> |     |
| Auto zero | 0.0                       | ppm | 0.0                      | ppm |
| Auto span | 155.5                     | ppm | 157.5                    | ppm |

Notes:

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



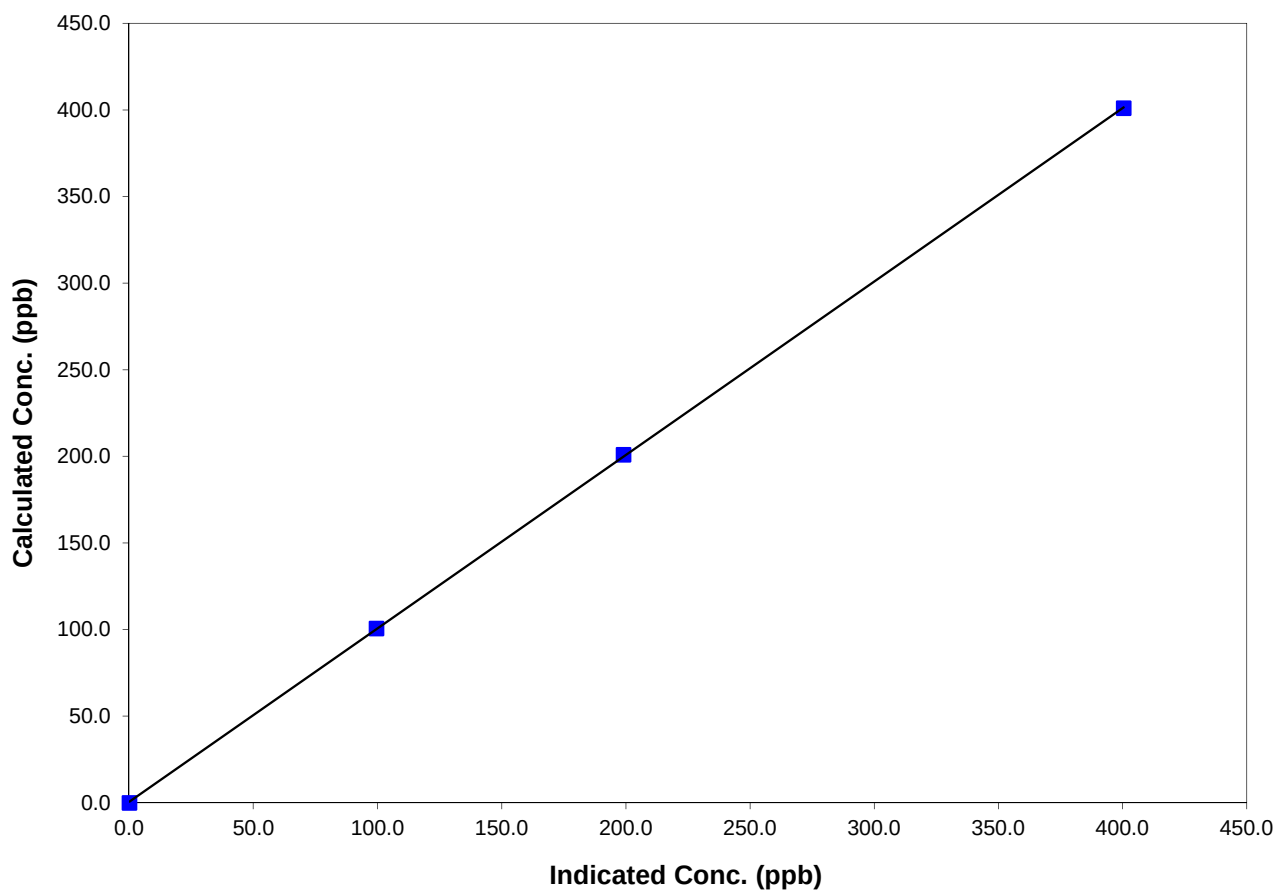
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 15, 2011 | Previous Calibration | March 24, 2011 |
| Station Number      | 6              | Station Location     | Valleyview     |
| Start Time (MST)    | 12:40          | End Time (MST)       | 14:42          |
| Analyzer make/model | TEI 45C        | Analyzer serial #    | 45C-57531-313  |

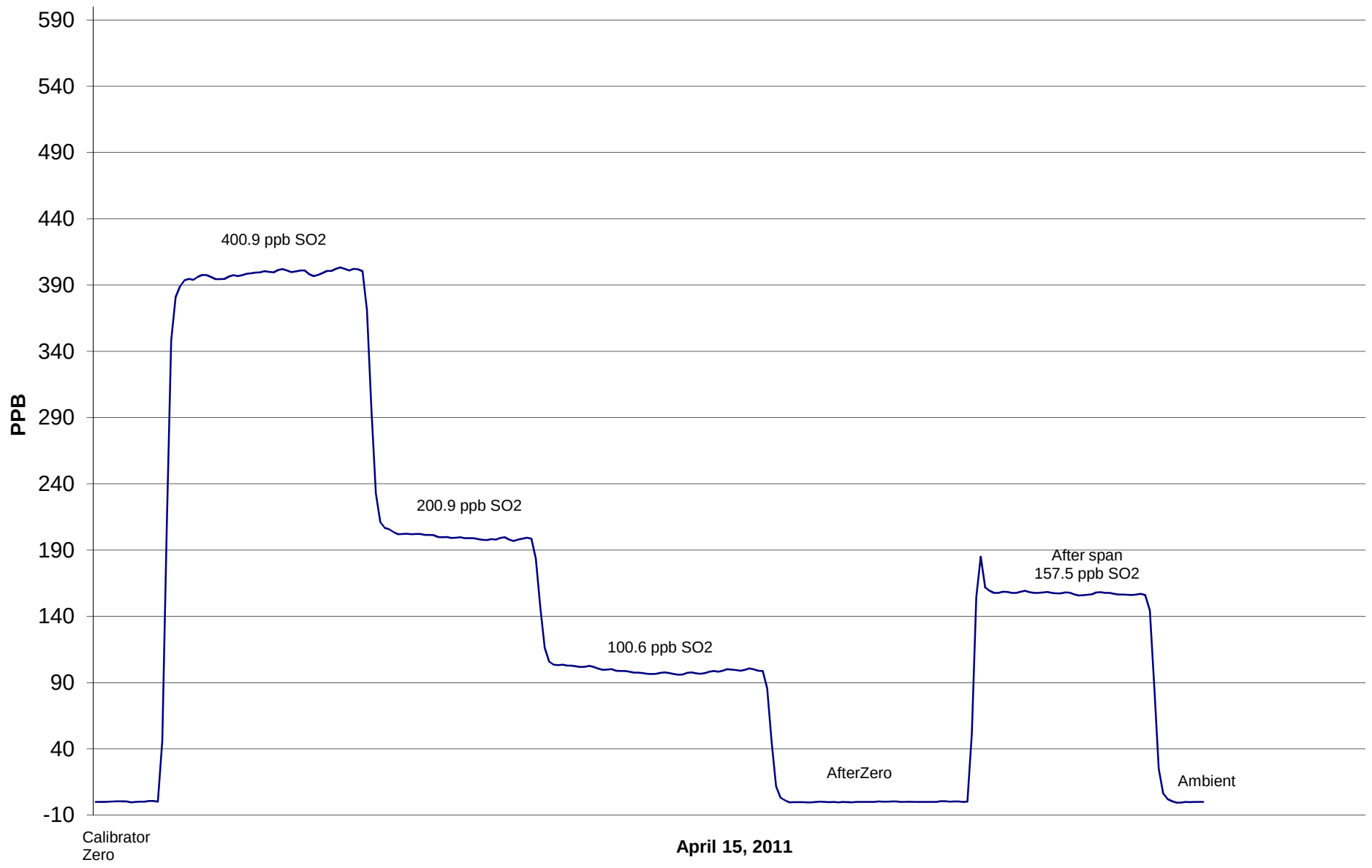
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.2                                | N/A                       | Correlation Coefficient | 0.999976 |
| 400.9                               | 400.4                              | 1.0011                    |                         |          |
| 200.9                               | 199.1                              | 1.0093                    |                         |          |
| 100.6                               | 99.7                               | 1.0096                    | Slope                   | 1.001170 |
|                                     |                                    |                           | Intercept               | 0.555384 |
|                                     |                                    |                           |                         |          |
|                                     |                                    |                           |                         |          |

### SO2 Calibration Curve



## Valleyview SO<sub>2</sub> Calibration



# Calibration Report

Parameter H2S  
Air Monitoring Network

PASZA



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 15, 2011                              | Previous Calibration             | March 24, 2011                   |
| Station Number        | 5                                           | Station Location                 | Valleyview                       |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 10:20                                       | End Time (MST)                   | 13:30                            |
| Barometric Pressure   | 702.00 mm                                   | Station Temperature              | 21.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 5.77 ppm                                    | Cal Gas Expiry Date              | 9/3/2012                         |
| Gas Cert Reference    | BLM001434                                   |                                  |                                  |
| DACS make             | Focus AP1000                                | DACS serial No.                  | 1                                |
| DACS voltage range    | 0 - 10 volt                                 | DACS channel #                   | 9                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| DACS Scale High       | 100                                         | DACS slope                       | 100                              |
| DACS Scale Low        | 0                                           | DACS intercept                   | 0                                |
| Calculated slope      | 1.002596                                    | Calculated slope                 | 0.987503                         |
| Calculated intercept  | -0.046932                                   | Calculated intercept             | 0.508040                         |
| Analyzer make         | TEI Model 43i - APSCB                       | Analyzer serial #                | 701120010                        |

|                     | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 100 | ppb   | 0 - 100 | ppb   |
| Back Ground         | 7.4     | ppb   | 9.5     | ppb   |
| Coefficient         | 1.453   |       | 1.530   |       |
| Lamp Voltage        | 785     | v     | 786     | v     |
| Chamber Temp        | 45.01   | c     | 44.9    | c     |
| Perm Oven Temp      | 45.01   | c     | 45.00   | c     |
| Pressure            | 635.60  | mm Hg | 636.50  | mm Hg |
| Sample Flow         | .429    | ccm   | .430    | ccm   |
| Lamp Intensity      | 91.0    | %     | 91.0    | %     |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4988                            | 0.00                          | 0.0                                 | -0.1                               | N/A                       |
| 4988                            | 69.72                         | 79.5                                | 80.4                               | 0.9899                    |
| 4988                            | 34.84                         | 40.0                                | 39.4                               | 1.0158                    |
| 4988                            | 8.94                          | 10.3                                | 9.8                                | 1.0548                    |
| 4988                            | 0.00                          | 0.0                                 | -0.1                               | As found zero             |
| 4988                            | 69.72                         | 79.5                                | 77.0                               | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0202                    |

Calculated value of As Found Response: 77.23 ppm Percent Change of As Found: 2.9%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.0                | ppm | 0.3               | ppm |
| Auto span | 70.6               | ppm | 80.6              | ppm |

Notes:

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter H2S

Air Monitoring Network PASZA



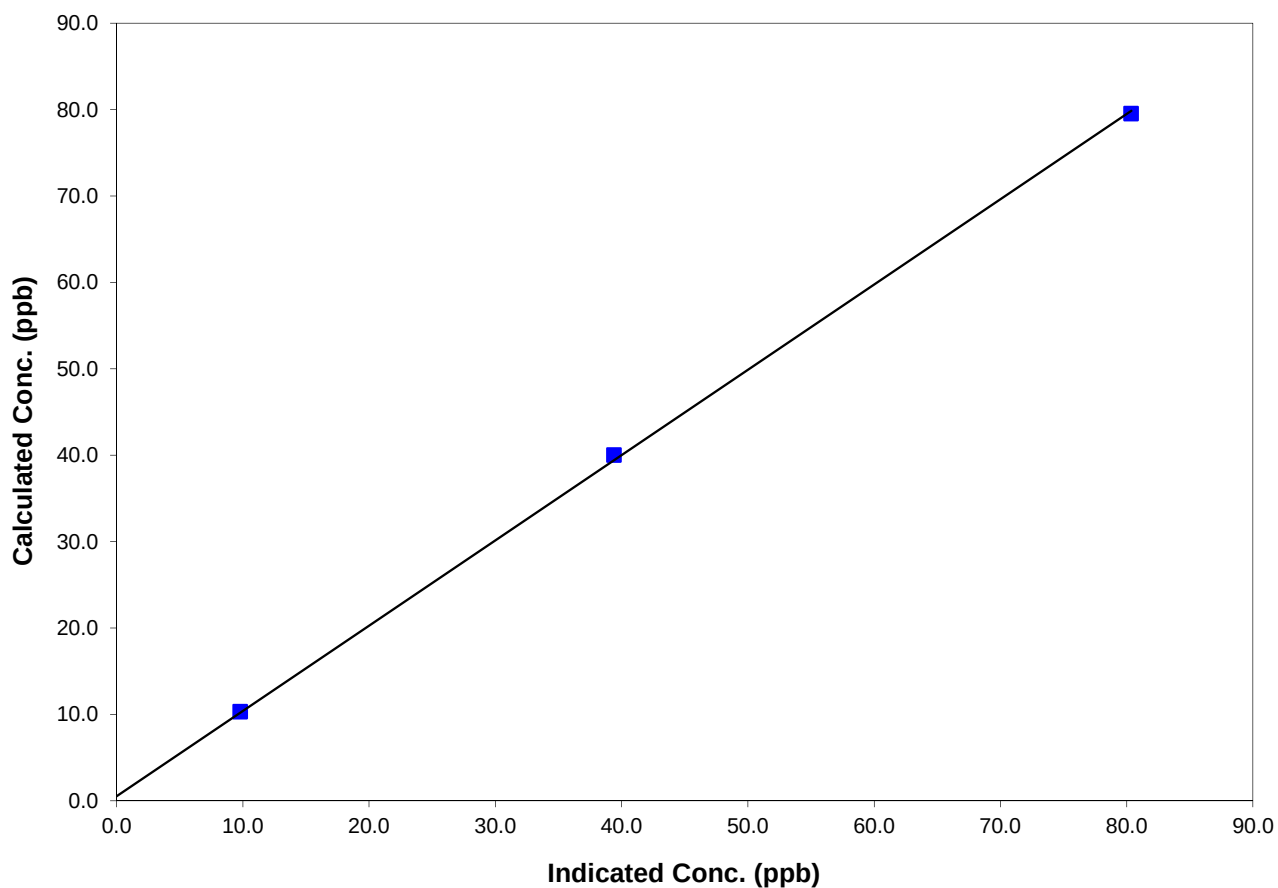
### Station Information

|                     |                       |                      |                |
|---------------------|-----------------------|----------------------|----------------|
| Calibration Date    | April 15, 2011        | Previous Calibration | March 24, 2011 |
| Station Number      | 5                     | Station Location     | Valleyview     |
| Start Time (MST)    | 10:20                 | End Time (MST)       | 13:30          |
| Analyzer make/model | TEI Model 43i - APSCB | Analyzer serial #    | 701120010      |

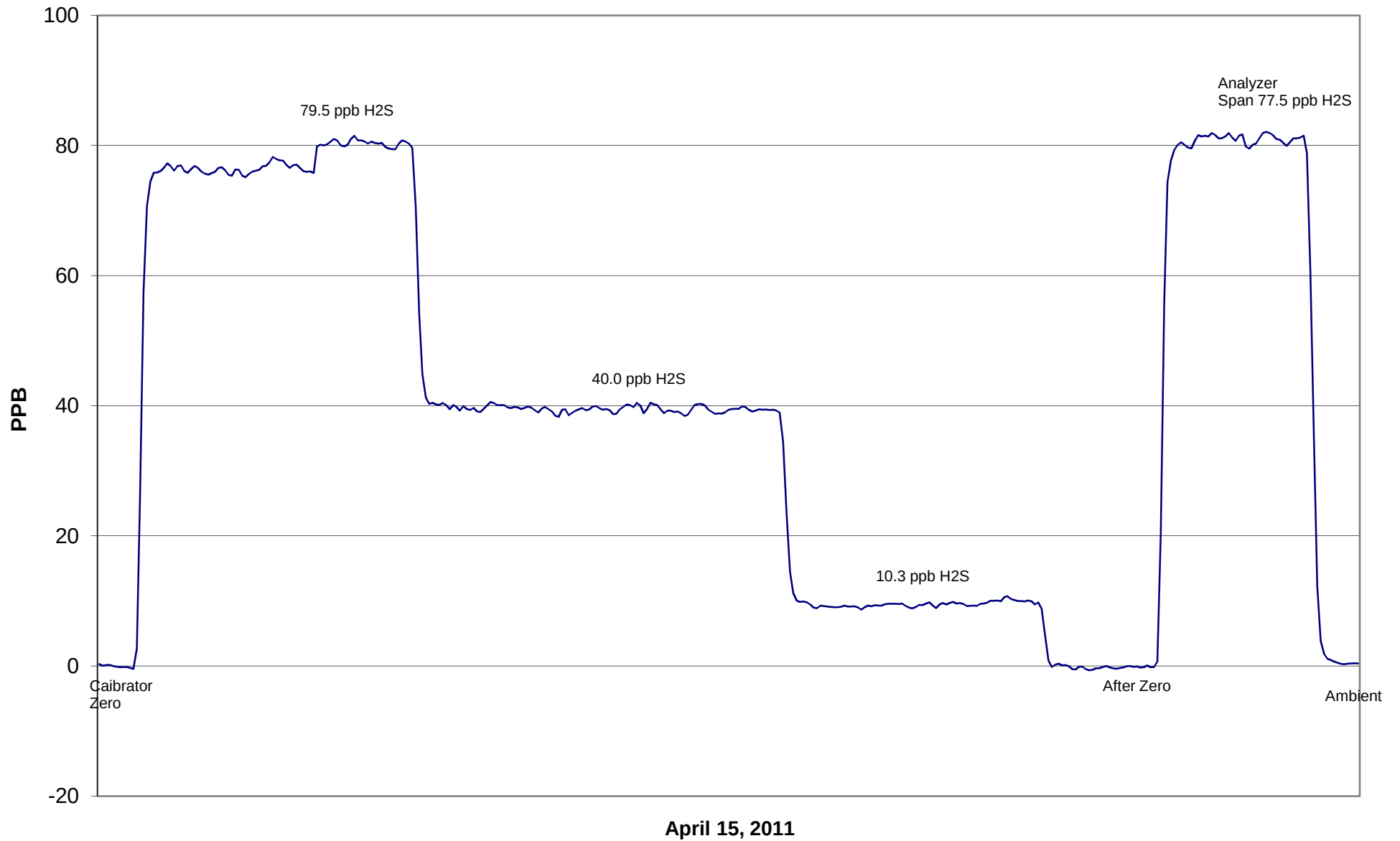
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | -0.1                               | N/A                       | Correlation Coefficient | 0.999821 |
| 79.5                                | 80.4                               | 0.9899                    |                         |          |
| 40.0                                | 39.4                               | 1.0158                    |                         |          |
| 10.3                                | 9.8                                | 1.0548                    | Slope                   | 0.987503 |
|                                     |                                    |                           | Intercept               | 0.508040 |

### H2S Calibration Curve



## Valleyview H<sub>2</sub>S Calibration





# Calibration Report

Parameter SO2  
Air Monitoring Network PASZA



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 26, 2011                              | Previous Calibration             | March 29, 2011                   |
| Station Number        | 9                                           | Station Location                 | Rover - Bonanza                  |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 7:50                                        | End Time (MST)                   | 10:00                            |
| Barometric Pressure   | 31.70 inches Hg                             | Station Temperature              | 15.7 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 50.6 ppm                                    | Cal Gas Expiry Date              | 4/6/2012                         |
| Gas Cert Reference    | SGAL3245                                    |                                  |                                  |
| DACS make             | CR3000                                      | DACS serial No.                  | 5407                             |
| DACS voltage range    | 0 - 5 Volt                                  | DACS channel #                   | 2                                |
|                       | Before                                      |                                  | After                            |
| DACS Scale High       | 500                                         | DACS slope                       | 500                              |
| DACS Scale Low        | 0                                           | DACS intercept                   | 0                                |
| Calculated slope      | 0.995909                                    | Calculated slope                 | 0.999554                         |
| Calculated intercept  | 2.668246                                    | Calculated intercept             | 0.765053                         |
| Analyzer make         | TEI 43C                                     | Analyzer serial #                | 609716238                        |

|                     | before |       | after |       |
|---------------------|--------|-------|-------|-------|
| Concentration range | 0-500  | ppb   | 0-500 | ppb   |
| Background          | 9.6    |       | 9.5   |       |
| Coefficient         | 1.002  |       | 0.994 |       |
| UV Lamp Voltage     | 795    | V     | 794   | V     |
| Chamber Temp        | 44.3   | C     | 44.2  | C     |
| Perm Gas Temp       | 45     | C     | 45    | C     |
| Pressure            | 664.8  | mm Hg | 665.3 | mm Hg |
| Sample Flow         | 0.484  | LPM   | 0.483 | LPM   |
| Lamp Intesity       | 47703  | Hz    | 48323 | Hz    |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4989                            | 0.00                          | 0.0                                 | 0.0                                | N/A                       |
| 4989                            | 39.83                         | 400.8                               | 400.8                              | 0.9999                    |
| 4989                            | 19.90                         | 201.0                               | 199.3                              | 1.0087                    |
| 4989                            | 9.93                          | 100.5                               | 99.5                               | 1.0106                    |
| 4989                            | 0.00                          | 0.0                                 | 0.0                                | As found zero             |
| 4989                            | 39.83                         | 400.8                               | 400.8                              | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0064                    |

Calculated value of As Found Response: 401.762 ppm      Percent Change of As Found: -0.2%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.3                | ppm | 0.3               | ppm |
| Auto span | 264.0              | ppm | 265.5             | ppm |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter SO2

Air Monitoring Network PASZA



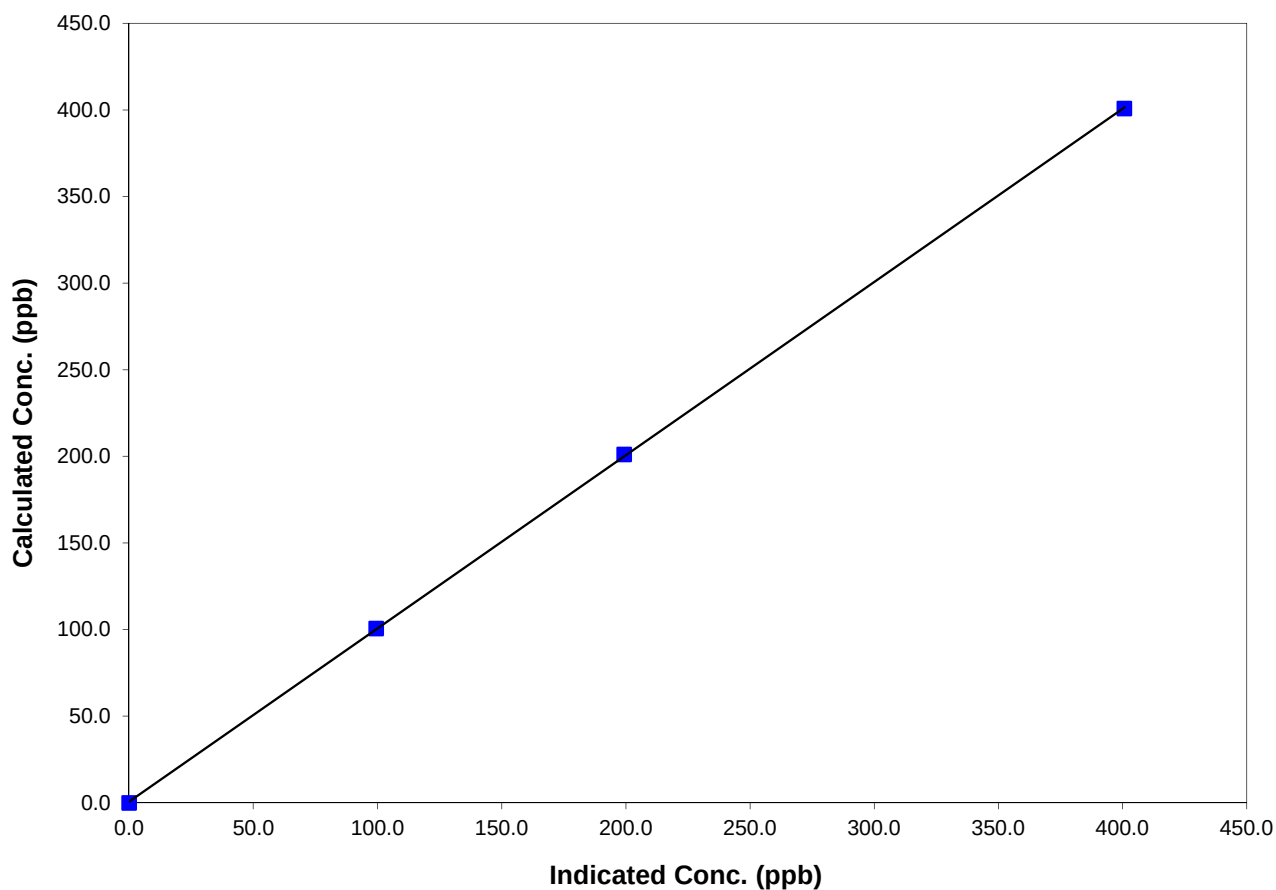
### Station Information

|                     |                |                      |                 |
|---------------------|----------------|----------------------|-----------------|
| Calibration Date    | April 26, 2011 | Previous Calibration | March 29, 2011  |
| Station Number      | 9              | Station Location     | Rover - Bonanza |
| Start Time (MST)    | 7:50           | End Time (MST)       | 10:00           |
| Analyzer make/model | TEI 43C        | Analyzer serial #    | 609716238       |

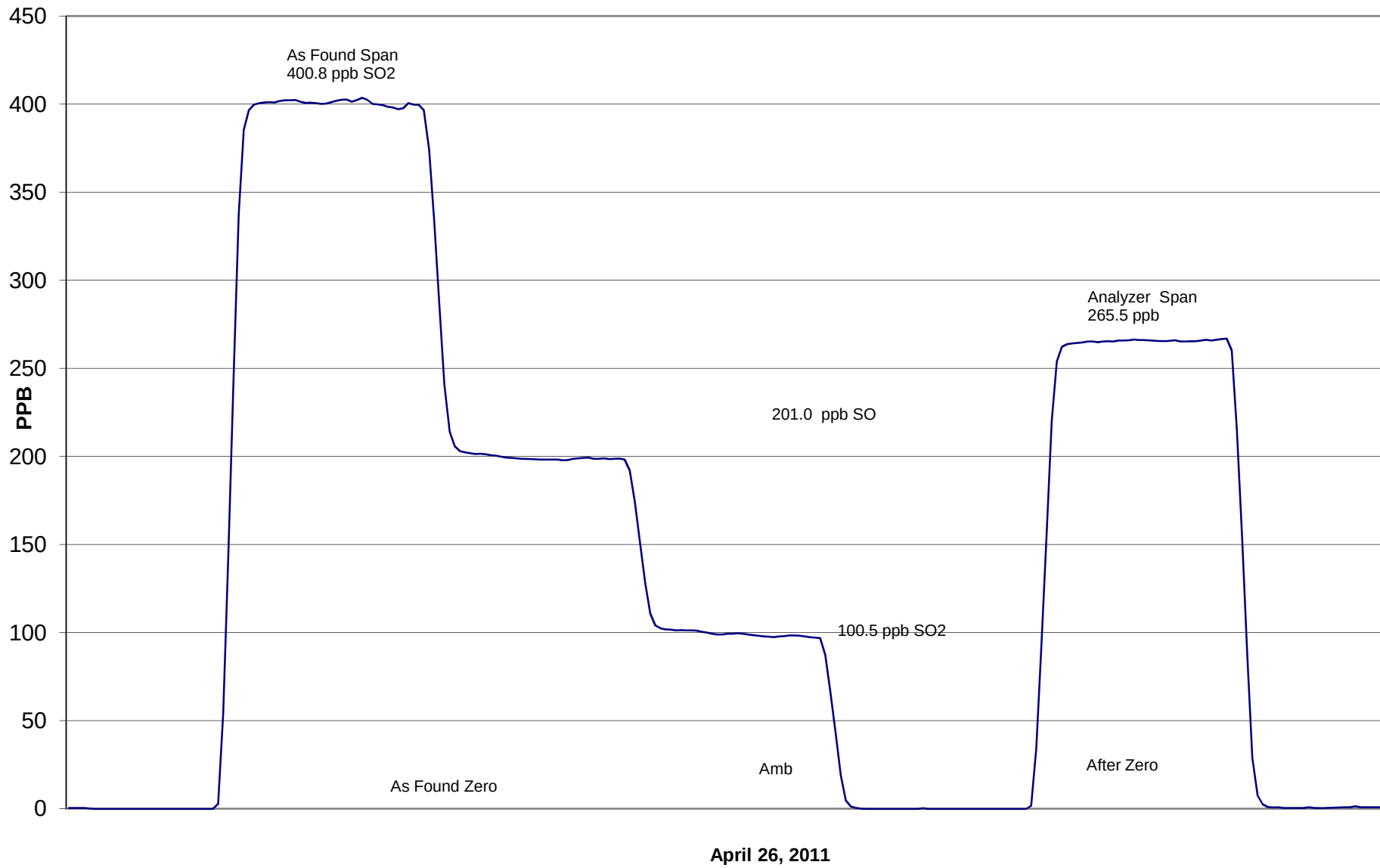
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.0                                | N/A                       | Correlation Coefficient | 0.999975 |
| 400.8                               | 400.8                              | 0.9999                    |                         |          |
| 201.0                               | 199.3                              | 1.0087                    |                         |          |
| 100.5                               | 99.5                               | 1.0106                    | Slope                   | 0.999554 |
|                                     |                                    |                           | Intercept               | 0.765053 |
|                                     |                                    |                           |                         |          |
|                                     |                                    |                           |                         |          |

### SO2 Calibration Curve



## Bonanza SO<sub>2</sub> Calibration



# Calibration Report

Parameter                      **TRS**  
Air Monitoring Network                     

**PASZA**



## Station Information

|                       |                                             |                                  |                                  |
|-----------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Calibration Date      | April 26, 2011                              | Previous Calibration             | March 29, 2011                   |
| Station Number        | 9                                           | Station Location                 | Rover-Bonanza                    |
| Reason:               | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal |
|                       |                                             | <input type="checkbox"/> Other:  |                                  |
| Start Time (MST)      | 13:05                                       | End Time (MST)                   | 15:16                            |
| Barometric Pressure   | 27.5 inches Hg                              | Station Temperature              | 20.0 Deg C                       |
| Calibrator            | EnviroNics 6100                             | Serial Number                    | 3474                             |
| Cal Gas Concentration | 5.77 ppm                                    | Cal Gas Expiry Date              | 9/13/2011                        |
| Gas Cert Reference    | BLM001434                                   |                                  |                                  |
| DACS make             | CR3000                                      | DACS serial No.                  | 5407                             |
| DACS voltage range    | 0 - 5 Volt                                  | DACS channel #                   | 1                                |
|                       | <u>Before</u>                               |                                  | <u>After</u>                     |
| DACS Scale High       | 100                                         | DACS slope                       | 100                              |
| DACS Scale Low        | 0                                           | DACS intercept                   | 0                                |
| Calculated slope      | 1.007098                                    | Calculated slope                 | 0.995562                         |
| Calculated intercept  | 0.448574                                    | Calculated intercept             | 0.319001                         |
| Analyzer make         | TEI 43C                                     | Analyzer serial #                | 609716238                        |

|                     | before  |      | after   |      |
|---------------------|---------|------|---------|------|
| Concentration range | 0 - 100 | ppb  | 0 - 100 | ppb  |
| Background          | 11.4    | ppb  | 11.4    | ppb  |
| Coefficient         | 1.490   |      | 1.490   |      |
| Lamp Voltage        | 788     | V    | 792     | V    |
| Chamber Temp        | 44.2    | C    | 43.9    | C    |
| Perm gas Temp       | 45.0    | C    | 45.0    | C    |
| Pressure            | 650.8   | mmHg | 655.5   | mmHg |
| Sample Flow         | .433    | ccm  | .436    | ccm  |
| Lamp Intensity      | 39117.0 | Hz   | 39034.0 | Hz   |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4988                            | 0.0                           | 0.0                                 | -0.2                               | N/A                       |
| 4988                            | 69.72                         | 79.5                                | 79.7                               | 0.9983                    |
| 4988                            | 34.83                         | 40.0                                | 39.7                               | 1.0090                    |
| 4988                            | 8.93                          | 10.3                                | 10.1                               | 1.0234                    |
|                                 |                               |                                     |                                    |                           |
| 4988                            | 0.00                          | 0.0                                 | -0.2                               | As found zero             |
| 4988                            | 69.72                         | 79.5                                | 79.7                               | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0102                    |

Calculated value of As Found Response: 80.94 ppm Percent Change of As Found: -1.8%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | -0.6               | ppm | 0.1               | ppm |
| Auto span | 69.6               | ppm | 68.4              | ppm |

Notes: \_\_\_\_\_

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter TRS

Air Monitoring Network PASZA



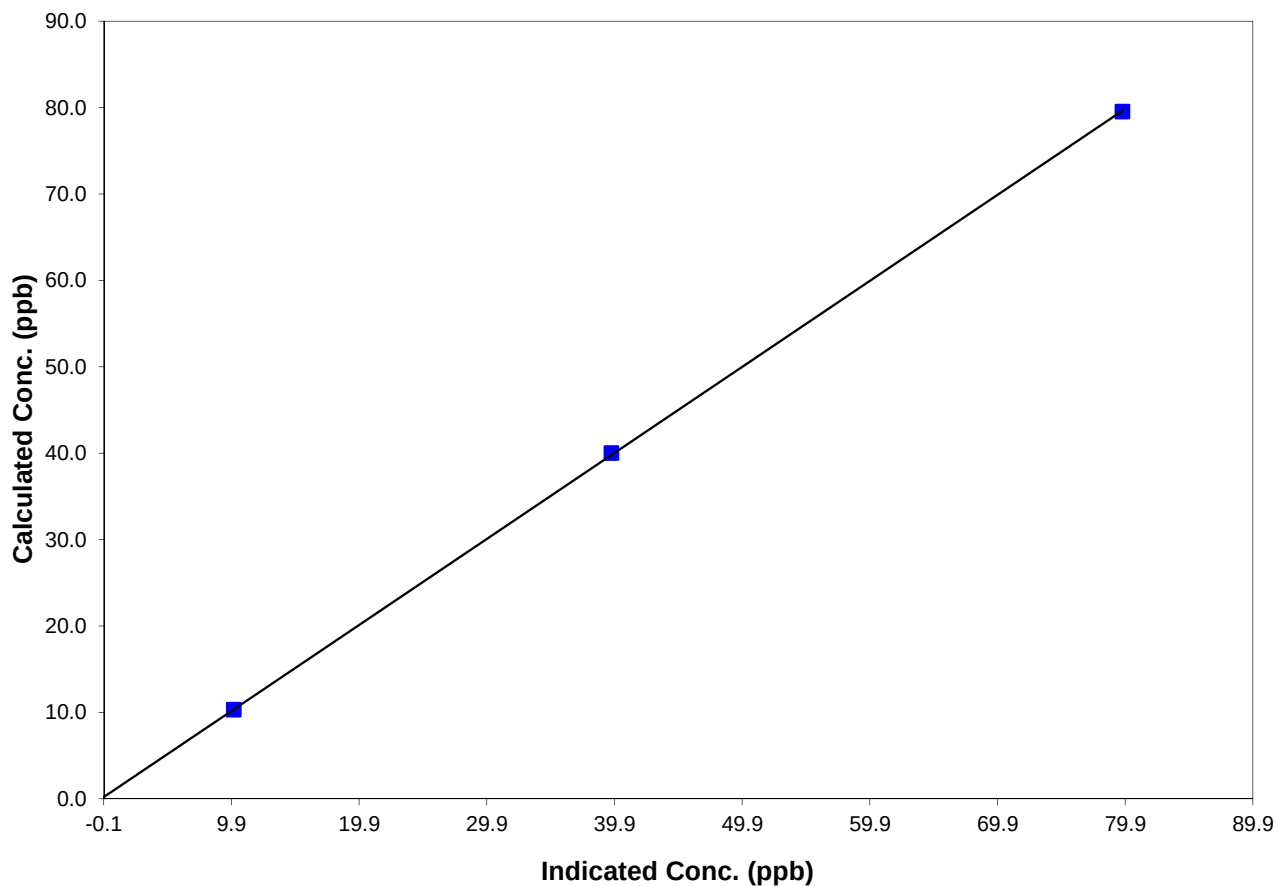
### Station Information

|                     |                |                      |                |
|---------------------|----------------|----------------------|----------------|
| Calibration Date    | April 26, 2011 | Previous Calibration | March 29, 2011 |
| Station Number      | 9              | Station Location     | Rover-Bonanza  |
| Start Time (MST)    | 13:05          | End Time (MST)       | 15:16          |
| Analyzer make/model | TEI 43C        | Analyzer serial #    | 609716238      |

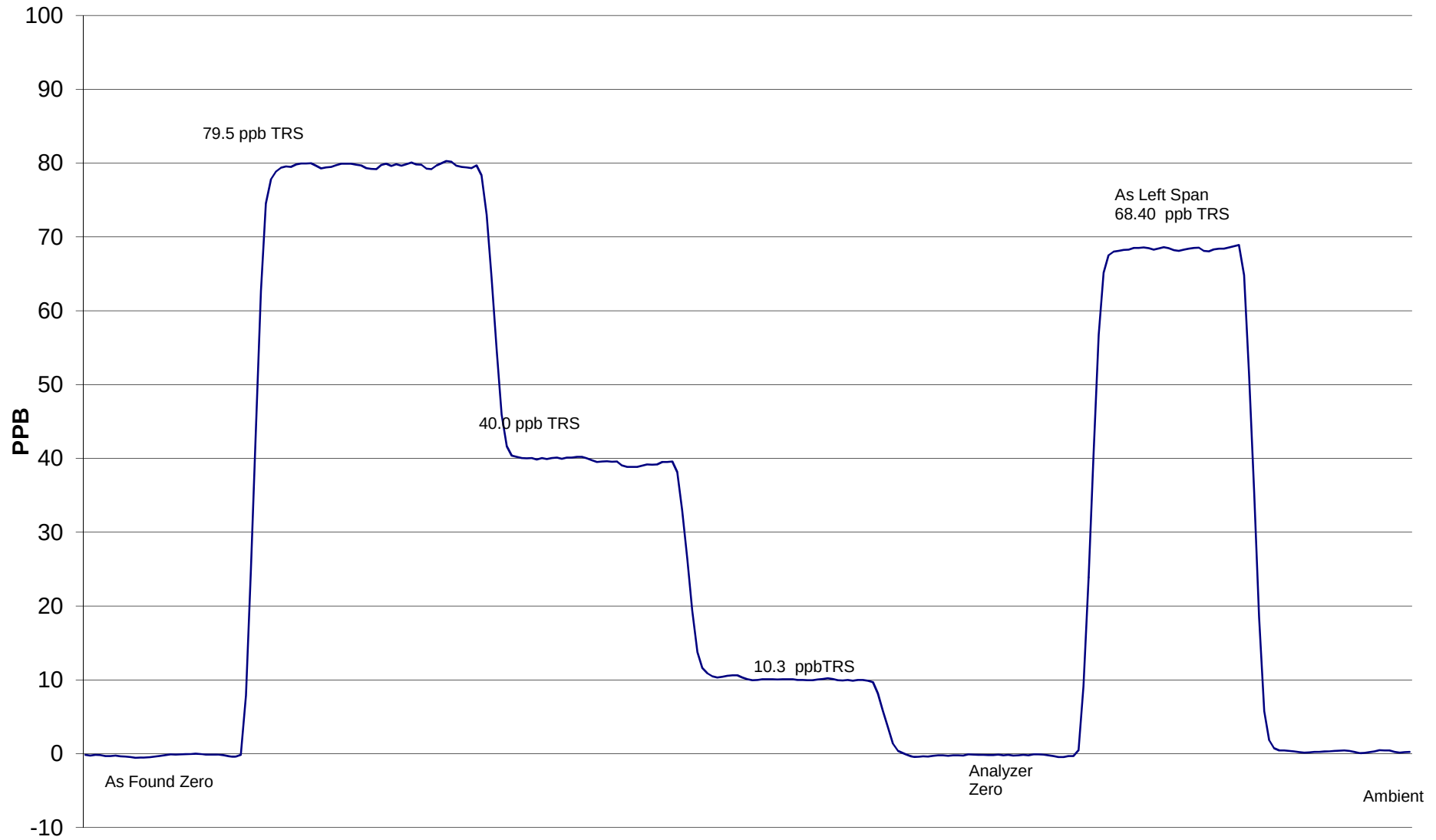
### Calibration Data

| Calculated concentration (ppb) (Cc) | Indicated concentration (ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | -0.2                               | N/A                       | Correlation Coefficient | 0.999983 |
| 79.5                                | 79.7                               | 0.9983                    |                         |          |
| 40.0                                | 39.7                               | 1.0090                    |                         |          |
| 10.3                                | 10.1                               | 1.0234                    | Slope                   | 0.995562 |
|                                     |                                    |                           | Intercept               | 0.319001 |
|                                     |                                    |                           |                         |          |
|                                     |                                    |                           |                         |          |

### TRS Calibration Curve



## Bonanza TRS Calibration



April 26, 2011

# Calibration Report

Parameter

NO<sub>x</sub>-NO-NO<sub>2</sub>

Air Monitoring Network

PASZA



## Station Information

|                     |                                             |                                       |                                  |
|---------------------|---------------------------------------------|---------------------------------------|----------------------------------|
| Calibration Date    | April 26, 2011                              | Previous Calibration                  | March 29, 2011                   |
| Station Number      | 9                                           | Station Location                      | Rover-Bonanza                    |
| Reason:             | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Installation | <input type="checkbox"/> Removal |
| Start Time (MST)    | 7:50                                        | End Time (MST)                        | 12:06                            |
| Barometric Pressure | 0.927                                       | Station Temperature                   | 20.0                             |
| Calibrator          | EnviroNics                                  | Serial Number                         | 3474                             |
| NO Cal Gas Conc     | 51.4                                        | Cal Gas Expiry Date                   | April 6th, 2012                  |
| NOx Cal Gas Conc    | 51.4                                        | Cal Gas Serial #                      | SGAL 3245                        |

## DACS Information

DACS make CR3000 DACS serial No. 5407

| Parameter     |             | NO2       | NOx       | NO        |
|---------------|-------------|-----------|-----------|-----------|
| Before        | Data Slope  | 0.999392  | 1.001567  | 1.006706  |
|               | Data Offset | -0.567552 | -3.368570 | -3.510755 |
| After         | Data Slope  | 0.999137  | 1.000094  | 1.003935  |
|               | Data Offset | 0.035438  | -3.113156 | -3.239469 |
| Channel #     |             | 5         | 3         | 4         |
| Voltage Range |             | 0 - 5 VDC | 0 - 5 VDC | 0 - 5 VDC |

## Analyzer Information

Analyzer make/model TEI 42i Analyzer serial # 0701120011

| Test Point          | before  |       | after   |       |
|---------------------|---------|-------|---------|-------|
| Concentration range | 0 - 500 | ppb   | 0 - 500 | ppb   |
| NO offset           | 4.1     | mV    | 4.2     | mV    |
| NOx bkgnd           | 4.2     | mV    | 4.2     | mV    |
| NO coefficient      | 1.091   |       | 1.108   |       |
| NOx coefficient     | 0.999   |       | 1.000   |       |
| NO2 conv temp       | 323.9   | Deg C | 325.3   | Deg C |
| PMT Temp            | -2.6    | Deg C | -2.6    | Deg C |
| PMT Volt            | -773.3  | mV    | -773.3  | mV    |
| R Cell Press        | 149.4   | in Hg | 152.1   | in Hg |
| Sample Flow         | 0.907   | ccm   | 0.902   | ccm   |

# Calibration Report

Parameter **NOX-NO-NO2**  
Air Monitoring Network **PASZA**



## Station Information

Calibration Date: April 26, 2011 Station Location: Rover-Bonanza

## Calibration Data

|                           | Dilution flow rate (ccm) | Source gas flow rate (ccm) | Calculated NOx conc (ppb) | Calculated NO conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor |
|---------------------------|--------------------------|----------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|
| zero                      | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | 0.7                      | 0.7                     | 0.2                      | N/A                   | N/A                  |
| 1                         | 4989                     | 39.83                      | 407.1                     | 407.1                    | 0.0                       | 408.9                    | 407.4                   | 0.2                      | 0.9956                | 0.9993               |
| 2                         | 4989                     | 19.90                      | 204.2                     | 204.2                    | 0.0                       | 208.6                    | 207.9                   | 0.0                      | 0.9788                | 0.9822               |
| 3                         | 4989                     | 9.93                       | 102.1                     | 102.1                    | 0.0                       | 107.5                    | 107.5                   | 0.1                      | 0.9494                | 0.9498               |
| AFZ                       | 4989                     | 0.00                       | 0.0                       | 0.0                      | 0.0                       | 0.7                      | 0.7                     | 0.2                      | 0.0000                | 0.0000               |
| AFS                       | 4989                     | 39.83                      | 407.1                     | 407.1                    | 0.8                       | 408.9                    | 407.4                   | 0.2                      | 0.9956                | 0.9993               |
| Average Correction Factor |                          |                            |                           |                          |                           |                          |                         |                          | 0.9746                | 0.9771               |

As Found Concentrations: NO<sub>x</sub>= 404.8 NO= 403.2 As Found Percent Change NO<sub>x</sub>= -0.6% NO= -1.0%

## GPT Calibration Data

Dilution Flow 4989 ccm Source Gas Flow 39.84 ccm

| O3 Setpoint (ppb)         | Indicated NO high point (ppb) | Indicated NO drop conc (ppb) | Calculated NO2 conc (ppb) | Indicated NOx conc (ppb) | Indicated NO conc (ppb) | Indicated NO2 conc (ppb) | NOx Correction factor | NO Correction factor | NO2 Correction factor | Converter Efficiency |
|---------------------------|-------------------------------|------------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-----------------------|----------------------|-----------------------|----------------------|
| 0                         | 0.7                           | 0.7                          | 0.0                       | 0.7                      | 0.7                     | 0.2                      | N/A                   | N/A                  | N/A                   | N/A                  |
| NO point                  | 407.8                         | 407.8                        | 0.0                       | 409.2                    | 407.8                   | 0.2                      | 0.9965                | 1.0000               | N/A                   | N/A                  |
| 300                       | 407.8                         | 151.3                        | 256.4                     | 409.6                    | 151.3                   | 257.0                    | 0.9955                | 1.0000               | 0.9979                | 100.2%               |
| 200                       | 407.8                         | 231.5                        | 176.3                     | 409.2                    | 231.5                   | 176.0                    | 0.9964                | 1.0000               | 1.0015                | 99.9%                |
| 100                       | 407.8                         | 310.7                        | 97.1                      | 408.9                    | 310.7                   | 96.9                     | 0.9972                | 1.0000               | 1.0020                | 99.8%                |
| Average Correction Factor |                               |                              |                           |                          |                         |                          | 0.9963                | 1.0000               | 1.0005                | 100.0%               |

## AIC Data

|           | Previous calibration |       |      |     | Current calibration |       |     |     |
|-----------|----------------------|-------|------|-----|---------------------|-------|-----|-----|
| Parameter | NOx                  | NO2   | NO   |     | NOx                 | NO2   | NO  |     |
| Auto zero | -0.2                 | -0.3  | -0.2 | ppb | 0.9                 | 0.2   | 0.8 | ppb |
| Auto span | 200.0                | 197.1 | 1.6  | ppb | 200.7               | 197.9 | 2.0 | ppb |

Calibration Performed By: Grover Christiansen



## Calibration Summary

Parameter NO<sub>2</sub>

Air Monitoring Network PASZA



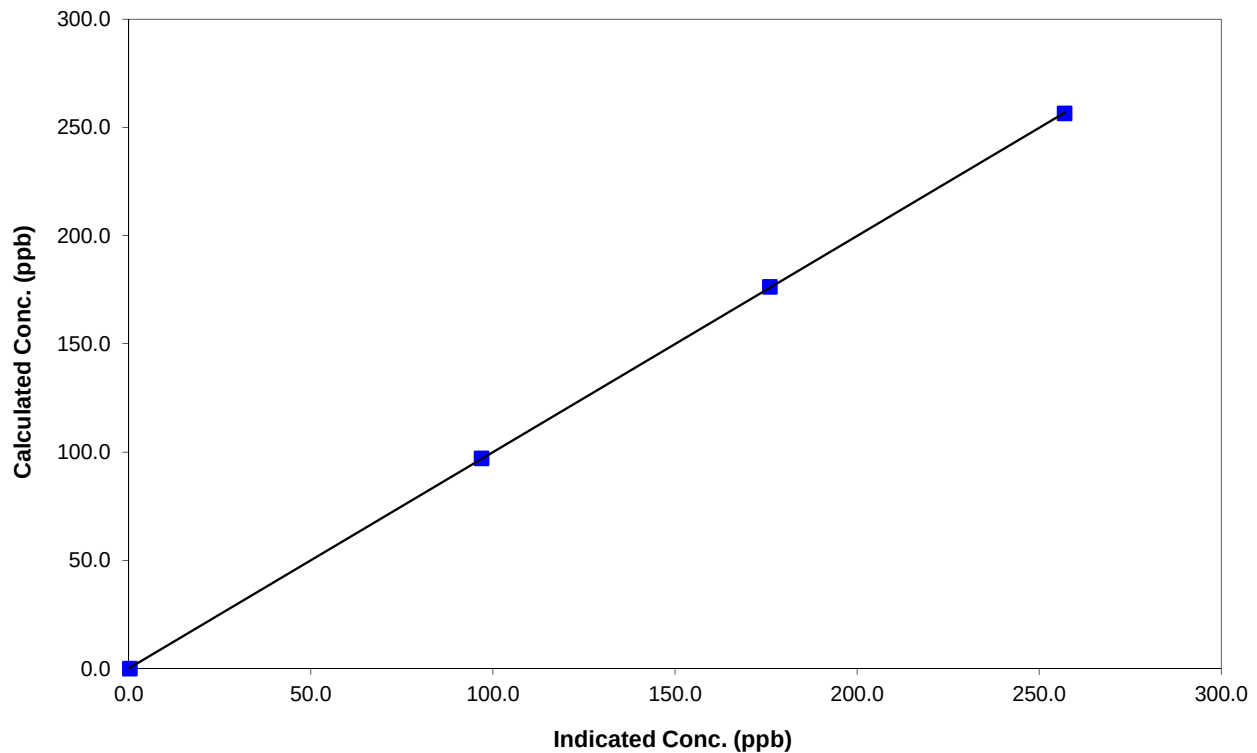
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 26, 2011 | Previous Calibration | March 29, 2011 |
| Station Number   | 9              | Station Location     | Rover-Bonanza  |
| Start Time (MST) | 7:50           | End Time (MST)       | 12:06          |
| Analyzer make    | TEI 42i        | Analyzer serial #    | 0701120011     |

### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|----------|
| 0.0                           | 0.2                                   | N/A                       | Correlation Coefficient | 0.999989 |
| 256.4                         | 257.0                                 | 0.9979                    |                         |          |
| 176.3                         | 176.0                                 | 1.0015                    |                         |          |
| 97.1                          | 96.9                                  | 1.0020                    | Slope                   | 0.999137 |
|                               |                                       |                           | Intercept               | 0.035438 |
|                               |                                       |                           |                         |          |
|                               |                                       |                           |                         |          |

### NO<sub>2</sub> Calibration Curve



## Calibration Summary

Parameter NO<sub>x</sub>

Air Monitoring Network PASZA



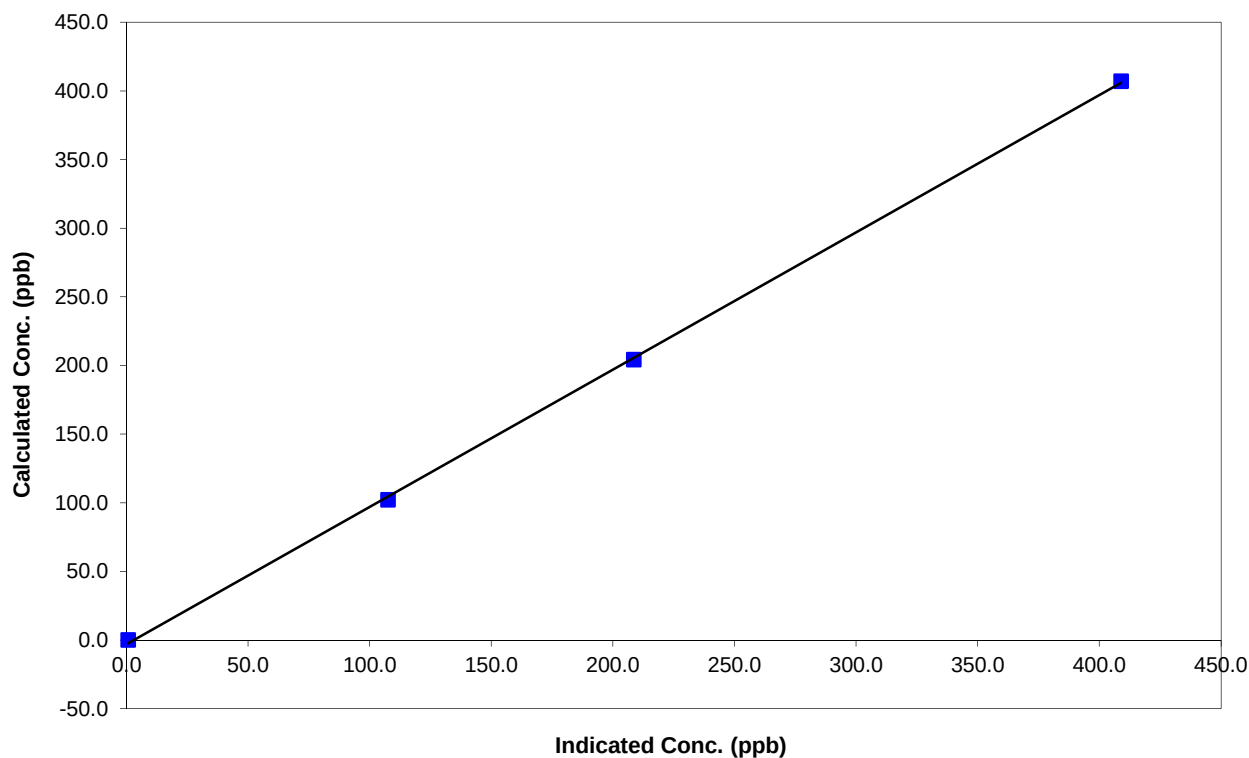
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 26, 2011 | Previous Calibration | March 29, 2011 |
| Station Number   | 9              | Station Location     | Rover-Bonanza  |
| Start Time (MST) | 7:50           | End Time (MST)       | 12:06          |
| Analyzer make    | TEI 42i        | Analyzer serial #    | 0701120011     |

### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                           | 0.7                                   | N/A                       | Correlation Coefficient | 0.999839  |
| 407.1                         | 408.9                                 | 0.9956                    |                         |           |
| 204.2                         | 208.6                                 | 0.9788                    |                         |           |
| 102.1                         | 107.5                                 | 0.9494                    | Slope                   | 1.000094  |
|                               |                                       |                           |                         |           |
|                               |                                       |                           |                         |           |
|                               |                                       |                           | Intercept               | -3.113156 |
|                               |                                       |                           |                         |           |

### NO<sub>x</sub> Calibration Curve



## Calibration Summary

Parameter NO

Air Monitoring Network PASZA



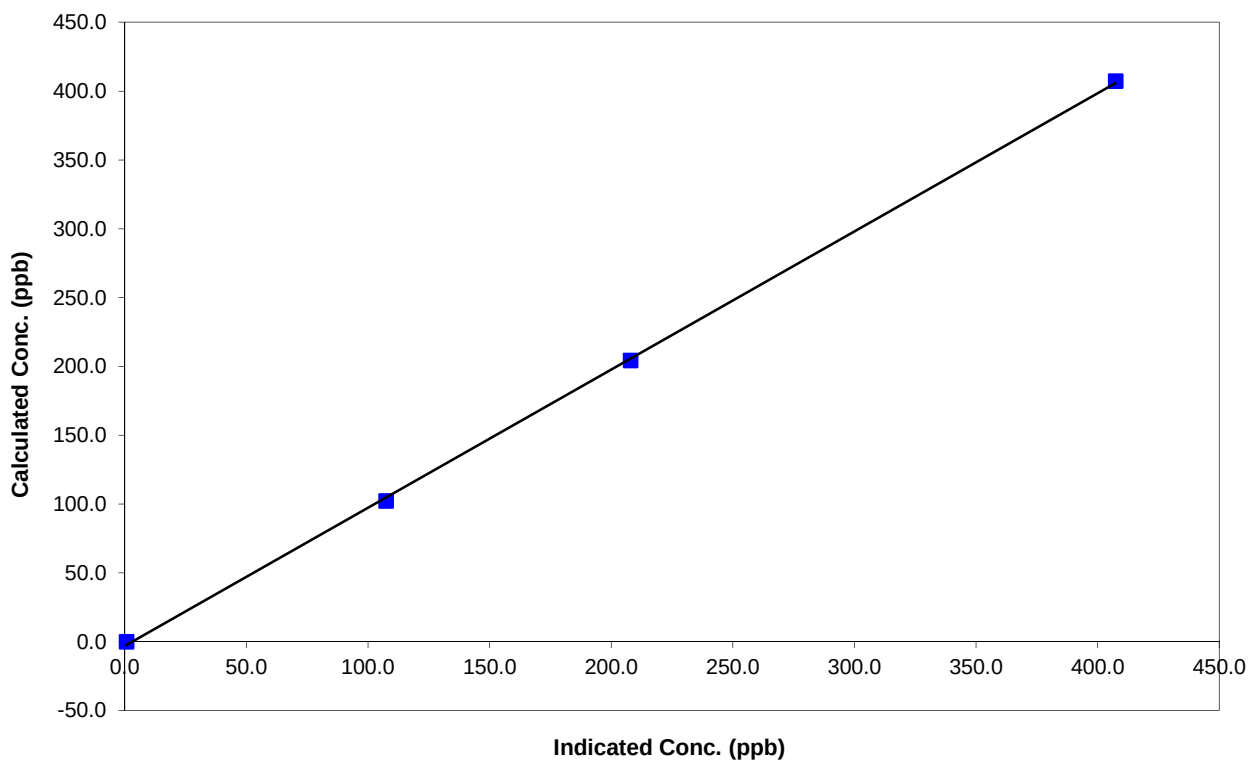
### Station Information

|                  |                |                      |                |
|------------------|----------------|----------------------|----------------|
| Calibration Date | April 26, 2011 | Previous Calibration | March 29, 2011 |
| Station Number   | 9              | Station Location     | Rover-Bonanza  |
| Start Time (MST) | 7:50           | End Time (MST)       | 12:06          |
| Analyzer make    | TEI 42i        | Analyzer serial #    | 0701120011     |

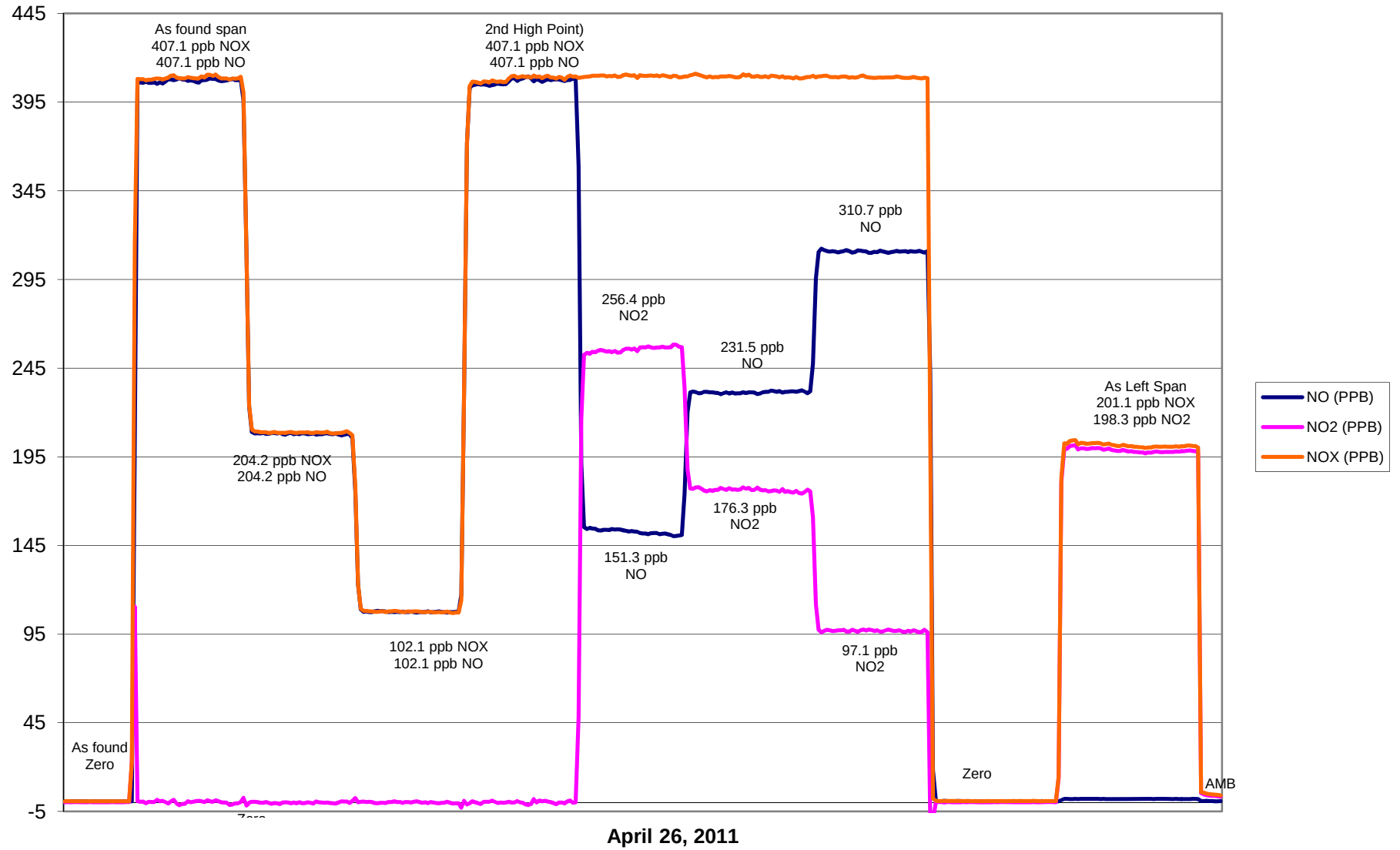
### Calibration Data

| Calculated conc (ppb)<br>(Cc) | Indicated concentration<br>(ppb) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |           |
|-------------------------------|---------------------------------------|---------------------------|-------------------------|-----------|
| 0.0                           | 0.7                                   | N/A                       | Correlation Coefficient | 0.999817  |
| 407.1                         | 407.4                                 | 0.9993                    |                         |           |
| 204.2                         | 207.9                                 | 0.9822                    |                         |           |
| 102.1                         | 107.5                                 | 0.9498                    | Slope                   | 1.003935  |
|                               |                                       |                           |                         |           |
|                               |                                       |                           | Intercept               | -3.239469 |
|                               |                                       |                           |                         |           |

### NO Calibration Curve



## Bonanza NO<sub>x</sub> Calibration



# Calibration Report



Parameter 03

Air Monitoring Network PASZA

## Station Information

|                  |                                             |                                  |                                                                         |
|------------------|---------------------------------------------|----------------------------------|-------------------------------------------------------------------------|
| Calibration Date | April 26, 2011                              | Previous Calibration             | March 29, 2011                                                          |
| Station Number   | 9                                           | Station Location                 | Rover - Bonanza                                                         |
| Reason:          | <input checked="" type="checkbox"/> Routine | <input type="checkbox"/> Install | <input type="checkbox"/> Removal remove <input type="checkbox"/> Other: |

|                     |                 |                     |            |
|---------------------|-----------------|---------------------|------------|
| Start Time (MST)    | 10:31           | End Time (MST)      | 13:37      |
| Barometric Pressure | 0.927 atm       | Station Temperature | 15.7 Deg C |
| Calibrator          | EnviroNics 6100 | Serial Number       | 3474       |

|                    |               |                 |              |
|--------------------|---------------|-----------------|--------------|
| DACS make          | CR3000        | DACS serial No. | 5407         |
| DACS voltage range | 0 - 5 Volts   | DACS channel #  | 6            |
|                    | <u>Before</u> |                 | <u>After</u> |

|                      |          |                      |          |
|----------------------|----------|----------------------|----------|
| Calculated slope     | 0.993045 | Calculated slope     | 0.997033 |
| Calculated intercept | 0.002736 | Calculated intercept | 0.721428 |

|               |               |                   |               |
|---------------|---------------|-------------------|---------------|
| Analyzer make | TEI Model 49C | Analyzer serial # | 49C-71577-369 |
|---------------|---------------|-------------------|---------------|

|                     | before |       | after  |       |
|---------------------|--------|-------|--------|-------|
| Concentration range | 0-500  | ppb   | 0-500  | ppb   |
| Offset              | 0.3    | ppb   | 0.3    | ppb   |
| Span                | 1.005  |       | 1.019  |       |
| Cell A intensity    | 83125  | Hz    | 83814  | Hz    |
| Cell B intensity    | 86895  | Hz    | 86731  | Hz    |
| Pressure            | 700.60 | in Hg | 680.60 | in Hg |
| Cell A Flow         | 0.784  | ccm   | 0.775  | ccm   |
| Cell B Flow         | 0.690  | cmm   | 0.683  | cmm   |

## Calibration Data

| Dilution air flow rate (cc/min) | Source gas flow rate (cc/min) | Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) |
|---------------------------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------|
| 4990                            | 0.00                          | 0.0                                 | 0.2                                | N/A                       |
| 4989                            | 0.30                          | 256.4                               | 257.3                              | 0.9965                    |
| 4989                            | 0.20                          | 176.3                               | 175.5                              | 1.0045                    |
| 4989                            | 0.10                          | 97.1                                | 95.5                               | 1.0173                    |
|                                 |                               |                                     |                                    |                           |
| 4989                            | 0.00                          | 0.0                                 | 0.2                                | As found zero             |
| 4989                            | 0.30                          | 256.4                               | 250.5                              | As found span             |
| Average Correction Factor       |                               |                                     |                                    | 1.0061                    |

Calculated value of As Found Response: 248.5 ppm Percent Change of As Found: -3.1%

|           | before calibration |     | after calibration |     |
|-----------|--------------------|-----|-------------------|-----|
| Auto zero | 0.6                | ppb | 0.8               | ppb |
| Auto span | 137.7              | ppb | 139.6             | ppb |

Notes: Last cal point interrupted by daily span sequence.

Calibration Performed By: Grover Christiansen

## Calibration Summary

Parameter           O3          

Air Monitoring Network                   PASZA                  



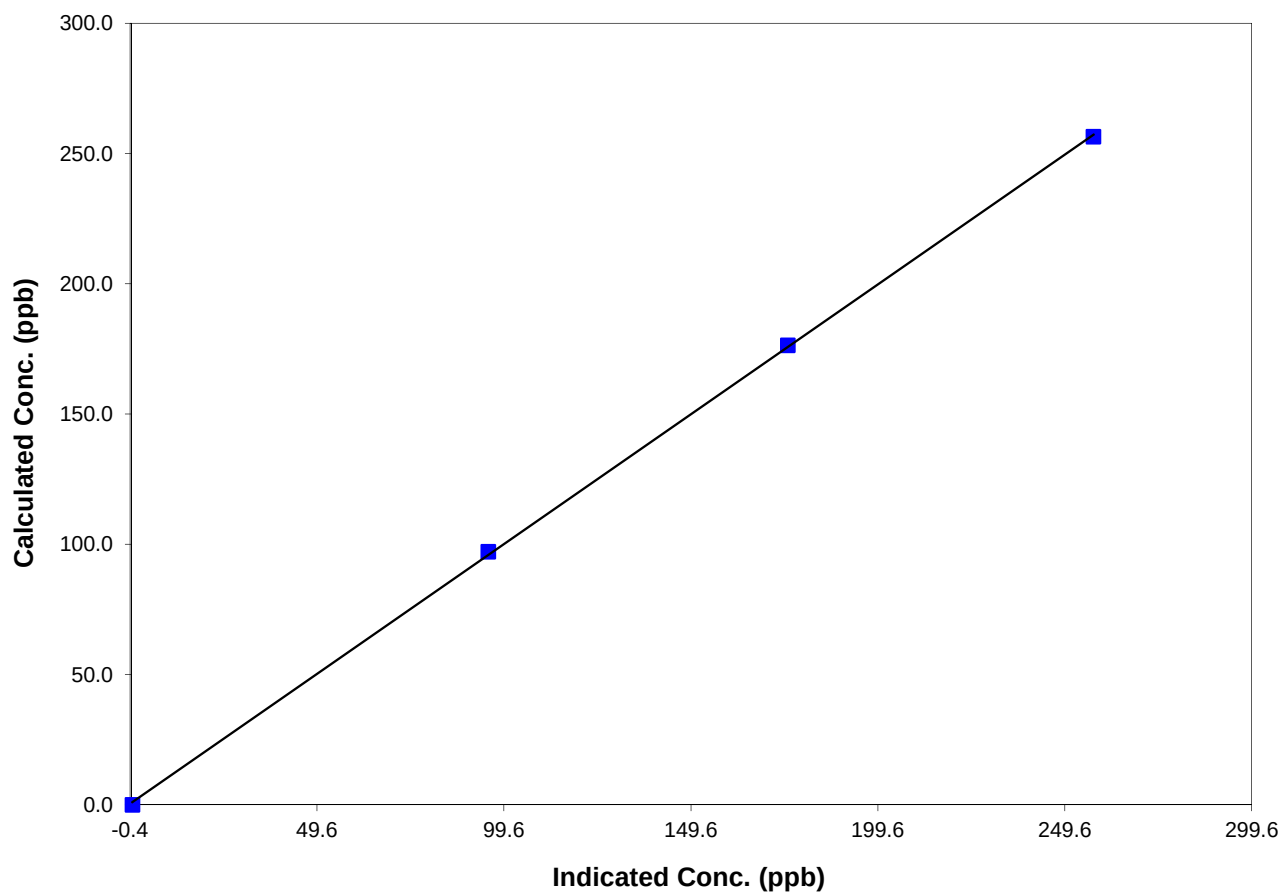
### Station Information

|                     |                |                      |                 |
|---------------------|----------------|----------------------|-----------------|
| Calibration Date    | April 26, 2011 | Previous Calibration | March 29, 2011  |
| Station Number      | 9              | Station Location     | Rover - Bonanza |
| Start Time (MST)    | 10:31          | End Time (MST)       | 13:37           |
| Analyzer make/model | TEI Model 49C  | Analyzer serial #    | 49C-71577-369   |

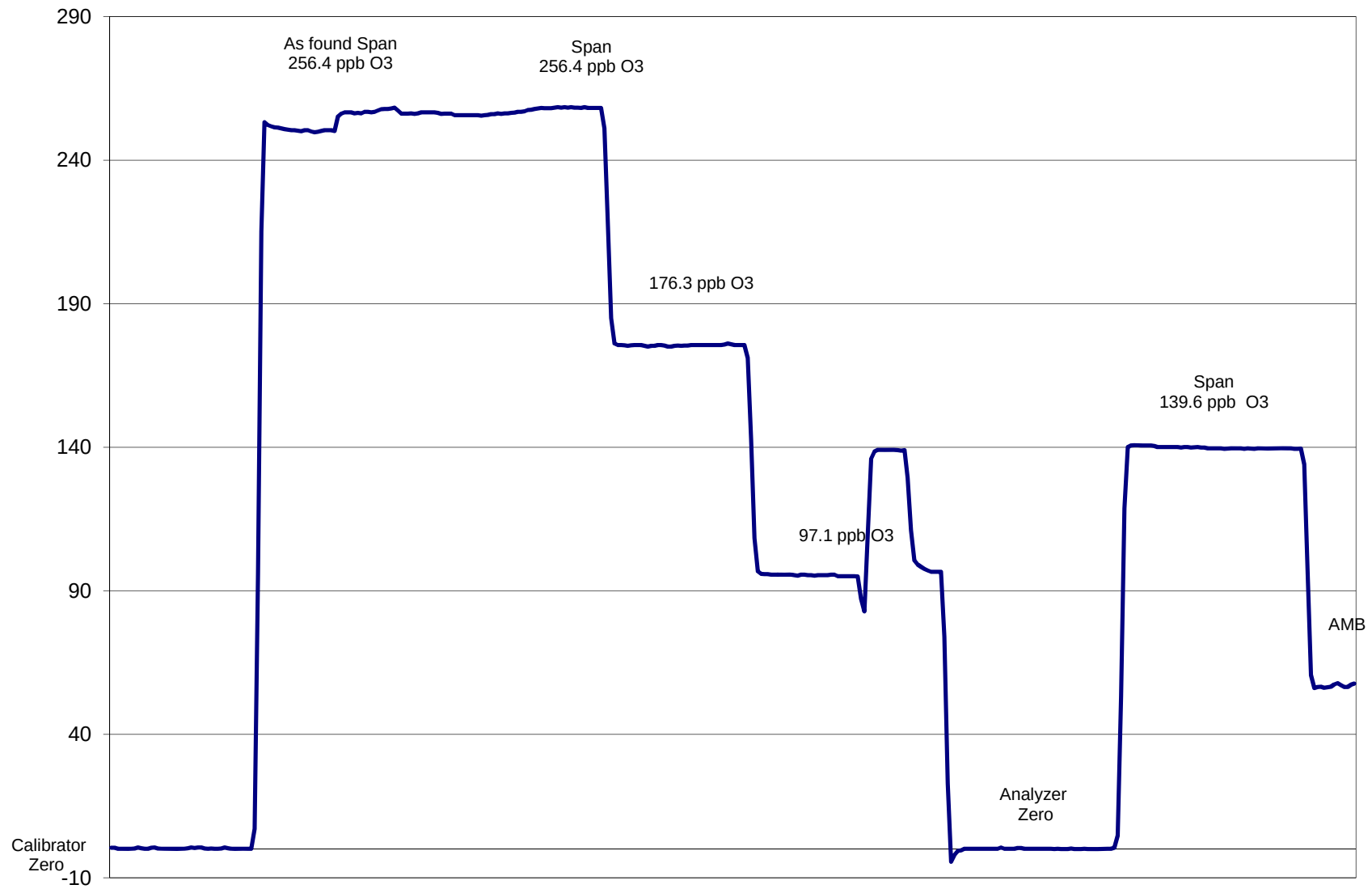
### Calibration Data

| Calculated concentration (ppm) (Cc) | Indicated concentration (ppm) (Ic) | Correction factor (Cc/Ic) | Statistical Evaluation  |          |
|-------------------------------------|------------------------------------|---------------------------|-------------------------|----------|
| 0.0                                 | 0.2                                | NA                        | Correlation Coefficient | 0.999904 |
| 256.4                               | 257.3                              | 0.9965                    |                         |          |
| 176.3                               | 175.5                              | 1.0045                    |                         |          |
| 97.1                                | 95.5                               | 1.0173                    | Slope                   | 0.997033 |
|                                     |                                    |                           | Intercept               | 0.721428 |
|                                     |                                    |                           |                         |          |

### O3 Calibration Curve



## Bonanza O<sub>3</sub> Calibration



April 26, 2011