



2015

YEAR IN REVIEW

PAZA
Peace Airshed Zone Association

Photo Credit Robin Pippus



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MESSAGE FROM THE BOARD

As the new Chairman of the Board for PAZA, I would like to extend greetings on behalf of the Board of Directors. It is an honour to convey to you the commitment of our Board, committees and staff in ensuring we continue to provide the best unbiased, transparent and scientifically credible data for air quality in our region. I hope after reading the annual report you will gain a deeper understanding of how PAZA contributes to ensuring our air quality is not compromised.

As in past years, and looking forward, it appears that change is inevitable. Last year we were faced with a new provincial government coming to power after 44 years of Tory rule. The oil and gas industry was faced with a significant drop in world prices affecting their bottom line. PAZA went through more staff structural changes to become more sustainable and reduce our operating budget. Sharon Nelson has stepped down as Chairman but is staying on as a Director, so we will not lose her expertise or passion for PAZA.

We continue to work towards developing a long term sustainability plan, and a strong position for PAZA within the AAC and AEMERA. We have developed and are close to signing a MOU with the AAC and AEMERA.

There are pictures throughout the report from our photo contest. These pictures represent the perspectives of the youth and they show the magnificent beauty of our PAZA region.

I look forward to the continued work PAZA does with monitoring the air quality of our region for our children and grandchildren.

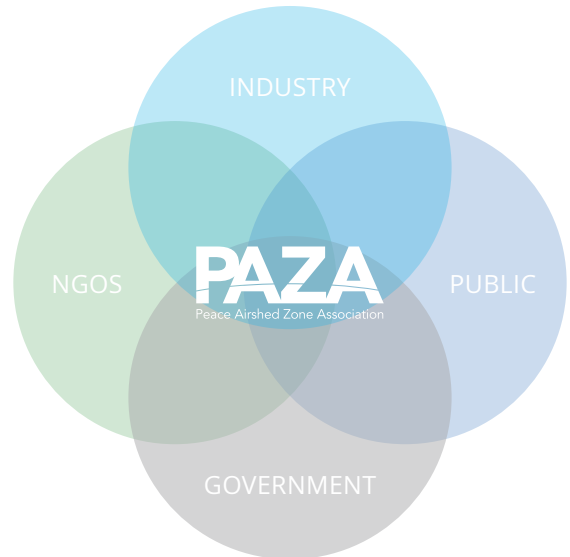
Sincerely

Bob Marshall, Chairman
PAZA Board of Directors

THE PEACE AIRSHED ZONE ASSOCIATION

The Peace Airshed Zone Association (PAZA) is a not for profit multi-stakeholder society that monitors ambient air quality in northwestern Alberta. PAZA's members collaborate to provide local solutions to local air quality concerns. As an independent third-party, PAZA has invested more than 10 years in 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 our community, to make informed decision regarding air quality in our region. This data is collected and publicly shared on the PAZA website. We also report to all stakeholders, government and reporting agencies so we can all work together to care for our air.



MEET OUR STAFF



ELIZABETH BELL
Executive Director

My name is Elizabeth Bell and I am the Executive Director for PAZA. I live in Sexsmith with my husband and three children. When I am not working on PAZA

business, I am busy working on continuing education courses or spending time with my family.

As a resident in the County of Grande Prairie for the past 18 years, I've always been concerned about issues that affect our quality of life. At first, I was skeptical about working with an organization that professed to be concerned about air quality, in a region booming with development. I'm happy to report that it wasn't long before I was convinced that the people, and the organizations they represent, really do care about quality of life, and how they influence that in our region. We all live and work here, and we all care about clean air for ourselves and our families.

My role focuses primarily on the business and outreach functions of PAZA's operations, and I am continually impressed and inspired by the commitment of our membership to ensuring that the work we do is a success and benefits everyone. As a consensus based organization, PAZA is committed to hearing every voice, making sure that we really are applying local solutions to local issues.



PATRICK ANDERSEN
Program Manager

My name is Patrick, and I am the Program Manager for PAZA. I am married and have 3 young children. The time I am not spending with my family

is occupied with my work with airsheds and training for endurance events. I graduated from the University of Calgary with a Bachelor's degree in Chemistry in 2006, having returned to school at the urging of my wife, after a career in the construction industry.

I became involved with the work airsheds do around the province shortly after graduation in 2006, taking on the data management and reporting role for the West Central Airshed. I expanded to other airsheds, currently providing the same service to 4 of the 9 airsheds in the province, including PAZA. My work as data manager for PAZA was the stepping stone to Program Manager in 2013, where I have served since.

I am a firm believer in the airshed model of air monitoring and feel that PAZA is the best solution for delivering high quality, independent and transparent data about the air in the region. This allows the population, government and industry to see hard facts about the air we breathe and make quality, informed decisions from there.



CORRIE PLANTE
Administrative Assistant

My name is Corrie Plante and I am the Administrative Assistant for PAZA. I have lived in Sexsmith for the past five years and love the Peace

region. My husband Nicolas and I enjoy spending time out in nature, and plan on taking full advantage of this year's early spring by camping, hiking, and exploring the great outdoors as soon as possible. I also have an avid interest in visual communications and design.

I was first introduced to PAZA by Elizabeth Bell. As I became involved, I realized that PAZA fosters an incredible level of cooperation between people from all different backgrounds and viewpoints. This support from all areas of government, industry, and the public clearly demonstrates the immense value of the work PAZA does. I am thrilled to be working for this organization, and know that my efforts are contributing to an important piece in the puzzle of environmental responsibility and sustainability in Alberta.



THE YEAR IN REVIEW

LOOKING INWARD:

2015 began with PAZA actively involved in numerous efforts already underway from the previous year. The PAZA network Monitoring Plan was completed and submitted for approval early in the New Year. Our Program Manager was busy working on providing input to the revised chapters of Alberta's Air Monitoring Directive.

Mid-year we welcomed a new Board Chair, as our previous Chair stepped down to focus more on family. We are grateful for all the hard work Sharon Nelson has put into PAZA, and look forward to continuing to work with her as a public member of our Board of Directors. The Board also revisited the internal structure of the organization and made changes to more accurately reflect our needs, and our future direction.

ROVER STATION MOVE

Our portable monitoring station (Rover) is a tool to provide information which can be used by our stakeholders to make informed decisions. In the Fall of 2015, PAZA moved the Rover station from the community of Clairmont to a site west of Rycroft. The process for site selection considers where data gaps exist, and concerns and requests from communities. For information on data collected from these sites, visit our website at www.paza.ca.

GP COMPOSITE HIGH STUDENTS STATION TOUR

Thank you to the Grande Prairie Composite High Grade 10 class 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 included a tour of the Henry Pirker Station.

NEVER STOP LEARNING Our Making It Clear fact sheet series, available online, provide 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 www.paza.ca for more information.

/ DID YOU KNOW...

- Air pollution affects insect populations and decreases crop and vegetation productivity. Everyone contributes to a healthy biodiversity by taking personal responsibility for environmental stewardship.

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. This year our focus was on the youth in our region. We know you are our future, and we want to see the region through your eyes. 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!

LOOKING OUTWARD: PROVINCIAL CHANGES

The Alberta Environmental Monitoring and Evaluation Agency (AEMERA) began to take shape in 2015 with the appointment of a CEO and Executive staff. PAZA immediately began work with AEMERA to encourage the ongoing collaboration and sustainability of the regional Airshed model.

PAZA continues to be actively involved 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. Through the ongoing work of the AAC, a Memorandum of Understanding was presented, to enhance collaboration with AEMERA. This proposal has been accepted and the two groups are working diligently to ensure the sustainability and mutual success of these organizations, and Airsheds, are achieved.

PAZA has also initiated conversations with municipalities in our region to respond to requests for air quality monitoring, and information relating to ambient air quality. We look forward to strengthening existing, and establishing new, relationships with all municipalities within our region.

/ DID YOU KNOW...

- Sustainable farming practices, including energy efficient equipment, can contribute to the reduction of air emissions and improved air quality.



OUR MANDATE

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.



PAZA AMBIENT AIR QUALITY MONITORING NETWORK

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'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 Canada-Wide Standards.
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.

PAZA BOUNDARY AND MONITORING STATIONS

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 instantaneous readings, while passive monitoring stations collect samples that are sent to a laboratory for analysis providing a monthly average.

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.

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 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. 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). All data reports are available for viewing on our website.

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 99% during 2015.

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.

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 DOES PAZA MONITOR?	
PASSIVELY MONITORED PARAMETERS	CONTINUOUSLY MONITORED PARAMETERS
Sulphur dioxide	Sulphur dioxide (SO2)
Nitrogen dioxide	Total reduced sulphur (TRS)
Ozone	Hydrogen sulphide (H2S)
Hydrogen sulphide	Oxides of nitrogen (NO2, NO & NOX)
METEOROLOGICAL PARAMETERS (That affect the transportation & dispersion of compounds)	Carbon monoxide (CO)
Wind speed & direction	Total hydrocarbons (THC)
Solar Radiation	Ozone (O3)
Outdoor Temperature	Fine particulate matter (PM2.5)
Relative Humidity	—

WHAT CAN WE LEARN FROM THE DATA?

HOW IS PAZA'S DATA USED?

- To learn what 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.

WHAT DID THE DATA TELL US IN 2015?

In 2015, there were five (5) 1-hour averages of hydrogen sulphide above the AAAQO of 10 ppb and one (1) 24-hr average above the AAAQO of 3 ppb.

There were fifteen (15) 1-hour averages of PM_{2.5} above the Alberta Ambient Air Quality Guideline (AAAQO) of 80 µg/m³.

Hydrogen Sulphide (H₂S)

On February 2nd and March 22nd one 1-hour (>3 ppb) readings were captured at the Valleyview station. No clear source was discovered at the time. On December 3rd three 1-hour events and a 24-hour event were captured. A failed seal at a nearby facility was determined to be the cause of the elevated levels.

Fine Particulate Matter (PM2.5)

Exceedances of the 1-hour PM2.5 guideline (80 µg/m3) were captured at Henry Pirkner (3 total), Evergreen Park (3 total), Smoky Heights (2 total), Beaverlodge (3 total) and Clairmont-Portable (4 total). Events in May (3 total) were regional in nature, and June/July events (6 total) occurred during forest fire activity. Three 1-hour events were captured in November and December, indicative of wood burning for heat. The remaining three events, occurring in March (2 total at Beaverlodge) and April (1 at Clairmont-Portable) were not clearly attributed at the time.

/ DID YOU KNOW...

- Air pollution affects both urban and rural populations.
- Vehicle exhaust, home and commercial heating are the largest contributors of air pollution in most regions.
- Automobile exhaust is a source of air emissions containing chemical compounds that can adversely affect our environment, human health and contribute to global warming. Cutting down on idling protects all of us, and also protects your vehicle's engine and exhaust system.

AQHI

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.

Continuous monitoring provides the ability to calculate an Air Quality Health Index. The AQHI is a tool designed to help Albertans understand what the air quality 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 measures air quality in your community and is reported on a scale from 1 to 10+ to indicate the level of risk associated with the local air quality. The lower the number means the lower the 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.

PAZA was proud to present the local AQHI, in collaboration with AEMERA, on local billboards for the months of December 2014 through March 2015.

HEALTH RISK	AIR QUALITY HEALTH INDEX	HEALTH MESSAGES	
		AT RISK POPULATION	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 also 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 CAN I DO?

LEARN

Be Proactive! Learn about air quality.
Visit www.paza.ca for more information.

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-the-minute air quality data, including AQHI, online.
- Request a presentation to be made to your school, organization or group.
- Attend our AGM to learn more about air quality monitoring and PAZA's activities.
- Stay connected on Twitter [@PAZA_Updates](#).

GET INVOLVED

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 project and garden organically.

Contact us for more information: 780.833.4343 or
1.866.764.2681



2015 BOARD OF DIRECTORS

EXECUTIVE

Bob Marshall, Chair

County of Grande Prairie

Leo Forseille, Vice-Chair

Penn West Petroleum

Sharon Nelson, Secretary/Treasurer

Public

BOARD OF DIRECTORS

Ashwin Din

Alberta Health Services

Bob Cameron

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Brian Lieverse

Encana Corporation

Denis Sauvageau

Friends of an Unpolluted Lifestyle

Greg Smith

Secure Energy Services

Ken Matthews

Big Lakes County

Kevin McLean/Chris Thiessen

City of Grande Prairie

Michael Krawetz

Canadian Natural Resources Limited

Michelle LaTrace

Weyerhaeuser Canada

Okey Obiajulu

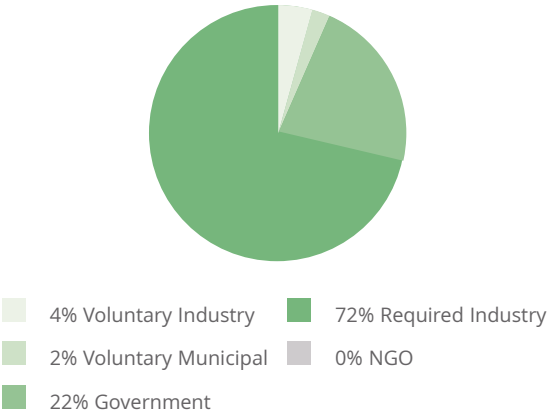
Alberta Environment and Sustainable
Resource Development

Photo Credit Abby Rawlings

2015 MEMBERSHIP

The Peace Airshed Zone Association (PAZA) thanks our members for their past and continued support in 2015. 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. Sincere thanks to all of our members who committed over 500 hours of volunteer time and resources, totaling over \$93,000 work of in-kind support. 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.

2015 FUNDING RECEIVED



MEMBERS

- 382565 AB Ltd. o/a Clairmont Gas & Groc.
- Advantage Oil & Gas Ltd.
- Ainsworth Lumber Co. Ltd.
- AltaGas Ltd.
- Apache Canada Ltd.
- Aquatera Utilities Inc.
- ARC Resources Ltd.
- ATCO Power Canada
- Baytex Energy Corp.
- Bernum Petroleum Ltd.
- Big Lakes County
- Birch Hills County (MD 19)
- Birchcliff Energy Ltd.
- Canadian Forest Products Ltd. (CANFOR)
- Canadian International Oil Corp.
- Canadian Natural Resources Ltd.
- Cequence Energy Ltd.
- ConocoPhillips Canada Resources
- County of Grande Prairie
- CQ Energy Canada Resources Partnership
- DeeThree Exploration Ltd.

MEMBERS

Delphi Energy Corporation

Devon Canada

Dirham Oil (2000) Inc.

Encana

Enerplus Resources Corporation

Exshaw Oil Corporation

Friends of an Unpolluted Lifestyle

Glencoe Resources Ltd.

Glenogle Energy Inc.

Grande Prairie Generation Inc.

Grizzly Resources Ltd.

Hanna Oil & Gas Company

High North Resources Ltd.

Inception Exploration Ltd.

Insignia Energy Ltd.

Kelt Exploration Ltd.

Legacy CEC Ltd.

Long Run Exploration

Marquee Energy Ltd.

Maxim Power Corporation

Modern Resources Inc.

Municipal District of Greenview

Municipal District of Smoky River

Municipal District of Spirit River No. 133

NuVista Energy Ltd.

Omers Energy Inc.

Pengrowth Energy Corporation

Penn West Petroleum Ltd.

Petrus Resources Ltd.

Predator Oil Ltd.

Progress Energy Ltd.

Response Energy

Saddle Hills County (MD 20)

Secure Energy Services

Shield Energy Ltd.

Spectra Energy Midstream

Spyglass Resources Corporation

Storm Resources Ltd.

Summerland Energy Inc.

Surge Energy Inc.

Taku Gas Ltd.

Tangle Creek Energy Ltd.

TAQA North

Tourmaline Oil Corporation

Town of Falher

Town of Sexsmith

Town of Valleyview

Trilogy Resources Ltd.

Veresen Midstream General Partnership

Weyerhaeuser Canada

XTO Energy Canada

WHERE THE WIND BLOWS...

Air is always in motion. It moves dynamically across the face of the earth interacting with the landscape.

In other words, emissions within the region disperse following the topography of the area. Air flows around the many hills, valleys, forests, and cities we inhabit. When the land provides a barrier to the flow, air is redirected. This can impact the air quality of an area by increasing the chemical concentrations trapped by topography. Understanding these dynamics is crucial in predicting dispersion patterns and siting emission sources.

TAKE A DEEP BREATH...

Got it? Now let it out.

You might not taste it, and you can't really see it, but it's all around us every second of every day, sustaining both our own lives and the ecosystem we all depend on.

Of course we're talking about AIR, which is something we do a lot of here at PAZA. We're also talking about community, collaboration, shared goals and protecting something we all care about.

We believe people in the Peace region deserve the best air quality data possible, and we bring diverse stakeholders together to make sure they get it.

/ DID YOU KNOW...

- A common air pollutant that harms human health is dust (we call it particulate matter). Particulate Matter (PM) is measured in the Air Quality Health Index (AQHI).
- Wind direction determines the path that air pollutants will take, while wind speed influences how quickly it disperses.



Photo Credit Sophia Rawlings

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