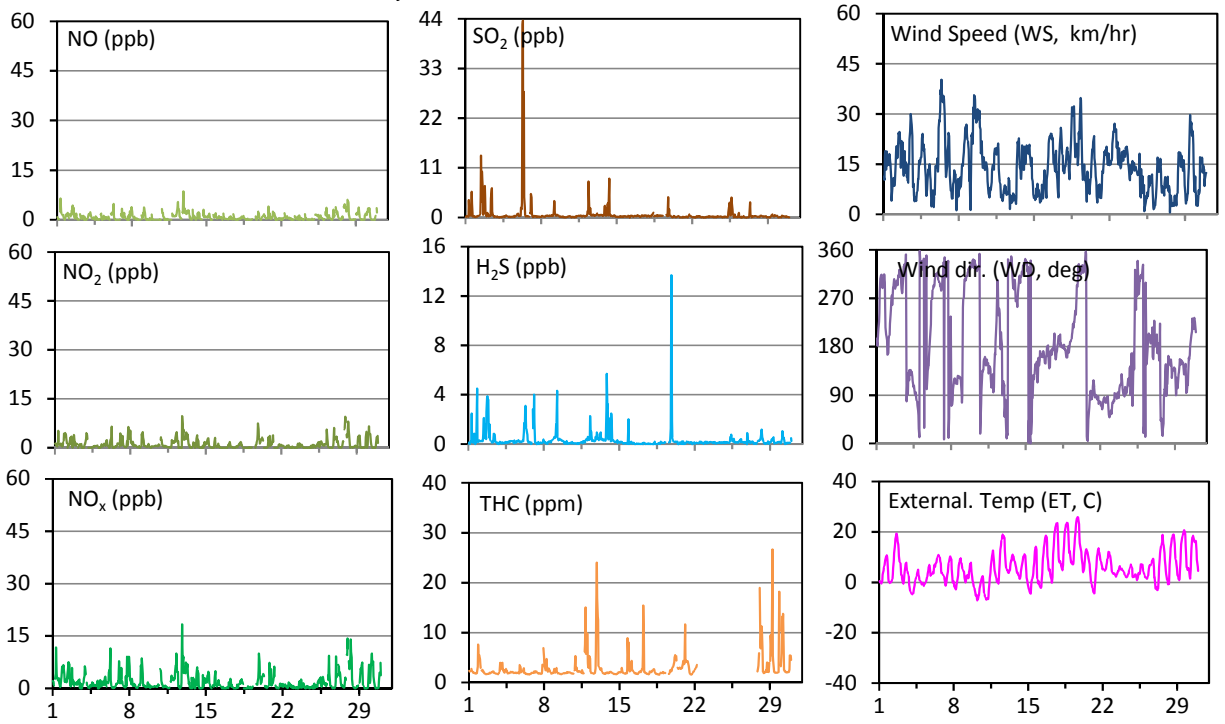
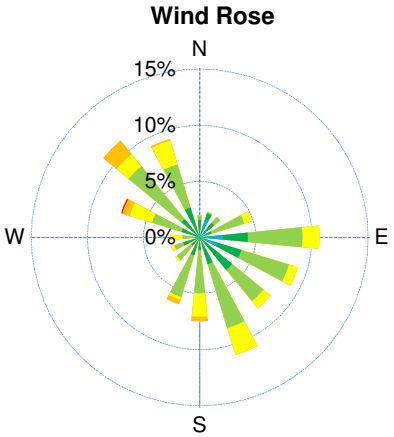
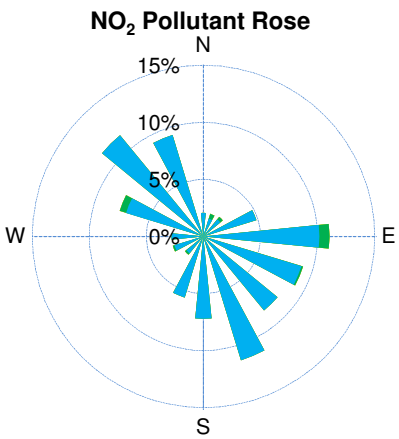
Husky Energy East Station - April 2016 Summary Report

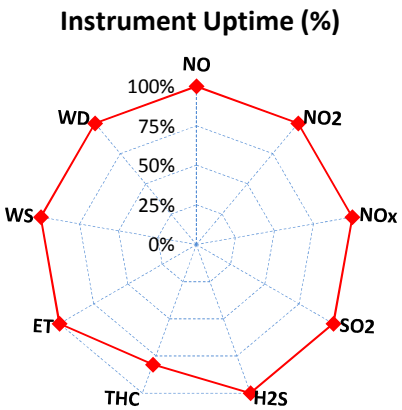
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		SAAQS Standards	Exceed Days	Maximum		SAAQS Standards	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.9	100.0%	2.4	Apr-12	-	-	8.6	Apr-12 20:00	-	-
NO_2	ppb	1.1	100.0%	2.3	Apr-27	106	0	9.7	Apr-12 20:00	159	0
NOx	ppb	1.9	100.0%	4.7	Apr-12	-	-	18.4	Apr-12 20:00	-	-
SO_2	ppb	0.7	100.0%	6.1	Apr-6	48	0	43.6	Apr-06 08:00	172	0
H_2S	ppb	0.3	100.0%	1.3	Apr-2	3.6	0	13.7	Apr-19 21:00	11.0	1
THC	ppm	3.0	80.8%	5.8	Apr-29	-	-	26.7	Apr-29 06:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards





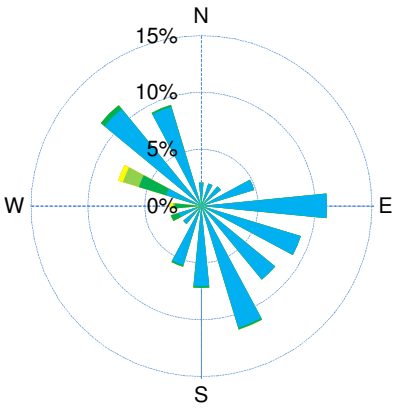




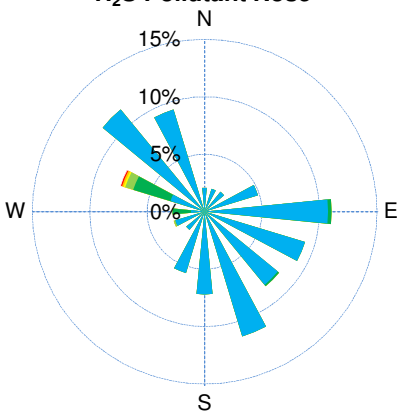
Parameters	Unit	Color Code for Wind Spd & Pollutant Conc. Class					
Wind Speed	km/hr	1 ≤ WS < 5	5 ≤ WS < 10	10 ≤ WS < 20	20 ≤ WS < 30	30 ≤ WS < 40	WS ≥ 40
SO_2	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
NO_2	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
H_2S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
THC	ppm	0 ≤ C < 1	1 ≤ C < 2	2 ≤ C < 3	3 ≤ C < 4	4 ≤ C < 5	C ≥ 5

Husky Energy East Station - April 2016 Summary Report

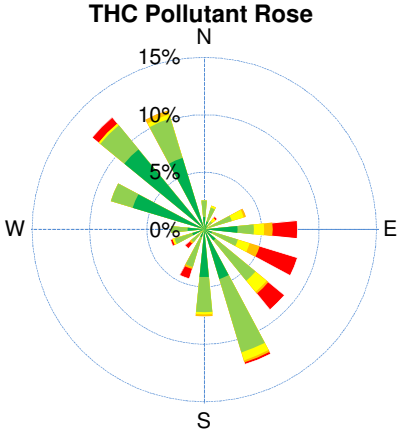
SO_2 Pollutant Rose



H_2S Pollutant Rose



THC Pollutant Rose



Monthly Update

*Air monitoring data has been slope, intercept, and baseline corrected. Data may change after validation process.

*All compliance parameters were within the Saskatchewan Ambient Air Quality Standards, with the exception of one 1-hour H2S exceedance. Refer to the Exceedance Summary table for details.

*All compliance parameters are above 90% operational, with the exception of the THC analyzer. Data was flagged as "analyzer failure" from April 22 07:00 MST to April 27 19:30 MST. Repairs and calibration were performed on April 27: the FID was rebuilt, leak checks were performed, and the zero/fuel mixture was adjusted. The analyzer returned to normal operations after repairs and calibration.

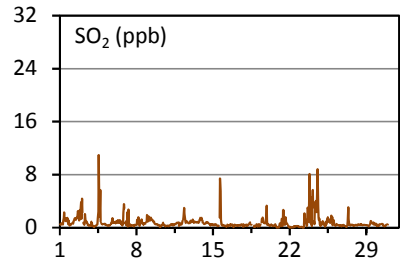
Exceedance Summary

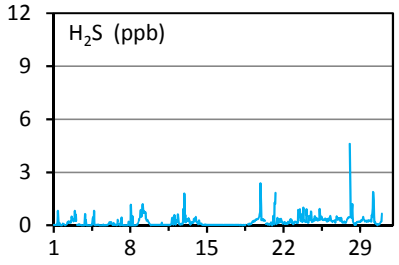
1-hour Exceedance Information			Summary of Other Parameters During Exceedance						
Pollutant	Conc. ppb	Exceedance Time mmm-dd hh:mm	WS km/hr	WD deg	ET C	SO_2 ppb	H_2S ppb	NO_2 ppb	THC ppm
H2S	13.7	Apr-19 21:00	6.4	291	15.6	1.8	13.7	7.4	2.4

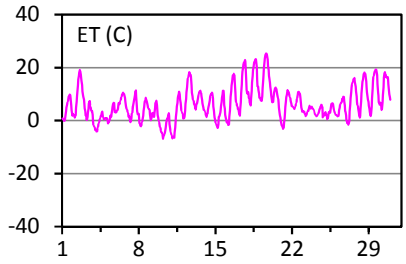
Husky Energy West Station - April 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum Conc.	Maximum Time	AAAQO / SAAQS	Exceed Days	Maximum Conc.	Maximum Time	AAAQO / SAAQS	Exceed Hours
SO_2	ppb	0.8	100.0%	2.4	Apr-24	48 / 48	0 / 0	11.0	Apr-04 14:00	172 / 172	0 / 0
H_2S	ppb	0.2	100.0%	0.6	Apr-28	3 / 3.6	0 / 0	5.0	Apr-28 02:00	10 / 11.0	0 / 0

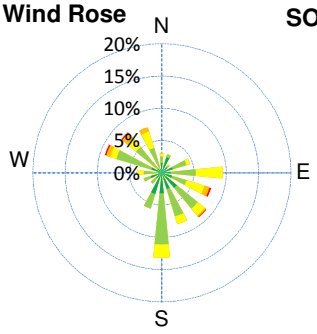
AAAQO: Alberta Ambient Air Quality Objectives; SAAQS: Saskatchewan Ambient Air Quality Standards.



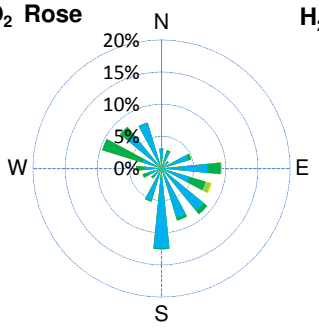




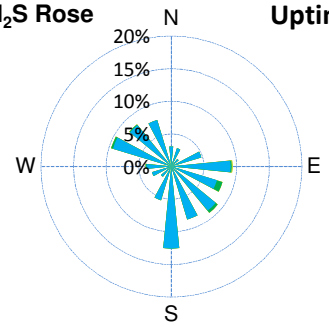
Wind Rose



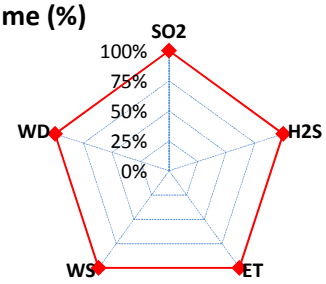
SO_2 Rose



H_2S Rose



Uptime (%)



Parameters	Unit	Color Code for Wind Spd & Pollutant Conc. Class					
Wind Speed	km/hr	1 ≤ WS < 5	5 ≤ WS < 10	10 ≤ WS < 20	20 ≤ WS < 30	30 ≤ WS < 40	WS ≥ 40
SO_2	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H_2S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8

Monthly Update

*Air monitoring data has been slope, intercept, and baseline corrected. Data may change after validation process.

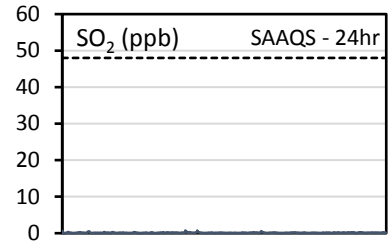
*All compliance parameters were within the Alberta Ambient Air Quality Objectives and the Saskatchewan Ambient Air Quality Standards

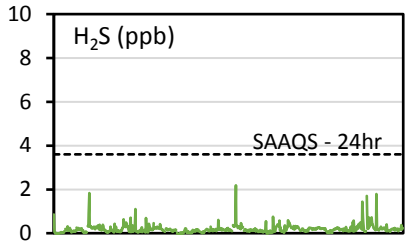
*All compliance parameters are above 90% operational. There are no operational issues to report.

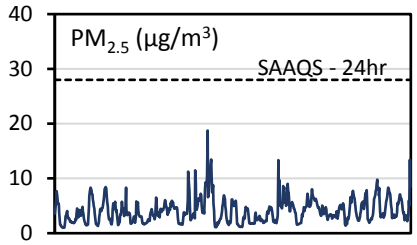
WYAMZ Kindersley Station - April 2016 Summary Report

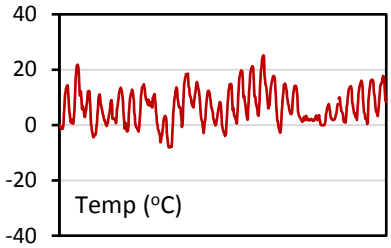
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Days	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Hours
SO_2	ppb	0.1	96%	0.2	Apr-12	48	0	0.7	Apr-13 12:00	172	0
H_2S	ppb	0.2	96%	0.4	Apr-27	3.6	0	2.2	Apr-16 15:00	11	0
$PM_{2.5}$	µg/m^3	4.1	100%	6.8	Apr-13	28	0	18.7	Apr-13 21:00	-	-

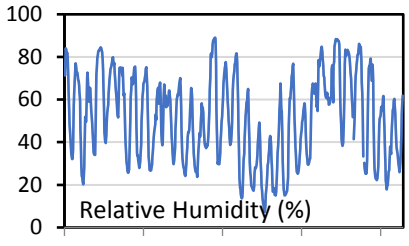
SAAQS: Saskatchewan Ambient Air Quality Standards

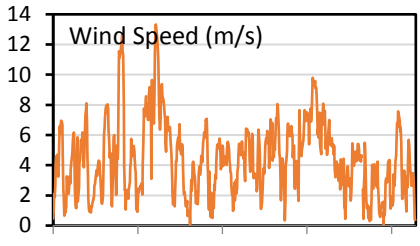


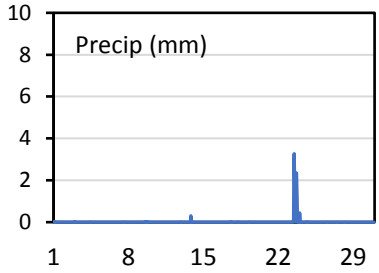




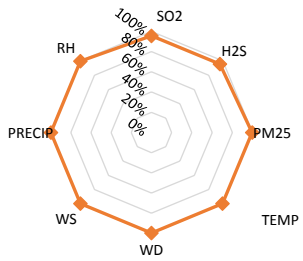




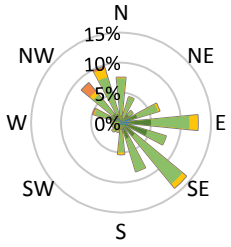




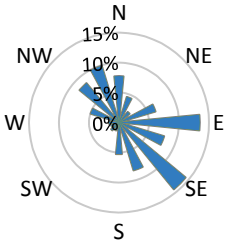
Total Instrument Uptime



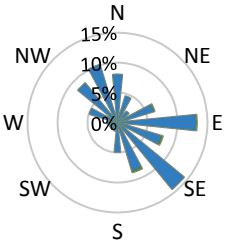
Wind Rose



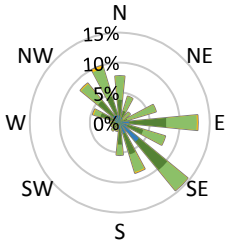
SO_2 Pollutant Rose



H_2S Pollutant Rose



H_2S Pollutant Rose



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
SO_2	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H_2S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
$PM_{2.5}$	µg/m^3	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

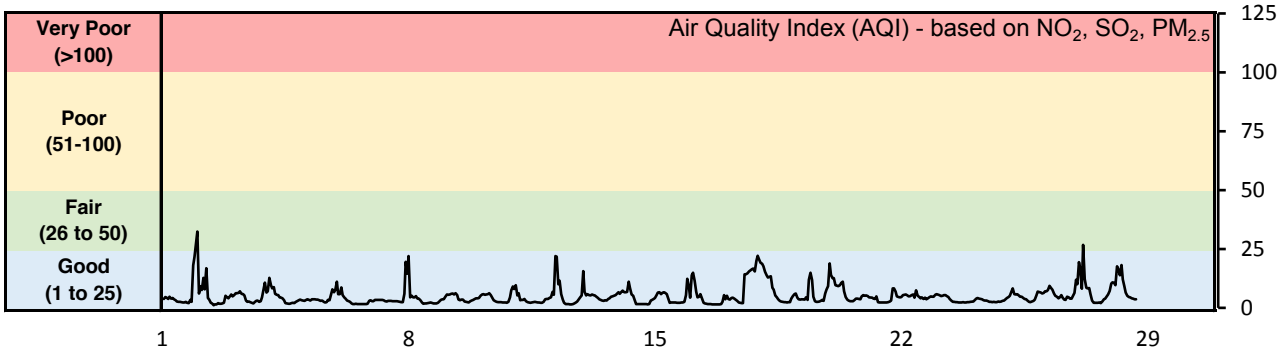
Monthly Update

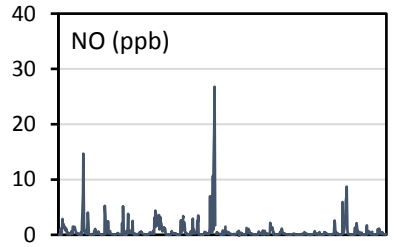
- Achieved >99% of scheduled uptime for all parameters
- Downtime results from routine daily Internal Zeroes and Spans

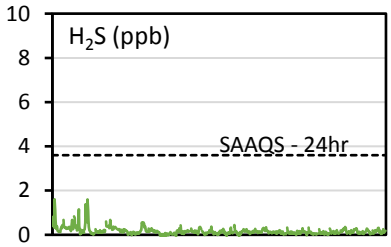
WYAMZ Maidstone Station - April 2016 Summary Report

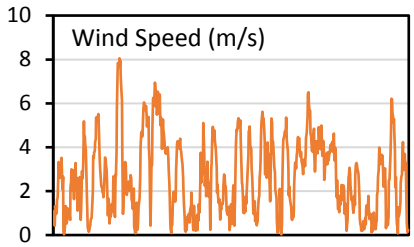
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Days	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Hours
NO	ppb	0.6	96%	3.4	Apr-15	-	-	26.8	Apr-15 07:00	-	-
NO_2	ppb	2.0	96%	4.4	Apr-27	106	0	10.7	Apr-27 06:00	159	0
NO_X	ppb	2.7	96%	6.2	Apr-15	-	-	36.8	Apr-15 07:00	-	-
SO_2	ppb	0.2	96%	0.7	Apr-08	48	0	4.0	Apr-30 08:00	172	0
H_2S	ppb	0.2	96%	0.4	Apr-01	3.6	0	1.6	Apr-01 05:00	11	0
$PM_{2.5}$	µg/m^3	4.0	92%	7.5	Apr-17	28	0	23.8	Apr-02 00:00	-	-

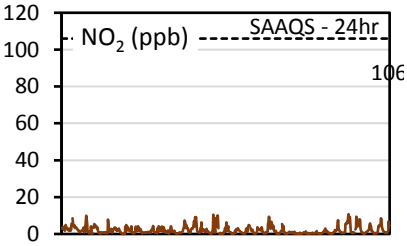
SAAQS: Saskatchewan Ambient Air Quality Standards

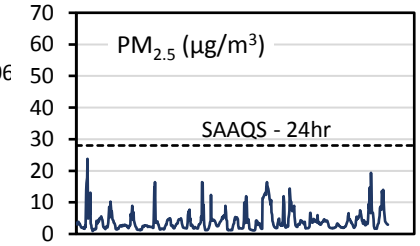


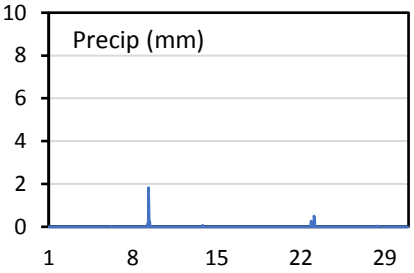


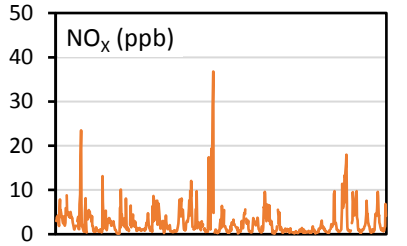


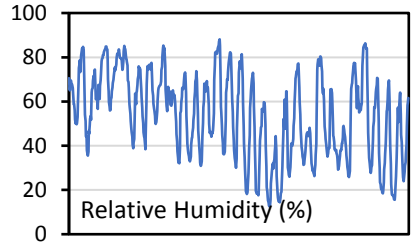


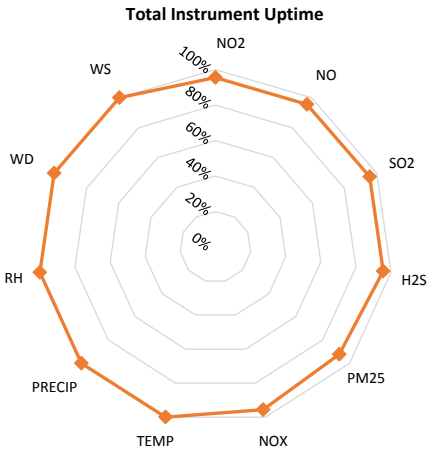


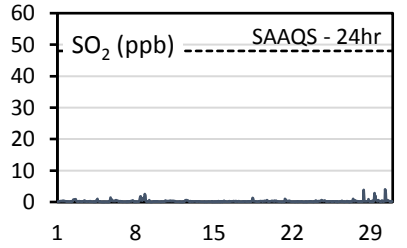


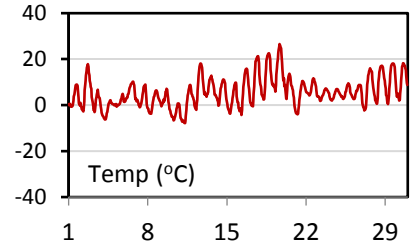






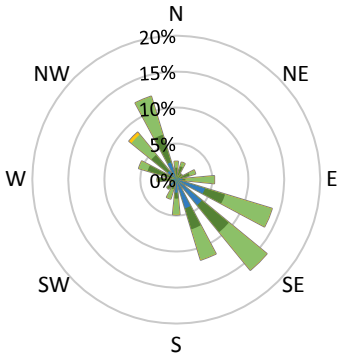




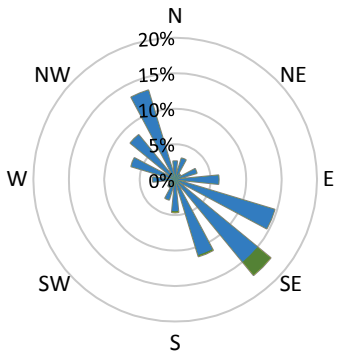


WYAMZ Maidstone Station - April 2016 Summary Report

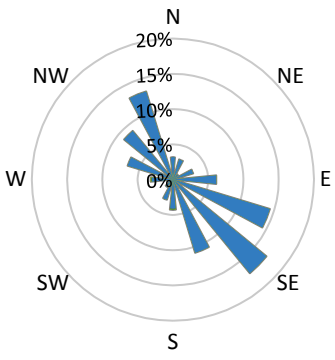
Wind Rose



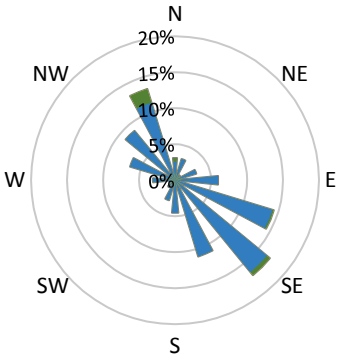
SO_2 Pollutant Rose



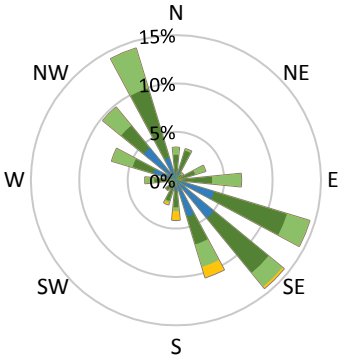
H_2S Pollutant Rose



NO_2 Pollutant Rose



$PM_{2.5}$ Pollutant Rose



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
SO_2	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
NO_2	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
H_2S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
$PM_{2.5}$	$\mu g/m^3$	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

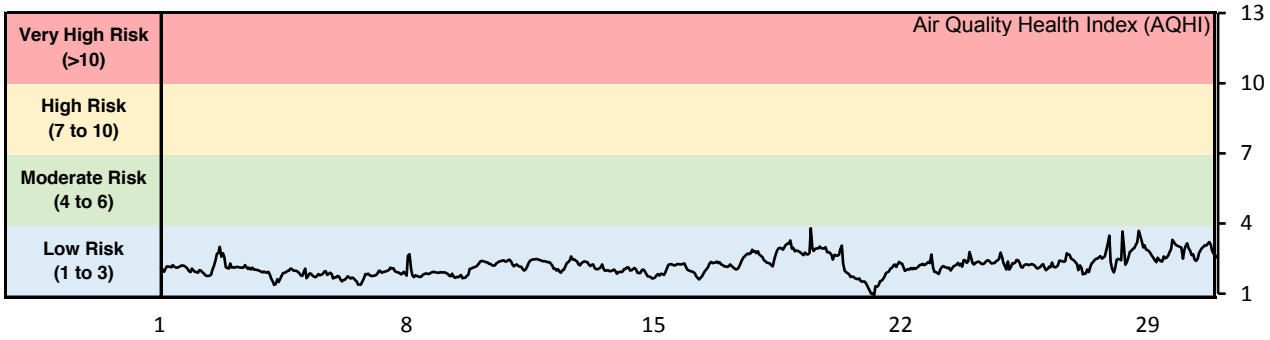
Monthly Update

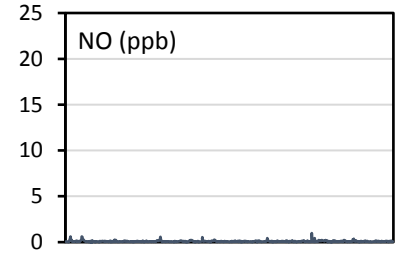
- Achieved >99% of scheduled uptime for all parameters except $PM_{2.5}$ (92%)
- Downtime of 4% results from routine daily Internal Zeroes and Spans
- All compliance parameters are above 90% data validity

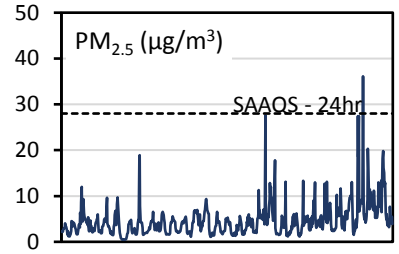
WYAMZ Meadow Lake Station - April 2016 Summary Report

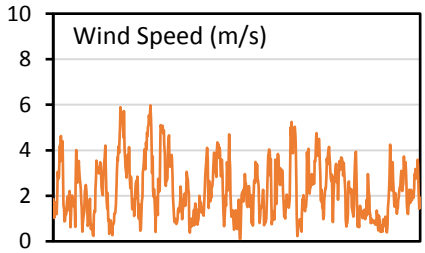
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Days	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Hours
NO	ppb	0.1	96%	0.2	Apr-02	-	-	1.0	Apr-23 13:00	-	-
NO_2	ppb	0.5	96%	0.8	Apr-30	106	0	3.4	Apr-08 02:00	159	0
NO_X	ppb	0.6	96%	1.0	Apr-02	-	-	3.6	Apr-08 02:00	-	-
O_3	ppb	37.3	96%	47.7	Apr-18	-	-	54.5	Apr-18 19:00	82	0
$PM_{2.5}$	µg/m^3	4.6	100%	10.1	Apr-28	28	0	36.1	Apr-28 07:00	-	-

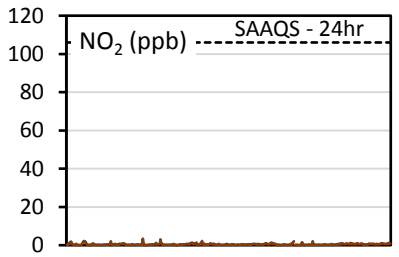
SAAQS: Saskatchewan Ambient Air Quality Standards

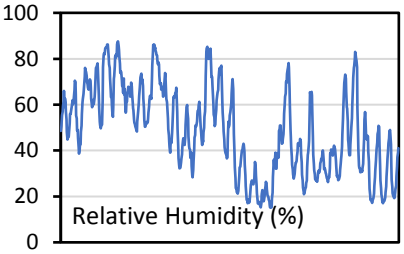


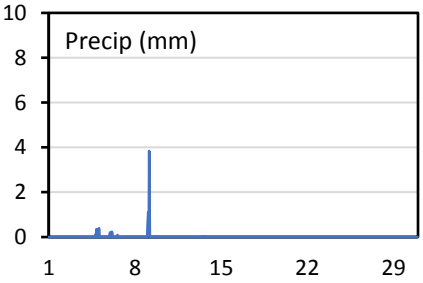


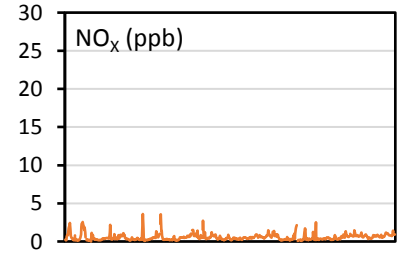


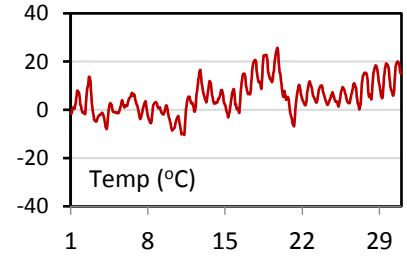


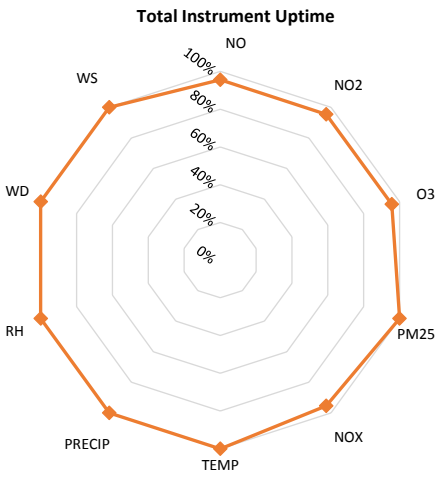


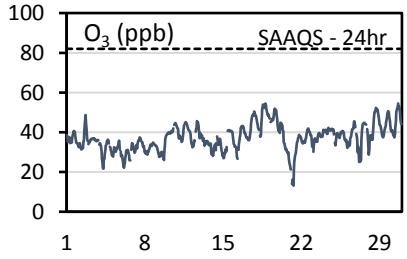






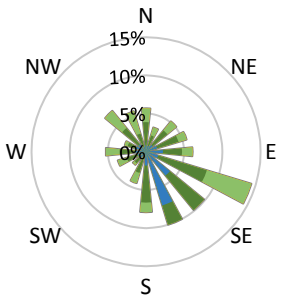




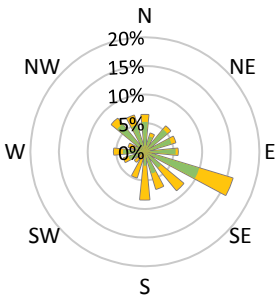


WYAMZ Meadow Lake Station - April 2016 Summary Report

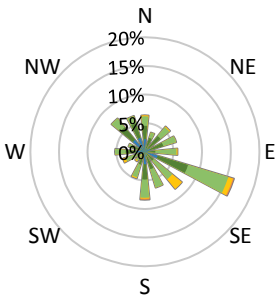
Wind Rose



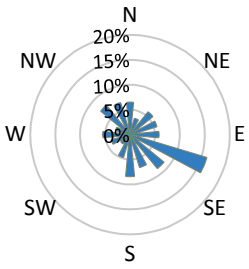
O_3 Pollutant Rose



$PM_{2.5}$ Pollutant Rose



NO_2 Pollutant Rose



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
O_3	ppb	0 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 40	40 ≤ C < 60	60 ≤ C < 82	C ≥ 82
NO_2	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
$PM_{2.5}$	µg/m^3	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

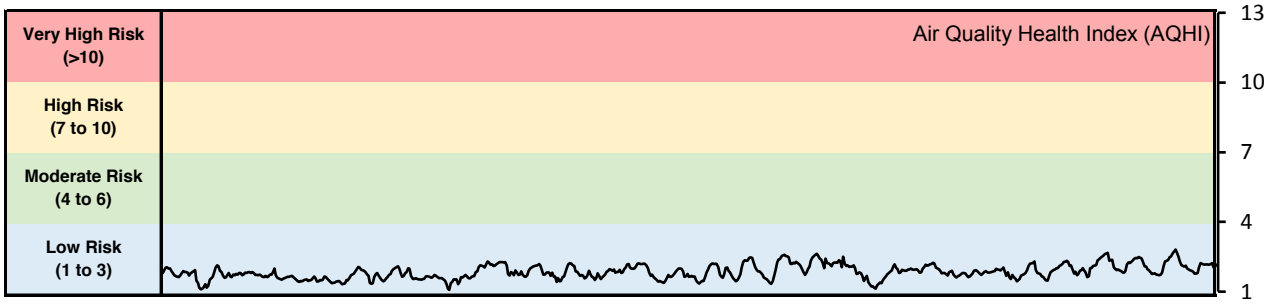
Monthly Update

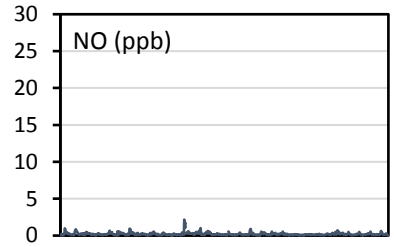
- Achieved >99% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily Internal Zeroes and Spans
- All compliance parameters are above 90% data validity; no operational issues

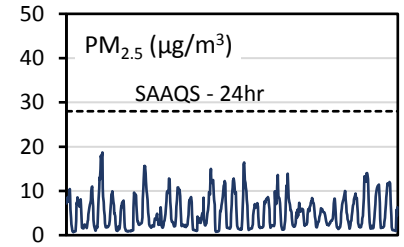
WYAMZ Unity Station - April 2016 Summary Report

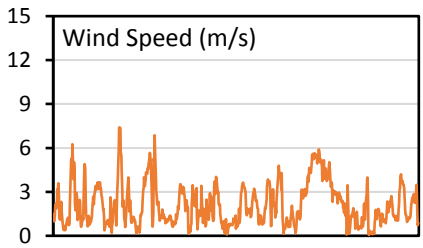
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Days	Maximum Conc.	Maximum Time	SAAQS Standard	Exceed Hours
NO	ppb	0.2	95%	0.5	Apr-12	-	-	2.2	Apr-12 08:00	-	-
NO_2	ppb	1.0	95%	1.9	Apr-27	106	0	5.6	Apr-19 22:00	159	0
NO_X	ppb	1.2	95%	2.2	Apr-12	-	-	6.7	Apr-12 08:00	-	-
O_3	ppb	29.4	95%	35.6	Apr-19	-	-	49.9	Apr-29 19:00	82	0
$PM_{2.5}$	µg/m^3	5.1	100%	7.4	Apr-04	28	0	18.7	Apr-04 06:00	-	-

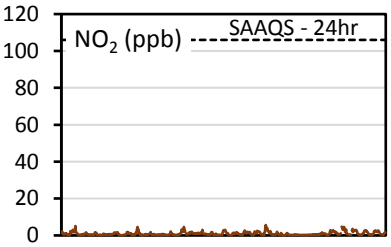
SAAQS: Saskatchewan Ambient Air Quality Standards

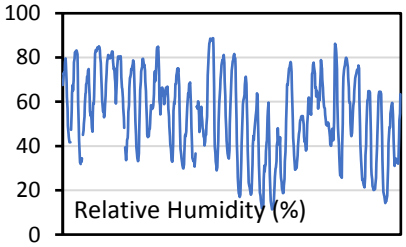


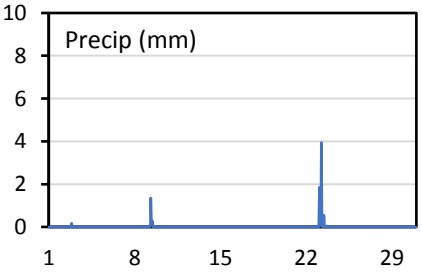


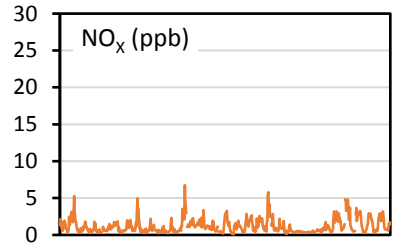


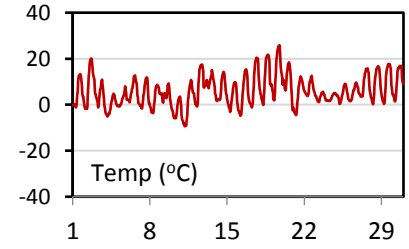


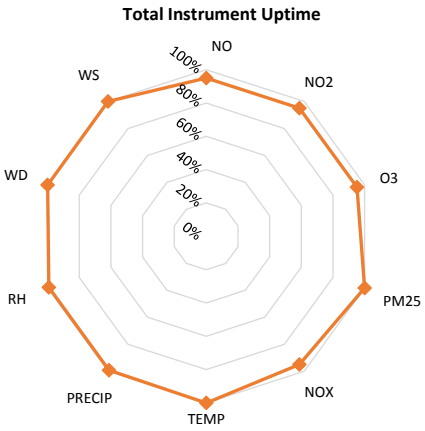


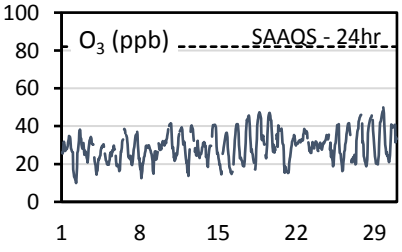






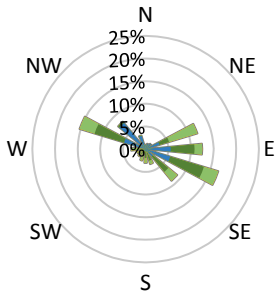




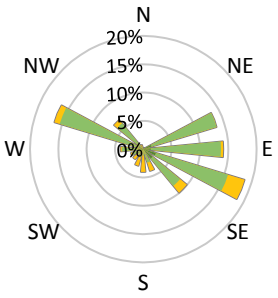


WYAMZ Unity Station - April 2016 Summary Report

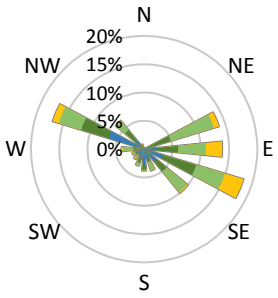
Wind Rose



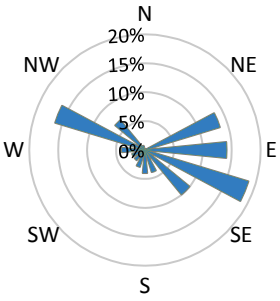
O_3 Pollutant Rose



$PM_{2.5}$ Pollutant Rose



NO_2 Pollutant Rose



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	0.3 ≤ WS < 1.4	1.4 ≤ WS < 3.1	3.1 ≤ WS < 7.8	7.8 ≤ WS < 10.8	10.8 ≤ WS < 13.6	WS ≥ 13.6
O_3	ppb	0 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 40	40 ≤ C < 60	60 ≤ C < 82	C ≥ 82
NO_2	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
$PM_{2.5}$	µg/m^3	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

Monthly Update

- Achieved >99% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily Internal Zeroes and Spans
- All compliance parameters are above 90% data validity