



Southeast Saskatchewan
Airshed Association

2007 ANNUAL REPORT



SOUTHEAST SASKATCHEWAN
AIRSHED ASSOCIATION

Prepared by:

Dr. Imran Maqsood, P.Eng.
Senior Air Quality Scientist
Environmental Protection Branch
Saskatchewan Ministry of Environment
4th Floor, 3211 Albert Street
Regina, Saskatchewan, Canada S4S 5W6

For more information, please contact:

Bob Scotten
Executive Director
The Southeast Saskatchewan Airshed Association
Phone: (780) 446-3277
E-mail: bob.scotten@shaw.ca

TABLE OF CONTENTS

MESSAGE FROM THE CHAIRPERSON	1
EXECUTIVE SUMMARY	2
INTRODUCTION	3
AIR QUALITY MONITORING	3
Sulphur Dioxide	6
Nitrogen Dioxide	9
Ozone	12
FINANCIAL REPORT	15
APPENDIX A AIR MONITORING DATA	17
APPENDIX B COMPLETENESS OF MONITORING DATA	18
APPENDIX C METEOROLOGY	19
APPENDIX D SESAA BOARD OF DIRECTORS	20
APPENDIX E SESAA MEMBERSHIP	22

MESSAGE FROM THE CHAIRPERSON



Southeast Saskatchewan is a vibrant region of Saskatchewan. The region has a large agriculture industry, an extensive oil and gas industry, potash mines, coal mining, electrical generation and supports a major transportation route to the United States.

For a number of years, people in the region have expressed concerns about air quality. These concerns include seemingly higher asthma and cancer rates. It has long been evident that in order to understand how air quality might affect the health of the population we need to implement an effective air quality monitoring program.

The Airshed approach was determined to be the best way to implement and manage a credible regional program. Saskatchewan Ministry of Environment supported by Saskatchewan Ministries of Energy & Resources, Health, and Agriculture have spearheaded the development of the first Airshed in Saskatchewan. The program is voluntary and to date has been supported by industry from all sectors.

We are pleased to be the first Airshed established in Saskatchewan and look forward to providing air quality information as a basic tool in managing our air quality.

MARIAN WILSON

EXECUTIVE SUMMARY

The Southeast Saskatchewan Airshed Association (SESAA), established in October 2005, is Saskatchewan's first airshed association with a mandate to monitor ambient air quality in southeast region of the Province. SESAA is a collaborative group of industry, government, non-government organizations, and private citizens. The airshed covers an area of 36,800 square kilometres and includes 45 municipalities. Major economic activities in the region are agriculture, oil & gas, mining, power generation, and transportation.

This 2007 Annual Report is the SESAA's second annual report. Passive monitoring data was collected at 28 locations for every 60-day period from January to December 2007. Nitrogen dioxide (NO₂) and sulphur dioxide (SO₂) were monitored at all 28 sites, while ozone (O₃) was monitored at 12 selected sites. Data capture rate for the entire passive network was 98%, whereas the individual capture rates for SO₂, NO₂, and O₃ were 97.5%, 98%, and 98.8%, respectively.

Average concentrations of SO₂, NO₂, and O₃ for the entire network were 1.6, 1.4, and 36 ppb, respectively. Similarly, maximum concentrations of SO₂, NO₂, and O₃ for the entire network were 5.3, 4.7, and 71 ppb, respectively. All measured SO₂ and NO₂ concentrations were well below the Saskatchewan annual ambient air quality standards, and O₃ concentrations were within the normal and above normal range. In overall, there were no air quality issues with the passive monitoring program in 2007. The SESAA plans to initiate a continuous air monitoring program in 2008 to complement the existing passive monitoring program.

INTRODUCTION



The Southeast Saskatchewan Airshed Association (SESAA) was established in October 2005 to manage ambient air quality in southeast Saskatchewan. The SESAA is a consortium of government, industry, non-government organizations, and private citizen stakeholders. The SESAA goal is to collect credible, scientifically defensible air quality data for the southeast region of Saskatchewan, and to make this data freely available to all stakeholders. The SESAA objective is to bring together stakeholders from all backgrounds to identify local air quality issues and to develop innovative solutions for managing these issues.

The southeast Saskatchewan airshed is Saskatchewan's first airshed. It covers an area of 36,800 square kilometers, including 45 municipalities. The airshed boundaries were established based on common history, meteorology, and funding considerations. Major economic activities in the region include agriculture, oil and gas, mining, power generation, and transportation. Development of other airsheds in the province is being planned.

Membership in the SESAA is currently voluntary. Current membership includes members of the agriculture, oil & gas, mining and power generation sectors, as well as the public. The Government of Saskatchewan's Ministries Environment, Energy & Resources, and Health also participate as members of the board of directors. The SESAA's operating budget consists of membership fees and emissions-based fees assessed to facilities operating within the airshed boundaries (Figure 1).

AIR QUALITY MONITORING

One of the SESAA's mandates is to collect scientifically credible regional air quality data, and to convey this information in a meaningful way to the public and stakeholders. To fulfill the first part of this mandate, SESAA has developed a comprehensive air quality monitoring program. The program was initiated in June 2006 with monthly passive monitoring, and followed up in 2007 with bi-monthly (every 60 day) passive monitoring due to financial constraints.

The passive monitoring program was run at 28 locations in southeast Saskatchewan. The Maxxam Analytics PASS samplers were deployed to collect 60-day sulphur dioxide (SO₂), nitrogen dioxide (NO₂) and ozone (O₃) samples at selected stations. Locations of passive monitoring sites are shown in Figure 2. Symbols with pink, blue, and yellow circles () indicate sites where SO₂, NO₂, and O₃ were monitored. Symbols with blue and yellow circles only () indicate sites where SO₂ and NO₂ were monitored. SO₂ and NO₂ were monitored at all 28 sites, while O₃ was monitored at 12 sites.

In addition to the monthly samples, a field blank and one replicate for each of the monitored substances was collected every 60 days. The field blank detects filter contamination introduced during sample collection/deployment and laboratory processes. Replicate samples are used to quantify variability in sampling and analytical procedures.

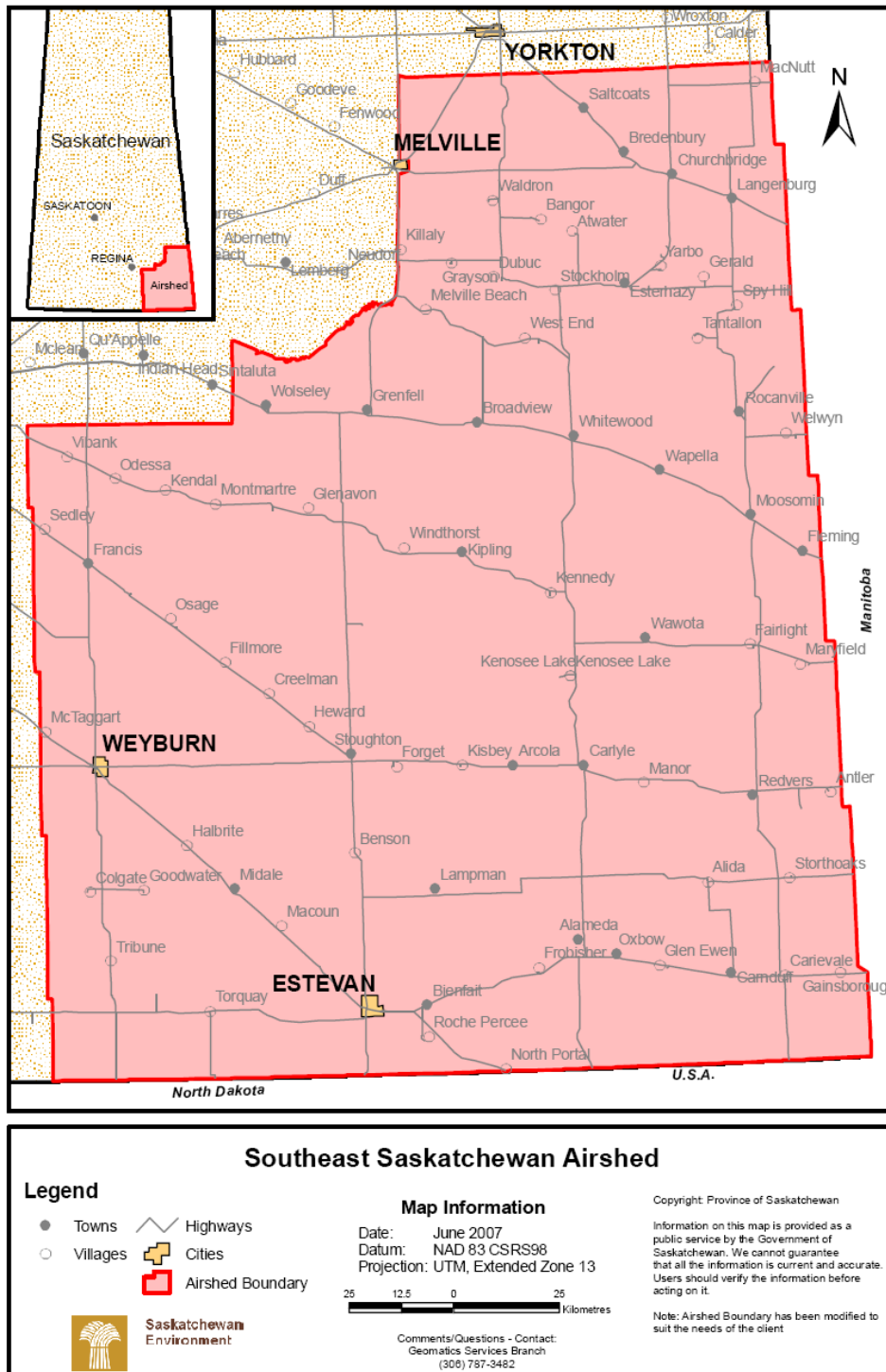


Figure 1: Boundary of Southeast Saskatchewan Airshed

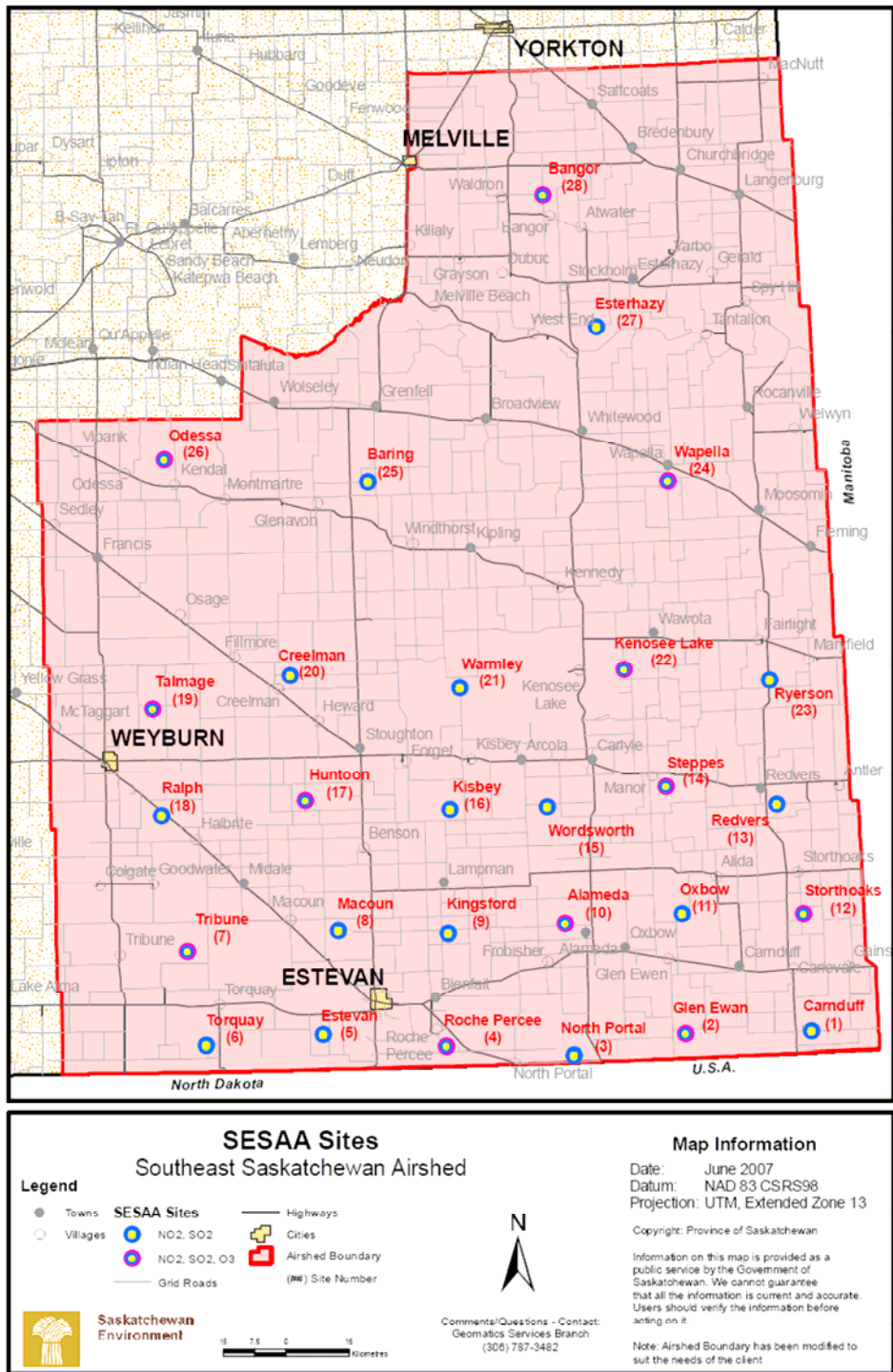


Figure 2: Passive monitoring network of Southeast Saskatchewan Airshed

Sulphur Dioxide

Sulphur dioxide (SO₂) is a colourless gas with a strong suffocating odour. It smells like burnt matches. At concentrations above 300 ppb, it can be detected by taste and odour.

Health effects caused by exposure to high levels of SO₂ include breathing problems, respiratory illness, changes in the lung's defences, and worsening respiratory and cardiovascular disease. People with asthma or chronic lung or heart disease are the most sensitive to SO₂. It also damages trees and crops. SO₂, along with nitrogen oxides, are the main precursors of acid rain. This contributes to the acidification of lakes and streams, accelerated corrosion of buildings, and reduced visibility. SO₂ also causes formation of microscopic acid aerosols, which have serious health implications as well as contributing to climate change.

SO₂ emissions come from the burning of sulphur containing fuels (e.g. gasoline, natural gas and coal) and the processing of sulphur containing ores. SO₂ atmospheric contributions come from industrial sources such as power plants, petroleum refineries, iron and steel mills, fertilizer plants, pulp and paper mills, and smelters. Other sources include smaller oil and gas plants, battery and well flares. Moreover, small sources include residential, commercial and industrial space heating.

Saskatchewan ambient air quality standards for sulphur dioxide are:

- 0.17 ppm (172 ppb) averaged over a 1-hour period;
- 0.06 ppm (57 ppb) averaged over a 24-hour period;
- 0.01 ppm (11 ppb) as an annual arithmetic mean.

In 2007, the passive monitoring data indicates the average and maximum SO₂ concentrations of the entire network were 1.6 and 5.3 ppb, respectively. These concentrations are well below the Saskatchewan annual ambient standard for SO₂ (11 ppb).

Figure 3 shows average and maximum concentrations of SO₂ by town for the year 2006. Kenosee Lake (Station 22) is the location where maximum SO₂ concentration was observed, measuring 5.3 ppb. The stations with higher average concentrations were Roche Percee (Station 4), Kingsford (Station 9), Oxbow (Station 11), Ralph (Station 18), and Kenosee Lake (Station 22). In comparison, the lowest average (0.8 ppb) was observed at Bangor (Station 28). In general, higher concentrations were found in the southern and central parts of the airshed where more industrial activities exist such as coal-fired power plants and upstream oil & gas industry. In contrast, lower concentrations were observed in the northern part of the airshed where no major sources of SO₂ exist.

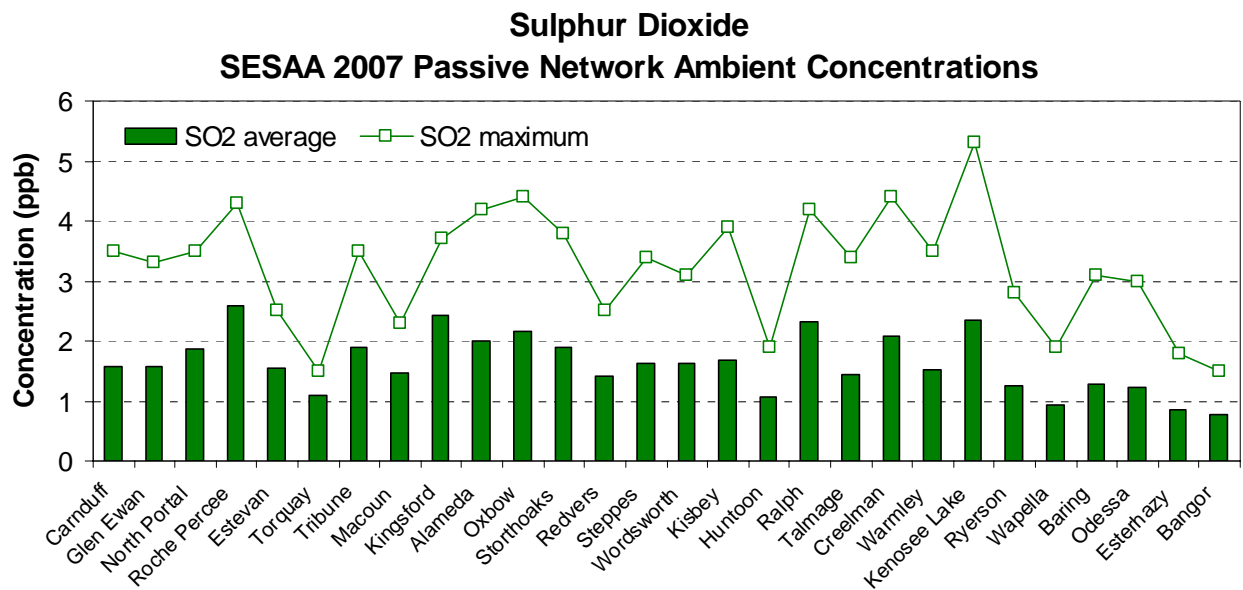


Figure 3: Sulphur dioxide ambient concentrations by town in 2007

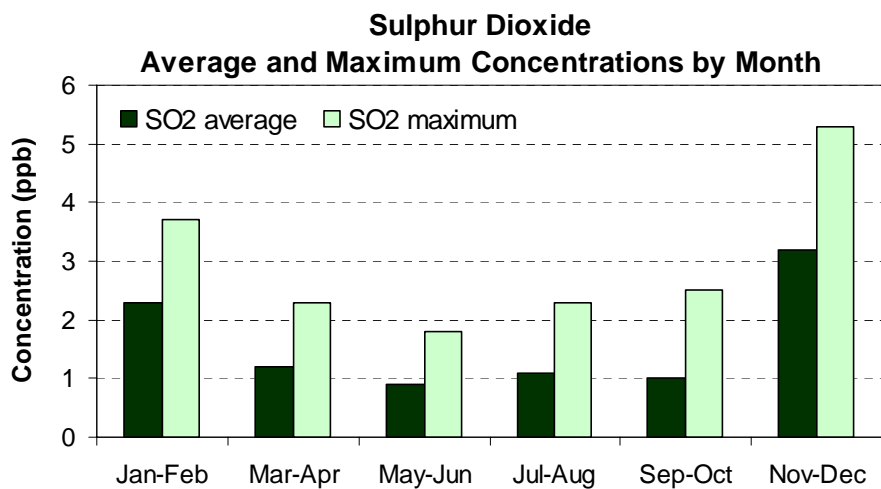


Figure 4: Sulphur dioxide ambient concentrations by month in 2007

Figure 4 shows temporal variations in SO_2 concentrations for the entire network. The average monthly concentrations varied from 0.9 ppb in May-June to 3.2 ppb in November-December. The highest maximum concentration was also observed for the month of November-December (5.3 ppb).

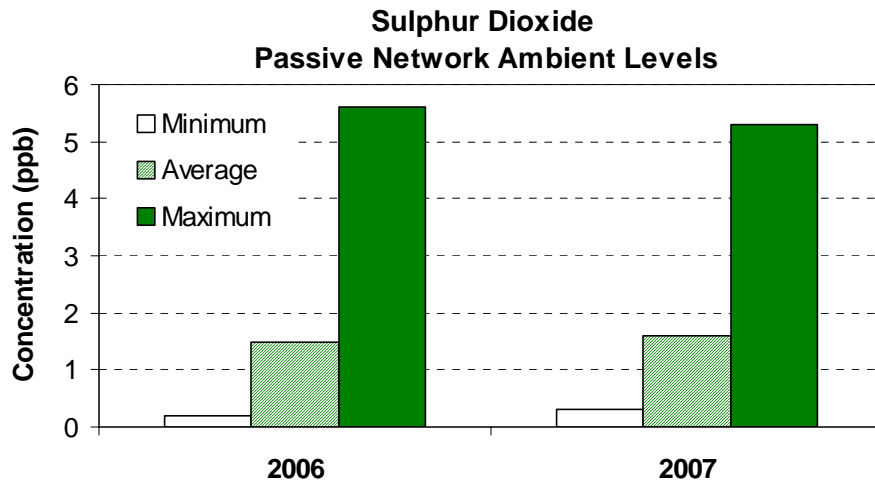


Figure 5 Comparison of yearly SO₂ concentrations

Figure 5 shows yearly comparison of SO₂ levels for the entire airshed. The minimum and average concentrations for 2006 and 2007 years remained almost the same, while a slight decrease of 5% (from 5.6 ppb in 2006 to 5.3 ppb in 2007) was observed for the maximum concentrations.

Nitrogen Oxides

Nitrogen oxides, also known as Oxides of Nitrogen (NO_x), is a collective term used to refer to two species of nitrogen: nitric oxide (NO) and nitrogen dioxide (NO₂). Nitric oxide is a colorless, flammable gas with a slight odour. Nitrogen dioxide is a reddish brown, non-flammable gas with a pungent irritating odour. NO₂ is of more interest than NO from both a health and acid rain perspective. While NO₂ is soluble in water, it is less soluble than SO₂. NO₂ can be detected at concentrations as low as 106 ppb.

NO_x can cause respiratory disease, damage vegetation and reduce visibility. The primary concern with NO_x emissions is their contribution to formation of ground-level ozone, smog and acid rain. To lesser extent, some NO_x compounds contribute to stratospheric ozone layer depletion and global warming.

NO_x emissions are produced mainly due to fossil fuel combustion. High temperature conditions during combustion result in the formation of NO_x as a byproduct. NO_x atmospheric contributions come from both stationary sources, such as power plants, oil & gas industries, incinerators, as well as mobile sources such as automobiles. Other atmospheric contributions come from non-combustion processes, for example, nitric acid manufacture, welding processes and the use of explosives. The largest urban source of NO_x is emissions from motor vehicles.

Saskatchewan ambient air quality standards for nitrogen dioxide are:

- 0.2 ppm (212 ppb) averaged over a 1-hour period;
- 0.05 ppm (53 ppb) as an annual arithmetic mean.

In 2007, the average and maximum NO₂ concentrations of the entire network were 1.4 and 4.7 ppb, respectively, which are well below the Saskatchewan annual ambient standard of NO₂.

Figure 6 shows average and maximum concentrations of NO₂ for the year 2007. The stations with higher NO₂ concentrations were North Portal (Station 3), Roche Percee (Station 4), Kisbey (Station 16), and Ralph (Station 18). In contrast, the stations with lower NO₂ were Kingsford (Station 9), Huntoon (Station 17), and Warmley (Station 21). In general, higher concentrations were found in the southern part of the airshed where more industrial activities occur (such as coal-fired power plants and upstream oil & gas industry). Lower concentrations were observed in the northern part of the airshed where no major sources of NO_x exist.

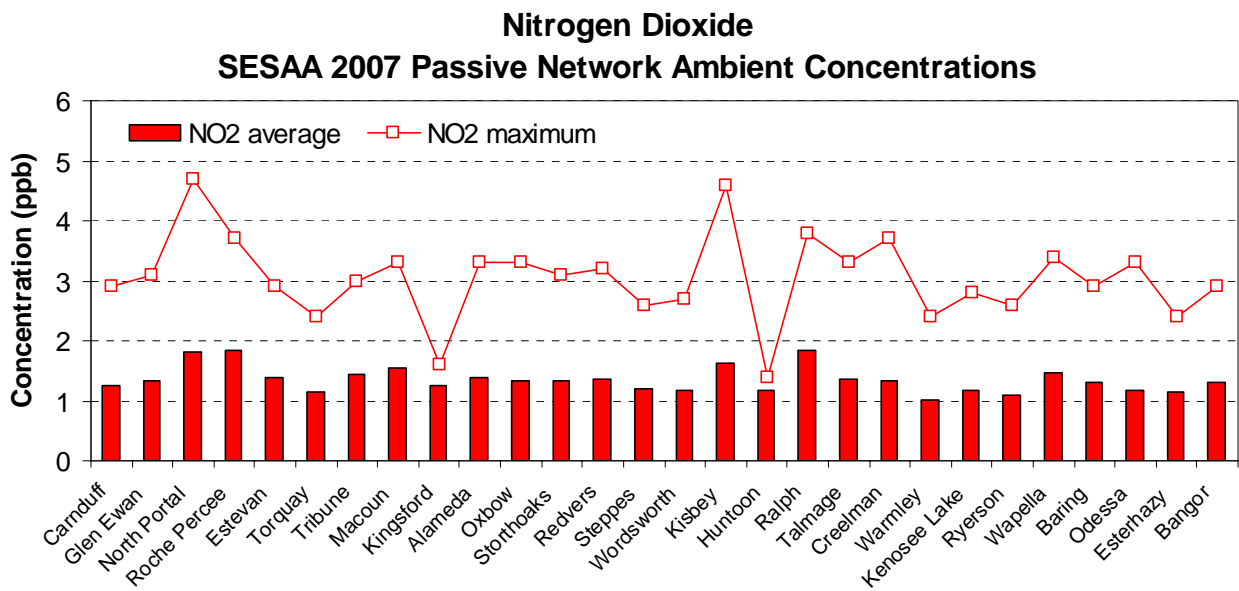


Figure 6: Nitrogen dioxide ambient concentrations by town in 2006

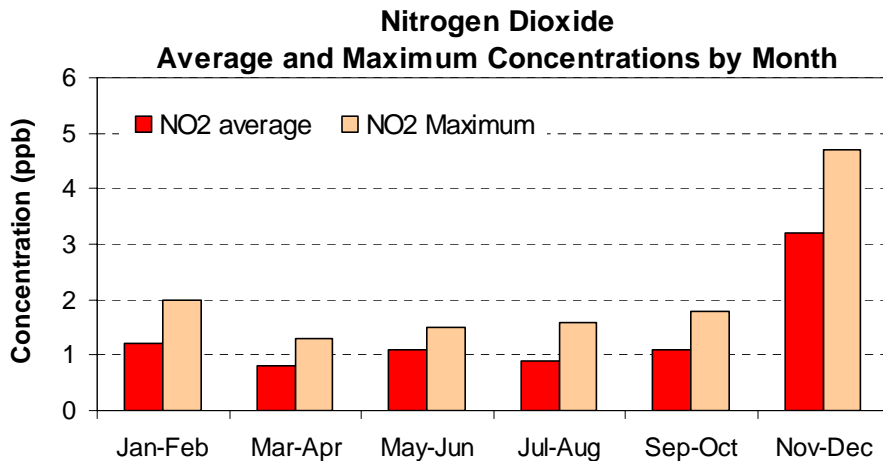


Figure 7: Temporal variation of nitrogen dioxide concentrations in 2007

Figure 7 shows temporal variations in NO₂ concentrations for the entire airshed in 2007. There is no overall increasing or decreasing trend in NO₂ levels, with the exception of November-December period where relatively high concentrations were observed. The average concentrations varied from 1.3 ppb in March-April to 3.2 ppb in November-December. The highest maximum concentration of 5.3 ppb was also observed in November-December.

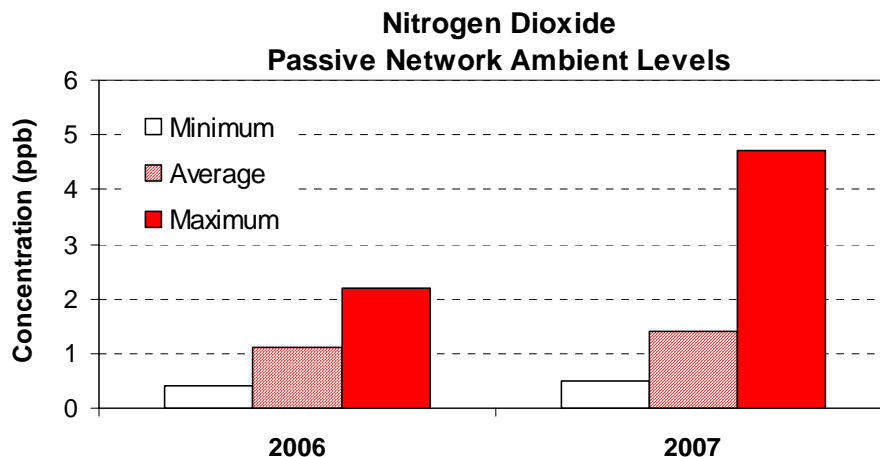


Figure 8 Comparison of yearly NO₂ concentrations

Figure 8 shows yearly comparison of NO₂ levels for the entire airshed. The minimum and average concentrations for years 2006 and 2007 remained almost the same, however, the maximum concentrations were almost doubled in 2007 (4.7 ppb) compared to 2006 (2.2 ppb).

Ozone

Ground-level Ozone (O₃) is a colorless gas that at normal outdoor concentration is odourless. However, ozone does have a distinctive sharp odour when found at higher concentration, such as those associated with electrical discharges from lightning storms or photocopiers. O₃ can be detected at an odour threshold above 10 ppb.

Exposure to high levels of ozone can cause eye irritation, breathing difficulty, decreased visibility, and vegetation damage. People with respiratory and heart problems are at a higher risk. O₃ has been linked to increased hospital admissions and premature death. O₃ is a key ingredient of urban smog.

O₃ is not emitted directly into the atmosphere. Instead, it results from photochemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. High levels typically occur from May to September, between noon and early evening. Emissions of NO_x are produced primarily when fossil fuels are burned in motor vehicle engines, power plants, and industrial boilers. The sources of VOC emissions include automobile emissions, gasoline vapors, chemical solvents, and consumer products like paints.

Saskatchewan ambient air quality standard for ozone is:

- 0.08 ppm (82 ppb) averaged over a 1-hour period.

Canada-wide Standard (CWS) for ozone is:

- 65 ppb, 8-hour averaging time, the achievement statistics is based on the fourth highest measurement annually averaged over three consecutive years.

In 2007, the average and maximum O₃ concentrations of the entire network were 36 and 71 ppb respectively. These measured levels were within the average and above average range. Figure 9 shows concentrations of ozone (O₃) for the January to December 2007 period. The station with the highest average O₃ concentration was Roche Percee (Station 4) measuring 43 ppb, and the lowest average concentration was observed at Huntoon (Station 17), measuring 25 ppb. The station with highest maximum O₃ concentration was also Roche Percee (Station 4), measuring 71 ppb.

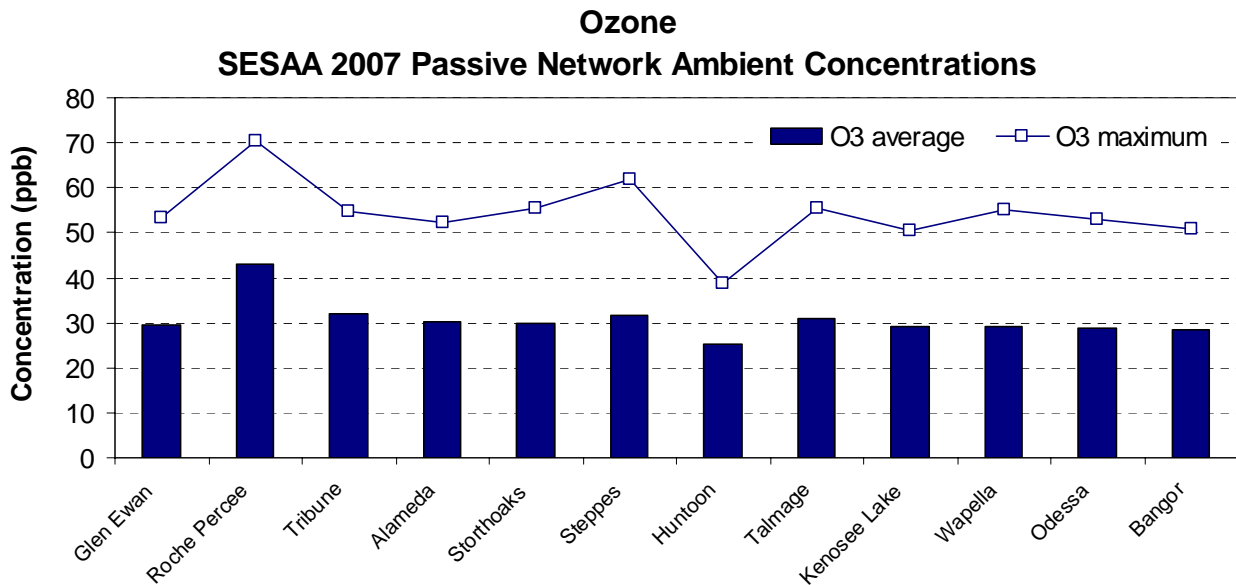


Figure 9: Ozone ambient concentrations by town in 2006

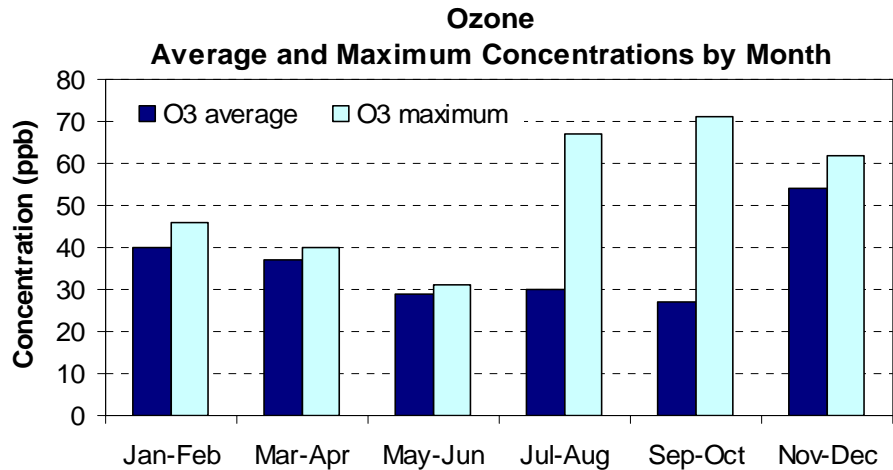


Figure 10: Ozone ambient concentrations by month in 2006

Figure 10 shows temporal variations in O₃ concentrations for the entire airshed in 2007. There is no overall decreasing or increasing trend in O₃ levels. The average concentrations varied from 29 ppb in May-June to 54 ppb in November-December. The highest maximum concentration was observed in September-October (71 ppb). Unconventionally, higher ozone concentrations were observed in November-December. The exact reason of higher ozone during winter months is not known with certainty. Perhaps it is due to long-range transport of ozone from another area or ozone transport from the stratosphere or summer formation and winter build up of ozone within the airshed.

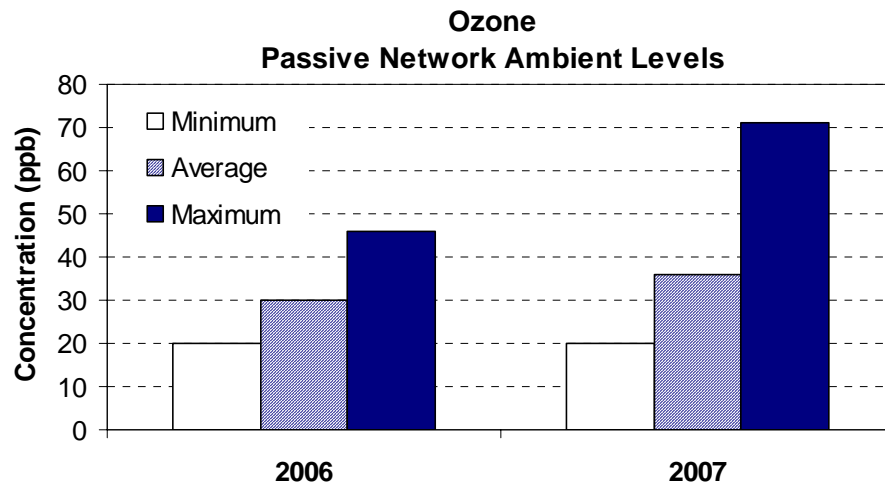


Figure 11 Comparison of yearly O₃ concentrations

Figure 11 shows yearly comparison of O₃ levels for the entire airshed. The minimum concentrations remained the same (20 ppb) for the years 2006 and 2007, however, both the average and maximum ozone concentrations increased in 2007 compared to 2006. The average concentrations were increased 20% (from 30 ppb in 2006 to 36 ppb in 2007), while the maximum concentrations were increased almost 50% (from 46 ppb in 2006 to 71 ppb in 2007).

FINANCIAL REPORT

Southeast Saskatchewan Airshed Association

Balance Sheet

As at December 31, 2007

Assests**Current**

Cash

Goods and Services Tax receivable

Liabilities**Current**Account payable and accruals

Shareholders' Deficit**Deficit**

Southeast Saskatchewan Airshed Association
Statement of Loss
For the year ended December 31, 2007

Revenue
Membership fees
Grant revenue

Expenses
Advertising and promotion
Business taxes and licences
Custom work
Interest and bank charges
Management fees
Professional fees
Repairs and maintenance

Net loss
Retained earning, beginning of year
Deficit, end of year

Southeast Saskatchewan Airshed Association
Statement of Cash Flow
For the year ended December 31, 2007

Cash provided by (used for) the following activities
Operating activities
Cash received from customers
Cash paid to suppliers
Interest paid

Increase (decrease) in cash resources
Cash resources, end of year

APPENDIX A: AMBIENT AIR MONITORING DATA

Monthly Average Concentrations

Sample ID	Station Code	Jan-Feb-2007			Mar-Apr-2007			May-Jun-2007			Jul-Aug-2007			Sep-Oct-2007			Nov-Dec-2007		
		SO ₂	NO ₂	O ₃	SO ₂	NO ₂	O ₃	SO ₂	NO ₂	O ₃	SO ₂	NO ₂	O ₃	SO ₂	NO ₂	O ₃	SO ₂	NO ₂	O ₃
1	Carnduff	3	1.3		1	0.6		0.6	1.1		0.5	0.8		0.9	0.9		3.5	2.9	
2	Glen Ewan	2.8	1.1	40	0.9	0.7	35	0.8	1.1	28	0.7	0.8	29	0.9	1.2	22	3.3	3.1	53
3	North Portal	3.1	1.2		1.4	1.3		1	1.4		1	1.1		1.2	1.2		3.5	4.7	
4	Roche Percee	3.3	2	43	1.5	1	37	1.4	1.3	29	D	1.3	67	2.5	1.8	71	4.3	3.7	55
5	Estevan	1.9	1.1		1.5	1		1.1	1.4		1.7	1.1		0.6	0.9		2.5	2.9	
6	Torquay	1.5	0.9		1	0.7		1.3	1.3		0.9	0.9		0.4	0.7		1.4	2.4	
7	Tribune	3.5	0.8	42	1.4	0.9	35	1.1	1.5	31	1.5	1.1	30	1	1.4	31	2.9	3	55
8	Macoun	2.3	1.6		1.2	1		1	1.1		1.1	1.2		0.9	1.1		2.3	3.3	
9	Kingsford	3.7	1		2.3	0.9		1.8	1.4		2.3	1.6		2	1.4		D	D	
10	Alameda	3.3	1.3	46	1.5	0.9	35	0.9	1.2	30	0.9	0.9	26	1.2	0.8	22	4.2	3.3	52
11	Oxbow	3.2	1.3		1.6	0.7		1.2	1		1	0.8		1.6	0.9		4.4	3.3	
12	Storthoaks	3.3	1.4	41	1.4	0.7	36	0.9	1.2	30	0.8	0.7	25	1.2	0.9	23	3.8	3.1	56
13	Redvers	2.4	1.1		1.2	1		0.7	0.9		0.7	0.8		1	1.1		2.5	3.2	
14	Steppes	2	1.2	41	1.3	0.8	40	1	0.9	30	1	0.7	27	1	1	23	3.4	2.6	62
15	Wordsworth	2.6	1.2		0.9	0.7		0.6	0.9		D	0.7		0.9	0.9		3.1	2.7	
16	Kisbey	2.3	1.2		1	0.7		0.8	1.2		1.1	0.8		1	1.2		3.9	4.6	
17	Huntoon	1.9	1.4	39	1.2	0.8	38	0.8	1.2	29	0.9	1.3	24	0.6	M	21	M	M	M
18	Ralph	2.8	1.8		1.7	1.2		1.8	1.2		1.7	1.4		1.7	1.6		4.2	3.8	
19	Talmage	1.6	1	41	1.2	0.8	39	0.6	0.9	30	1	1.2	27	0.8	0.9	22	3.4	3.3	56
20	Creelman	2.8	0.7		1.6	0.8		1.2	1		1.2	0.9		1.3	0.9		4.4	3.7	
21	Warmley	1.9	0.6		1	0.6		0.9	0.7		1	0.6		0.9	1.2		3.5	2.4	
22	Kenosee Lake	2.9	1.1	39	2.3	1	36	0.5	0.7	29	1.9	0.8	25	1.2	0.7	25	5.3	2.8	51
23	Ryerson	1.7	0.9		0.8	0.7		0.7	0.8		0.8	0.6		0.7	0.9		2.8	2.6	
24	Wapella	1.1	1.3	40	0.5	1	36	0.7	0.9	28	0.9	1	24	0.5	1.2	22	1.9	3.4	55
25	Baring	1.3	1.1		0.8	0.7		D	D		0.6	0.7		0.6	1.2		3.1	2.9	
26	Odessa	1.3	0.5	34	0.8	0.7	36	0.9	0.9	27	0.8	0.8	31	0.5	0.9	20	3	3.3	53
27	Esterhazy	1	1		0.6	0.8		0.3	0.8		0.9	0.9		0.6	1		1.8	2.4	
28	Bangor	0.9	1.1	36	0.6	1	37	0.5	1	29	0.7	0.8	23	0.4	1	24	1.5	2.9	51

Note: D = damaged sample; M = missing data; [empty box] = no data.

APPENDIX B: COMPLETENESS OF MONITORING DATA

Instances of invalid sample collection for passive monitoring parameters during 2007

Month	Station No.	Parameter	Cause
May - June	25	SO ₂	damaged sample head
May - June	25	NO ₂	damaged sample head
July - August	4	SO ₂	damaged sample head
July - August	15	SO ₂	damaged sample head
September - October	17	NO ₂	missing sample
November - December	9	SO ₂	damaged sample head
November - December	9	NO ₂	damaged sample head
November - December	17	SO ₂	missing sample
November - December	17	NO ₂	missing sample
November - December	17	O ₃	missing sample

Data capture rates for passive monitoring parameters during 2007

Parameter	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec	Total Capture	% Capture
SO ₂	28/28	27/28	28/28	26/28	28/28	26/28	191/196	97.5 %
NO ₂	28/28	27/28	28/28	28/28	27/28	26/28	192/196	98.0 %
O ₃	12/12	12/12	12/12	12/12	12/12	11/12	83/84	98.8 %

Note: Data capture rates expressed as number of valid samples /total number of samples.

APPENDIX C: METEOROLOGY

Monthly Meteorology Data for Estevan 2007

Latitude: 49° 13' N Longitude: 102° 58' W Elevation: 580.60 m

Monthly Data Report for 2007											
M o n t h	Mean Max Temp °C	Mean Temp °C	Mean Min Temp °C	Extr Max Temp °C	Extr Min Temp °C	Total Rain mm	Total Snow cm	Total Precip mm	Snow Grnd Last Day cm	Dir of Max Gust 10's Deg	Spd of Max Gust km/h
Jan	-6.2	-12.3	-18.4	4.4	-35.2	0.0	12.8	12.0	10		
Feb	-11.1E	-16.2E	-21.2	2.8S	-35.7	0.4	19.2	18.8	8		
Mar	4.7	-0.8	-6.3	23.2	-21.6	22.2	10.0	32.0	T		
Apr	12.4	4.6	-3.1	27.4	-13.5	6.8	6.2	13.0	0		
May	18.5	11.8	5.1	31.5	-3.7	108.4	0.0	108.4	0	15E	87E
Jun	23.7	16.9	10.1	32.4	2.0	68.6	0.0	68.6	0	13E	74E
Jul	29.8E	22.3E	14.8E	40.2E	7.5E	49.0*	0.0*	49.0*	0	1*	48*
Aug	25.2	17.5	9.8	33.4S	2.7S	35.4	0.0	35.4	0	26E	82E
Sep	21.2	12.9	4.5	32.5	-7.6	16.2	0.0	16.2	0	31E	70E
Oct	13.4	6.9	0.4	25.3	-8.4	51.0	0.2	51.2	0	32E	65E
Nov	2.3	-3.6	-9.4	16.0	-24.5	5.2	9.8	16.8	4	29E	102E
Dec	-7.1	-12.9	-18.6	3.4	-28.8	0.2	7.2	6.6	8	27E	74E
Sum						363.4*	65.4*	428.0*			
Avg	10.6E	4.0E	-2.7E								
Xtrm				40.2E	-35.7					M	M

Note: [empty] = No data available; E = Estimated; T = Trace; * = The value displayed is based on incomplete data
 Source: Environment Canada, http://www.climate.weatheroffice.ec.gc.ca/climateData/monthlydata_e.html

APPENDIX D: SESAA BOARD OF DIRECTORS

Interim Board, 2007



Bob Scotten – Executive Director (SEACOR Environmental Inc.)

Mr. Scotten has extensive experience in airshed development and management. He served as the Executive Director of the Wood Buffalo Environmental Association (WBEA) from 1997 to 2000, and is the current Executive Director of the West Central Airshed Society (WCAS) in Alberta. He was instrumental in the design and development of the award-winning WBEA air monitoring network and the first real-time website for public access to air quality data. He has also played key roles in the development of the Peace Airshed Society and Palliser Airshed Society in Alberta.



J.A. Brian Mathieson – Director (Saskatchewan Industry & Resources)

Mr. Mathieson has 44 years experience in the upstream oil and gas industry. As Director of the Petroleum Development Branch, his current responsibilities include developing, monitoring, and enforcing environmental protection and public safety regulations, programs, policies, standards, and guidelines as specified under *The Oil and Gas Conservation Regulations* (1985). He believes the information gathered by SESAA will provide, in a cost effective way, the data necessary to institute programs that will maintain a high quality of air for Saskatchewan residents.



Chuck Bosgoed – Director (Saskatchewan Environment)

Mr. Bosgoed is an Environmental Engineer who has worked with Saskatchewan Environment for 20 years. He is involved in the airshed because he believes airshed management is an excellent approach to better understand air issues and one more way to resolve air quality problems in a region. Mr. Bosgoed writes, “Being a member of the Board provides me, as an environmental regulator, with a new and effective way of dealing with regional air quality issues.”



Darlene Sakires – Director (Canadian Natural Resources Limited)

Ms. Sakires is an Environmental Coordinator who is responsible for CNRL’s Environmental Management Plan and Environmental Operating Guidelines. She manages site decommissioning and remediation projects across the prairies, ensuring compliance with environmental regulatory requirements in all aspects of the company’s operations. She is active on a variety of committees, including the Saskatchewan Petroleum Industry Government Environmental Committee and the Saskatchewan Environmental Managers Association.



Marian Wilson – Chairperson (Private Business Owner)

Ms. Wilson is a bookkeeper for a construction business that she and her husband have owned and operated for over 23 years in southeast Saskatchewan. She is active in the Estevan community, raising 5 children, volunteering at the long term care centre and other groups, and sitting on the CPR Advisory Committee. As a local resident who has observed the growth of the transportation industry in Estevan, Ms. Wilson is concerned about the quality of air in the area and is pleased to be a director on the SESAA Board.



Robert Stedwill – Director (SaskPower)

Mr. Stedwill is the Manager of Environmental Programs at SaskPower. His department is responsible for administration of the corporation’s environmental policy, conduct of environmental studies, policy and planning, risk and site assessment, and community and external programs. such as the solar panel demonstration projects at the Western Hemisphere Shorebird Reserve, wind turbines in SW Saskatchewan, and utilization of wastes from sawmills, flare stacks, and hog operations. Mr. Stedwill is also active in various community organizations including the Saskatchewan Cycling Association, Regina’s Green Ribbon Committee, Toastmasters, and the Regina Adult Learning Centre.



Tim Macaulay – Director (Saskatchewan Health)

Mr. Macaulay is the Manager of Environmental Health, Population Health Branch, at Saskatchewan Health. He has worked with Saskatchewan Health for 25 years, where his current responsibilities include developing provincial regulations and policies that deal with environmental health programs. Regional Health Authorities (RHAs) are responsible for administering and enforcing these regulations and policies within their jurisdictions. The Southeast Saskatchewan Airshed crosses over the boundaries of three different RHAs (Sun Country Health RHA, Regina Qu'Appelle RHA and Sunrise RHA).

APPENDIX E: SESAA MEMBERSHIP

- 101072464 Saskatchewan Ltd.
- AltaGas Ltd.
- Apache Canada Ltd.
- Arc (Sask) Energy Trust
- Black Rider Resources Inc.
- Bonavista Petroleum Ltd.
- Burmis Energy Inc.
- Canadian Natural Resources Limited
- Connacher Oil and Gas Limited
- Crescent Point Resources Ltd. Partnership
- Crescent Point Resources Ltd.
- Dawn Energy Inc.
- Daylight Energy Ltd.
- Diaz Resources Ltd.
- Enbridge Pipelines Inc.
- EnCana Corporation
- Enermark Inc.
- Esprit Exploration Ltd.
- Fire Creek Resources Ltd.
- Flagship Energy Inc.
- Geocan Energy Inc.
- GKN Resources Ltd.
- Grand Banks Energy Corporation
- Grimes Energy Ltd.
- Innova Exploration Ltd.
- Jedi Exploration & Development
- Kenwood Resources Ltd.
- Kinwest Corporation
- Landex Petroleum Corp.
- Midale Petroleums Ltd.
- Mission Oil & Gas Inc.
- Nexans Canada Inc.
- NorAmera BioEnergy Corporation
- Northrock Resources Ltd.
- Outback Energy Ltd.
- Penn West Petroleum Ltd.
- Penn West PTF Energy Ltd.
- Petrobank Energy & Resources Ltd.
- Plains Environmental Inc.
- Postell Energy Co. Ltd.
- Prairie Mines & Royalty Ltd.
- Primewest Energy Inc.
- Primrose Drilling Ventures Ltd.
- Provident Energy Ltd.
- Regent Resources Ltd.
- Runcible Oil Corp.
- Saskatchewan Wheat Pool
- SaskPower
- Silver Bay Energy Ltd.
- Silver Bay Oil & Gas Ltd.
- Silver Bay Petroleum Ltd.
- Silver Bay Resources Ltd.
- Strand Resources Ltd.
- Swertz Exploration Ltd.
- Talisman Energy Inc.
- Triwest Energy Inc.
- Valleyview Petroleums Ltd.
- Waveform Energy Ltd.
- Zargon Oil & Gas Ltd



2007 ANNUAL REPORT
SOUTHEAST SASKATCHEWAN AIRSHED ASSOCIATION