PASZA

Peace AirShed Zone Association

2002 Annual Report

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Cover Image Credit: “Lake Saskatoon” Isabel Campbell

1.0 Introduction

The Peace Airshed Zone Association (PASZA) is a multi-stakeholder non-profit organization consisting of industry, local government, environmental non-government organizations (ENGOs), Alberta Environment, Alberta Energy & Utilities Board, the local health authority, and members of the public. PASZA was formed in March 1999 in response to concerns over air quality in the Grande Prairie Region and because of the desire of Industry, Government, ENGOs and the Public to work together to better understand and address these concerns.

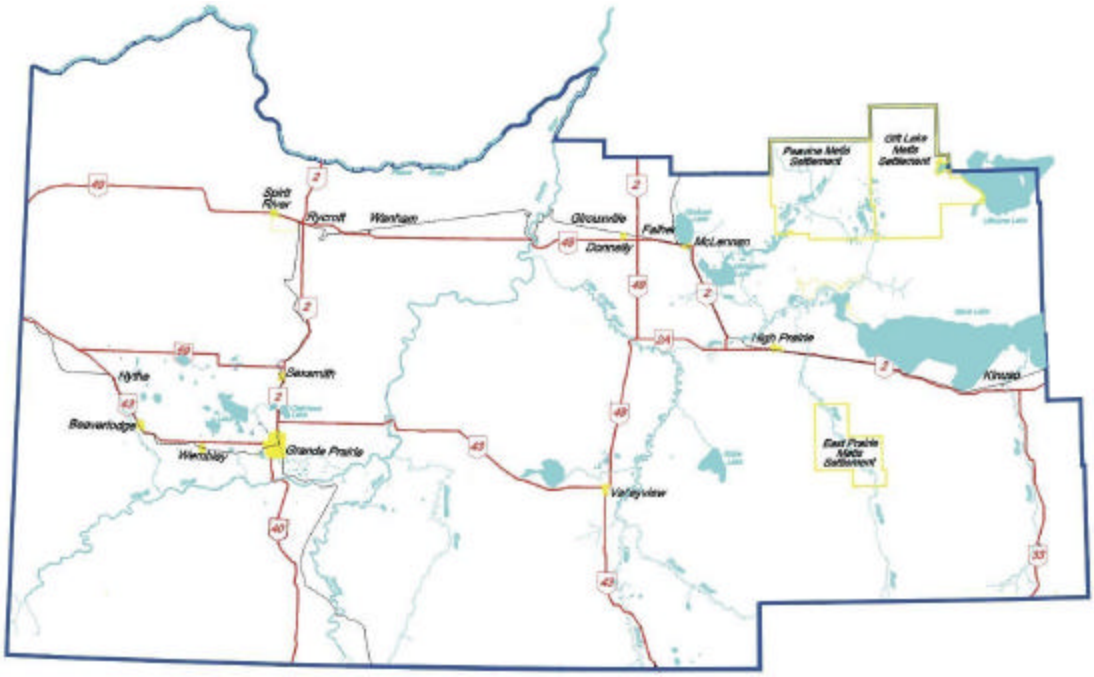
The PASZA Mission Statement is:

> *The Peace Air Shed Zone Association will create and implement a process that provides relevant, scientifically credible information to stakeholders who will use the information to ensure continuous improvement of regional air quality, protect environmental health, and influence policy.*

PASZA was the fifth airshed management zone formed in the province and is a non-profit organization incorporated under the Societies Act. PASZA operates under guidelines put forth in the Clean Air Strategic Alliance's (CASA) Zone Air Quality Management Guidelines, including management by consensus, representation from affected stakeholders and public accessibility to data and information from its monitoring activities. Air Quality Management Zones are a key component in CASA's strategy for the management of air quality within Alberta.

The Peace Airshed Zone covers a 38,500 square kilometer area of northwestern Alberta, stretching from the Peace River south to the top of Township 64 and includes the area's two major population centres, Grande Prairie and High Prairie (see Figure 1). Approximately 85,000 people live and work in this area. The zone's major industries are oil and gas processing, forestry, agriculture and tourism.

Funding of PASZA is proportioned fairly amongst its members at levels consistent with their relative impact on the zone's air quality as determined by annual emission inventories. In 2002, PASZA members' financial and in-kind contributions totaled approximately $150,000 and over 1500 hours respectively.



Map Of PASZA Zone

2.0 The Year In Review

PASZA began its second year of existence with a thorough review and update of its business plan and the finalization of the design of the passive monitoring component of its Regional Air Quality Monitoring Program. The review and plan were presented to PASZA's stakeholders at its First Annual General Meeting held on March 20, 2002 in Grande Prairie.

In May, PASZA began a membership drive to collect the funds needed for the establishment and operation of the Air Quality Monitoring Program. In June, the association formally hired its full-time program manager, Kevin Warren of Amarok Consulting and selected a contractor, Focus Intec, to establish and operate the Passive Monitoring Program.

In August a significant milestone was achieved when the Passive Monitoring component of the PASZA Regional Air Quality Monitoring Program was commissioned. The program is explained in greater detail later in this report.

In September, PASZA launched an application to CASA for formal endorsement as an Airshed Zone. The process is currently underway with endorsement expected in early 2003.

In November the Asociation's website www.pasza.ca went online with a new logo that was inspired by the winning entry chosen from a contest of local area children.

Plans for 2003 include the establishment of a storefront office in the City of Grande Prairie and the startup of the Continuous Monitoring Component of the Regional Air Quality Monitoring Program.

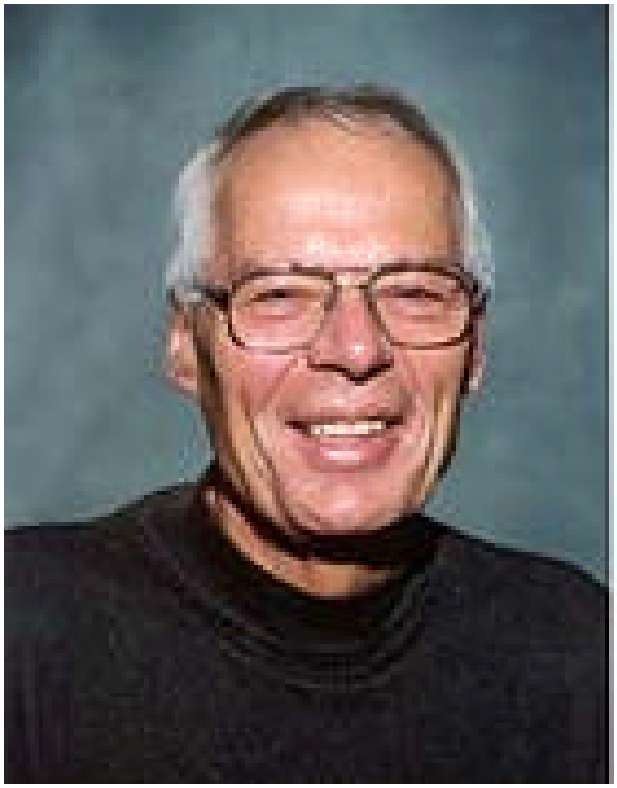
3.0 Report from the Chair

My first year as Chairman of the PASZA Board of Directors was a rewarding one. I am thankful for the work of all the committees and the help, support and encouragement that I have received from other PASZA members.

For me, the year's highlight was the startup of our 48–Station Passive Monitoring Network in August. Data collected from this program is now being compiled and reported to the public on a regular basis through our new website. Data from the network and the continuous monitoring program scheduled for startup in 2003, will provide our stakeholders with the information needed to fulfill our association's mission statement, namely ensuring the continuous improvement of regional air quality, protection of environmental health, and influencing policy.

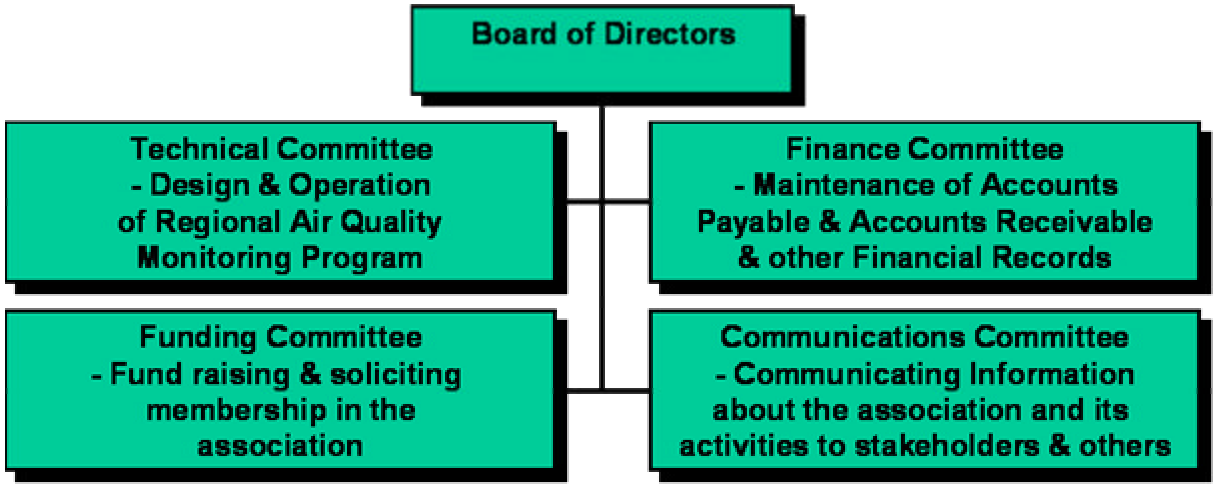
The existence of PASZA is only possible through the financial and in-kind support of companies, municipalities and other stakeholders and I wish to acknowledge their significant contributions. Since our earliest beginnings in 1999, our progress has required a great deal of effort, patience and dedication from a large number of individuals, some of whom have moved onto other endeavors, but we are now seeing the results of those efforts. I look forward to what the future will bring.

Richard Harpe
Chairperson



PASZA Chairperson - Richard Harpe

4.0 Organization



5.0 PASZA Regional Air Quality Monitoring Program

The first step in the process of developing, implementing and evaluating strategies to address the zone's air quality issues is the collection of data by a comprehensive Regional Air Quality Monitoring (AQM) Program in order to better understand the air quality within the zone's boundaries. Informed decision-making concerning air quality issues requires information that has been derived from data that are complete, comprehensive and scientifically credible.
The Passive Monitoring component of the PASZA AQM Program was established in 2002. Data collected by this 48-Station Network is providing information that is being used in the design of the other components of the program, especially siting. It is recognized that a passive monitoring network alone cannot provide the data needed to address the issues of the region's stakeholders. A continuous monitoring network capable of monitoring a broader range of parameters associated with both natural and anthropogenic sources including particulate matter is also required.

The design of the continuous monitoring component of the program began in the fall of 2002 with its startup scheduled in 2003. The design is the consensus of six months of work by the multi-stakeholder PASZA Technical Committee. In designing the Passive AQM Program, the committee reviewed the Alberta Ambient Air Quality Monitoring System (AAAQMS) and other zonal monitoring programs within Alberta, and adopted elements of those programs it felt could best serve the PASZA stakeholders' needs in a cost-effective manner.

The PASZA AQM Program uses passive monitors as a cost-effective method of collecting air quality data throughout the large geographic area that comprises the zone. The resulting database is suitable for; (1) assessing the spatial variation of the monitored parameters throughout the zone, (2) qualifying this data in relation to Alberta's air quality guidelines, and (3) identifying long term air quality trends, a typical approach in making regional-scale air quality assessments. The advantages of the passive sampling devices are their simple design, low cost and ease of use. No power is required to operate them, making them suitable for remote use; the only major restriction in locating samplers is the ability to access the sampler. The disadvantage of passive sampling devices is that typically the samples are collected over a one-month time period and short-duration events are averaged out.

Passive sampling devices rely on the principles of permeation and diffusion to physically uptake the specific compound being sampled. Air pollutants diffuse through a semi-permeable membrane and collect on a filter that has been chemically treated to absorb the parameter of interest. After being exposed in the field for approximately one month, the sampler is analyzed in a laboratory for the amount of the parameter collected. Using this value, an average concentration is calculated based on the duration of exposure and accounting for the effects of temperature, humidity, and wind speed.

The three parameters currently monitored by the

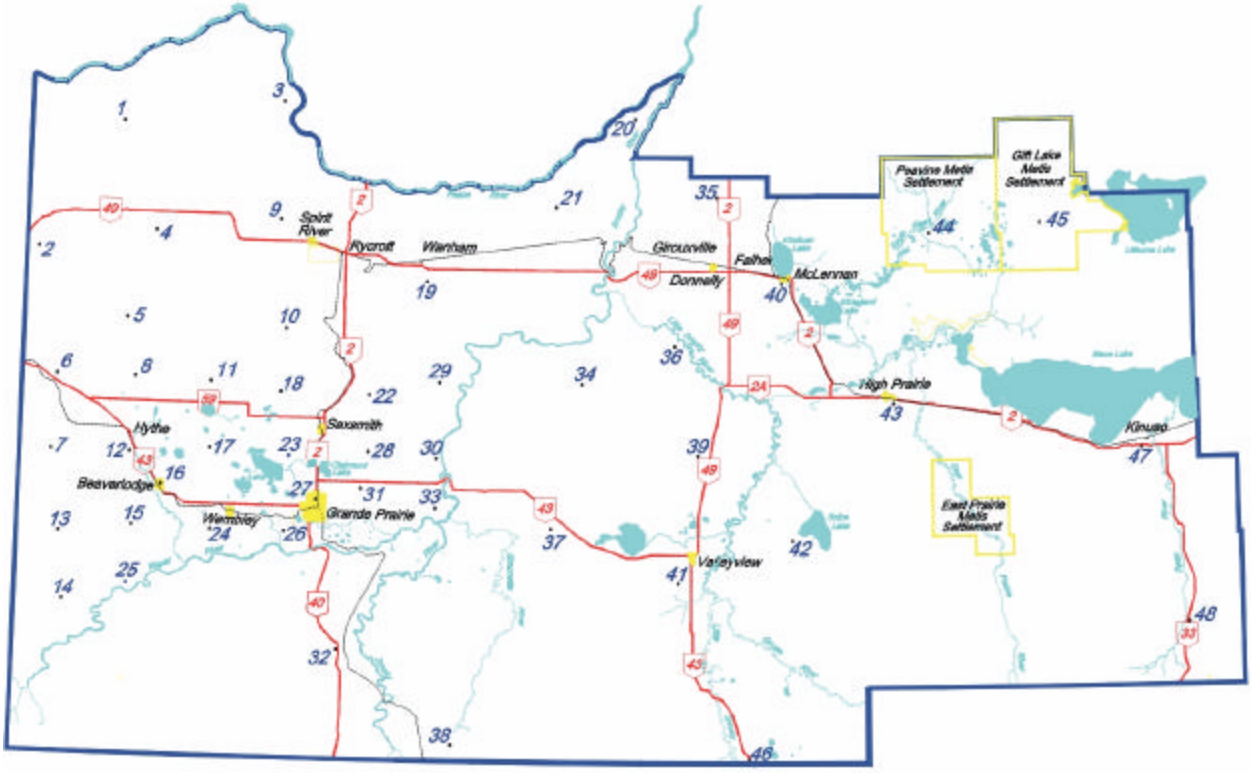
5.0 PASZA Regional Air Quality Monitoring Program

PASZA Passive AQM Program include Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), and Ozone (O_3). These parameters are all associated with the priority air quality concerns of the zone's stakeholders and are also consistent with those being monitored passively within other Alberta Airsheds.

The 48 passive monitoring stations are located throughout the zone generally on a 2 X 2 township grid (19 X 19 km) within the County of Grande Prairie and on a 3 X 3 township grid (29 X 29 km) throughout the rest of the zone except where limited by access (see map below).

For this report, bubble maps have been used to geographically present a summary of the results of the passive sampling conducted from August through December 2002. The diameter of each bubble is proportional to the average concentration of that pollutant observed at a station for a given time period. Many more months of data will be required before a thorough assessment of the results, including seasonal trends can be undertaken by the PASZA Technical Committee. However, some early trends have emerged and these are discussed on the following pages.

A PASZA Passive Monitoring Station

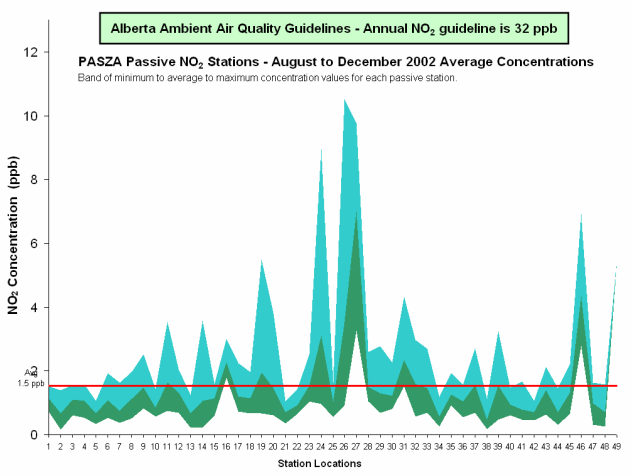


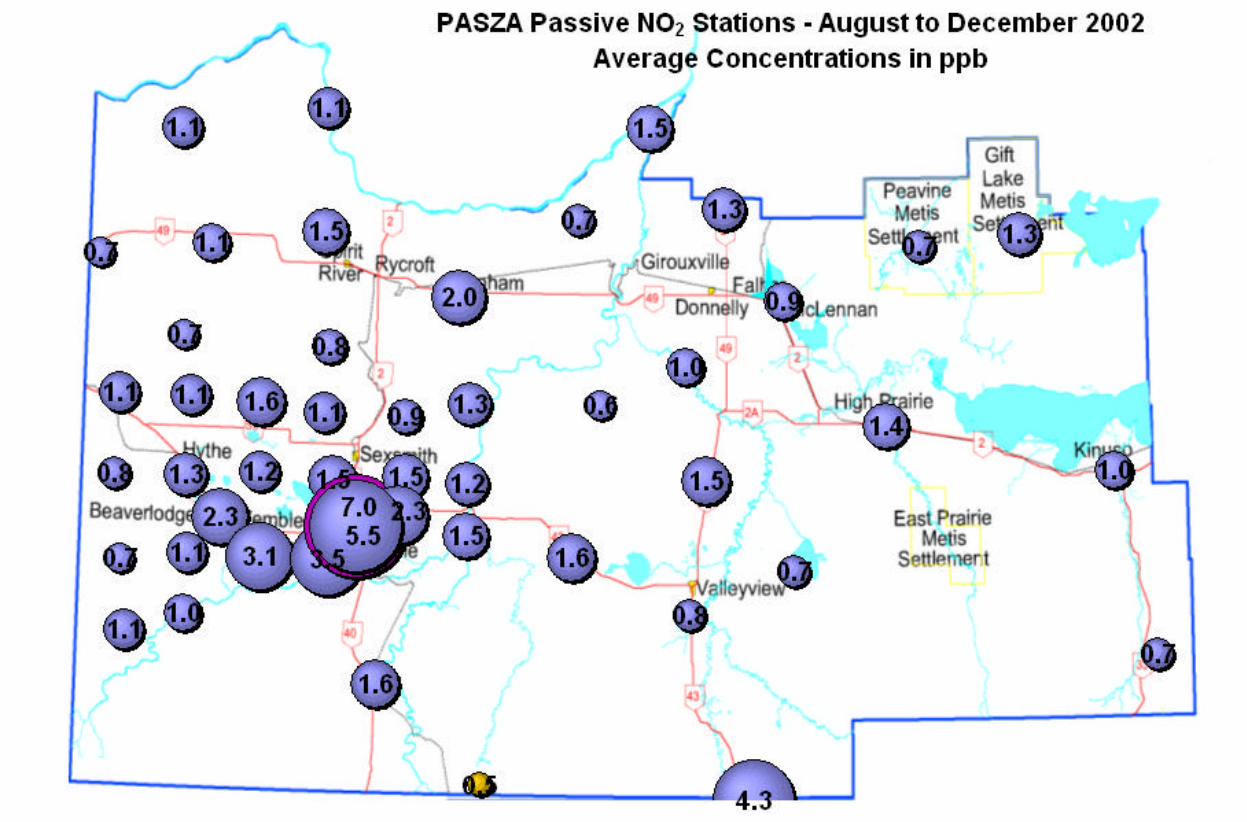
Location of the PASZA Passive Monitoring Stations for 2002

5.1 Nitrogen Dioxide

The average Nitrogen Dioxide (NO_2) concentration for the entire passive monitoring network during the last five months of 2002 was 1.5 parts per billion (ppb). This level is significantly below the Alberta Air Quality Annual Average Guideline of 32 ppb which is based on the prevention of human health effects.

In general, NO_2 levels were higher in or around larger population centers and near major highways. This trend was expected and is consistent with the effect of NO_X emissions from motor vehicle traffic. Site 27 (Grande Prairie Industrial) had the highest average concentration, measuring 7.0 ppb. The site with the lowest average concentration was Site 38 (Karr Creek) measuring 0.5 ppb. This site is located along the zone's southern boundary in a location far away from any major population centre or highway.

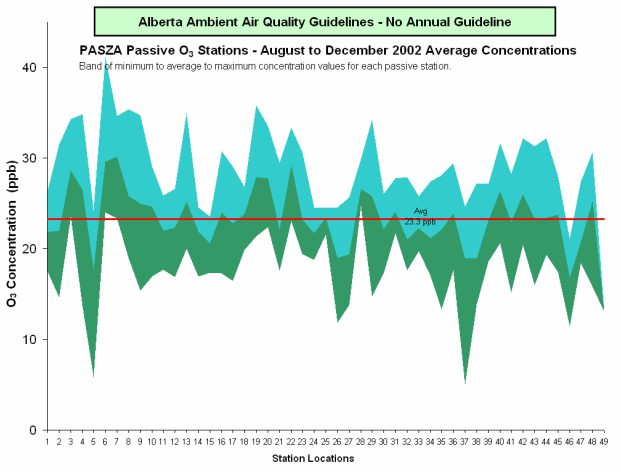


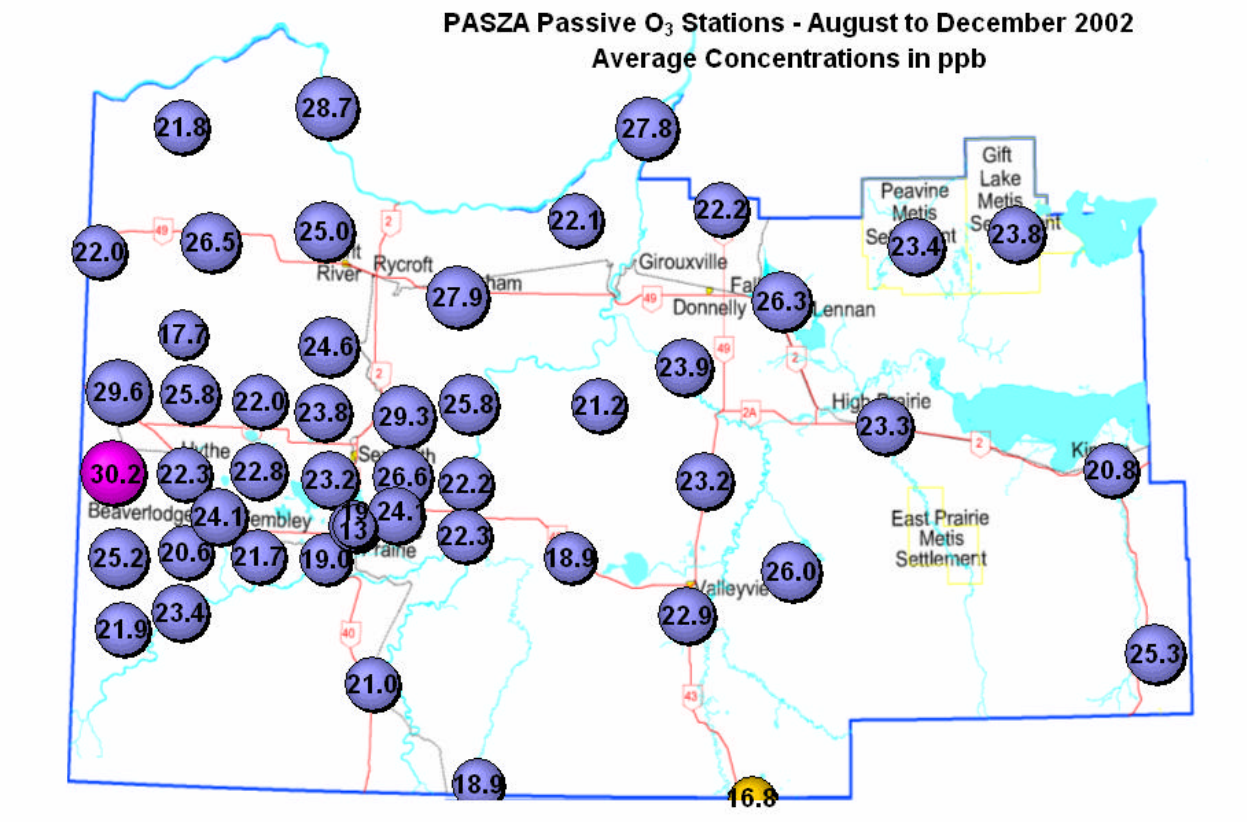


5.2 Ozone

The average Ozone (O_3) concentration for the entire passive monitoring network during the last five months of 2002 was 23.3 ppb. There is no Alberta Air Quality Annual Average Guideline for Ozone. There is currently only an hourly average guideline (82 ppb) and it is based on the prevention of adverse effects to human health and vegetation.

In general, O_3 levels were relatively homogenous throughout the rural areas of the zone and significantly lower in or around larger population centers and near major highways. The lower levels at these sites are consistent with the reaction of ozone with NO_X emissions from motor vehicle traffic. Site 7 (Steeprock Creek) had the highest average concentration, measuring 30.2 ppb. This site is located close to the zone's western boundary and upwind of most of the region's emission sources that could contribute to any anthropogenic ozone formation. The site with the lowest average concentration was Site 46 (Little Smoky) measuring 0.5 ppb. This site is located along the zone's southeastern boundary in a location in the vicinity of a major highway, Highway 43. The average concentration for Site 49 (Grande Prairie Residential) was based on only one month of data (December) and was not considered.

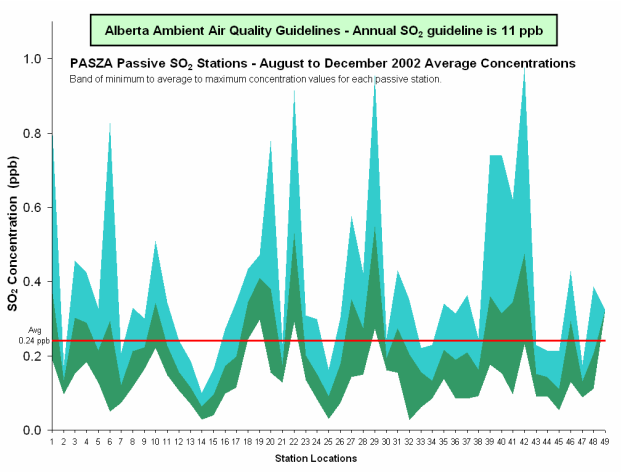


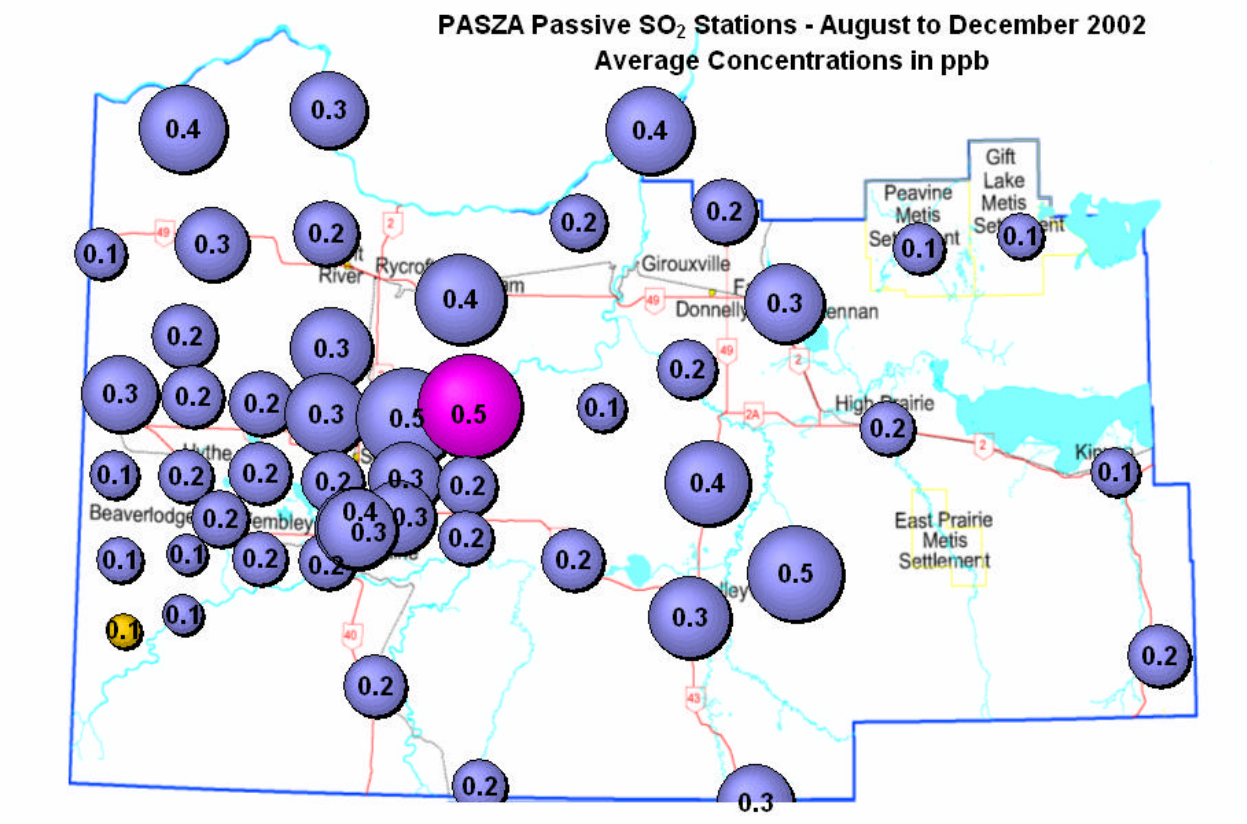


5.3 Sulphur Dioxide

The average Sulphur Dioxide (SO_2) concentration for the entire passive monitoring network during the last five months of 2002 was 0.2 ppb. This level is significantly below the Alberta Air Quality Annual Average Guideline of 11 ppb which is based on the prevention of effects to vegetation.

In general, SO_2 levels were higher in or near areas with sour gas or pulp and paper production facilities as was the case for Site 29 (Smoky Heights) which had the highest average concentration for the period, measuring 0.55 ppb. This trend was expected and is consistent with that observed in other Alberta Airsheds. The site with the lowest average concentration was Site 14 (Sylvester) measuring 0.1 ppb. This site is located close to the zone's southwestern boundary in a location upwind of sour gas or pulp and paper production facilities.





6.0 Financial Report

Peace Airshed Zone Association
Financial Report* for the Year Ended December 31, 2002

		2002	2001
Revenue:	Contributions	$ 150,064	$ 15,200
	Interest Income	4	3
		150,068	15,203
Expenses:			
	Monitoring Contracts	83,870	-
	Monitoring Equipment	22,581	-
	Program Management	27,270	11,447
	Website Construction	13,824	-
	Office	2,921	3,018
	Professional Fees	1,498	1,200
	Advertising	-	667
	Facility Rental	-	153
	Honoraria and Travel	-	4,231
		151,964	20,716
Excess (Deficiency) of Revenues over Expens		(1,896)	(5,513)
Unrestricted Net Assets, beginning of year		1,643	7,156
Unrestricted Net Assets (Deficit), end of ye		$ (253)	$ 1,643
	ASSETS		
CURRENT			
Cash		$ 41,972	$ 2,212
Accounts receivable		-	1,000
		$ 41,972	$ 3,212
	LIABILITIES		
CURRENT			
Accounts payable and accrued liabilities		$ 42,225	$ 1,569
	MEMBER EQUITY		
NET ASSETS			
Unrestricted net assets		(253)	1,643
		$ 41,972	$ 3,212

* A copy of the audited financial report is available from the PASZA Treasurer upon request.

7.0 Membership

7.1 Board of Directors

Richard Harpe	County of Grande Prairie	Government	Chair
Jim Meagher	Mistahia Health Authority	Government	Vice-Chair
Bob Savage	Alberta Energy & Utilities Board	Government	
Rod Burr	Alberta Environment	Government	
Uli Wolf	City of Grande Prairie	Government	
Mike Weeks	Saddle Hills Awareness Comm.	NGO	Vice-Chair
Henry Pirker	South Peace Environmental Assn.	NGO	
Doug Bagget	Ainsworth Lumber Company	Industry	
Lori Pollock	Talisman Energy	Industry	Treasurer
Garth Gress	Suncor Energy Ltd.	Industry	
Milton Hommy		Public	
Teresa Von Tiesenhausen		Public	Secretary
Leon Pendleton		Public	

7.2 Technical Committee

Doug Bagget	Ainsworth Lumber Company	Industry
Rod Burr	Alberta Environment	Government
Bob Savage	Alberta Energy & Utilities Board	Government
Gerald Feschuk	Devon Canada Corporation	Industry
Kreg Alde	Alberta Environment	Government
Marta Villamil	BP Canada Corporation	Industry
Shelly Pruden	Alberta Energy & Utilities Board	Government

7.3 Communications Committee

Jim Meagher	Mistahia Health Authority	Government
Teresa Von Tiesenhausen		Public
Leon Pendleton		Public

7.4 Financial Committee

Lori Pollock	Talisman Energy	Industry
Garth Gress	Suncor Energy Ltd.	Industry
Gerald Feschuk	Devon Canada Corporation	Industry

7.5 Funding Members

Ainsworth Lumber Company Ltd.	**ConocoPhillips Canada Energy**	**MD Of Spirit River #133**
Anadarko Canada Corporation	**County Of Grande Prairie #1**	**Northrock Resources Ltd.**
ARC Resources Ltd	**Devon Canada Corporation**	**Saddle Hills County**
ATCO Power	**Elk Point Resources Inc**	**Shiningbank Energy Ltd.**
Birch Hills County	**EnCana Corporation**	**Star Oil & Gas Ltd**
Bonavista Petroleum Ltd.	**EnerMark Inc**	**Sterling Pulp Chemicals**
BP Canada Energy Co.	**Fortune Energy Inc.**	**Suncor Energy**
Burlington Resources Canada	**Hunt Oil Company of Canada Inc.**	**Talisman Energy Canada**
Capture Resources Corp	**Imperial Oil**	**TOLKO Industries Ltd.**
CASA	**MD Of Big Lakes**	**Town of Beaverlodge**
Chevron Canada Resources	**MD Of Greenview #16**	**Westbow Energy Inc**
City of Grande Prairie	**MD Of Smokey River #130**	**Weyerhaeuser**

Acknowledgements

The Peace Airshed Zone Association would like to acknowledge the hard work and contributions of all stakeholders of the association. With a lot of hard work, we have made significant strides in 2002 towards achieving our vision. Our member companies and municipalities have continued to provide experience and financial stability to PASZA. Members from the public, health, environment, and municipal sectors have contributed to ensuring accountability, sustainability, and transparency of the association.

Amarok Consulting has continued to provide leadership in the technical management of the air quality monitoring program and many other areas as well. The Focus Corporation has provided exemplary service to PASZA in the administrative management of the program, and in establishing, operating and maintaining the passive monitoring network.

Special thanks are also due to past members of the association who made significant contributions of their time and spirit and have been valuable resources for PASZA during its formative years.

Glossary

Nitrogen Dioxide (NO_2): A reddish-brown gas , nitrogen dioxide is the most abundant of the oxides of nitrogen (NO_X) found in the atmosphere. Nitrogen oxides are typically created during combustion processes when nitrogen combines with oxygen. Other sources are the natural degradation of vegetation and the use of chemical fertilizers. NO_2 is a major contributor to smog formation and acid deposition and at higher concentrations is associated with numerous adverse health effects.

Ozone (O_3): A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy and ozone precursors, such as hydrocarbons and oxides of nitrogen. Ozone exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). Ozone in the troposphere is associated with numerous adverse health effects. It is a major component of smog.

Sulphur Dioxide (SO_2): A strong smelling, colorless gas that is formed by the combustion of fossil fuels. Sour gas processing plants, oil sands processing plants and coal-fired power generating plants are major sources of SO_2. SO_2 and other sulfur oxides contribute to the problem of acid deposition.

ppb: parts per billion by volume

ppm: parts per million by volume