



Peace Airshed Zone Association
Ambient Air Quality Monitoring Program
Annual Report
2019

Contents

Table of Contents.....	2
List of Acronyms.....	3
Cover Letter.....	4
Listing of Stations.....	5
AAAQO Exceedance Reports.....	6
Monitoring Uptime Notes.....	11
Changes to Monitoring in 2019.....	11
Deviations From Standard Monitoring Methods.....	11
Changes Made After Monthly Reports Submitted.....	12
Data Deletions or Resubmissions to AAAQDW.....	12
Deviations From Standard Monitoring Methods.....	12
Missed Calibrations.....	12
Certification.....	12
Location of Air Monitoring Stations.....	13
2019 Summary Tables, 5 Year Annual Average Charts and Wind Roses	
Beaverlodge.....	14
Evergreen Park.....	32
Henry Pirker.....	45
Smoky Heights.....	72
Valleyview.....	84
Donnelly.....	96
Portable-Wembley.....	106
Passive Summary.....	115
End of Report.....	121

List of Acronyms

AAAQDW	Alberta Ambient Air Quality Data Warehouse
AAAQO	Alberta Ambient Air Quality Objective and Guideline
AEP	Alberta Environment and Parks
CH ₄	Methane
CO	Carbon monoxide
ET	Ambient temperature
H ₂ S	Hydrogen sulfide
NMHC	Non-methane hydrocarbons
NO	Nitric oxide
NO ₂	Nitrogen dioxide
NO _x	Total oxides of nitrogen
O ₃	Ozone
PM _{2.5}	Fine particulate matter
ppb	Parts per billion
ppm	Parts per million
RH	Relative humidity
SR	Solar Radiation
SO ₂	Sulphur dioxide
THC	Total hydrocarbons
TRS	Total Reduced Sulfur
µg/m ³	Micrograms per cubic meter



March 31, 2020

Alberta Environment and Parks
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, Alberta
T5K 2J6

**RE: 2019 Annual Ambient Air Quality Monitoring Report
Peace Airshed Zone Association**

Enclosed is the 2019 Annual Ambient Air Quality Monitoring Report for the continuous and passive ambient air quality monitoring stations of the Peace Airshed Zone Association (PAZA) regional air quality monitoring network, as operated in the year 2019.

The representative of the Person Responsible for this monitoring program is:

Mandeep Dhaliwal, Air Quality Program Manager
Box 21135
Grande Prairie, Alberta
T8V 6W7
Phone: 403-608-9697
Email: Mandeep@PAZA.ca

This report was prepared by Patrick Andersen of Andersen Science Consulting and reviewed and submitted by Mandeep Dhaliwal.

In 2019, PAZA retained the services of: WSP for the operation and maintenance of the continuous monitoring station; Dawn Ewan for the operation and maintenance of the passive monitoring sites; Andersen Science Consulting for the data validation and reporting for the continuous and passive monitoring stations.

The PAZA network operated continuous monitoring at a total of 7 sites in 2019 – Beaverlodge, Donnelly, Evergreen Park, Henry Pirker, Smoky Heights, Valleyview, and Portable-Wembley. Data in this report includes all sites monitored in 2019. The passive monitoring network operated at 32 sites in 2019.

The continuous air monitoring stations measured the following parameters in 2019:

Parameter:	Station(s):
Sulphur Dioxide (SO₂)	All
Nitrogen Dioxide (NO₂ , NO, NO _x)	Beaverlodge, Henry Pirker, Portable-Wembley
Ozone (O₃)	Beaverlodge, Henry Pirker, Portable-Wembley
Carbon Monoxide (CO)	Henry Pirker
Total Hydrocarbons (THC)	Henry Pirker, Portable-Wembley
Methane (CH₄)	Henry Pirker, Portable-Wembley
Non-Methane Hydrocarbon (NMHC)	Henry Pirker, Portable-Wembley
Total Reduced Sulfur (TRS)	Evergreen Park, Smoky Heights, Portable-Wembley
Hydrogen Sulfide (H₂S)	Donnelly, Henry Pirker, Valleyview
Particulate Matter (PM_{2.5})	Beaverlodge, Evergreen Park, Henry Pirker, Smoky Heights, Portable-Wembley
Wind Speed & Wind Direction (WS & WD)	All
Relative Humidity (RH)	Beaverlodge, Evergreen Park, Henry Pirker, Valleyview
Solar Radiation (SR)	Henry Pirker
Temperature (Temp)	All

AAAQO Exceedances Report:

There were 3 1-hour exceedances of the AAAQO for H₂S. The 1-hour AAAQO is 10 ppb.

There was 1 1-hour exceedance of the AAAQO for O₃ (82 ppb) recorded in 2019. The 1-hour AAAQO changed from 82 ppb to 76 ppb in April 2019.

There were 166 1-hour and 18 24-hour exceedances of the AAAQO for PM_{2.5}. The 1-hour AAAQO is 80 µg/m³ and the 24-hour AAAQO is 29 µg/m³.

Station Name	Date	Start Time	End Time	1-Hour H ₂ S Concentration	Reference Number
		(MST)	(MST)	(ppb)	
Henry Pirker	05-Feb-19	06:00	07:00	13.7	249243
Henry Pirker	05-Feb-19	07:00	08:00	11.7	249243
Valleyview	14-Feb-19	11:00	12:00	10.6	350583

Station Name	Date	Start Time	End Time	1-Hour O ₃ Concentration	Reference Number
		(MST)	(MST)	(ppb)	
Henry Pirker	31-May-19	13:00	14:00	88.0	354129

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Reference Number
		(MST)	(MST)	(µg/m ³)	
Smoky Heights	04-Jan-19	22:00	23:00	95.0	348103
Smoky Heights	01-Feb-19	16:00	17:00	126.3	349083
Smoky Heights	12-Feb-19	05:00	06:00	96.3	349437
Henry Pirker	14-Feb-19	22:00	23:00	85.7	349527
Henry Pirker	27-Feb-19	22:00	23:00	137.8	349936
Smoky Heights	23-Mar-19	11:00	12:00	100.5	351030
Smoky Heights	23-May-19	08:00	09:00	120.9	353573
Smoky Heights	23-May-19	09:00	10:00	85.6	353573
Smoky Heights	23-May-19	11:00	12:00	81.3	353573
Henry Pirker	23-May-19	12:00	13:00	92.7	353597
Smoky Heights	23-May-19	13:00	14:00	105.9	353573
Smoky Heights	28-May-19	21:00	22:00	115.4	353846
Smoky Heights	29-May-19	20:00	21:00	97.6	353933
Smoky Heights	29-May-19	22:00	23:00	81.0	353933
Smoky Heights	30-May-19	00:00	01:00	92.9	353956
Henry Pirker	30-May-19	04:00	05:00	97.9	353966
Smoky Heights	30-May-19	04:00	05:00	87.7	353956
Henry Pirker	30-May-19	05:00	06:00	128.6	353966
Smoky Heights	30-May-19	06:00	07:00	135.6	353956

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Reference Number
Portable-Wembley	30-May-19	05:00	06:00	128.1	353968
Henry Pirker	30-May-19	06:00	07:00	156.4	353966
Smoky Heights	30-May-19	07:00	08:00	165.0	353956
Evergreen Park	30-May-19	06:00	07:00	81.1	353987
Portable-Wembley	30-May-19	07:00	08:00	116.0	353968
Henry Pirker	30-May-19	08:00	09:00	206.5	353966
Smoky Heights	30-May-19	09:00	10:00	344.9	353956
Evergreen Park	30-May-19	10:00	11:00	125.3	353987
Portable-Wembley	30-May-19	11:00	12:00	83.1	353968
Henry Pirker	30-May-19	12:00	13:00	125.9	353966
Smoky Heights	30-May-19	13:00	14:00	286.6	353956
Evergreen Park	30-May-19	14:00	15:00	104.3	353987
Portable-Wembley	30-May-19	15:00	16:00	86.6	353968
Henry Pirker	30-May-19	16:00	17:00	148.4	353966
Smoky Heights	30-May-19	17:00	18:00	478.5	353956
Evergreen Park	30-May-19	18:00	19:00	114.4	353987
Henry Pirker	30-May-19	19:00	20:00	90.7	353966
Smoky Heights	30-May-19	20:00	21:00	670.0	353956
Evergreen Park	30-May-19	21:00	22:00	118.5	353987
Henry Pirker	30-May-19	22:00	23:00	134.6	353966
Smoky Heights	30-May-19	23:00	00:00	968.1	353956
Evergreen Park	30-May-19	00:00	01:00	196.7	353987
Henry Pirker	30-May-19	01:00	02:00	406.2	353966
Smoky Heights	30-May-19	02:00	03:00	936.0	353956
Evergreen Park	30-May-19	03:00	04:00	267.9	353987
Henry Pirker	30-May-19	04:00	05:00	435.9	353966
Portable-Wembley	30-May-19	13:00	14:00	208.6	353968
Smoky Heights	30-May-19	14:00	15:00	439.5	353956
Evergreen Park	30-May-19	15:00	16:00	364.1	353987
Henry Pirker	30-May-19	16:00	17:00	448.0	353966
Portable-Wembley	30-May-19	17:00	18:00	308.3	353968
Smoky Heights	30-May-19	18:00	19:00	305.0	353956
Evergreen Park	30-May-19	19:00	20:00	404.4	353987
Henry Pirker	30-May-19	20:00	21:00	278.9	353966
Portable-Wembley	30-May-19	21:00	22:00	406.5	353968
Smoky Heights	30-May-19	22:00	23:00	132.5	353956
Beaverlodge	30-May-19	15:00	16:00	442.7	354021
Evergreen Park	30-May-19	16:00	17:00	256.0	353987
Henry Pirker	30-May-19	17:00	18:00	247.3	353966

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Reference Number
Portable-Wembley	30-May-19	18:00	19:00	282.5	353968
Beaverlodge	30-May-19	19:00	20:00	306.6	354021
Evergreen Park	30-May-19	20:00	21:00	177.6	353987
Henry Pirker	30-May-19	21:00	22:00	116.2	353966
Portable-Wembley	30-May-19	22:00	23:00	188.7	353968
Beaverlodge	30-May-19	23:00	00:00	195.7	354021
Evergreen Park	30-May-19	00:00	01:00	88.7	353987
Portable-Wembley	30-May-19	01:00	02:00	105.3	353968
Beaverlodge	30-May-19	02:00	03:00	142.3	354021
Portable-Wembley	30-May-19	03:00	04:00	84.8	353968
Evergreen Park	30-May-19	19:00	20:00	102.6	353987
Henry Pirker	30-May-19	19:00	20:00	176.3	353966
Smoky Heights	30-May-19	19:00	20:00	218.4	353956
Portable-Wembley	30-May-19	20:00	21:00	124.3	353968
Evergreen Park	30-May-19	21:00	22:00	177.9	353987
Henry Pirker	30-May-19	22:00	23:00	272.2	353966
Smoky Heights	30-May-19	23:00	00:00	433.1	353956
Beaverlodge	30-May-19	20:00	21:00	136.3	354021
Portable-Wembley	30-May-19	21:00	22:00	205.3	353968
Evergreen Park	30-May-19	22:00	23:00	249.1	353987
Henry Pirker	30-May-19	23:00	00:00	384.9	353966
Smoky Heights	30-May-19	00:00	01:00	416.3	353956
Beaverlodge	30-May-19	01:00	02:00	245.9	354021
Portable-Wembley	30-May-19	02:00	03:00	284.9	353968
Evergreen Park	30-May-19	03:00	04:00	293.1	353987
Henry Pirker	30-May-19	04:00	05:00	427.2	353966
Smoky Heights	30-May-19	05:00	06:00	422.3	353956
Beaverlodge	30-May-19	06:00	07:00	412.8	354021
Portable-Wembley	30-May-19	07:00	08:00	339.5	353968
Evergreen Park	30-May-19	08:00	09:00	277.7	353987
Henry Pirker	30-May-19	09:00	10:00	441.4	353966
Smoky Heights	30-May-19	10:00	11:00	421.5	353956
Beaverlodge	30-May-19	11:00	12:00	468.5	354021
Portable-Wembley	31-May-19	14:00	15:00	110.8	354039
Evergreen Park	31-May-19	15:00	16:00	103.6	354042
Portable-Wembley	31-May-19	16:00	17:00	352.6	354039
Evergreen Park	31-May-19	17:00	18:00	280.2	354042
Portable-Wembley	31-May-19	18:00	19:00	357.8	354039
Evergreen Park	31-May-19	19:00	20:00	283.9	354042

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Reference Number
Portable-Wembley	31-May-19	20:00	21:00	359.2	354039
Evergreen Park	31-May-19	21:00	22:00	303.2	354042
Portable-Wembley	31-May-19	22:00	23:00	364.1	354039
Evergreen Park	31-May-19	23:00	00:00	323.2	354042
Portable-Wembley	31-May-19	00:00	01:00	366.5	354039
Evergreen Park	31-May-19	01:00	02:00	341.1	354042
Portable-Wembley	31-May-19	02:00	03:00	370.6	354039
Evergreen Park	31-May-19	03:00	04:00	339.9	354042
Portable-Wembley	31-May-19	04:00	05:00	381.2	354039
Evergreen Park	31-May-19	05:00	06:00	345.9	354042
Portable-Wembley	31-May-19	06:00	07:00	397.3	354039
Evergreen Park	31-May-19	07:00	08:00	381.8	354042
Portable-Wembley	31-May-19	08:00	09:00	383.7	354039
Evergreen Park	31-May-19	09:00	10:00	293.7	354042
Portable-Wembley	31-May-19	10:00	11:00	325.0	354039
Henry Pirker	31-May-19	11:00	12:00	449.5	354043
Smoky Heights	31-May-19	12:00	13:00	414.7	354034
Beaverlodge	31-May-19	13:00	14:00	533.3	354038
Evergreen Park	31-May-19	14:00	15:00	287.0	354042
Portable-Wembley	31-May-19	15:00	16:00	244.4	354039
Beaverlodge	31-May-19	16:00	17:00	672.4	354038
Henry Pirker	31-May-19	17:00	18:00	450.0	354043
Smoky Heights	31-May-19	18:00	19:00	370.7	354034
Evergreen Park	31-May-19	19:00	20:00	242.6	354042
Portable-Wembley	31-May-19	20:00	21:00	218.6	354039
Beaverlodge	31-May-19	21:00	22:00	595.3	354038
Henry Pirker	31-May-19	22:00	23:00	450.0	354043
Smoky Heights	31-May-19	23:00	00:00	381.0	354034
Evergreen Park	31-May-19	00:00	01:00	238.5	354042
Portable-Wembley	31-May-19	01:00	02:00	181.6	354039
Beaverlodge	31-May-19	02:00	03:00	567.3	354038
Henry Pirker	31-May-19	03:00	04:00	450.0	354043
Smoky Heights	31-May-19	04:00	05:00	443.8	354034
Evergreen Park	31-May-19	05:00	06:00	214.2	354042
Beaverlodge	31-May-19	06:00	07:00	536.1	354038
Henry Pirker	31-May-19	07:00	08:00	450.0	354043
Smoky Heights	31-May-19	08:00	09:00	497.8	354034
Evergreen Park	31-May-19	09:00	10:00	154.8	354042
Beaverlodge	31-May-19	10:00	11:00	507.4	354038

Station Name	Date	Start Time	End Time	1-Hour PM _{2.5} Concentration	Reference Number
Henry Pirker	31-May-19	11:00	12:00	450.0	354043
Smoky Heights	31-May-19	12:00	13:00	460.7	354034
Beaverlodge	31-May-19	13:00	14:00	497.4	354038
Henry Pirker	31-May-19	14:00	15:00	450.0	354043
Smoky Heights	31-May-19	15:00	16:00	429.5	354034
Beaverlodge	31-May-19	16:00	17:00	486.8	354038
Henry Pirker	31-May-19	17:00	18:00	450.0	354043
Smoky Heights	31-May-19	18:00	19:00	414.6	354034
Beaverlodge	31-May-19	19:00	20:00	508.0	354038
Henry Pirker	31-May-19	20:00	21:00	418.2	354043
Smoky Heights	31-May-19	21:00	22:00	382.2	354034
Beaverlodge	31-May-19	22:00	23:00	451.8	354038
Henry Pirker	31-May-19	23:00	00:00	406.1	354043
Smoky Heights	31-May-19	00:00	01:00	355.7	354034
Beaverlodge	31-May-19	01:00	02:00	366.2	354038
Henry Pirker	31-May-19	02:00	03:00	336.0	354043
Smoky Heights	31-May-19	03:00	04:00	341.0	354034
Beaverlodge	31-May-19	04:00	05:00	247.6	354038
Henry Pirker	31-May-19	05:00	06:00	274.7	354043
Smoky Heights	31-May-19	06:00	07:00	332.0	354034
Beaverlodge	31-May-19	07:00	08:00	151.1	354038
Henry Pirker	31-May-19	08:00	09:00	249.8	354043
Smoky Heights	31-May-19	09:00	10:00	301.7	354034
Henry Pirker	31-May-19	10:00	11:00	195.2	354043
Smoky Heights	31-May-19	11:00	12:00	246.0	354034
Henry Pirker	31-May-19	12:00	13:00	86.6	354043
Smoky Heights	31-May-19	13:00	14:00	186.0	354034
Smoky Heights	31-May-19	14:00	15:00	121.2	354034
Evergreen Park	10-Jun-19	09:00	10:00	93.5	354539
Beaverlodge	30-Nov-19	12:00	13:00	88.8	361582

Station Name	Date	24 hour PM _{2.5} Concentration	Reference Number
		($\mu\text{g}/\text{m}^3$)	
Beaverlodge	30-May-19	114.2	354021
Beaverlodge	31-May-19	264.3	354038
Evergreen Park	30-May-19	148.7	353987
Evergreen Park	31-May-19	192.6	354042
Henry Pirker	26-May-19	29.5	353747
Henry Pirker	30-May-19	202.3	353966

Station Name	Date	24 hour PM _{2.5} Concentration	Reference Number
Henry Pirker	31-May-19	241.3	354043
Smoky Heights	23-May-19	37.8	353573
Smoky Heights	24-May-19	29.1	353678
Smoky Heights	27-May-19	32.7	353810
Smoky Heights	28-May-19	31.3	353846
Smoky Heights	29-May-19	36.1	353933
Smoky Heights	30-May-19	292.9	353956
Smoky Heights	31-May-19	245.3	354034
Portable-Wembley	30-May-19	135.4	353968
Portable-Wembley	31-May-19	202.6	354039
Beaverlodge	29-Nov-19	30.5	362235
Beaverlodge	30-Nov-19	44.7	361582

H₂S exceedances have no clear attribution.

Ozone formation results from the photochemical reaction between NO_x and VOC in the presence of sunlight. Ozone exceedance is attributed to VOC conversion from forest fire smoke.

All May and June PM_{2.5} exceedances are attributed to wildfire smoke. PM exceedances at Smoky Heights and Evergreen Park are due to known local sources. Other exceedances have no direct attribution and are likely due to winter inversion events.

Monitoring Uptime Notes:

The following table summarizes uptimes below 90% in 2019.

Station	Parameter	Month	Reason
Beaverlodge	RH	January-February	Instrument Failure
Evergreen Park	TRS	March-April	Instrument Failure
Henry Pirker	THC/CH ₄ /NMHC	October	Instrument Failure
Henry Pirker	WS/WD	February	Instrument Failure
Wembley	TRS	June-July	Instrument Failure
Wembley	WS/WD	October	Instrument Failure

Changes to monitoring in 2019:

Passive network discontinued sampling at Fitzsimmons Forth Creek and Sunset House at the end of 2018. Sampling was done at Deer Mountain, Karr Creek, Wapiti and Webber Creek for 2019.

Deviations from authorized monitoring methods:

Trees nearby to Valleyview air monitoring station exceed the height allowed under section 2.3 of the siting criteria in Chapter 3 of the AMD. This variance was authorized in writing by the director on February 4, 2019.

Changes made after monthly reports submitted:

No changes were made after monthly reports were submitted.

Data deletions or resubmissions to Alberta Ambient Air Quality Data Warehouse:

No data deletions or resubmissions were made in 2019.

Missed Calibrations:

None.

Annual Report Notes:

5-year annual average charts are truncated or not supplied for the following reasons:

Henry Pirker H₂S began operation in 2018, 2-year chart provided.

Donnelly began operation in August 2016, 4 year charts provided.

Wembley station began operation in November 2018, no charts provided.

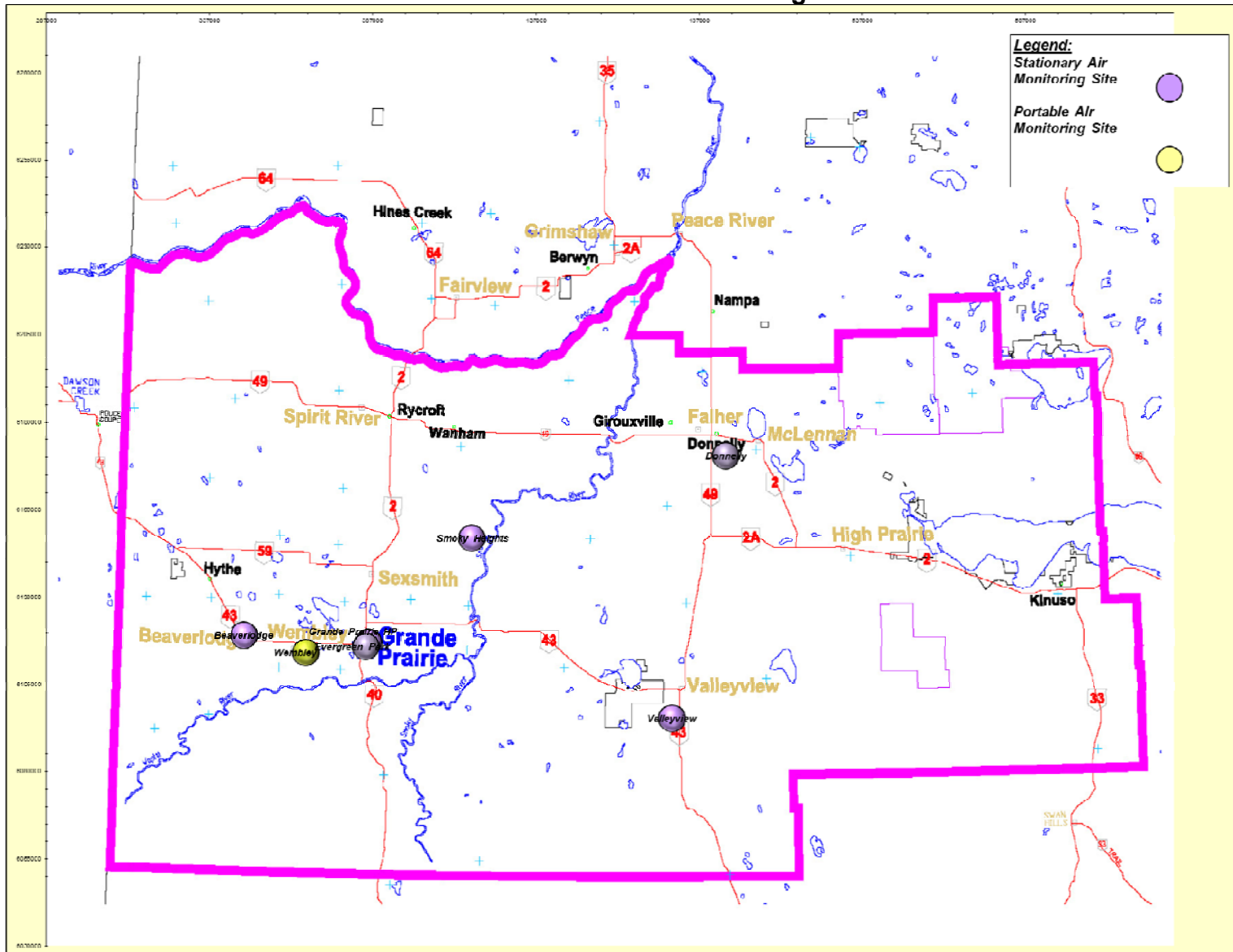
I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements.

X 

Mandeep Dhaliwal

Air Quality Program Manager, CRAZ

Location of Continuous Air Monitoring Stations



PAZA
BEAVERLODGE
CONTINUOUS AMBIENT AIR MONITORING STATION

2019
ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge SO ₂ (ppb)												2019								
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range					
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	708	0.49	1.81	Jan 11	0.12	Jan 31	2.86	Jan 12 00:00	0.00	Jan 28 09:00	99.73	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	1.04	2.28	Feb 08	0.19	Feb 02	8.07	Feb 16 21:00	0.03	Feb 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.67	1.79	Mar 24	0.10	Mar 15	12.73	Mar 25 22:00	0.03	Mar 01 03:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	682	0.22	0.97	Apr 03	0.01	Apr 23	2.92	Apr 03 18:00	0.00	Apr 07 19:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	709	0.35	1.32	May 19	0.07	May 06	6.18	May 05 06:00	0.00	May 07 03:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	686	0.18	0.79	Jun 16	0.00	Jun 04	4.80	Jun 01 01:00	0.00	Jun 01 20:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	709	0.20	0.73	Jul 23	0.02	Jul 25	6.79	Jul 23 12:00	0.00	Jul 14 23:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	710	0.22	1.26	Aug 21	0.01	Aug 24	5.91	Aug 21 04:00	0.00	Aug 04 19:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.23	0.93	Sep 30	0.00	Sep 24	10.96	Sep 10 23:00	0.00	Sep 05 02:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	709	0.25	0.87	Oct 15	0.01	Oct 10	5.74	Oct 28 12:00	0.00	Oct 02 13:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	687	0.97	5.44	Nov 30	0.02	Nov 22	43.64	Nov 30 22:00	0.00	Nov 02 16:00	100.00	0	0	0	99.56	0.44	0.00	0.00	0.00	0.00
December	707	0.72	2.85	Dec 18	0.04	Dec 05	19.64	Dec 13 06:00	0.01	Dec 27 09:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8339	0.46	5.44	Nov 30	0.00	Sep 24	43.64	Nov 30 22:00	0.00	Jan 28 09:00	100.0	0	0	0	99.96	0.04	0.00	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Nitric Oxide (NO) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge NO (ppb)												2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range				
												0 - 25	25 - 50	50 - 110	110 - 210	>210
January	707	2.28	25.65	Jan 11	0.03	Jan 01	68.75	Jan 11 11:00	0.00	Jan 02 19:00	99.73	97.03	2.69	0.28	0.00	0.00
February	640	3.80	17.50	Feb 06	0.12	Feb 01	54.64	Feb 13 13:00	0.00	Feb 14 23:00	100.00	96.41	3.13	0.47	0.00	0.00
March	709	1.60	11.95	Mar 02	0.16	Mar 15	56.08	Mar 02 11:00	0.00	Mar 01 01:00	100.00	99.29	0.42	0.28	0.00	0.00
April	678	0.17	0.46	Apr 09	0.04	Apr 19	4.55	Apr 09 09:00	0.00	Apr 01 02:00	100.00	100.00	0.00	0.00	0.00	0.00
May	705	0.23	0.52	May 25	0.06	May 12	2.60	May 02 13:00	0.00	May 03 04:00	99.87	100.00	0.00	0.00	0.00	0.00
June	684	0.28	0.97	Jun 27	0.08	Jun 02	5.75	Jun 27 08:00	0.00	Jun 07 23:00	100.00	100.00	0.00	0.00	0.00	0.00
July	707	0.27	0.66	Jul 10	0.06	Jul 01	8.81	Jul 29 09:00	0.00	Jul 20 02:00	100.00	100.00	0.00	0.00	0.00	0.00
August	705	0.43	1.90	Aug 29	0.06	Aug 25	17.50	Aug 29 08:00	0.00	Aug 05 02:00	100.00	100.00	0.00	0.00	0.00	0.00
September	656	0.50	2.55	Sep 17	0.06	Sep 08	14.66	Sep 30 08:00	0.00	Sep 06 03:00	97.50	100.00	0.00	0.00	0.00	0.00
October	703	0.76	8.10	Oct 16	0.04	Oct 24	25.52	Oct 16 12:00	0.00	Oct 01 03:00	99.46	99.86	0.14	0.00	0.00	0.00
November	685	1.64	14.14	Nov 29	0.03	Nov 23	67.17	Nov 29 12:00	0.00	Nov 02 19:00	100.00	99.42	0.44	0.15	0.00	0.00
December	708	1.85	9.68	Dec 19	0.05	Dec 25	39.25	Dec 21 12:00	0.00	Dec 02 04:00	100.00	99.44	0.56	0.00	0.00	0.00
Annual	8287	1.14	25.65	Jan 11	0.03	Nov 23	68.75	Jan 11 11:00	0.00	Jan 02 19:00	99.7	99.30	0.60	0.10	0.00	0.00

No AAAQO

Nitrogen Dioxide (NO₂) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge NO ₂ (ppb)													2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance	Percentage of Readings in Concentration Range				
												1-Hr	0 - 25	25 - 50	50 - 110	110 - 159	>159
January	707	7.43	25.47	Jan 11	0.66	Jan 01	36.34	Jan 08 20:00	0.31	Jan 01 02:00	99.73	0	94.91	5.09	0.00	0.00	0.00
February	640	10.19	28.07	Feb 06	1.42	Feb 01	38.59	Feb 06 23:00	0.69	Feb 01 15:00	100.00	0	89.38	10.63	0.00	0.00	0.00
March	709	5.63	15.08	Mar 02	2.07	Mar 15	39.21	Mar 03 04:00	0.63	Mar 27 01:00	100.00	0	98.87	1.13	0.00	0.00	0.00
April	678	1.92	2.97	Apr 09	0.85	Apr 19	12.16	Apr 11 08:00	0.26	Apr 23 01:00	100.00	0	100.00	0.00	0.00	0.00	0.00
May	705	2.38	6.52	May 31	1.13	May 15	12.94	May 31 08:00	0.00	May 13 16:00	99.87	0	100.00	0.00	0.00	0.00	0.00
June	684	2.15	4.53	Jun 17	0.97	Jun 02	13.30	Jun 17 04:00	0.27	Jun 02 15:00	100.00	0	100.00	0.00	0.00	0.00	0.00
July	707	2.22	3.98	Jul 10	1.25	Jul 25	8.86	Jul 31 06:00	0.25	Jul 25 04:00	100.00	0	100.00	0.00	0.00	0.00	0.00
August	705	2.54	4.14	Aug 17	1.18	Aug 18	11.10	Aug 17 06:00	0.30	Aug 22 04:00	100.00	0	100.00	0.00	0.00	0.00	0.00
September	656	2.36	5.15	Sep 30	1.13	Sep 26	17.20	Sep 30 08:00	0.03	Sep 11 04:00	97.50	0	100.00	0.00	0.00	0.00	0.00
October	703	3.34	10.41	Oct 16	0.67	Oct 05	20.01	Oct 16 20:00	0.21	Oct 06 03:00	99.46	0	100.00	0.00	0.00	0.00	0.00
November	685	6.40	23.48	Nov 29	0.97	Nov 22	32.59	Nov 30 19:00	0.28	Nov 17 23:00	100.00	0	96.79	3.21	0.00	0.00	0.00
December	708	8.27	19.78	Dec 20	2.04	Dec 02	29.48	Dec 09 19:00	0.52	Dec 25 23:00	100.00	0	97.46	2.54	0.00	0.00	0.00
Annual	8287	4.55	28.07	Feb 06	0.66	Jan 01	39.21	Mar 03 04:00	0.00	May 13 16:00	99.7	0	98.17	1.83	0.00	0.00	0.00

AAAQO Objectives: Annual: 24 ppb, 1-Hr: 159 ppb

Total Oxides of Nitrogen (NO_x) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge NO _x (ppb)													2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range					
												0 - 25	25 - 50	50 - 110	110 - 210	>210	
January	707	9.72	51.08	Jan 11	0.72	Jan 01	99.61	Jan 11 11:00	0.33	Jan 01 02:00	99.73	90.10	7.21	2.69	0.00	0.00	
February	640	13.97	45.47	Feb 06	1.55	Feb 01	84.04	Feb 13 13:00	0.72	Feb 28 23:00	100.00	82.50	13.44	4.06	0.00	0.00	
March	709	7.23	26.98	Mar 02	2.25	Mar 15	80.44	Mar 02 11:00	0.67	Mar 30 23:00	100.00	97.18	2.12	0.71	0.00	0.00	
April	678	2.09	3.42	Apr 09	0.89	Apr 19	15.96	Apr 11 08:00	0.28	Apr 23 01:00	100.00	100.00	0.00	0.00	0.00	0.00	
May	705	2.62	6.90	May 31	1.24	May 15	14.78	May 31 08:00	0.32	May 08 14:00	99.87	100.00	0.00	0.00	0.00	0.00	
June	684	2.46	5.19	Jun 17	1.05	Jun 02	15.35	Jun 27 06:00	0.33	Jun 02 15:00	100.00	100.00	0.00	0.00	0.00	0.00	
July	707	2.52	4.68	Jul 10	1.35	Jul 25	11.40	Jul 31 06:00	0.28	Jul 25 04:00	100.00	100.00	0.00	0.00	0.00	0.00	
August	705	3.00	5.57	Aug 29	1.28	Aug 18	25.98	Aug 29 08:00	0.30	Aug 22 04:00	100.00	99.86	0.14	0.00	0.00	0.00	
September	656	2.87	6.80	Sep 30	1.16	Sep 26	32.12	Sep 30 08:00	0.00	Sep 11 04:00	97.50	99.85	0.15	0.00	0.00	0.00	
October	703	4.13	18.62	Oct 16	0.79	Oct 05	37.23	Oct 03 09:00	0.16	Oct 06 03:00	99.46	99.00	1.00	0.00	0.00	0.00	
November	685	8.12	37.90	Nov 29	1.02	Nov 22	90.92	Nov 29 12:00	0.29	Nov 17 23:00	100.00	92.70	6.42	0.88	0.00	0.00	
December	708	10.17	29.14	Dec 21	2.17	Dec 02	57.92	Dec 21 12:00	0.55	Dec 25 23:00	100.00	90.54	9.18	0.28	0.00	0.00	
Annual	8287	5.71	51.08	Jan 11	0.72	Jan 01	99.61	Jan 11 11:00	0.00	Sep 11 04:00	99.7	96.04	3.26	0.70	0.00	0.00	

No AAAQO

Ozone (O₃) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge O ₃ (ppb)													2019						
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range					
												24-Hr	1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	709	25.78	39.43	Jan 25	3.45	Jan 11	43.90	Jan 25 02:00	0.83	Jan 11 22:00	99.73	0	0	1.83	8.60	16.08	70.38	3.10	0.00
February	642	26.99	40.41	Feb 28	7.58	Feb 06	47.19	Feb 28 16:00	0.69	Feb 06 20:00	100.00	0	0	2.18	6.85	13.40	70.09	7.48	0.00
March	711	40.30	51.03	Mar 19	18.79	Mar 02	63.47	Mar 23 16:00	2.57	Mar 03 04:00	100.00	0	0	0.00	1.13	3.09	37.97	57.81	0.00
April	681	40.01	51.18	Apr 23	25.31	Apr 05	62.19	Apr 21 16:00	12.62	Apr 07 08:00	100.00	0	0	0.00	0.00	1.47	44.05	54.48	0.00
May	709	37.71	47.63	May 12	27.92	May 16	61.65	May 26 18:00	8.33	May 24 07:00	99.87	0	0	0.00	0.14	2.82	57.12	39.92	0.00
June	684	26.24	40.98	Jun 02	18.89	Jun 12	50.06	Jun 02 20:00	6.71	Jun 08 06:00	100.00	0	0	0.00	1.90	22.81	69.74	5.56	0.00
July	708	23.26	33.12	Jul 22	13.87	Jul 08	46.47	Jul 22 18:00	2.31	Jul 31 08:00	100.00	0	0	0.00	4.94	31.21	60.45	3.39	0.00
August	709	20.01	27.90	Aug 31	9.73	Aug 17	42.04	Aug 31 15:00	1.66	Aug 17 06:00	100.00	0	0	0.28	11.00	37.80	50.07	0.85	0.00
September	686	20.04	28.15	Sep 24	9.04	Sep 11	43.74	Sep 06 17:00	0.99	Sep 17 07:00	100.00	0	0	0.15	12.39	34.84	52.19	0.44	0.00
October	708	21.94	33.06	Oct 06	2.12	Oct 16	39.81	Oct 24 16:00	0.21	Oct 16 07:00	99.87	0	0	2.54	9.60	25.85	62.01	0.00	0.00
November	686	24.49	36.96	Nov 22	4.72	Nov 29	41.23	Nov 11 13:00	0.76	Nov 30 07:00	100.00	0	0	4.66	8.75	15.89	69.68	1.02	0.00
December	709	24.30	37.30	Dec 26	4.38	Dec 21	42.28	Dec 01 12:00	0.28	Dec 21 18:00	100.00	0	0	4.94	8.04	17.35	68.27	1.41	0.00
Annual	8342	27.59	51.18	Apr 23	2.12	Oct 16	63.47	Mar 23 16:00	0.21	Oct 16 07:00	100.0	0	0	1.38	6.12	18.60	59.24	14.66	0.00

AAAQO Objectives: 1-Hr: 76 ppb

Particulate Matter (PM_{2.5}) – Beaverlodge 2019 Summary and Frequency Distribution

Beaverlodge PM _{2.5} (µg/m ³)													2019						
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range					
												24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	741	4.26	17.78	Jan 11	0.00	Jan 01	43.90	Jan 13 22:00	0.00	Jan 01 01:00	99.60	0	0	52.09	23.08	13.09	6.61	4.45	0.67
February	649	4.60	14.40	Feb 06	0.56	Feb 27	25.35	Feb 07 02:00	0.00	Feb 14 15:00	96.58	0	0	42.22	30.82	14.48	8.94	3.54	0.00
March	740	4.81	18.01	Mar 24	0.23	Mar 27	35.72	Mar 09 01:00	0.00	Mar 02 06:00	100.00	0	0	44.19	26.35	17.03	8.24	3.65	0.54
April	714	2.96	7.59	Apr 05	0.18	Apr 08	13.87	Apr 07 08:00	0.00	Apr 07 13:00	100.00	0	0	50.14	33.61	15.55	0.70	0.00	0.00
May	743	19.45	275.23	May 31	0.77	May 03	672.35	May 31 02:00	0.36	May 03 07:00	99.87	2	21	19.76	37.42	18.98	6.19	11.57	6.06
June	716	4.80	14.40	Jun 17	1.72	Jun 04	63.94	Jun 17 01:00	0.49	Jun 01 15:00	100.00	0	0	28.91	43.58	19.83	5.87	1.26	0.56
July	734	6.02	11.74	Jul 19	2.08	Jul 18	33.50	Jul 19 13:00	0.62	Jul 01 16:00	98.92	0	0	16.49	40.05	32.15	9.54	1.36	0.41
August	739	5.13	12.24	Aug 02	0.39	Aug 24	18.83	Aug 17 00:00	0.20	Aug 23 15:00	99.87	0	0	20.30	43.17	28.28	8.12	0.14	0.00
September	715	3.60	10.28	Sep 01	0.65	Sep 14	37.98	Sep 05 22:00	0.00	Sep 27 01:00	100.00	0	0	43.22	39.30	11.75	5.17	0.42	0.14
October	734	3.67	10.30	Oct 03	0.17	Oct 24	39.53	Oct 31 22:00	0.00	Oct 07 16:00	99.06	0	0	47.55	29.70	17.17	4.50	0.54	0.54
November	716	5.93	44.66	Nov 30	0.12	Nov 22	88.83	Nov 30 12:00	0.00	Nov 15 16:00	100.00	2	1	56.84	18.02	9.22	7.12	4.61	4.19
December	740	4.90	15.46	Dec 20	0.04	Dec 27	36.60	Dec 06 23:00	0.00	Dec 02 13:00	100.00	0	0	50.00	20.00	14.59	8.51	6.22	0.68
Annual	8681	5.88	275.23	May 31	0.00	Jan 01	672.35	May 31 02:00	0.00	Jan 01 01:00	99.5	4	22	39.22	32.08	17.74	6.62	3.17	1.16

AAAQO Objectives: 24-Hr: 30 µg/m³, 1-Hr: 80 µg/m³

Ambient Temperature (ET) – Beaverlodge 2019 Summary

Beaverlodge											2019
Ambient Temperature (°C)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	741	-6.8	6.0	Jan 26	-22.8	Jan 08	7.1	Jan 02 06:00	-26.6	Jan 08 09:00	99.6
February	672	-19.6	-3.6	Feb 19	-34.2	Feb 04	0.5	Feb 19 16:00	-39.0	Feb 04 09:00	100.0
March	741	-2.4	7.3	Mar 18	-25.7	Mar 02	16.3	Mar 20 18:00	-34.5	Mar 02 08:00	99.6
April	720	3.9	8.6	Apr 22	-3.2	Apr 04	14.8	Apr 22 16:00	-5.2	Apr 04 08:00	100.0
May	743	10.9	20.8	May 29	-3.0	May 03	28.2	May 28 17:00	-5.1	May 03 13:00	99.9
June	720	13.4	19.7	Jun 16	5.0	Jun 06	26.4	Jun 16 17:00	3.0	Jun 06 16:00	100.0
July	744	15.1	19.9	Jul 22	11.1	Jul 09	26.0	Jul 22 16:00	5.5	Jul 02 05:00	100.0
August	742	13.2	18.1	Aug 04	8.0	Aug 17	24.2	Aug 04 18:00	4.5	Aug 29 06:00	99.7
September	719	10.1	17.9	Sep 03	0.5	Sep 29	25.4	Sep 03 16:00	-4.8	Sep 30 07:00	99.9
October	744	2.4	9.8	Oct 02	-9.0	Oct 28	17.2	Oct 02 16:00	-13.3	Oct 29 07:00	100.0
November	720	-3.4	6.7	Nov 17	-18.0	Nov 10	9.9	Nov 17 13:00	-21.5	Nov 11 02:00	100.0
December	744	-6.1	3.0	Dec 31	-15.7	Dec 13	4.6	Dec 31 04:00	-17.2	Dec 13 22:00	100.0
Annual	8750	2.7	20.8	May 29	-34.2	Feb 04	28.2	May 28 17:00	-39.0	Feb 04 09:00	99.9

Relative Humidity (RH) – Beaverlodge 2019 Summary

Beaverlodge											2019
Relative Humidity (%)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	217	74.0	85.6	Jan 31	63.7	Jan 30	98.3	Jan 11 00:00	45.0	Jan 30 02:00	29.2
February	566	74.5	84.3	Feb 01	63.1	Feb 26	99.3	Feb 24 20:00	40.3	Feb 27 18:00	84.2
March	691	58.6	79.3	Mar 12	33.4	Mar 19	99.9	Mar 08 05:00	15.2	Mar 19 17:00	92.9
April	720	57.7	90.4	Apr 05	35.5	Apr 23	100.0	Apr 15 02:00	16.9	Apr 24 17:00	100.0
May	743	57.3	92.0	May 03	28.6	May 12	100.0	May 03 03:00	13.6	May 12 17:00	99.9
June	720	67.6	91.8	Jun 06	38.2	Jun 02	100.0	Jun 07 04:00	21.3	Jun 02 15:00	100.0
July	744	74.7	95.7	Jul 24	56.1	Jul 25	100.0	Jul 08 02:00	37.3	Jul 29 17:00	100.0
August	742	77.2	96.5	Aug 17	55.5	Aug 22	100.0	Aug 07 09:00	39.3	Aug 22 17:00	99.7
September	719	76.5	95.9	Sep 09	58.8	Sep 21	100.0	Sep 04 05:00	34.5	Sep 05 17:00	99.9
October	744	74.9	96.8	Oct 15	45.2	Oct 06	100.0	Oct 13 23:00	31.1	Oct 06 17:00	100.0
November	720	79.8	99.4	Nov 12	55.8	Nov 21	100.0	Nov 01 15:00	45.0	Nov 11 14:00	100.0
December	744	76.0	91.7	Dec 20	48.3	Dec 01	99.0	Dec 04 09:00	36.9	Dec 01 13:00	100.0
Annual	8070	70.5	99.4	Nov 12	28.6	May 12	100.0	Apr 15 02:00	13.6	May 12 17:00	92.1

Wind Speed (WS) – Beaverlodge 2019 Summary

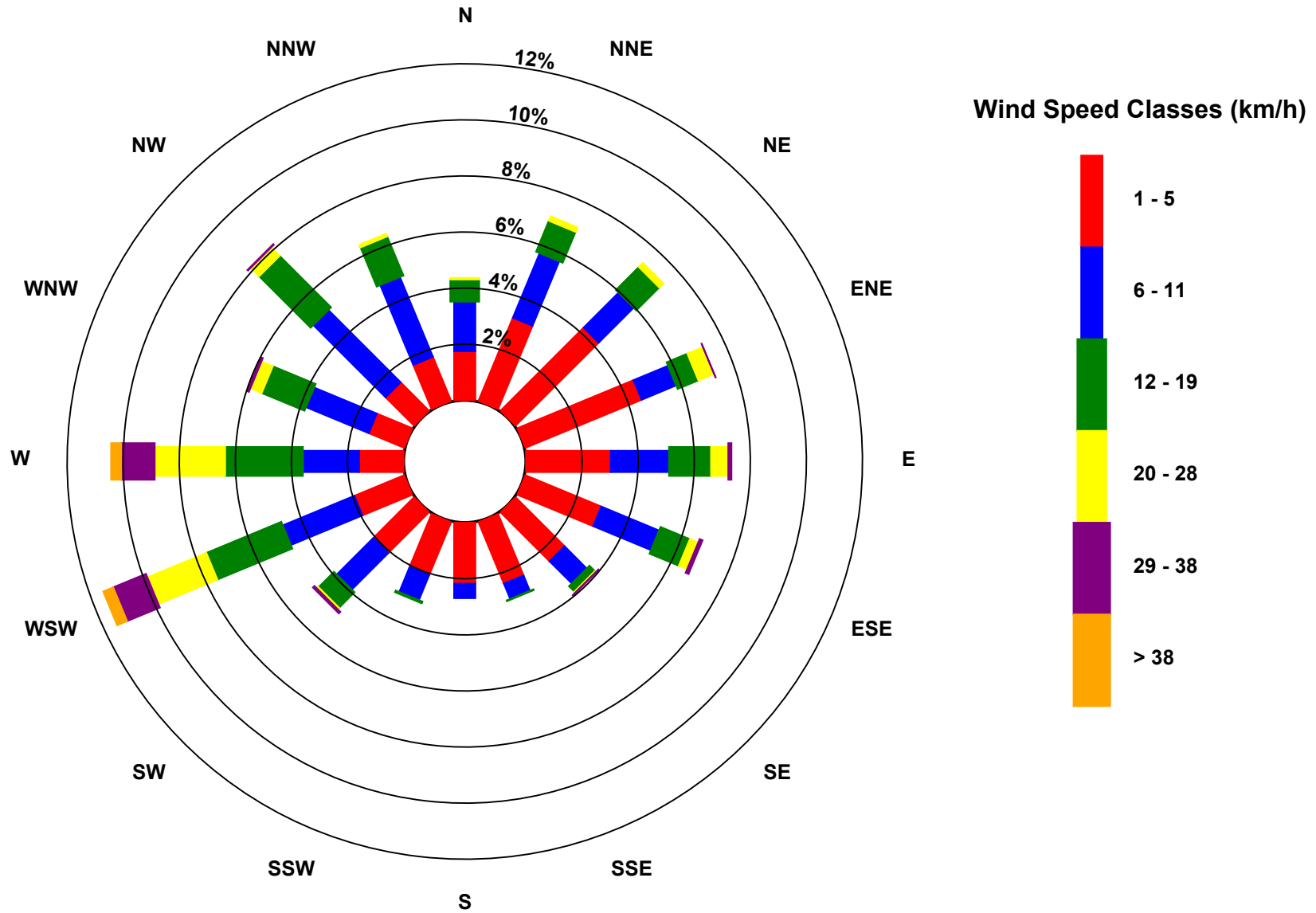
Beaverlodge											Wind Speed (km/h)											2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)											
January	741	10.0	30.3	Jan 26	1.8	Jan 11	48.5	Jan 27 00:00	0.1	Jan 09 01:00	99.6											
February	672	6.0	14.1	Feb 02	1.5	Feb 06	28.5	Feb 19 13:00	0.1	Feb 26 00:00	100.0											
March	744	6.0	14.9	Mar 15	2.1	Mar 03	30.0	Mar 10 20:00	0.2	Mar 04 06:00	100.0											
April	720	12.5	29.5	Apr 23	4.8	Apr 09	49.5	Apr 17 13:00	0.3	Apr 26 04:00	100.0											
May	743	11.2	26.0	May 16	3.8	May 06	35.2	May 11 18:00	0.4	May 06 06:00	99.9											
June	720	12.7	30.0	Jun 18	4.0	Jun 15	47.8	Jun 18 16:00	0.2	Jun 13 23:00	100.0											
July	744	9.4	19.4	Jul 25	3.4	Jul 10	31.6	Jul 12 14:00	0.4	Jul 11 03:00	100.0											
August	742	9.5	19.7	Aug 22	3.6	Aug 01	37.7	Aug 15 17:00	0.2	Aug 07 05:00	100.0											
September	720	10.8	20.6	Sep 24	4.0	Sep 03	38.9	Sep 21 12:00	0.1	Sep 18 10:00	100.0											
October	744	10.1	29.5	Oct 05	2.4	Oct 16	49.8	Oct 05 16:00	0.2	Oct 23 06:00	100.0											
November	720	8.6	24.9	Nov 22	1.7	Nov 30	50.6	Nov 23 03:00	0.2	Nov 30 07:00	100.0											
December	744	6.0	17.6	Dec 02	2.0	Dec 19	44.6	Dec 02 17:00	0.0	Dec 04 16:00	100.0											
Annual	8754	9.4	30.3	Jan 26	1.5	Feb 06	50.6	Nov 23 03:00	0.0	Dec 04 16:00	100.0											

Wind Speed and Wind Direction Frequency Distribution – Beaverlodge 2019 Summary

Beaverlodge								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	370	1.75	1.77	0.79	0.06	0.00	0.00	4.37
NNE	599	3.21	2.49	1.19	0.18	0.00	0.00	7.07
NE	620	4.19	1.76	1.16	0.21	0.00	0.00	7.32
ENE	613	4.49	1.33	0.80	0.60	0.01	0.00	7.24
E	621	3.02	2.08	1.50	0.61	0.12	0.00	7.33
ESE	570	2.93	2.23	1.13	0.32	0.12	0.00	6.73
SE	333	2.47	1.12	0.27	0.05	0.02	0.00	3.93
SSE	254	2.37	0.59	0.04	0.00	0.00	0.00	3.00
S	228	2.17	0.52	0.00	0.00	0.00	0.00	2.69
SSW	261	2.04	0.97	0.07	0.00	0.00	0.00	3.08
SW	409	2.05	1.84	0.78	0.07	0.08	0.00	4.83
WSW	975	1.92	2.76	2.89	2.28	1.26	0.39	11.51
WSW	884	1.58	2.01	2.77	2.51	1.19	0.37	10.43
WNW	504	1.37	2.42	1.65	0.44	0.07	0.00	5.95
NW	689	1.43	3.65	2.60	0.42	0.04	0.00	8.13
NNW	542	1.70	3.08	1.51	0.11	0.00	0.00	6.40
Totals	8472	38.69	30.62	19.16	7.86	2.92	0.76	100

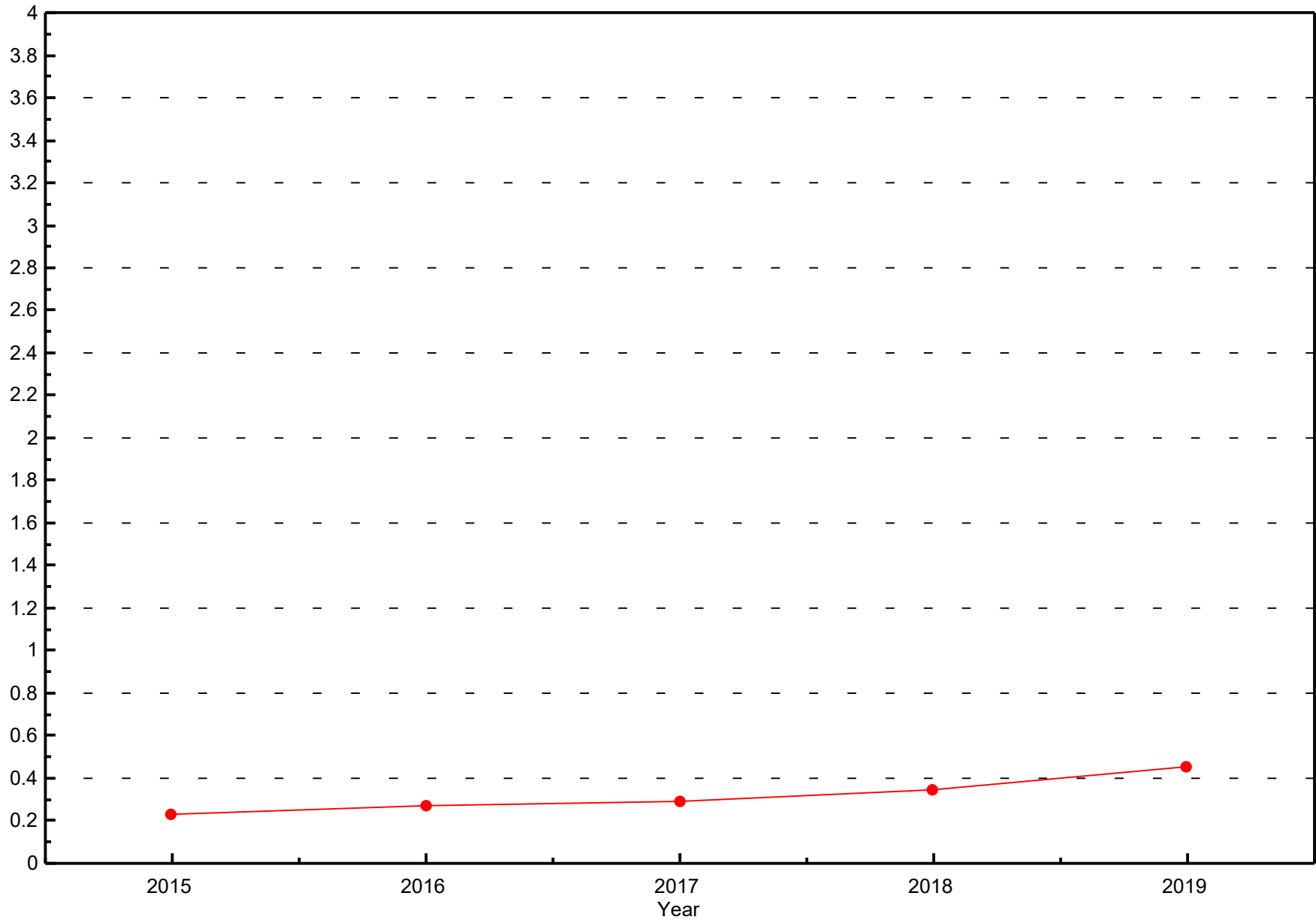
Wind Rose

Wind Speed (WS) (km/h)
Beaverlodge - 2019



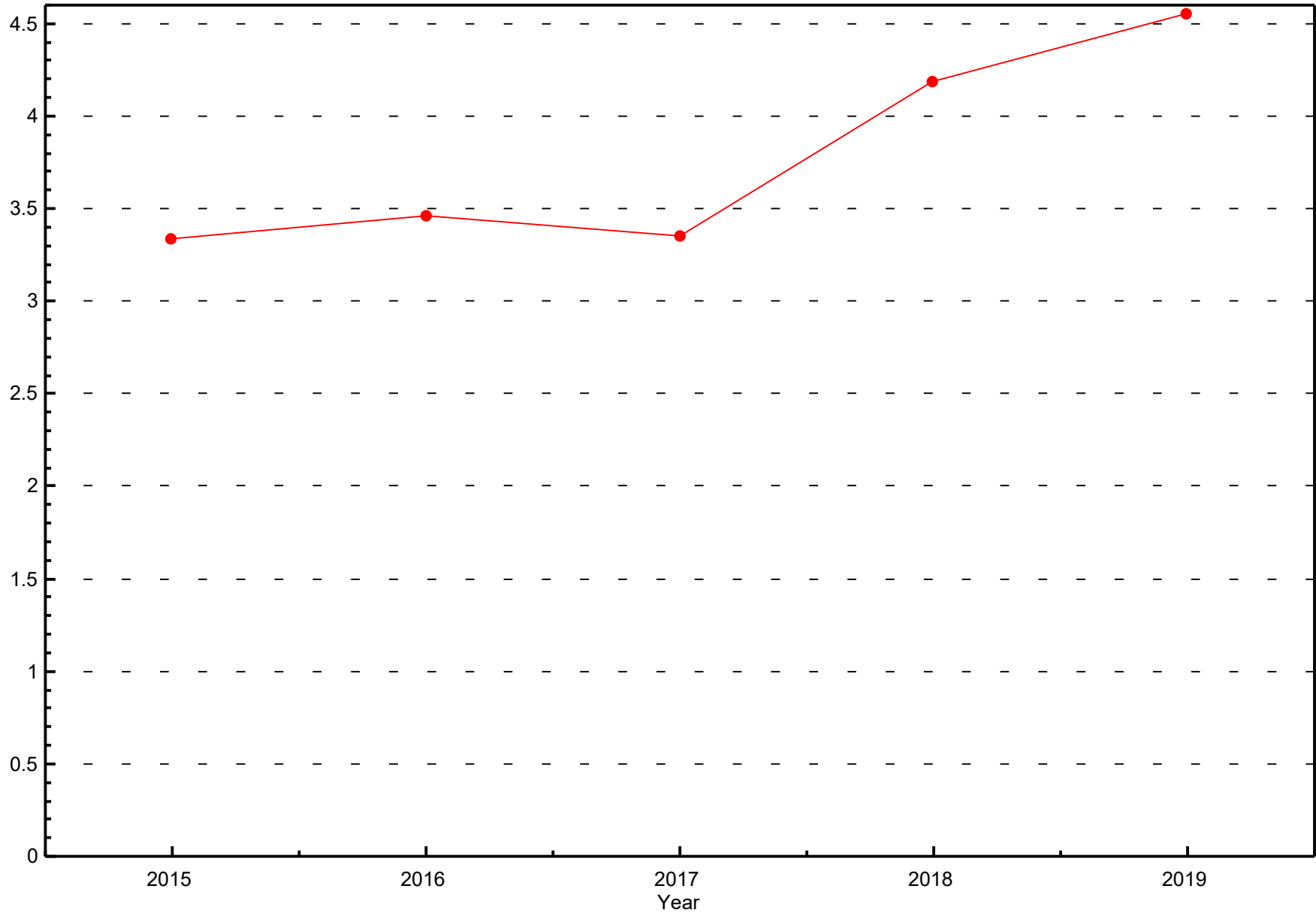
5-Year Annual Averages

Sulphur Dioxide (SO₂) - ppb
Beaverlodge (2015 to 2019)



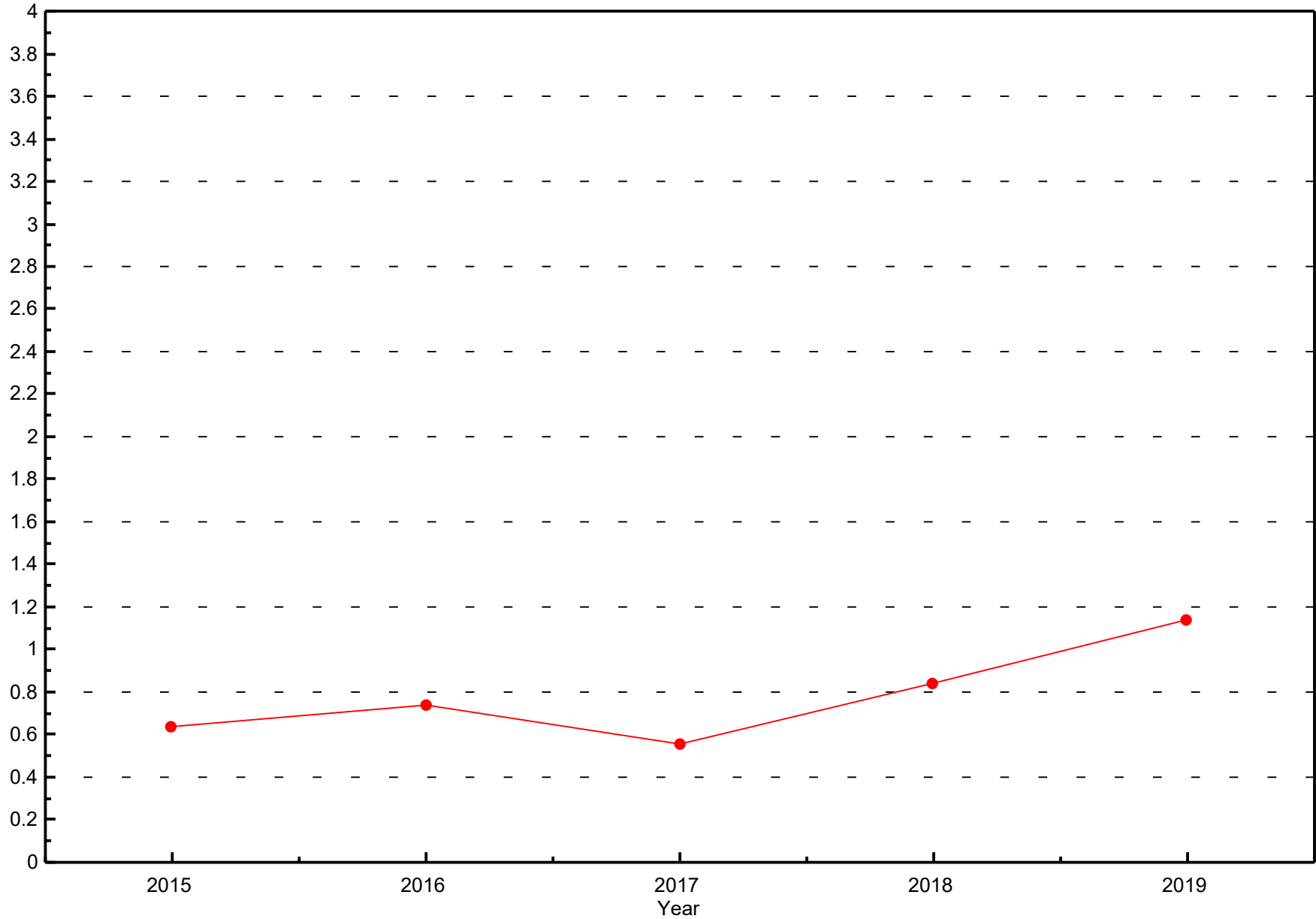
5-Year Annual Averages

**Nitrogen Dioxide (NO₂) - ppb
Beaverlodge (2015 to 2019)**



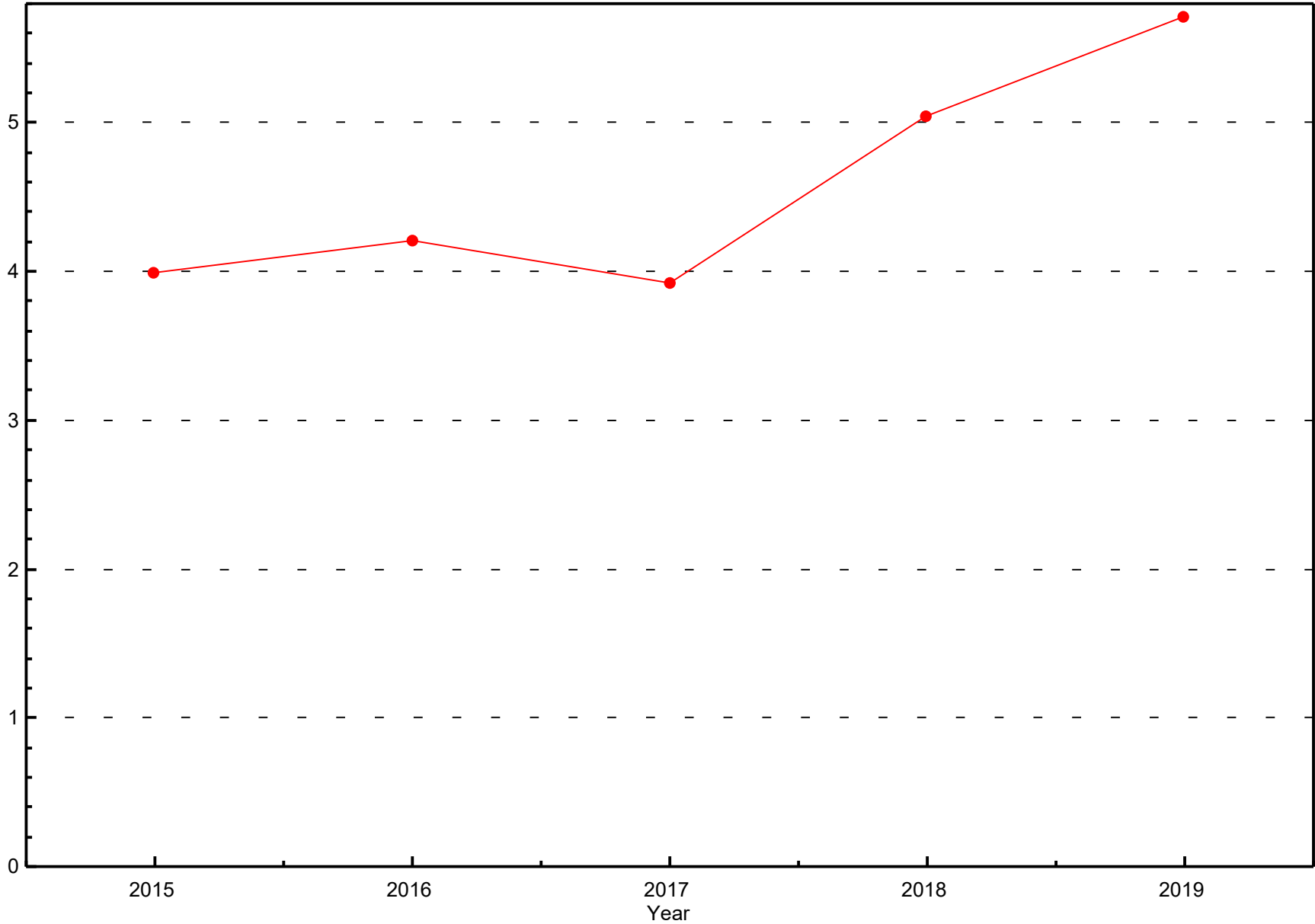
5-Year Annual Averages

**Nitrogen Oxide (NO) - ppb
Beaverlodge (2015 to 2019)**



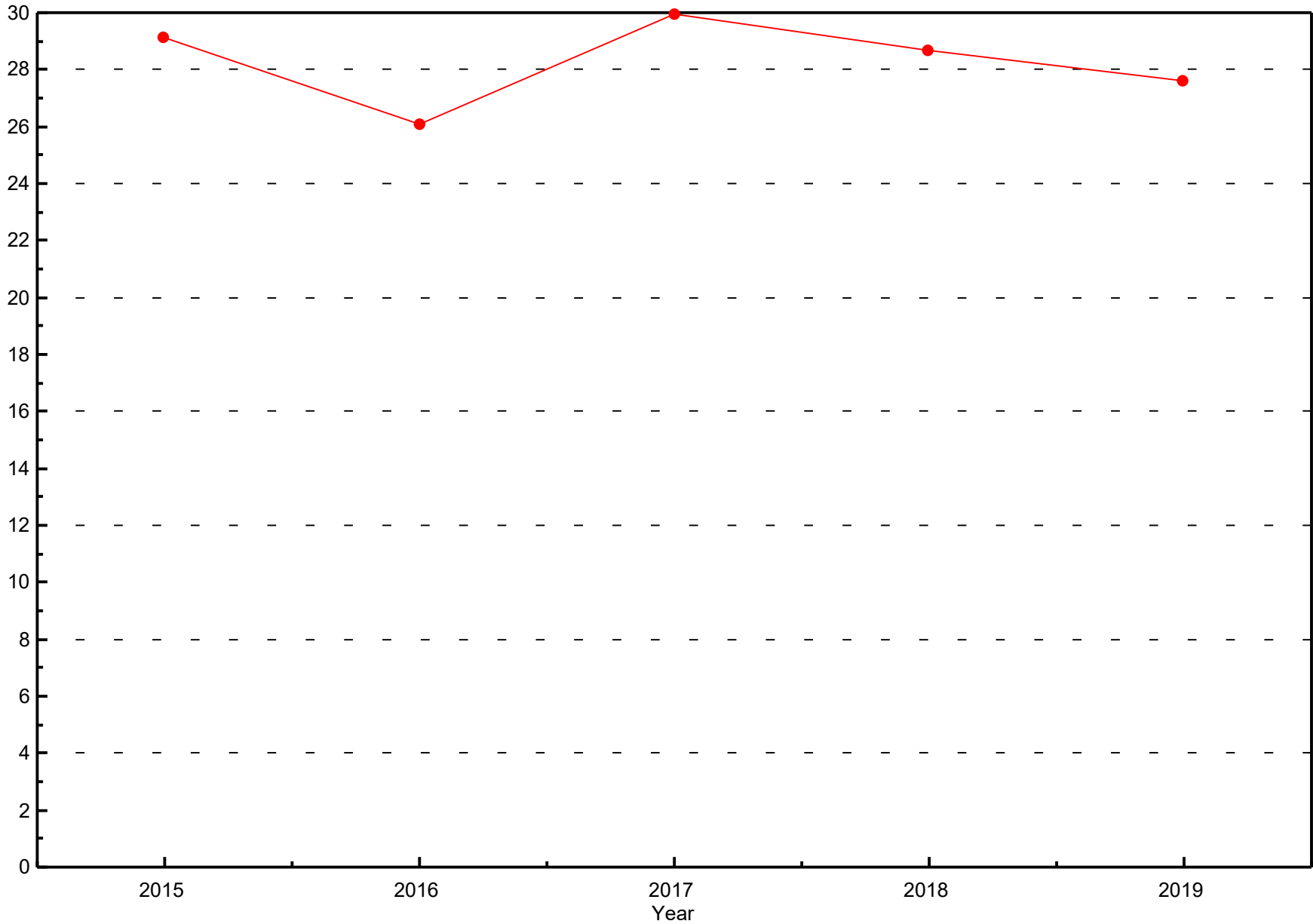
5-Year Annual Averages

Oxides of Nitrogen (NO_x) - ppb
Beaverlodge (2015 to 2019)

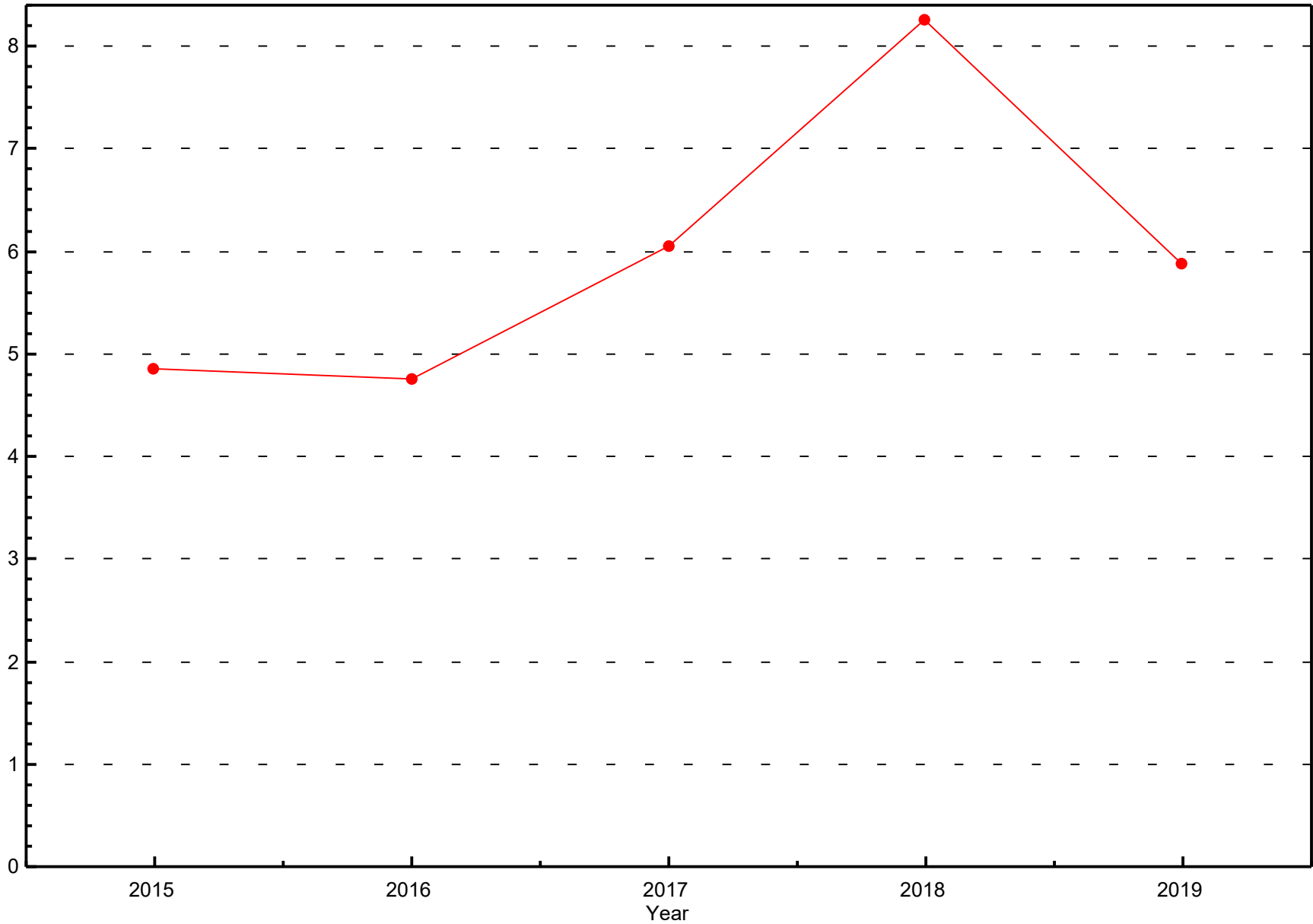


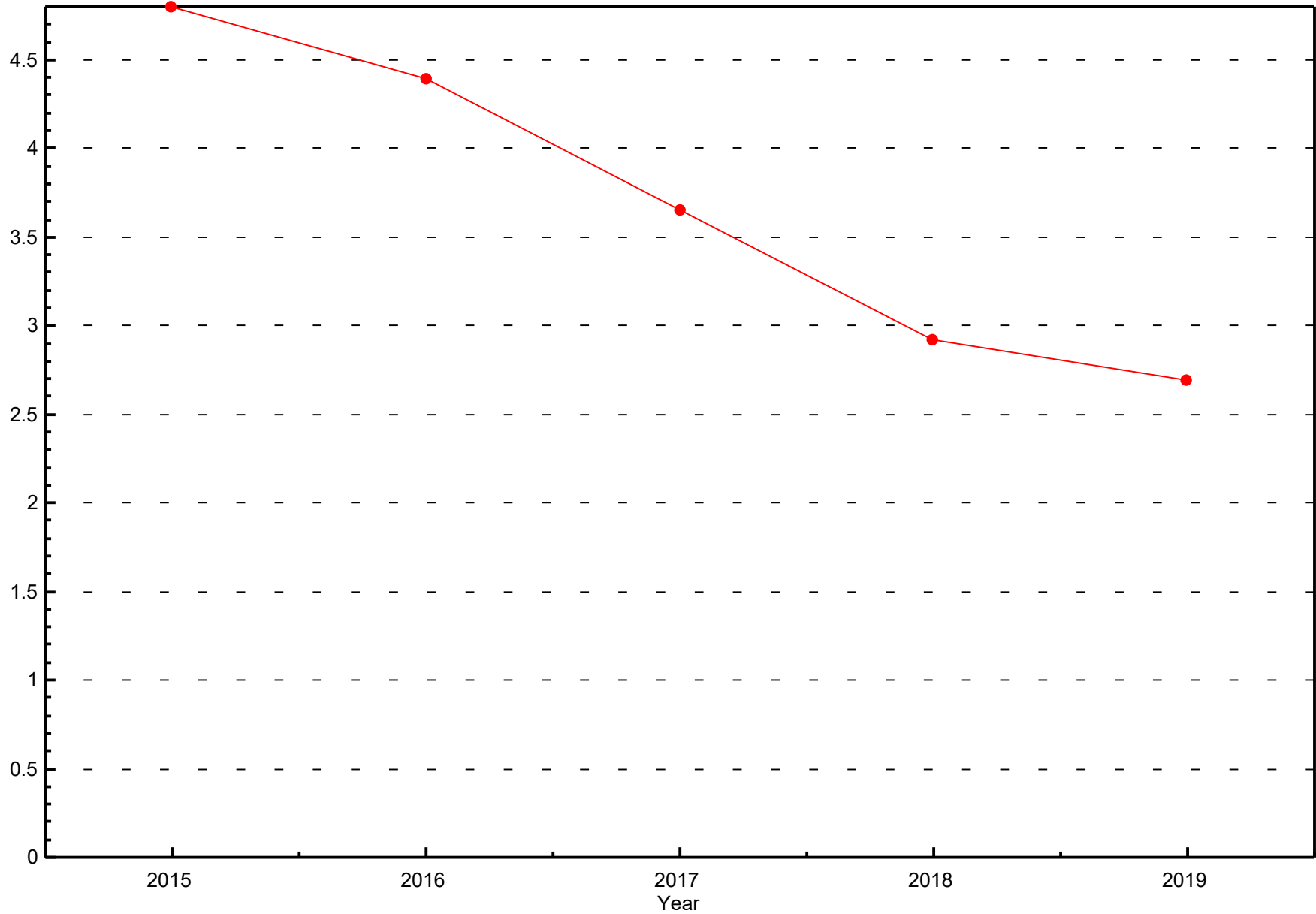
5-Year Annual Averages

Ozone (O₃) - ppb
Beaverlodge (2015 to 2019)



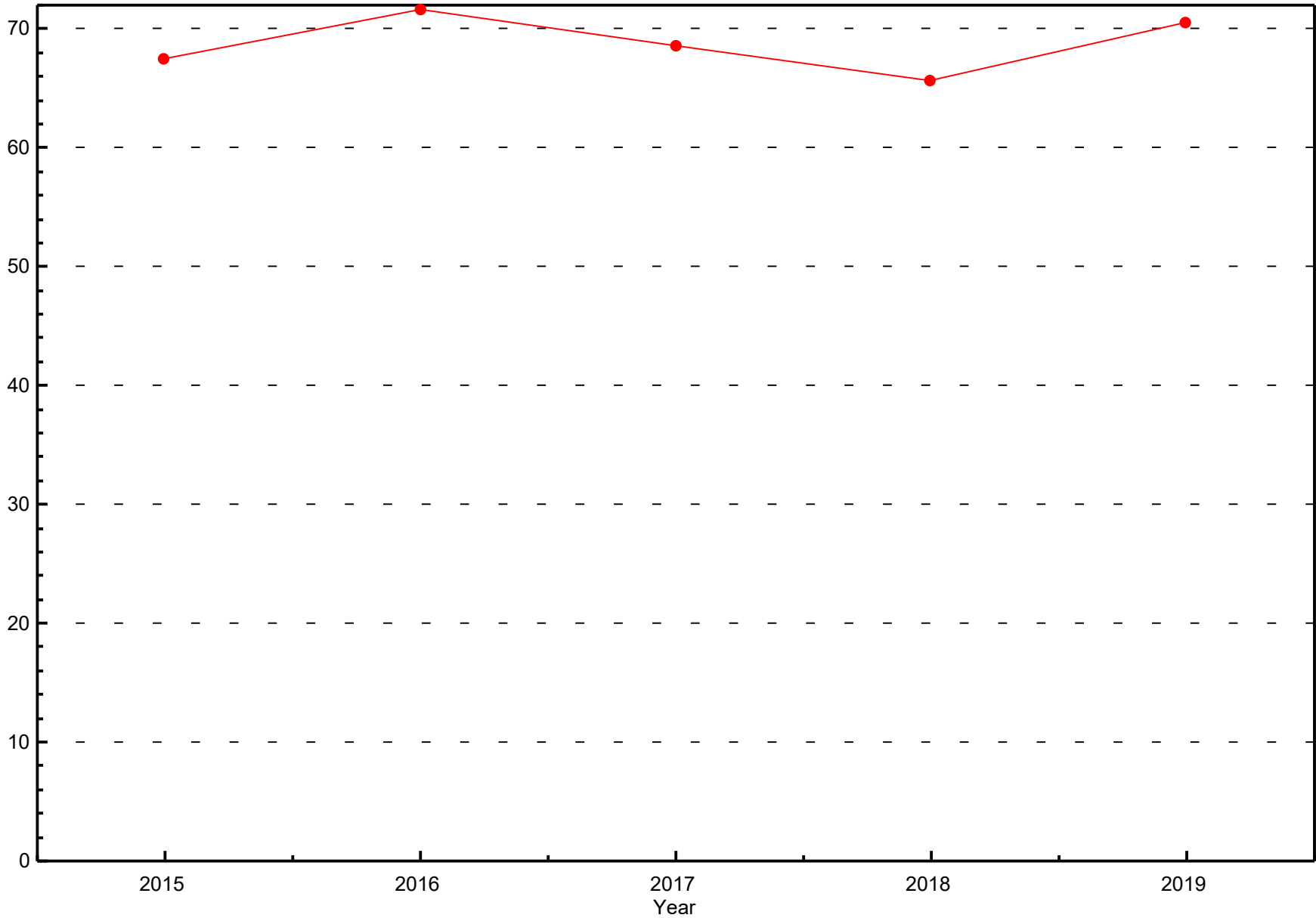
**5-Year Annual Averages Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Beaverlodge (2015 to 2019)**





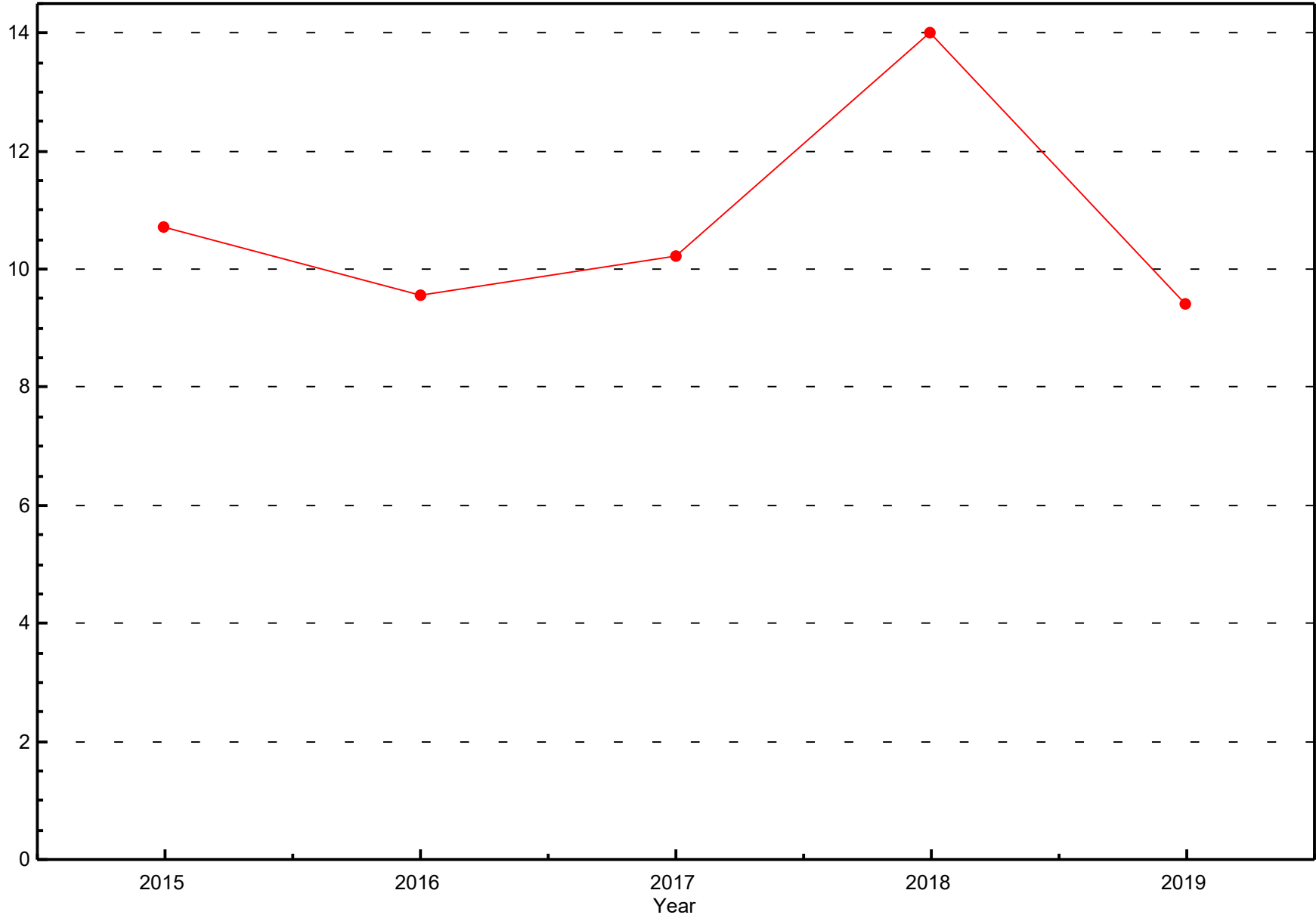
5-Year Annual Averages

**Relative Humidity (RH) - %
Beaverlodge (2015 to 2019)**



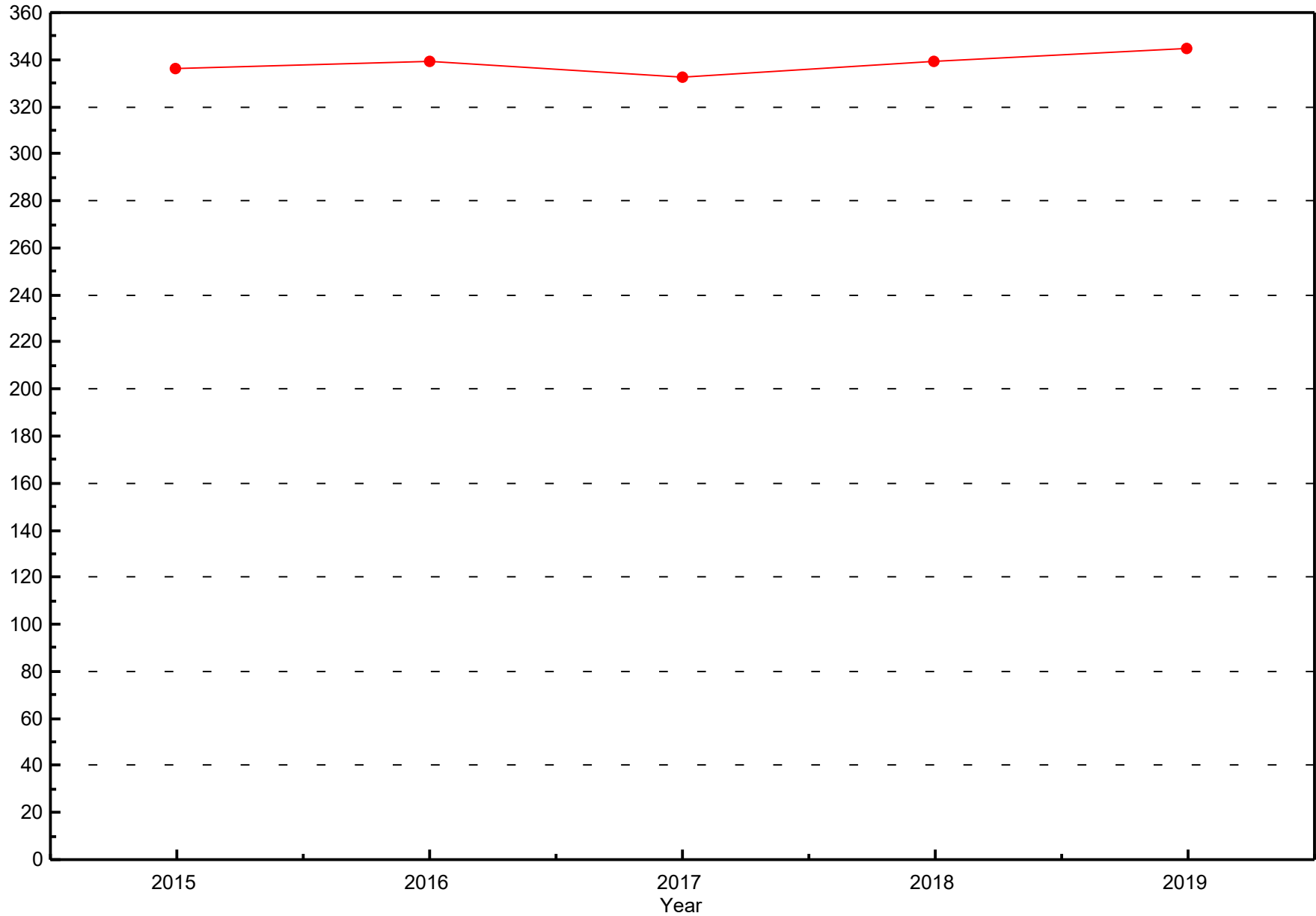
5-Year Annual Averages

**Wind Speed (WS) - km/h
Beaverlodge (2015 to 2019)**



5-Year Annual Averages

**Wind Direction (WD) - deg
Beaverlodge (2015 to 2019)**



PAZA
EVERGREEN PARK
CONTINUOUS AMBIENT AIR MONITORING STATION

2019
ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Evergreen Park 2019 Summary and Frequency Distribution

Evergreen Park													SO ₂ (ppb)			2019						
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range							
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340		
January	709	0.29	0.90	Jan 11	0.03	Jan 26	5.70	Jan 07 17:00	0.00	Jan 05 10:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
February	630	0.59	2.67	Feb 07	0.03	Feb 01	24.02	Feb 07 14:00	0.00	Feb 01 01:00	98.66	0	0	0	99.84	0.16	0.00	0.00	0.00	0.00		
March	696	0.37	0.83	Mar 07	0.03	Mar 27	4.56	Mar 14 13:00	0.00	Mar 01 03:00	98.52	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
April	680	0.18	0.39	Apr 30	0.04	Apr 26	4.72	Apr 30 14:00	0.00	Apr 01 02:00	99.72	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
May	706	0.17	1.01	May 31	0.01	May 14	7.23	May 12 00:00	0.00	May 02 00:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
June	685	0.20	1.30	Jun 30	0.04	Jun 26	8.38	Jun 30 12:00	0.00	Jun 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
July	706	0.38	1.68	Jul 25	0.00	Jul 05	13.26	Jul 16 10:00	0.00	Jul 01 09:00	99.60	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
August	706	0.24	1.60	Aug 15	0.03	Aug 25	29.50	Aug 15 01:00	0.00	Aug 02 19:00	100.00	0	0	0	99.72	0.28	0.00	0.00	0.00	0.00		
September	684	0.27	1.94	Sep 25	0.00	Sep 09	11.22	Sep 25 13:00	0.00	Sep 02 16:00	99.86	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
October	710	0.46	1.98	Oct 13	0.04	Oct 15	16.25	Oct 05 02:00	0.00	Oct 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
November	684	0.29	1.44	Nov 15	0.05	Nov 10	14.14	Nov 15 23:00	0.00	Nov 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
December	708	0.25	0.60	Dec 01	0.00	Dec 13	2.11	Dec 08 22:00	0.00	Dec 04 18:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00		
Annual	8304	0.30	2.67	Feb 07	0.00	Sep 09	29.50	Aug 15 01:00	0.00	Jan 05 10:00	99.7	0	0	0	99.96	0.04	0.00	0.00	0.00	0.00		

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Total Reduced Sulphur (TRS) – Evergreen Park 2019 Summary and Frequency Distribution

Evergreen Park												TRS (ppb)						2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range							
												0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10		
January	709	0.59	1.24	Jan 07	0.22	Jan 09	2.48	Jan 07 09:00	0.00	Jan 09 05:00	100.00	89.42	10.58	0.00	0.00	0.00	0.00		
February	630	0.75	1.19	Feb 13	0.41	Feb 01	2.46	Feb 14 15:00	0.28	Feb 11 16:00	98.66	77.94	22.06	0.00	0.00	0.00	0.00		
March	537	0.63	1.02	Mar 18	0.37	Mar 01	6.06	Mar 18 17:00	0.18	Mar 11 02:00	75.94	91.25	8.57	0.00	0.19	0.00	0.00		
April	484	0.50	0.74	Apr 26	0.38	Apr 10	3.11	Apr 13 23:00	0.09	Apr 15 05:00	71.39	94.21	5.17	0.62	0.00	0.00	0.00		
May	704	0.45	0.93	May 30	0.30	May 18	1.95	May 30 15:00	0.00	May 22 16:00	99.87	98.01	1.99	0.00	0.00	0.00	0.00		
June	686	0.42	0.62	Jun 06	0.28	Jun 09	3.66	Jun 22 20:00	0.11	Jun 20 04:00	100.00	99.71	0.15	0.15	0.00	0.00	0.00		
July	705	0.37	0.50	Jul 28	0.26	Jul 06	1.15	Jul 03 11:00	0.10	Jul 31 22:00	99.60	99.86	0.14	0.00	0.00	0.00	0.00		
August	706	0.39	1.05	Aug 12	0.18	Aug 10	2.60	Aug 12 07:00	0.08	Aug 10 18:00	100.00	98.44	1.42	0.14	0.00	0.00	0.00		
September	660	0.39	0.49	Sep 22	0.25	Sep 06	1.20	Sep 28 11:00	0.09	Sep 17 03:00	97.78	99.85	0.15	0.00	0.00	0.00	0.00		
October	706	0.42	0.76	Oct 17	0.25	Oct 30	1.86	Oct 17 07:00	0.09	Oct 30 06:00	100.00	98.16	1.84	0.00	0.00	0.00	0.00		
November	682	0.57	1.32	Nov 29	0.28	Nov 04	2.08	Nov 29 20:00	0.15	Nov 04 07:00	100.00	91.20	8.80	0.00	0.00	0.00	0.00		
December	708	0.76	1.73	Dec 22	0.40	Dec 07	6.10	Dec 06 22:00	0.21	Dec 20 17:00	100.00	75.00	24.44	0.42	0.14	0.00	0.00		
Annual	7917	0.52	1.73	Dec 22	0.18	Aug 10	6.10	Dec 06 22:00	0.00	Jan 09 05:00	95.3	93.03	6.84	0.10	0.03	0.00	0.00		

No AAAQO

Particulate Matter (PM_{2.5}) – Evergreen Park 2019 Summary and Frequency Distribution

Evergreen Park														PM _{2.5} (µg/m ³)					2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range						
												24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30	
January	742	3.07	12.19	Jan 12	0.02	Jan 01	21.20	Jan 04 04:00	0.00	Jan 01 01:00	100.00	0	0	53.77	30.05	9.57	5.93	0.67	0.00	
February	661	4.63	10.48	Feb 18	1.01	Feb 27	36.58	Feb 14 09:00	0.00	Feb 09 13:00	98.36	0	0	29.35	43.27	19.52	6.35	1.36	0.15	
March	729	5.04	13.25	Mar 21	0.76	Mar 12	39.94	Mar 24 14:00	0.00	Mar 05 14:00	98.39	0	0	33.61	30.32	26.61	7.68	1.65	0.14	
April	708	2.42	7.70	Apr 11	0.46	Apr 15	31.33	Apr 11 18:00	0.00	Apr 01 14:00	98.89	0	0	54.38	37.57	6.92	0.71	0.28	0.14	
May	738	17.06	200.25	May 31	0.68	May 03	404.38	May 30 15:00	0.00	May 03 04:00	99.19	2	32	34.55	30.49	10.84	5.01	10.84	8.27	
June	718	4.27	12.60	Jun 01	1.31	Jun 24	93.53	Jun 10 10:00	0.00	Jun 02 15:00	100.00	0	1	39.83	38.58	13.93	4.32	2.65	0.70	
July	739	4.80	10.35	Jul 30	1.13	Jul 02	32.32	Jul 27 14:00	0.00	Jul 01 06:00	99.60	0	0	34.37	36.40	18.40	7.31	3.38	0.14	
August	742	3.73	14.24	Aug 14	0.19	Aug 09	55.15	Aug 14 11:00	0.00	Aug 04 14:00	100.00	0	0	44.20	35.98	14.42	3.50	1.48	0.40	
September	715	2.80	5.98	Sep 03	0.10	Sep 09	32.10	Sep 19 17:00	0.00	Sep 02 13:00	99.86	0	0	56.64	30.21	9.37	2.38	1.12	0.28	
October	744	3.40	8.74	Oct 03	0.44	Oct 08	35.67	Oct 05 08:00	0.00	Oct 04 10:00	100.00	0	0	46.51	35.62	13.17	3.63	0.94	0.13	
November	713	4.25	14.51	Nov 30	0.22	Nov 23	30.01	Nov 30 15:00	0.00	Nov 03 01:00	99.58	0	0	45.16	28.19	17.39	6.17	2.95	0.14	
December	677	4.18	12.38	Dec 06	0.19	Dec 15	32.49	Dec 23 12:00	0.00	Dec 02 07:00	91.26	0	0	32.20	42.54	20.38	3.84	0.89	0.15	
Annual	8626	5.00	200.25	May 31	0.02	Jan 01	404.38	May 30 15:00	0.00	Jan 01 01:00	98.8	2	33	42.42	34.69	14.83	4.76	2.39	0.91	

AAAQO Objectives: 24-Hr: 30 µg/m³, 1-Hr: 80 µg/m³

Ambient Temperature (ET) – Evergreen Park 2019 Summary

Evergreen Park											Ambient Temperature (°C)		2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)		
January	744	-8.0	7.1	Jan 26	-25.6	Jan 08	8.6	Jan 26 22:00	-31.5	Jan 08 09:00	100.0		
February	663	-21.6	-5.1	Feb 19	-35.9	Feb 04	1.0	Feb 19 17:00	-39.8	Feb 04 08:00	98.7		
March	732	-3.8	6.3	Mar 17	-28.2	Mar 02	18.7	Mar 20 17:00	-35.6	Mar 02 08:00	98.4		
April	718	4.1	9.0	Apr 23	-3.0	Apr 04	16.2	Apr 22 17:00	-5.9	Apr 05 05:00	99.7		
May	743	10.9	20.5	May 29	-1.9	May 03	29.8	May 28 17:00	-5.5	May 02 06:00	99.9		
June	720	14.2	19.7	Jun 12	6.8	Jun 06	27.5	Jun 16 17:00	1.9	Jun 05 05:00	100.0		
July	744	15.9	20.7	Jul 22	11.8	Jul 01	27.4	Jul 22 17:00	6.3	Jul 01 09:00	100.0		
August	744	13.9	19.6	Aug 04	8.7	Aug 18	26.6	Aug 21 15:00	2.3	Aug 10 06:00	100.0		
September	719	10.3	16.3	Sep 03	-0.4	Sep 29	25.4	Sep 03 15:00	-6.2	Sep 29 07:00	99.9		
October	744	2.5	10.2	Oct 03	-8.8	Oct 28	18.4	Oct 02 15:00	-15.8	Oct 29 07:00	100.0		
November	720	-4.7	5.8	Nov 17	-19.5	Nov 30	11.6	Nov 17 14:00	-24.2	Nov 11 06:00	100.0		
December	744	-9.5	1.5	Dec 03	-15.9	Dec 13	5.6	Dec 31 14:00	-20.8	Dec 01 06:00	100.0		
Annual	8735	2.2	20.7	Jul 22	-35.9	Feb 04	29.8	May 28 17:00	-39.8	Feb 04 08:00	99.7		

Relative Humidity (RH) – Evergreen Park 2019 Summary

Evergreen Park		Relative Humidity (%)									2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	76.9	91.9	Jan 13	57.6	Jan 26	95.8	Jan 13 08:00	45.6	Jan 30 05:00	100.0
February	663	70.2	82.8	Feb 22	60.8	Feb 28	92.9	Feb 20 04:00	32.9	Feb 28 16:00	98.7
March	732	62.6	75.8	Mar 24	49.6	Mar 15	94.9	Mar 25 04:00	16.2	Mar 20 17:00	98.4
April	718	56.8	87.2	Apr 15	32.8	Apr 23	95.7	Apr 15 12:00	14.9	Apr 24 16:00	99.7
May	743	57.4	90.3	May 15	30.1	May 12	98.9	May 07 09:00	11.3	May 12 18:00	99.9
June	720	65.4	95.4	Jun 28	32.6	Jun 02	98.8	Jun 22 08:00	16.3	Jun 02 16:00	100.0
July	744	72.4	91.8	Jul 10	51.1	Jul 12	98.6	Jul 11 07:00	30.8	Jul 29 16:00	100.0
August	744	76.3	95.5	Aug 18	55.1	Aug 22	99.2	Aug 13 07:00	32.6	Aug 22 18:00	100.0
September	719	76.6	97.3	Sep 09	59.7	Sep 20	99.3	Sep 17 11:00	30.6	Sep 02 16:00	99.9
October	744	74.8	96.7	Oct 16	40.3	Oct 06	99.0	Oct 17 10:00	26.4	Oct 06 16:00	100.0
November	720	81.8	95.2	Nov 03	58.7	Nov 22	98.6	Nov 08 10:00	45.7	Nov 18 15:00	100.0
December	744	79.2	87.1	Dec 10	64.5	Dec 03	93.1	Dec 31 22:00	47.9	Dec 03 15:00	100.0
Annual	8735	70.9	97.3	Sep 09	30.1	May 12	99.3	Sep 17 11:00	11.3	May 12 18:00	99.7

Wind Speed (WS) – Evergreen Park 2019 Summary

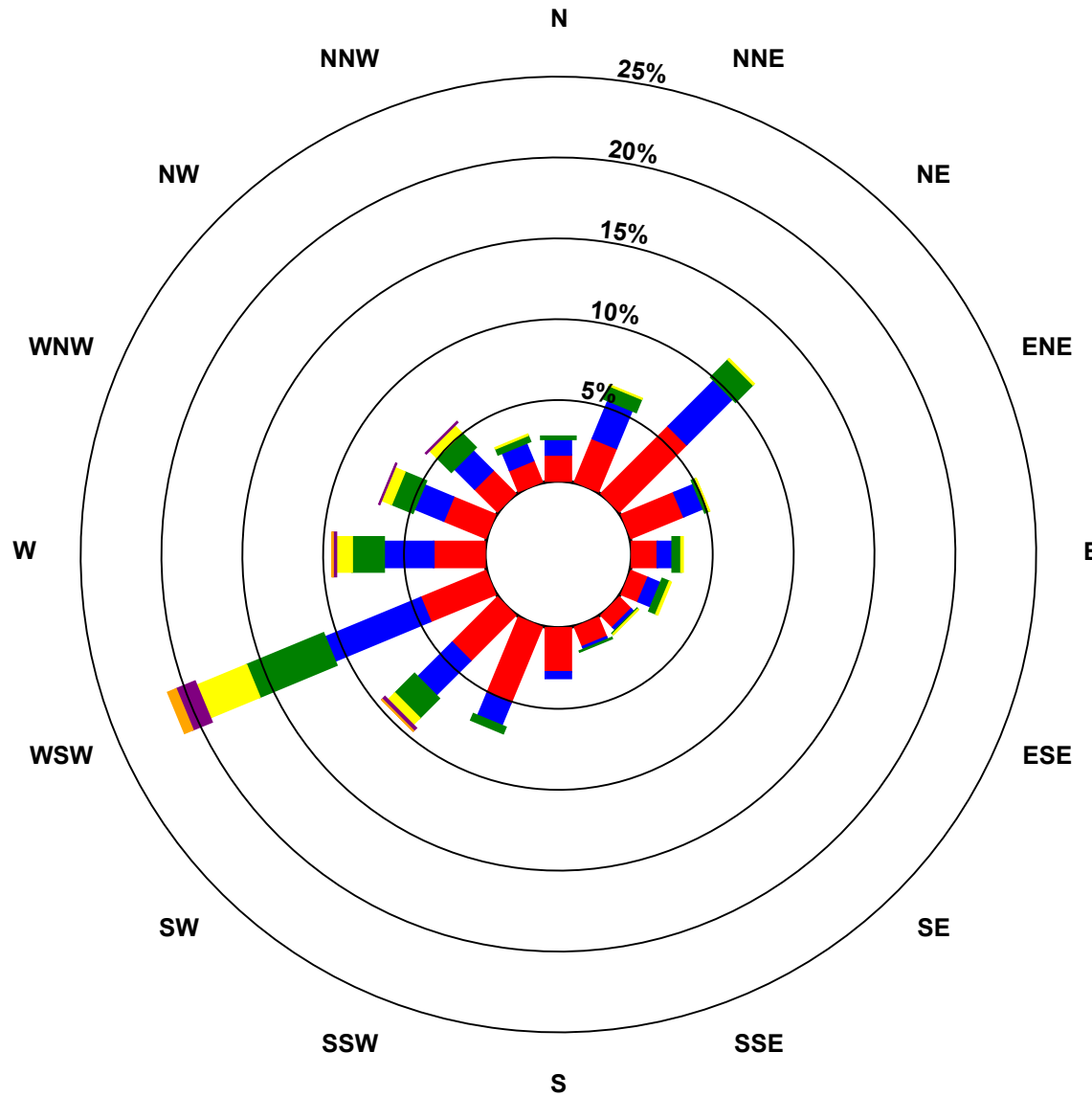
Evergreen Park		Wind Speed (km/h)									2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	8.9	30.1	Jan 26	1.1	Jan 12	52.3	Jan 26 22:00	0.1	Jan 09 06:00	100.0
February	615	6.3	14.9	Feb 02	2.0	Feb 21	30.4	Feb 19 12:00	0.0	Feb 03 20:00	91.5
March	727	6.5	17.9	Mar 15	3.3	Mar 21	34.6	Mar 12 03:00	0.0	Mar 09 00:00	97.7
April	718	12.0	30.8	Apr 23	4.7	Apr 06	51.0	Apr 17 14:00	0.0	Apr 13 06:00	99.7
May	743	8.2	16.7	May 12	2.2	May 07	31.2	May 12 15:00	0.0	May 27 02:00	99.9
June	720	12.0	25.5	Jun 04	3.4	Jun 16	42.2	Jun 11 18:00	0.1	Jun 01 04:00	100.0
July	741	9.0	20.5	Jul 25	1.8	Jul 10	33.5	Jul 25 11:00	0.1	Jul 16 23:00	99.6
August	744	8.9	18.9	Aug 22	3.1	Aug 29	37.3	Aug 15 18:00	0.2	Aug 11 03:00	100.0
September	716	6.4	12.4	Sep 04	1.6	Sep 30	31.7	Sep 04 14:00	0.1	Sep 30 22:00	100.0
October	744	4.3	14.9	Oct 05	0.9	Oct 16	18.9	Oct 05 19:00	0.0	Oct 10 08:00	100.0
November	720	3.0	8.6	Nov 22	0.6	Nov 29	19.0	Nov 17 23:00	0.1	Nov 01 01:00	100.0
December	744	2.1	5.3	Dec 03	0.6	Dec 22	18.1	Dec 02 18:00	0.0	Dec 09 22:00	100.0
Annual	8676	7.3	30.8	Apr 23	0.6	Dec 22	52.3	Jan 26 22:00	0.0	Dec 09 22:00	99.0

Wind Speed and Wind Direction Frequency Distribution – Evergreen Park 2019 Summary

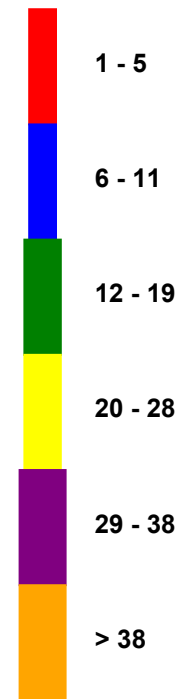
Evergreen Park								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	201	1.62	0.96	0.18	0.00	0.00	0.00	2.76
NNE	463	2.89	2.52	0.89	0.04	0.00	0.00	6.35
NE	837	5.87	3.99	1.54	0.08	0.00	0.00	11.48
ENE	373	3.51	1.30	0.27	0.03	0.00	0.00	5.12
E	230	1.58	0.92	0.55	0.11	0.00	0.00	3.15
ESE	186	1.12	0.84	0.48	0.11	0.00	0.00	2.55
SE	98	1.01	0.23	0.08	0.01	0.00	0.00	1.34
SSE	111	1.29	0.18	0.05	0.00	0.00	0.00	1.52
S	227	2.72	0.40	0.00	0.00	0.00	0.00	3.11
SSW	509	5.09	1.48	0.41	0.00	0.00	0.00	6.98
SW	694	3.95	3.00	1.71	0.59	0.25	0.01	9.52
WSW	1534	4.35	6.39	5.16	3.32	1.28	0.55	21.04
WSW	689	3.17	3.07	1.97	0.97	0.21	0.05	9.45
WNW	503	2.81	1.93	1.44	0.67	0.04	0.00	6.90
NW	415	1.99	1.76	1.25	0.64	0.05	0.00	5.69
NNW	222	1.41	1.17	0.41	0.05	0.00	0.00	3.04
Totals	7292	44.38	30.14	16.40	6.64	1.82	0.62	100

Wind Rose

Wind Speed (WS) (km/h)
Evergreen Park - 2019

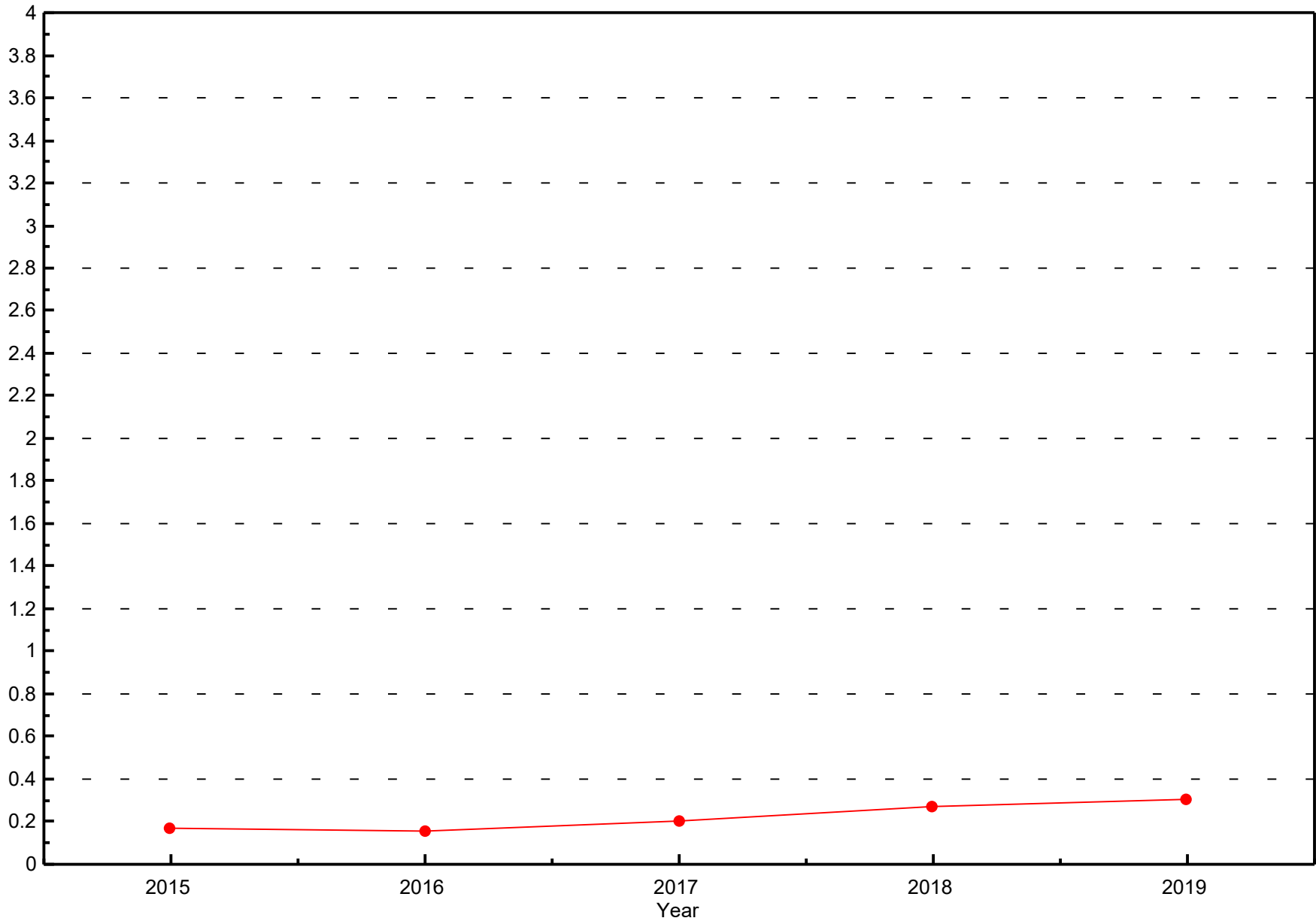


Wind Speed Classes (km/h)



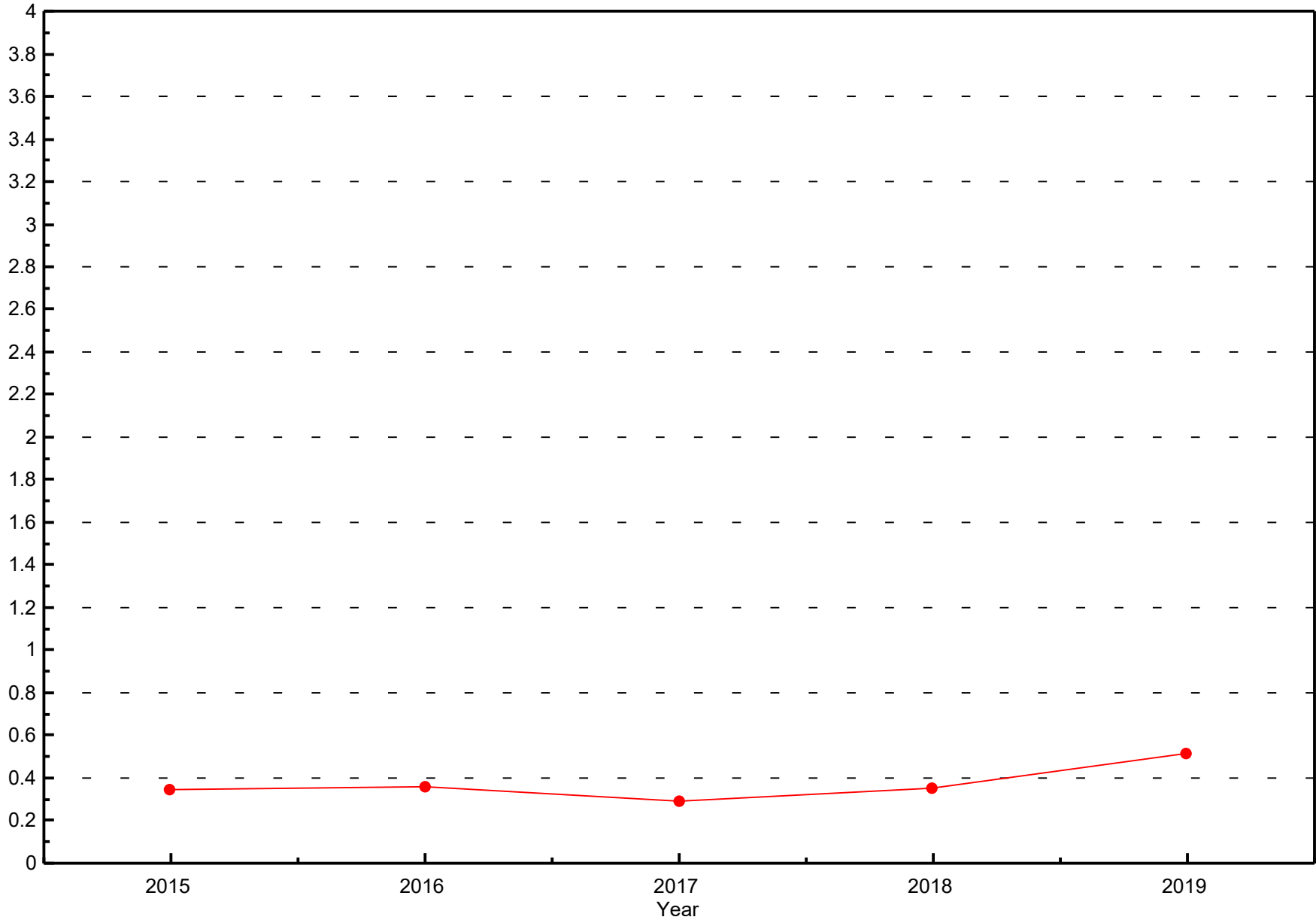
5-Year Annual Averages

Sulphur Dioxide (SO₂) - ppb
Evergreen Park (2015 to 2019)

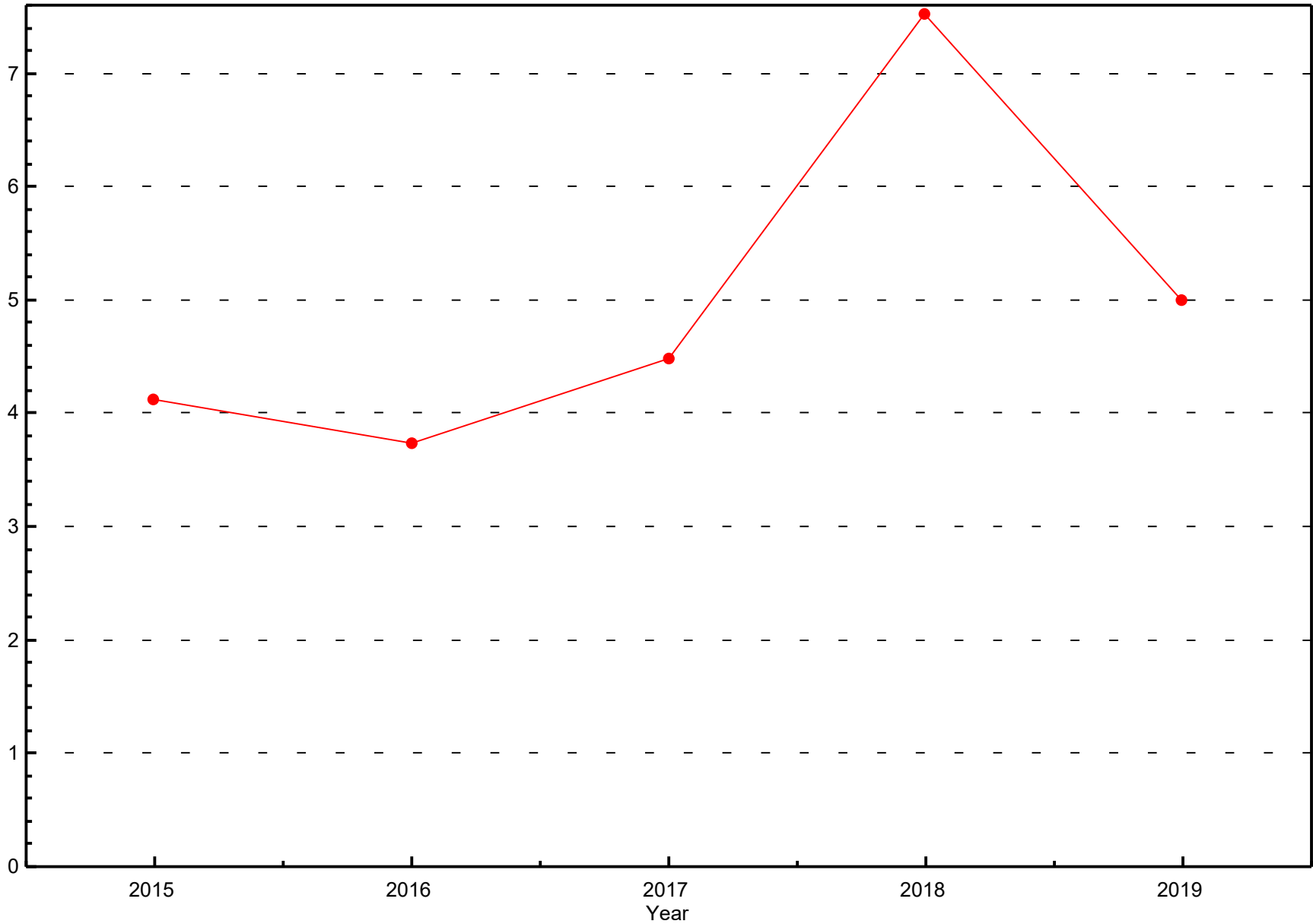


5-Year Annual Averages

**Total Reduced Sulphur (TRS) - ppb
Evergreen Park (2015 to 2019)**

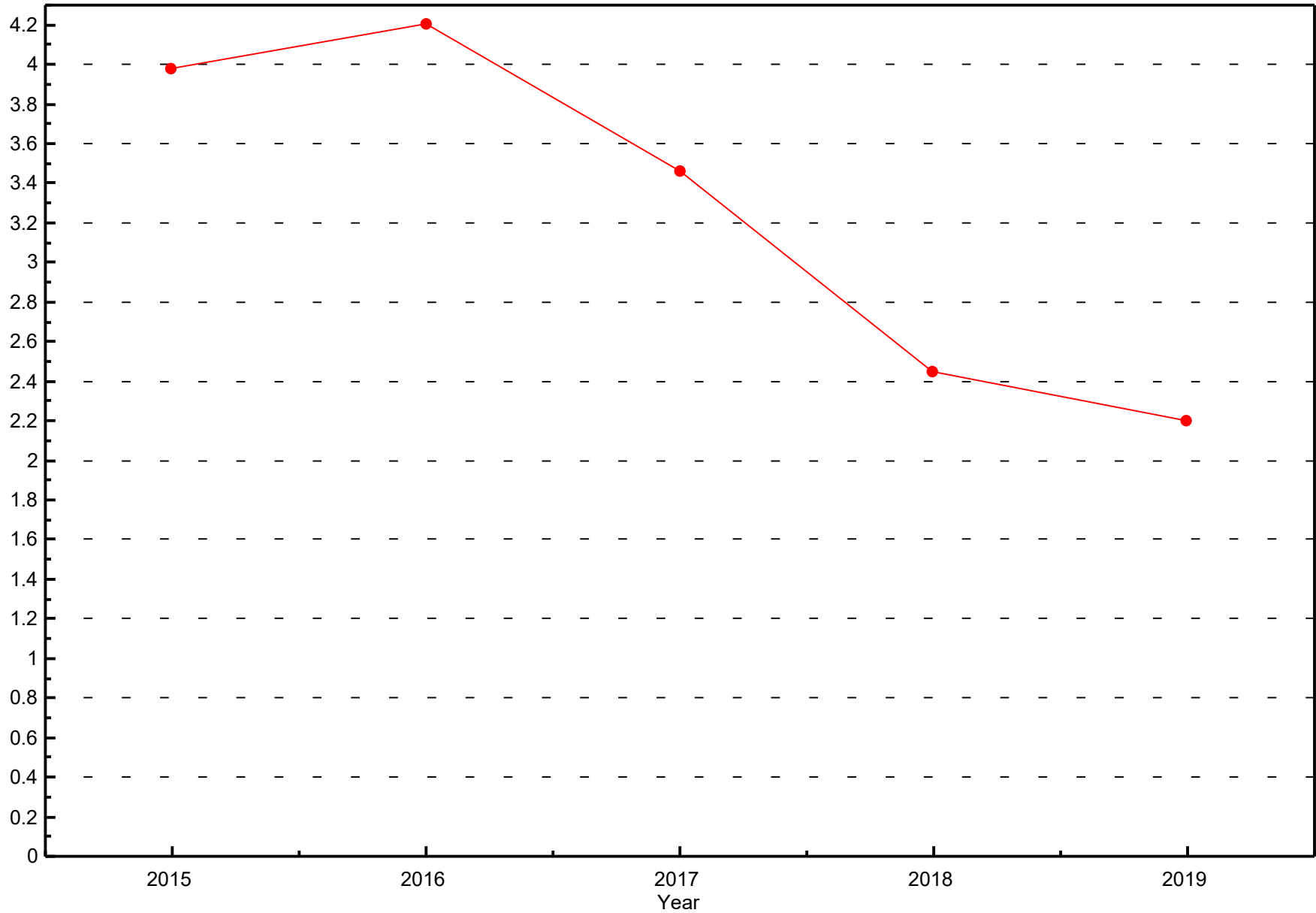


**5-Year Annual Averages Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Evergreen Park (2015 to 2019)**



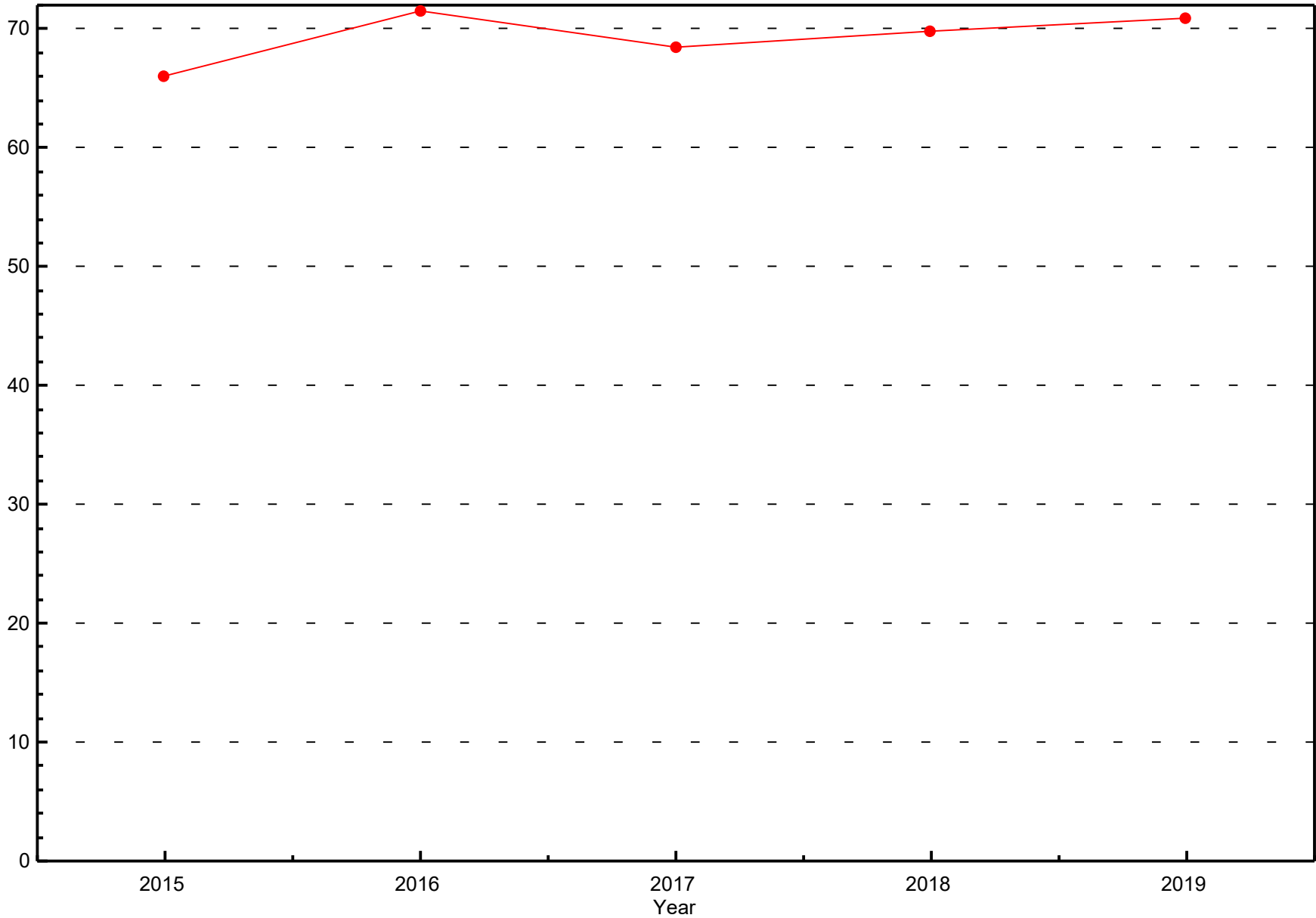
5-Year Annual Averages

External Temperature (ET) - °C
Evergreen Park (2015 to 2019)



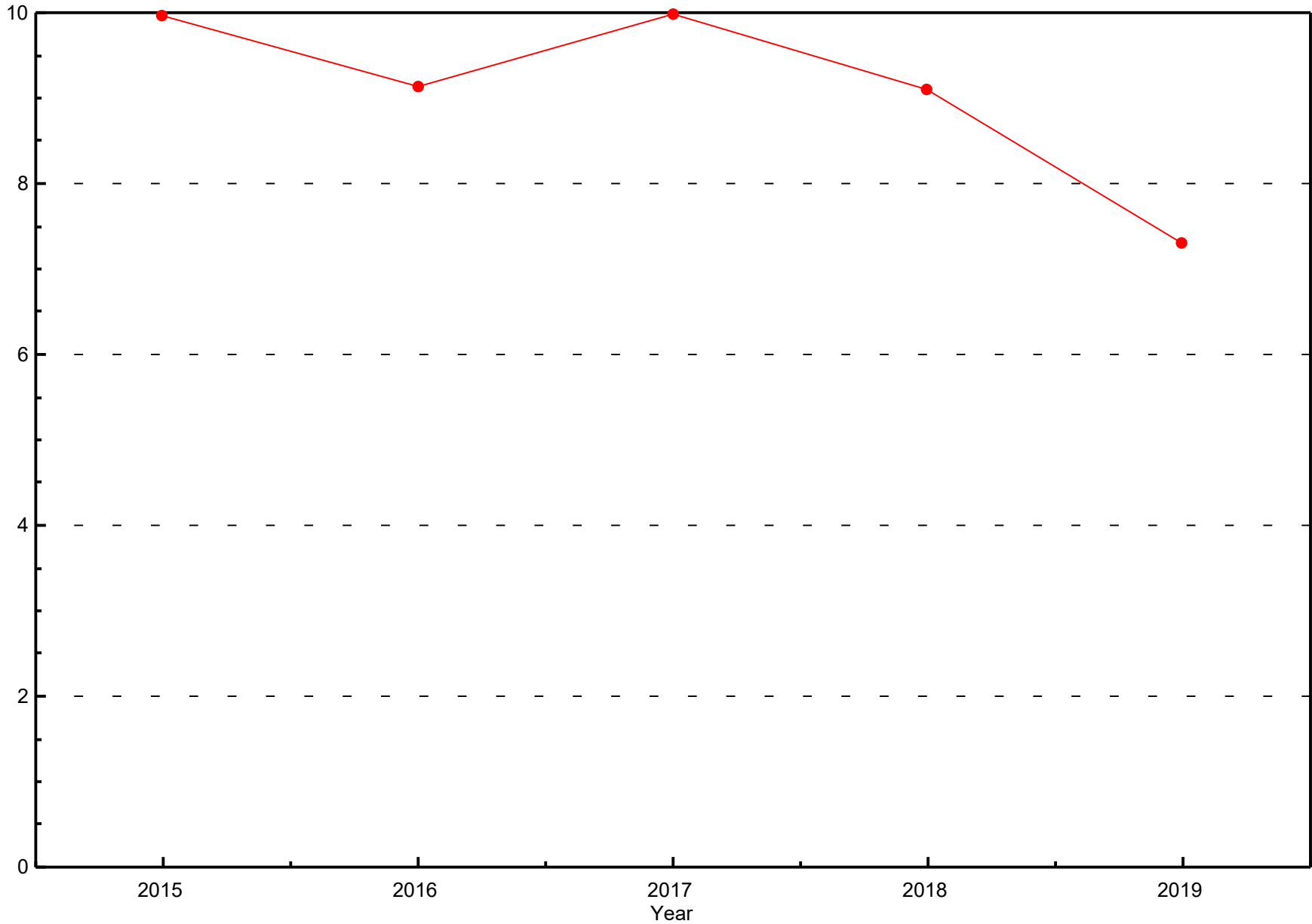
5-Year Annual Averages

**Relative Humidity (RH) - %
Evergreen Park (2015 to 2019)**



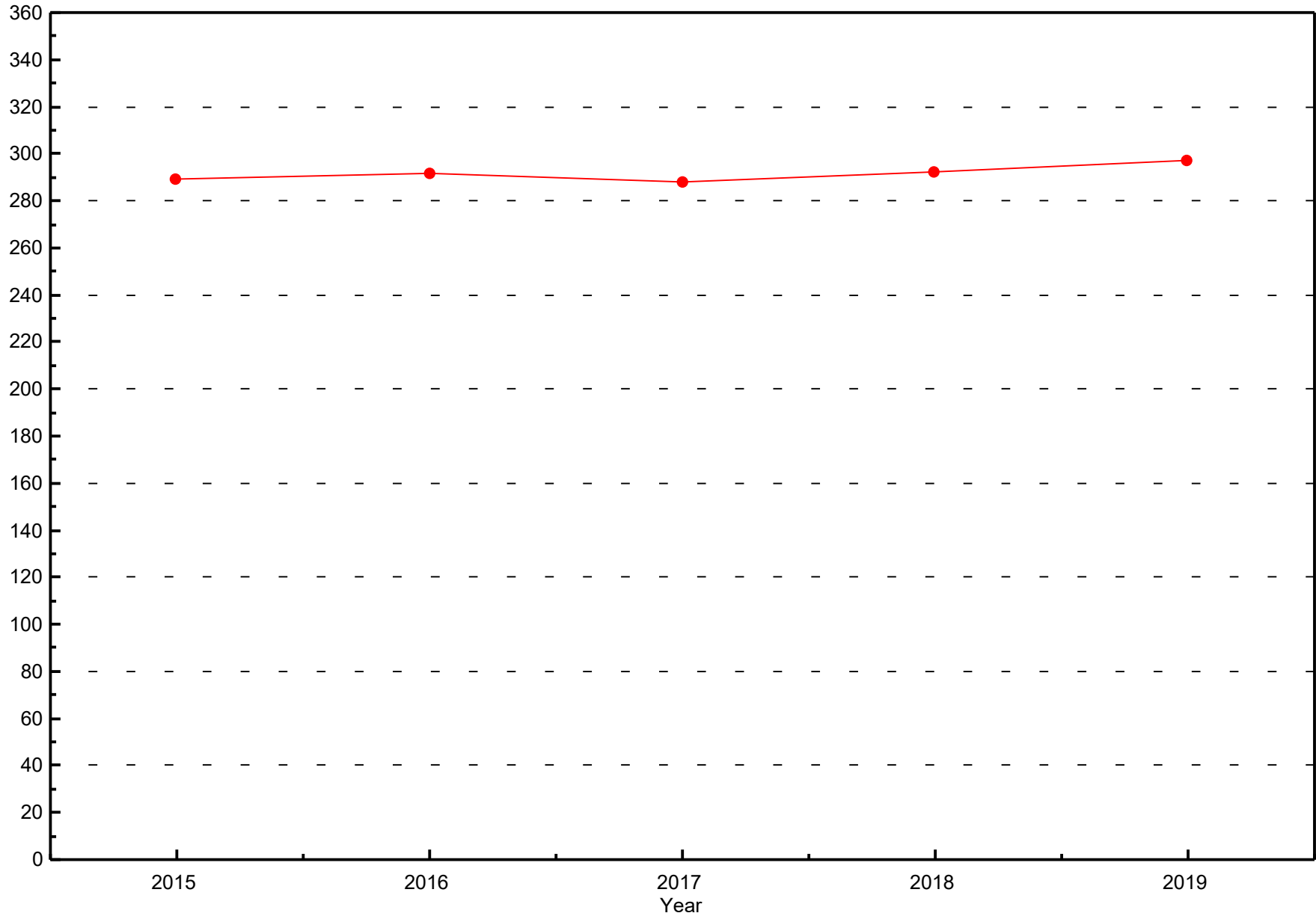
5-Year Annual Averages

**Wind Speed (WS) - km/h
Evergreen Park (2015 to 2019)**



5-Year Annual Averages

**Wind Direction (WD) - deg
Evergreen Park (2015 to 2019)**



PAZA
HENRY PIRKER
CONTINUOUS AMBIENT AIR MONITORING STATION

2019
ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												SO ₂ (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range					
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	710	0.49	1.42	Jan 11	0.13	Jan 15	4.63	Jan 07 12:00	0.06	Jan 24 00:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	638	0.69	1.86	Feb 07	0.18	Feb 01	6.30	Feb 05 15:00	0.00	Feb 19 12:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	708	0.48	1.34	Mar 07	0.11	Mar 27	3.75	Mar 07 14:00	0.01	Mar 28 05:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	682	0.18	0.44	Apr 06	0.03	Apr 23	3.42	Apr 21 12:00	0.00	Apr 02 23:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	702	0.21	1.23	May 31	0.03	May 15	6.90	May 31 12:00	0.00	May 05 21:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	683	0.21	0.89	Jun 02	0.02	Jun 11	8.05	Jun 02 02:00	0.00	Jun 01 17:00	99.72	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	707	0.40	1.89	Jul 17	0.01	Jul 09	16.93	Jul 17 09:00	0.00	Jul 01 08:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	705	0.15	0.67	Aug 28	0.01	Aug 18	8.10	Aug 28 01:00	0.00	Aug 04 19:00	99.73	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.56	3.84	Sep 24	0.00	Sep 09	38.76	Sep 24 23:00	0.00	Sep 08 21:00	100.00	0	0	0	99.42	0.58	0.00	0.00	0.00	0.00
October	707	0.77	5.29	Oct 04	0.10	Oct 07	24.47	Oct 04 21:00	0.00	Oct 01 04:00	100.00	0	0	0	99.86	0.14	0.00	0.00	0.00	0.00
November	683	0.50	4.01	Nov 24	0.01	Nov 28	42.09	Nov 24 19:00	0.00	Nov 12 21:00	99.86	0	0	0	99.71	0.29	0.00	0.00	0.00	0.00
December	707	0.46	1.08	Dec 15	0.09	Dec 18	8.53	Dec 15 21:00	0.00	Dec 03 13:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8317	0.42	5.29	Oct 04	0.00	Sep 09	42.09	Nov 24 19:00	0.00	Feb 19 12:00	99.9	0	0	0	99.91	0.09	0.00	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Hydrogen Sulfide (H₂S) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												H ₂ S (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range						
												24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10	
January	710	0.34	1.34	Jan 12	0.00	Jan 25	2.14	Jan 12 13:00	0.00	Jan 25 00:00	100.00	0	0	94.23	5.77	0.00	0.00	0.00	0.00	
February	638	0.56	2.30	Feb 05	0.06	Feb 01	13.33	Feb 05 06:00	0.00	Feb 01 01:00	100.00	0	2	89.50	9.09	1.10	0.00	0.00	0.31	
March	682	0.33	0.90	Mar 21	0.05	Mar 31	1.90	Mar 21 09:00	0.00	Mar 06 18:00	97.18	0	0	95.60	4.40	0.00	0.00	0.00	0.00	
April	679	0.17	0.44	Apr 23	0.05	Apr 10	1.86	Apr 25 04:00	0.00	Apr 02 09:00	100.00	0	0	98.53	1.47	0.00	0.00	0.00	0.00	
May	703	0.15	0.55	May 31	0.01	May 20	1.49	May 07 02:00	0.00	May 01 04:00	99.73	0	0	98.86	1.14	0.00	0.00	0.00	0.00	
June	684	0.14	0.34	Jun 21	0.00	Jun 23	0.73	Jun 21 05:00	0.00	Jun 01 15:00	99.86	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
July	706	0.14	0.41	Jul 04	0.00	Jul 18	1.09	Jul 07 03:00	0.00	Jul 01 11:00	100.00	0	0	99.86	0.14	0.00	0.00	0.00	0.00	
August	706	0.13	0.42	Aug 13	0.01	Aug 22	1.58	Aug 14 00:00	0.00	Aug 01 12:00	100.00	0	0	99.86	0.14	0.00	0.00	0.00	0.00	
September	684	0.16	0.43	Sep 22	0.00	Sep 26	0.92	Sep 15 09:00	0.00	Sep 01 15:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
October	705	0.17	0.46	Oct 16	0.01	Oct 06	1.31	Oct 16 11:00	0.00	Oct 01 02:00	100.00	0	0	99.15	0.85	0.00	0.00	0.00	0.00	
November	684	0.33	0.84	Nov 29	0.01	Nov 28	1.66	Nov 12 02:00	0.00	Nov 01 01:00	100.00	0	0	96.93	3.07	0.00	0.00	0.00	0.00	
December	709	0.50	1.33	Dec 22	0.11	Dec 02	2.92	Dec 22 07:00	0.00	Dec 02 05:00	100.00	0	0	87.59	11.85	0.56	0.00	0.00	0.00	
Annual	8290	0.26	2.30	Feb 05	0.00	Jan 25	13.33	Feb 05 06:00	0.00	Jan 25 00:00	99.7	0	2	96.98	2.90	0.11	0.00	0.00	0.01	

AAAQO Objectives: 24-Hr: 3 ppb, 1-Hr: 10 ppb

Nitric Oxide (NO) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												NO (ppb)					2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range						
												0 - 25	25 - 50	50 - 110	110 - 210	>210		
January	709	13.06	111.58	Jan 12	0.14	Jan 01	211.75	Jan 12 20:00	0.00	Jan 03 04:00	100.00	83.92	8.18	6.35	1.27	0.28		
February	635	16.11	40.57	Feb 21	1.00	Feb 15	109.32	Feb 12 21:00	0.00	Feb 19 02:00	100.00	75.91	15.12	8.98	0.00	0.00		
March	704	7.26	20.72	Mar 19	0.24	Mar 31	136.00	Mar 19 08:00	0.00	Mar 10 20:00	100.00	93.32	4.40	2.13	0.14	0.00		
April	679	0.86	4.75	Apr 16	0.03	Apr 14	44.26	Apr 16 08:00	0.00	Apr 11 00:00	100.00	99.71	0.29	0.00	0.00	0.00		
May	702	0.67	2.22	May 08	0.06	May 12	16.13	May 08 06:00	0.00	May 06 00:00	99.87	100.00	0.00	0.00	0.00	0.00		
June	681	0.58	2.66	Jun 22	0.13	Jun 02	19.18	Jun 22 09:00	0.00	Jun 22 22:00	99.72	100.00	0.00	0.00	0.00	0.00		
July	705	0.63	2.13	Jul 22	0.12	Jul 01	12.49	Jul 22 08:00	0.00	Jul 16 03:00	100.00	100.00	0.00	0.00	0.00	0.00		
August	703	1.13	3.13	Aug 13	0.27	Aug 04	18.75	Aug 29 08:00	0.00	Aug 15 02:00	100.00	100.00	0.00	0.00	0.00	0.00		
September	683	1.96	12.04	Sep 17	0.29	Sep 26	52.32	Sep 12 09:00	0.00	Sep 13 04:00	100.00	98.68	1.17	0.15	0.00	0.00		
October	706	5.10	31.00	Oct 16	0.14	Oct 06	94.04	Oct 16 11:00	0.00	Oct 06 23:00	100.00	94.48	3.82	1.70	0.00	0.00		
November	682	12.08	51.03	Nov 29	0.16	Nov 23	106.41	Nov 13 12:00	0.00	Nov 17 22:00	99.86	80.65	12.17	7.18	0.00	0.00		
December	705	17.35	60.01	Dec 01	1.20	Dec 11	127.64	Dec 05 09:00	0.00	Dec 03 05:00	100.00	73.62	15.74	10.21	0.43	0.00		
Annual	8294	6.35	111.58	Jan 12	0.03	Apr 14	211.75	Jan 12 20:00	0.00	Jan 03 04:00	100.0	92.21	4.68	2.92	0.16	0.02		

No AAAQO

Nitrogen Dioxide (NO₂) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												NO ₂ (ppb)					2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance	Percentage of Readings in Concentration Range					
												1-Hr	0 - 25	25 - 50	50 - 110	110 - 159	>159	
January	709	14.96	37.47	Jan 12	2.71	Jan 27	56.02	Jan 12 13:00	0.49	Jan 27 05:00	100.00	0	74.47	25.39	0.14	0.00	0.00	
February	635	23.62	38.47	Feb 12	5.43	Feb 01	56.18	Feb 12 21:00	1.17	Feb 23 14:00	100.00	0	50.08	48.19	1.73	0.00	0.00	
March	704	19.71	31.99	Mar 19	4.79	Mar 31	62.87	Mar 20 20:00	1.77	Mar 30 15:00	100.00	0	69.89	27.13	2.98	0.00	0.00	
April	679	6.18	11.29	Apr 09	2.02	Apr 19	35.51	Apr 13 07:00	0.40	Apr 28 17:00	100.00	0	97.94	2.06	0.00	0.00	0.00	
May	702	5.32	10.32	May 31	2.16	May 20	28.52	May 25 23:00	0.37	May 12 17:00	99.87	0	99.72	0.28	0.00	0.00	0.00	
June	681	3.89	6.56	Jun 26	1.82	Jun 20	19.57	Jun 17 08:00	0.76	Jun 02 15:00	99.72	0	100.00	0.00	0.00	0.00	0.00	
July	705	3.68	6.01	Jul 17	2.11	Jul 01	15.85	Jul 30 07:00	0.74	Jul 01 14:00	100.00	0	100.00	0.00	0.00	0.00	0.00	
August	703	3.97	7.68	Aug 23	1.62	Aug 18	16.98	Aug 13 23:00	0.66	Aug 29 16:00	100.00	0	100.00	0.00	0.00	0.00	0.00	
September	683	5.06	9.93	Sep 30	1.64	Sep 08	23.16	Sep 30 22:00	0.86	Sep 02 14:00	100.00	0	100.00	0.00	0.00	0.00	0.00	
October	706	8.72	18.14	Oct 11	2.71	Oct 05	35.29	Oct 30 08:00	1.13	Oct 08 14:00	100.00	0	97.03	2.97	0.00	0.00	0.00	
November	682	15.08	29.20	Nov 11	4.76	Nov 09	44.84	Nov 21 19:00	1.33	Nov 23 05:00	99.86	0	82.84	17.16	0.00	0.00	0.00	
December	705	20.04	31.22	Dec 28	6.38	Dec 11	50.90	Dec 05 08:00	2.83	Dec 31 07:00	100.00	0	63.83	36.03	0.14	0.00	0.00	
Annual	8294	10.79	38.47	Feb 12	1.62	Aug 18	62.87	Mar 20 20:00	0.37	May 12 17:00	100.0	0	87.62	11.98	0.39	0.00	0.00	

AAAQO Objectives: Annual: 24 ppb, 1-Hr: 159 ppb

Total Oxides of Nitrogen (NOx) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												NOx (ppb)					2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range					
												0 - 25	25 - 50	50 - 110	110 - 210	>210	
January	709	28.21	149.55	Jan 12	3.02	Jan 27	267.05	Jan 12 13:00	0.56	Jan 27 05:00	100.00	65.16	17.21	12.98	3.95	0.71	
February	635	40.00	78.08	Feb 21	7.44	Feb 01	166.22	Feb 12 21:00	1.58	Feb 23 16:00	100.00	40.94	28.03	26.77	4.25	0.00	
March	704	27.21	53.04	Mar 19	5.13	Mar 31	195.23	Mar 19 08:00	2.16	Mar 31 17:00	100.00	58.66	28.84	11.22	1.28	0.00	
April	679	7.09	13.98	Apr 16	2.05	Apr 19	64.71	Apr 16 08:00	0.37	Apr 28 17:00	100.00	95.73	3.83	0.44	0.00	0.00	
May	702	6.09	11.14	May 31	2.42	May 20	35.56	May 27 07:00	0.39	May 12 17:00	99.87	98.58	1.42	0.00	0.00	0.00	
June	681	4.67	8.55	Jun 17	2.06	Jun 02	35.61	Jun 17 08:00	0.89	Jun 02 18:00	99.72	99.56	0.44	0.00	0.00	0.00	
July	705	4.50	8.01	Jul 17	2.36	Jul 01	25.75	Jul 22 08:00	0.93	Jul 15 20:00	100.00	99.72	0.28	0.00	0.00	0.00	
August	703	5.23	10.00	Aug 23	2.24	Aug 18	29.10	Aug 30 08:00	0.76	Aug 16 05:00	100.00	99.57	0.43	0.00	0.00	0.00	
September	683	7.18	20.82	Sep 17	2.34	Sep 08	65.37	Sep 12 09:00	1.11	Sep 02 14:00	100.00	96.34	2.93	0.73	0.00	0.00	
October	706	14.01	44.79	Oct 16	3.19	Oct 05	116.51	Oct 16 12:00	1.27	Oct 08 02:00	100.00	82.58	13.74	3.40	0.28	0.00	
November	682	27.46	75.49	Nov 29	5.79	Nov 09	140.89	Nov 13 13:00	1.46	Nov 23 05:00	99.86	62.17	18.33	17.60	1.91	0.00	
December	705	37.66	89.50	Dec 01	7.68	Dec 11	175.30	Dec 05 09:00	3.02	Dec 31 07:00	100.00	44.96	26.67	24.68	3.69	0.00	
Annual	8294	17.33	149.55	Jan 12	2.05	Apr 19	267.05	Jan 12 13:00	0.37	Apr 28 17:00	100.0	80.19	11.06	7.44	1.24	0.06	

No AAAQO

Ozone (O₃) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												O ₃ (ppb)						2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance	Percentage of Readings in Concentration Range					
												1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	709	18.71	35.26	Jan 01	1.27	Jan 12	42.14	Jan 25 03:00	0.09	Jan 20 00:00	100.00	0	18.05	12.13	15.51	53.60	0.71	0.00
February	636	15.14	28.45	Feb 01	4.65	Feb 06	43.55	Feb 28 16:00	0.18	Feb 22 07:00	99.55	0	14.62	26.57	23.58	34.59	0.63	0.00
March	710	25.92	40.17	Mar 17	10.72	Mar 02	60.58	Mar 23 17:00	0.19	Mar 18 07:00	100.00	0	6.20	13.66	15.77	44.08	20.28	0.00
April	681	35.26	48.55	Apr 23	24.25	Apr 06	59.95	Apr 21 18:00	0.80	Apr 09 03:00	99.86	0	0.88	3.23	8.37	44.05	43.47	0.00
May	707	35.44	46.39	May 20	24.11	May 08	88.04	May 31 14:00	1.34	May 08 03:00	99.87	1	0.71	3.39	8.35	49.65	37.77	0.14
June	685	25.90	40.97	Jun 02	17.17	Jun 20	57.17	Jun 17 13:00	2.49	Jun 22 05:00	99.86	0	0.00	6.13	24.67	59.42	9.78	0.00
July	708	23.24	32.28	Jul 01	13.22	Jul 10	48.95	Jul 20 18:00	1.63	Jul 31 06:00	100.00	0	0.14	8.76	31.21	55.79	4.10	0.00
August	707	18.73	25.81	Aug 21	9.14	Aug 08	40.70	Aug 31 16:00	0.59	Aug 13 03:00	100.00	0	1.41	16.83	37.91	43.71	0.14	0.00
September	685	17.71	26.58	Sep 24	7.32	Sep 11	38.33	Sep 06 18:00	0.47	Sep 12 06:00	100.00	0	3.94	16.64	38.69	40.73	0.00	0.00
October	706	16.83	31.45	Oct 06	2.16	Oct 16	36.33	Oct 12 14:00	0.20	Oct 20 21:00	100.00	0	12.89	17.99	25.78	43.34	0.00	0.00
November	683	15.71	32.82	Nov 23	2.75	Nov 29	40.13	Nov 22 22:00	0.14	Nov 05 22:00	99.86	0	20.50	18.74	21.67	38.80	0.29	0.00
December	708	12.85	29.17	Dec 25	2.68	Dec 06	39.78	Dec 18 00:00	0.28	Dec 06 03:00	100.00	0	12.85	39.83	17.51	29.80	0.00	0.00
Annual	8325	21.82	48.55	Apr 23	1.27	Jan 12	88.04	May 31 14:00	0.09	Jan 20 00:00	99.9	1	7.31	14.67	22.34	45.66	10.01	0.01

AAAQO Objectives: 1-Hr: 76 ppb

Carbon Monoxide (CO) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												CO (ppm)					2019				
Month	# of Readings	Average	8-hr Maximum	Date	8-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range							
												8-Hr	1-Hr	0 - 1	2 - 3	4 - 5	6 - 10	>10			
January	709	0.3	0.9	Jan 12	0.1	Jan 26	1.8	Jan 12 20:00	0.0	Jan 26 11:00	100.0	0	0	2.26	95.77	1.97	0	0			
February	601	0.3	0.6	Feb 14	0.1	Feb 20	0.9	Feb 14 07:00	0.0	Feb 20 10:00	96.0	0	0	10.65	89.35	0	0	0			
March	702	0.1	0.3	Mar 04	0.0	Mar 10	0.8	Mar 22 08:00	0.0	Mar 05 20:00	100.0	0	0	74.79	25.21	0	0	0			
April	680	0.0	0.1	Apr 22	0.0	Apr 19	0.3	Apr 22 08:00	0.0	Apr 01 01:00	99.7	0	0	93.97	6.03	0	0	0			
May	701	0.2	1.5	May 31	0.0	May 05	3.1	May 30 15:00	0.0	May 01 03:00	99.7	0	0	24.11	71.9	3.14	0.86	0			
June	687	0.1	0.2	Jun 27	0.1	Jun 19	0.8	Jun 27 07:00	0.1	Jun 12 19:00	99.9	0	0	0.15	99.85	0	0	0			
July	708	0.2	0.2	Jul 22	0.1	Jul 28	0.5	Jul 22 08:00	0.1	Jul 26 19:00	100.0	0	0	1.98	98.02	0	0	0			
August	705	0.2	0.2	Aug 02	0.1	Aug 09	0.4	Aug 13 22:00	0.1	Aug 12 04:00	99.7	0	0	0	100	0	0	0			
September	686	0.2	0.2	Sep 12	0.1	Sep 22	0.5	Sep 28 08:00	0.1	Sep 22 03:00	100.0	0	0	0.73	99.27	0	0	0			
October	708	0.2	0.4	Oct 16	0.1	Oct 08	1.0	Oct 02 08:00	0.0	Oct 08 17:00	100.0	0	0	1.84	98.02	0.14	0	0			
November	683	0.3	0.5	Nov 07	0.1	Nov 25	1.0	Nov 07 17:00	0.1	Nov 18 03:00	99.9	0	0	0	99.85	0.15	0	0			
December	708	0.3	0.6	Dec 01	0.2	Dec 12	1.7	Dec 05 08:00	0.1	Dec 02 15:00	100.0	0	0	0.42	99.01	0.56	0	0			
Annual	8278	0.2	1.5	May 31	0.0	Mar 10	3.1	May 30 15:00	0.0	Jan 26 11:00	99.6	0	0	17.73	81.68	0.52	0.07	0.00			

AAAQO Objectives: 8-Hr: 5 ppm, 1-Hr: 13 ppm

Total Hydrocarbons (THC) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												THC (ppm)						2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range							
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0		
January	708	2.23	3.34	Jan 12	1.97	Jan 25	3.79	Jan 12 17:00	1.94	Jan 27 01:00	100.00	0.00	15.82	68.22	15.96	0.00	0.00		
February	637	2.38	2.90	Feb 04	2.02	Feb 01	3.36	Feb 06 10:00	1.91	Feb 19 16:00	100.00	0.00	6.91	60.44	32.65	0.00	0.00		
March	708	2.32	2.81	Mar 22	1.90	Mar 12	5.12	Mar 22 02:00	1.67	Mar 18 12:00	100.00	0.00	26.27	49.86	23.73	0.14	0.00		
April	675	2.21	2.88	Apr 13	1.97	Apr 19	9.41	Apr 13 07:00	1.93	Apr 03 08:00	98.75	0.00	26.96	64.00	7.56	1.48	0.00		
May	701	2.06	2.29	May 28	1.97	May 19	5.19	May 28 05:00	1.91	May 11 19:00	99.73	0.00	43.08	55.49	1.28	0.14	0.00		
June	683	2.00	2.11	Jun 22	1.95	Jun 19	3.05	Jun 22 00:00	1.91	Jun 13 12:00	99.72	0.00	66.62	32.94	0.44	0.00	0.00		
July	708	2.12	2.37	Jul 17	1.98	Jul 01	3.44	Jul 17 00:00	1.95	Jul 02 17:00	100.00	0.00	16.24	79.66	4.10	0.00	0.00		
August	700	2.10	2.31	Aug 13	1.99	Aug 18	3.39	Aug 14 00:00	1.93	Aug 21 17:00	99.73	0.00	20.14	77.57	2.29	0.00	0.00		
September	621	2.14	2.41	Sep 12	2.01	Sep 08	3.44	Sep 12 07:00	1.93	Sep 04 00:00	90.97	0.00	6.44	90.98	2.58	0.00	0.00		
October	550	1.94	2.20	Oct 20	1.77	Oct 13	2.98	Oct 18 02:00	1.59	Oct 12 13:00	79.70	0.00	77.64	20.91	1.45	0.00	0.00		
November	650	2.12	3.02	Nov 30	1.86	Nov 23	3.32	Nov 30 23:00	1.83	Nov 17 18:00	96.94	0.00	47.23	41.23	11.54	0.00	0.00		
December	704	2.30	3.67	Dec 01	1.84	Dec 31	4.74	Dec 23 09:00	1.70	Dec 31 07:00	99.60	0.00	39.77	33.66	26.56	0.00	0.00		
Annual	8045	2.16	3.67	Dec 01	1.77	Oct 13	9.41	Apr 13 07:00	1.59	Oct 12 13:00	97.1	0.00	32.96	57.20	9.68	0.15	0.00		

No AAAQO

Methane (CH₄) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												CH ₄ (ppm)						2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range							
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0		
January	708	2.19	3.02	Jan 12	1.97	Jan 25	3.36	Jan 12 17:00	1.94	Jan 27 01:00	100.00	0.00	16.10	69.21	14.69	0.00	0.00		
February	637	2.31	2.68	Feb 04	2.01	Feb 01	3.01	Feb 09 13:00	1.91	Feb 19 16:00	100.00	0.00	8.16	65.78	26.06	0.00	0.00		
March	708	2.25	2.61	Mar 22	1.90	Mar 12	4.40	Mar 22 02:00	1.65	Mar 18 12:00	100.00	0.00	27.26	53.95	18.79	0.00	0.00		
April	675	2.18	2.74	Apr 13	1.97	Apr 19	7.88	Apr 13 07:00	1.93	Apr 03 08:00	98.75	0.00	28.89	62.52	7.70	0.89	0.00		
May	701	2.05	2.25	May 28	1.97	May 19	4.60	May 28 05:00	1.91	May 11 19:00	99.73	0.00	45.93	52.78	1.28	0.00	0.00		
June	683	2.00	2.11	Jun 22	1.95	Jun 19	3.04	Jun 22 00:00	1.91	Jun 13 12:00	99.72	0.00	67.64	31.92	0.44	0.00	0.00		
July	708	2.11	2.36	Jul 17	1.98	Jul 01	3.44	Jul 17 00:00	1.95	Jul 02 19:00	100.00	0.00	17.94	78.11	3.95	0.00	0.00		
August	700	2.10	2.31	Aug 13	1.99	Aug 18	3.39	Aug 14 00:00	1.93	Aug 21 17:00	99.73	0.00	21.57	77.29	1.14	0.00	0.00		
September	621	2.13	2.40	Sep 12	2.01	Sep 08	3.44	Sep 12 07:00	1.93	Sep 04 00:00	90.97	0.00	7.57	90.18	2.25	0.00	0.00		
October	550	1.95	2.21	Oct 20	1.77	Oct 13	2.79	Oct 18 04:00	1.65	Oct 12 13:00	79.70	0.00	74.00	24.55	1.45	0.00	0.00		
November	650	2.11	2.75	Nov 30	1.86	Nov 23	3.10	Nov 21 09:00	1.83	Nov 20 18:00	96.94	0.00	45.54	43.38	11.08	0.00	0.00		
December	704	2.21	3.23	Dec 01	1.83	Dec 31	4.32	Dec 23 09:00	1.70	Dec 31 07:00	99.60	0.00	40.48	40.91	18.61	0.00	0.00		
Annual	8045	2.14	3.23	Dec 01	1.77	Oct 13	7.88	Apr 13 07:00	1.65	Oct 12 13:00	97.1	0.00	33.73	58.24	7.95	0.08	0.00		

No AAAQO

Non-Methane Hydrocarbon (NMHC) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker												NMHC (ppm)						2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range							
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0		
January	708	0.04	0.32	Jan 12	0.00	Jan 06	0.48	Jan 08 12:00	0.00	Jan 01 04:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00		
February	637	0.06	0.21	Feb 04	0.00	Feb 02	0.47	Feb 24 07:00	0.00	Feb 01 01:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00		
March	708	0.06	0.20	Mar 22	0.00	Mar 12	0.75	Mar 22 07:00	0.00	Mar 01 01:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00		
April	675	0.03	0.14	Apr 13	0.00	Apr 28	1.45	Apr 13 07:00	0.00	Apr 01 01:00	98.75	100.00	0.00	0.00	0.00	0.00	0.00		
May	701	0.00	0.04	May 28	0.00	May 03	0.59	May 28 05:00	0.00	May 01 01:00	99.73	100.00	0.00	0.00	0.00	0.00	0.00		
June	683	0.00	0.00	Jun 27	0.00	Jun 19	0.04	Jun 27 23:00	0.00	Jun 01 07:00	99.72	100.00	0.00	0.00	0.00	0.00	0.00		
July	708	0.00	0.00	Jul 15	0.00	Jul 18	0.06	Jul 31 04:00	0.00	Jul 01 01:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00		
August	700	0.00	0.04	Aug 29	0.00	Aug 04	0.38	Aug 29 07:00	0.00	Aug 01 01:00	99.73	100.00	0.00	0.00	0.00	0.00	0.00		
September	621	0.00	0.01	Sep 18	0.00	Sep 25	0.14	Sep 18 06:00	0.00	Sep 01 01:00	90.97	100.00	0.00	0.00	0.00	0.00	0.00		
October	550	0.00	0.03	Oct 18	0.00	Oct 05	0.40	Oct 18 00:00	0.00	Oct 04 17:00	79.70	100.00	0.00	0.00	0.00	0.00	0.00		
November	650	0.01	0.26	Nov 30	0.00	Nov 03	0.63	Nov 02 20:00	0.00	Nov 01 01:00	96.94	100.00	0.00	0.00	0.00	0.00	0.00		
December	704	0.08	0.51	Dec 22	0.00	Dec 11	0.83	Dec 01 21:00	0.00	Dec 02 05:00	99.60	100.00	0.00	0.00	0.00	0.00	0.00		
Annual	8045	0.02	0.51	Dec 22	0.00	Mar 12	1.45	Apr 13 07:00	0.00	Jan 01 04:00	97.1	100.00	0.00	0.00	0.00	0.00	0.00		

No AAAQO

Particulate Matter (PM_{2.5}) – Henry Pirker 2019 Summary and Frequency Distribution

Henry Pirker													PM _{2.5} (µg/m ³)					2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range								
												24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30			
January	734	5.62	24.50	Jan 12	0.02	Jan 01	51.89	Jan 04 03:00	0.00	Jan 01 01:00	99.60	0	0	32.97	34.88	18.12	7.49	5.59	0.95			
February	635	9.14	17.23	Feb 06	2.82	Feb 28	137.75	Feb 26 23:00	0.35	Feb 23 18:00	94.49	0	2	13.86	35.43	22.83	15.28	9.13	3.46			
March	741	8.81	18.45	Mar 21	1.66	Mar 13	42.81	Mar 09 23:00	0.15	Mar 13 17:00	99.60	0	0	16.87	25.51	27.40	17.68	11.20	1.35			
April	717	4.11	8.39	Apr 06	1.08	Apr 19	34.93	Apr 09 07:00	0.18	Apr 08 18:00	99.72	0	0	36.26	41.70	14.92	6.00	0.98	0.14			
May	738	22.40	251.14	May 31	2.07	May 03	450.00	May 31 04:00	0.41	May 07 17:00	99.87	3	35	16.67	42.01	13.41	8.67	9.62	9.62			
June	717	3.49	8.37	Jun 22	0.60	Jun 19	29.28	Jun 06 04:00	0.19	Jun 18 06:00	99.58	0	0	42.40	43.79	9.07	3.63	1.12	0.00			
July	738	4.25	9.53	Jul 08	0.32	Jul 18	43.03	Jul 08 19:00	0.02	Jul 18 15:00	100.00	0	0	28.86	47.56	19.51	3.52	0.27	0.27			
August	732	3.46	10.11	Aug 02	0.15	Aug 24	19.13	Aug 13 22:00	0.00	Aug 23 17:00	99.06	0	0	41.80	39.07	15.98	2.60	0.55	0.00			
September	715	3.36	6.71	Sep 11	1.46	Sep 04	23.72	Sep 12 01:00	0.32	Sep 17 18:00	100.00	0	0	40.56	44.06	13.43	1.40	0.56	0.00			
October	740	4.55	13.62	Oct 11	0.83	Oct 08	43.26	Oct 11 10:00	0.24	Oct 04 13:00	100.00	0	0	32.30	42.84	17.57	5.95	1.08	0.27			
November	717	6.32	15.51	Nov 29	1.61	Nov 17	28.81	Nov 29 01:00	0.99	Nov 05 15:00	100.00	0	0	25.52	33.47	20.78	15.62	4.60	0.00			
December	742	7.87	23.92	Dec 01	1.53	Dec 15	50.47	Dec 08 10:00	0.00	Dec 02 17:00	100.00	0	0	15.77	28.71	29.51	19.00	6.33	0.67			
Annual	8666	6.95	251.14	May 31	0.02	Jan 01	450.00	May 31 04:00	0.00	Jan 01 01:00	99.3	3	37	29.27	38.68	18.17	8.61	3.92	1.35			

AAAQO Objectives: 24-Hr: 30 µg/m³, 1-Hr: 80 µg/m³

Ambient Temperature (ET) – Henry Pirker 2019 Summary

Henry Pirker											Ambient Temperature (°C)		2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)		
January	744	-7.8	6.0	Jan 26	-24.9	Jan 08	7.4	Jan 26 21:00	-30.9	Jan 08 08:00	100.0		
February	643	-21.0	-5.0	Feb 19	-34.2	Feb 03	1.8	Feb 19 16:00	-41.7	Feb 04 04:00	95.7		
March	744	-3.4	6.6	Mar 17	-28.1	Mar 02	16.6	Mar 19 15:00	-36.2	Mar 02 05:00	100.0		
April	719	4.8	9.2	Apr 23	-2.4	Apr 04	17.2	Apr 21 15:00	-5.9	Apr 26 05:00	99.9		
May	742	12.0	22.1	May 29	-1.6	May 03	30.9	May 28 16:00	-4.7	May 04 03:00	99.7		
June	706	15.1	21.3	Jun 16	8.2	Jun 20	29.5	Jun 17 15:00	4.6	Jun 08 04:00	98.1		
July	720	16.5	21.6	Jul 22	12.3	Jul 09	27.7	Jul 22 17:00	7.3	Jul 01 09:00	96.8		
August	741	14.4	19.7	Aug 04	9.1	Aug 18	27.8	Aug 21 15:00	3.2	Aug 29 06:00	99.6		
September	720	11.0	18.0	Sep 03	1.1	Sep 29	27.1	Sep 03 15:00	-3.9	Sep 30 07:00	100.0		
October	744	2.9	10.3	Oct 03	-8.1	Oct 28	18.8	Oct 02 15:00	-14.5	Oct 29 07:00	100.0		
November	720	-4.5	6.5	Nov 17	-19.3	Nov 10	12.4	Nov 17 13:00	-25.8	Nov 11 02:00	100.0		
December	744	-9.0	1.0	Dec 03	-15.8	Dec 13	5.5	Dec 31 13:00	-20.5	Dec 26 10:00	100.0		
Annual	8687	2.8	22.1	May 29	-34.2	Feb 03	30.9	May 28 16:00	-41.7	Feb 04 04:00	99.1		

Relative Humidity (RH) – Henry Pirker 2019 Summary

Henry Pirker											2019
Relative Humidity (%)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	70.0	81.6	Jan 14	61.1	Jan 26	86.0	Jan 13 10:00	48.3	Jan 08 14:00	100.0
February	643	61.3	69.8	Feb 22	54.5	Feb 09	82.2	Feb 20 04:00	34.6	Feb 28 16:00	95.7
March	744	59.0	69.4	Mar 26	51.0	Mar 04	84.8	Mar 25 08:00	18.1	Mar 19 15:00	100.0
April	719	53.3	77.8	Apr 15	34.9	Apr 23	86.7	Apr 07 07:00	16.5	Apr 20 15:00	99.9
May	742	51.5	79.1	May 15	30.6	May 20	89.3	May 07 08:00	12.4	May 12 19:00	99.7
June	706	60.7	84.1	Jun 28	35.1	Jun 02	89.8	Jun 22 07:00	16.1	Jun 02 16:00	98.1
July	720	66.7	84.6	Jul 24	53.7	Jul 12	90.1	Jul 11 06:00	34.0	Jul 16 17:00	96.8
August	741	69.0	84.4	Aug 08	52.5	Aug 22	90.5	Aug 13 06:00	34.1	Aug 21 15:00	99.6
September	720	69.2	85.6	Sep 09	55.6	Sep 21	90.9	Sep 04 06:00	32.9	Sep 02 16:00	100.0
October	744	68.3	85.6	Oct 16	42.0	Oct 06	89.5	Oct 17 09:00	29.9	Oct 06 19:00	100.0
November	720	73.2	85.2	Nov 08	59.5	Nov 22	89.2	Nov 08 02:00	46.4	Nov 18 15:00	100.0
December	744	70.6	77.9	Dec 10	59.8	Dec 02	83.4	Dec 04 07:00	47.5	Dec 26 13:00	100.0
Annual	8687	64.4	85.6	Oct 16	30.6	May 20	90.9	Sep 04 06:00	12.4	May 12 19:00	99.1

Solar Radiation (SR) – Henry Pirker 2019 Summary

Henry Pirker											2019
Solar Radiation (W/m ²)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	25.9	58.6	Jan 28	9.3	Jan 16	292.7	Jan 28 14:00	0.0	Jan 01 01:00	100.0
February	643	70.9	121.3	Feb 28	21.7	Feb 01	482.1	Feb 28 14:00	0.0	Feb 01 06:00	95.7
March	744	149.4	198.9	Mar 29	85.7	Mar 11	629.4	Mar 30 14:00	0.0	Mar 06 01:00	100.0
April	719	173.2	264.3	Apr 23	110.0	Apr 13	781.7	Apr 20 13:00	0.0	Apr 04 04:00	99.9
May	742	207.6	311.3	May 19	35.5	May 03	832.2	May 20 13:00	0.0	May 02 22:00	99.7
June	706	208.7	323.0	Jun 16	35.9	Jun 20	836.1	Jun 10 14:00	0.0	Jun 01 23:00	98.1
July	720	193.6	287.7	Jul 12	33.0	Jul 24	814.4	Jul 05 13:00	0.0	Jul 01 02:00	96.8
August	741	148.8	243.1	Aug 04	45.2	Aug 08	767.3	Aug 04 13:00	0.0	Aug 01 01:00	99.6
September	720	102.0	189.8	Sep 02	31.0	Sep 26	621.6	Sep 05 14:00	0.0	Sep 01 01:00	100.0
October	744	51.1	114.9	Oct 02	12.7	Oct 24	418.9	Oct 02 13:00	0.0	Oct 01 01:00	100.0
November	720	24.1	52.3	Nov 06	8.0	Nov 27	274.2	Nov 06 13:00	0.0	Nov 01 01:00	100.0
December	744	16.0	29.3	Dec 01	5.4	Dec 13	170.8	Dec 06 13:00	0.0	Dec 01 02:00	100.0
Annual	8687	114.2	323.0	Jun 16	5.4	Dec 13	836.1	Jun 10 14:00	0.0	Jan 01 01:00	99.1

Wind Speed (WS) – Henry Pirker 2019 Summary

Henry Pirker											
Wind Speed (km/h)											2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	733	5.9	19.0	Jan 26	1.1	Jan 12	30.9	Jan 26 23:00	0.1	Jan 11 19:00	98.5
February	540	4.4	11.2	Feb 02	2.1	Feb 17	17.8	Feb 02 10:00	0.0	Feb 17 21:00	80.4
March	711	3.8	9.7	Mar 12	2.1	Mar 19	17.9	Mar 12 04:00	0.0	Mar 22 06:00	95.6
April	719	8.8	22.5	Apr 23	3.7	Apr 11	32.2	Apr 17 12:00	0.3	Apr 16 06:00	99.9
May	742	7.4	14.4	May 20	2.7	May 07	22.6	May 12 17:00	0.1	May 05 15:00	99.7
June	719	9.1	17.8	Jun 18	3.7	Jun 26	29.5	Jun 18 18:00	0.5	Jun 03 01:00	99.9
July	744	7.2	15.4	Jul 25	2.3	Jul 10	26.5	Jul 25 11:00	0.2	Jul 17 09:00	100.0
August	741	6.7	14.7	Aug 16	3.0	Aug 30	22.9	Aug 16 05:00	0.1	Aug 10 05:00	100.0
September	720	7.1	15.9	Sep 24	2.7	Sep 17	28.0	Sep 24 15:00	0.5	Sep 28 07:00	100.0
October	744	7.6	20.8	Oct 05	1.7	Oct 16	31.3	Oct 06 11:00	0.0	Oct 12 02:00	100.0
November	712	5.7	12.8	Nov 23	2.2	Nov 07	27.5	Nov 17 23:00	0.2	Nov 07 13:00	98.9
December	742	4.1	8.2	Dec 03	2.0	Dec 26	25.0	Dec 17 20:00	0.1	Dec 26 06:00	99.7
Annual	8567	6.5	22.5	Apr 23	1.1	Jan 12	32.2	Apr 17 12:00	0.0	Oct 12 02:00	97.7

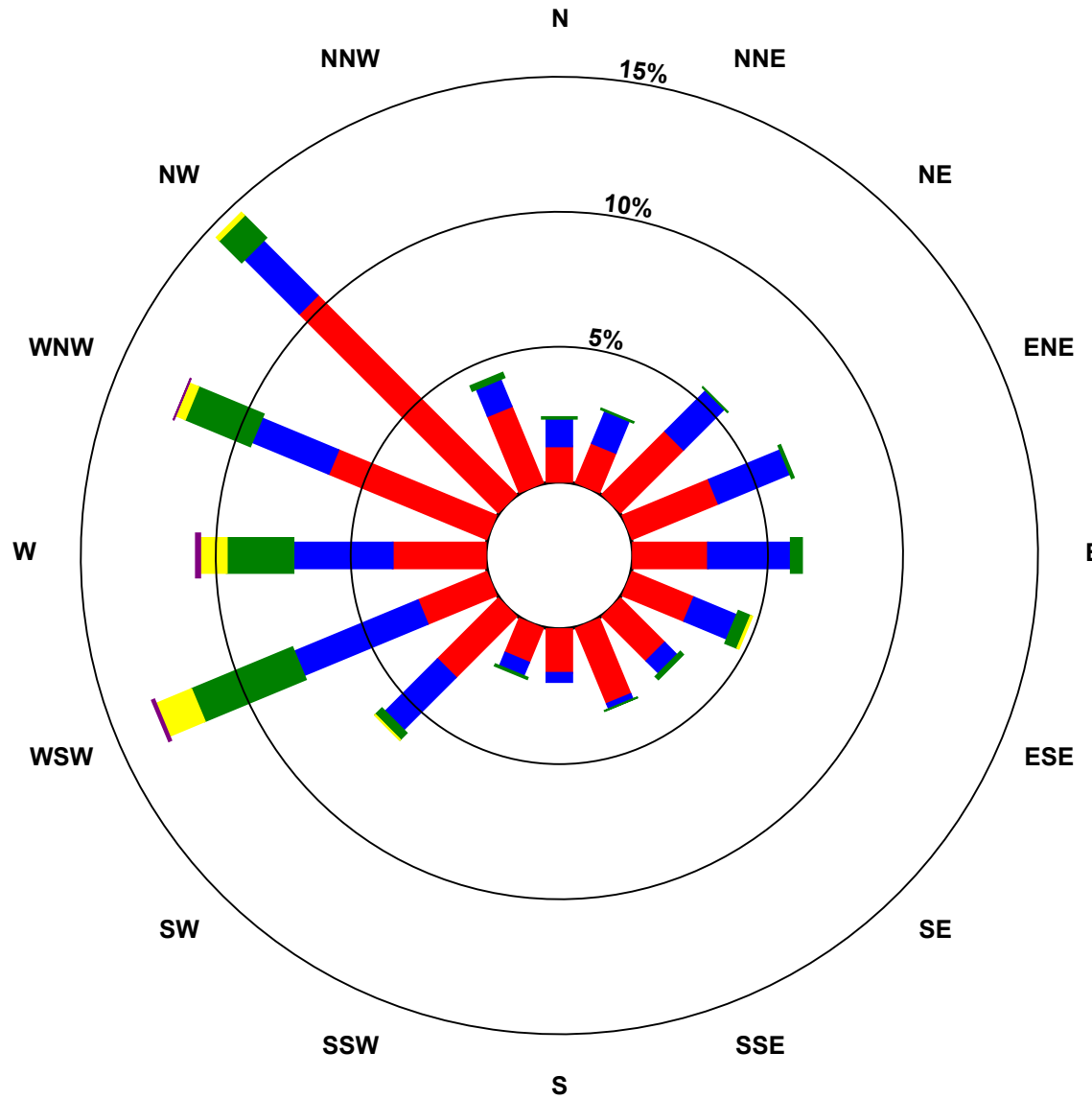
Wind Speed and Wind Direction Frequency Distribution – Henry Pirker 2019 Summary

Henry Pirker								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	197	1.31	1.02	0.06	0.00	0.00	0.00	2.40
NNE	238	1.58	1.28	0.04	0.00	0.00	0.00	2.90
NE	447	3.30	2.13	0.01	0.00	0.00	0.00	5.44
ENE	526	3.46	2.86	0.09	0.00	0.00	0.00	6.40
E	514	2.78	3.07	0.41	0.00	0.00	0.00	6.26
ESE	389	2.47	1.72	0.49	0.06	0.00	0.00	4.74
SE	255	2.31	0.65	0.15	0.00	0.00	0.00	3.10
SSE	266	3.02	0.21	0.01	0.00	0.00	0.00	3.24
S	161	1.62	0.34	0.00	0.00	0.00	0.00	1.96
SSW	161	1.36	0.54	0.06	0.00	0.00	0.00	1.96
SW	516	3.18	2.74	0.35	0.01	0.00	0.00	6.28
WSW	1090	2.75	4.95	4.05	1.41	0.10	0.00	13.27
WSW	882	3.44	3.68	2.47	0.99	0.16	0.00	10.74
WNW	1019	6.33	3.07	2.62	0.38	0.01	0.00	12.40
NW	1198	10.42	2.85	1.17	0.15	0.00	0.00	14.58
NNW	356	3.06	1.08	0.19	0.00	0.00	0.00	4.33
Totals	8215	52.39	32.17	12.17	2.99	0.27	0.00	100

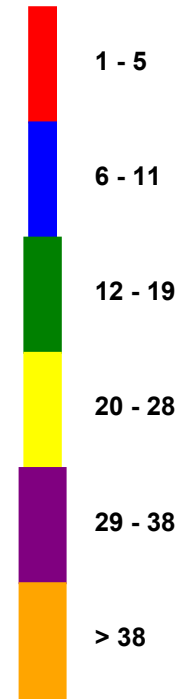
Wind Rose

Wind Speed (WS) (km/h)

Henry Pirker - 2019

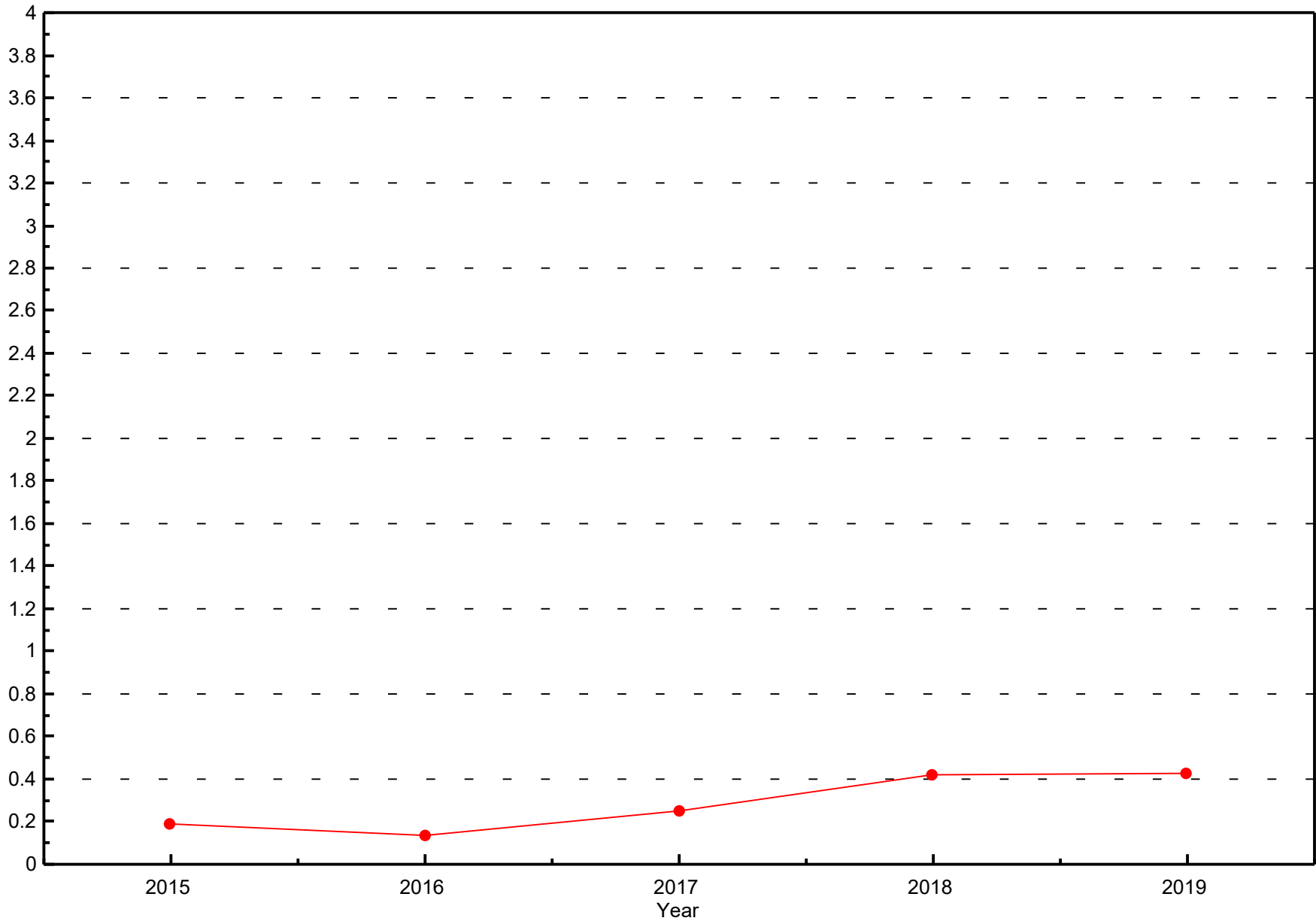


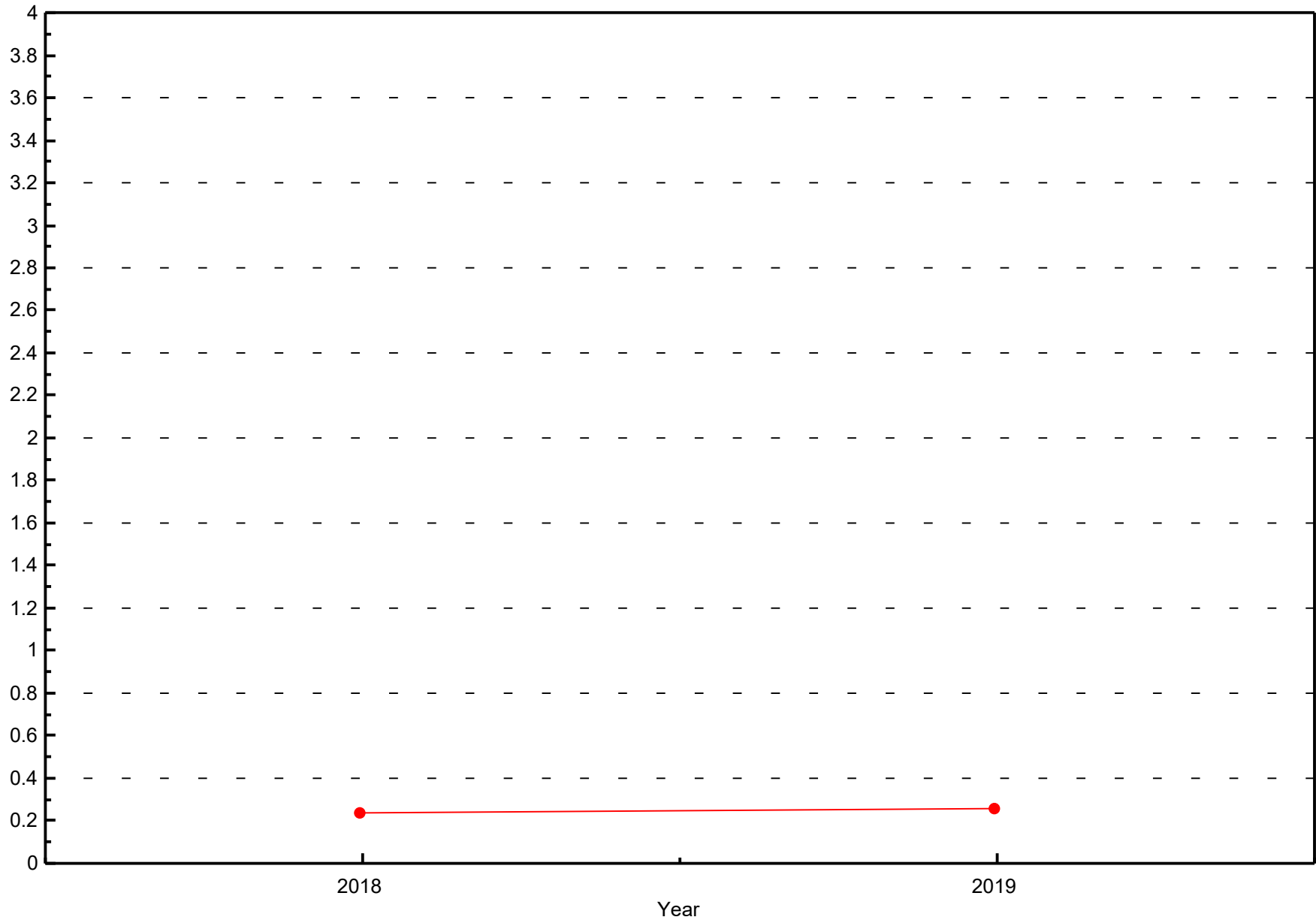
Wind Speed Classes (km/h)



5-Year Annual Averages

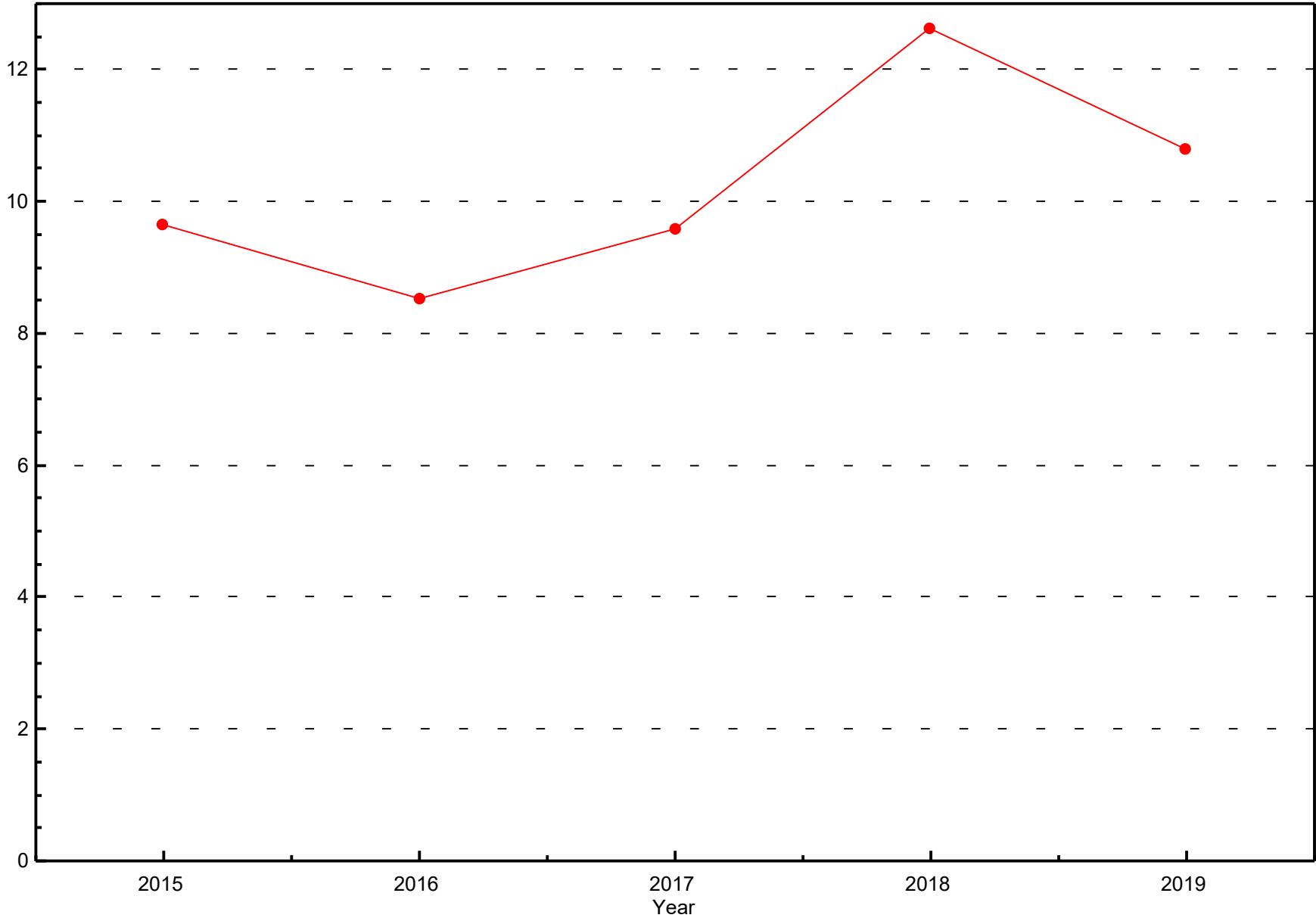
Sulphur Dioxide (SO₂) - ppb
Henry Pirker (2015 to 2019)





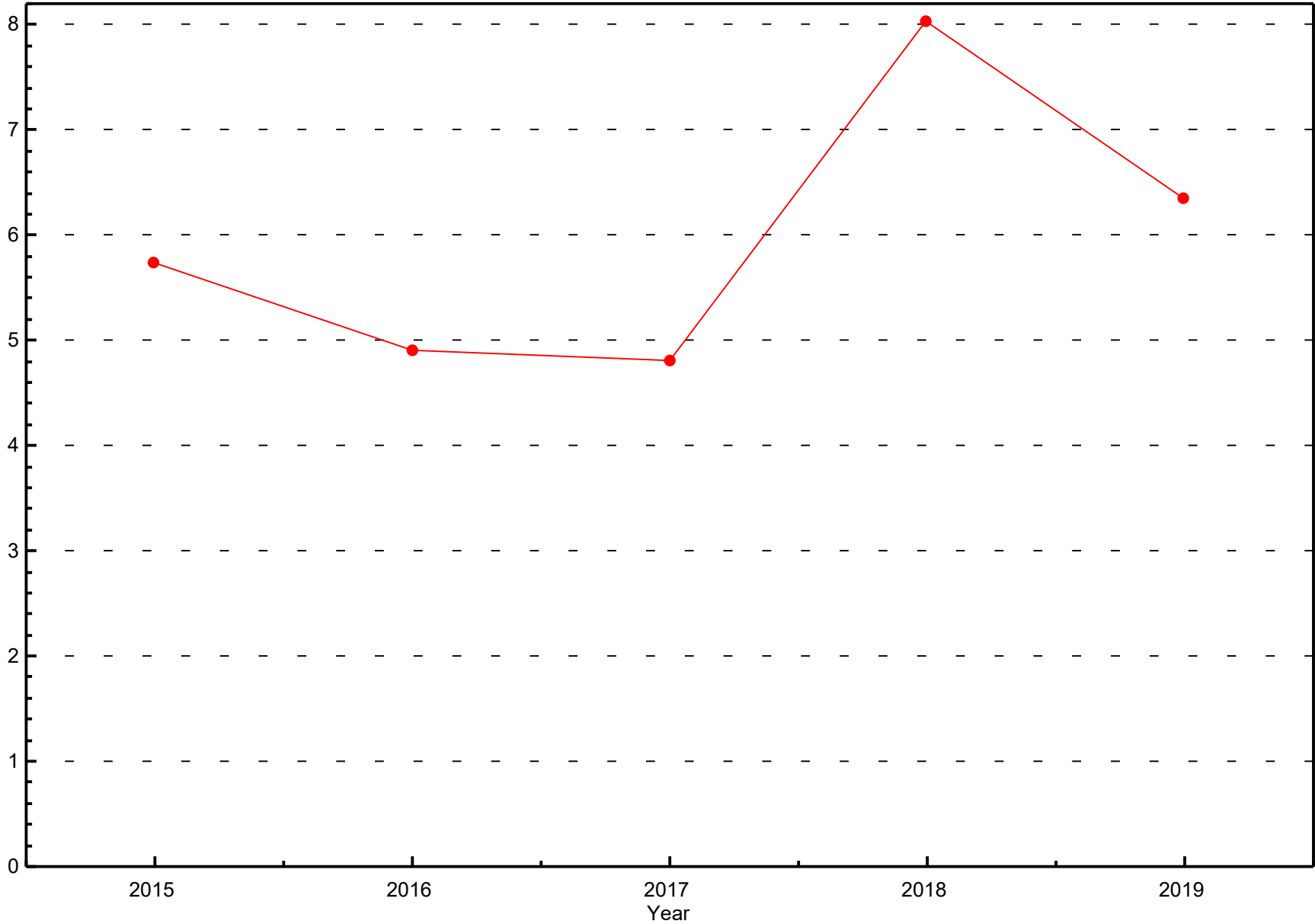
5-Year Annual Averages

Nitrogen Dioxide (NO₂) - ppb
Henry Pirker (2015 to 2019)



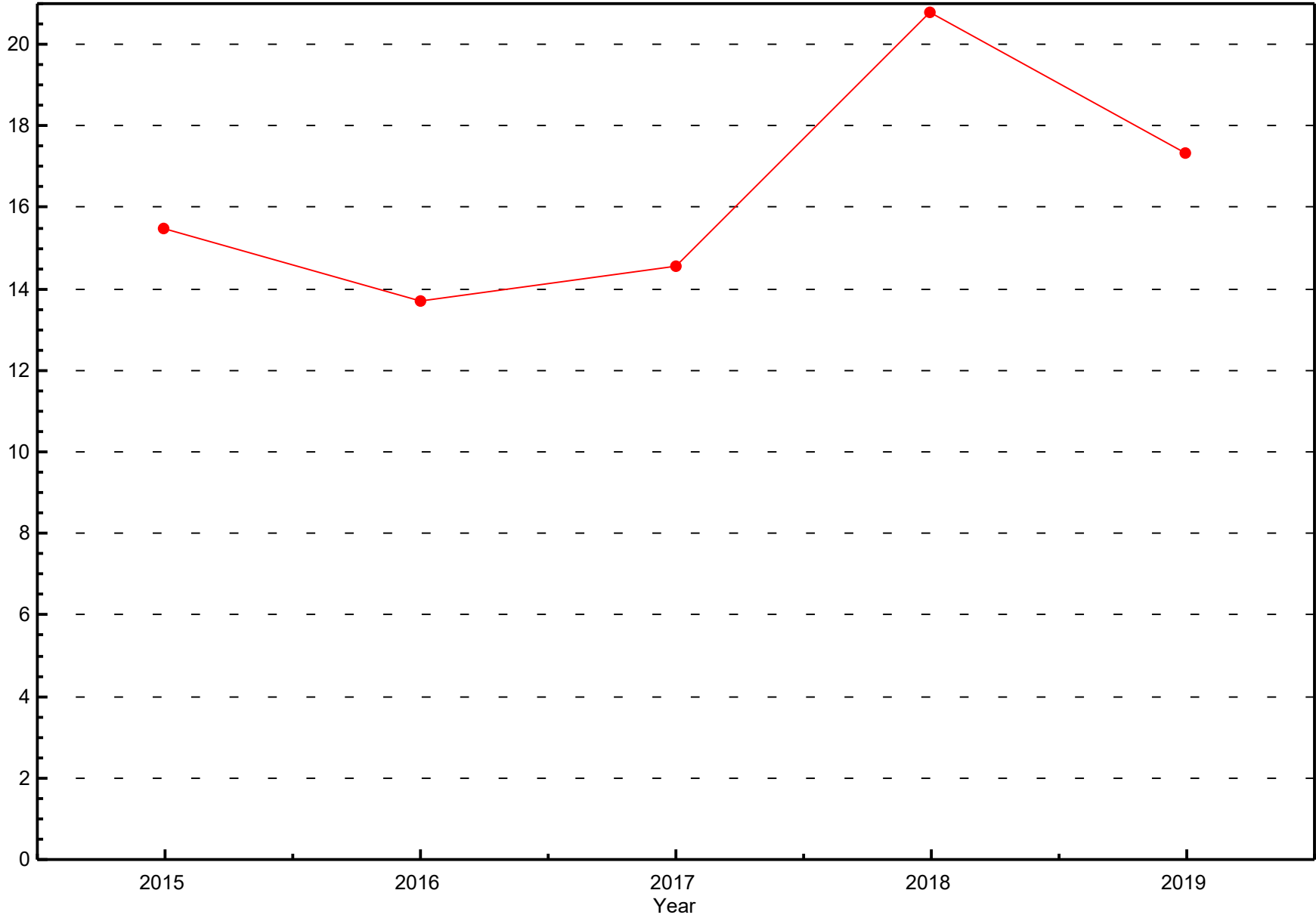
5-Year Annual Averages

Nitrogen Oxide (NO) - ppb
Henry Pirker (2015 to 2019)



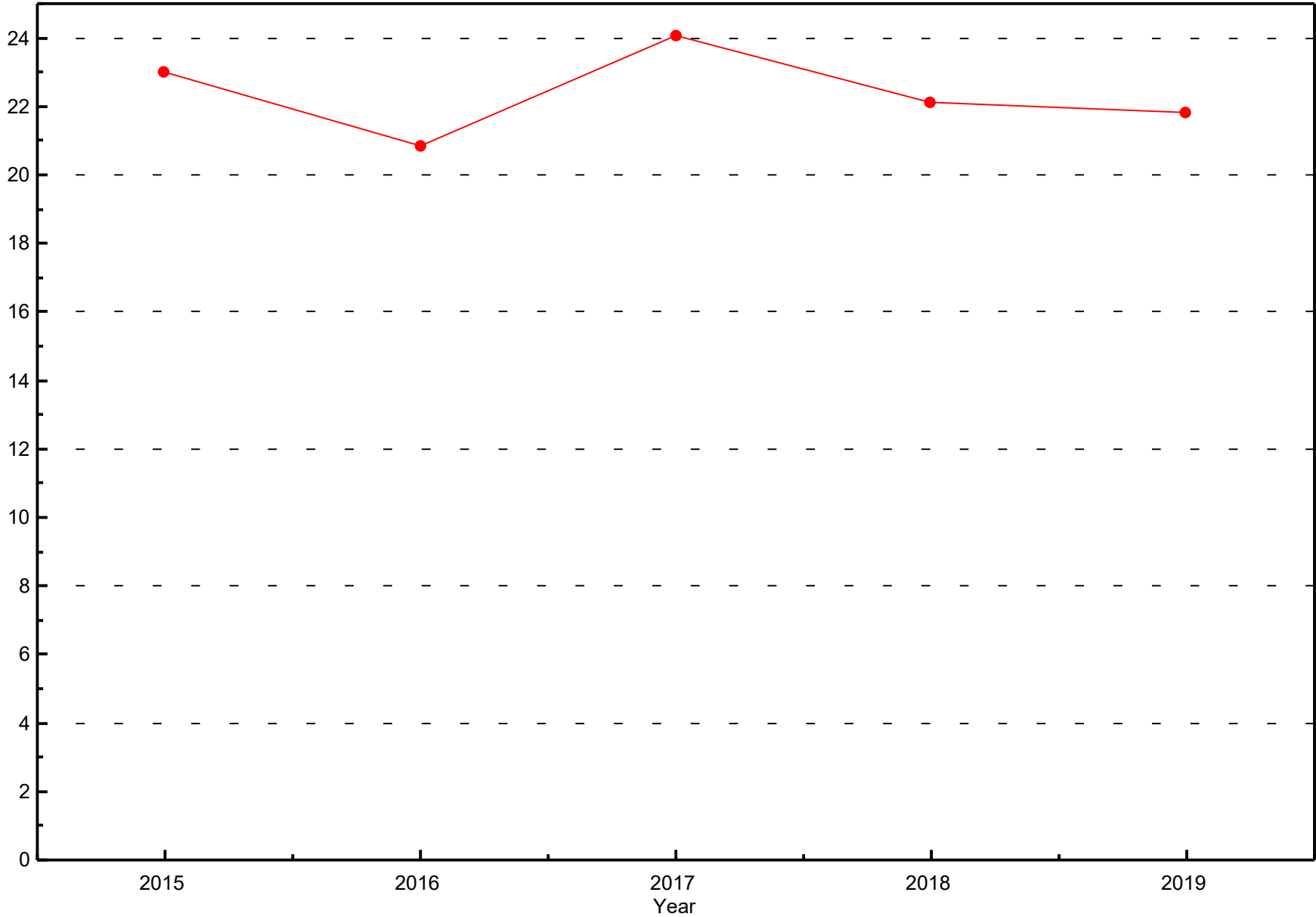
5-Year Annual Averages

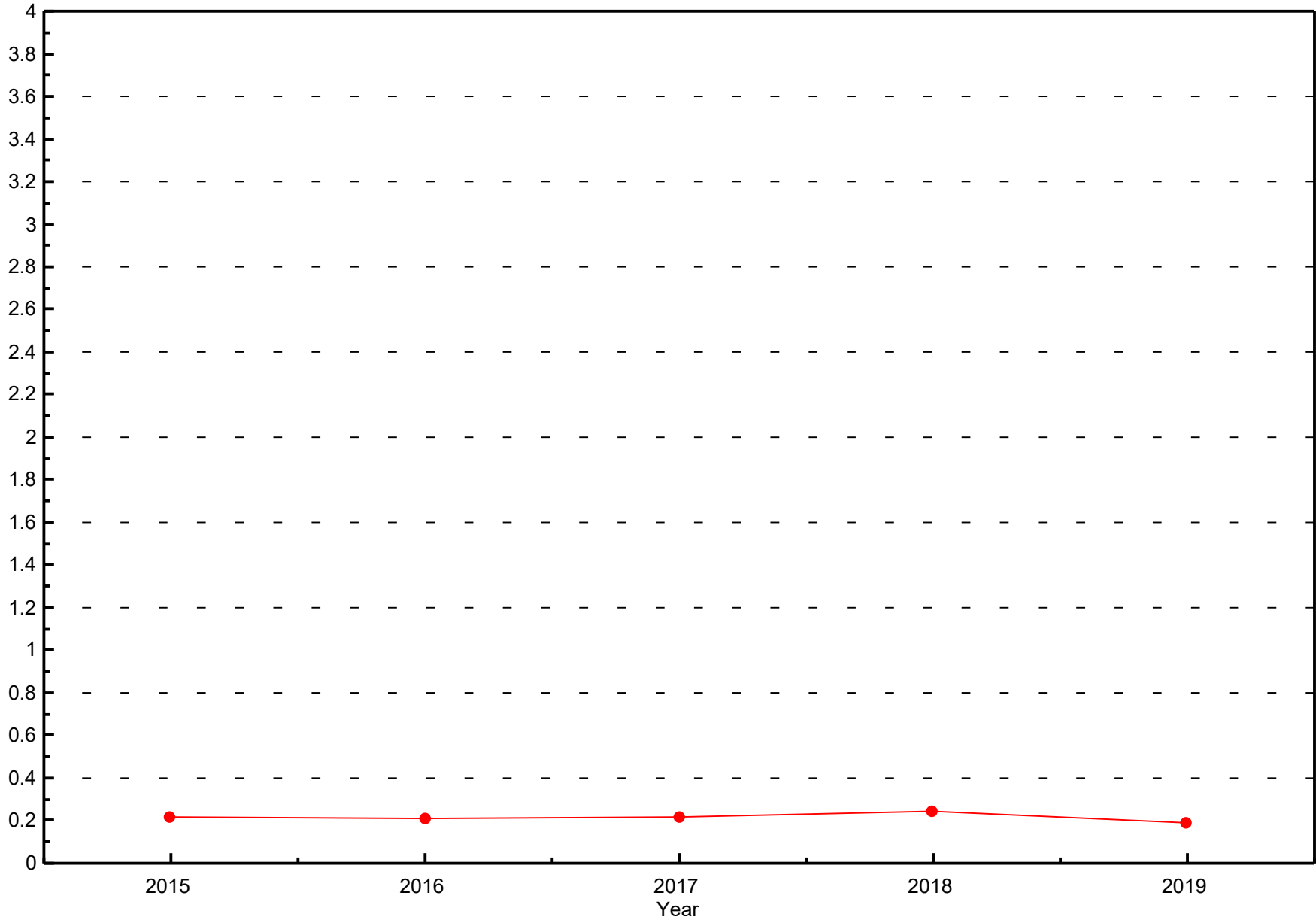
Oxides of Nitrogen (NO_x) - ppb
Henry Pirker (2015 to 2019)



5-Year Annual Averages

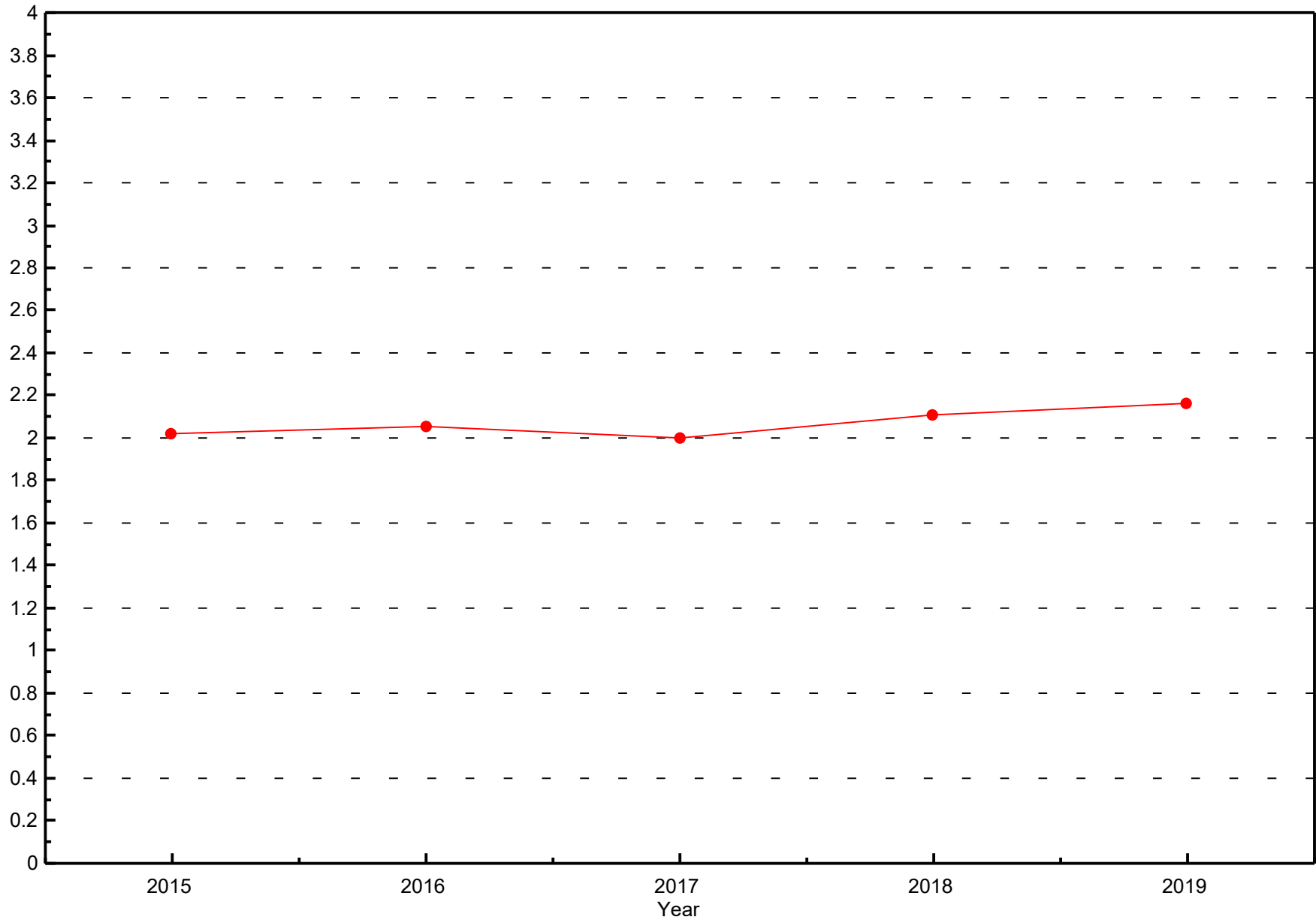
Ozone (O₃) - ppb
Henry Pirker (2015 to 2019)





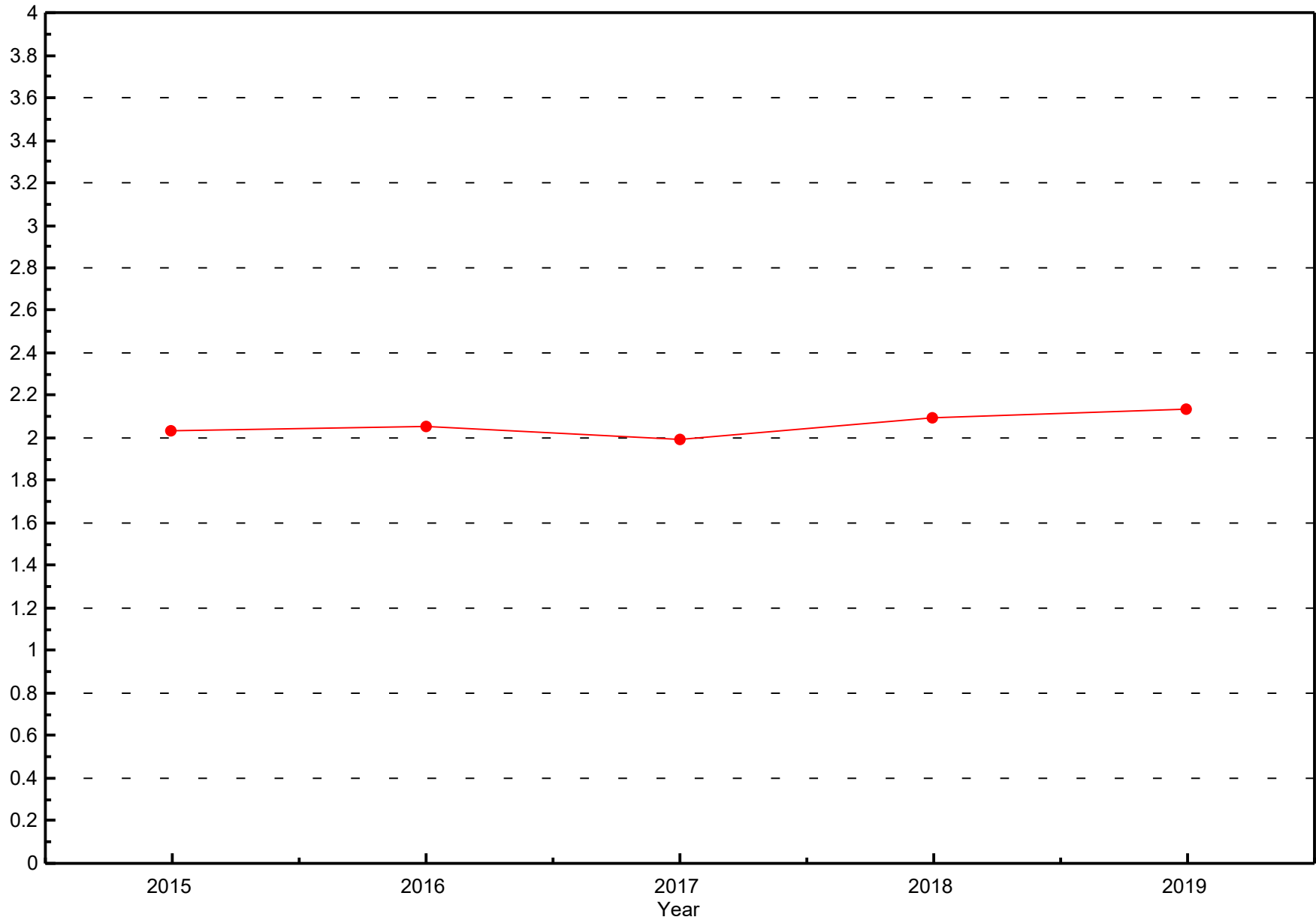
5-Year Annual Averages

**Total Hydrocarbons (THC) - ppm
Henry Pirker (2015 to 2019)**

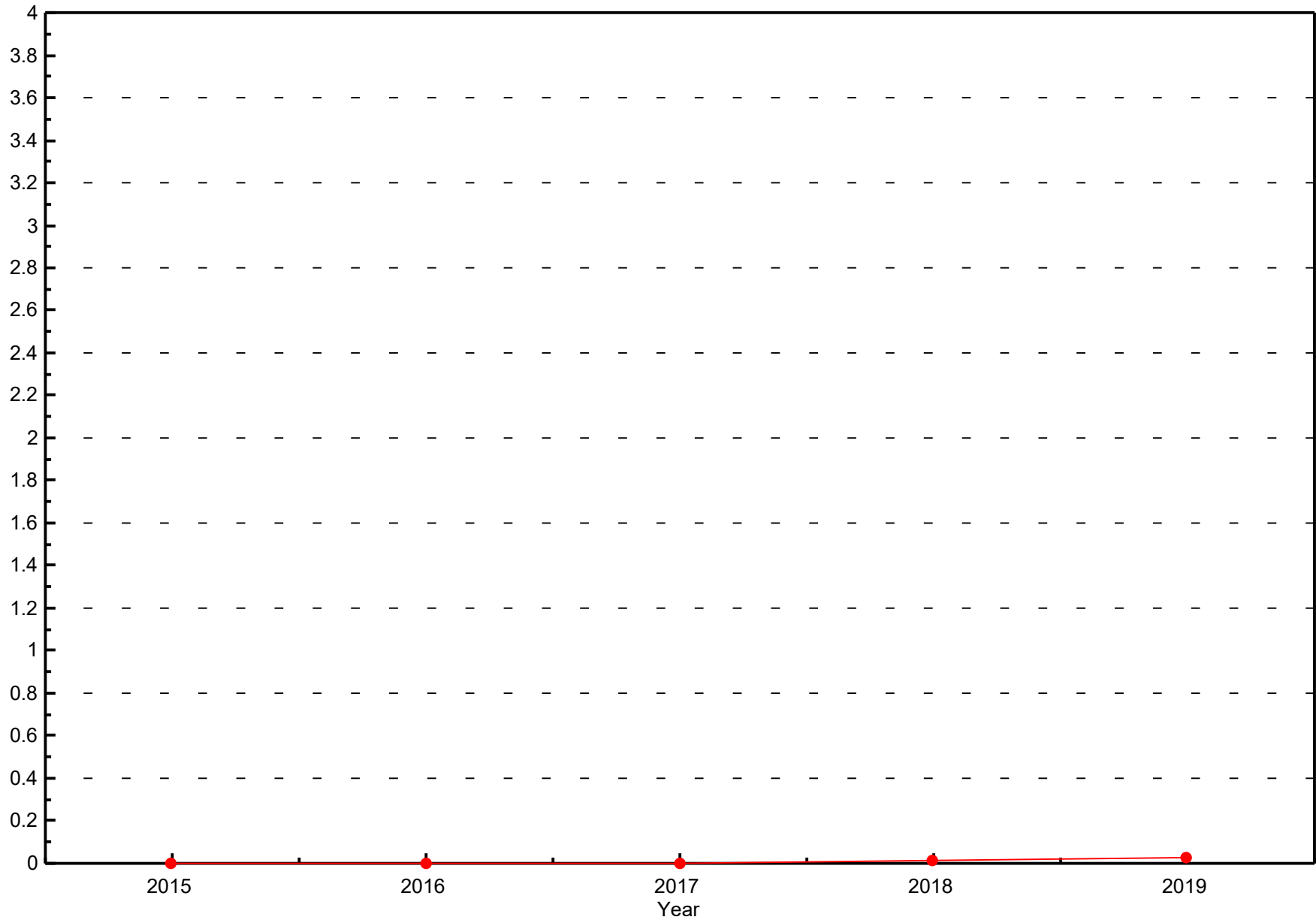


5-Year Annual Averages

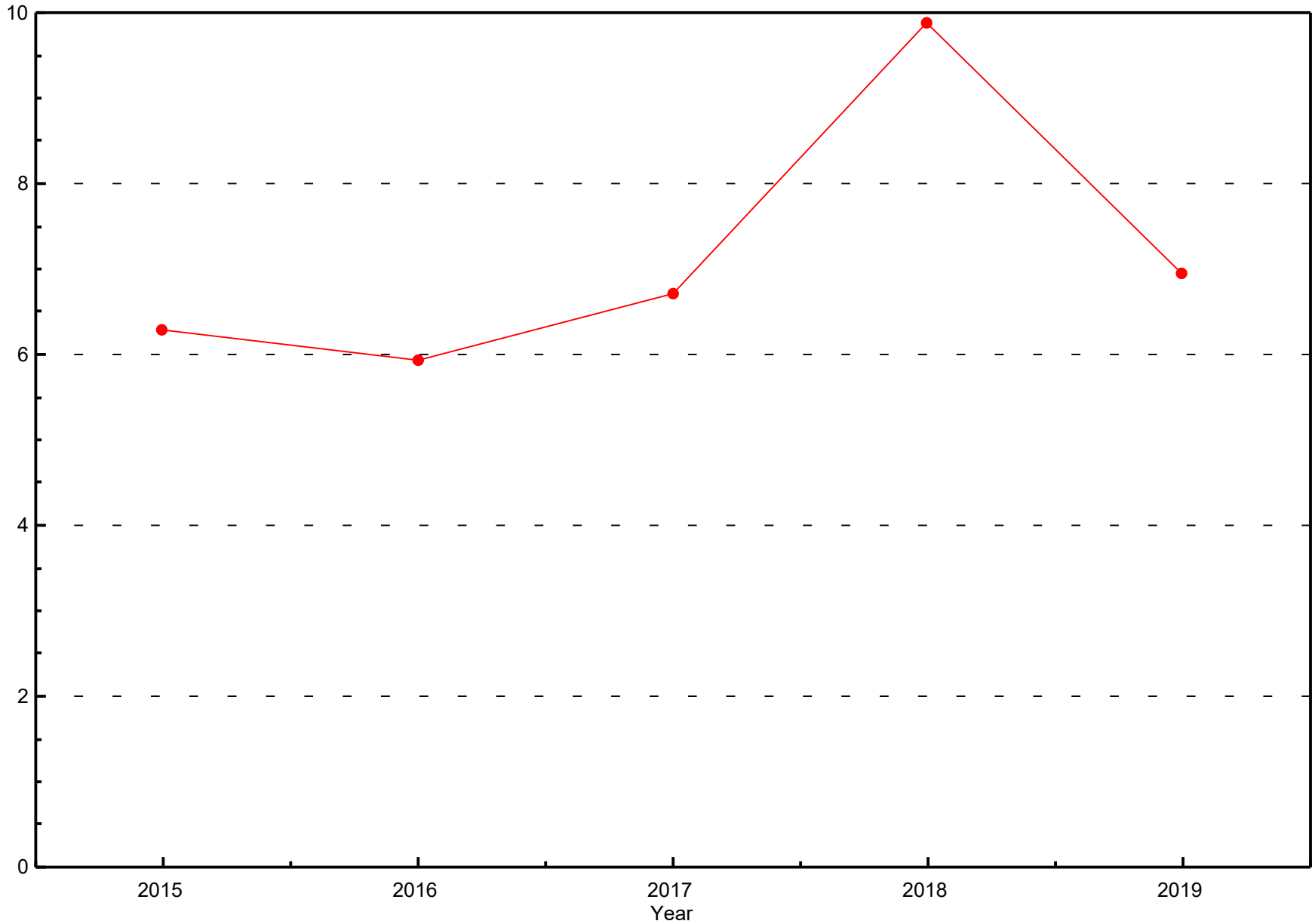
Methane (CH₄) - ppm
Henry Pirker (2015 to 2019)

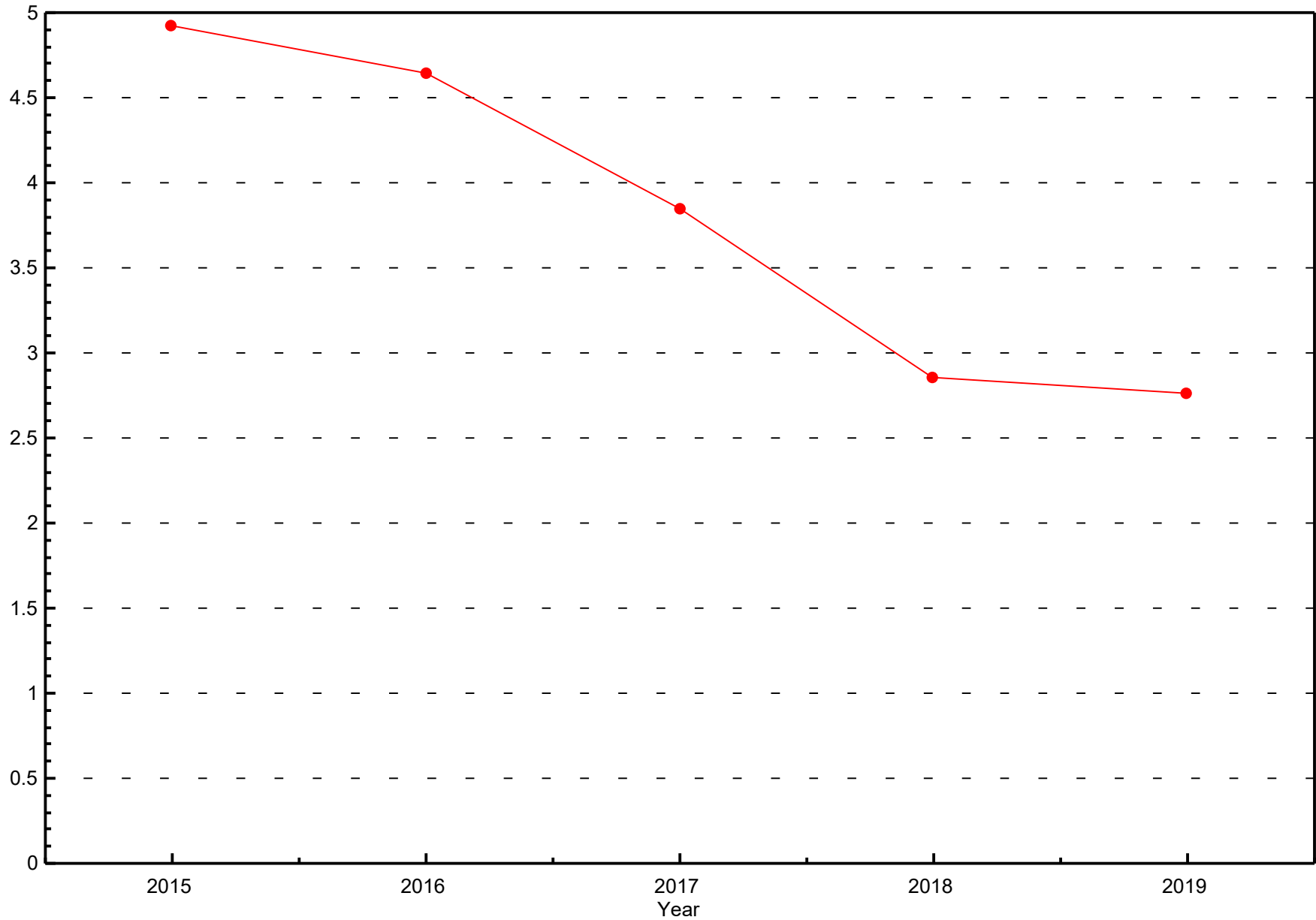


5-Year Annual Averages Non Methane Hydrocarbon (NMHC) - ppm
Henry Pirker (2015 to 2019)



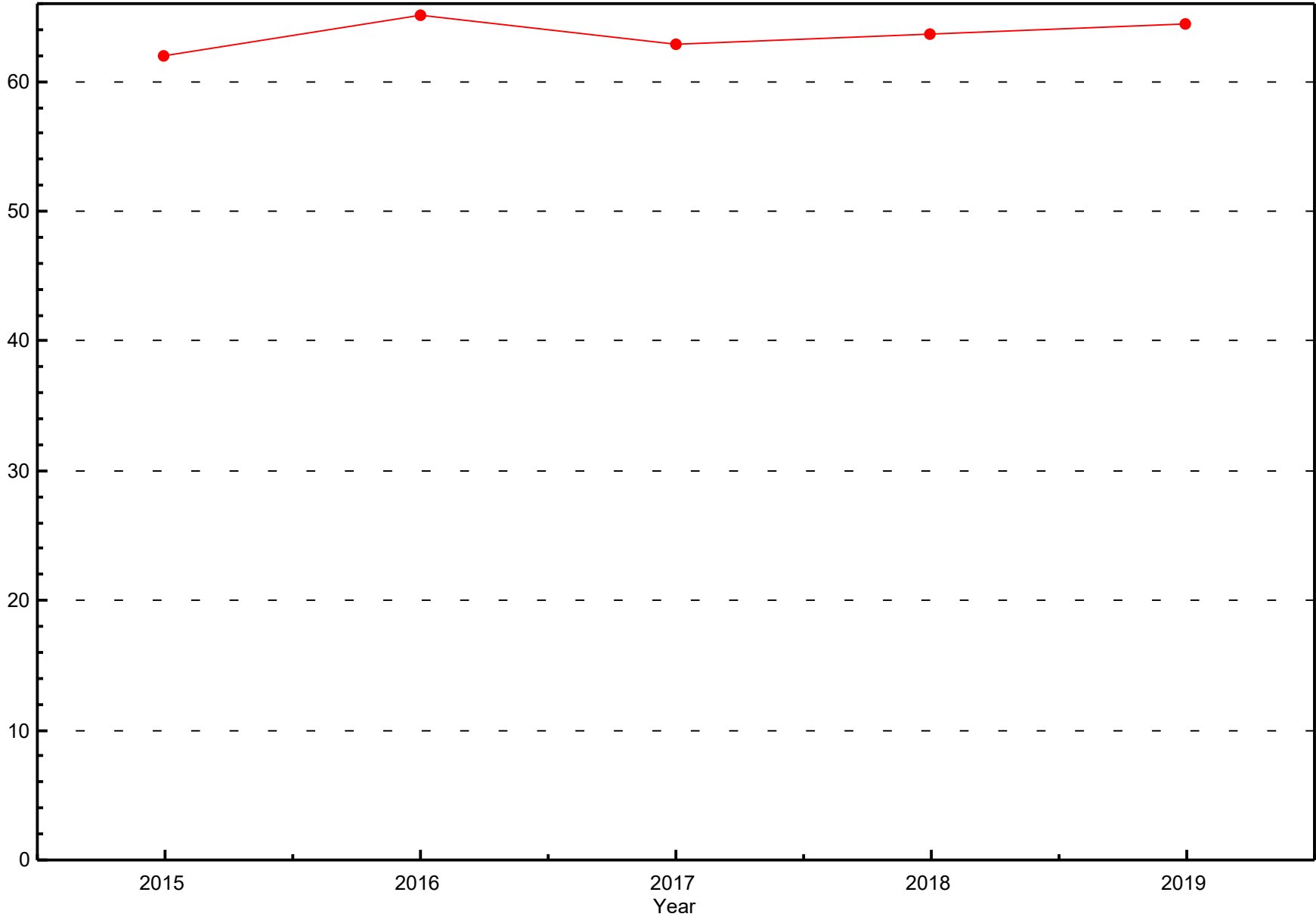
5-Year Annual Averages Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Henry Pirker (2015 to 2019)





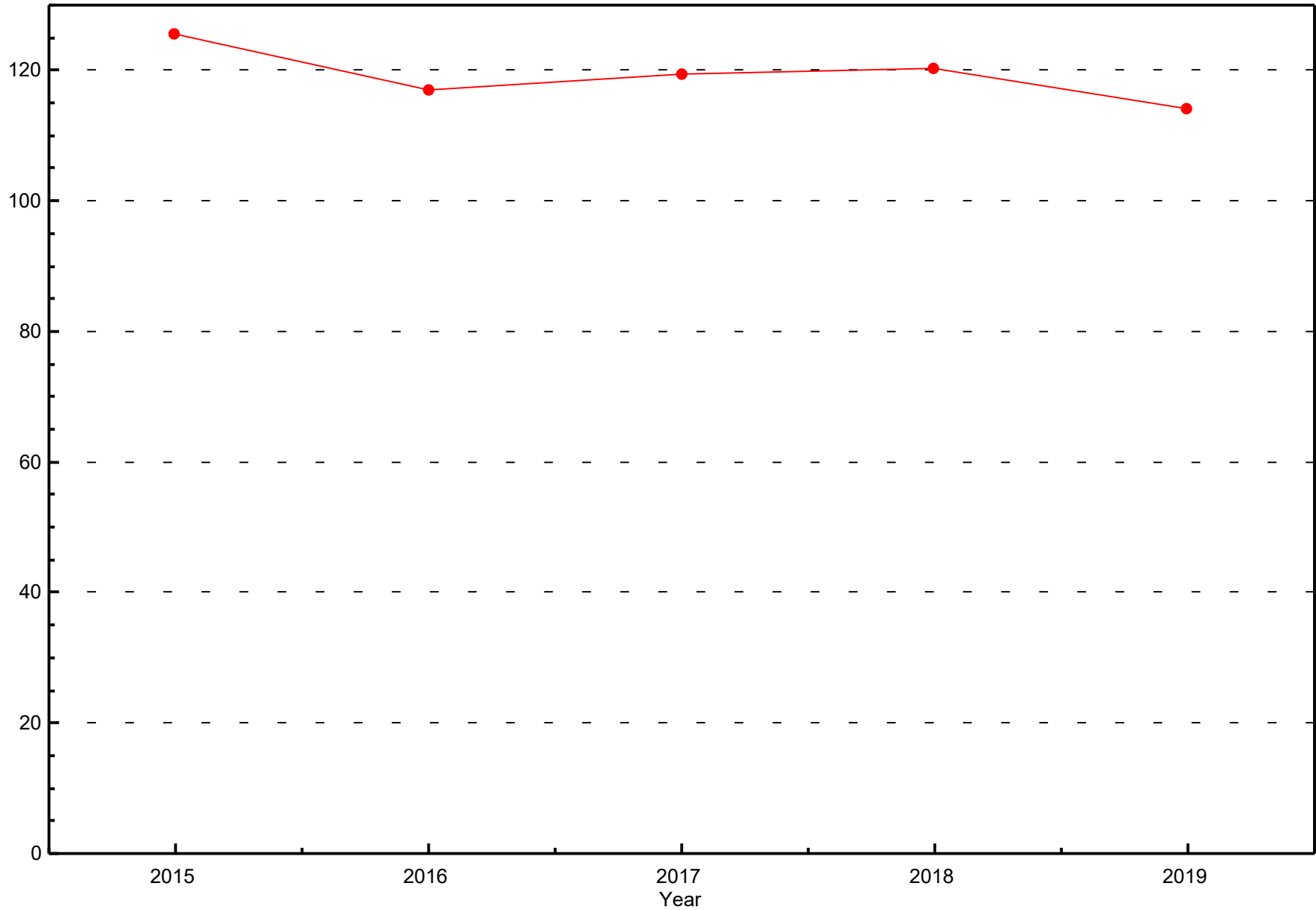
5-Year Annual Averages

**Relative Humidity (RH) - %
Henry Pirker (2015 to 2019)**



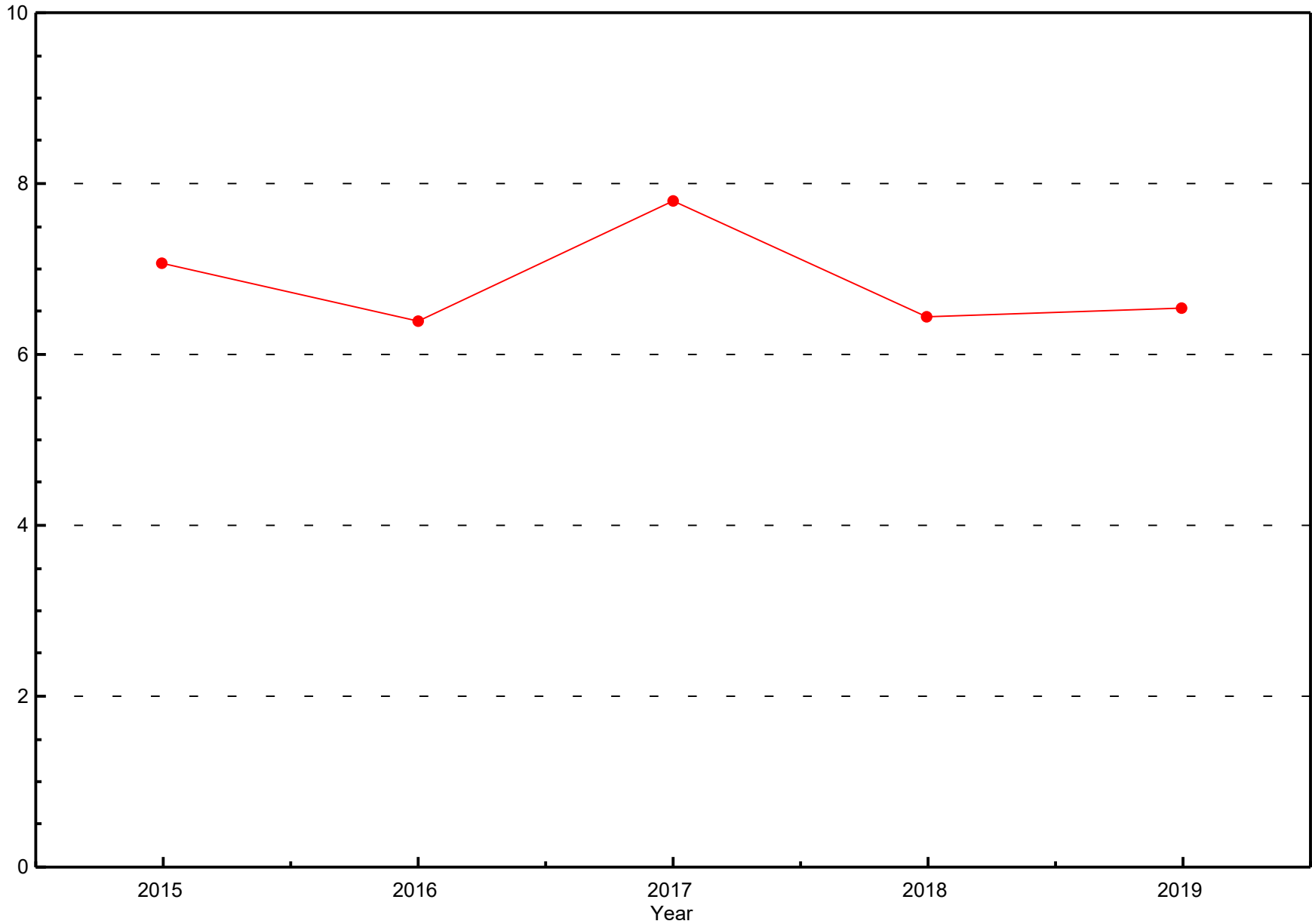
5-Year Annual Averages

Solar Radiation (SR) - W/m²
Henry Pirker (2015 to 2019)



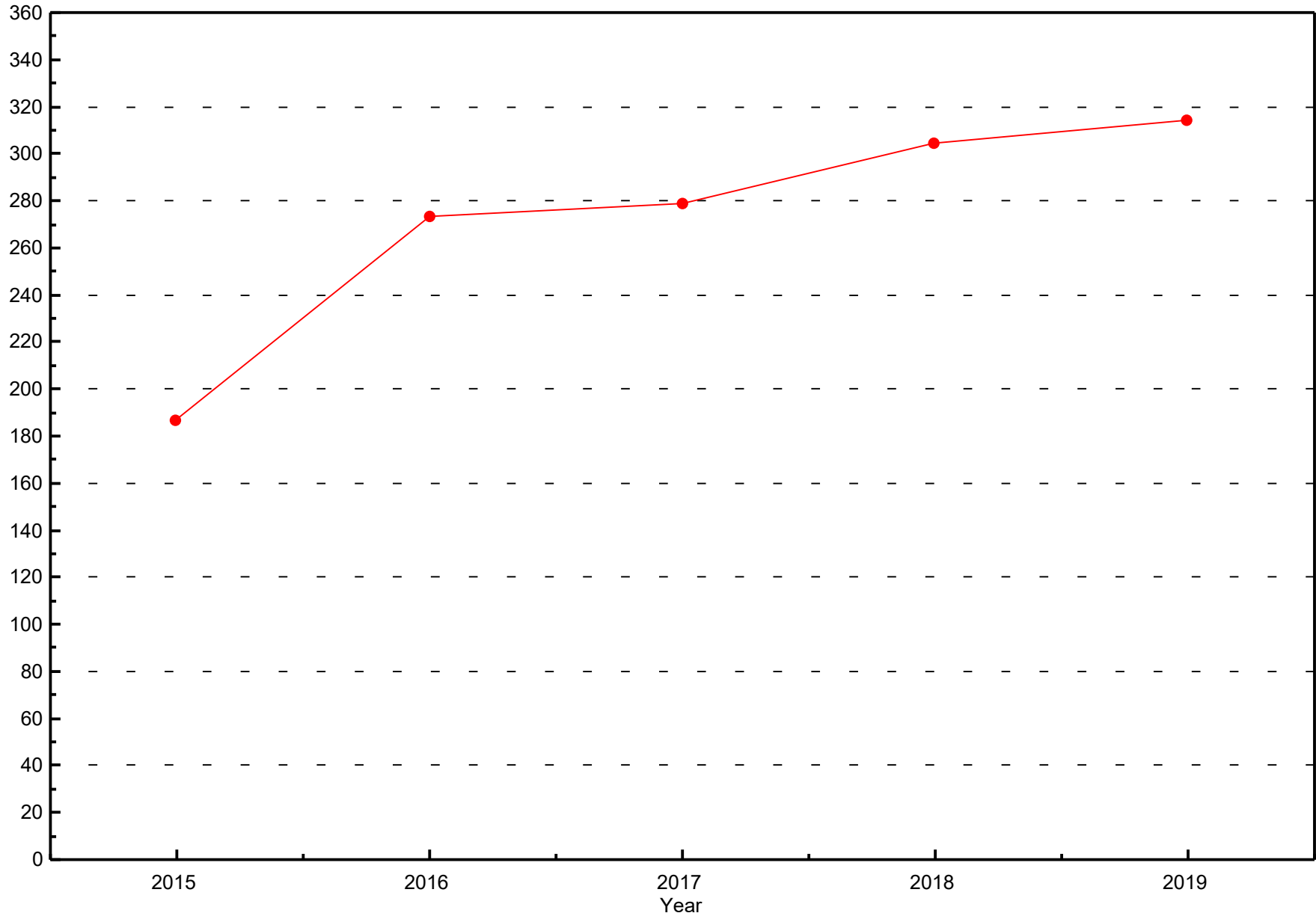
5-Year Annual Averages

Wind Speed (WS) - km/h
Henry Pirker (2015 to 2019)



5-Year Annual Averages

Wind Direction (WD) - deg
Henry Pirker (2015 to 2019)



PAZA

SMOKY HEIGHTS

CONTINUOUS AMBIENT AIR MONITORING STATION

2019

ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Smoky Heights 2019 Summary and Frequency Distribution

Smoky Heights SO ₂ (ppb)												2019								
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range					
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	709	0.60	1.86	Jan 26	0.15	Jan 05	8.43	Jan 26 12:00	0.00	Jan 29 00:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	0.73	2.08	Feb 13	0.09	Feb 01	14.12	Feb 13 21:00	0.00	Feb 02 09:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	0.81	2.17	Mar 03	0.14	Mar 30	14.03	Mar 19 16:00	0.00	Mar 25 08:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	661	0.25	0.67	Apr 19	0.05	Apr 26	2.93	Apr 19 23:00	0.00	Apr 09 20:00	96.81	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	706	0.21	0.40	May 04	0.04	May 25	2.33	May 09 08:00	0.00	May 03 10:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	683	0.18	0.47	Jun 23	0.03	Jun 06	6.57	Jun 19 00:00	0.00	Jun 03 18:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	705	0.24	0.77	Jul 11	0.04	Jul 09	5.51	Jul 11 21:00	0.00	Jul 01 05:00	99.46	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	707	0.23	0.93	Aug 15	0.01	Aug 18	6.75	Aug 25 01:00	0.00	Aug 13 04:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	685	0.25	0.79	Sep 24	0.03	Sep 09	3.38	Sep 24 06:00	0.00	Sep 04 04:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	699	0.35	1.08	Oct 30	0.07	Oct 21	7.20	Oct 04 11:00	0.00	Oct 05 13:00	99.06	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	682	0.41	1.47	Nov 30	0.06	Nov 04	8.15	Nov 18 10:00	0.02	Nov 03 21:00	99.72	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.50	2.12	Dec 15	0.05	Dec 10	7.68	Dec 03 06:00	0.02	Dec 04 19:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8293	0.40	2.17	Mar 03	0.01	Aug 18	14.12	Feb 13 21:00	0.00	Jan 29 00:00	99.6	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Total Reduced Sulphur (TRS) – Smoky Heights 2019 Summary and Frequency Distribution

Smoky Heights TRS (ppb)												2019					
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range					
												0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10
January	708	0.51	0.92	Jan 12	0.35	Jan 06	1.29	Jan 12 14:00	0.30	Jan 23 11:00	100.00	98.87	1.13	0.00	0.00	0.00	0.00
February	639	0.57	0.92	Feb 25	0.39	Feb 19	2.78	Feb 25 10:00	0.34	Feb 19 07:00	100.00	96.40	3.29	0.31	0.00	0.00	0.00
March	709	0.50	0.73	Mar 04	0.36	Mar 11	0.99	Mar 04 10:00	0.30	Mar 27 15:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00
April	661	0.46	0.62	Apr 18	0.35	Apr 05	1.16	Apr 18 23:00	0.26	Apr 24 18:00	96.81	99.24	0.76	0.00	0.00	0.00	0.00
May	703	0.52	1.27	May 30	0.39	May 04	2.88	May 30 12:00	0.31	May 06 16:00	99.87	96.02	3.70	0.28	0.00	0.00	0.00
June	681	0.48	0.67	Jun 15	0.31	Jun 25	1.43	Jun 15 03:00	0.19	Jun 25 08:00	100.00	98.97	1.03	0.00	0.00	0.00	0.00
July	705	0.45	0.61	Jul 26	0.31	Jul 04	0.83	Jul 18 00:00	0.23	Jul 09 05:00	99.46	100.00	0.00	0.00	0.00	0.00	0.00
August	704	0.47	0.64	Aug 23	0.32	Aug 12	1.41	Aug 10 04:00	0.19	Aug 27 09:00	100.00	99.43	0.57	0.00	0.00	0.00	0.00
September	684	0.36	0.62	Sep 04	0.18	Sep 30	1.94	Sep 04 04:00	0.00	Sep 06 02:00	100.00	99.56	0.44	0.00	0.00	0.00	0.00
October	699	0.22	0.52	Oct 17	0.00	Oct 07	1.38	Oct 18 01:00	0.00	Oct 06 21:00	99.06	99.28	0.72	0.00	0.00	0.00	0.00
November	683	0.20	0.45	Nov 19	0.04	Nov 08	1.16	Nov 19 05:00	0.00	Nov 08 07:00	100.00	99.85	0.15	0.00	0.00	0.00	0.00
December	704	0.30	0.78	Dec 30	0.12	Dec 03	1.45	Dec 25 04:00	0.00	Dec 04 08:00	100.00	99.15	0.85	0.00	0.00	0.00	0.00
Annual	8280	0.42	1.27	May 30	0.00	Oct 07	2.88	May 30 12:00	0.00	Sep 06 02:00	99.6	98.94	1.02	0.05	0.00	0.00	0.00

No AAAQO

Particulate Matter (PM_{2.5}) – Smoky Heights 2019 Summary and Frequency Distribution

Smoky Heights													PM _{2.5} (µg/m ³)						2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range						
												24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30	
January	744	5.03	16.38	Jan 12	0.73	Jan 01	95.03	Jan 03 23:00	0.35	Jan 04 00:00	100.00	0	1	36.96	36.83	12.23	8.87	4.97	0.13	
February	624	7.41	15.10	Feb 14	2.25	Feb 20	126.27	Feb 01 17:00	0.00	Feb 03 01:00	93.60	0	2	15.71	45.51	20.19	11.38	4.97	2.24	
March	744	5.56	12.62	Mar 25	1.35	Mar 12	100.49	Mar 23 12:00	0.00	Mar 02 07:00	100.00	0	1	21.64	44.62	25.54	5.91	1.88	0.40	
April	695	2.35	6.65	Apr 06	0.07	Apr 17	39.10	Apr 09 20:00	0.00	Apr 13 15:00	96.81	0	0	61.15	30.79	7.48	0.14	0.29	0.14	
May	742	26.05	292.89	May 30	0.30	May 03	968.07	May 30 12:00	0.00	May 03 08:00	99.73	7	41	41.51	23.99	6.47	4.58	8.49	14.96	
June	718	5.70	12.81	Jun 01	1.24	Jun 18	48.53	Jun 04 17:00	0.00	Jun 04 22:00	99.72	0	0	33.84	33.29	19.36	6.96	5.43	1.11	
July	739	7.01	18.13	Jul 19	0.16	Jul 02	60.17	Jul 19 11:00	0.00	Jul 01 05:00	99.46	0	0	21.92	31.12	26.52	14.88	3.92	1.62	
August	737	4.09	14.60	Aug 02	0.08	Aug 09	41.00	Aug 02 01:00	0.00	Aug 08 07:00	100.00	0	0	36.91	37.86	18.32	5.83	0.81	0.27	
September	717	2.77	7.64	Sep 01	0.51	Sep 26	22.55	Sep 03 20:00	0.00	Sep 04 03:00	100.00	0	0	52.02	37.66	8.51	1.67	0.14	0.00	
October	735	4.25	10.15	Oct 27	0.38	Oct 08	72.12	Oct 27 03:00	0.19	Oct 07 10:00	99.06	0	0	29.52	47.48	19.18	2.45	1.09	0.27	
November	714	5.20	26.48	Nov 30	0.00	Nov 23	69.59	Nov 30 18:00	0.00	Nov 21 18:00	99.58	0	0	43.70	25.91	17.65	7.84	2.80	2.10	
December	740	5.63	15.78	Dec 01	0.01	Dec 03	63.05	Dec 07 00:00	0.00	Dec 02 08:00	100.00	0	0	32.70	33.11	21.35	8.38	3.11	1.35	
Annual	8649	6.79	292.89	May 30	0.00	Nov 23	968.07	May 30 12:00	0.00	Feb 03 01:00	99.0	7	45	35.73	35.64	16.90	6.54	3.14	2.06	

AAAQO Objectives: 24-Hr: 30 µg/m³, 1-Hr: 80 µg/m³

Table 26. Ambient Temperature (ET) – Smoky Heights 2019 Summary

Smoky Heights											Ambient Temperature (°C)		2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)		
January	744	-8.7	4.7	Jan 26	-24.2	Jan 08	5.9	Jan 02 08:00	-30.1	Jan 08 09:00	100.0		
February	672	-21.9	-6.4	Feb 19	-35.0	Feb 04	-0.5	Feb 19 17:00	-41.0	Feb 04 10:00	100.0		
March	744	-4.2	5.4	Mar 23	-28.1	Mar 02	12.6	Mar 20 17:00	-37.3	Mar 02 08:00	100.0		
April	697	3.7	8.2	Apr 22	-3.9	Apr 04	15.5	Apr 22 17:00	-6.2	Apr 04 07:00	96.8		
May	742	11.1	20.6	May 29	-2.2	May 03	28.8	May 28 15:00	-8.0	May 04 04:00	99.7		
June	714	13.9	19.7	Jun 16	7.0	Jun 06	27.5	Jun 16 20:00	2.4	Jun 05 05:00	99.2		
July	740	15.6	21.3	Jul 22	11.1	Jul 09	27.4	Jul 22 16:00	4.5	Jul 09 05:00	99.5		
August	744	13.5	18.9	Aug 05	8.9	Aug 18	25.4	Aug 21 15:00	0.5	Aug 10 06:00	100.0		
September	717	9.9	16.4	Sep 03	0.0	Sep 29	25.1	Sep 03 17:00	-4.6	Sep 29 07:00	99.6		
October	737	2.1	9.2	Oct 02	-10.2	Oct 29	17.4	Oct 02 16:00	-18.0	Oct 29 07:00	99.1		
November	720	-5.4	5.0	Nov 17	-19.0	Nov 10	8.0	Nov 17 14:00	-24.3	Nov 11 05:00	100.0		
December	744	-9.8	-0.3	Dec 03	-17.4	Dec 13	3.8	Dec 03 03:00	-19.0	Dec 13 17:00	100.0		
Annual	8715	1.8	21.3	Jul 22	-35.0	Feb 04	28.8	May 28 15:00	-41.0	Feb 04 10:00	99.5		

Wind Speed (WS) – Smoky Heights 2019 Summary

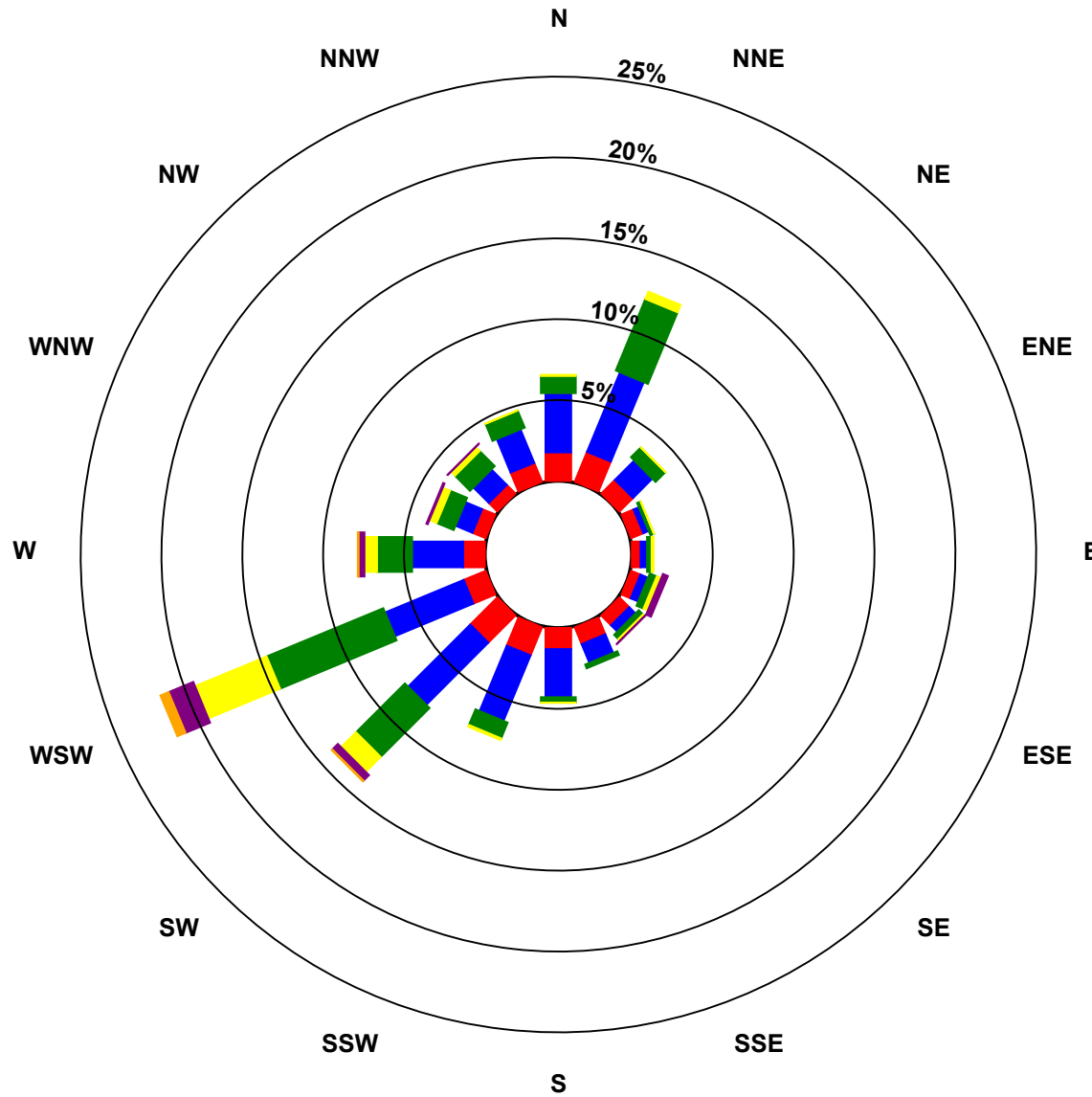
Smoky Heights											Wind Speed (km/h)											2019
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)											
January	744	13.7	32.3	Jan 26	5.8	Jan 13	45.6	Jan 02 11:00	0.8	Jan 13 04:00	100.0											
February	667	8.5	16.5	Feb 01	3.6	Feb 10	25.8	Feb 19 01:00	0.1	Feb 10 14:00	99.3											
March	744	9.8	20.1	Mar 15	3.9	Mar 05	30.7	Mar 11 02:00	0.0	Mar 09 17:00	100.0											
April	696	13.1	27.0	Apr 23	6.0	Apr 15	44.1	Apr 24 15:00	0.1	Apr 02 10:00	96.7											
May	743	11.2	23.7	May 18	4.3	May 04	37.4	May 17 16:00	0.6	May 07 23:00	99.9											
June	717	12.7	29.7	Jun 18	5.0	Jun 26	47.0	Jun 18 14:00	0.4	Jun 24 22:00	100.0											
July	740	10.2	24.8	Jul 25	3.9	Jul 10	38.9	Jul 25 12:00	0.6	Jul 07 05:00	99.5											
August	744	9.8	19.8	Aug 16	3.7	Aug 07	32.7	Aug 22 10:00	0.2	Aug 29 08:00	100.0											
September	720	11.2	22.9	Sep 21	4.1	Sep 15	46.5	Sep 21 13:00	0.3	Sep 07 05:00	100.0											
October	744	12.8	26.8	Oct 06	5.6	Oct 16	57.4	Oct 06 13:00	0.3	Oct 03 06:00	100.0											
November	720	11.7	27.1	Nov 22	5.6	Nov 19	38.5	Nov 17 21:00	0.8	Nov 13 00:00	100.0											
December	744	11.5	26.9	Dec 02	6.2	Dec 09	50.0	Dec 02 17:00	0.2	Dec 26 08:00	100.0											
Annual	8723	11.4	32.3	Jan 26	3.6	Feb 10	57.4	Oct 06 13:00	0.0	Mar 09 17:00	99.6											

Wind Speed and Wind Direction Frequency Distribution – Smoky Heights 2019 Summary

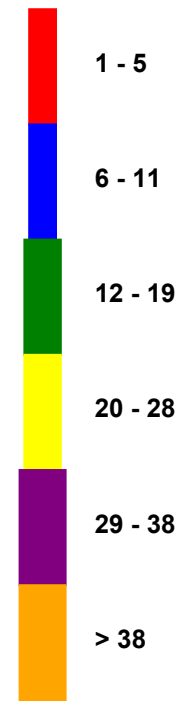
Smoky Heights								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	420	0.92	1.74	1.98	0.23	0.00	0.00	4.87
NNE	319	0.87	1.19	1.54	0.09	0.00	0.00	3.70
NE	245	1.10	1.04	0.64	0.06	0.00	0.00	2.84
ENE	324	1.58	1.17	0.96	0.05	0.00	0.00	3.76
E	482	3.36	1.94	0.29	0.00	0.00	0.00	5.59
ESE	957	4.36	5.52	1.22	0.00	0.00	0.00	11.10
SE	509	2.97	2.06	0.46	0.34	0.07	0.00	5.90
SSE	292	1.35	1.57	0.43	0.05	0.00	0.00	3.39
S	632	1.21	2.52	2.97	0.64	0.00	0.00	7.33
SSW	1016	1.59	4.03	5.80	0.37	0.00	0.00	11.79
SW	762	1.35	4.03	3.33	0.14	0.00	0.00	8.84
WSW	692	1.16	2.08	3.06	1.37	0.32	0.03	8.03
WSW	850	1.37	2.64	3.32	1.86	0.52	0.15	9.86
WNW	530	1.13	1.64	1.89	1.21	0.27	0.02	6.15
NW	322	1.19	1.40	0.88	0.26	0.00	0.00	3.74
NNW	269	0.86	1.16	0.97	0.13	0.00	0.00	3.12
Totals	8621	26.35	35.73	29.75	6.77	1.18	0.21	100

Wind Rose

Wind Speed (WS) (km/h)
Smoky Heights - 2019

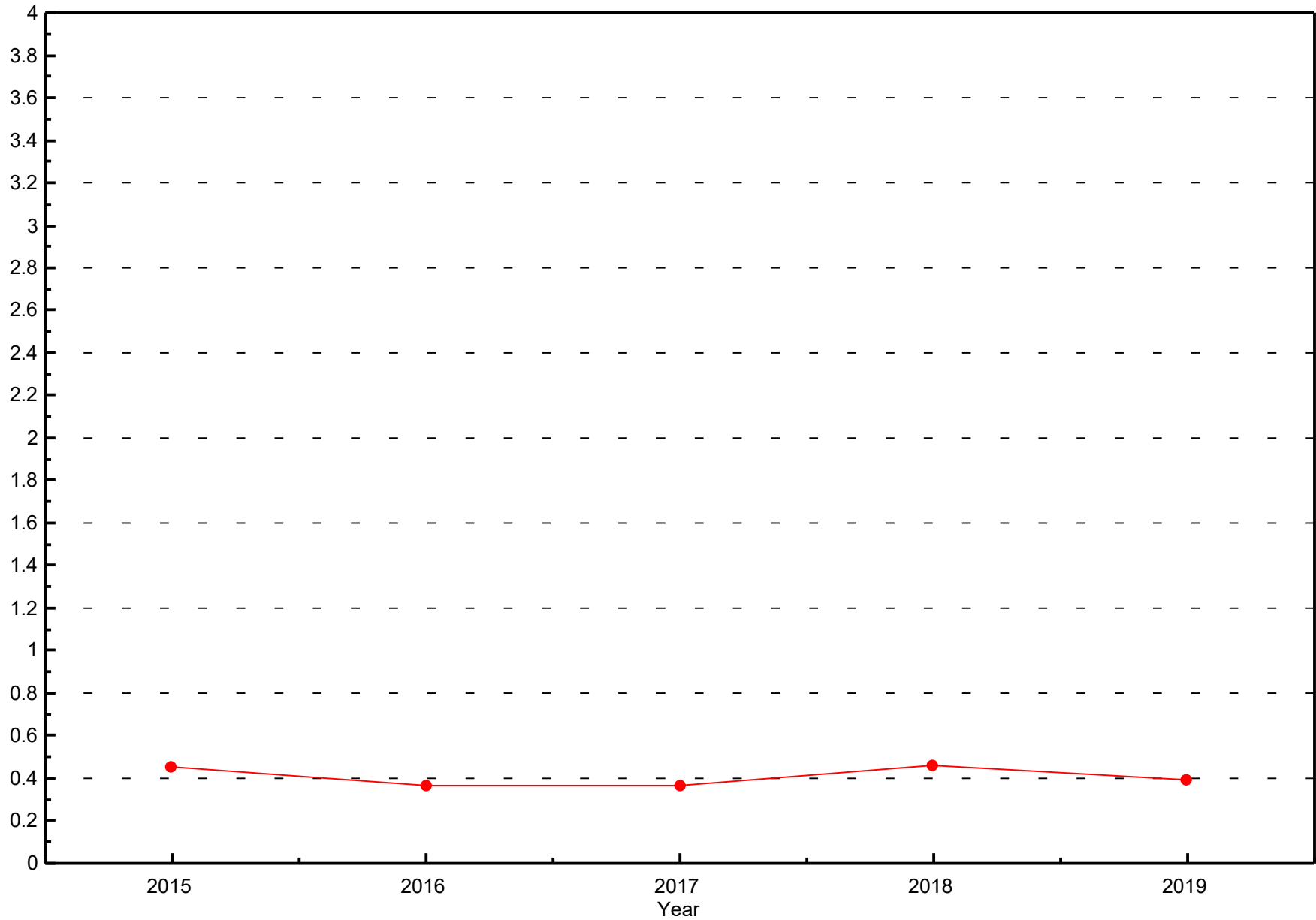


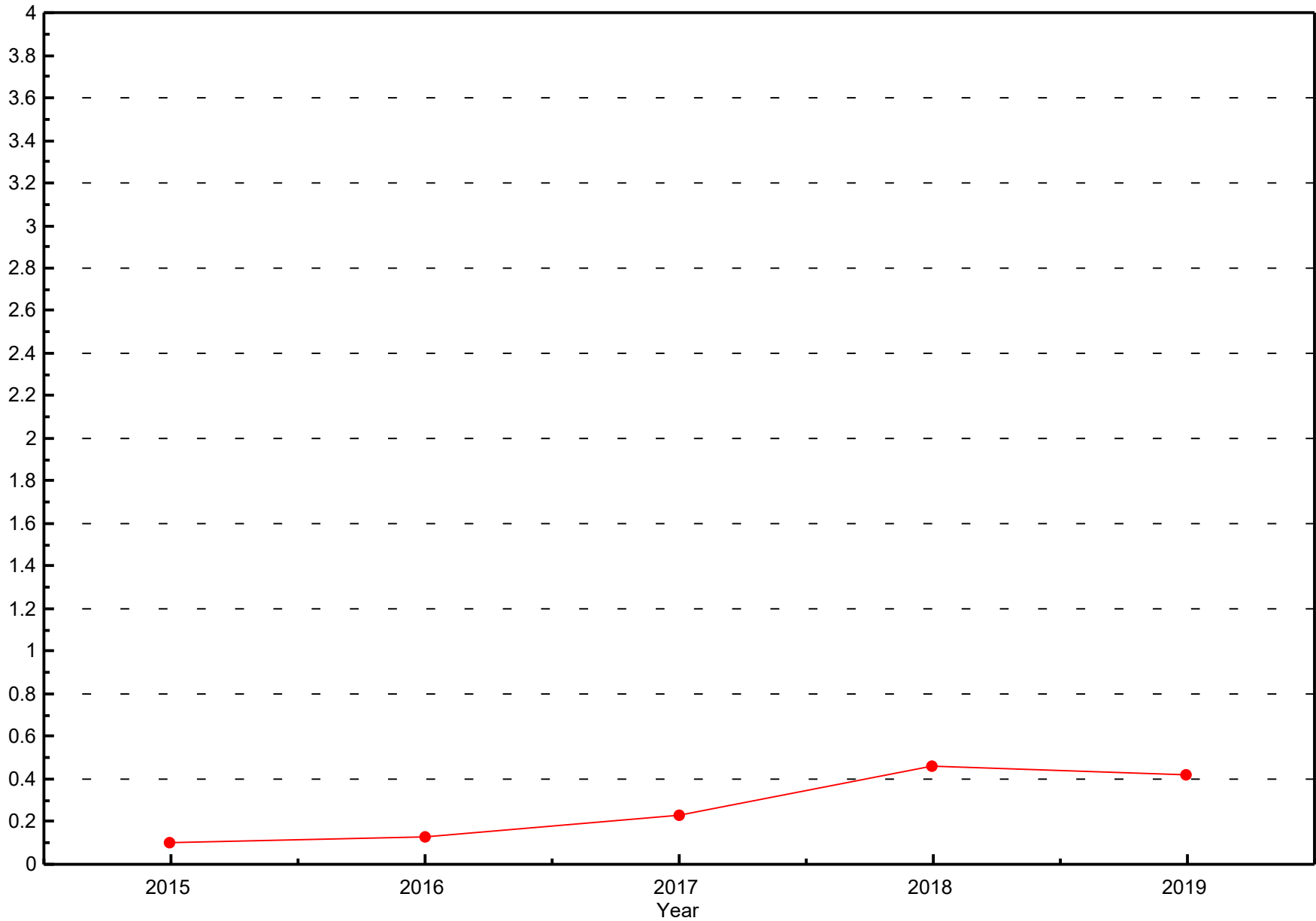
Wind Speed Classes (km/h)



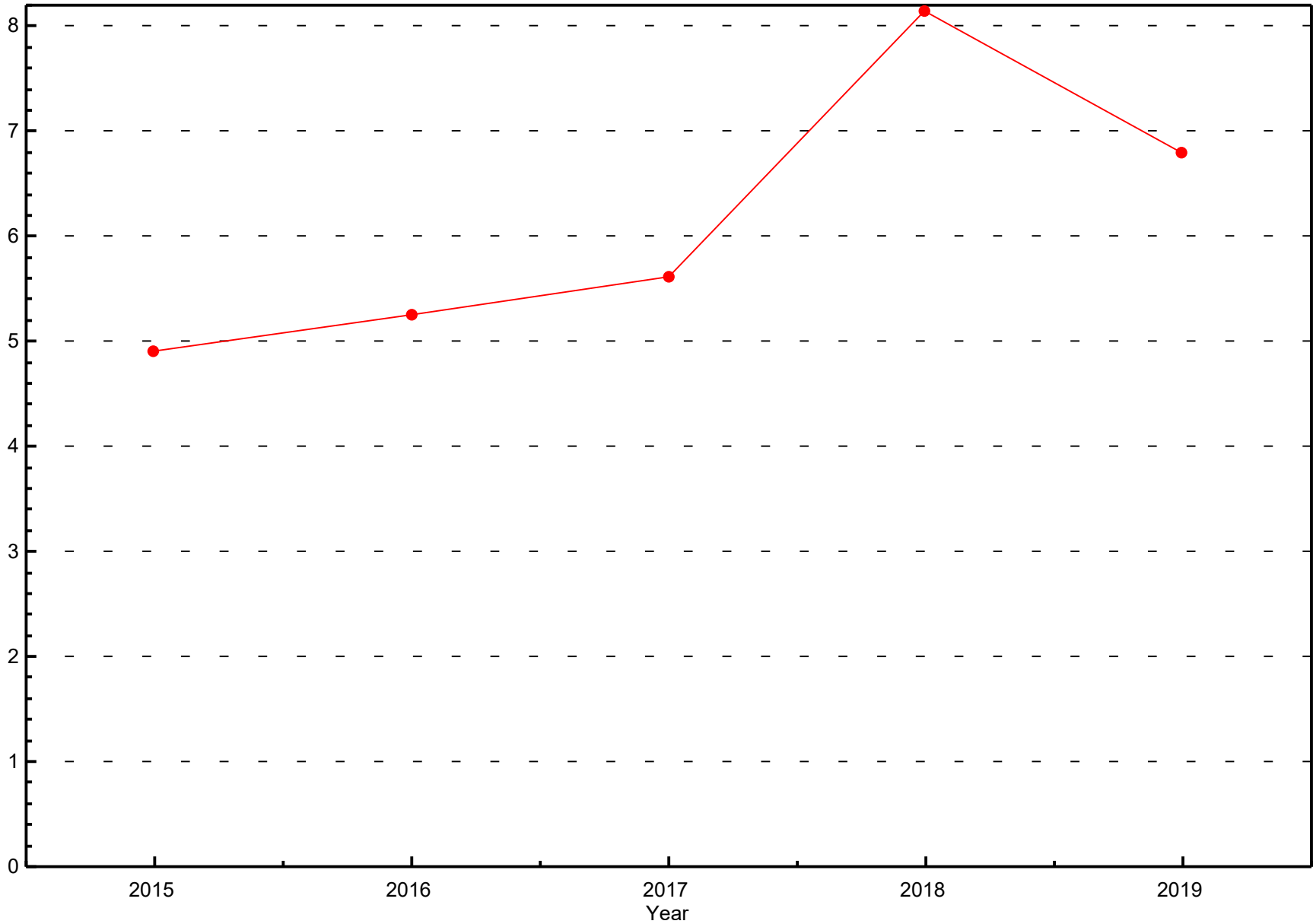
5-Year Annual Averages

Sulphur Dioxide (SO₂) - ppb
Smoky Heights (2015 to 2019)



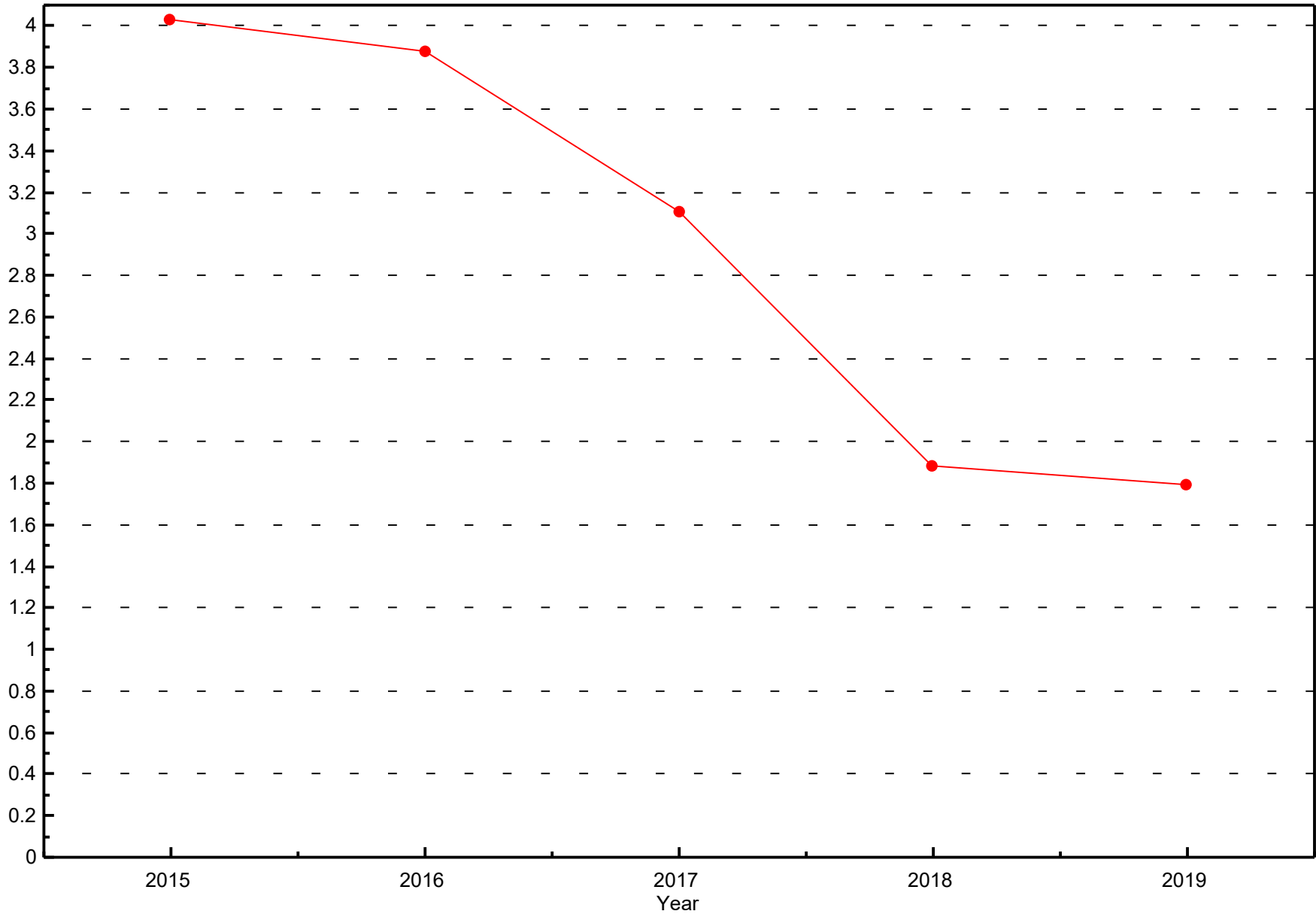


**5-Year Annual Averages Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Smoky Heights (2015 to 2019)**



5-Year Annual Averages

External Temperature (ET) - °C
Smoky Heights (2015 to 2019)



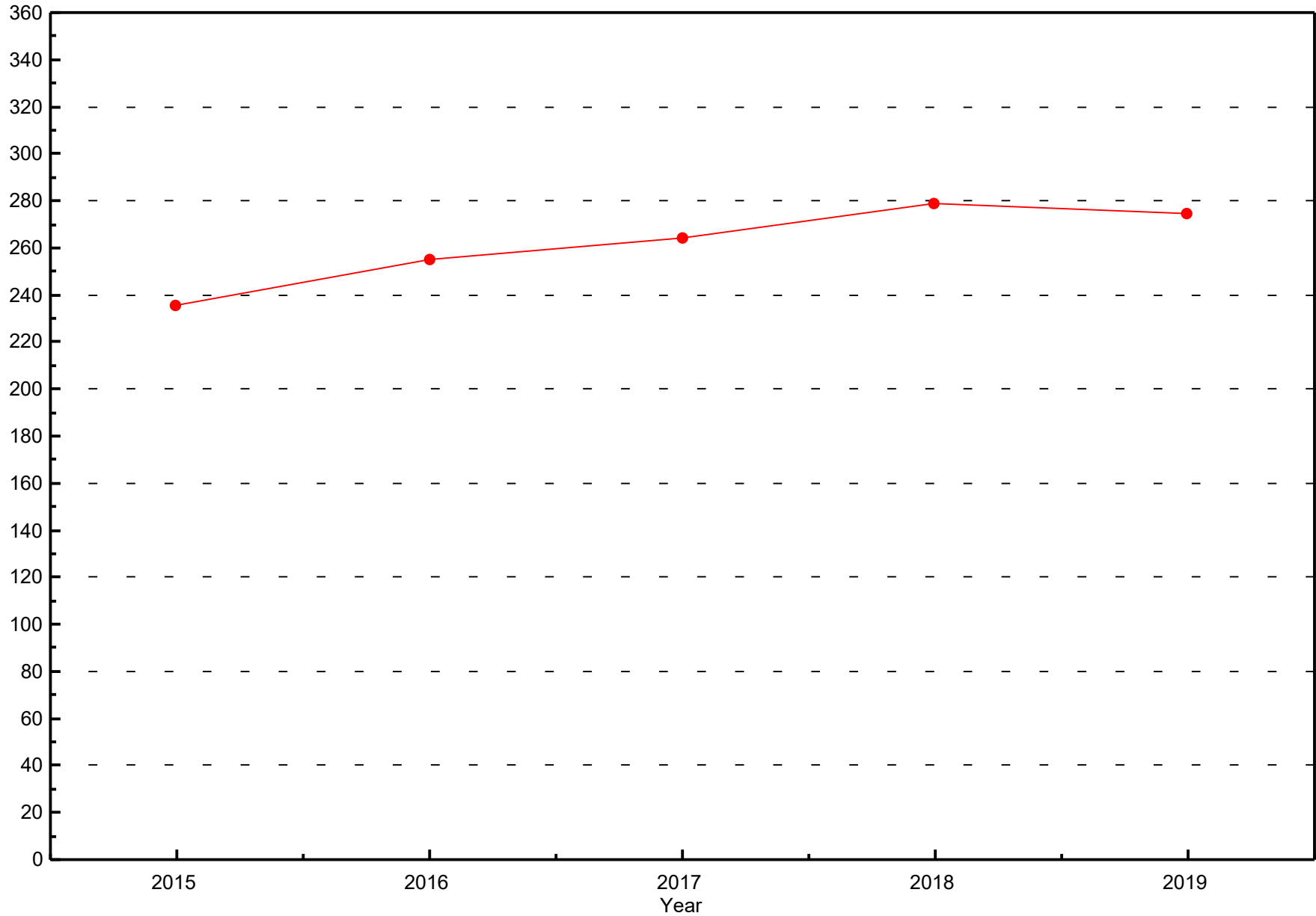
5-Year Annual Averages

**Wind Speed (WS) - km/h
Smoky Heights (2015 to 2019)**



5-Year Annual Averages

**Wind Direction (WD) - deg
Smoky Heights (2015 to 2019)**



PAZA
VALLEYVIEW
CONTINUOUS AMBIENT AIR MONITORING STATION

2019
ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Valleyview 2019 Summary and Frequency Distribution

Valleyview												SO ₂ (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range					
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	709	0.48	2.75	Jan 26	0.02	Jan 29	7.80	Jan 20 15:00	0.00	Jan 01 04:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	639	0.52	1.45	Feb 05	0.00	Feb 01	7.26	Feb 25 14:00	0.00	Feb 01 01:00	99.70	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	709	0.49	1.45	Mar 21	0.02	Mar 30	10.86	Mar 04 14:00	0.00	Mar 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	683	0.44	1.53	Apr 20	0.04	Apr 30	8.77	Apr 20 06:00	0.00	Apr 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	707	0.12	0.41	May 22	0.00	May 15	4.10	May 22 21:00	0.00	May 01 01:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	686	0.46	2.83	Jun 10	0.02	Jun 07	37.90	Jun 10 20:00	0.00	Jun 01 01:00	100.00	0	0	0	99.85	0.15	0.00	0.00	0.00	0.00
July	708	0.55	1.93	Jul 24	0.03	Jul 21	15.51	Jul 02 01:00	0.00	Jul 01 04:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	707	0.31	2.59	Aug 14	0.01	Aug 18	8.41	Aug 14 19:00	0.00	Aug 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	683	0.31	1.82	Sep 18	0.01	Sep 27	19.42	Sep 18 14:00	0.00	Sep 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	698	0.71	8.83	Oct 31	0.05	Oct 16	74.28	Oct 31 07:00	0.00	Oct 03 06:00	100.00	0	0	0	99.57	0.29	0.14	0.00	0.00	0.00
November	685	0.20	1.52	Nov 18	0.02	Nov 27	4.98	Nov 18 06:00	0.00	Nov 01 18:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	709	0.14	0.55	Dec 19	0.00	Dec 05	1.14	Dec 19 03:00	0.00	Dec 01 02:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8323	0.39	8.83	Oct 31	0.00	May 15	74.28	Oct 31 07:00	0.00	Jan 01 04:00	100.0	0	0	0	99.95	0.04	0.01	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Hydrogen Sulphide (H₂S) – Valleyview 2019 Summary and Frequency Distribution

Valleyview												H ₂ S (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range						
												24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10	
January	706	0.21	0.57	Jan 13	0.02	Jan 17	2.85	Jan 13 19:00	0.00	Jan 07 11:00	100.00	0	0	97.88	1.98	0.14	0.00	0.00	0.00	
February	638	0.50	2.18	Feb 14	0.08	Feb 23	10.56	Feb 14 12:00	0.00	Feb 01 21:00	99.85	0	1	86.99	10.97	1.57	0.00	0.31	0.16	
March	709	0.20	0.37	Mar 03	0.05	Mar 13	2.67	Mar 17 21:00	0.00	Mar 07 17:00	100.00	0	0	98.31	1.55	0.14	0.00	0.00	0.00	
April	681	0.18	1.28	Apr 29	0.00	Apr 30	6.44	Apr 29 05:00	0.00	Apr 01 13:00	100.00	0	0	97.50	1.47	0.73	0.29	0.00	0.00	
May	707	0.11	0.64	May 30	0.00	May 18	2.19	May 30 12:00	0.00	May 01 01:00	99.87	0	0	99.43	0.57	0.00	0.00	0.00	0.00	
June	686	0.12	0.25	Jun 24	0.03	Jun 05	0.91	Jun 10 22:00	0.00	Jun 02 16:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
July	708	0.13	0.21	Jul 31	0.05	Jul 18	0.60	Jul 24 03:00	0.00	Jul 01 10:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
August	707	0.14	0.36	Aug 14	0.01	Aug 20	2.08	Aug 14 19:00	0.00	Aug 03 09:00	100.00	0	0	99.72	0.28	0.00	0.00	0.00	0.00	
September	685	0.13	0.31	Sep 18	0.04	Sep 19	1.07	Sep 18 06:00	0.00	Sep 03 15:00	100.00	0	0	99.71	0.29	0.00	0.00	0.00	0.00	
October	708	0.08	0.26	Oct 31	0.00	Oct 18	0.88	Oct 31 07:00	0.00	Oct 07 04:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
November	684	0.07	0.21	Nov 30	0.00	Nov 12	0.87	Nov 28 09:00	0.00	Nov 05 12:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
December	707	0.11	0.32	Dec 20	0.01	Dec 23	0.55	Dec 20 06:00	0.00	Dec 02 07:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
Annual	8326	0.16	2.18	Feb 14	0.00	Oct 18	10.56	Feb 14 12:00	0.00	Jan 07 11:00	100.0	0	1	98.40	1.33	0.20	0.02	0.02	0.01	

AAAQO Objectives: 24-Hr: 3 ppb, 1-Hr: 10 ppb

Ambient Temperature (ET) – Valleyview 2019 Summary

Valleyview											2019
Ambient Temperature (°C)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	-3.4	10.2	Jan 26	-18.7	Jan 08	12.5	Jan 26 14:00	-24.7	Jan 08 09:00	100.0
February	672	-15.2	-1.5	Feb 19	-25.4	Feb 03	3.2	Feb 19 16:00	-32.4	Feb 03 09:00	100.0
March	744	0.7	9.5	Mar 21	-21.0	Mar 02	22.3	Mar 21 17:00	-29.5	Mar 02 08:00	100.0
April	720	7.2	11.2	Apr 23	1.7	Apr 04	18.8	Apr 18 14:00	-1.5	Apr 21 06:00	100.0
May	743	13.5	21.9	May 29	1.7	May 03	31.2	May 28 17:00	-2.5	May 02 06:00	99.9
June	720	16.2	21.9	Jun 17	10.6	Jun 06	31.2	Jun 17 14:00	5.2	Jun 08 05:00	100.0
July	744	18.1	22.6	Jul 22	13.7	Jul 01	30.1	Jul 22 19:00	8.6	Jul 04 05:00	100.0
August	744	16.2	21.1	Aug 05	11.7	Aug 18	28.8	Aug 21 13:00	4.5	Aug 29 06:00	100.0
September	718	12.9	18.4	Sep 03	3.0	Sep 29	27.8	Sep 03 16:00	-3.2	Sep 30 07:00	99.7
October	744	5.7	12.1	Oct 05	-4.3	Oct 28	19.6	Oct 02 15:00	-9.4	Oct 29 08:00	100.0
November	720	-0.3	9.2	Nov 17	-13.3	Nov 10	14.5	Nov 17 15:00	-18.5	Nov 11 05:00	100.0
December	744	-9.5	4.7	Dec 03	-16.5	Dec 23	7.4	Dec 03 14:00	-21.4	Dec 26 10:00	100.0
Annual	8757	5.3	22.6	Jul 22	-25.4	Feb 03	31.2	Jun 17 14:00	-32.4	Feb 03 09:00	100.0

Relative Humidity (RH) – Valleyview 2019 Summary

Valleyview											2019
Relative Humidity (%)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	84.2	95.8	Jan 13	63.0	Jan 26	100.0	Jan 02 09:00	48.4	Jan 26 20:00	100.0
February	672	75.2	85.7	Feb 22	68.2	Feb 09	98.2	Feb 20 02:00	49.2	Feb 26 15:00	100.0
March	744	66.3	83.3	Mar 31	54.7	Mar 21	100.0	Mar 12 06:00	15.3	Mar 21 18:00	100.0
April	720	65.2	97.2	Apr 15	39.1	Apr 25	100.0	Apr 01 01:00	18.7	Apr 21 17:00	100.0
May	743	60.4	94.4	May 15	38.0	May 20	100.0	May 03 06:00	16.8	May 26 19:00	99.9
June	720	74.6	97.0	Jun 20	46.9	Jun 02	100.0	Jun 03 04:00	21.0	Jun 02 16:00	100.0
July	744	78.3	93.8	Jul 24	58.3	Jul 25	100.0	Jul 03 00:00	33.1	Jul 16 18:00	100.0
August	744	82.0	98.0	Aug 18	70.1	Aug 22	100.0	Aug 01 01:00	37.0	Aug 20 17:00	100.0
September	718	81.8	98.1	Sep 08	66.7	Sep 25	100.0	Sep 01 02:00	31.9	Sep 21 17:00	99.7
October	744	78.2	96.8	Oct 25	53.8	Oct 06	100.0	Oct 03 05:00	30.9	Oct 11 16:00	100.0
November	720	87.7	99.8	Nov 12	65.6	Nov 18	100.0	Nov 01 17:00	52.1	Nov 18 15:00	100.0
December	744	85.5	93.1	Dec 31	69.2	Dec 03	100.0	Dec 04 06:00	52.3	Dec 27 15:00	100.0
Annual	8757	76.6	99.8	Nov 12	38.0	May 20	100.0	Jan 02 09:00	15.3	Mar 21 18:00	100.0

Wind Speed (WS) – Valleyview 2019 Summary

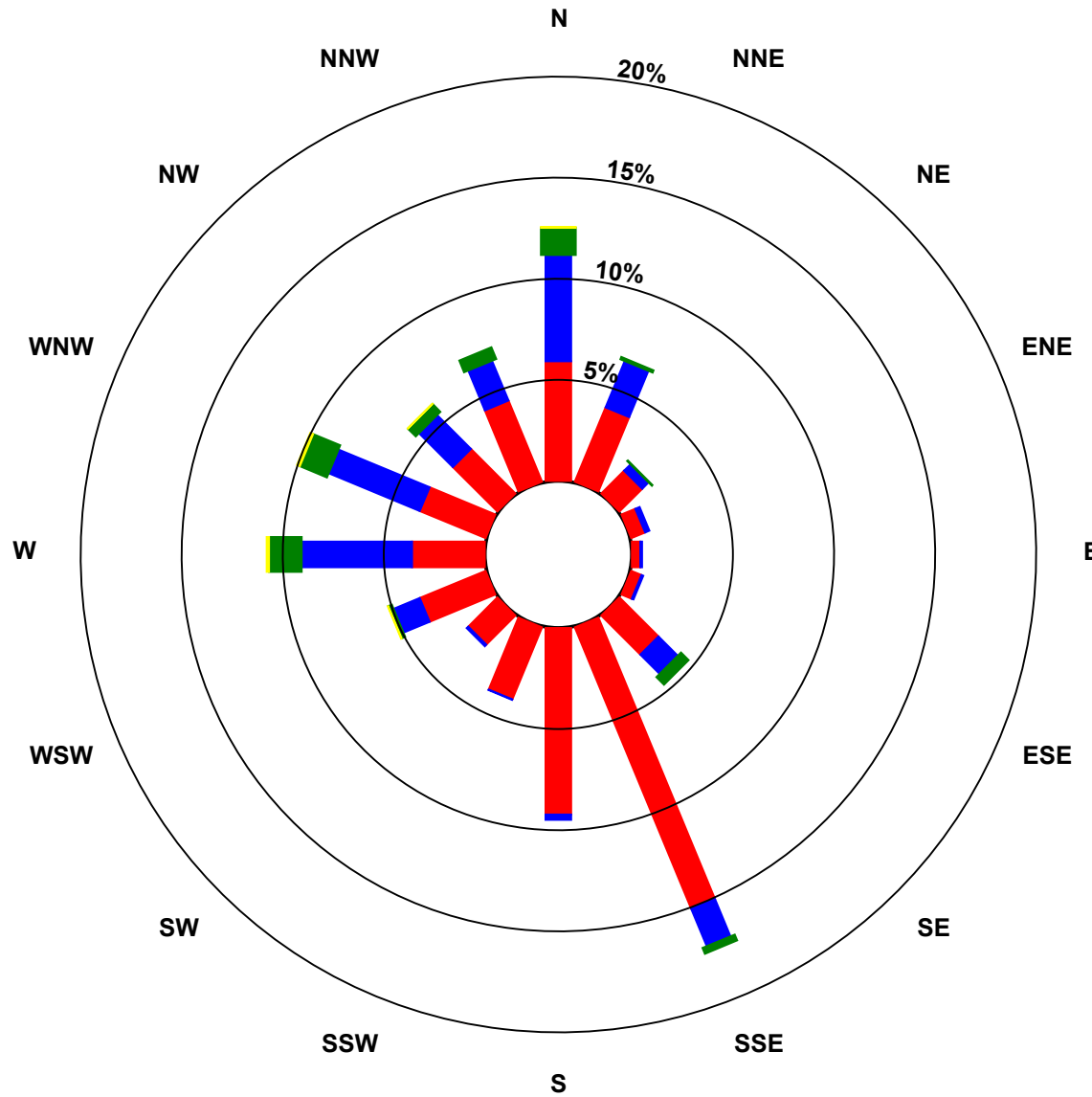
Valleyview											2019
Wind Speed (km/h)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	5.1	15.3	Jan 27	0.5	Jan 12	25.1	Jan 27 02:00	0.0	Jan 08 17:00	100.0
February	666	3.4	8.1	Feb 02	0.7	Feb 12	21.7	Feb 28 21:00	0.0	Feb 24 06:00	99.1
March	740	2.9	6.7	Mar 12	0.8	Mar 09	19.9	Mar 12 05:00	0.0	Mar 05 04:00	99.5
April	720	5.4	12.6	Apr 24	1.7	Apr 16	24.7	Apr 24 14:00	0.1	Apr 08 21:00	100.0
May	743	4.8	10.7	May 18	0.8	May 26	17.8	May 17 12:00	0.0	May 08 00:00	99.9
June	720	4.3	11.3	Jun 20	1.3	Jun 16	16.2	Jun 20 03:00	0.0	Jun 16 03:00	100.0
July	744	3.6	12.2	Jul 25	0.9	Jul 10	18.9	Jul 25 12:00	0.0	Jul 30 22:00	100.0
August	744	3.3	10.6	Aug 16	0.7	Aug 17	17.4	Aug 16 13:00	0.0	Aug 31 05:00	100.0
September	717	3.1	6.4	Sep 24	0.9	Sep 28	17.4	Sep 04 16:00	0.1	Sep 29 23:00	100.0
October	744	3.9	9.6	Oct 05	0.8	Oct 02	14.8	Oct 28 01:00	0.0	Oct 11 05:00	100.0
November	720	3.3	8.0	Nov 09	0.7	Nov 11	14.7	Nov 17 23:00	0.0	Nov 06 02:00	100.0
December	744	2.1	5.6	Dec 03	0.5	Dec 24	13.4	Dec 02 20:00	0.0	Dec 17 10:00	100.0
Annual	8746	3.8	15.3	Jan 27	0.5	Dec 24	25.1	Jan 27 02:00	0.0	Aug 31 05:00	99.9

Wind Speed and Wind Direction Frequency Distribution – Valleyview 2019 Summary

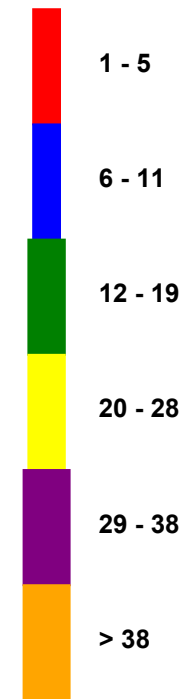
Valleyview								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	796	5.92	5.26	1.34	0.05	0.00	0.00	12.57
NNE	417	3.98	2.48	0.13	0.00	0.00	0.00	6.58
NE	132	1.59	0.44	0.05	0.00	0.00	0.00	2.08
ENE	62	0.74	0.24	0.00	0.00	0.00	0.00	0.98
E	32	0.41	0.09	0.00	0.00	0.00	0.00	0.51
ESE	41	0.55	0.09	0.00	0.00	0.00	0.00	0.65
SE	292	2.73	1.34	0.54	0.00	0.00	0.00	4.61
SSE	1101	15.06	2.01	0.32	0.00	0.00	0.00	17.39
S	601	9.22	0.27	0.00	0.00	0.00	0.00	9.49
SSW	246	3.85	0.03	0.00	0.00	0.00	0.00	3.88
SW	136	2.04	0.11	0.00	0.00	0.00	0.00	2.15
WSW	326	3.52	1.41	0.19	0.03	0.00	0.00	5.15
WSW	684	3.60	5.46	1.61	0.13	0.00	0.00	10.80
WNW	634	3.52	4.88	1.45	0.16	0.00	0.00	10.01
NW	383	3.11	2.37	0.55	0.02	0.00	0.00	6.05
NNW	450	4.34	2.13	0.63	0.00	0.00	0.00	7.11
Totals	6333	64.20	28.61	6.81	0.38	0.00	0.00	100

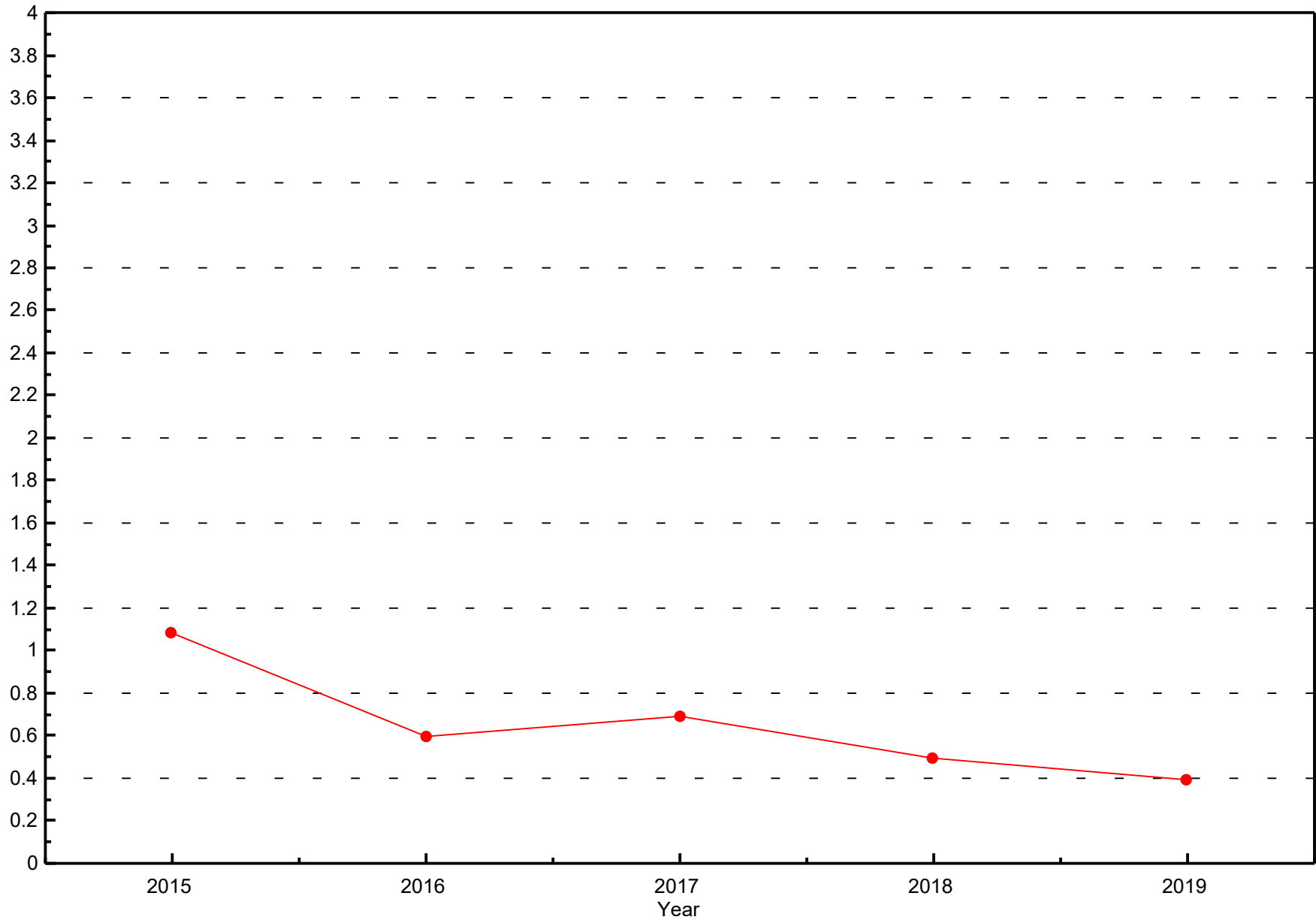
Wind Rose

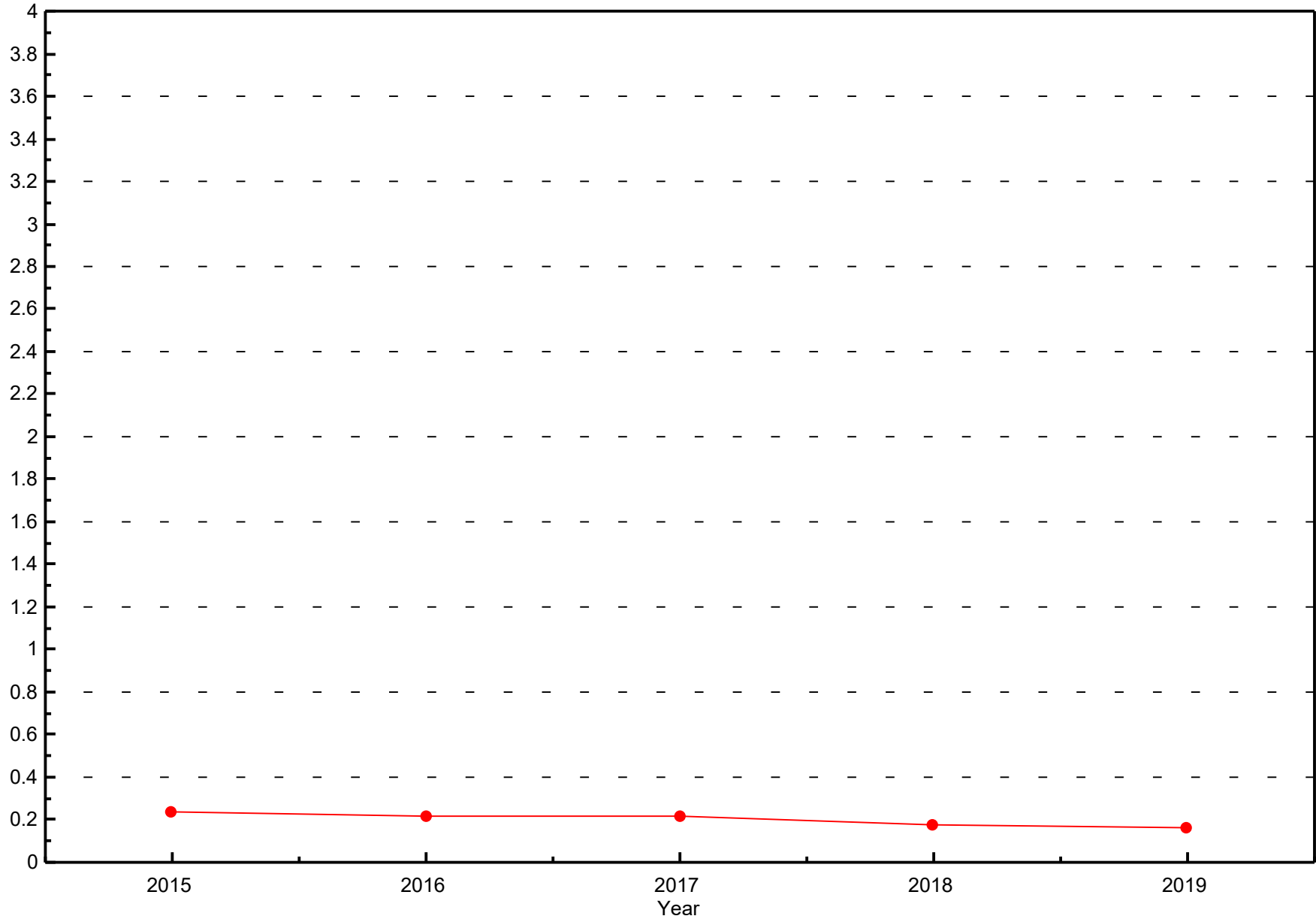
Wind Speed (WS) (km/h)
Valleyview - 2019



Wind Speed Classes (km/h)

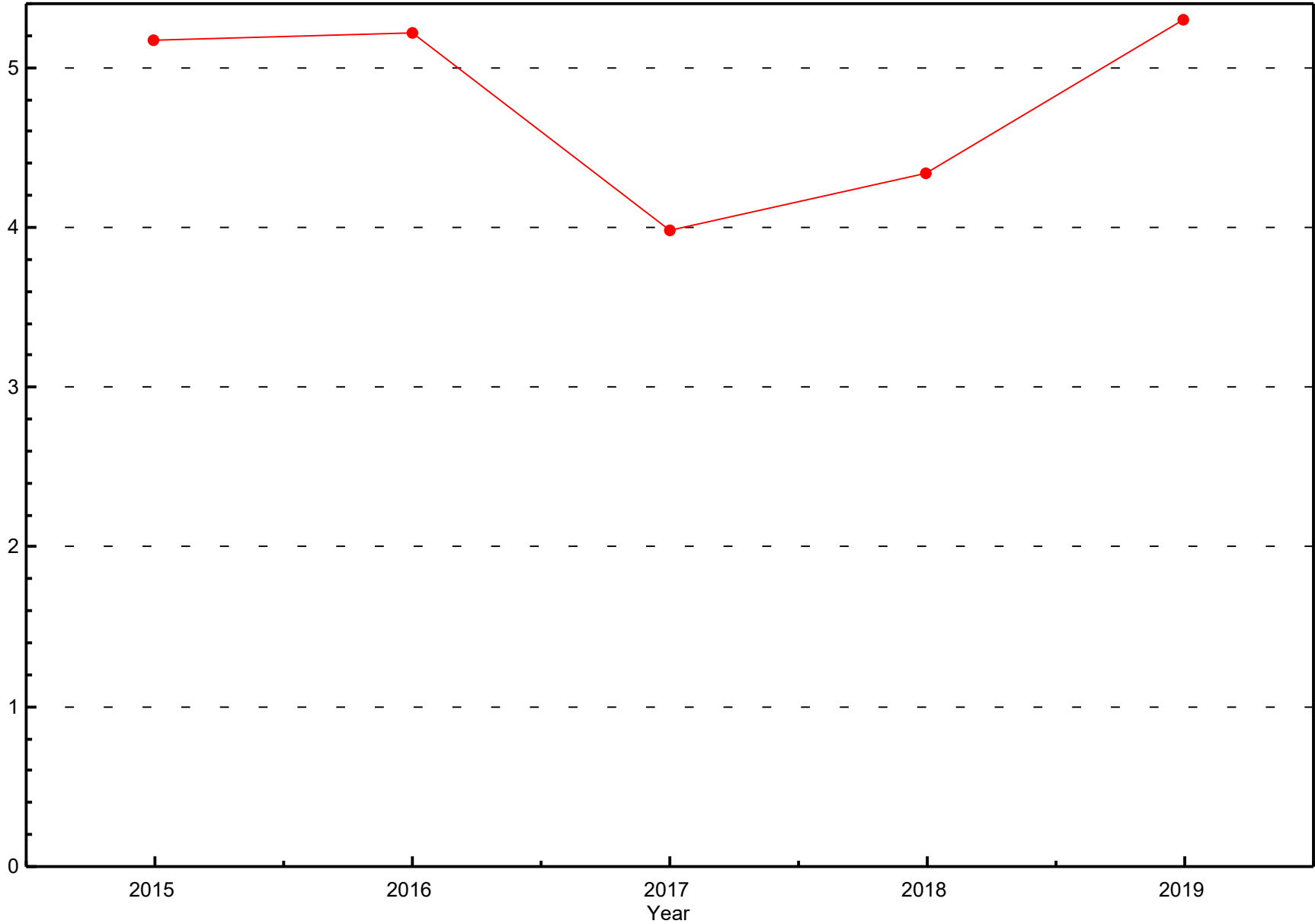






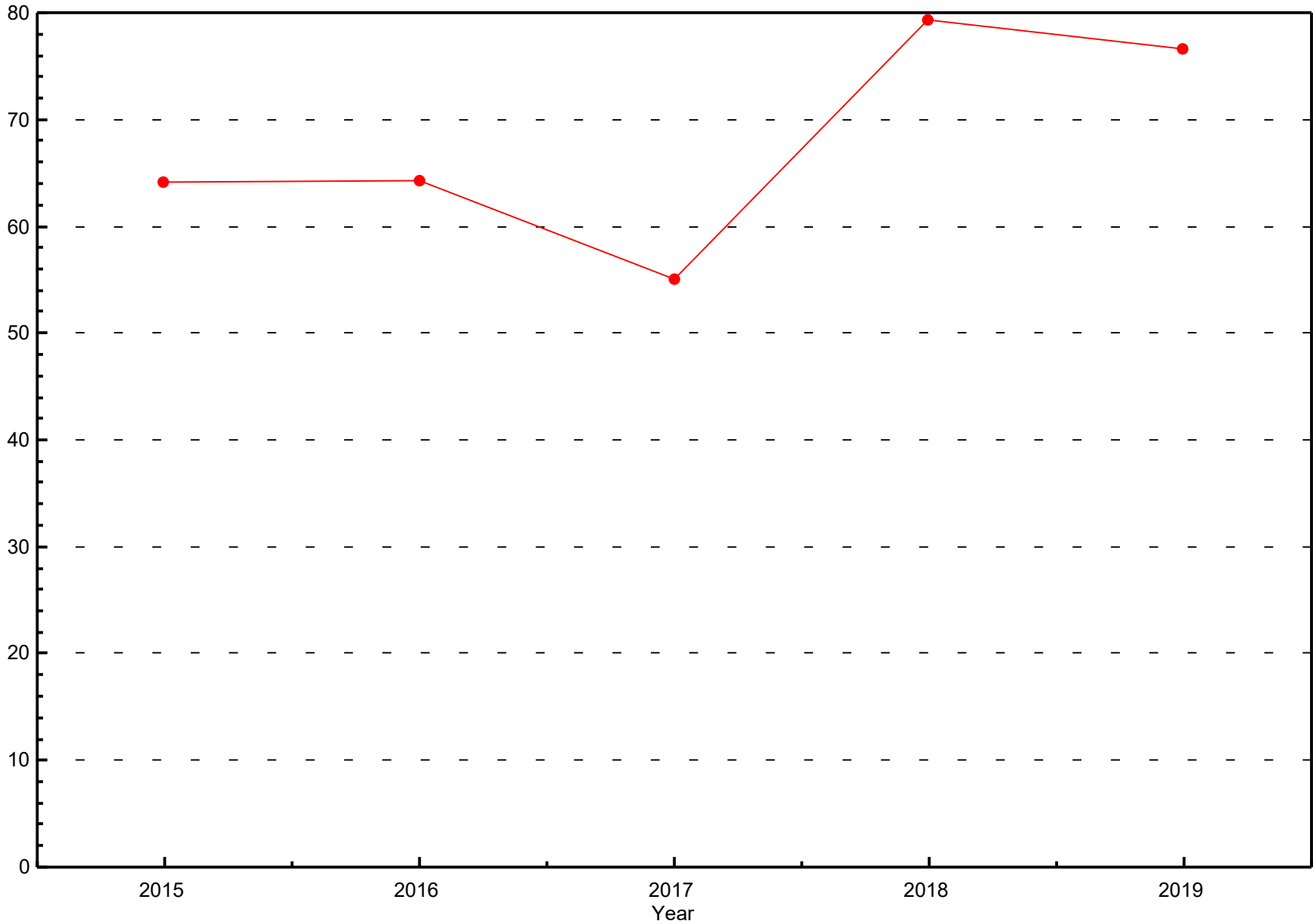
5-Year Annual Averages

External Temperature (ET) - °C
Valleyview (2015 to 2019)



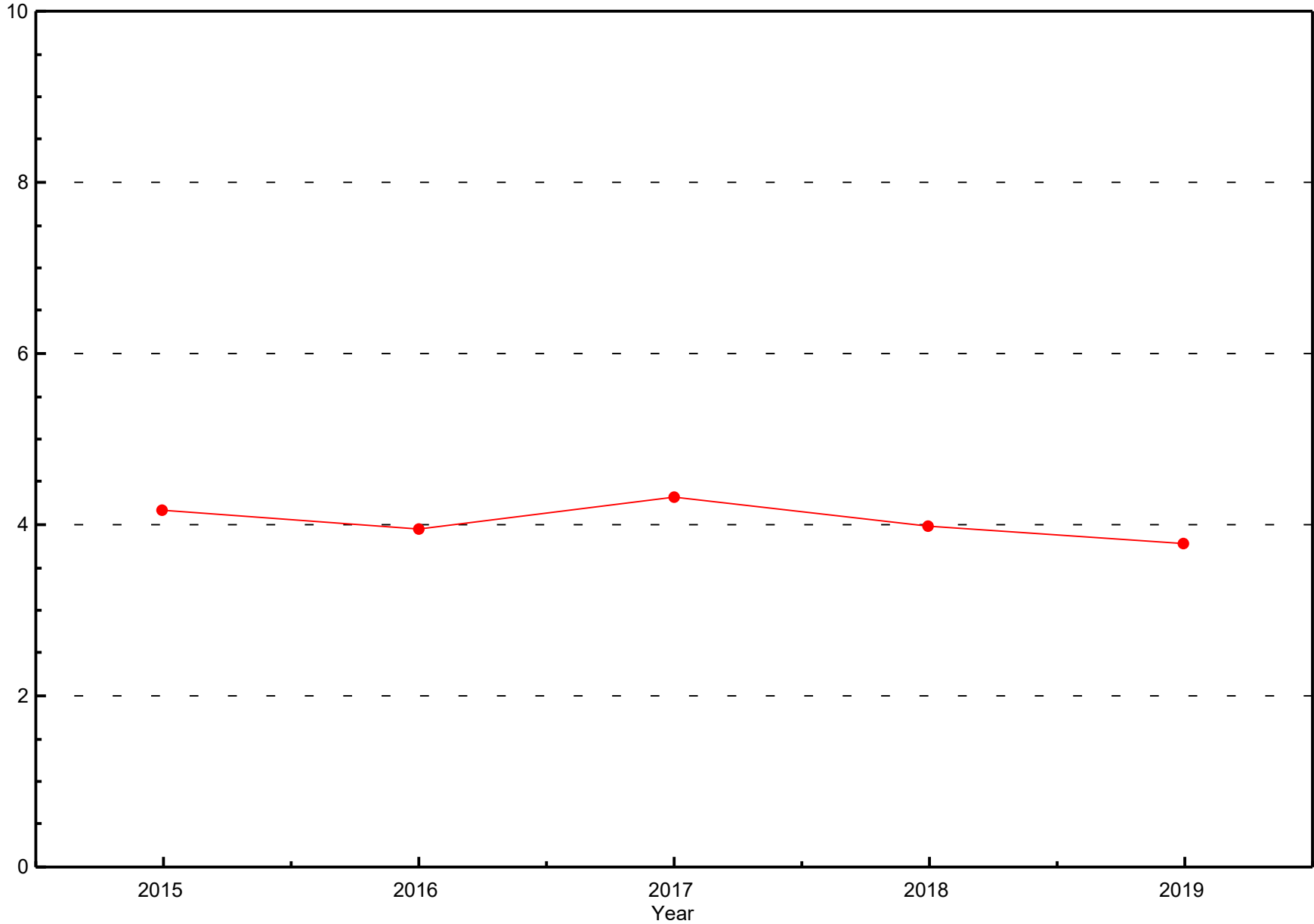
5-Year Annual Averages

**Relative Humidity (RH) - %
Valleyview (2015 to 2019)**



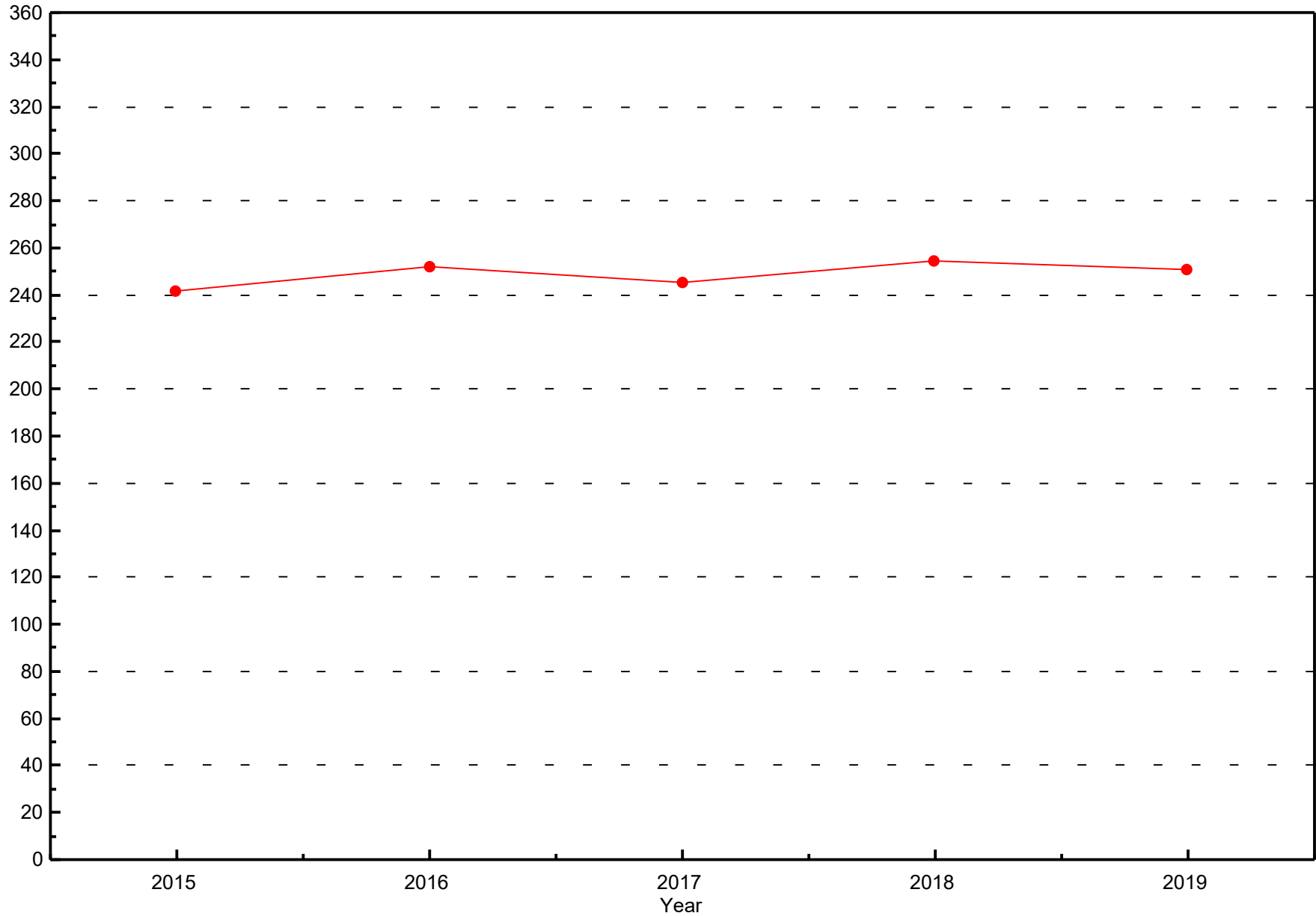
5-Year Annual Averages

**Wind Speed (WS) - km/h
Valleyview (2015 to 2019)**



5-Year Annual Averages

**Wind Direction (WD) - deg
Valleyview (2015 to 2019)**



PAZA

Donnelly

CONTINUOUS AMBIENT AIR MONITORING STATION

2019

ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Donnelly 2019 Summary and Frequency Distribution

Donnelly												SO ₂ (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range					
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340
January	709	0.22	1.03	Jan 19	0.01	Jan 27	1.51	Jan 19 11:00	0.00	Jan 01 02:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
February	640	0.43	0.93	Feb 11	0.01	Feb 20	1.76	Feb 07 22:00	0.00	Feb 20 00:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
March	710	0.43	1.40	Mar 08	0.00	Mar 27	2.61	Mar 04 12:00	0.00	Mar 01 01:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
April	673	0.14	0.34	Apr 18	0.02	Apr 02	2.90	Apr 18 05:00	0.00	Apr 02 07:00	98.75	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
May	706	0.10	0.24	May 31	0.01	May 06	1.02	May 31 11:00	0.00	May 02 02:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
June	685	0.07	0.17	Jun 17	0.00	Jun 22	0.64	Jun 02 14:00	0.00	Jun 01 15:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
July	708	0.08	0.23	Jul 17	0.00	Jul 13	0.85	Jul 17 12:00	0.00	Jul 01 02:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
August	705	0.08	0.51	Aug 27	0.00	Aug 01	7.41	Aug 27 13:00	0.00	Aug 01 02:00	99.87	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
September	682	0.09	0.25	Sep 12	0.00	Sep 15	1.46	Sep 23 05:00	0.00	Sep 01 08:00	99.58	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
October	709	0.19	0.42	Oct 03	0.02	Oct 07	2.41	Oct 18 14:00	0.00	Oct 05 20:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
November	684	0.15	0.39	Nov 06	0.01	Nov 14	1.45	Nov 06 12:00	0.00	Nov 04 13:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
December	708	0.23	0.81	Dec 15	0.02	Dec 04	4.39	Dec 08 14:00	0.00	Dec 03 00:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8319	0.18	1.40	Mar 08	0.00	Jun 22	7.41	Aug 27 13:00	0.00	Jan 01 02:00	99.8	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Hydrogen Sulphide (H₂S) – Donnelly 2019 Summary and Frequency Distribution

Donnelly												H ₂ S (ppb)					2019			
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range						
												24-Hr	1-Hr	0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10	
January	709	0.12	0.42	Jan 04	0.00	Jan 02	2.73	Jan 04 07:00	0.00	Jan 01 01:00	100.00	0	0	99.44	0.42	0.14	0.00	0.00	0.00	
February	639	0.16	0.44	Feb 12	0.01	Feb 25	0.90	Feb 12 13:00	0.00	Feb 12 18:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
March	709	0.07	0.23	Mar 07	0.00	Mar 20	0.42	Mar 26 08:00	0.00	Mar 01 02:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
April	673	0.07	0.17	Apr 01	0.02	Apr 09	1.00	Apr 25 21:00	0.00	Apr 02 05:00	98.75	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
May	705	0.14	0.88	May 30	0.00	May 18	2.48	May 30 09:00	0.00	May 02 00:00	99.87	0	0	98.67	1.13	0.00	0.00	0.00	0.00	
June	685	0.20	0.46	Jun 27	0.04	Jun 17	2.97	Jun 27 05:00	0.00	Jun 01 11:00	100.00	0	0	99.42	0.44	0.15	0.00	0.00	0.00	
July	707	0.18	0.41	Jul 24	0.07	Jul 17	1.82	Jul 24 04:00	0.00	Jul 01 09:00	100.00	0	0	99.29	0.71	0.00	0.00	0.00	0.00	
August	683	0.16	0.34	Aug 06	0.00	Aug 30	1.74	Aug 06 08:00	0.00	Aug 02 20:00	97.72	0	0	99.71	0.29	0.00	0.00	0.00	0.00	
September	682	0.06	0.26	Sep 15	0.00	Sep 30	1.22	Sep 15 23:00	0.00	Sep 01 01:00	99.58	0	0	99.85	0.15	0.00	0.00	0.00	0.00	
October	705	0.03	0.18	Oct 23	0.00	Oct 02	0.40	Oct 17 08:00	0.00	Oct 01 01:00	99.60	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
November	684	0.02	0.10	Nov 30	0.00	Nov 08	0.99	Nov 28 00:00	0.00	Nov 01 01:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
December	708	0.03	0.28	Dec 22	0.00	Dec 03	0.73	Dec 05 00:00	0.00	Dec 01 07:00	100.00	0	0	100.00	0.00	0.00	0.00	0.00	0.00	
Annual	8289	0.10	0.88	May 30	0.00	Jan 02	2.97	Jun 27 05:00	0.00	Jan 01 01:00	99.6	0	0	99.71	0.27	0.02	0.00	0.00	0.00	

AAAQO Objectives: 24-Hr: 3 ppb, 1-Hr: 10 ppb

Ambient Temperature (ET) – Donnelly 2019 Summary

Donnelly Ambient Temperature (°C) 2019											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	-8.1	5.0	Jan 02	-20.5	Jan 08	6.9	Jan 26 19:00	-25.0	Jan 08 03:00	100.0
February	672	-21.3	-7.1	Feb 19	-34.4	Feb 03	-3.7	Feb 27 17:00	-40.8	Feb 04 09:00	100.0
March	744	-3.1	6.5	Mar 19	-26.9	Mar 02	14.5	Mar 21 16:00	-33.3	Mar 02 08:00	100.0
April	720	4.2	9.4	Apr 22	-3.7	Apr 04	15.1	Apr 18 16:00	-5.9	Apr 04 07:00	100.0
May	743	11.7	22.5	May 29	-1.5	May 03	29.5	May 28 17:00	-7.1	May 04 06:00	99.9
June	720	14.5	21.0	Jun 17	8.4	Jun 06	28.8	Jun 17 16:00	3.0	Jun 08 05:00	100.0
July	744	15.8	21.2	Jul 22	11.0	Jul 01	27.2	Jul 22 17:00	2.8	Jul 09 05:00	100.0
August	744	13.9	18.9	Aug 21	10.0	Aug 09	25.8	Aug 21 15:00	1.2	Aug 10 06:00	100.0
September	720	10.6	17.0	Sep 03	0.0	Sep 28	24.8	Sep 03 19:00	-4.6	Sep 28 06:00	100.0
October	744	3.0	9.9	Oct 02	-8.2	Oct 28	18.4	Oct 03 17:00	-11.8	Oct 29 09:00	100.0
November	720	-4.2	6.2	Nov 17	-19.2	Nov 10	9.3	Nov 17 15:00	-23.2	Nov 10 20:00	100.0
December	744	-8.0	0.5	Dec 03	-16.8	Dec 13	4.7	Dec 17 20:00	-18.8	Dec 13 20:00	100.0
Annual	8759	2.6	22.5	May 29	-34.4	Feb 03	29.5	May 28 17:00	-40.8	Feb 04 09:00	100.0

Wind Speed (WS) – Donnelly 2019 Summary

Donnelly Wind Speed (km/h) 2019											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	11.1	24.5	Jan 26	3.2	Jan 21	50.7	Jan 26 20:00	0.1	Jan 21 01:00	100.0
February	672	7.5	15.9	Feb 21	2.2	Feb 14	22.9	Feb 28 21:00	0.1	Feb 24 17:00	100.0
March	744	8.6	16.8	Mar 10	3.1	Mar 20	35.3	Mar 10 23:00	0.1	Mar 02 17:00	100.0
April	717	12.5	24.6	Apr 24	5.0	Apr 02	41.0	Apr 24 13:00	0.8	Apr 13 23:00	99.6
May	743	10.2	19.7	May 18	3.7	May 04	33.3	May 18 11:00	0.1	May 04 06:00	99.9
June	718	11.4	24.9	Jun 18	4.3	Jun 26	39.2	Jun 18 16:00	0.5	Jun 08 00:00	100.0
July	744	8.6	22.0	Jul 25	2.9	Jul 31	30.4	Jul 25 06:00	0.2	Jul 24 01:00	100.0
August	744	8.1	16.0	Aug 16	2.6	Aug 29	26.7	Aug 22 10:00	0.2	Aug 12 08:00	100.0
September	720	10.3	19.0	Sep 21	2.8	Sep 17	33.5	Sep 21 16:00	0.1	Sep 17 00:00	100.0
October	744	12.6	23.4	Oct 06	6.7	Oct 21	39.6	Oct 06 15:00	1.5	Oct 12 09:00	100.0
November	720	10.7	24.6	Nov 22	3.9	Nov 13	42.9	Nov 23 03:00	0.5	Nov 20 03:00	100.0
December	744	10.7	20.9	Dec 28	1.5	Dec 22	41.9	Dec 17 21:00	0.1	Dec 21 18:00	100.0
Annual	8754	10.2	24.9	Jun 18	1.5	Dec 22	50.7	Jan 26 20:00	0.1	Jan 21 01:00	100.0

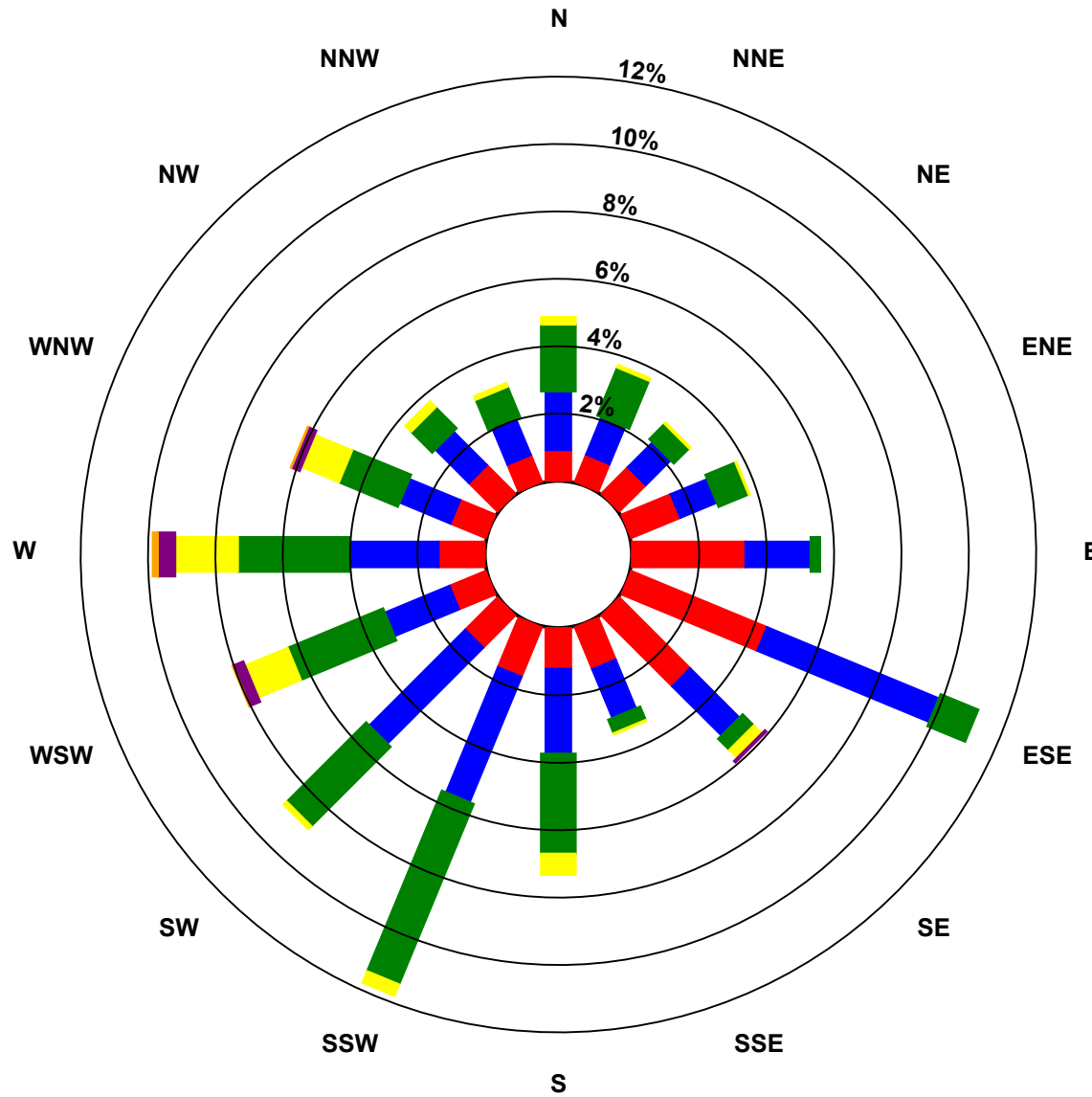
Wind Speed and Wind Direction Frequency Distribution – Donnelly 2019 Summary

Donnelly								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	420	0.92	1.74	1.98	0.23	0.00	0.00	4.87
NNE	319	0.87	1.19	1.54	0.09	0.00	0.00	3.70
NE	245	1.10	1.04	0.64	0.06	0.00	0.00	2.84
ENE	324	1.58	1.17	0.96	0.05	0.00	0.00	3.76
E	482	3.36	1.94	0.29	0.00	0.00	0.00	5.59
ESE	957	4.36	5.52	1.22	0.00	0.00	0.00	11.10
SE	509	2.97	2.06	0.46	0.34	0.07	0.00	5.90
SSE	292	1.35	1.57	0.43	0.05	0.00	0.00	3.39
S	632	1.21	2.52	2.97	0.64	0.00	0.00	7.33
SSW	1016	1.59	4.03	5.80	0.37	0.00	0.00	11.79
SW	762	1.35	4.03	3.33	0.14	0.00	0.00	8.84
WSW	692	1.16	2.08	3.06	1.37	0.32	0.03	8.03
WSW	850	1.37	2.64	3.32	1.86	0.52	0.15	9.86
WNW	530	1.13	1.64	1.89	1.21	0.27	0.02	6.15
NW	322	1.19	1.40	0.88	0.26	0.00	0.00	3.74
NNW	269	0.86	1.16	0.97	0.13	0.00	0.00	3.12
Totals	8621	26.35	35.73	29.75	6.77	1.18	0.21	100

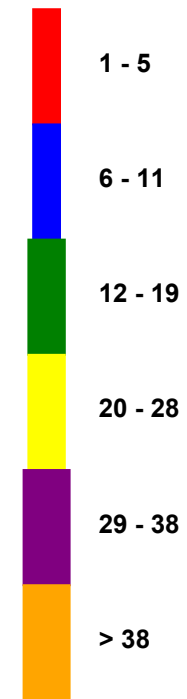
Wind Rose

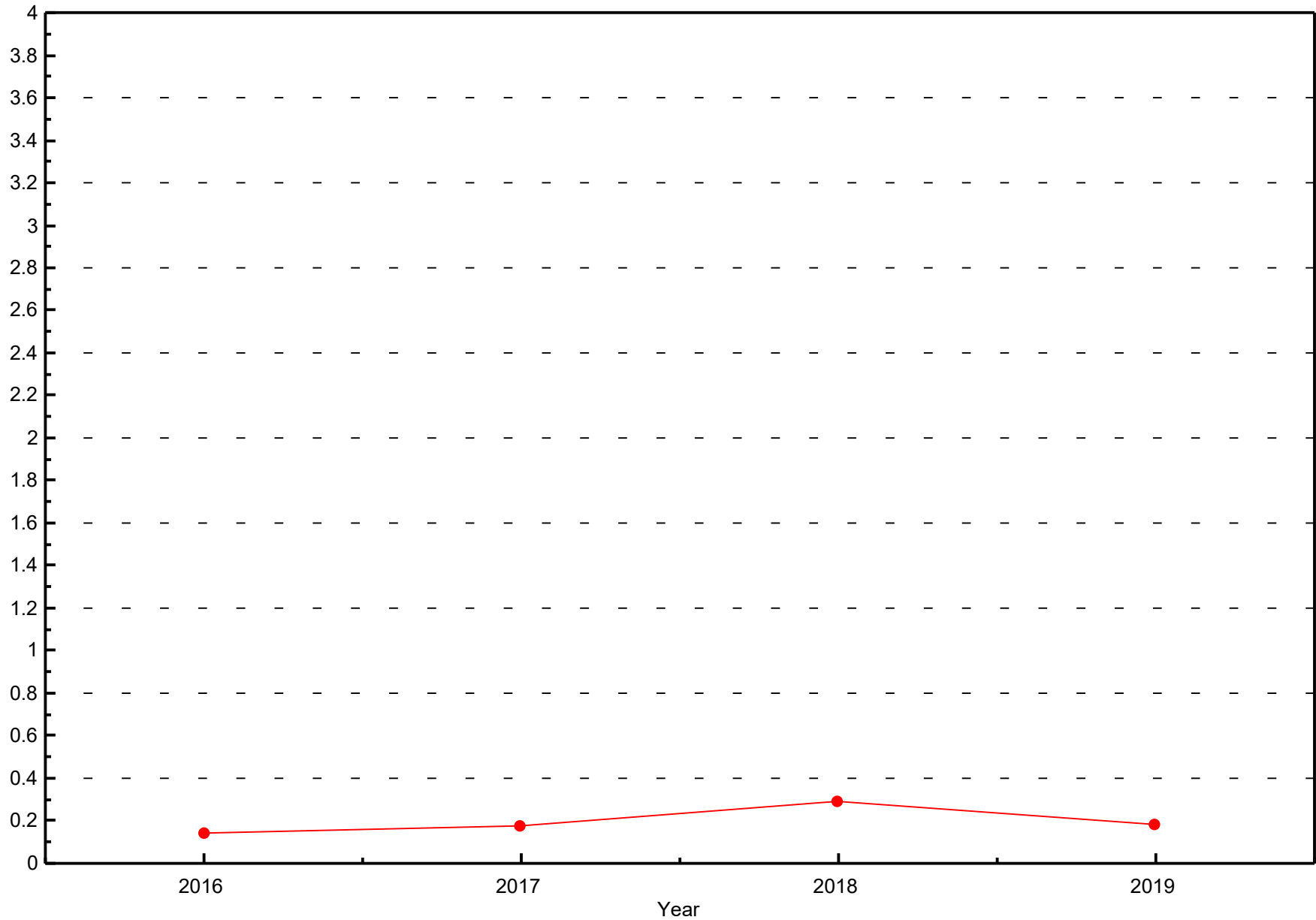
Wind Speed (WS) (km/h)

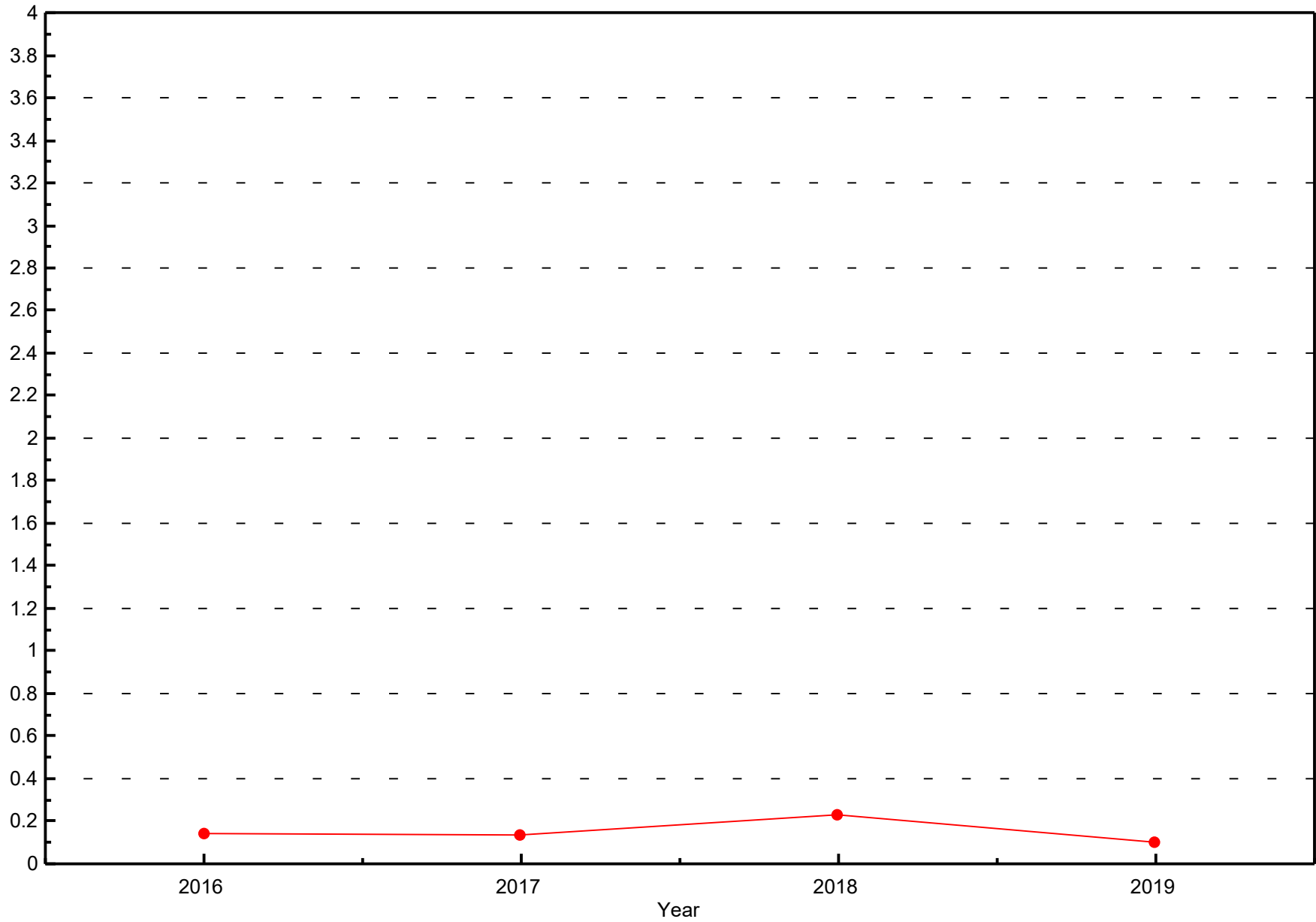
Donnelly - 2019

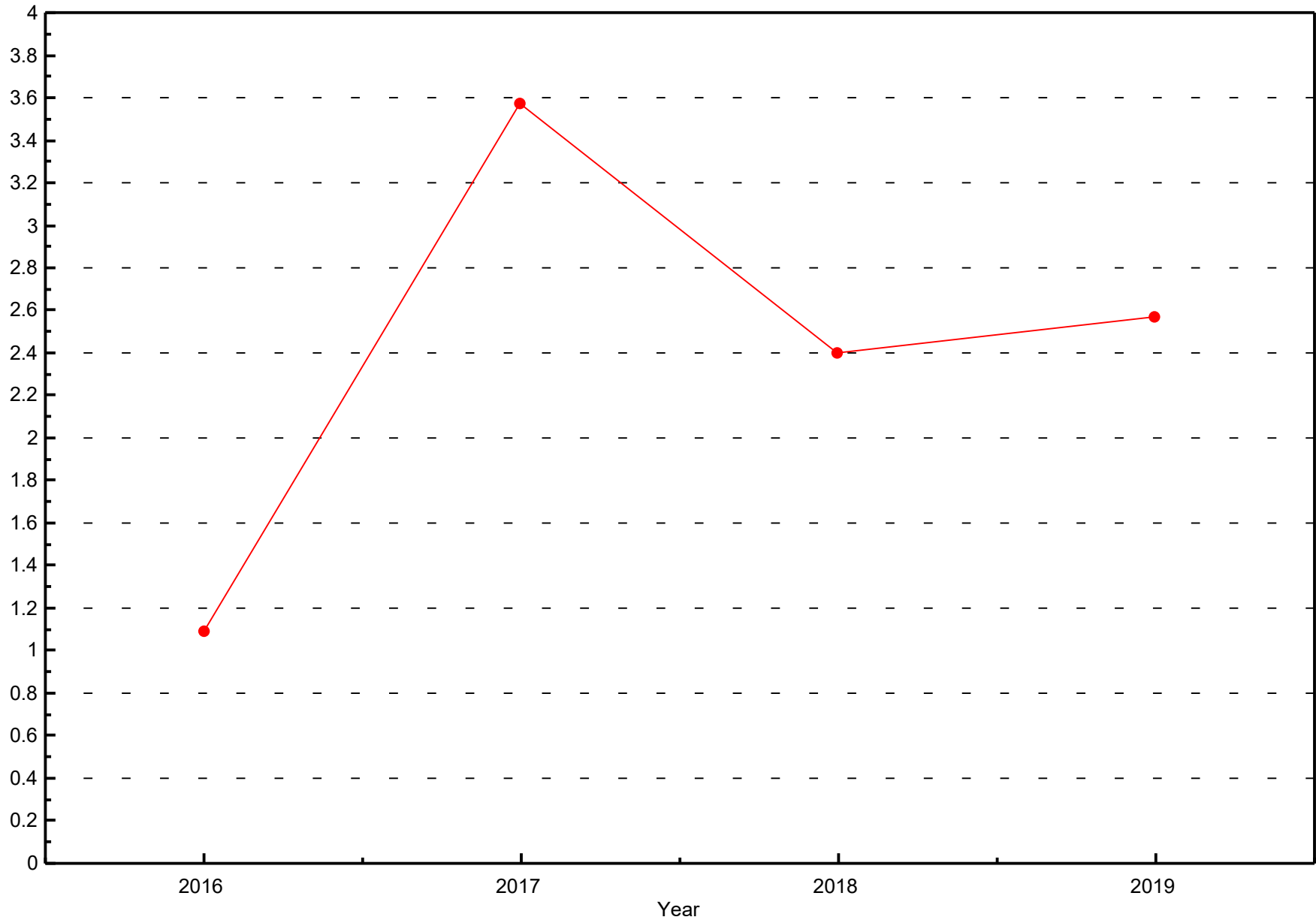


Wind Speed Classes (km/h)



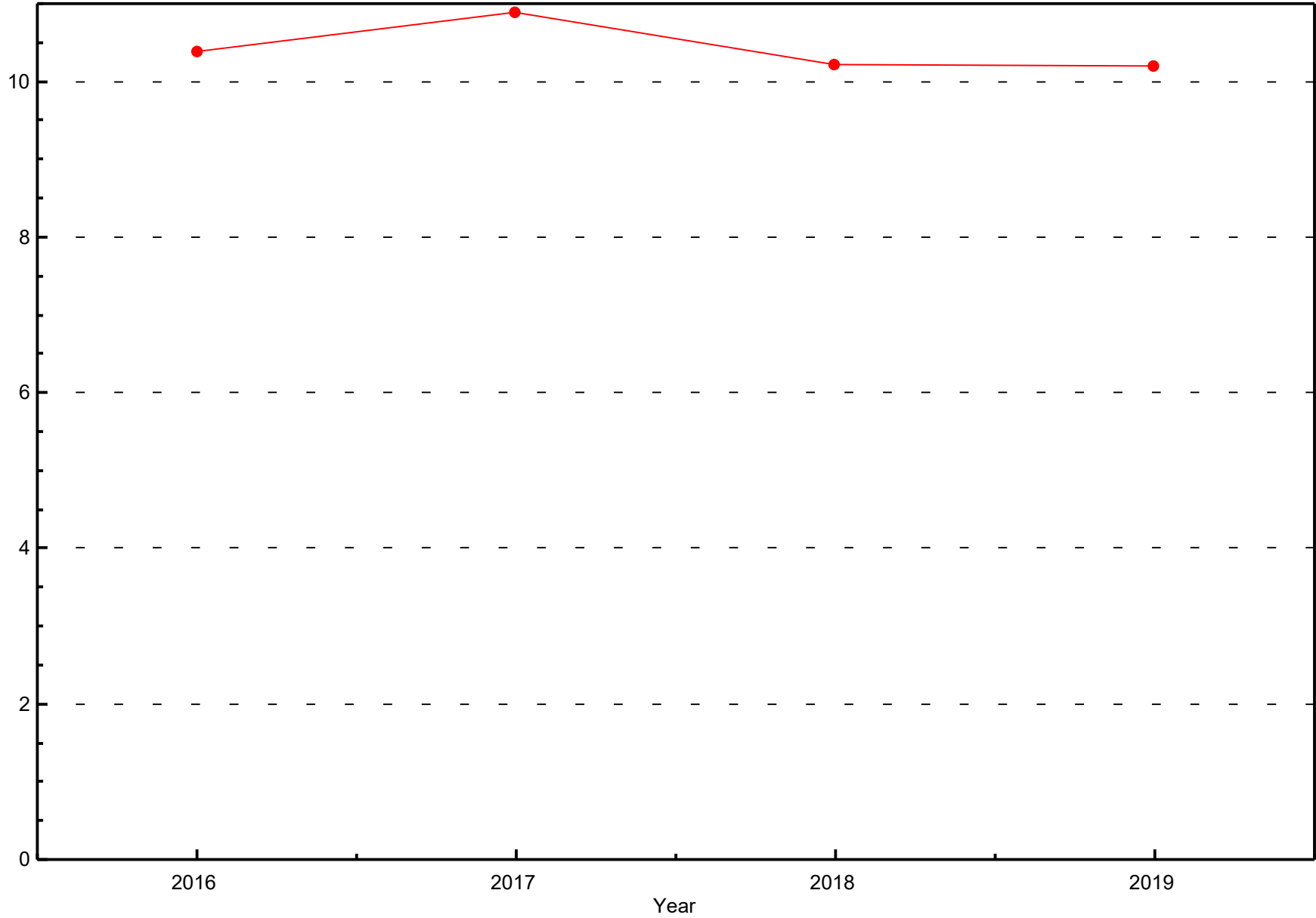






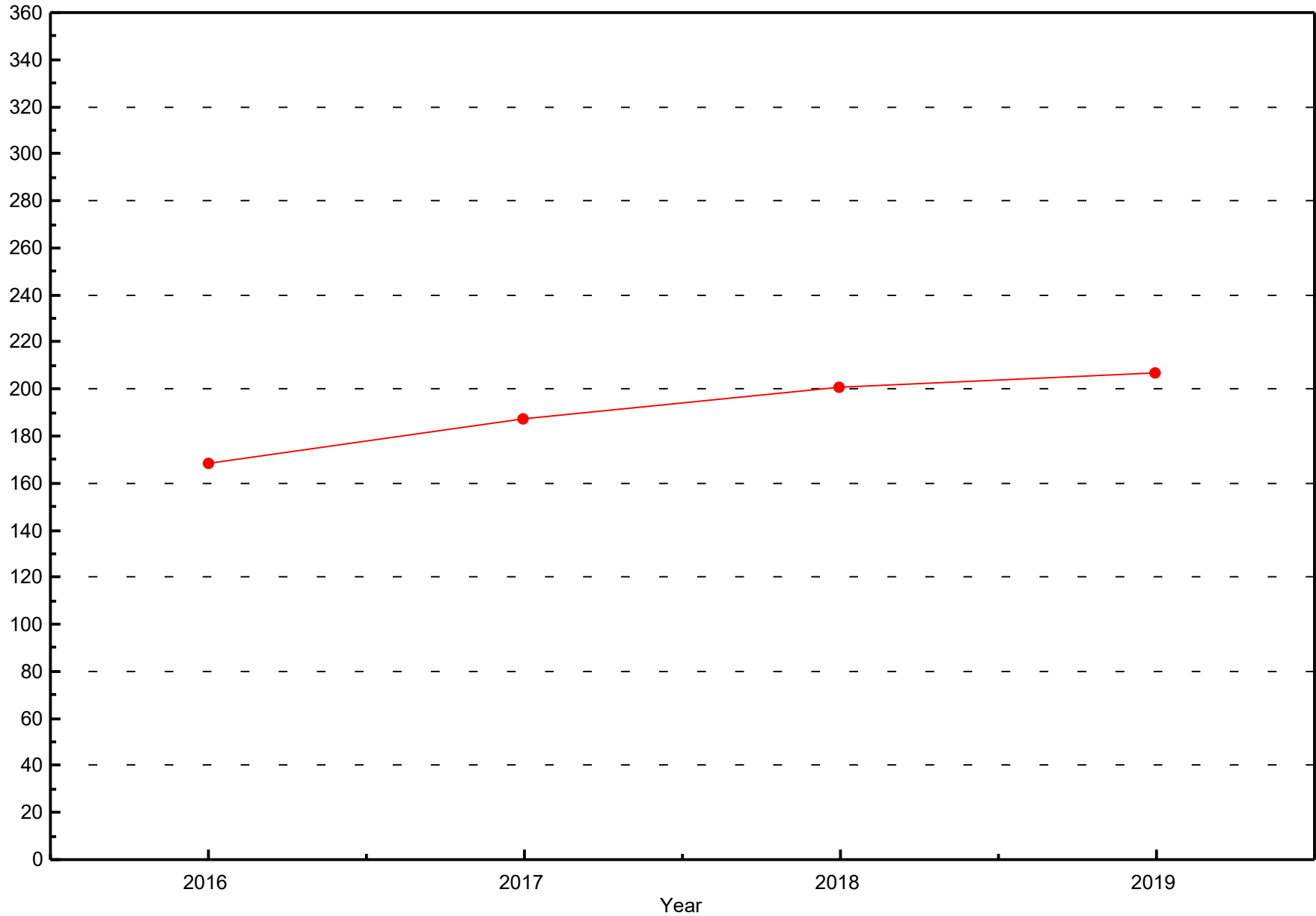
4-Year Annual Averages

**Wind Speed (WS) - km/h
Donnelly (2016 to 2019)**



4-Year Annual Averages

**Wind Direction (WD) - deg
Donnelly (2016 to 2019)**



PAZA

Wembley-Portable
CONTINUOUS AMBIENT AIR MONITORING STATION

2019
ANNUAL SUMMARY TABLES

Sulphur Dioxide (SO₂) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable SO ₂ (ppb)												2019									
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance			Percentage of Readings in Concentration Range						
												30-Day	24-Hr	1-Hr	0 - 20	20 - 60	60 - 110	110 - 170	170 - 340	>340	
January	708	0.31	1.40	Jan 11	0.03	Jan 01	3.40	Jan 22 22:00	0.00	Jan 01 07:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
February	639	0.53	1.42	Feb 16	0.05	Feb 01	6.39	Feb 20 12:00	0.00	Feb 01 02:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
March	710	0.35	1.10	Mar 03	0.01	Mar 15	7.96	Mar 03 21:00	0.00	Mar 01 04:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
April	672	0.16	0.44	Apr 11	0.00	Apr 24	2.72	Apr 30 22:00	0.00	Apr 01 06:00	98.47	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
May	702	0.23	1.46	May 31	0.02	May 12	13.51	May 31 13:00	0.00	May 01 06:00	99.33	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
June	675	0.13	0.45	Jun 07	0.00	Jun 10	4.38	Jun 29 10:00	0.00	Jun 02 05:00	98.47	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
July	689	0.30	1.76	Jul 10	0.00	Jul 12	28.08	Jul 10 15:00	0.00	Jul 01 07:00	97.98	0	0	0	99.85	0.15	0.00	0.00	0.00	0.00	0.00
August	702	0.33	3.88	Aug 20	0.00	Aug 22	22.63	Aug 20 21:00	0.00	Aug 01 23:00	99.46	0	0	0	99.72	0.28	0.00	0.00	0.00	0.00	0.00
September	685	0.41	3.96	Sep 15	0.03	Sep 13	51.08	Sep 15 16:00	0.00	Sep 01 01:00	100.00	0	0	0	99.71	0.29	0.00	0.00	0.00	0.00	0.00
October	690	0.73	3.39	Oct 13	0.01	Oct 18	51.40	Oct 31 05:00	0.00	Oct 01 01:00	97.58	0	0	0	99.28	0.72	0.00	0.00	0.00	0.00	0.00
November	683	0.44	3.86	Nov 19	0.00	Nov 18	51.03	Nov 19 19:00	0.00	Nov 02 04:00	100.00	0	0	0	99.85	0.15	0.00	0.00	0.00	0.00	0.00
December	709	0.29	1.29	Dec 21	0.02	Dec 09	8.66	Dec 18 03:00	0.00	Dec 02 06:00	100.00	0	0	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	8264	0.35	3.96	Sep 15	0.00	Jul 12	51.40	Oct 31 05:00	0.00	Jan 01 07:00	99.3	0	0	0	99.89	0.11	0.00	0.00	0.00	0.00	0.00

AAAQO Objectives: Annual: 8 ppb, 30-Day: 11 ppb, 24-Hr: 48 ppb, 1-Hr: 172 ppb

Total Reduced Sulphur (TRS) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable TRS (ppb)												2019							
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range							
												0 - 1	1 - 2.5	2.5 - 5	5 - 7.5	7.5 - 10	>10		
January	709	0.15	0.40	Jan 08	0.03	Jan 26	0.60	Jan 08 13:00	0.00	Jan 01 03:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	638	0.23	0.52	Feb 06	0.08	Feb 28	0.99	Feb 06 08:00	0.01	Feb 28 04:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	700	0.09	0.29	Mar 03	0.01	Mar 31	0.88	Mar 08 13:00	0.00	Mar 10 06:00	99.73	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
April	673	0.09	0.36	Apr 26	0.01	Apr 05	3.04	Apr 26 01:00	0.00	Apr 01 01:00	98.47	99.26	0.59	0.15	0.00	0.00	0.00	0.00	0.00
May	703	0.09	0.26	May 31	0.02	May 04	0.62	May 30 16:00	0.00	May 01 05:00	99.33	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	558	0.07	0.20	Jun 06	0.00	Jun 11	0.32	Jun 06 05:00	0.00	Jun 03 11:00	83.06	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
July	602	0.05	0.12	Jul 27	0.01	Jul 25	0.28	Jul 11 06:00	0.00	Jul 06 09:00	85.62	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
August	701	0.09	0.21	Aug 23	0.01	Aug 03	0.38	Aug 23 01:00	0.00	Aug 02 22:00	99.33	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
September	684	0.09	0.20	Sep 15	0.01	Sep 03	0.77	Sep 15 01:00	0.00	Sep 02 04:00	99.86	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	686	0.12	0.46	Oct 16	0.00	Oct 04	1.28	Oct 11 19:00	0.00	Oct 01 22:00	97.58	99.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00
November	683	0.16	0.41	Nov 29	0.02	Nov 04	0.71	Nov 06 18:00	0.00	Nov 01 21:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
December	709	0.22	0.57	Dec 17	0.06	Dec 25	1.35	Dec 17 10:00	0.00	Dec 12 06:00	100.00	99.58	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Annual	8046	0.12	0.57	Dec 17	0.00	Jun 11	3.04	Apr 26 01:00	0.00	Jan 01 03:00	96.9	99.88	0.10	0.01	0.00	0.00	0.00	0.00	0.00

No AAAQO

Nitric Oxide (NO) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable NO (ppb)												2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range				
												0 - 25	25 - 50	50 - 110	110 - 210	>210
January	699	1.72	10.14	Jan 08	0.09	Jan 27	21.94	Jan 08 13:00	0.00	Jan 09 23:00	98.92	100.00	0.00	0.00	0.00	0.00
February	638	2.83	16.36	Feb 06	0.28	Feb 01	40.80	Feb 13 14:00	0.00	Feb 01 02:00	100.00	99.06	0.94	0.00	0.00	0.00
March	708	0.95	3.53	Mar 14	0.13	Mar 27	11.48	Mar 14 11:00	0.00	Mar 05 05:00	100.00	100.00	0.00	0.00	0.00	0.00
April	667	0.21	0.45	Apr 07	0.03	Apr 23	2.26	Apr 07 10:00	0.00	Apr 01 22:00	98.33	100.00	0.00	0.00	0.00	0.00
May	701	0.27	1.15	May 31	0.07	May 16	10.98	May 13 05:00	0.00	May 01 02:00	99.33	100.00	0.00	0.00	0.00	0.00
June	672	0.66	3.32	Jun 22	0.05	Jun 18	21.65	Jun 22 04:00	0.00	Jun 06 23:00	98.47	100.00	0.00	0.00	0.00	0.00
July	690	0.20	0.52	Jul 17	0.05	Jul 12	5.06	Jul 17 20:00	0.00	Jul 01 21:00	98.12	100.00	0.00	0.00	0.00	0.00
August	696	0.51	1.94	Aug 07	0.05	Aug 24	13.07	Aug 12 10:00	0.00	Aug 02 00:00	99.60	100.00	0.00	0.00	0.00	0.00
September	669	0.38	1.04	Sep 17	0.05	Sep 24	7.95	Sep 06 20:00	0.00	Sep 01 05:00	98.89	100.00	0.00	0.00	0.00	0.00
October	686	0.67	6.55	Oct 16	0.03	Oct 07	19.00	Oct 16 16:00	0.00	Oct 01 01:00	97.58	100.00	0.00	0.00	0.00	0.00
November	682	1.75	15.81	Nov 29	0.08	Nov 23	47.25	Nov 29 20:00	0.00	Nov 05 06:00	100.00	99.27	0.73	0.00	0.00	0.00
December	708	1.89	12.61	Dec 17	0.16	Dec 03	34.79	Dec 17 11:00	0.00	Dec 03 09:00	100.00	99.15	0.85	0.00	0.00	0.00
Annual	8216	1.00	16.36	Feb 06	0.03	Oct 07	47.25	Nov 29 20:00	0.00	Jan 09 23:00	99.1	99.80	0.20	0.00	0.00	0.00

No AAAQO

Nitrogen Dioxide (NO₂) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable NO ₂ (ppb)												2019					
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance	Percentage of Readings in Concentration Range				
												1-Hr	0 - 25	25 - 50	50 - 110	110 - 159	>159
January	699	7.58	23.66	Jan 11	0.79	Jan 26	31.21	Jan 08 19:00	0.32	Jan 26 20:00	98.92	0	92.56	7.44	0.00	0.00	0.00
February	638	11.92	28.82	Feb 13	1.97	Feb 02	46.09	Feb 12 23:00	0.47	Feb 01 01:00	100.00	0	84.01	15.99	0.00	0.00	0.00
March	708	5.35	13.57	Mar 02	1.20	Mar 12	33.68	Mar 03 01:00	0.55	Mar 13 13:00	100.00	0	98.59	1.41	0.00	0.00	0.00
April	667	1.62	2.98	Apr 01	0.59	Apr 23	8.54	Apr 01 04:00	0.23	Apr 19 12:00	98.33	0	100.00	0.00	0.00	0.00	0.00
May	701	2.20	6.98	May 31	1.03	May 09	16.68	May 31 02:00	0.24	May 12 15:00	99.33	0	100.00	0.00	0.00	0.00	0.00
June	672	2.00	6.65	Jun 16	0.68	Jun 18	21.72	Jun 17 00:00	0.15	Jun 01 12:00	98.47	0	100.00	0.00	0.00	0.00	0.00
July	690	1.35	2.32	Jul 06	0.52	Jul 28	6.36	Jul 14 03:00	0.08	Jul 12 18:00	98.12	0	100.00	0.00	0.00	0.00	0.00
August	696	1.80	3.42	Aug 07	0.71	Aug 24	11.47	Aug 14 20:00	0.13	Aug 09 14:00	99.60	0	100.00	0.00	0.00	0.00	0.00
September	669	1.77	3.18	Sep 18	0.91	Sep 22	9.15	Sep 18 22:00	0.14	Sep 24 14:00	98.89	0	100.00	0.00	0.00	0.00	0.00
October	686	2.36	6.61	Oct 16	0.61	Oct 05	19.54	Oct 21 05:00	0.20	Oct 05 21:00	97.58	0	100.00	0.00	0.00	0.00	0.00
November	682	5.37	17.82	Nov 30	1.02	Nov 23	30.16	Nov 30 22:00	0.25	Nov 18 01:00	100.00	0	98.97	1.03	0.00	0.00	0.00
December	708	8.03	17.54	Dec 22	1.70	Dec 31	31.41	Dec 17 05:00	0.42	Dec 27 16:00	100.00	0	98.87	1.13	0.00	0.00	0.00
Annual	8216	4.26	28.82	Feb 13	0.52	Jul 28	46.09	Feb 12 23:00	0.08	Jul 12 18:00	99.1	0	97.80	2.20	0.00	0.00	0.00

AAAQO Objectives: Annual: 24 ppb, 1-Hr: 159 ppb

Total Oxides of Nitrogen (NOx) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable NOx (ppb)												2019				
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range				
												0 - 25	25 - 50	50 - 110	110 - 210	>210
January	699	9.39	34.12	Jan 11	0.90	Jan 26	47.71	Jan 08 22:00	0.34	Jan 26 20:00	98.92	86.70	13.30	0.00	0.00	0.00
February	638	14.91	44.82	Feb 06	2.30	Feb 02	66.19	Feb 06 11:00	0.51	Feb 01 01:00	100.00	78.21	19.12	2.66	0.00	0.00
March	708	6.35	17.08	Mar 02	1.42	Mar 12	38.09	Mar 02 02:00	0.53	Mar 27 04:00	100.00	98.02	1.98	0.00	0.00	0.00
April	667	1.83	3.21	Apr 01	0.63	Apr 23	8.75	Apr 01 04:00	0.24	Apr 20 07:00	98.33	100.00	0.00	0.00	0.00	0.00
May	701	2.46	8.18	May 31	1.08	May 09	26.58	May 13 05:00	0.21	May 08 17:00	99.33	99.86	0.14	0.00	0.00	0.00
June	672	2.65	9.54	Jun 16	0.70	Jun 18	40.04	Jun 17 01:00	0.09	Jun 18 19:00	98.47	98.81	1.19	0.00	0.00	0.00
July	690	1.52	2.51	Jul 06	0.58	Jul 28	6.88	Jul 17 20:00	0.01	Jul 12 18:00	98.12	100.00	0.00	0.00	0.00	0.00
August	696	2.31	5.35	Aug 07	0.75	Aug 24	23.50	Aug 14 20:00	0.16	Aug 24 18:00	99.60	100.00	0.00	0.00	0.00	0.00
September	669	2.16	3.83	Sep 30	1.01	Sep 24	15.91	Sep 06 20:00	0.17	Sep 20 18:00	98.89	100.00	0.00	0.00	0.00	0.00
October	686	3.03	13.22	Oct 16	0.75	Oct 05	37.64	Oct 21 05:00	0.24	Oct 05 21:00	97.58	99.27	0.73	0.00	0.00	0.00
November	682	7.17	33.64	Nov 30	1.10	Nov 23	75.02	Nov 29 20:00	0.30	Nov 18 00:00	100.00	94.43	4.69	0.88	0.00	0.00
December	708	10.01	29.50	Dec 17	1.86	Dec 31	60.69	Dec 17 11:00	0.52	Dec 27 16:00	100.00	92.23	6.92	0.85	0.00	0.00
Annual	8216	5.29	44.82	Feb 06	0.58	Jul 28	75.02	Nov 29 20:00	0.01	Jul 12 18:00	99.1	95.64	4.00	0.36	0.00	0.00

No AAAQO

Ozone (O₃) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable O ₃ (ppb)													2019					
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance	Percentage of Readings in Concentration Range					
												1-Hr	0 - 2	2 - 10	10 - 20	20 - 40	40 - 82	>82
January	709	24.63	40.93	Jan 25	3.54	Jan 11	45.25	Jan 24 23:00	0.00	Jan 08 18:00	100.00	0	6.91	9.17	14.10	63.47	6.35	0.00
February	639	25.02	41.71	Feb 28	8.19	Feb 06	49.57	Feb 02 21:00	0.00	Feb 10 20:00	100.00	0	6.89	9.08	14.08	62.13	7.82	0.00
March	705	38.42	50.97	Mar 18	16.87	Mar 02	62.50	Mar 19 15:00	0.00	Mar 02 02:00	100.00	0	0.43	1.56	4.26	43.12	50.64	0.00
April	675	38.99	51.00	Apr 23	25.01	Apr 05	61.47	Apr 21 16:00	10.92	Apr 16 05:00	98.47	0	0.00	0.00	3.56	43.85	52.59	0.00
May	703	35.73	44.83	May 20	26.41	May 16	60.05	May 26 18:00	5.72	May 24 05:00	99.33	0	0.00	0.14	7.25	57.47	35.14	0.00
June	675	26.17	41.94	Jun 02	16.43	Jun 06	52.46	Jun 02 20:00	1.47	Jun 22 04:00	98.47	0	0.44	5.33	21.19	63.41	9.63	0.00
July	694	23.40	34.27	Jul 01	14.29	Jul 10	52.83	Jul 22 15:00	5.30	Jul 21 07:00	97.98	0	0.00	7.06	29.39	60.09	3.46	0.00
August	704	20.40	29.68	Aug 22	9.72	Aug 17	49.28	Aug 20 16:00	2.50	Aug 11 05:00	99.46	0	0.00	15.63	32.95	50.14	1.28	0.00
September	684	19.98	31.27	Sep 24	10.24	Sep 11	41.38	Sep 06 18:00	2.42	Sep 12 07:00	100.00	0	0.00	12.57	37.87	49.42	0.15	0.00
October	691	21.77	32.50	Oct 24	2.61	Oct 16	41.79	Oct 24 16:00	1.24	Oct 16 06:00	97.58	0	2.46	12.45	23.15	61.51	0.43	0.00
November	670	22.54	37.07	Nov 22	3.28	Nov 29	41.75	Nov 17 16:00	0.00	Nov 06 21:00	98.06	0	7.01	9.55	22.09	60.15	1.19	0.00
December	707	20.02	34.72	Dec 02	4.09	Dec 22	41.56	Dec 02 17:00	0.00	Dec 13 22:00	100.00	0	8.63	12.31	29.28	48.66	1.13	0.00
Annual	8256	26.43	51.00	Apr 23	2.61	Oct 16	62.50	Mar 19 15:00	0.00	Jan 08 18:00	99.1	0	2.82	7.71	19.84	54.85	14.79	0.00

AAAQO Objectives: 1-Hr: 76 ppb

Total Hydrocarbon (THC) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable												THC (ppm)					2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range						
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0	
January	709	2.13	2.67	Jan 08	1.95	Jan 02	3.15	Jan 12 12:00	1.93	Jan 02 10:00	100.00	0.00	28.07	63.05	8.89	0.00	0.00	
February	632	2.22	2.51	Feb 04	1.91	Feb 19	3.33	Feb 04 04:00	1.82	Feb 19 15:00	100.00	0.00	11.71	73.58	14.72	0.00	0.00	
March	691	2.12	2.49	Mar 03	1.90	Mar 12	3.03	Mar 04 00:00	1.86	Mar 12 01:00	97.58	0.00	35.46	59.33	5.21	0.00	0.00	
April	655	1.95	2.02	Apr 22	1.88	Apr 30	2.24	Apr 18 07:00	1.84	Apr 16 21:00	97.08	0.00	85.50	14.50	0.00	0.00	0.00	
May	651	1.94	2.08	May 31	1.88	May 29	2.27	May 31 09:00	1.80	May 29 19:00	92.20	0.00	88.33	11.67	0.00	0.00	0.00	
June	671	1.94	2.04	Jun 27	1.89	Jun 13	2.27	Jun 16 06:00	1.82	Jun 01 19:00	98.47	0.00	89.72	10.28	0.00	0.00	0.00	
July	693	1.92	2.02	Jul 07	1.83	Jul 28	2.20	Jul 31 03:00	1.78	Jul 26 11:00	98.12	0.00	84.13	15.87	0.00	0.00	0.00	
August	689	2.01	2.15	Aug 31	1.87	Aug 05	2.50	Aug 23 06:00	1.82	Aug 28 00:00	97.31	0.00	55.15	44.70	0.15	0.00	0.00	
September	683	1.99	2.13	Sep 01	1.85	Sep 22	2.52	Sep 07 05:00	1.83	Sep 21 16:00	99.86	0.00	62.96	36.90	0.15	0.00	0.00	
October	672	2.01	2.24	Oct 16	1.91	Oct 24	2.38	Oct 12 01:00	1.83	Oct 18 12:00	95.56	0.00	60.86	39.14	0.00	0.00	0.00	
November	677	2.06	2.66	Nov 30	1.92	Nov 03	2.81	Nov 30 10:00	1.87	Nov 05 05:00	99.86	0.00	55.10	41.06	3.84	0.00	0.00	
December	692	2.20	2.70	Dec 22	1.95	Dec 03	2.94	Dec 24 04:00	1.89	Dec 03 12:00	97.72	0.00	18.50	68.06	13.44	0.00	0.00	
Annual	8115	2.04	2.70	Dec 22	1.83	Jul 28	3.33	Feb 04 04:00	1.78	Jul 26 11:00	97.8	0.00	55.90	40.27	3.83	0.00	0.00	

No AAAQO

Methane (CH₄) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable												CH ₄ (ppm)					2019	
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range						
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0	
January	709	2.09	2.64	Jan 08	1.92	Jan 02	3.06	Jan 08 10:00	1.90	Jan 02 10:00	100.00	0.00	42.31	50.63	7.05	0.00	0.00	
February	632	2.20	2.48	Feb 04	1.89	Feb 19	3.29	Feb 04 04:00	1.80	Feb 19 15:00	100.00	0.00	16.14	71.68	12.18	0.00	0.00	
March	691	2.09	2.46	Mar 03	1.87	Mar 12	2.98	Mar 04 00:00	1.83	Mar 12 07:00	97.58	0.00	39.51	56.30	4.20	0.00	0.00	
April	655	1.93	2.01	Apr 22	1.86	Apr 30	2.23	Apr 18 07:00	1.83	Apr 16 21:00	97.08	0.00	89.77	10.23	0.00	0.00	0.00	
May	651	1.93	2.08	May 31	1.87	May 03	2.29	May 31 09:00	1.79	May 29 19:00	92.20	0.00	90.17	9.83	0.00	0.00	0.00	
June	671	1.93	2.03	Jun 27	1.87	Jun 13	2.26	Jun 16 06:00	1.81	Jun 01 19:00	98.47	0.00	91.65	8.35	0.00	0.00	0.00	
July	693	1.91	2.01	Jul 07	1.82	Jul 28	2.19	Jul 11 07:00	1.77	Jul 26 11:00	98.12	0.00	86.00	14.00	0.00	0.00	0.00	
August	689	2.00	2.14	Aug 31	1.87	Aug 05	2.49	Aug 23 06:00	1.80	Aug 28 00:00	97.31	0.00	59.22	40.78	0.00	0.00	0.00	
September	683	1.98	2.12	Sep 01	1.84	Sep 22	2.51	Sep 07 05:00	1.81	Sep 21 16:00	99.86	0.00	66.76	33.09	0.15	0.00	0.00	
October	672	2.00	2.23	Oct 16	1.90	Oct 24	2.37	Oct 12 01:00	1.83	Oct 18 12:00	95.56	0.00	63.24	36.76	0.00	0.00	0.00	
November	677	2.06	2.64	Nov 30	1.92	Nov 03	2.80	Nov 30 10:00	1.86	Nov 05 05:00	99.86	0.00	56.87	39.29	3.84	0.00	0.00	
December	692	2.19	2.69	Dec 22	1.94	Dec 03	2.93	Dec 24 04:00	1.88	Dec 03 12:00	97.72	0.00	19.80	67.05	13.15	0.00	0.00	
Annual	8115	2.03	2.69	Dec 22	1.82	Jul 28	3.29	Feb 04 04:00	1.77	Jul 26 11:00	97.8	0.00	59.62	37.04	3.34	0.00	0.00	

No AAAQO

Non-Methane Hydrocarbon (NMHC) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable NMHC (ppm)												2019					
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	Percentage of Readings in Concentration Range					
												0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 5.0	5.0 - 10.0	>10.0
January	709	0.00	0.04	Jan 12	0.00	Jan 06	0.46	Jan 12 12:00	0.00	Jan 01 01:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00
February	632	0.00	0.00	Feb 28	0.00	Feb 02	0.00	Feb 16 02:00	0.00	Feb 01 01:00	100.00	100.00	0.00	0.00	0.00	0.00	0.00
March	691	0.00	0.00	Mar 21	0.00	Mar 02	0.01	Mar 21 06:00	0.00	Mar 01 01:00	97.58	100.00	0.00	0.00	0.00	0.00	0.00
April	655	0.00	0.00	Apr 29	0.00	Apr 01	0.00	Apr 16 21:00	0.00	Apr 01 01:00	97.08	100.00	0.00	0.00	0.00	0.00	0.00
May	651	0.00	0.00	May 04	0.00	May 03	0.00	May 04 14:00	0.00	May 01 01:00	92.20	100.00	0.00	0.00	0.00	0.00	0.00
June	671	0.00	0.00	Jun 16	0.00	Jun 02	0.00	Jun 16 08:00	0.00	Jun 01 01:00	98.47	100.00	0.00	0.00	0.00	0.00	0.00
July	693	0.00	0.01	Jul 31	0.00	Jul 02	0.16	Jul 31 03:00	0.00	Jul 01 01:00	98.12	100.00	0.00	0.00	0.00	0.00	0.00
August	689	0.00	0.00	Aug 16	0.00	Aug 02	0.00	Aug 28 05:00	0.00	Aug 01 02:00	97.31	100.00	0.00	0.00	0.00	0.00	0.00
September	683	0.00	0.01	Sep 15	0.00	Sep 01	0.12	Sep 15 02:00	0.00	Sep 01 01:00	99.86	100.00	0.00	0.00	0.00	0.00	0.00
October	672	0.00	0.01	Oct 20	0.00	Oct 01	0.04	Oct 20 11:00	0.00	Oct 01 01:00	95.56	100.00	0.00	0.00	0.00	0.00	0.00
November	677	0.00	0.00	Nov 30	0.00	Nov 24	0.02	Nov 28 22:00	0.00	Nov 01 01:00	99.86	100.00	0.00	0.00	0.00	0.00	0.00
December	692	0.00	0.00	Dec 30	0.00	Dec 26	0.01	Dec 30 05:00	0.00	Dec 01 01:00	97.72	100.00	0.00	0.00	0.00	0.00	0.00
Annual	8115	0.00	0.04	Jan 12	0.00	Jan 06	0.46	Jan 12 12:00	0.00	Jan 01 01:00	97.8	100.00	0.00	0.00	0.00	0.00	0.00

No AAAQO

Particulate Matter (PM_{2.5}) – Wembley-Portable 2019 Summary and Frequency Distribution

Wembley-Portable PM _{2.5} (µg/m ³)												2019							
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)	AAAQO Exceedance		Percentage of Readings in Concentration Range					
												24-Hr	1-Hr	0 - 2	2 - 6	6 - 11	11 - 17	17 - 30	> 30
January	743	2.43	9.45	Jan 11	0.10	Jan 02	29.63	Jan 04 03:00	0.00	Jan 01 01:00	99.87	0	0	63.26	25.44	7.00	3.10	1.21	0.00
February	671	3.73	10.90	Feb 02	0.13	Feb 26	66.97	Feb 02 21:00	0.00	Feb 03 13:00	99.85	0	0	46.35	35.32	12.52	4.02	1.04	0.75
March	741	2.76	8.41	Mar 23	0.10	Mar 11	13.64	Mar 24 14:00	0.00	Mar 04 10:00	100.00	0	0	54.39	29.82	14.44	1.35	0.00	0.00
April	704	1.50	7.28	Apr 06	0.10	Apr 18	24.46	Apr 06 15:00	0.00	Apr 01 13:00	98.33	0	0	72.30	26.70	0.14	0.28	0.57	0.00
May	738	15.68	211.00	May 31	0.61	May 09	406.53	May 30 16:00	0.00	May 02 10:00	99.19	2	29	39.70	34.01	4.74	8.54	5.96	7.05
June	707	2.33	7.16	Jun 01	0.11	Jun 18	20.17	Jun 16 00:00	0.00	Jun 01 15:00	98.47	0	0	61.39	28.71	7.64	1.41	0.85	0.00
July	729	3.14	8.04	Jul 30	0.15	Jul 18	24.54	Jul 08 21:00	0.00	Jul 01 06:00	97.98	0	0	45.68	37.72	13.58	2.47	0.55	0.00
August	739	2.65	9.95	Aug 02	0.12	Aug 24	15.35	Aug 30 20:00	0.00	Aug 03 14:00	99.60	0	0	49.93	39.38	9.07	1.62	0.00	0.00
September	715	1.44	5.15	Sep 01	0.06	Sep 16	9.27	Sep 06 20:00	0.00	Sep 02 12:00	99.86	0	0	73.57	23.22	3.22	0.00	0.00	0.00
October	723	2.09	5.63	Oct 03	0.04	Oct 24	13.85	Nov 01 00:00	0.00	Oct 04 10:00	97.58	0	0	60.72	33.89	4.98	0.41	0.00	0.00
November	710	3.78	25.15	Nov 30	0.05	Nov 21	46.70	Nov 30 16:00	0.00	Nov 01 18:00	99.31	0	0	56.62	20.28	14.08	5.92	1.97	1.13
December	739	3.51	12.18	Dec 01	0.00	Dec 02	40.87	Dec 01 02:00	0.00	Dec 01 11:00	100.00	0	0	47.90	32.21	15.83	2.57	0.68	0.81
Annual	8659	3.78	211.00	May 31	0.00	Dec 02	406.53	May 30 16:00	0.00	Jan 01 01:00	99.2	2	29	55.39	30.65	9.23	2.76	1.12	0.86

AAAQO Objectives: 24-Hr: 30 µg/m³, 1-Hr: 80 µg/m³

Ambient Temperature (ET) – Wembley-Portable 2019 Summary

Wembley-Portable											2019
Ambient Temperature (°C)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	744	-7.7	6.9	Jan 26	-26.8	Jan 08	8.2	Jan 26 22:00	-33.4	Jan 08 09:00	100.0
February	672	-21.6	-4.7	Feb 19	-37.8	Feb 04	1.2	Feb 19 15:00	-42.8	Feb 04 09:00	100.0
March	744	-3.5	8.4	Mar 18	-29.3	Mar 02	16.8	Mar 18 17:00	-37.3	Mar 02 06:00	100.0
April	709	4.2	8.8	Apr 23	-3.1	Apr 04	16.8	Apr 22 16:00	-5.2	Apr 04 08:00	98.5
May	739	11.1	21.0	May 29	-2.4	May 03	29.3	May 28 17:00	-5.8	May 04 04:00	99.3
June	711	14.0	19.6	Jun 12	6.2	Jun 06	27.9	Jun 16 17:00	2.7	Jun 05 05:00	98.8
July	731	15.6	20.1	Jul 22	11.7	Jul 01	26.8	Jul 22 16:00	6.9	Jul 02 06:00	98.3
August	739	13.5	18.9	Aug 04	8.4	Aug 18	26.3	Aug 21 14:00	2.7	Aug 29 06:00	99.3
September	720	10.2	16.7	Sep 03	-0.4	Sep 29	25.2	Sep 03 16:00	-6.6	Sep 30 07:00	100.0
October	726	2.4	9.5	Oct 03	-8.8	Oct 28	18.5	Oct 02 16:00	-15.2	Oct 29 06:00	97.6
November	717	-4.1	7.7	Nov 17	-19.9	Nov 10	11.4	Nov 17 13:00	-25.5	Nov 11 01:00	99.6
December	744	-8.3	2.3	Dec 31	-16.1	Dec 13	5.6	Dec 31 14:00	-19.2	Dec 08 09:00	100.0
Annual	8696	2.2	21.0	May 29	-37.8	Feb 04	29.3	May 28 17:00	-42.8	Feb 04 09:00	99.3

Wind Speed (WS) – Wembley-Portable 2019 Summary

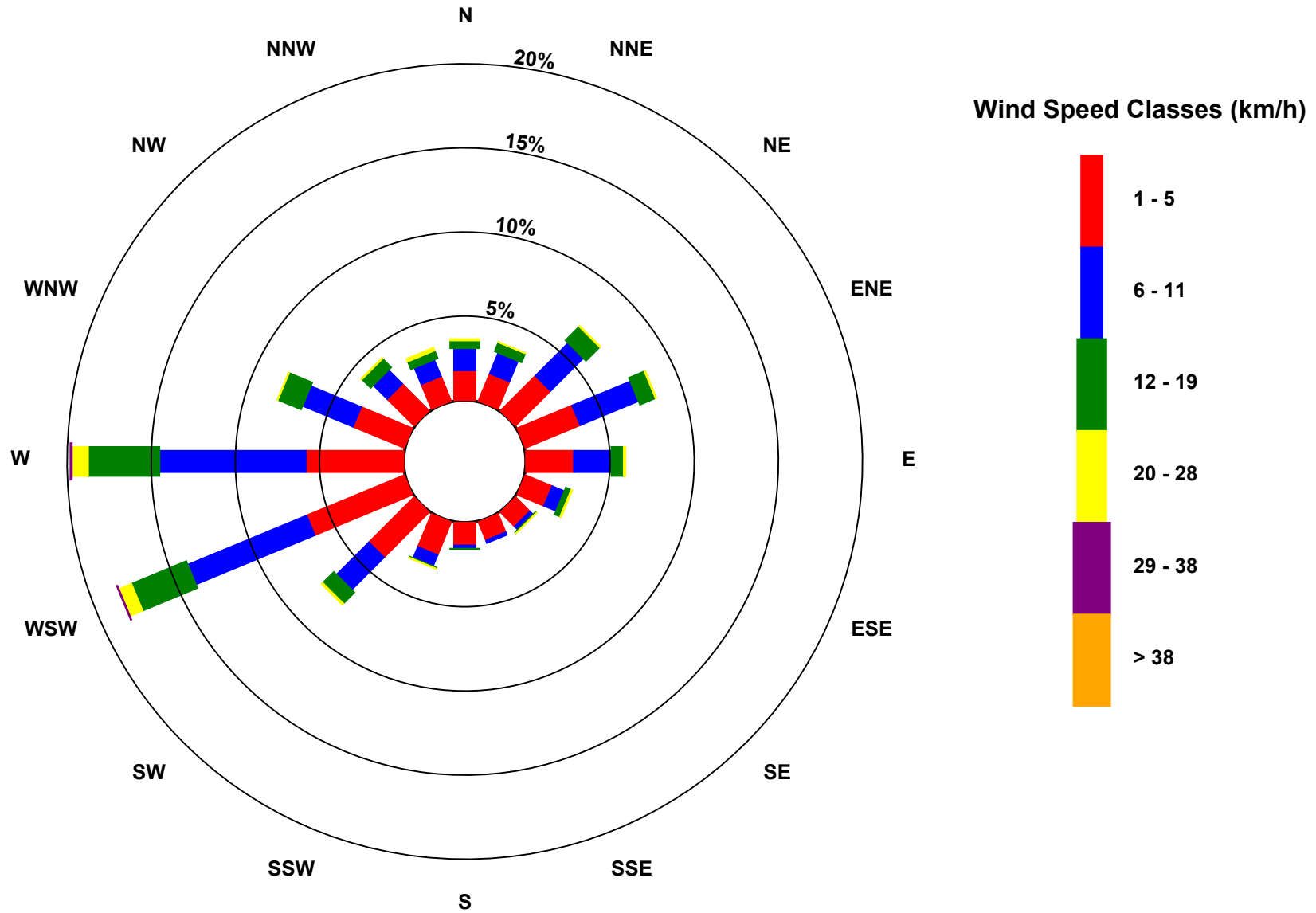
Wembley-Portable											2019
Wind Speed (km/h)											
Month	# of Readings	Average	24-hr Maximum	Date	24-hr Minimum	Date	1-hr Maximum	Date	1-hr Minimum	Date	Operational Time (%)
January	699	7.4	19.7	Jan 26	1.7	Jan 11	29.1	Jan 26 22:00	0.1	Jan 29 12:00	94.0
February	642	6.5	13.8	Feb 28	2.9	Feb 12	26.8	Feb 04 18:00	0.2	Feb 21 08:00	95.5
March	744	6.4	11.9	Mar 15	3.6	Mar 28	19.6	Mar 12 03:00	0.2	Mar 14 05:00	100.0
April	720	9.4	19.8	Apr 23	4.6	Apr 11	29.2	Apr 24 14:00	0.4	Apr 18 07:00	100.0
May	743	7.7	15.8	May 16	2.8	May 06	24.9	May 20 15:00	0.2	May 27 00:00	99.9
June	717	8.6	15.4	Jun 20	2.9	Jun 16	24.6	Jun 03 16:00	0.2	Jun 16 06:00	99.6
July	731	6.6	12.9	Jul 25	2.5	Jul 10	24.7	Jul 02 14:00	0.2	Jul 06 23:00	98.3
August	739	6.5	12.6	Aug 22	2.5	Aug 01	21.6	Aug 15 17:00	0.2	Aug 09 22:00	99.6
September	720	7.1	14.1	Sep 26	2.8	Sep 11	24.2	Sep 26 16:00	0.1	Sep 28 20:00	100.0
October	446	7.0	19.9	Oct 05	2.2	Oct 16	28.4	Oct 05 18:00	0.2	Oct 16 04:00	60.0
November	719	7.4	17.3	Nov 17	2.1	Nov 06	35.3	Nov 18 00:00	0.1	Nov 05 21:00	99.9
December	744	6.2	10.8	Dec 27	2.8	Dec 19	22.8	Dec 27 14:00	0.2	Dec 23 14:00	100.0
Annual	8364	7.2	19.9	Oct 05	1.7	Jan 11	35.3	Nov 18 00:00	0.1	Sep 28 20:00	95.6

Wind Speed and Wind Direction Frequency Distribution – Wembley-Portable 2019 Summary

Wembley-Portable								2019
Direction	# of Readings	% of wind speed (km/hr)						Totals
		0 - 5	6 - 11	12 - 19	20 - 28	29 - 38	> 38	
N	295	1.78	1.32	0.46	0.09	0.00	0.00	3.64
NNE	299	1.76	1.33	0.58	0.01	0.00	0.00	3.69
NE	559	2.94	2.75	1.16	0.05	0.00	0.00	6.89
ENE	676	3.53	3.75	1.00	0.06	0.00	0.00	8.34
E	480	2.85	2.22	0.74	0.11	0.00	0.00	5.92
ESE	237	1.73	0.78	0.35	0.07	0.00	0.00	2.92
SE	125	1.20	0.26	0.07	0.01	0.00	0.00	1.54
SSE	109	1.17	0.17	0.00	0.00	0.00	0.00	1.34
S	126	1.34	0.20	0.01	0.00	0.00	0.00	1.55
SSW	237	2.12	0.72	0.06	0.02	0.00	0.00	2.92
SW	611	3.79	2.73	0.92	0.10	0.00	0.00	7.53
WSW	1485	6.28	7.65	3.53	0.81	0.05	0.00	18.31
WSW	1606	5.81	8.71	4.24	0.96	0.09	0.00	19.81
WNW	654	3.29	3.24	1.49	0.04	0.00	0.00	8.07
NW	340	2.26	1.16	0.73	0.05	0.00	0.00	4.19
NNW	270	1.59	1.06	0.49	0.18	0.00	0.00	3.33
Totals	8109	43.42	38.03	15.83	2.58	0.14	0.00	100

Wind Rose

Wind Speed (WS) (km/h)
Wembley - 2019



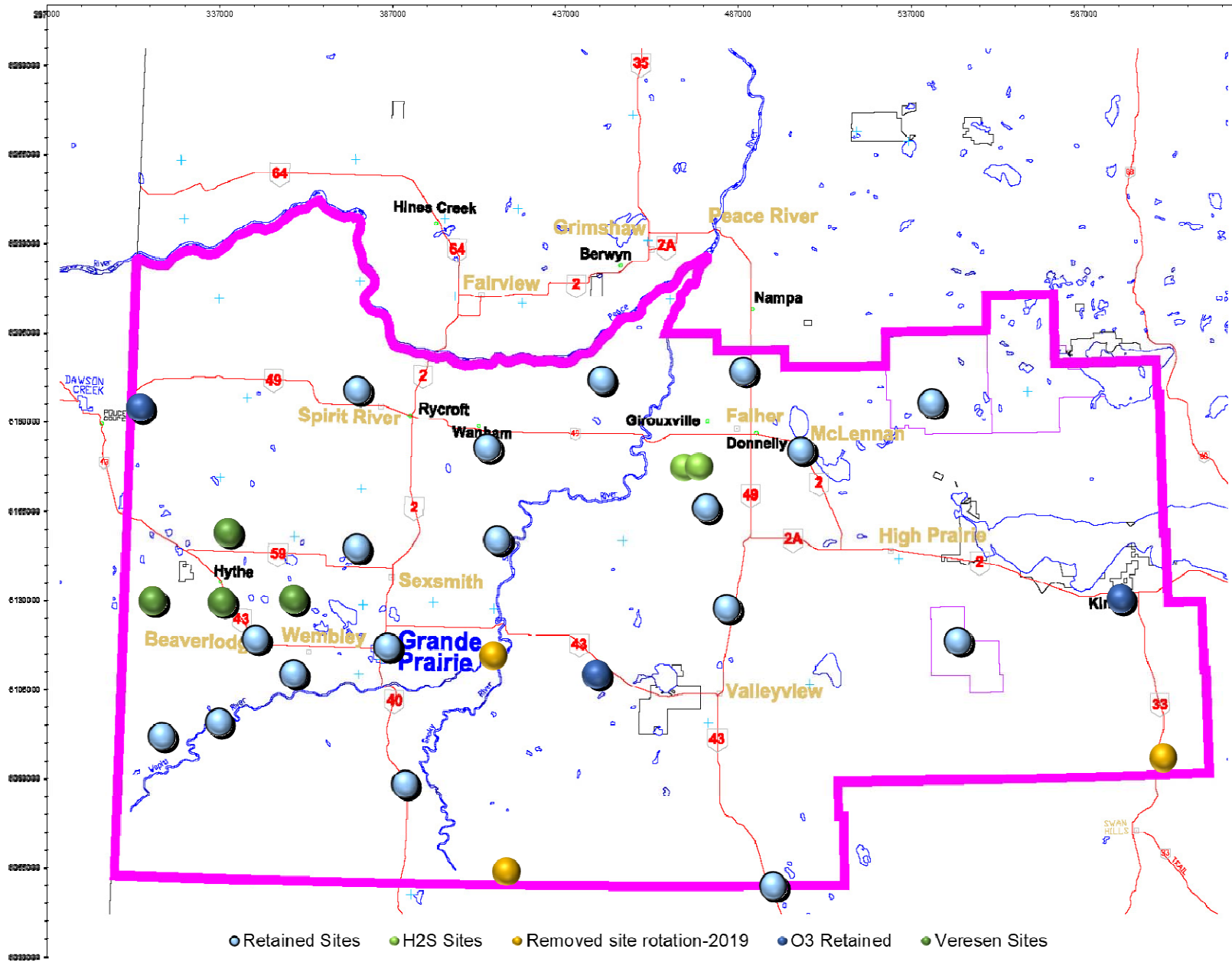
PAZA

PASSIVE MONITORING

2019

ANNUAL SUMMARY TABLES

2019 Passive Monitoring Map



SO₂ Passive - 2019 Summary

MONITORING SITE		Sulphur Dioxide Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley*													0.0	-
2	Bay Tree	0.3	0.6	0.3	0.2	0.2	0.1	0.1	0.6	0.1	0.1	0.3	0.2	0.6	0.3
3	Forth Creek													0.0	-
4	Gordondale*													0.0	-
5	Boone Creek	0.4	0.7	0.4	0.2	0.2	0.2	0.1	0.7	0.1	0.2	0.3	0.4	0.7	0.3
7	Steeprock Creek	0.4	0.3	0.4	0.1	0.3	0.2	0.1	0.3	0.2	0.1	0.4	0.4	0.4	0.3
9	Spirit River	0.4	0.4	0.5	0.2	0.3	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.5	0.3
10	Woking*													0.0	-
11	Webber Creek	0.5	0.7	0.6	0.2	0.3	0.2	0.2	0.5	0.2	0.2	0.3	0.5	0.7	0.4
12	Hythe	0.6	0.6	0.4	0.2	0.3	0.2	0.2	0.4	0.4	0.2	0.3	0.4	0.6	0.4
14	Sylvester	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.1	0.2	0.4	0.2
16	Beaverlodge	0.5	1.0	0.6	0.3	0.4	0.2	0.2	0.4	0.3	0.4	1.0	0.7	1.0	0.5
17	Poplar	0.7	1.2	0.8	0.5	0.5	0.3	0.3	0.9	0.5	0.3	0.6	0.6	1.2	0.6
18	Saddle Hills	0.4	0.6	0.6	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.3	0.4	0.6	0.4
19	Wanham	0.3	0.8	0.7	0.2	0.2	0.1	0.3	BDL	0.2	0.3	0.6	0.5	0.8	0.4
20	Shaftesbury*													0.0	-
21	Eaglesham	0.2	0.3	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2
23	Bear Lake*													0.0	-
24	Wembley	0.4	0.6	0.2	0.2	0.2	0.2	0.1	0.2	1.0	1.1	0.5	0.5	1.1	0.4
25	Pinto Creek	0.3	0.4	0.3	0.1	0.3	0.1	0.1	0.4	BDL	0.1	0.2	0.3	0.4	0.2
26	Flyingshot*													0.0	-
27	Grande Prairie I	0.5	0.6	0.5	0.2	0.2	0.2	0.6	0.3	0.7	0.8	0.5	0.4	0.8	0.5
28	Clairmont Lake													0.0	-
29	Smoky Heights	0.6	0.6	1.2	0.2	0.3	0.3	0.4	0.3	0.5	0.5	0.5	0.7	1.2	0.5
30	Fitzsimmons													0.0	-
32	Gold Creek	0.5	0.8	0.7	0.4	1.2	0.7	0.8	0.3	0.8	0.3	0.3	0.2	1.2	0.6
33	Wapiti	0.4	0.4	0.3	0.1	0.2	0.2	0.3	0.5	0.3	0.3	0.2	0.2	0.5	0.3
34	Puskwaskau*													0.0	-
35	Jean Cote	0.2	0.4	0.5	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2
36	Guy	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2
37	Crooked Creek	0.3	0.4	0.3	0.1	0.1	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.4	0.2
38	Karr Creek	0.2	0.5	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.5	0.2
39	Clouston Creek	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.2
40	McLennan	0.4	0.6	0.5	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.6	0.3
41	Valleyview*													0.0	-
42	Sunset House													0.0	-
43	High Prairie													0.0	-
44	Peavine	0.2	0.3	0.3	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.3	0.2
45	Gift Lake*													0.0	-
46	Little Smoky	0.2	0.4	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.4	0.2
47	Kinuso	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1
48	Deer Mountain	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2
49	Grande Prairie HP	0.4	0.5	0.5	0.2	0.2	0.2	0.4	0.7	0.6	0.6	0.4	0.4	0.7	0.4
62	East Prairie	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1

* Monitoring at these sites discontinued January 2017

Average	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3		0.3
Peak	0.7	1.2	1.2	0.5	1.2	0.7	0.8	0.9	1.0	1.1	1.0	0.7		1.2	

BDL=Below Detection Limit (>0.02ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

NO₂ Passive - 2019 Summary

MONITORING SITE		Nitrogen Dioxide Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley*													0.0	-
2	Bay Tree	0.3	0.6	0.3	0.4	0.2	0.1	0.1	0.4	0.5	0.6	1.3	1.2	1.3	0.5
3	Forth Creek													0.0	-
4	Gordondale*													0.0	-
5	Boone Creek	0.4	0.7	0.4	0.2	0.6	0.2	0.1	0.7	0.1	0.2	0.3	0.4	0.7	0.3
7	Steepprock Creek	0.4	0.8	0.4	0.4	0.3	0.2	0.1	0.3	0.2	0.1	0.4	1.2	1.2	0.4
9	Spirit River	0.4	0.4	1.6	0.2	1.1	0.2	0.2	0.4	0.3	1.0	1.5	0.3	1.6	0.6
10	Woking*													0.0	-
11	Webber Creek	0.5	0.7	0.6	0.2	2.1	0.2	0.2	0.5	0.2	0.2	4.3	0.5	4.3	0.8
12	Hythe	2.9	0.6	0.4	0.6	0.3	0.2	0.5	0.4	0.4	0.2	0.3	0.4	2.9	0.6
14	Sylvester	1.6	0.6	0.2	0.1	0.1	0.3	0.3	0.4	0.4	0.1	0.1	0.2	1.6	0.4
16	Beaverlodge	4.1	4.3	1.7	0.8	0.9	0.9	0.8	1.2	1.5	1.6	4.2	4.3	4.3	2.2
17	Poplar	3.9	2.6	1.4	0.9	1.5	1.9	0.7	0.9	1.0	1.6	3.2	3.9	3.9	2.0
18	Saddle Hills	1.1	1.0	0.4	0.5	0.4	0.6	0.4	0.5	0.6	0.8	1.2	1.3	1.3	0.7
19	Wanham	1.9	N/S	0.4	0.4	0.6	1.4	0.5	0.4	0.8	0.7	1.9	1.9	1.9	1.0
20	Shaftesbury*													0.0	-
21	Eaglesham	1.4	0.7	0.2	0.4	1.6	1.6	0.6	0.3	0.7	0.6	0.9	1.3	1.6	0.9
23	Bear Lake*													0.0	-
24	Wembley	5.2	4.4	3.6	0.9	2.0	2.3	1.1	1.4	1.6	1.7	3.5	5.1	5.2	2.7
25	Pinto Creek	1.7	1.1	0.6	0.6	0.5	0.6	0.3	0.5	0.6	0.6	1.0	1.4	1.7	0.8
26	Flyingshot*													0.0	-
27	Grande Prairie I	18.4	18.9	10.0	2.9	2.9	1.8	1.8	2.6	3.2	4.3	12.5	19.9	19.9	8.3
28	Clairmont Lake													0.0	-
29	Smoky Heights	0.6	0.6	1.2	0.2	0.3	0.3	0.4	0.3	0.5	0.5	0.5	4.2	4.2	0.8
30	Fitzsimmons													0.0	-
32	Gold Creek	4.9	5.0	2.5	1.8	1.6	1.5	1.0	1.3	2.0	2.8	4.9	7.4	7.4	3.1
33	Wapiti	3.9	4.2	1.2	0.6	0.6	0.9	0.7	0.7	0.9	1.4	3.0	3.2	4.2	1.8
34	Puskwaskau*													0.0	-
35	Jean Cote	2.9	1.2	0.4	0.5	2.1	1.6	1.1	0.4	0.9	0.7	1.2	0.9	2.9	1.2
36	Guy	1.3	1.1	0.4	0.3	2.0	3.8	0.9	0.3	0.9	0.7	0.9	1.6	3.8	1.2
37	Crooked Creek	2.9	3.7	0.2	0.5	1.1	0.8	0.4	0.7	0.7	1.1	2.4	2.5	3.7	1.4
38	Karr Creek	1.9	1.9	0.5	0.7	0.8	0.5	0.6	0.7	1.1	1.5	2.2	1.5	2.2	1.1
39	Clouston Creek	1.9	1.4	0.6	0.3	1.4	1.1	0.3	0.4	0.6	0.8	1.3	2.5	2.5	1.1
40	McLennan	1.4	1.5	0.4	0.9	1.4	3.1	1.2	0.6	0.6	1.1	1.3	2.0	3.1	1.3
41	Valleyview*													0.0	-
42	Sunset House													0.0	-
43	High Prairie													0.0	-
44	Peavine	0.8	0.7	0.2	0.2	0.3	0.4	0.1	0.2	0.2	0.4	0.9	0.8	0.9	0.4
45	Gift Lake*													0.0	-
46	Little Smoky	4.0	5.5	3.6	1.5	1.3	0.9	0.7	0.9	1.3	3.0	4.0	5.2	5.5	2.7
47	Kinuso	1.7	2.7	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.6	1.0	1.9	2.7	0.9
48	Deer Mountain	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2
49	Grande Prairie HP	10.8	15.0	10.0	2.8	1.7	1.7	1.6	1.8	4.0	6.4	9.9	15.5	15.5	6.8
62	East Prairie	0.9	0.8	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.8	0.9	0.4

* Monitoring at these sites discontinued January 2017

Average	2.8	2.9	1.5	0.7	1.0	1.0	0.6	0.7	0.9	1.2	2.4	3.1			1.5
Peak	18.4	18.9	10.0	2.9	2.9	3.8	1.8	2.6	4.0	6.4	12.5	19.9	19.9		

BDL=Below Detection Limit (>0.03ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

O₃ Passive - 2019 Summary

MONITORING SITE		Ozone Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
1	Silver Valley*													0.0	-
2	Bay Tree	39.1	44.1	42.4	47.6	36.3	29.3	28.5	31.0	25.0	33.1	35.8	29.7	47.6	35.2
3	Forth Creek*													0.0	-
4	Gordondale*													0.0	-
5	Boone Creek*													0.0	-
7	Steepprock Creek*													0.0	-
9	Spirit River*													0.0	-
10	Woking*													0.0	-
11	Webber Creek*													0.0	-
12	Hythe*													0.0	-
14	Sylvester*													0.0	-
16	Beaverlodge*													0.0	-
17	Poplar*													0.0	-
18	Saddle Hills*													0.0	-
19	Wanham*													0.0	-
20	Shaftesbury*													0.0	-
21	Eaglesham*													0.0	-
23	Bear Lake*													0.0	-
24	Wembley*													0.0	-
25	Pinto Creek*													0.0	-
26	Flyingshot*													0.0	-
27	Grande Prairie I*													0.0	-
28	Clairmont Lake*													0.0	-
29	Smoky Heights*													0.0	-
30	Fitzsimmons*													0.0	-
32	Gold Creek*													0.0	-
33	Wapiti*													0.0	-
34	Puskaskau*													0.0	-
35	Jean Cote*													0.0	-
36	Guy*													0.0	-
37	Crooked Creek	37.6	40.2	35.3	47.2	41.1	34.5	26.0	32.5	32.4	25.4	31.4	43.8	47.2	35.6
38	Karr Creek*													0.0	-
39	Clouston Creek*													0.0	-
40	McLennan*													0.0	-
41	Valleyview*													0.0	-
42	Sunset House*													0.0	-
43	High Prairie*													0.0	-
44	Peavine*													0.0	-
45	Gift Lake*													0.0	-
46	Little Smoky*													0.0	-
47	Kinuso	36.0	40.3	32.7	42.6	41.5	29.2	25.2	30.1	27.5	26.7	33.9	26.7	42.6	32.7
48	Deer Mountain*													0.0	-
49	Grande Prairie HP*													0.0	-
62	East Prairie*													0.0	-

* Monitoring at these sites discontinued January 2017

Average	37.6	41.5	36.8	45.8	39.7	31.0	26.5	31.2	28.3	28.4	33.7	33.4			34.5
Peak	39.1	44.1	42.4	47.6	41.5	34.5	28.5	32.5	32.4	33.1	35.8	43.8	47.6		

BDL=Below Detection Limit (>0.01ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

H₂S Passive - 2019 Summary

MONITORING SITE		Hydrogen Sulphide Passive (parts per billion)												MAXIMUM VALUE	ANNUAL AVERAGE	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
1	Gift Lake*														0.0	-
2	Girouxville 3	0.3	0.4	0.4	BDL	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.2	
3	Girouxville 4	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.6	0.6	0.3	
4	Guy	0.2	0.2	0.4	0.1	0.1	0.2	N/S	0.2	0.1	0.3	BDL	0.3	0.4	0.2	
* Monitoring at this site discontinued January 2017																
	Average	0.2	0.3	0.3	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	
	Peak	0.3	0.4	0.4	0.2	0.5	0.3	0.2	0.3	0.2	0.3	0.3	0.6	0.6	0.2	

BDL=Below Detection Limit (>0.01ppm); N/A=Sample not collected (damaged, missing, inaccessible, etc)

PAZA

**2019 Annual Report
End of Report**