

The image is a cover for a year-in-review report. It features a background of tall, thin green grasses, possibly reeds or sedges, with a soft, out-of-focus effect. Overlaid on this background are several semi-transparent, overlapping shapes in shades of light blue and green. The text is prominently displayed in the center-left area. The word "PAZA" is in a large, bold, white, sans-serif font. Below it, "Peace Airshed Zone Association" is written in a smaller, white, sans-serif font. To the right of "PAZA", the year "2014" is written in a very large, light green, sans-serif font. Below "PAZA" and "2014", the words "YEAR IN REVIEW" are written in a bold, white, sans-serif font.

PAZA

Peace Airshed Zone Association

YEAR IN REVIEW

2014



Photo Credit: Mary Dahr

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THE PEACE AIRSHED ZONE ASSOCIATION

PAZA is a not for profit multi-stakeholder society that monitors air quality in northwestern Alberta. Our members collaborate to provide local solutions to local air quality concerns. As an independent multi-stakeholder group, PAZA has invested more than 10 years into building trust among members of the public, industry, government, and non-governmental organizations.

We want you to know more about the quality of the air you breathe. Here at PAZA, we work hard to deliver unbiased, open and transparent, scientifically credible data to allow all stakeholders, including you, to make informed decisions regarding air quality in our region.

This data is collected and publicly shared on the PAZA webpage. We also report to stakeholders, government and reporting agencies so we can all work together to take care of our air.



VISION

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

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.

GUIDING PRINCIPLES

- **We will** conduct our business with integrity.
- **We will** be sensitive to the needs of our members.
- **We will** participate with a commitment to our vision and mission.
- **We will** be open and transparent in our work.
- **We will** generate data that is relevant and scientifically credible to our stakeholders.
- **We will** be guided by the consensus decision making process.
- **We will** speak with one voice.
- **We will** ensure all members have the opportunity to participate.
- **We will** work to the best of our abilities to achieve our mission.

A MESSAGE FROM THE BOARD

You have in your hands your local Airshed's Annual Report. The PAZA region covers approximately 38,000 square kilometers, one of the largest independent monitoring organizations in all of Alberta. I am pleased to state PAZA continues to provide the best possible air quality data which is unbiased, transparent and scientifically credible.

We have experienced change throughout 2014. With the new Alberta Monitoring, Evaluation, and Reporting Agency (AEMERA) in place we are adjusting; ensuring PAZA is aligned with the bigger provincial picture. PAZA is working diligently to be proactive to ensure that our values and vision are not lost.

May the entries to PAZA's photo contest inspire you. May you catch PAZA's vision. May you know how incredibly important air quality is. I am proud of the work the Board of Directors, PAZA membership, and PAZA staff have done & continue to do for our communities.

Sharon Nelson, Chair
PAZA Board of Directors

THE YEAR IN REVIEW

LOOKING INWARD

Summer 2014 saw a sharp increase in air quality concerns related to smoke from wildfires, both within and outside of our region. PAZA responded to numerous calls from public and media regarding air quality and the impact of smoke from wildfires.

2014 also included an audit of our Quality Assurance Plan (QAP). An independent, external audit was conducted with a report and recommendations which were reviewed and implemented to ensure that PAZA is meeting and exceeding our objectives.

With larger changes happening throughout the province, Alberta Environment & Sustainable Resource Development requested a complete Monitoring Plan be submitted to inform and ensure PAZA is meeting their requirements under the Air Monitoring Directive.

ROVER STATION MOVE

In June of 2014, PAZA moved the Rover station to the community of Clairmont. Our portable monitoring station (Rover) is a tool to provide information which can be used by our stakeholders to make informed decisions. The process for site selection considers where data gaps exist, and concerns and requests from communities.

GPRC STUDENTS STATION TOUR

Thank you to the Grande Prairie Regional College for inviting us 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. Watch our website for news about our next photo contest!

PROVINCIAL CHANGES

One of the biggest changes for airsheds like PAZA was the establishment of a centralized monitoring agency - Alberta Environmental Monitoring, Evaluation, and Reporting Agency (AEMERA). AEMERA's Board of Directors and CEO have met with PAZA and the Alberta Airshed Council (AAC) to discuss how airsheds can continue their valuable work and collaborate to find solutions to report to a wider audience. This work continues to evolve and PAZA remains committed to regional representation.

PAZA continues involvement in the Alberta Airsheds Council (AAC). The AAC is comprised of nine airsheds across Alberta collaborating to strengthen the voice of airsheds in the provincial landscape. A newly formed AAC Technical Committee meets to share information and concerns. Recommendations arising from these two groups result in mutual benefit to stakeholders both internal and external to the airsheds.

Although not in the PAZA region, the Peace River Inquiry created a heightened awareness of the importance of scientifically credible, unbiased, and transparent air quality information. The release of the report and recommendations highlighted the need for transparent and accessible information, which PAZA is proud to continue to provide to the public on our website.

Photo Credit: Corrie Fordyce

PAZA AMBIENT AIR QUALITY MONITORING NETWORK

PAZA monitoring network is designed to meet the following objectives:

WE DEAL IN DATA

- Data from all PAZA stations is measured and assessed against Canadian Wide Standards (CWS) and Alberta Ambient Air Quality Objectives (AAAQO)(as defined in the AEPaEA) and exceedences of AAAQO are reported.
- PAZA submits monthly and annual air quality monitoring reports to AESRD.
- Understand the spatial distribution of monitored pollutants in the region.
- Identify regional air quality trends and emerging issues.
- Characterize specific geographic locations or sources.
- Provide information required to understand potential population impacts to ambient air quality.
- Provide information required to understand potential air quality impacts on the environment and population.
- Improve the ability to identify and apportion pollutant sources for purposes of air quality management.
- Provide adequate input and validation information for dispersion modeling.
- Conduct monitoring using the best available technology economically achievable.

The goal of the monitoring program is to collect reliable, representative, scientifically credible data in an efficient and economically sustainable manner. The monitoring program design provides the ability to respond to local and regional air quality issues and concerns. PAZA ensures all data is publicly available.

PAZA AMBIENT AIR QUALITY MONITORING NETWORK CONT.

NEVER STOP LEARNING

Our Making It Clear fact sheet series, available online, provides you with detailed information on how air quality is monitored and regulated in Alberta, how air quality pollutants can impact your health and other related topics.

Visit paza.ca for more information.

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

The continuous monitoring stations are constantly measuring parameters and provide near real-time readings, while passive monitoring stations collect samples that are sent to a laboratory for analysis providing a monthly average.

24/7 MONITORING

PAZA technicians 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 98.8% during 2014.

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 designated regions of Canada.

WHAT HAPPENS TO THE DATA?

The data PAZA collects 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 immediately reports any exceedances of AAAQO to Alberta Environment and Sustainable Resource Development.

PAZA also provides air quality data for public viewing online, which is updated hourly. 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 (casadata.org). All data reports are available for viewing on our website.



Photo Credit: Corrie Fordyce

WHAT DID THE DATA TELL US IN 2014?

In 2014, There were seven (7) 1-hr averages of hydrogen sulphide above the AAAQO of 10 ppb and one (1) 24-hr average above the AAAQO of 3 ppb.

There were ninety-six (96) 1-hr averages of PM2.5 above the Alberta Ambient Air Quality Guideline (AAAQG) of 80 $\mu\text{g}/\text{m}^3$ and forty (40) 24-hr averages above the AAAQO of 30 $\mu\text{g}/\text{m}^3$.

Hydrogen Sulphide (H₂S)

On February 25th, three 1-hour (>3 ppb) readings were captured at the Valleyview station. These readings were potentially related to a well blowout to the west, but attribution is uncertain.

On May 7th, one 1-hour reading was captured at the Falher station. Inspection of nearby wellsites revealed no leaks.

On October 6th and 7th, three 1-hour and one 24-hour (>10 ppb) readings were recorded at the Valleyview station. Follow-up with producers in the area revealed a thief hatch failed at a nearby gas plant, which was repaired within hours of detection.

Fine Particulate Matter (PM_{2.5})

The PAZA region has observed increased levels of fine particulate matter levels from 2010 through 2012 mainly due to wildfires burning in northern Alberta. Levels returned to historical averages in 2013. 2014 was a big year for forest fires in July and August, with 81 1-hour (>80 $\mu\text{g}/\text{m}^3$) and 39 24-hour (>30 $\mu\text{g}/\text{m}^3$) exceedances recorded across the network due to forest fire events.

The fourteen remaining 1-hour (>80 $\mu\text{g}/\text{m}^3$) and one remaining 24-hour (>30 $\mu\text{g}/\text{m}^3$) exceedances 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.

In 2014 PAZA upgraded the PM2.5 monitoring technology at Smoky Heights and Evergreen Park.



WHAT AFFECTS AIR QUALITY?

We all do! Air quality can be impacted 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, fire-pits, fireplaces, drycleaners, pesticide use.

Wind speed and direction and important meteorological parameters affect the transport and dispersion of air.

Air is always in motion. It moves dynamically across the land, interacting with the landscape. Understanding these dynamics is crucial in predicting dispersion patterns and siting emission sources.

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 (SO₂)

Total reduced sulphur (TRS)

Hydrogen sulphide (H₂S)

Oxides of nitrogen (NO₂, NO and NO_x)

Carbon monoxide (CO)

Total hydrocarbons (THC)

Ozone (O₃)

Fine particulate matter (PM_{2.5})

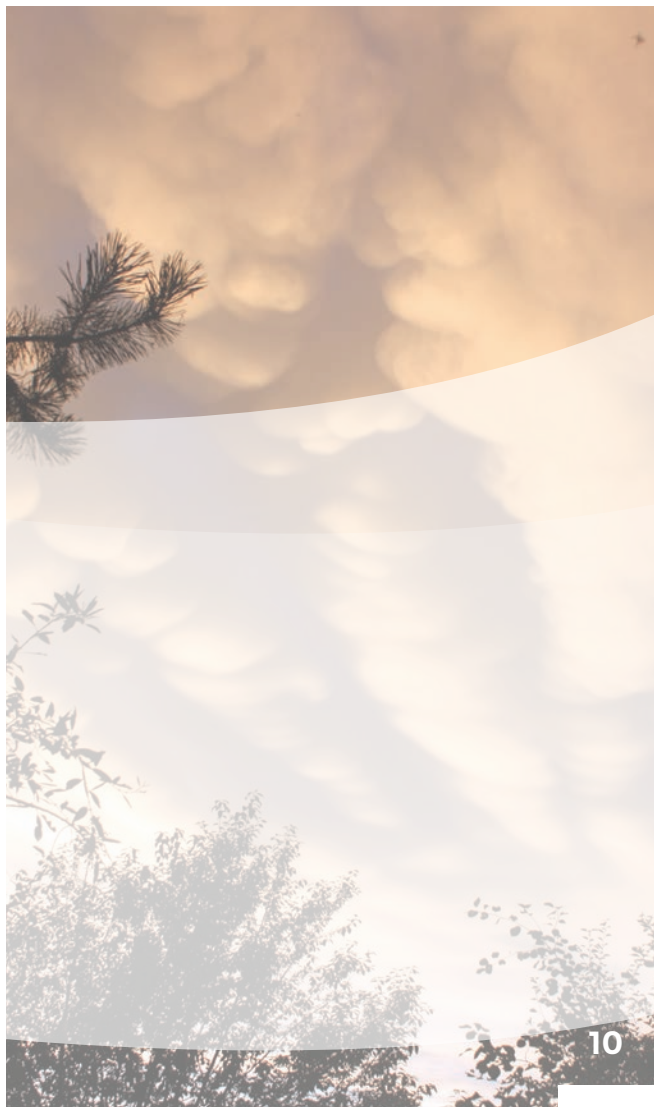
Monitoring at stations is based on what is expected to be present in an area and available technology. For example, monitoring stations in urban centres typically measure for nitrogen oxides, carbon monoxide, particulate matter, and ozone, the parameters commonly associated with vehicle emissions and 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.

WHAT CAN WE LEARN FROM THE DATA?

How is PAZA's data used?

- To learn which pollutants are impacting our air quality.
- To measure short and long term air quality trends.
- To compare our air quality to other regions.
- To learn what the air quality means to you and your health using the Air Quality Health Index.
- For education and outreach.
- For policy development and management planning.

Photo Credit: Corrie Fordyce



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.**

In 2014, PAZA region enjoyed AQHI risk rating of “low” or “moderate” over 99.9% of the time.

The Peace region experienced limited “Very High” risk ratings due to wildfires that burned in northern Alberta.

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. **Lower number means lower risk to health.** The AQHI value is calculated by measuring the following three parameters:

- Fine Particulate Matter
- Nitrogen dioxide
- Ozone

Alberta has enhanced the AQHI to also consider concentrations of the following pollutants:

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

The index does not measure the effects of pollen, heat or humidity on health.

WHAT DOES IT MEAN FOR ME?

The AQHI allows you to see forecasted air quality conditions for today and tomorrow 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 use those forecasts to plan your activities, whether over the next hour or the next day.

Check the index on our website, or at airquality.alberta.ca or by calling 1.877.247.7333



Photo Credit: Jocelyn Moe

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 join our regular meetings. Meeting dates are posted online. Join us!

- Find up-to-date 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.

TAKE PART

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.
- Install a programmable thermostat.
- 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

2014 MEMBERSHIP

The Peace Airshed Zone Association (PAZA) thanks our members for their past and continued support in 2014. Our regional ambient air quality monitoring network is 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.

Advanced Flush Systems Inc.

Advantage Oil & Gas Ltd.

Ainsworth Engineering Cda LP

AltaGas Ltd.

Altex Energy Ltd.

Aquatera Utilities Inc.

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Longview Oil Corp.

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MD of Greenview

MD of Spirit River No. 133

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Response Energy

Rimfire Energy Inc.

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Photo Credit: Mary Dahr