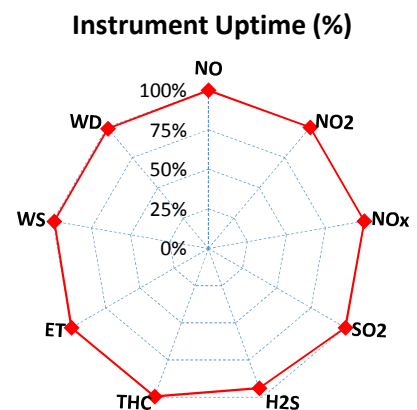
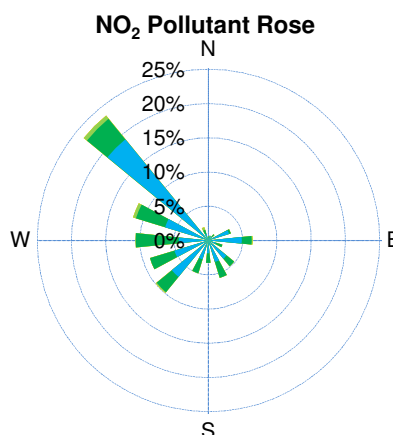
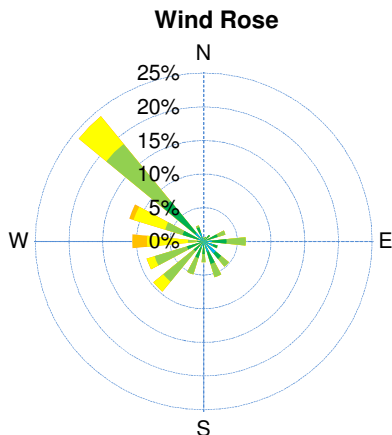
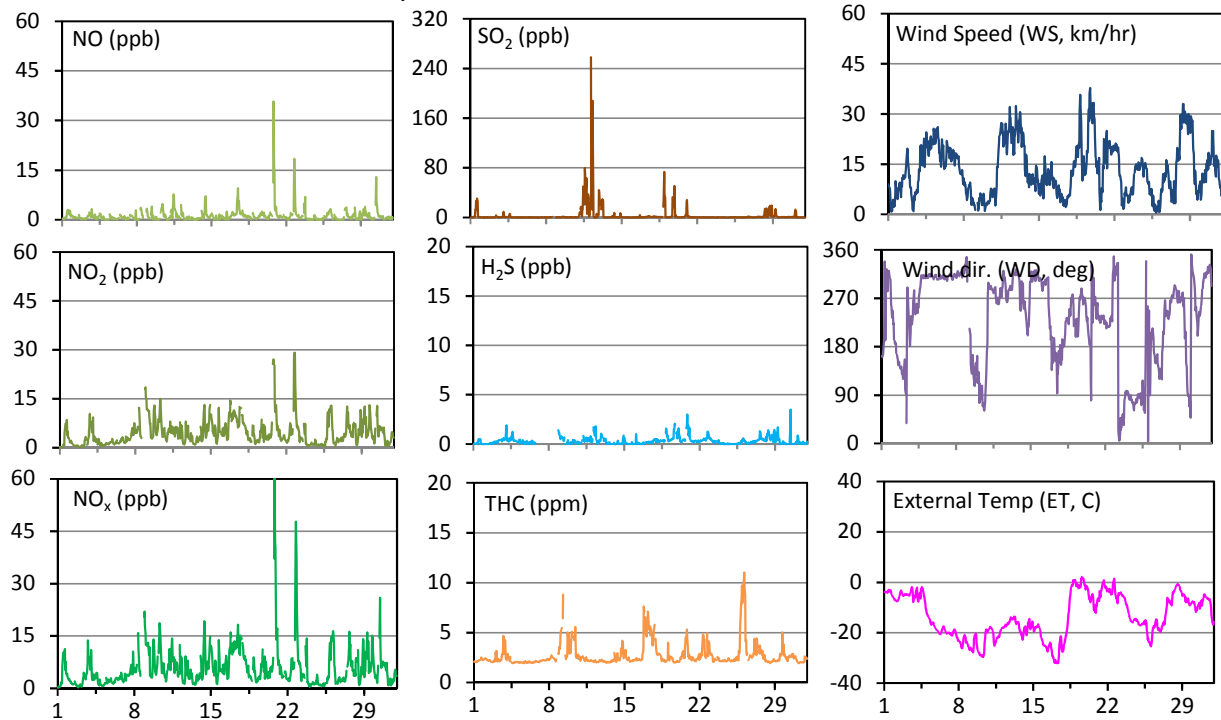


Husky Energy East Station - December 2016 Summary Report

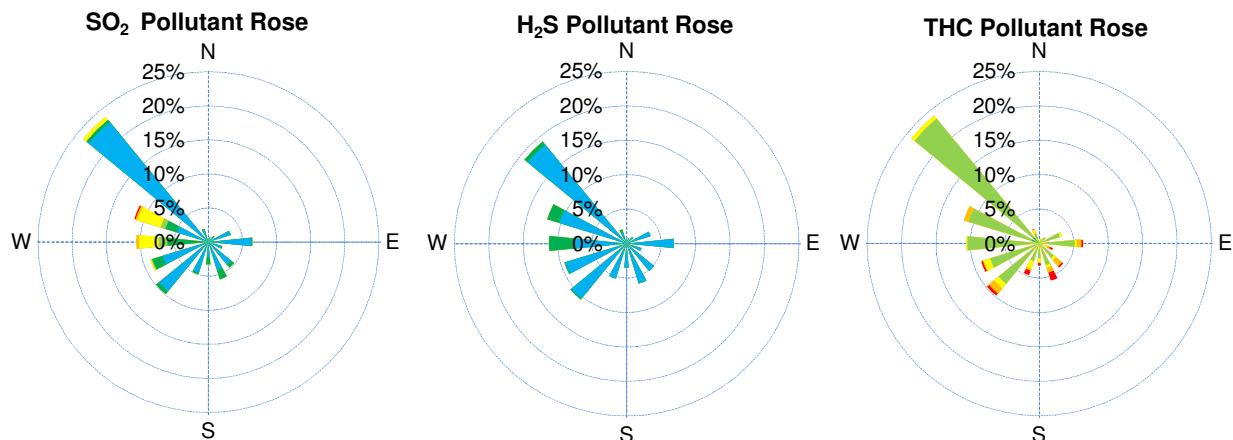
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		SAAQS Standards	Exceed Days	Maximum		SAAQS Standards	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	1.2	100.0%	4.4	Dec-20	-	-	35.8	Dec-20 20:00	-	-
NO ₂	ppb	4.6	100.0%	9.7	Dec-17	106	0	29.2	Dec-22 19:00	159	0
NO _x	ppb	5.9	100.0%	13.1	Dec-20	-	-	63.2	Dec-20 20:00	-	-
SO ₂	ppb	3.6	100.0%	34.3	Dec-12	48	0	258.3	Dec-12 04:00	172	2
H ₂ S	ppb	0.3	94.0%	0.9	Dec-20	3.6	0	3.5	Dec-30 11:00	11.0	0
THC	ppm	2.7	99.6%	5.0	Dec-17	-	-	11.0	Dec-26 04:00	-	-

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 ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 11	C ≥ 11
THC	ppm	0 ≤ C < 1	1 ≤ C < 2	2 ≤ C < 3	3 ≤ C < 4	4 ≤ C < 5	C ≥ 5

Husky Energy East Station - December 2016 Summary Report



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 two 1-hour SO₂ exceedance events on December 12. Refer to the Exceedance Summary Table for details.

*All compliance parameters are above 90% operational. Operational issues include the H₂S analyzer malfunctioning, due to a failure with the UV lamp. The analyzer was repaired and returned to normal operations. QA/QC determined data to be invalid 19:00 MST December 6 through 21:00 MST December 8. In addition, 3 hours of THC data is flagged as maintenance on December 8, while pump repairs were completed.

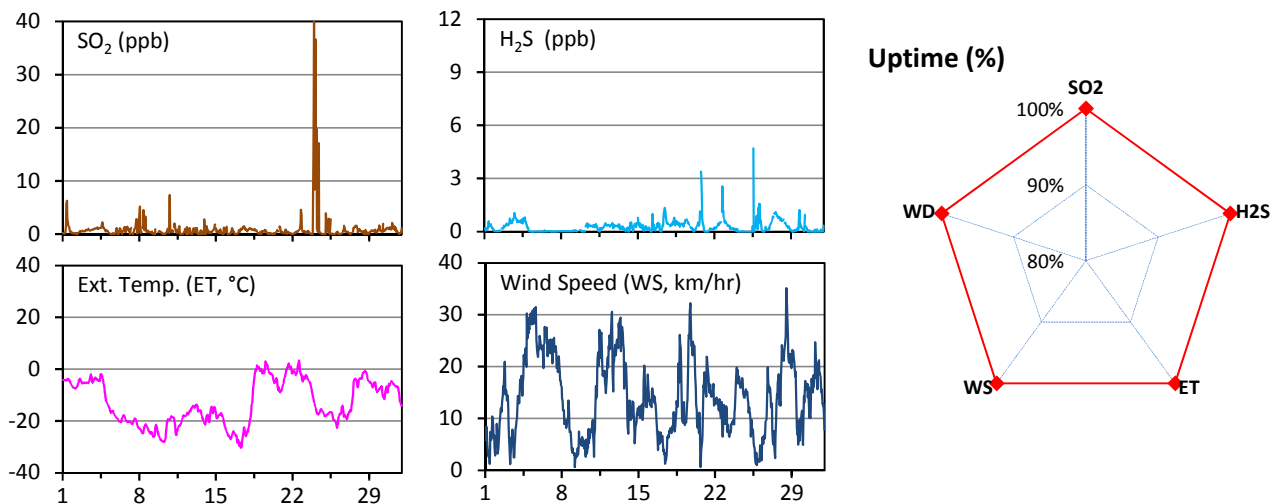
Exceedance Summary

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 ₂ S ppb	NO ₂ ppb	THC ppm
H2S	258	Dec-12 04:00	24.3	286	-18.0	258.3	1.7	7.8	2.2
H2S	188	Dec-12 08:00	29.3	286	-17.5	188.1	1.5	6.8	2.2

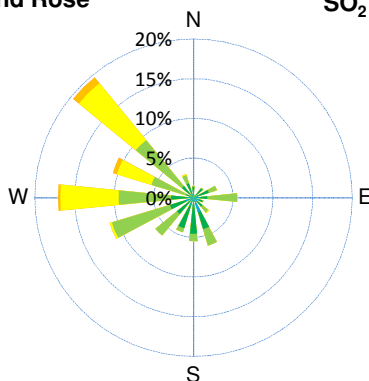
Husky Energy West Station - December 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		AAAQO / SAAQS	Exceed Days	Maximum		AAAQO / SAAQS	Exceed Hours
				Conc.	Time			Conc.	Time		
SO ₂	ppb	0.9	100.0%	5.4	Dec-24	48 / 48	0 / 0	42.1	Dec-24 00:00	172 / 172	0 / 0
H ₂ S	ppb	0.3	100.0%	0.8	Dec-27	3 / 3.6	0 / 0	5.0	Dec-25 14:00	10 / 11.0	0 / 0

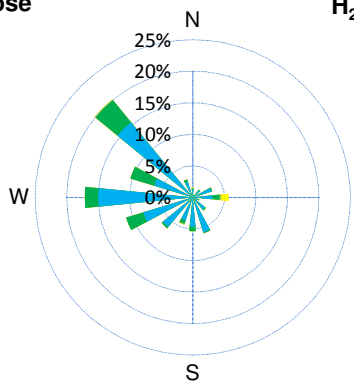
AAAQO: Alberta Ambient Air Quality Objectives; SAAQS: Saskatchewan Ambient Air Quality Standards.



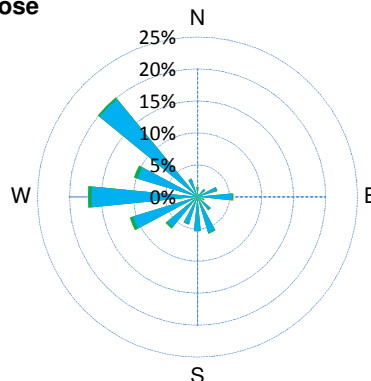
Wind Rose



SO₂ Rose



H₂S Rose



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 ₂ S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 11	C ≥ 11

Monthly Update

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

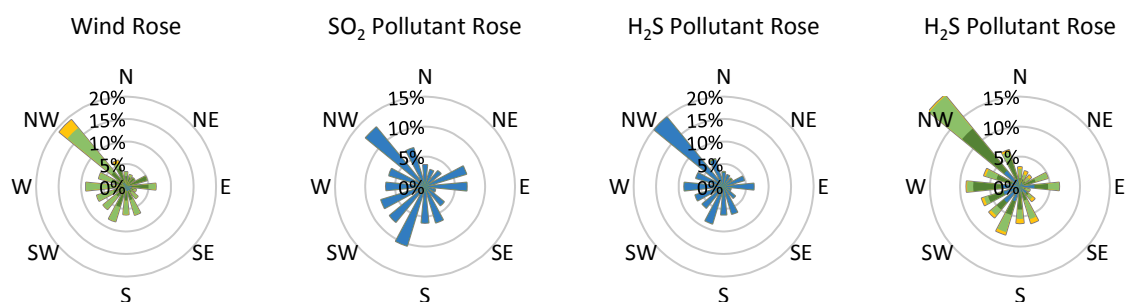
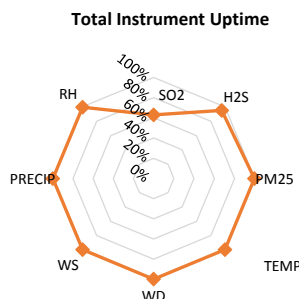
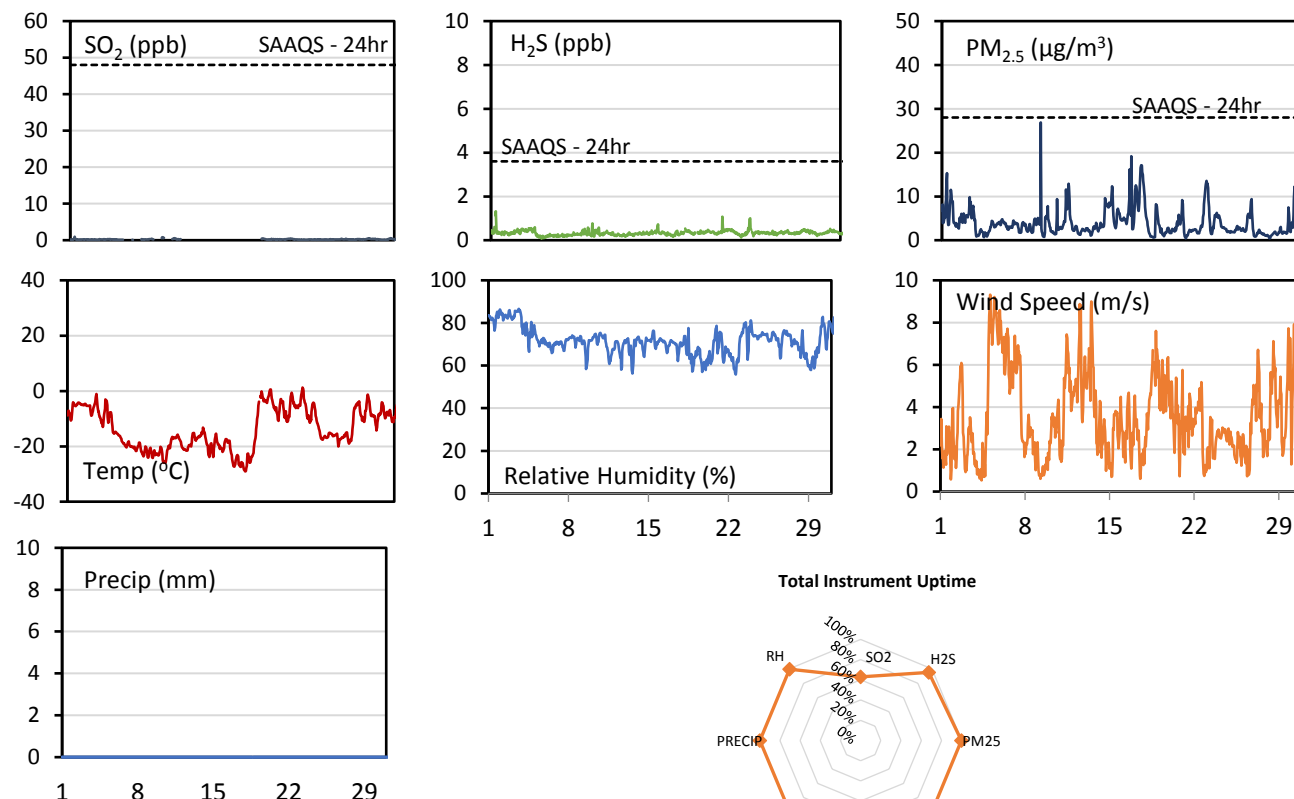
*All compliance parameters were within the Alberta Ambient Air Quality Objectives and the Saskatchewan Ambient Air Quality Standards

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

WYAMZ Kindersley Station - December 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
SO ₂	ppb	0.2	63%	0.7	Dec-09	48	0	1.0	Dec-01 10:00	172	0
H ₂ S	ppb	0.3	95%	0.4	Dec-21	3.6	0	1.3	Dec-01 10:00	11	0
PM _{2.5}	µg/m ³	4.0	100%	10.1	Dec-17	28	0	26.9	Dec-09 08:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



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 ₂ S	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

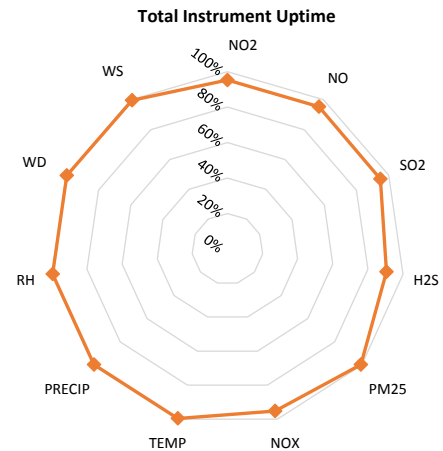
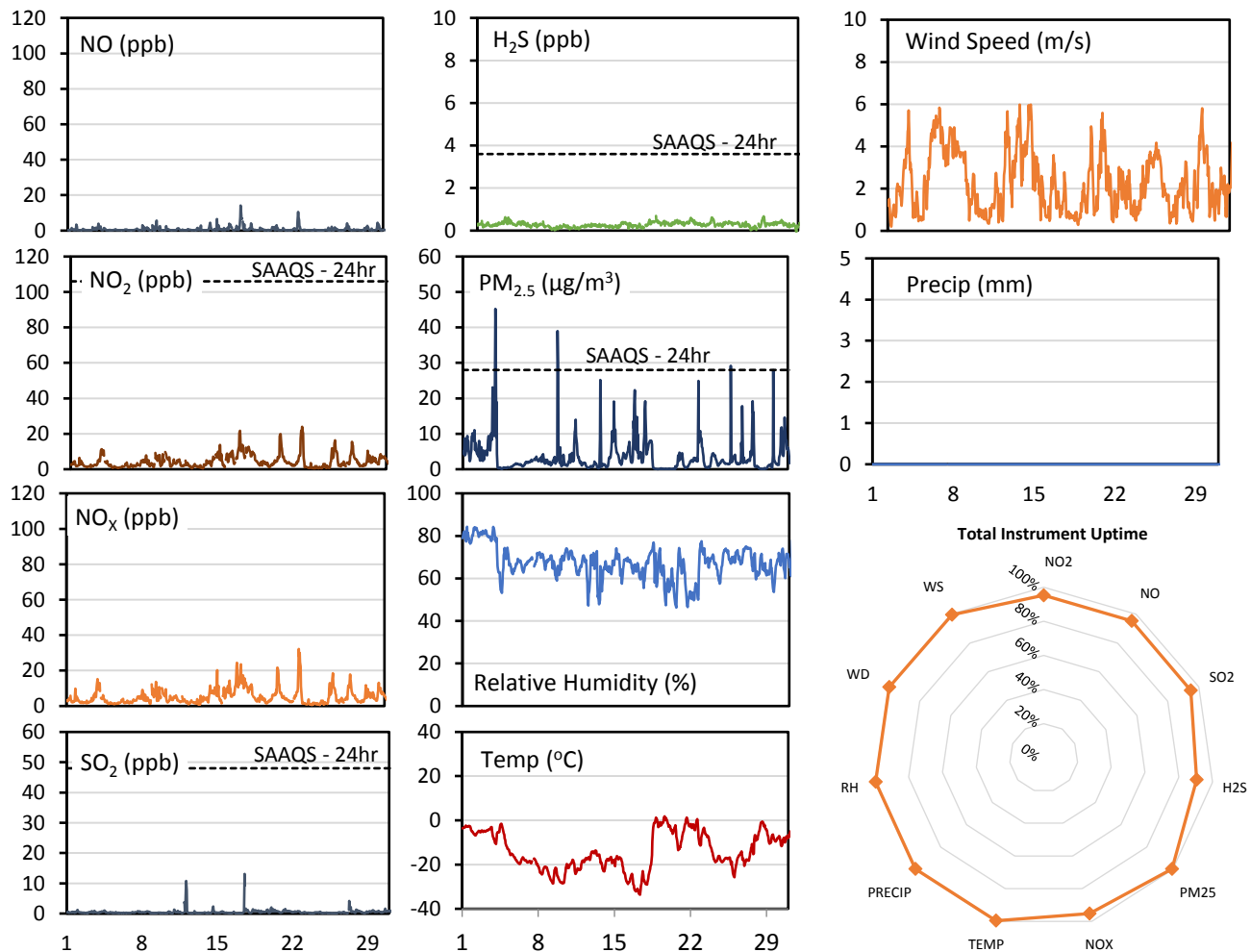
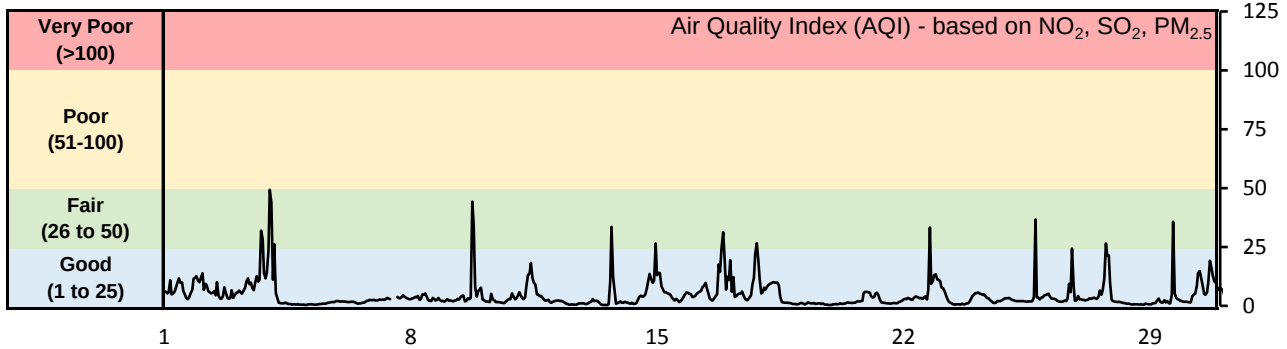
Monthly Update

- Achieved >99% of scheduled uptime for all parameters except SO₂ (66%)
- SO₂ data missing due to equipment malfunction; repaired December 18
- Downtime of 4% results from routine daily Internal Zeroes and Spans

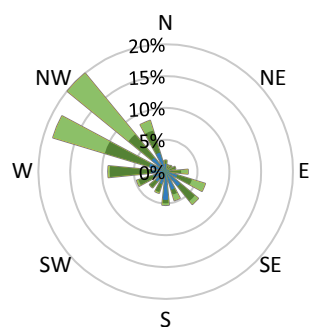
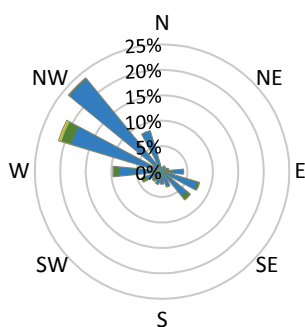
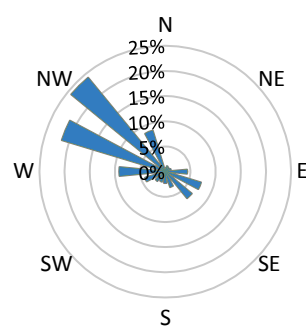
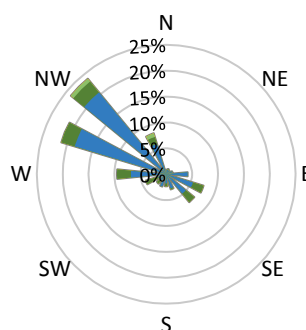
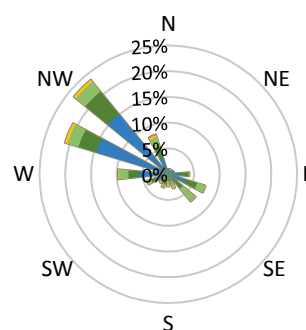
WYAMZ Maidstone Station - December 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.8	95%	3.1	Dec-17	-	-	14.1	Dec-17 11:00	-	-
NO ₂	ppb	4.4	95%	12.2	Dec-17	106	0	24.0	Dec-23 00:00	159	0
NO _x	ppb	5.2	95%	15.3	Dec-17	-	-	32.2	Dec-22 22:00	-	-
SO ₂	ppb	0.5	95%	1.4	Dec-17	48	0	13.1	Dec-17 13:00	172	0
H ₂ S	ppb	0.3	91%	0.4	Dec-17	3.6	0	0.7	Dec-17 17:00	11	0
PM _{2.5}	µg/m ³	3.5	100%	8.7	Dec-03	28	0	45.2	Dec-04 00:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



Wind Rose


SO₂ Pollutant Rose

H₂S Pollutant Rose

NO₂ Pollutant Rose

PM_{2.5} Pollutant Rose


Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$
SO ₂	ppb	$0 \leq C < 1$	$1 \leq C < 5$	$5 \leq C < 10$	$10 \leq C < 57$	$57 \leq C < 172$	$C \geq 172$
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$
H ₂ S	ppb	$0 \leq C < 1$	$1 \leq C < 3.6$	$3.6 \leq C < 5$	$5 \leq C < 8$	$8 \leq C < 10.8$	$C \geq 10.8$
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$

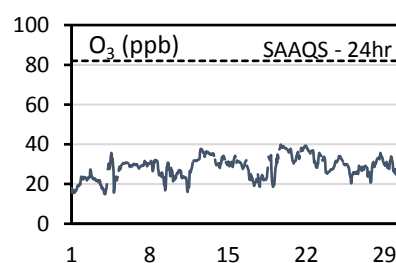
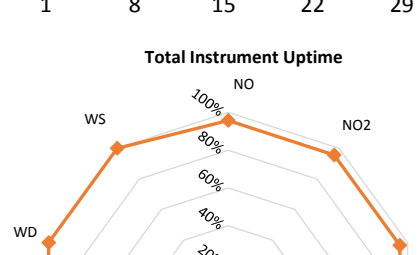
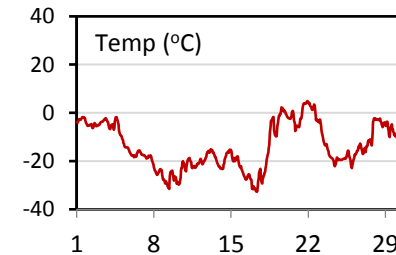
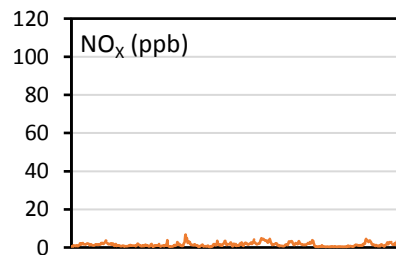
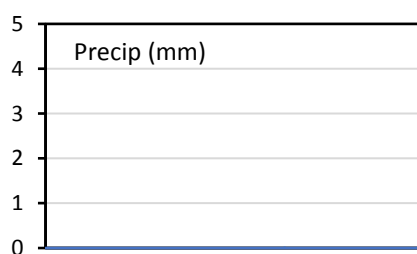
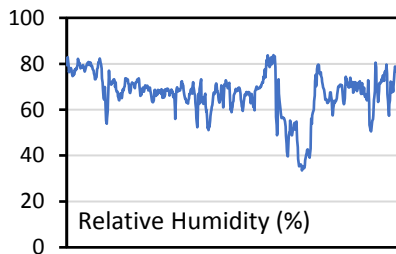
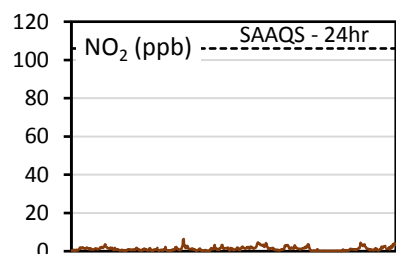
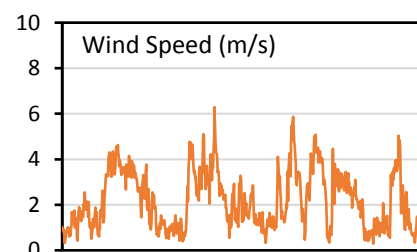
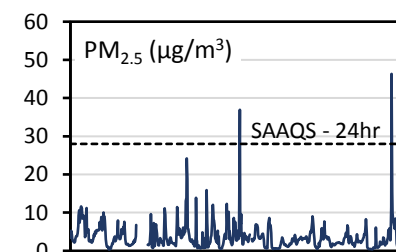
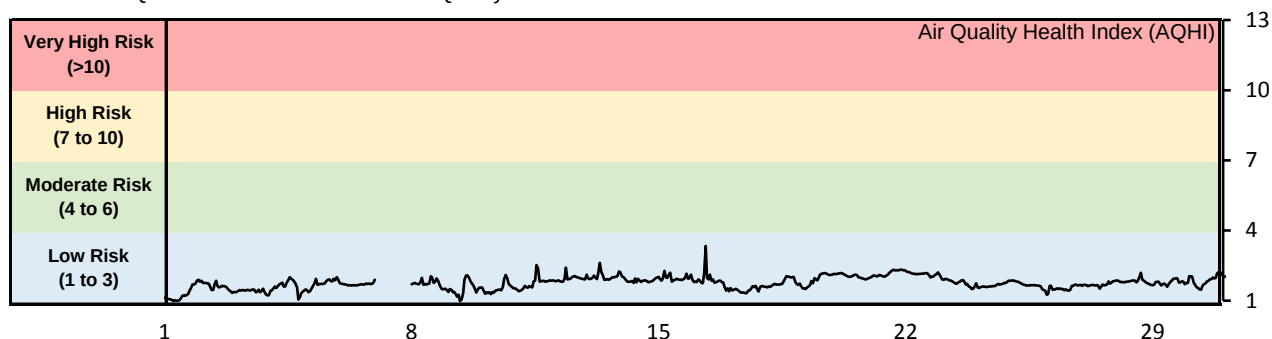
Monthly Update

- Achieved >99% of scheduled uptime for all parameters except H₂S (94.7%)
- Downtime of 4% results from routine daily Internal Zeroes and Spans
- Longer-than-normal routine daily Internal Zeroes and Spans for H₂S resulted in an additional downtime of 4%

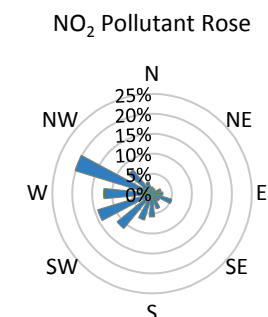
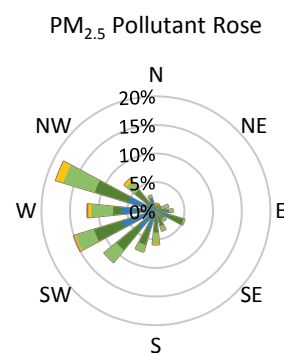
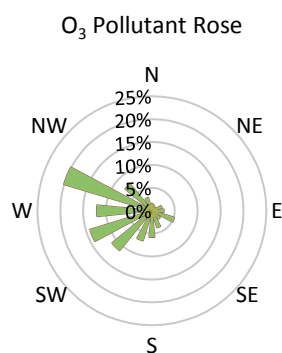
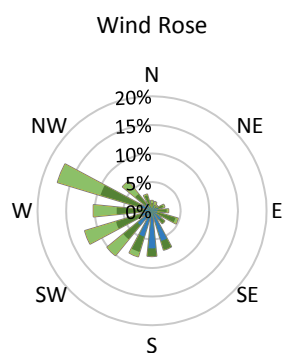
WYAMZ Meadow Lake Station - December 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.3	96%	0.5	Dec-11	-	-	1.9	Dec-11 12:00	-	-
NO ₂	ppb	1.2	96%	3.2	Dec-18	106	0	6.4	Dec-11 09:00	159	0
NO _x	ppb	1.5	96%	3.5	Dec-18	-	-	6.8	Dec-11 09:00	-	-
O ₃	ppb	28.5	96%	35.9	Dec-21	-	-	39.8	Dec-19 17:00	82	0
PM _{2.5}	µg/m ³	3.6	97%	7.6	Dec-30	28	0	46.3	Dec-30 02:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



WYAMZ Meadow Lake Station - December 2016 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class					
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$
O ₃	ppb	$0 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 40$	$40 \leq C < 60$	$60 \leq C < 82$	$C \geq 82$
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$

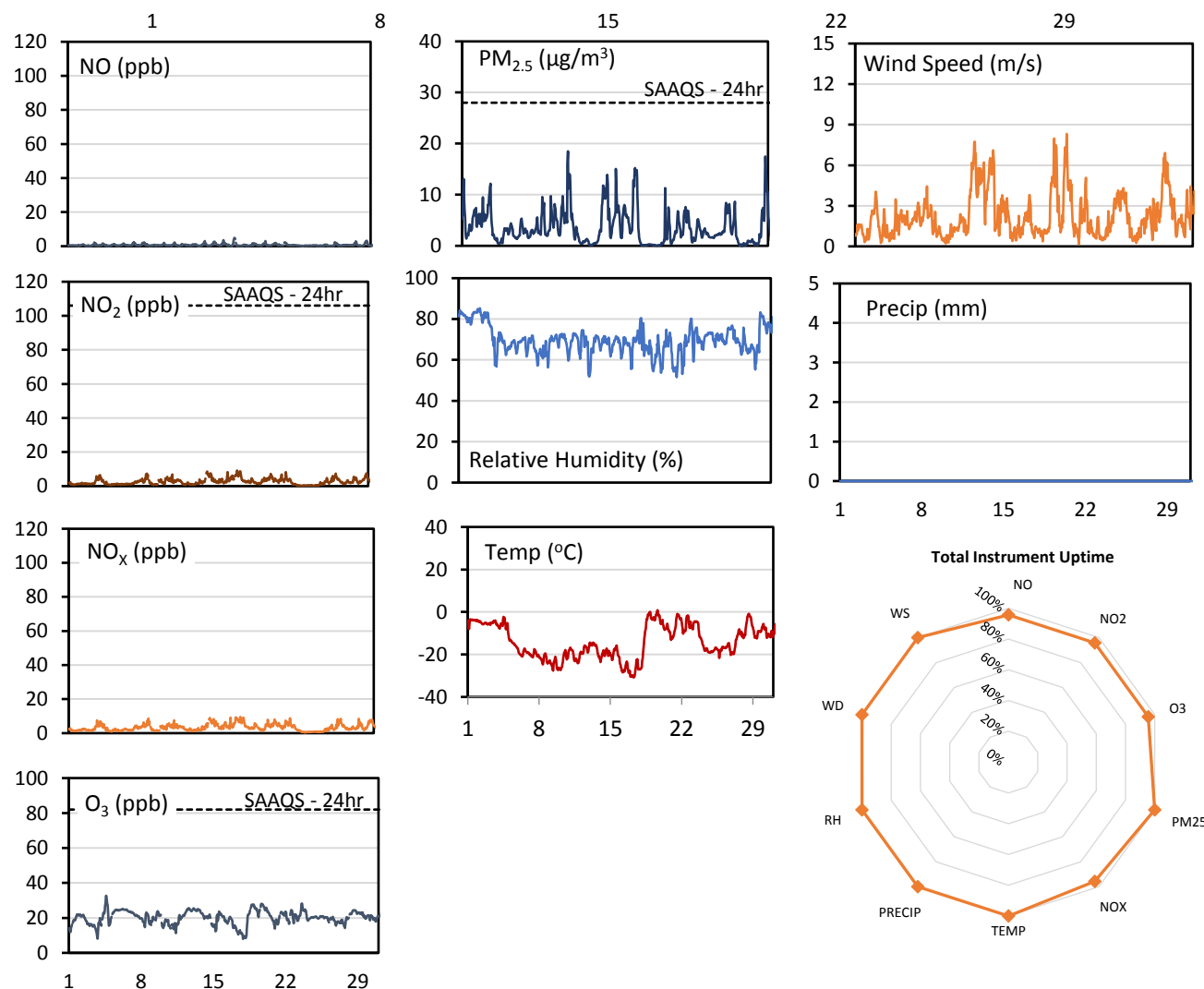
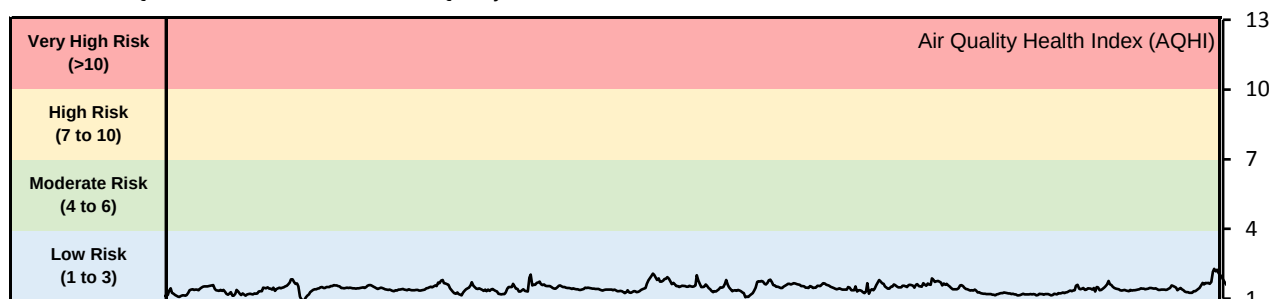
Monthly Update

- Achieved 100% of scheduled uptime for all parameters except PM_{2.5} (96.5%)
- Downtime of 4% results from routine daily Internal Zeroes and Spans
- Downtime for PM_{2.5} due to operational issues

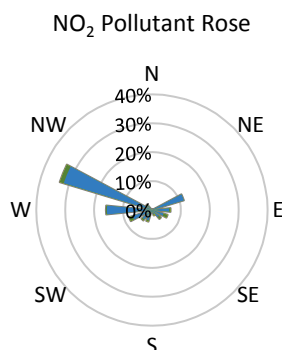
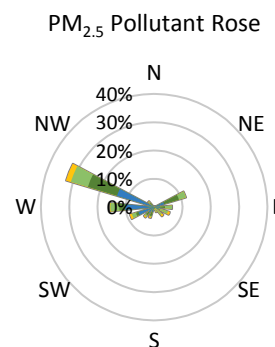
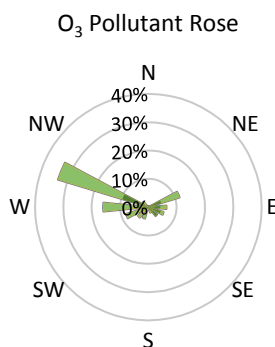
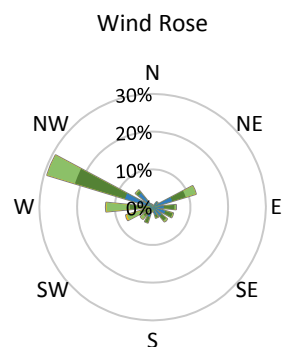
WYAMZ Unity Station - December 2016 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Total Uptime	Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.7	96%	1.2	Dec-17	-	-	4.9	Dec-17 12:00	-	-
NO ₂	ppb	2.6	96%	5.3	Dec-17	106	0	9.2	Dec-17 21:00	159	0
NO _x	ppb	3.3	96%	6.5	Dec-17	-	-	9.5	Dec-17 21:00	-	-
O ₃	ppb	20.3	96%	25.4	Dec-19	-	-	32.7	Dec-04 15:00	82	0
PM _{2.5}	µg/m ³	3.6	100%	8.0	Dec-11	28	0	18.5	Dec-11 09:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



WYAMZ Unity Station - December 2016 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class						
Wind Speed	m/s	$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$	
O ₃	ppb	$0 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 40$	$40 \leq C < 60$	$60 \leq C < 82$	$C \geq 82$	
NO ₂	ppb	$0 \leq C < 5$	$5 \leq C < 15$	$15 \leq C < 30$	$30 \leq C < 100$	$100 \leq C < 212$	$C \geq 212$	
PM _{2.5}	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$	

Monthly Update

- Achieved 100% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily Internal Zeroes and Spans