PAZA

Peace Airshed Zone Association

ANNUAL REPORT 2013

We want to hear it!

Ideas matter to us. No, really. They do!

At PAZA, when we say viewpoints matter to us, we really mean it. You can tell because we use consensus to make our decisions. In consensus decision-making, all parties work together to find solutions in the best interests of everyone. Everyone matters as everyone should.

We take more time to make decisions because we involve everyone. More is better, because together we have better insight and foresight. We think the time spent in the decision-making process is an up-front investment that pays off with longer-lasting, more sustainable solutions.

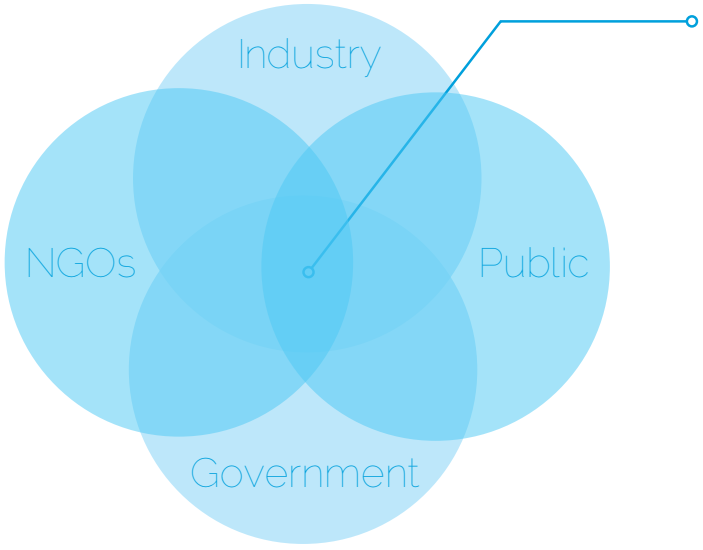
The Peace Airshed Zone Association

PAZA is a not for profit, multi-stakeholder organization that conducts ambient air quality monitoring in northwestern Alberta. PAZA is an unbiased, open and transparent organization, and our members collaborate to provide local solutions to local air quality concerns. As an independent third-party, PAZA has invested over a decade in building trust among members of the public, industry, government and non-governmental organizations.

The air quality monitoring program developed by PAZA is a resource for the public to learn about local air quality, but also promotes continuous improvement of regional air quality, protection of environmental health, and influence on public policy.

PAZA follows the guiding principle of consensus decision making. Consensus is widely defined as a general agreement, ensuring everyone involved can live with the outcome of the decision. Stakeholders may not achieve all their goals, but the objective is to find the optimal solution that meets the best interests of everyone. Decisions made through consensus processes are likely to be more innovative and longer lasting than those reached through traditional negotiation or top-down hierarchy.

PAZA has been a recognized airshed by the Clean Air Strategic Alliance (CASA) since 2003.



OUR MISSION

The Peace Airshed Zone Association operates an ambient air quality monitoring network to collect and preserve relevant, credible, transparent and accessible data to allow our stakeholders to make informed decisions regarding air quality in our region.

OUR VISION

All people living, working and playing in the PAZA region will have the best possible air quality data.

Braiden Wilson/PAZA Photo Contest

A Message from the Board

As the Chairman of PAZA, I invite you to read through this annual report provided for you – members and stakeholders of the region we serve. I am pleased to report that PAZA continues to provide the best air quality data possible with the resources 'at hand'... It is independent, unbiased, transparent and scientifically credible. I am proud of what we do and hope that as you read you will gain some knowledge of our airshed, appreciate PAZA's vision and then perhaps participate in a manner which you are capable.

PAZA has experienced many changes throughout this past year. Following the departure of our Executive Director, we implemented an internal restructure to better situate PAZA to navigate the changes anticipated with the new Alberta Environmental Monitoring, Evaluation and Reporting Agency. There will be more changes coming, so PAZA is taking a proactive approach to ensure that our values and vision are not lost. Caring about air quality because this is where we live, work, and play, PAZA continues to operate in a manner that will ensure our local airshed's sustainability for many years to come.

As we work with the Alberta Airsheds Council, the Clean Air Strategic Alliance, and the Government of Alberta we recognize the importance of remaining engaged to be sure that we are clearly communicating the value of Airsheds, and our multi-stakeholders' value in the current system. We want to continue to develop local solutions for local air quality concerns, which is the foundation of the work we do.

As a member of PAZA for many years, I am convinced that everyone should pay more attention to the air we breathe. The photos in this report are just one example of why it matters. Each photo was taken right here in our backyard – the PAZA region. With so much beauty around us, let's work together to preserve it because "to breathe is to live".

Sincerely,

Sharon Nelson
PAZA Board Chairperson

Gail Jones/PAZA Photo Contest

Your neighbours are working hard

So you can breathe easy.

PAZA is your neighbours, friends, and other locals coming together to ensure that the air we breathe in the Peace region is as pure and as fresh as possible. We do this by constantly monitoring the ambient air quality in the Peace region so that the public, industry, and government, both provincial and federal, can use the data to collaborate on local solutions to local air quality concerns. We care just as much as you do because we live here too.

Maintaining Focus

As we look back, we see that the past year has taken us through many changes: some of those changes were designed by us, and some were unexpected. Through it all, the vision and mission of PAZA remained constant. We are here and committed to bringing to you, our community, the best possible air quality data that is relevant, transparent, unbiased and stands the test of scientific credibility.

Looking Inward

New Faces

Another year of saying good-bye and welcoming new partners began when we lost our long-time valued Executive Director to new opportunities and new horizons. With that farewell still ringing in the air, the Board of Directors revisited the internal organizational structure and looked at ways to enhance function and operation. Late August brought us a new Executive Director and a new Program Manager. These two staff members worked closely with the Administrator to continue the work on which PAZA has built its reputation.

Municipal Elections and changes in industry introduced us to new Directors and Board members as well. We were reluctant to say good-bye to our long-time advocates and Directors, but as a dynamic and responsive organization we are always ready to welcome new stakeholders. For the first time in PAZA's history, the City of Grande Prairie joined the PAZA Board of Directors to collaborate and represent the largest urban centre in our region. Along with new Directors, memberships, and staff we welcome the new perspectives and insights that each new voice brings to the table.

Network Assessment

As scheduled, early in the New Year PAZA began the much anticipated project to conduct a third-party comprehensive assessment of our air quality monitoring network. We wanted to explore where we are doing well, and where we can improve. With additional financial support from the Alberta Government, PAZA contracted Sonoma Technologies, Inc. to look at our data, our monitoring stations, passive monitors, and influencing factors within our entire region to consider if we are doing the best job possible. We are happy to report that the assessment came back telling us that we are indeed doing a lot of monitoring and we are doing it well. Nevertheless, there are always ways to improve and the PAZA Technical Committee and Board of Directors are busy implementing recommendations which were identified in the final report. PAZA thanks Alberta Environment and Sustainable Resource Development for their support of this project.

Network Updates

Our portable monitoring station (Rover) has been designed as resource that is able to relocate and provide information where data gaps exist or to areas of interest to provide background data which can be used by our stakeholders to make informed decisions. The process for site selection is to consider where data gaps exist, and concerns and requests from communities. Through careful consideration, this year PAZA moved the Rover to the Reno Field area in the northeast section of our zone.

New developments in the Rover station included the installation of a Total Hydrocarbon (THC) Analyzer, and the reporting of the Air Quality Health Index (AQHI) from this station. By adding the measurement of these parameters, PAZA is able to report more comprehensive data to enable our stakeholders to make more informed decisions around development, impacts, and personal activities.

We are excited to report that through an industry driven collaboration, PAZA has assumed operation and reporting of a continuous monitoring station in Falher. This station provides up-to-date data on air quality in a community that is very engaged in tracking air quality. Thank you to Long Run Exploration Ltd. for partnering with PAZA in this endeavour.

GPRC Students Station Tour

We were once again invited to a Grande Prairie Regional College science class to do a presentation on who PAZA is, and what PAZA does. We are always happy to share our vision and tell our region why air quality matters. The presentation concluded with a tour of the Henry Pirker Station.

Another Exciting and Successful Photo Contest

As you read through this report you are enjoying a sample of the many photos that have been submitted through the annual PAZA photo contest. As you can see, the calibre of entries is outstanding. We are delighted to see how you embrace the beauty and variety within our region.

PHOTO CONTEST

Our annual photo contest generates dozens of local entries per year.

The talent on this spread is thanks to (from top to bottom) Lloyd Dykstra, Sheldon Nordell and Janice Kretzer-Prysunka.

Thank you to all who entered!

Looking outward

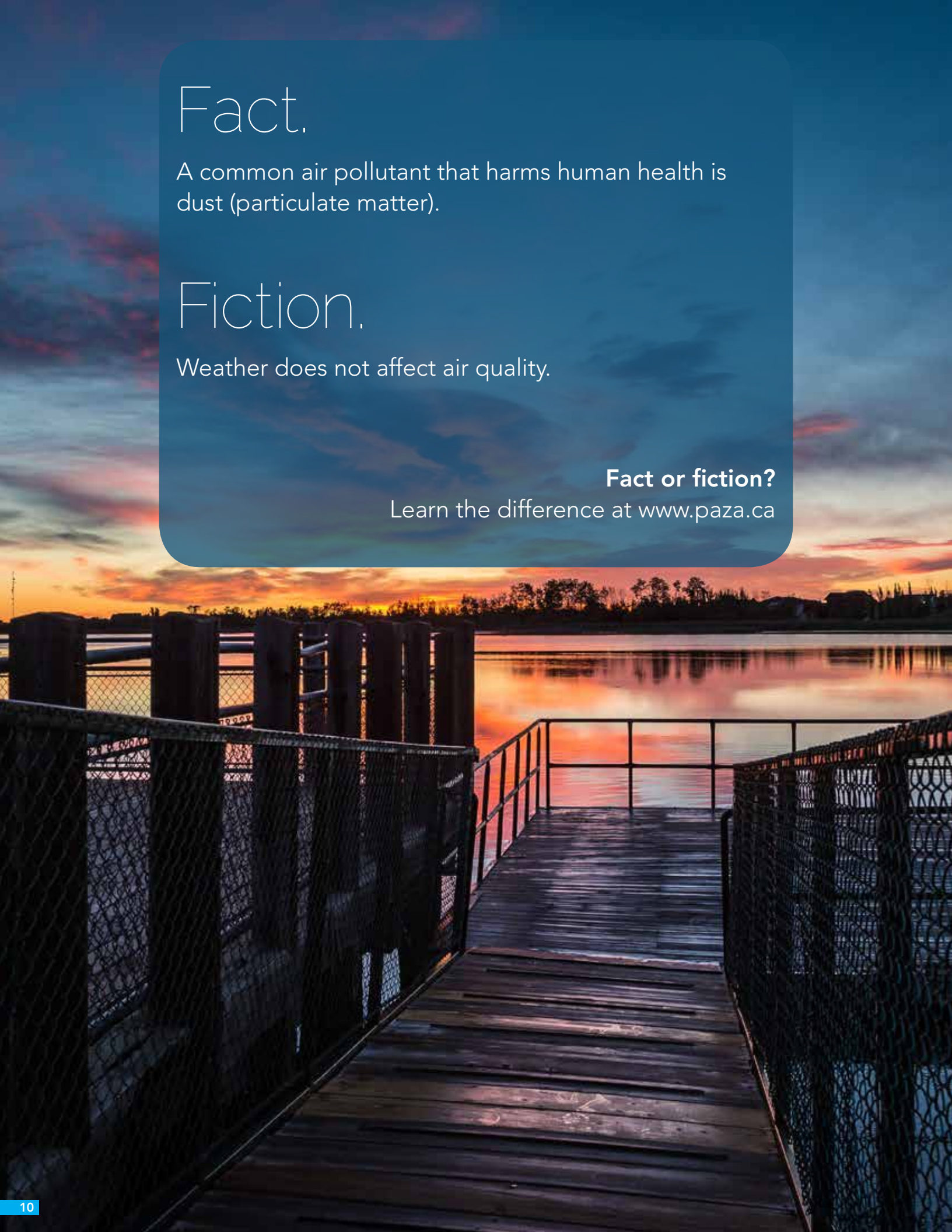
Provincial Changes

The Alberta Government continues to move toward the centralized Alberta Environmental Monitoring, Evaluation, and Reporting Agency (AEMERA). The purpose of this agency is to provide open and transparent access to scientific data and information on the condition of Alberta's environment to inform policy makers, regulators, planners, researchers, communities, industries and the public. If this sounds familiar, you're right! This fits right into the work that PAZA has been doing for more than 10 years. PAZA continues to work with other Alberta airsheds and the provincial government to advocate for ongoing involvement providing local solutions to local issues.

PAZA continues participation in the Joint Oilsands Monitoring program. With a portion of our region containing Oilsands deposits and industry involved in this area, we are committed to remaining engaged to influence the decisions that affect our region.

PAZA also maintains involvement in the Alberta Airsheds Council to strengthen the voice of airsheds in the provincial landscape. Part of this involvement includes participation on a multi-disciplinary task group whose purpose is to evaluate Odour Management practices and protocols. We look forward to the results of these evaluations in the coming year.

Sheldon Nordell/PAZA Photo Contest



Fact.

A common air pollutant that harms human health is dust (particulate matter).

Fiction.

Weather does not affect air quality.

Fact or fiction?
Learn the difference at www.paza.ca

PAZA Ambient Air Quality Monitoring Network

The regional ambient air quality monitoring program commenced operation in 2002, developed in accordance with Alberta's Clean Air Strategy.

PAZA's ambient air monitoring program was implemented to provide scientifically credible air quality data to assess short and long term air quality on a regional scale. It is designed to respond to local and regional air quality issues and concerns in relation to human and ecosystem health.

The goal of the monitoring program is to collect reliable, representative, scientifically credible data in an efficient and economically sustainable manner and to ensure the data is available and easily accessible to all stakeholders.

WE DEAL IN DATA

Data from all PAZA stations is compared against Alberta Ambient Air Quality Objectives (AAAQO) as defined in the Alberta Environmental Protection and Enhancement Act, and any exceedances of AAAQO are reported.

PAZA also submits monthly and annual air quality monitoring reports to Alberta Environment and Sustainable Resource Development.

What happens to the data? How is the data reported?

PAZA does not set the standards for air quality. The data we collect is compared against the Alberta Ambient Air Quality Objectives (AAAQO) set by the Government of Alberta. The AAAQO are intended to provide protection of the environment and human health. PAZA reports any exceedances of AAAQO to Alberta Environment and Sustainable Resource Development immediately.

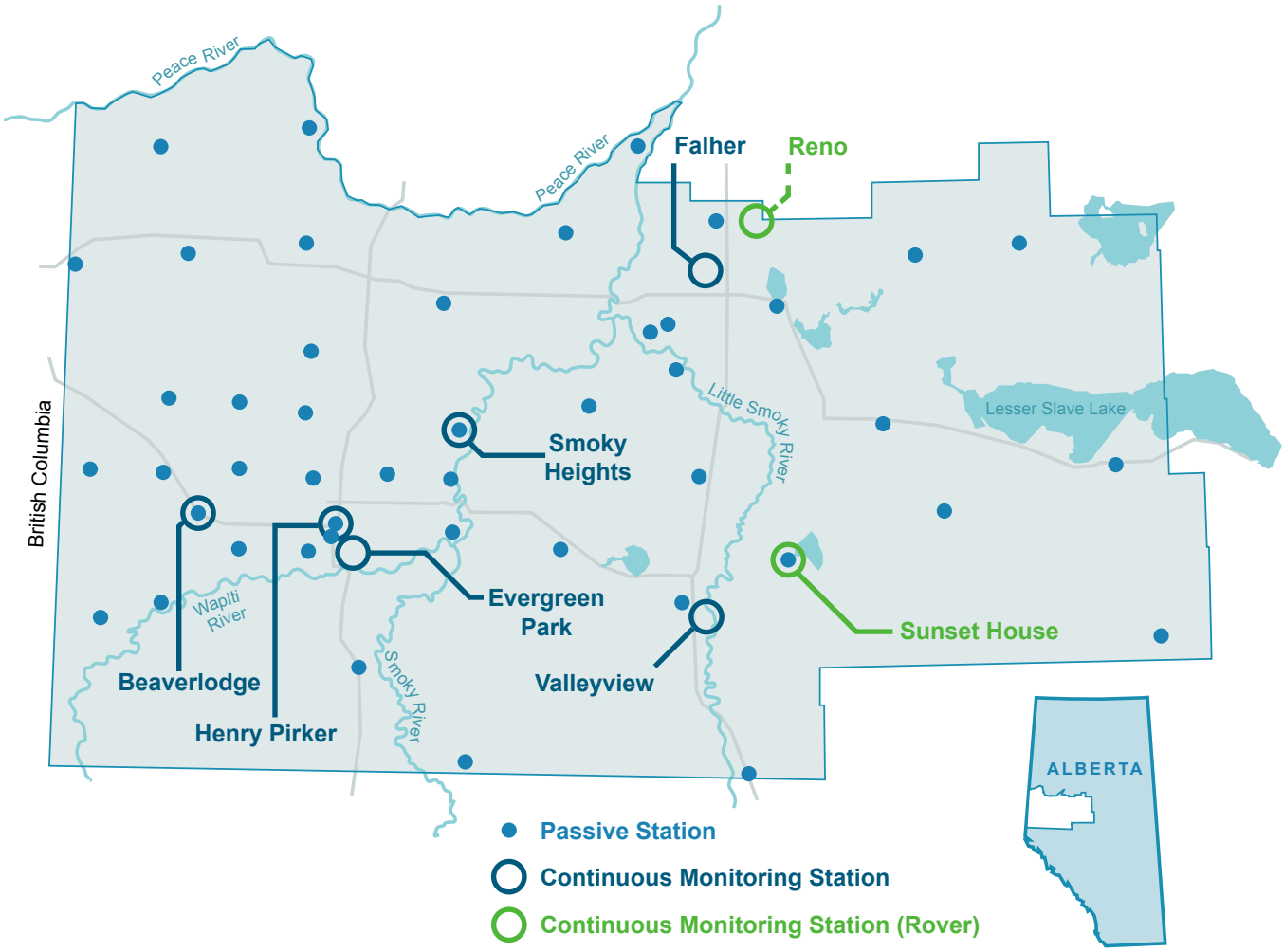
PAZA also provides near instantaneous air quality data for public viewing online. For calculation of the Air Quality Health Index (AQHI) measurements, PAZA submits up to the hour data to Alberta Environment and Sustainable Resource Development. The AQHI is updated hourly, 24-hours-a-day, and can be viewed on our website. If the index indicates higher levels of risk to public health, Alberta Health Services may issue a public health advisory.

Validated data, suitable for use in scientific data analysis and air quality management planning, is submitted to Alberta Environment and Sustainable Resource Development monthly and annually and is archived at the Clean Air Strategic Alliance Data Warehouse (www.casadata.org). Annual data summaries, like this one, are compiled for the PAZA community.

All data reports are available for viewing on our website paza.ca.

Janice Kretzer-Prysunka/PAZA Photo Contest;
Fact or Fiction Source: Environment Canada
http://www.ec.gc.ca/Publications/9E2991C8-3A47-4AB2-9003-F97DBE1F8BA1%5CAQHILearningStations.pdf

PAZA OVERVIEW MAP



PASSIVE vs. CONTINUOUS

There are seven continuous (left) and 46 passive monitoring stations (above) dotted throughout the PAZA region.

PAZA Boundary and Monitoring Stations

PAZA operates a network of seven continuous monitoring stations and 46 passive monitoring stations that collectively monitor the air quality across the region. The PAZA boundary encompasses approximately 38,000 square kilometres, with a population of approximately 100,000 people living and working in the region.

The Rover monitoring station is relocated on a yearly basis to areas where new or additional air quality monitoring is required. Enhancements to this station included the addition of total hydrocarbon and hourly AQHI reporting to this station in 2013.

The continuous monitoring stations are constantly measuring parameters and provide near instantaneous readings, while passive monitoring stations collect samples that are sent to a laboratory for analysis, providing a monthly average. In the PAZA network passive stations are intended to gather information over a broad spatial area and measure trends over time. They are set up on a grid system to provide comparative air quality throughout the zone.

The monitoring stations are operated in accordance with Alberta's Air Monitoring Directive. All data is verified through a rigorous quality assurance program, including daily equipment checks, monthly multipoint calibrations, annual third party audits and frequent data review for variances and trends.

In addition, the Grande Prairie Henry Pirker and Beaverlodge stations are part of the National Air Pollution Surveillance Program, which monitors and assesses the quality of outdoor air in populated regions of Canada.

IN YOUR BACKYARD

PAZA operates an extensive network of air quality monitors. We may be neighbours. Visit paza.ca for more information.

AND ACROSS CANADA

PAZA operates two stations as part of a Canada wide air monitoring network. The National Air Pollution Surveillance Program (NAPS) assesses air quality across the country.

PAZA'S NETWORK MONITORING OBJECTIVES

1. Monitor to ensure compliance for Environmental Protection and Enhancement Act (EPEA) Approvals.
2. Measure and assess air quality relevant to Alberta Ambient Air Quality Objectives (AAAQO) and Canadian Wide Standards (CWS).
3. Understand the spatial distribution of monitored pollutants in the region.
4. Identify regional air quality trends and emerging issues.
5. Characterize specific geographic locations or sources.
6. Provide information required to understand potential population impacts to ambient air quality.
7. Provide information required to understand potential air quality impacts on the environment and population.
8. Improve the ability to identify and apportion pollutant sources for purposes of air quality management.
9. Provide adequate input and validation information for dispersion modeling.
10. Monitoring will be conducted using best available technology economically achievable.

What affects air quality?

We all affect air quality. Air quality can be impacted by many sources both through human activity and natural phenomenon.

- **Point Sources:** industrial facilities, power plants, home and business heating and cooling
- **Mobile Sources:** transportation, vehicles, aircraft
- **Natural Sources:** trees, vegetation, forest fires, wetlands, gas seeps, lightening
- **Area Sources:** wood burning, BBQs, firepits, drycleaners, pesticide use

In addition to wind speed and direction and important meteorological parameters that affect the transport and dispersion of air, monitoring at the stations is based on what is expected to be present in an area and available technology. For example, monitoring stations in urban centres typically measure for nitrogen oxides, carbon monoxide, particulate matter, and ozone, the parameters commonly associated with vehicle emissions and home heating and cooling. In an industrial area we may monitor for sulphur dioxide, total reduced sulphurs, hydrogen sulphides, total hydrocarbons or fine particulate matter, depending on the industry. In rural areas we may monitor for particulate matter, ozone, or nitrogen oxides.

24/7 MONITORING

PAZA technicians like Grover Christiansen perform regular calibration and maintenance to ensure PAZA's seven continuous monitoring stations operate day in and day out, year-round.

Our network's average instrument uptime was 99% during 2013.

What does PAZA monitor?

Passively monitored parameters:

- Sulphur dioxide
- Nitrogen dioxide
- Ozone
- Hydrogen sulphide

Meteorological parameters (that affect the transportation and dispersion of compounds):

- Wind speed and direction
- Solar Radiation
- Outdoor Temperature
- Relative Humidity

Continuously monitored parameters:

- Sulphur dioxide (SO_2)
- Total reduced sulphur (TRS)
- Hydrogen sulphide (H_2S)
- Oxides of nitrogen (NO_2, NO and NO_x),
- Carbon monoxide (CO)
- Total hydrocarbons (THC)
- Ozone (O_3)
- Fine particulate matter ($PM_{2.5}$)

Lloyd Dykstra/PAZA Photo Contest

Air Quality.

As easy as 1, 2, 3...

You do not have to be a scientist to understand the air quality health index, or benefit from it in your daily life. Just remember: you like the numbers 1, 2, and 3.

Our website displays the current hourly index and forecasts for the next 48 hours. The index ranges from 1 to 10+. The lower the number, the lower the health risk associated with breathing local air.

An index of 1, 2, or 3 means - have no worries! Go out and play!

Visit PAZA.ca for more details.

What did the data tell us in 2013?

LONG ACRONYM, SIMPLE CONCEPT
Alberta Ambient Air Quality Objectives (AAAQOs) are established by Alberta Environment and Sustainable Resource Development to define the maximum acceptable concentration.

These objectives are based on evaluation of scientific, social, technical and economic factors and developed in consultation with government departments, the scientific community, environmental organizations, industry and the general public.

The data PAZA collects is compared to the Alberta Ambient Air Quality Objectives (AAAQO) set by Alberta Environment and Sustainable Resource Development.

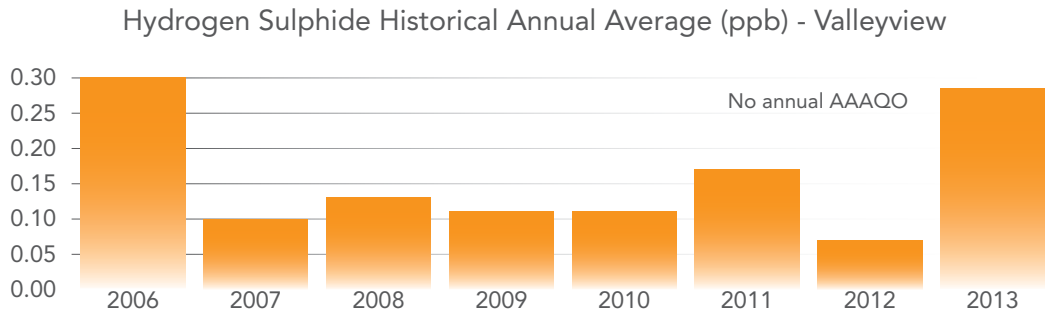
In 2013, there were a total of 3 exceedences of the 24-hour AAAQO and 22 exceedences of the 1-hour AAAQO for H_2S and $PM_{2.5}$.

Hydrogen Sulphide (H_2S)

On January 12th, seven 1-hour (>3 ppb) and one 24-hour (>10 ppb) readings were captured at the Valleyview station. This event was captured by analyzers as far away as Fort Saskatchewan. The cause of this disturbance remains unclear and investigations provided no specific event to which it can be attributed. We are confident in the integrity of the station as the data was corroborated by additional monitoring sites. Direction and wind speed help investigators analyze when and where there is a disturbance which typically lead to the cause. This is an example of how well our network is working to capture real data in real time.

On May 8th, one 1-hour and on May 17th, three 1-hour and one 24-hour readings were captured at the Falher station. Inspection of nearby wellsites revealed no leaks, potential source may be attributed to tanker trucks parked nearby or a well service company cleaning a tank or truck.

HOW MUCH IS A PPB?
Data is reported parts per billion (ppb). One part per billion is roughly equivalent to 3 seconds out of every 100 years or like adding a pinch of salt to a 10,000 kg bag of potato chips.



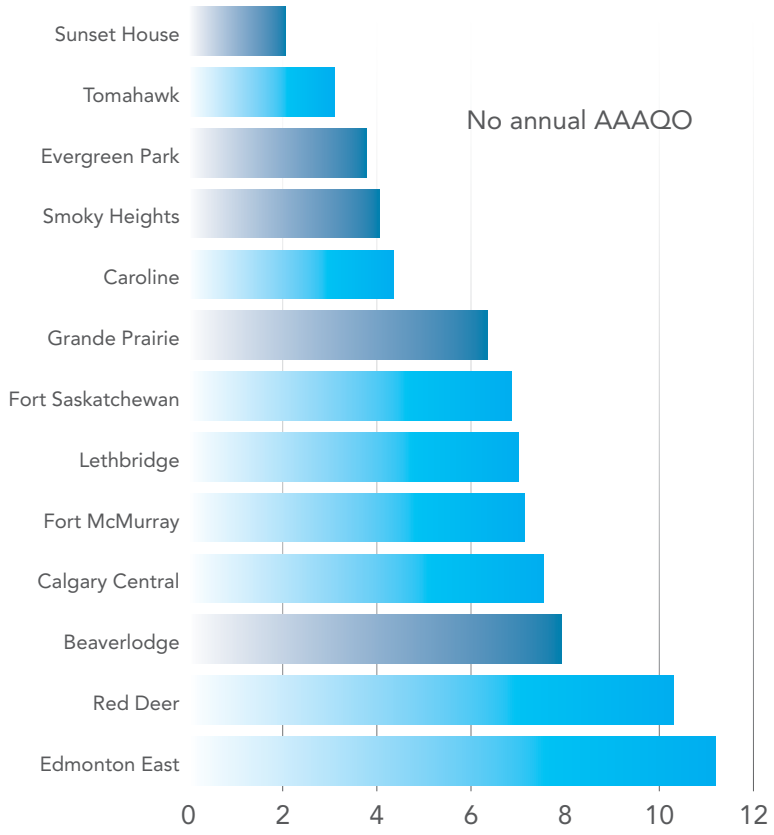
Fine Particulate Matter($PM_{2.5}$)

FINE PARTICULATE MATTER
Exceedances of fine particulate matter were down significantly as compared to 2012.

The eleven remaining 1-hour (>80 µg/m^3) and one remaining 24-hour (>30 µg/m^3) exceedences were for fine particulate matter, observed at the Evergreen Park, Smoky Heights and Beaverlodge stations throughout the year and were attributed to local area sources, such as wood burning.

The technical data included here provides a brief summary of the air quality monitoring results for 2013. If you would like to review more extensive air quality summaries across our zone please visit our website. The Provincial data comparisons outside of PAZA's zone are compiled using validated continuous data accessed from the Clean Air Strategic Alliance Data Warehouse.

NOTE: Graphs and other graphic representations of data in this report were created for illustration only, based on official 2013 data. Values represented are approximate. For official audited data, including full reports, please visit our website.



Fine Particulate Matter ($PM_{2.5}$)

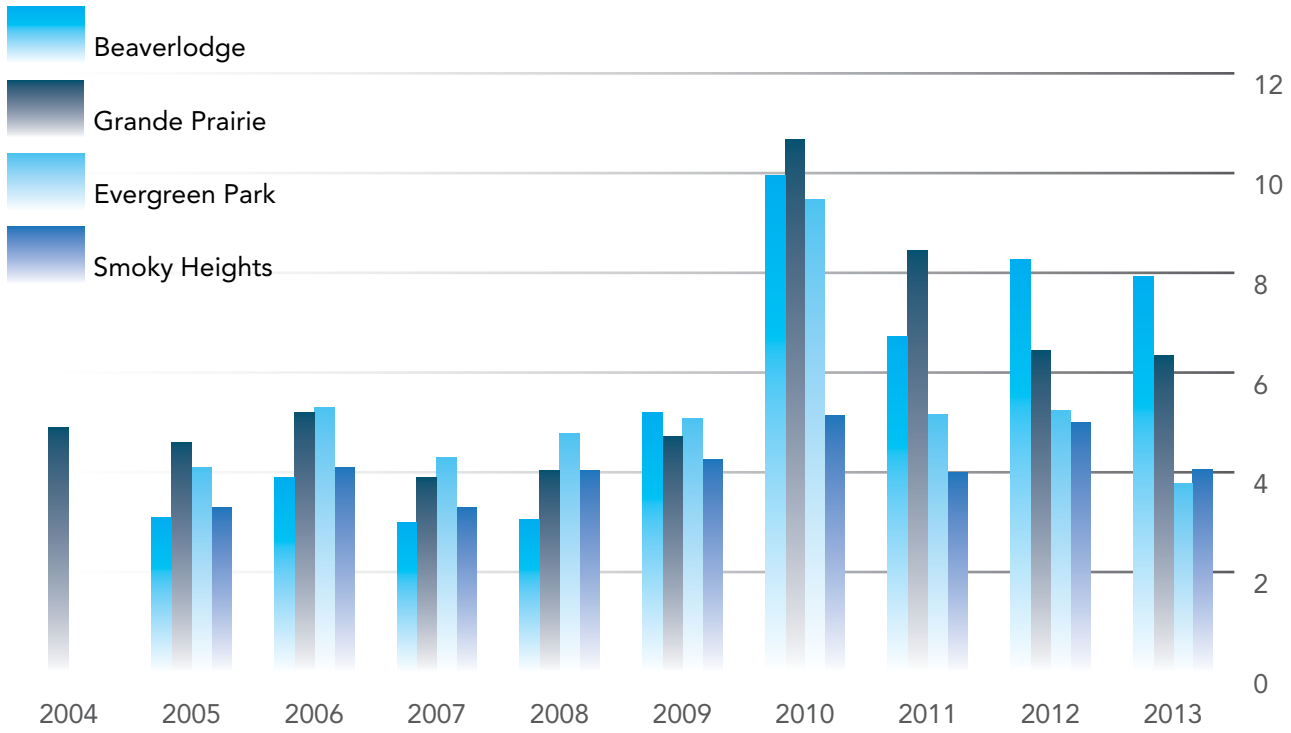
$PM_{2.5}$ is an important parameter to monitor because of the potential health impacts associated with it. Particles are tiny, orders of magnitude smaller than 1 single human hair. Particles can become trapped in the lung and cause irreparable respiratory damage.

The PAZA zone has observed increased fine particulate matter levels from 2010 through 2012 mainly due to wildfires burning in northern Alberta. Levels returned to historical averages in 2013. Upgrades in monitoring technology at Henry Pirker and Beaverlodge stations show higher values than historically captured at those locations. In urban areas, $PM_{2.5}$ is commonly produced as a byproduct of burning fuels for home heating and vehicles. $PM_{2.5}$ can also be a significant problem in rural areas, due to common causes such as controlled wood burning.

PAZA measured 11 Alberta Ambient Air Quality 24-hour Objective and 1 Alberta Ambient Air Quality 1-hour Objective exceedances for $PM_{2.5}$ in 2013, a significant decrease from 2012.

The highest maximum hourly average concentration in our network was approximately 147 µg/m^3 at Beaverlodge, compared to 153 µg/m^3 in 2012. Overall annual average concentrations were less than those measured in large urban centres across the province, as evidenced in the graph at left.

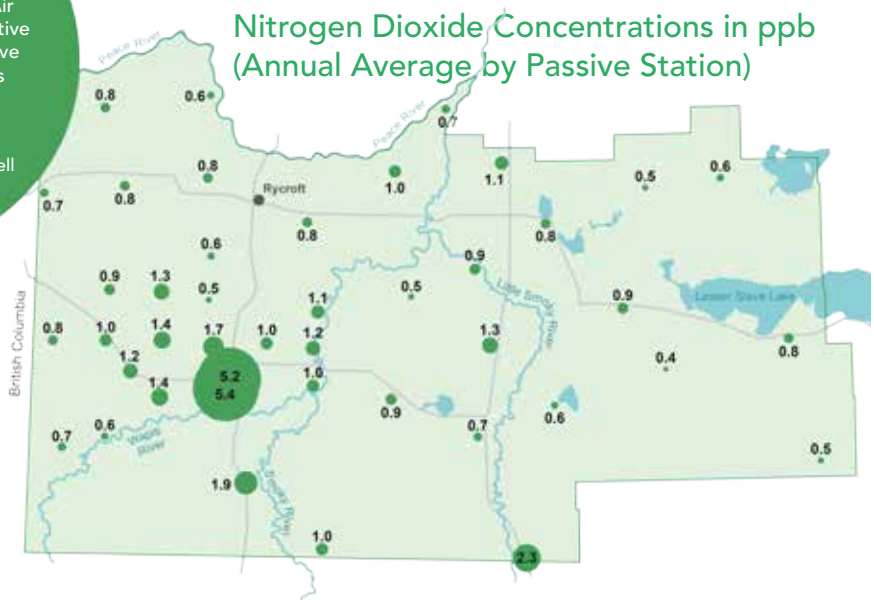
Fine Particulate Matter (µg/m3) Average by Community



Fine Particulate Matter (µg/m3) Annual Average

This circle represents the diameter of the Annual Alberta Air Quality Objective (32 ppb) relative to the bubbles on the map at right. As you can see, annual averages are well within AAAQO parameters.

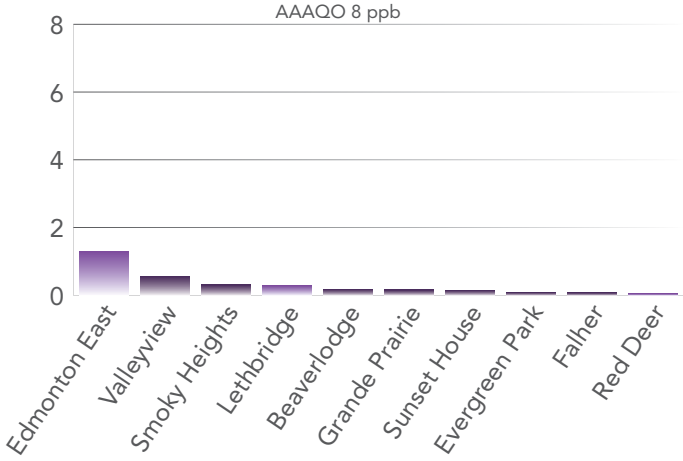
Nitrogen Dioxide Concentrations in ppb (Annual Average by Passive Station)



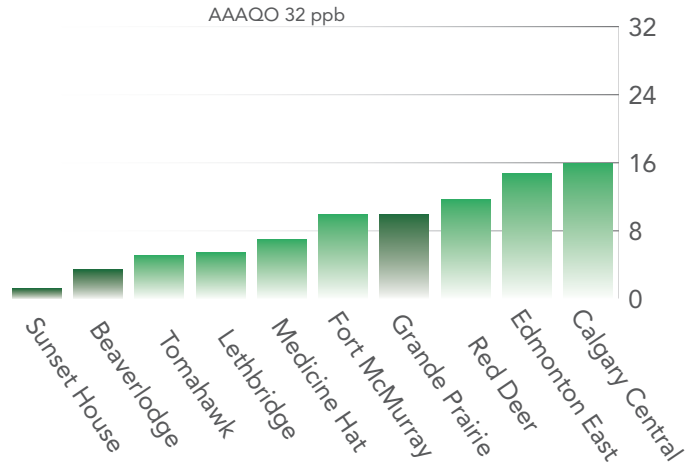
Nitrogen Dioxide (NO_2)

Nitrogen dioxide emissions across the zone are highest along major transportation routes and urban centres. This is visible in the passive annual average bubble map below, and explains why major cities such as Edmonton and Calgary experience much higher overall emissions, as indicated in the graph below.

Increases in NO_2 emissions are observed during colder ambient temperatures when there is increased vehicle idling, and home and work heating. At the same time, temperature inversions may trap stagnant air close to ground level. NO_2 and the nitrogen oxides it forms from are major components of acid rain, as well as directly harmful when inhaled.



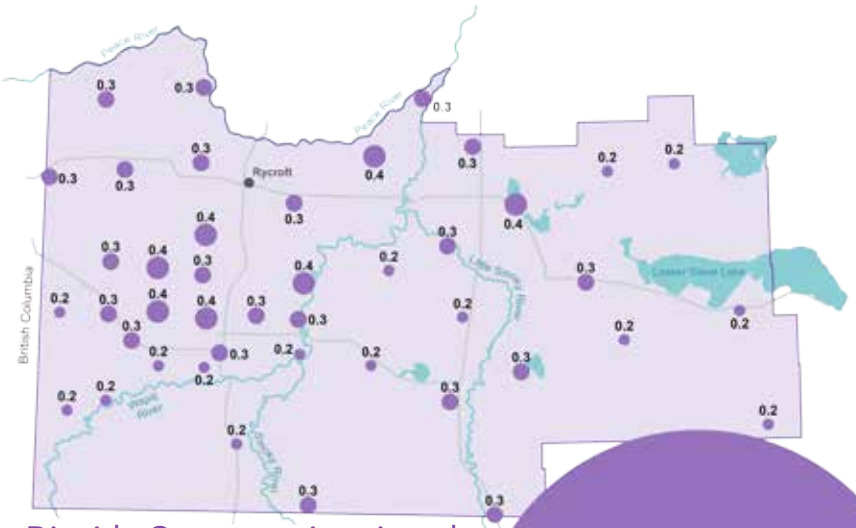
SO_2 (2013 Average by Community)



NO_2 (2013 Average by Community)

Sulphur Dioxide (SO_2)

Sulphur dioxide concentrations tend to increase during colder ambient temperatures when weather conditions inhibit mixing and dispersion of air and air pollutants. Sulphur dioxide concentrations tend to be higher at the stations located in areas where industrial facilities involve the burning of fossil fuels, as indicated on the map at right.



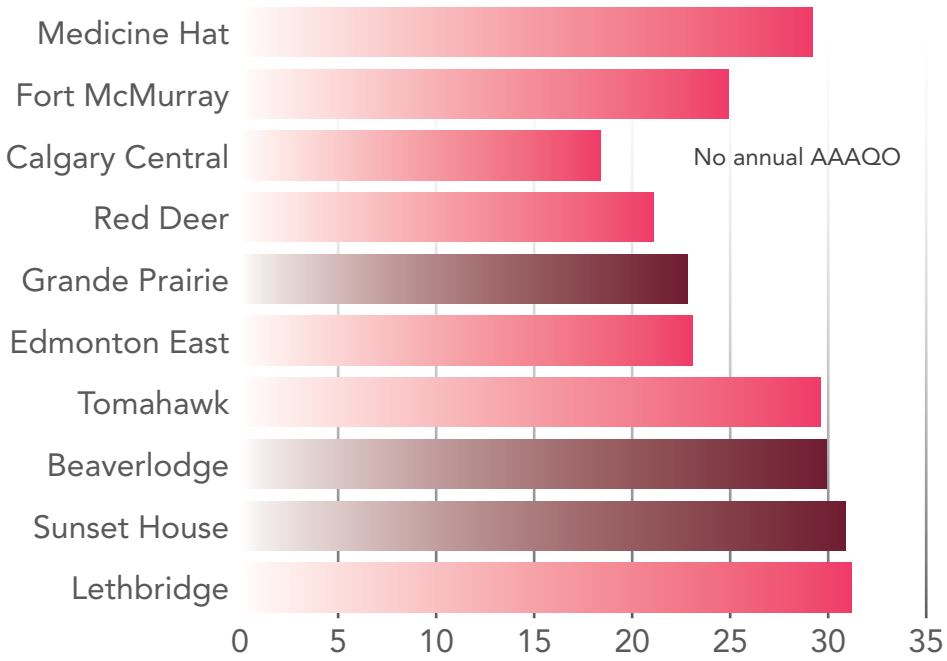
Sulphur Dioxide Concentrations in ppb (Annual Average by Passive Station)

This circle represents the approximate diameter of the Annual Alberta Air Quality Objective (8 ppb) relative to the bubbles on the map. As you can see, annual averages are well within AAAQO parameters.

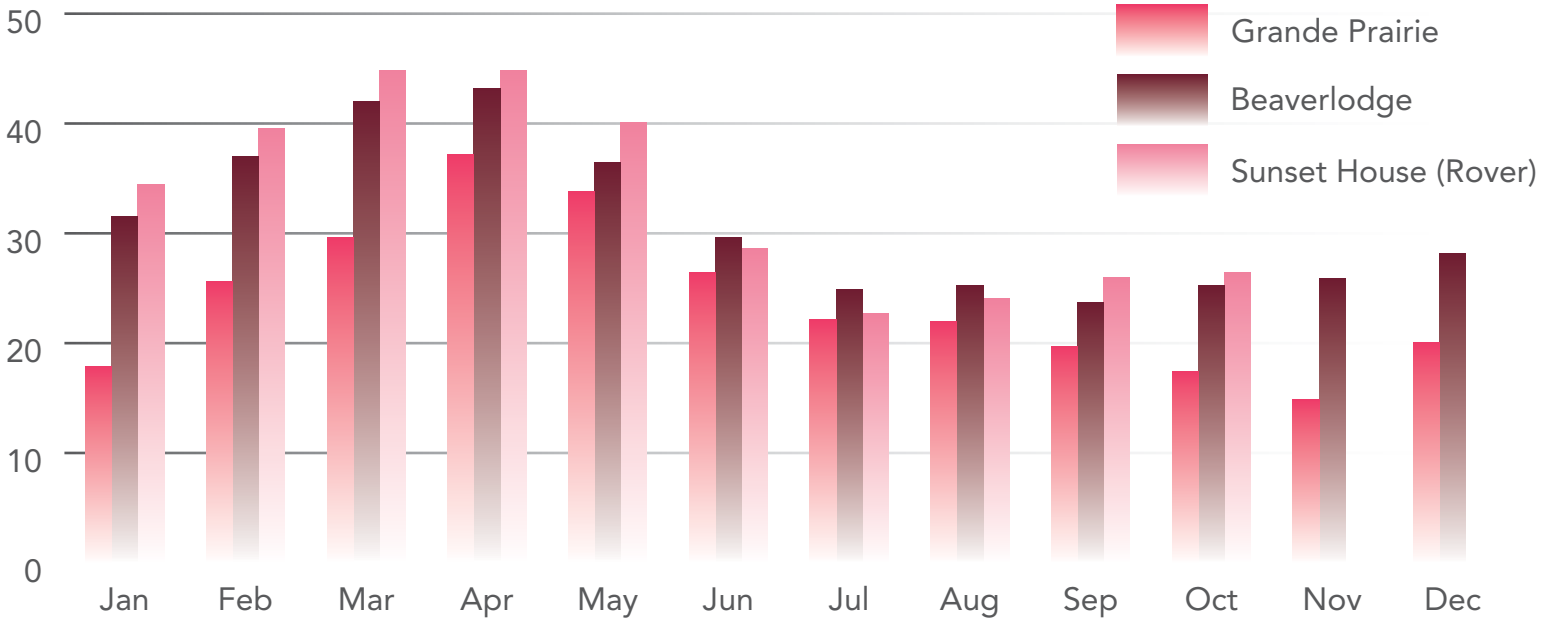
Ozone (O_3)

Ozone and particulate matter play a role in the production of smog. These pollutants may cause human health problems and can pose a threat to environmental systems. They mainly affect the lowest part of the atmosphere, which holds the air we breathe.

Ozone is not emitted directly, but is formed by reaction of oxygen (O_2) with sunlight. Ozone is then consumed by nitrogen oxides to produce nitrogen dioxide, a component of smog and acid rain. Ozone levels are lower in urban areas and transportation corridors, where larger quantities of nitrogen oxides produced by home heating and vehicular traffic are available to react with the ozone. Ozone itself, while protective against uv radiation in the upper atmosphere, is harmful to animal and plant health at ground level, damaging sensitive tissues.



2013 Ozone (ppb) (Average by Community)



2013 Ozone (ppb) (Average by Month)

Air Quality Health Index

The average person takes about 20,000 breaths a day – that's an amazing 10,000 litres of air passing through your lungs every day. Wouldn't it be helpful to know how all that air affects your health? NOW YOU CAN.

An advantage of continuous monitoring is the ability to calculate an Air Quality Health Index. The AQHI is a tool designed to help Albertans understand what the air quality around us means to our health. Everyone is affected by air pollution differently. Some are at a higher risk than others.

The Air Quality Health Index (AQHI) is more than a number; it is a tool that measures air quality in your community and reports it on a scale from 1 to 10+ to indicate the level of risk associated with the local air quality. The lower the number, the lower the health risk. The AQHI value for the hour is calculated by a formula using the concentrations of the following three parameters, measured continuously:

- Fine Particulate Matter
- Nitrogen dioxide
- Ozone

Because of our energy based economy, Alberta has enhanced the AQHI to also consider concentrations of the following pollutants:

- Sulphur dioxide
- Hydrogen sulphide
- Total reduced sulphur
- Carbon monoxide

Additionally, special community-based messaging for odour or visibility is an added feature to the AQHI reported in Alberta. The index does not measure the effects of pollen, heat or humidity on health.

AN HOURLY MEASURE OF OUTDOOR AIR QUALITY

In 2013, the PAZA region enjoyed AQHI risk ratings of "low" or "moderate" over 99% of the time.

Communities compared in the table on the next page experienced low or moderate risk ratings over 99% of the time.

REAL-TIME AQHI FOR THE PEACE AIRSHED

As part of our commitment to communicating air quality data to you, we have real-time AQHI data provided by Alberta Environment and Sustainable Resource Development. The system provides up to the hour indices for Grande Prairie and Beaverlodge.

What does it mean for me?

The AQHI allows you to look ahead at anticipated air quality conditions for 48 hours and provides associated health advice. You can refer to the AQHI to check the quality of outdoor air in your community before heading off to work or play, and you can use the forecasts to plan your activities, whether over the next hour or the next day. Check the index at paza.ca, airquality.alberta.ca, or by calling 1-877-247-7333.

		At Risk Populations	General Population
Low Risk	1–3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate Risk	4–6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High Risk	7–10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High Risk	10+	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

What affects AQHI?

High risk and very high risk air quality episodes can occur when particulate matter is carried into urban areas from forest fires, or during wintertime smog events. Ground-level ozone is a component of photochemical smog that can be harmful to human health and vegetation; it also has the ability to degrade synthetic materials. High and very high episodes can occur when ozone forms during periods of summertime smog. Ground level ozone can form in hot, sunny weather, through complex chemical reactions involving pollutants emitted by automobiles and industry. Winter-time smog often forms during a temperature inversion (warm air trapped under heavier colder air) and sunny weather.

	Grande Prairie	Beaverlodge	Red Deer	Edmonton
Low Risk	91.5%	98.4%	85%	80.9%
Moderate Risk	8.5%	1.6%	14.8%	18.4%
High Risk	0%	0.1%	0.1%	0.7%
Very High Risk	0%	0%	0%	0%

2013 AQHI Average Ratings from Sample Communities

Source: http://environment.alberta.ca/03599.html

What can I do?

Learn

Be Proactive! Learn about air quality. Visit paza.ca for info.

Get Involved

PAZA welcomes anyone with an interest in air quality to our regular meetings. Meeting dates are posted online. Join us!

Find up-to-the-minute air quality data, including AQHI, online.

Request a presentation to be made to your organization or group.

Attend our AGM to learn more about air quality monitoring and PAZA's activities.

Stay connected with PAZA on Twitter.

Get Active

Small changes can have the biggest cumulative impact:

- Walk, bike, car pool, or use public transportation
- Reduce vehicle idle time
- Keep your vehicle tuned up and ensure proper tire pressure for better fuel efficiency and reduced emissions
- Turn down your hot water tank
- Turn off lights and electronics when not in use
- Reduce, reuse, then recycle
- Use energy-efficient appliances
- Buy local and reduce your carbon footprint
- Start a compost and garden organically

Contact us for more information:
780.833.4343 or 1.866.764.2681

www.paza.ca

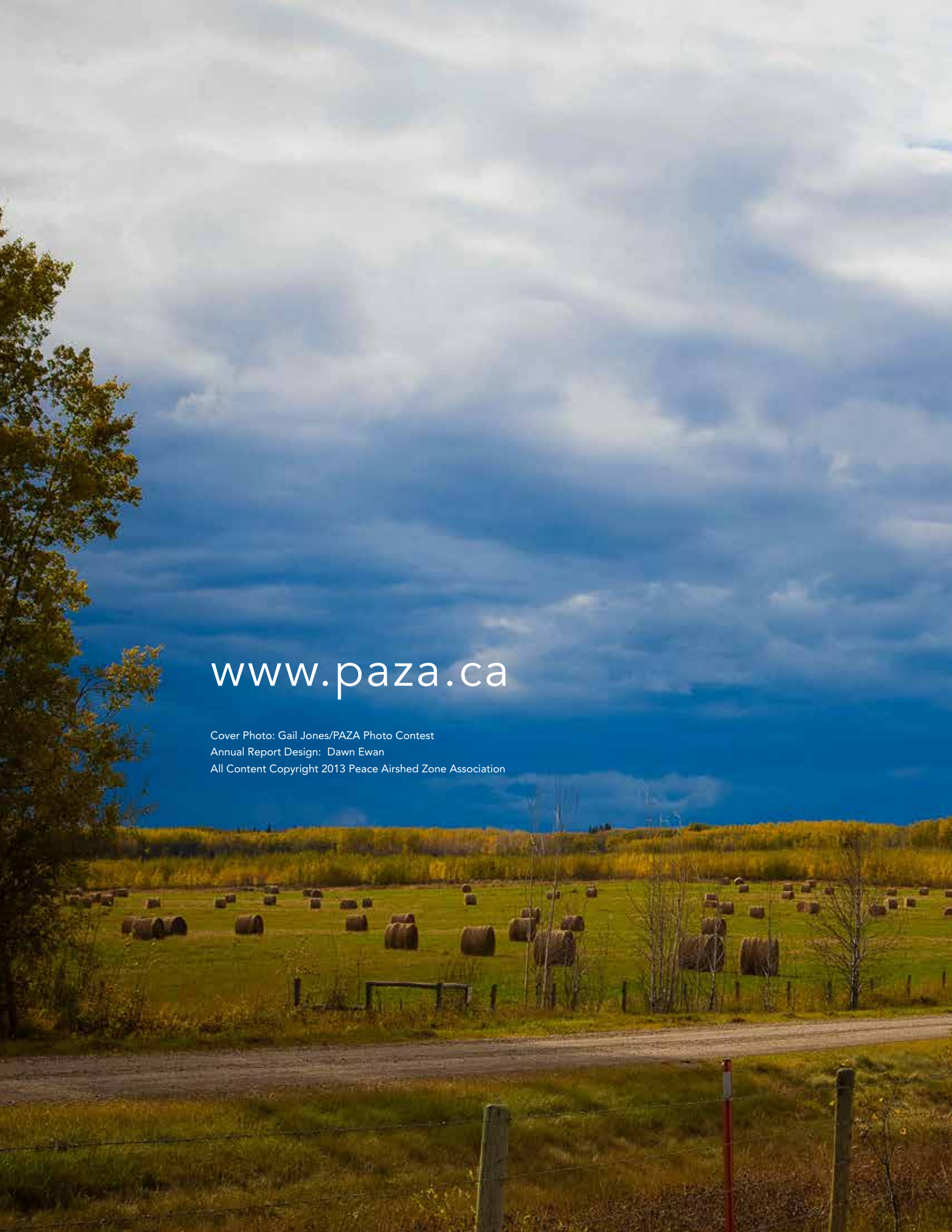
2013 Membership

The Peace Airshed Zone Association (PAZA) thanks our members for their past and continued support in 2013. Our regional ambient air quality monitoring network has an annual budget of over $750,000 funded by industry, municipalities, Alberta Environment and Sustainable Resource Development and other contributing members in PAZA. All municipal, NGO and numerous industry members contribute voluntarily. Without the valuable support of our members, PAZA would be unable to sustain operation of the air quality monitoring network providing publicly accessible, credible air quality data to our stakeholders.

Individual members representing various stakeholder groups regularly attend meetings, participate on Board sub-committees and provide their time and resources. Sincere thanks to all of our members for over 1000 hours of volunteer time and resources, totaling over $115,000 worth of in-kind support.

Advantage Oil & Gas Ltd.
Ainsworth Engineering Canada
Altagas Ltd.
Altex Energy Ltd.
Apache Canada Ltd.
ARC Resources Ltd.
Artek Exploration Ltd.
ATCO Power Canada
Barrick Energy Partnership
Baytex Energy Corp.
Bernum Petroleum Ltd.
Birch Hills County MD 19
Birchcliff Energy Ltd.
Canadian Forest Products Ltd.
Canadian Natural Resources Ltd.
Cequence Energy Ltd.
City of Grande Prairie
ConocoPhillips Canada
County of Grande Prairie
Dark Energy Ltd.
Daylight Energy Ltd.
Dee Three Exploration Ltd.
Delphi Energy Corp.
Devon Canada
Dirham Oil (2000) Ltd.
Encana
Enerplus Resources Corporation
Exoro Energy Inc.
Flow Back Oil & Gas Ltd.
Friends of an Unpolluted Lifestyle
Gibsons Energy
Glenogle Energy Inc.
Grande Prairie Generation Inc.
Hanna Oil and Gas Company
Insignia Energy Ltd.
Kallisto Energy Corp.
KinMerc Oil & Gas Inc.
Long Run Exploration
Longview Oil Corp.
Maxim Power Corp.
MD of Big Lakes
MD of Greenview
MD of Smoky River
MD of Spirit River No. 133
NAL Resources Ltd.
Novus Energy Inc.
Omers Energy Inc.
Penn West Petroleum Ltd.
Petrus Resources Ltd.
Polar Star Canadian Oil & Gas Inc.
Reber Exploration Ltd.
Response Energy Corp.
RMP Energy Ltd.
Saddle Hills County MD 20
Secure Energy Services Inc.
Shell Canada Energy
Shoreline Energy Corp.
Sinopec Daylight Energy Ltd.
Sonde Resources Corp.
Spectra Energy Midstream
Suncor Energy Resources
Sure Energy Inc.
TAQA North
Terra Energy Partnership
Town of Falher
Town of Sexsmith
Town of Valleyview
TransAction Oil & Gas Ventures Inc.
Velvet Energy Ltd.
Veresen Inc.
Weyerhaeuser Canada

Braiden Wilson/PAZA Photo Contest



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