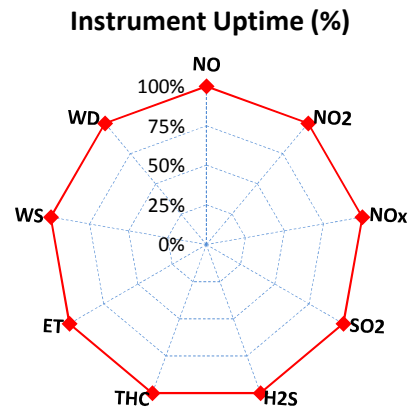
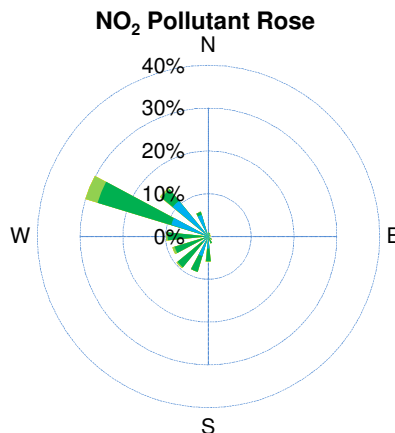
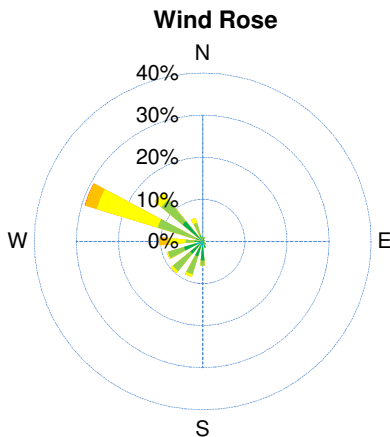
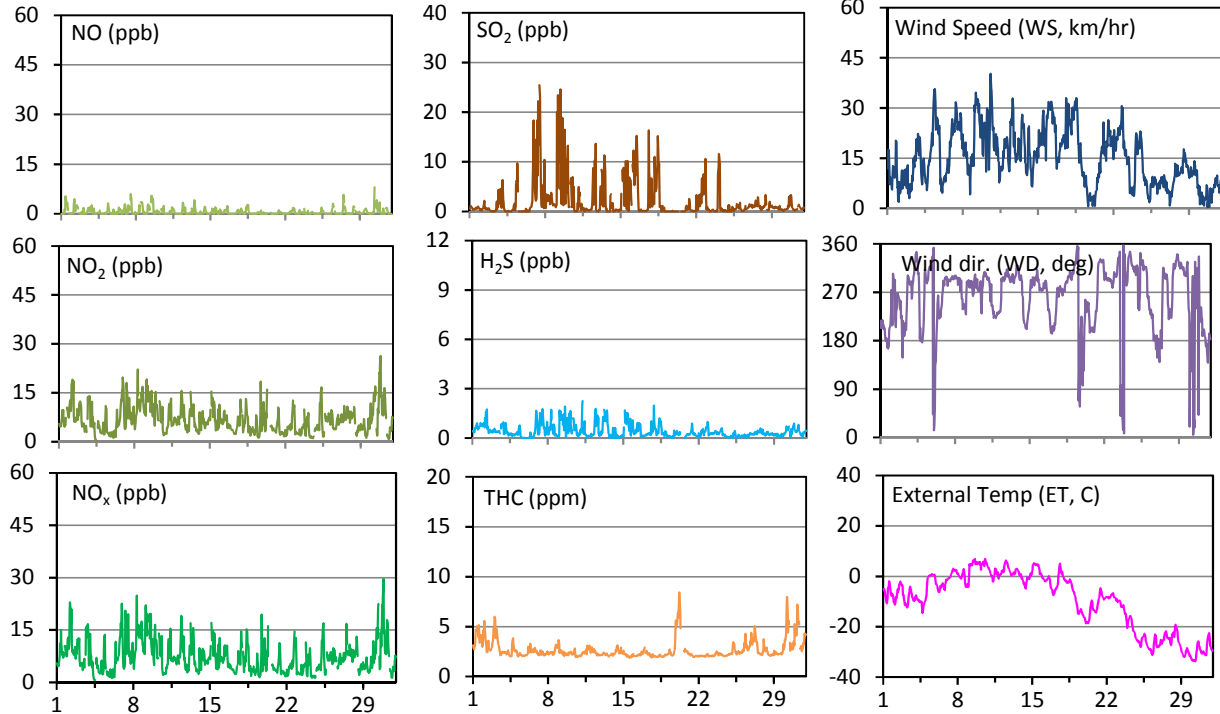


# Husky Energy East Station - December 2017 Summary Report

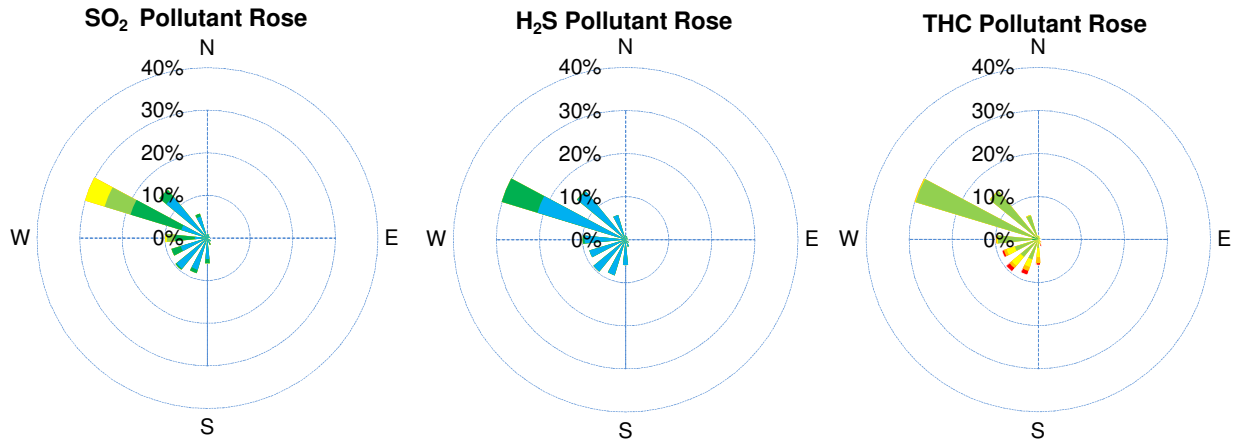
Pollutants		Month Records		24-Hour Records				1-Hour Records			
Name	Conc. Unit	Avg. Conc.	Uptime	Maximum		SAAQS Standards	Exceed Days	Maximum		SAAQS Standards	Exceed Hours
				Conc.	Time			Conc.	Time		
NO	ppb	0.7	100.0%	1.8	Dec-9	-	-	8.0	Dec-30 10:00	-	-
NO <sub>2</sub>	ppb	6.7	100.0%	12.5	Dec-30	106	0	26.3	Dec-30 21:00	159	0
NO <sub>x</sub>	ppb	7.4	100.0%	14.0	Dec-9	-	-	29.6	Dec-30 21:00	-	-
SO <sub>2</sub>	ppb	2.1	100.0%	9.2	Dec-9	48	0	25.5	Dec-07 12:00	172	0
H <sub>2</sub> S	ppb	0.4	100.0%	0.9	Dec-9	3.6	0	2.3	Dec-11 06:00	11.0	0
THC	ppm	2.7	100.0%	4.2	Dec-30	-	-	8.4	Dec-20 05:00	-	-

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 <sub>2</sub>	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
NO <sub>2</sub>	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212
H <sub>2</sub> 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 2017 Summary Report



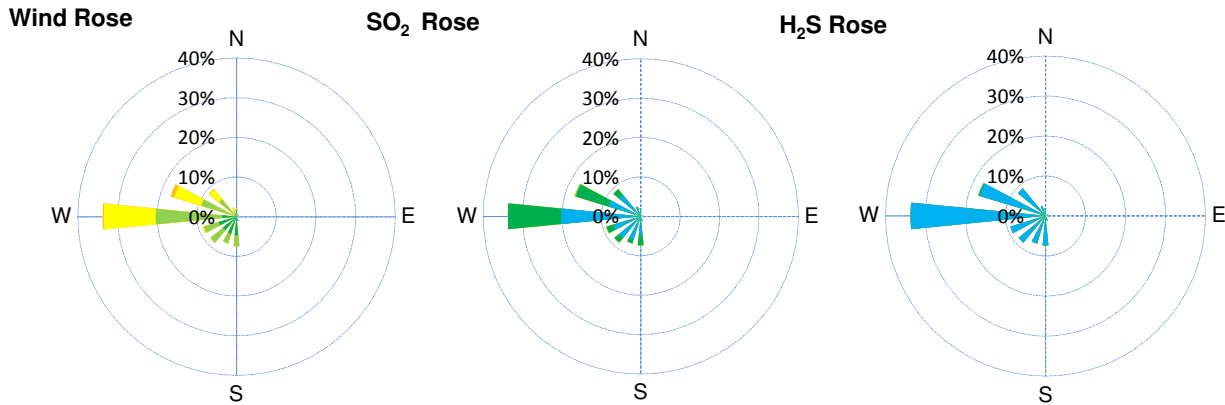
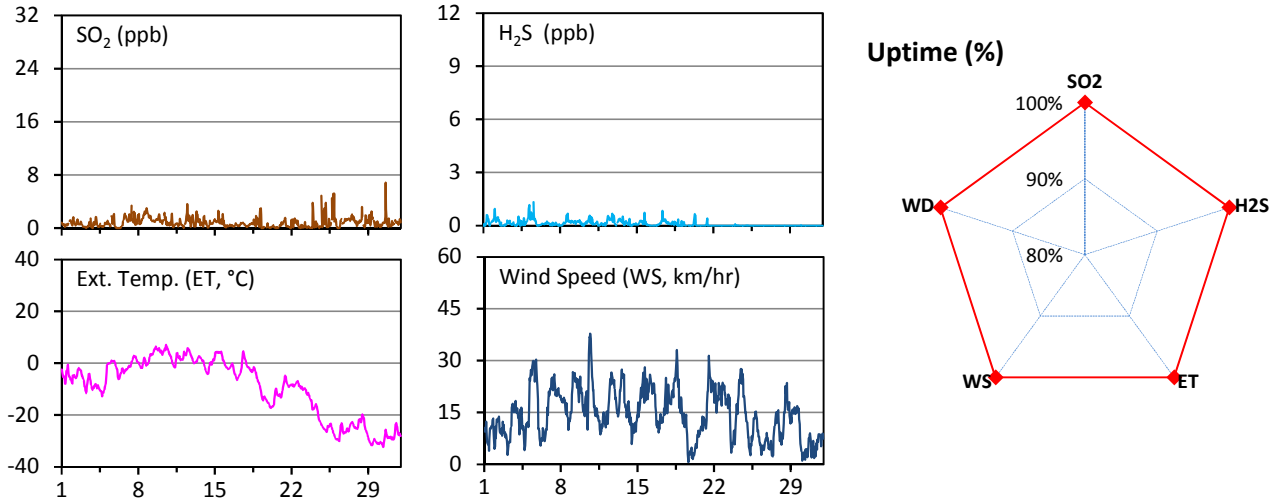
Monthly Update

- \*Air monitoring data has been validated. Data may change after validation process.
- \*All compliance parameters were within the Saskatchewan Ambient Air Quality Standards.
- \*All compliance parameters are above 90% operational. There are no operational issues to report.

# Husky Energy West Station - December 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
				Maximum		AAAQO / SAAQS	Exceed Days	Maximum		AAAQO / SAAQS	Exceed Hours
				Conc.	Time			Conc.	Time		
SO <sub>2</sub>	ppb	0.8	100.0%	1.8	Dec-8	48 / 48	0 / 0	6.8	Dec-30 15:00	172 / 172	0 / 0
H <sub>2</sub> S	ppb	0.4	100.0%	0.4	Dec-5	3 / 3.6	0 / 0	1.0	Dec-05 14:00	10 / 11.0	0 / 0

AAAQO: Alberta Ambient Air Quality Objectives; 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 <sub>2</sub>	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H <sub>2</sub> 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 validated. Data may change after validation process.

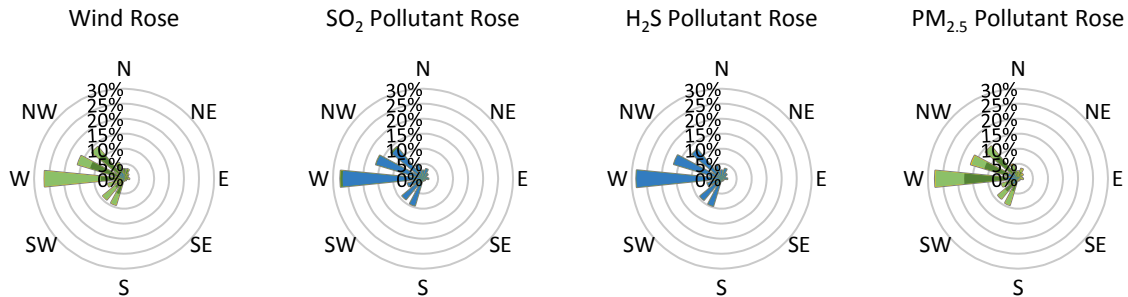
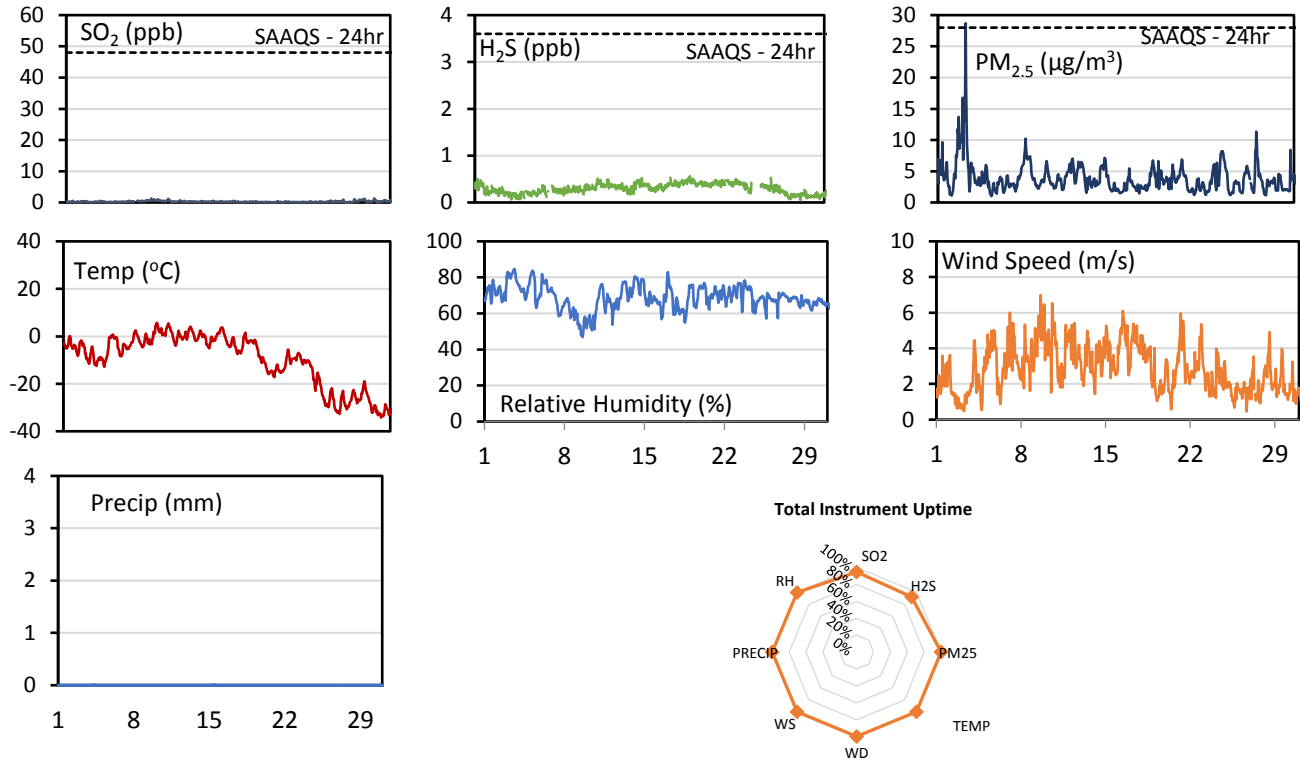
\*All compliance parameters were within the Alberta Ambient Air Quality Objectives and the Saskatchewan Ambient Air Quality Standards.

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

## WYAMZ Kerrobert Station - December 2017 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 <sub>2</sub>	ppb	0.3	95%	0.7	Dec-09	48	0	1.3	Dec-08 21:00	172	0
H <sub>2</sub> S	ppb	0.3	92%	0.5	Dec-19	3.6	0	0.6	Dec-19 11:00	11	0
PM <sub>2.5</sub>	µg/m <sup>3</sup>	3.9	100%	9.7	Dec-03	28	0	28.7	Dec-03 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 <sub>2</sub>	ppb	0 ≤ C < 1	1 ≤ C < 5	5 ≤ C < 10	10 ≤ C < 57	57 ≤ C < 172	C ≥ 172
H <sub>2</sub> S	ppb	0 ≤ C < 1	1 ≤ C < 3.6	3.6 ≤ C < 5	5 ≤ C < 8	8 ≤ C < 10.8	C ≥ 10.8
PM <sub>2.5</sub>	µg/m <sup>3</sup>	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30

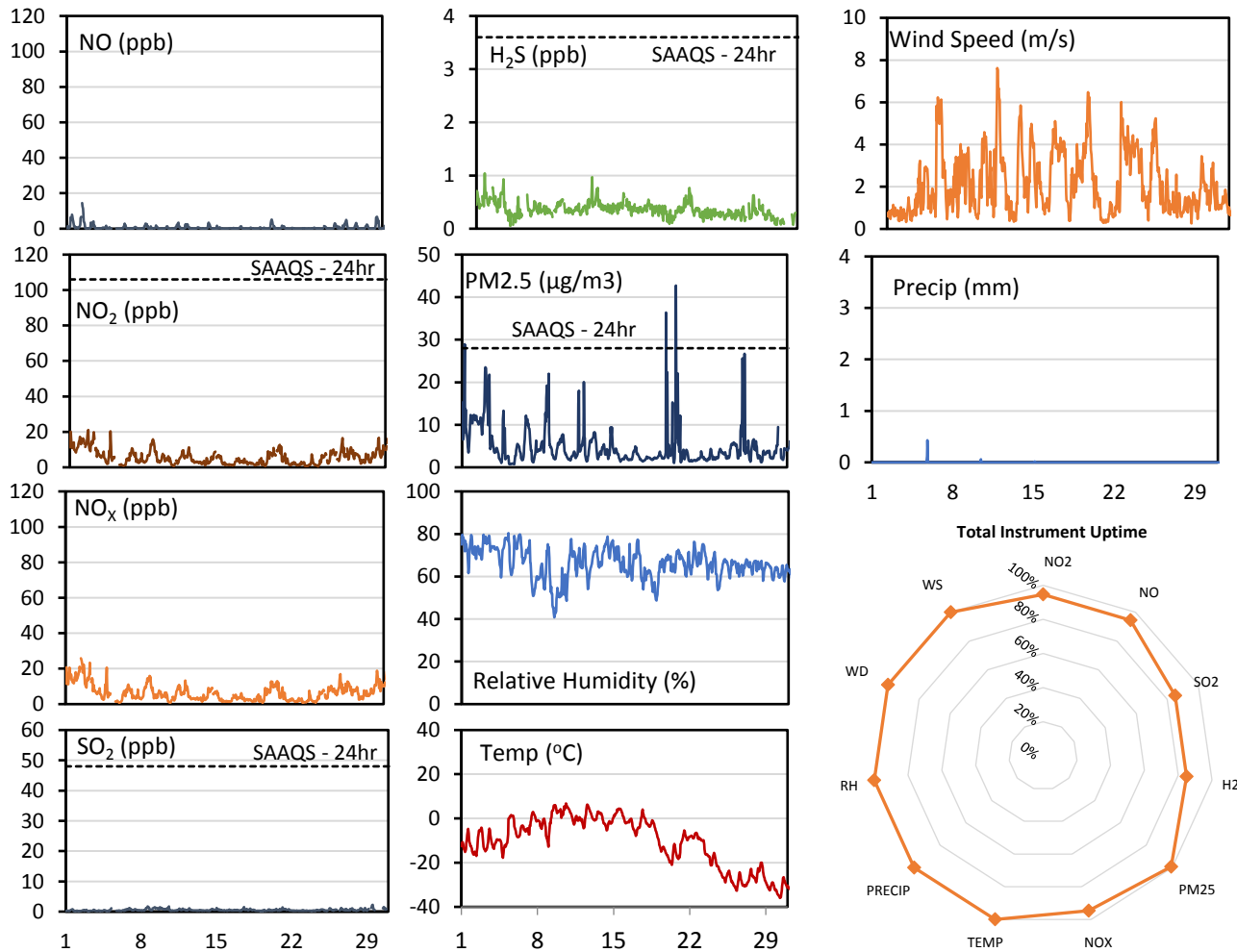
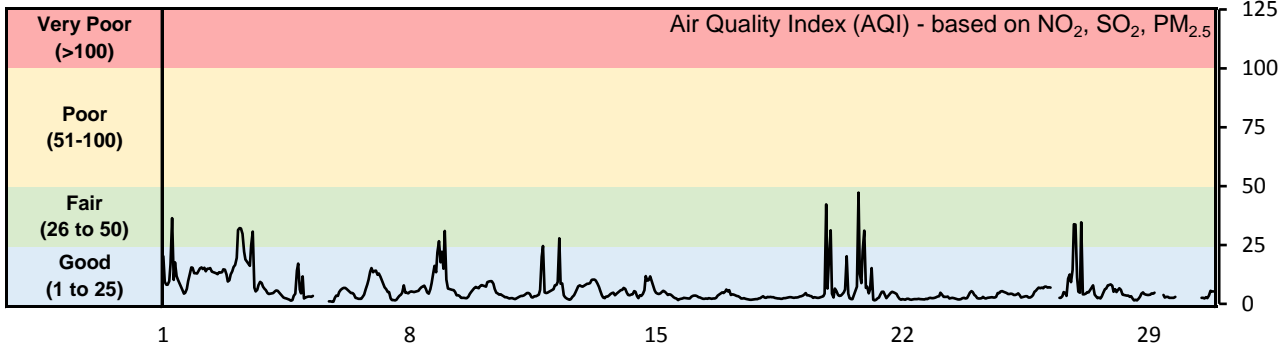
### Monthly Update

- Achieved >90% of scheduled uptime for all parameters
- Downtime of 4% results from routine daily internal zeroes and spans
- Calibration performed December 7, 2017

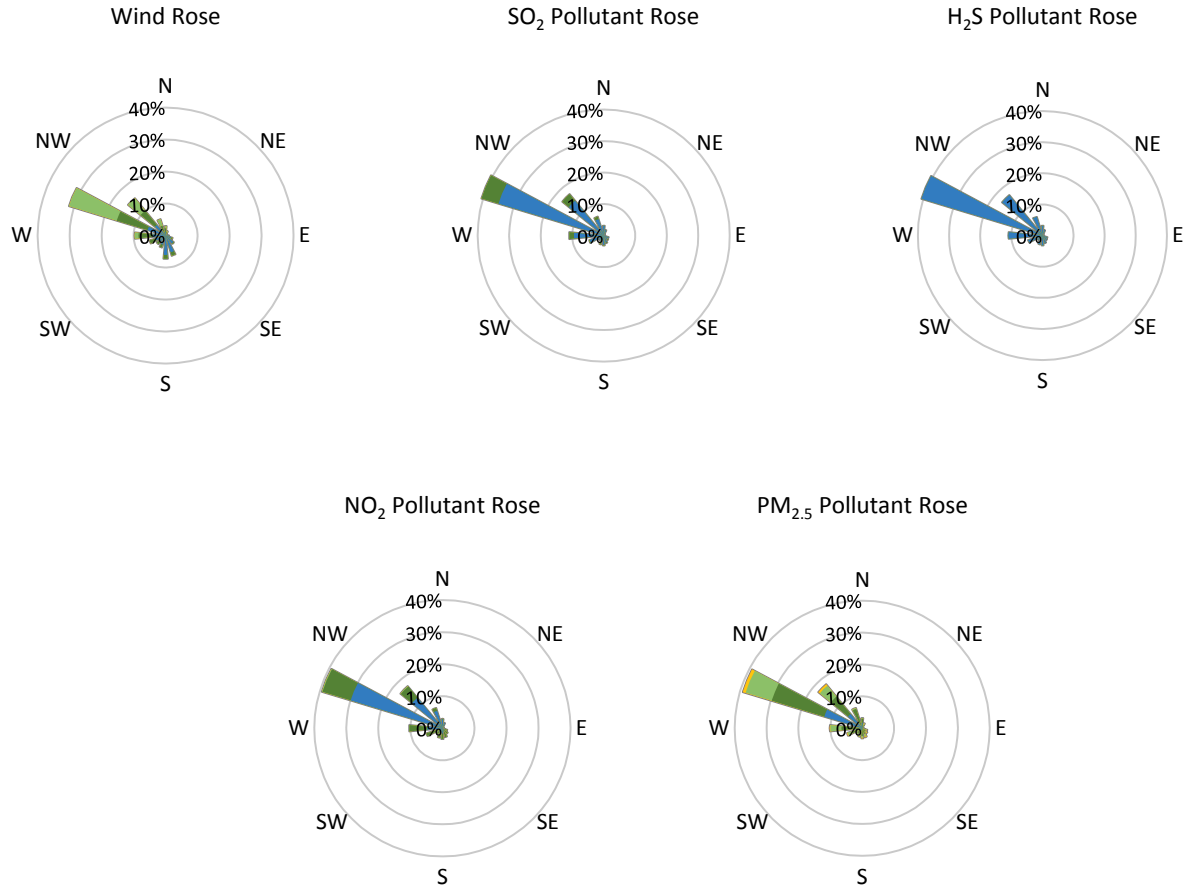
## WYAMZ Maidstone Station - December 2017 Summary Report

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	95%	3.4	Dec-02	-	-	14.5	Dec-02 11:00	-	-
NO <sub>2</sub>	ppb	5.8	95%	14.1	Dec-02	106	0	21.1	Dec-02 18:00	159	0
NO <sub>x</sub>	ppb	6.5	95%	17.5	Dec-02	-	-	25.9	Dec-02 11:00	-	-
SO <sub>2</sub>	ppb	0.5	85%	1.1	Dec-09	48	0	2.3	Dec-29 13:00	172	0
H <sub>2</sub> S	ppb	0.4	85%	0.6	Dec-01	3.6	0	1.0	Dec-01 19:00	11	0
PM <sub>2.5</sub>	µg/m <sup>3</sup>	4.8	99%	12.1	Dec-03	28	0	42.7	Dec-20 18:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



## WYAMZ Maidstone Station - December 2017 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class						
		$0.3 \leq WS < 1.4$	$1.4 \leq WS < 3.1$	$3.1 \leq WS < 7.8$	$7.8 \leq WS < 10.8$	$10.8 \leq WS < 13.6$	$WS \geq 13.6$	
SO <sub>2</sub>	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 <sub>2</sub>	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 <sub>2</sub> 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 <sub>2.5</sub>	$\mu\text{g}/\text{m}^3$	$0 \leq C < 2$	$2 \leq C < 4$	$4 \leq C < 10$	$10 \leq C < 20$	$20 \leq C < 30$	$C \geq 30$	

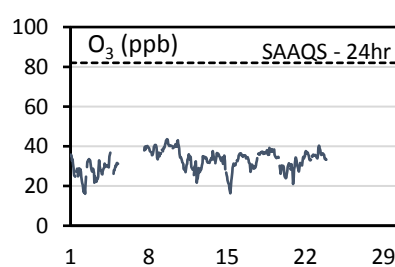
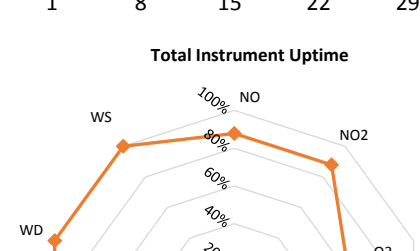
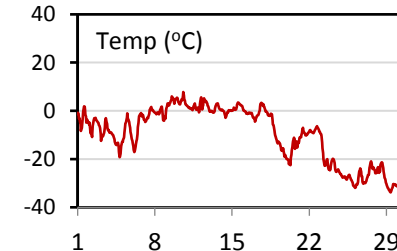
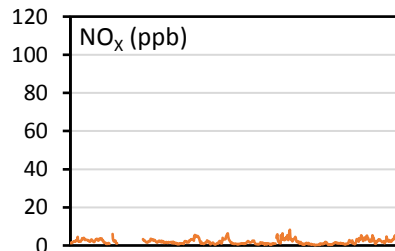
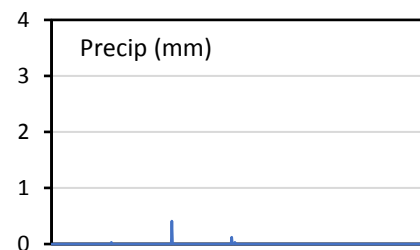
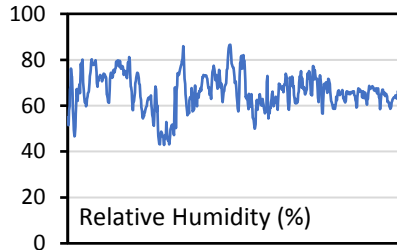
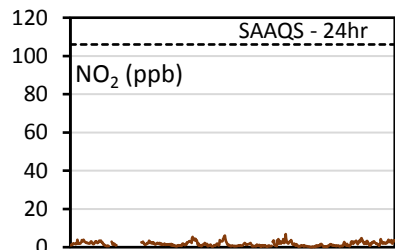
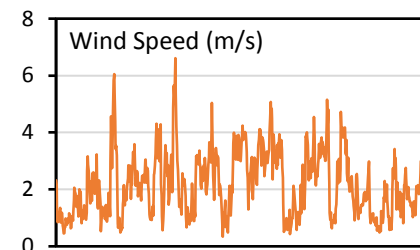
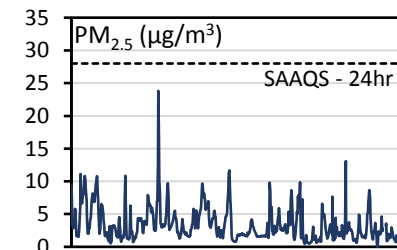
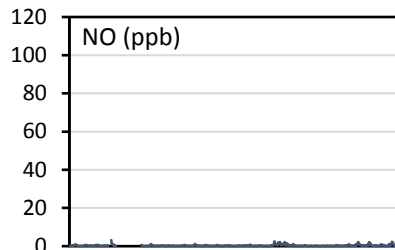
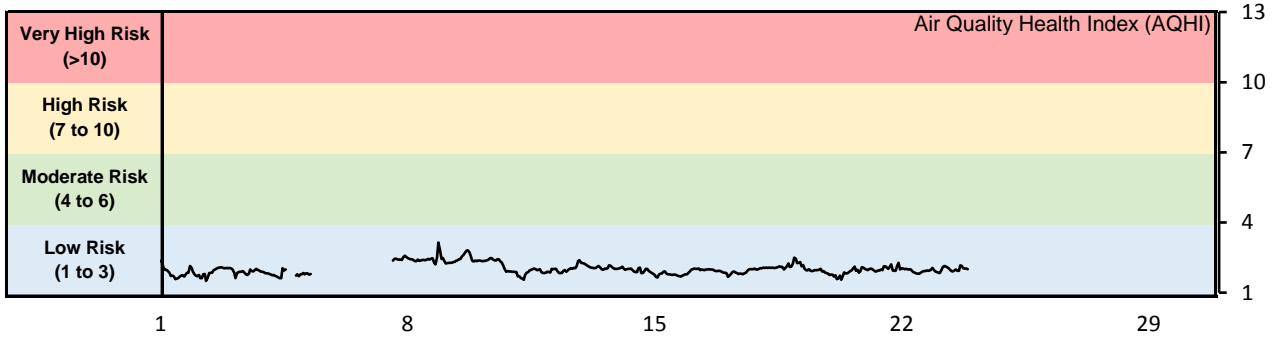
### Monthly Update

- Achieved >90% of scheduled uptime for all parameters except SO<sub>2</sub> and H<sub>2</sub>S (85%)
- Downtime of 4% results from routine daily internal zeroes and spans (8% for SO<sub>2</sub>/H<sub>2</sub>S)
- Calibration performed December 5, 2017

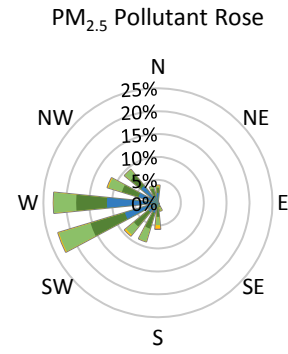
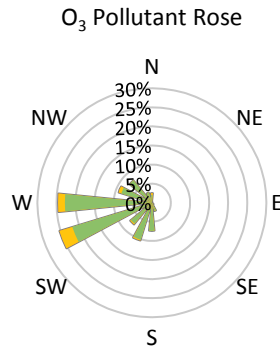
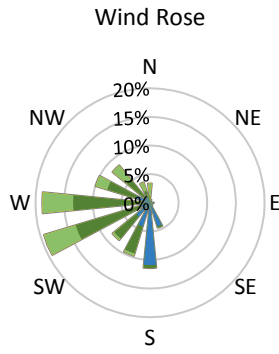
## WYAMZ Meadow Lake Station - December 2017 Summary Report

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	88%	1.1	Dec-20	-	-	3.1	Dec-04 20:00	-	-
NO <sub>2</sub>	ppb	1.7	88%	3.2	Dec-12	106	0	6.9	Dec-20 22:00	159	0
NO <sub>x</sub>	ppb	2.1	88%	3.9	Dec-20	-	-	8.3	Dec-20 22:00	-	-
O <sub>3</sub>	ppb	32.6	63%	40.0	Dec-09	-	-	43.6	Dec-09 15:00	82	0
PM <sub>2.5</sub>	µg/m <sup>3</sup>	3.3	99%	6.9	Dec-08	28	0	23.8	Dec-08 21:00	-	-

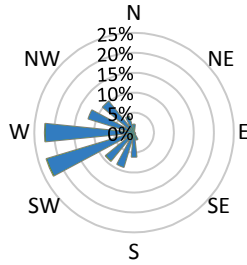
SAAQS: Saskatchewan Ambient Air Quality Standards



## WYAMZ Meadow Lake Station - December 2017 Summary Report



**NO<sub>2</sub> Pollutant Rose**



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class						
		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	
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 <sub>3</sub>	ppb	0 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 40	40 ≤ C < 60	60 ≤ C < 82	C ≥ 82	
NO <sub>2</sub>	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212	
PM <sub>2.5</sub>	µg/m <sup>3</sup>	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30	

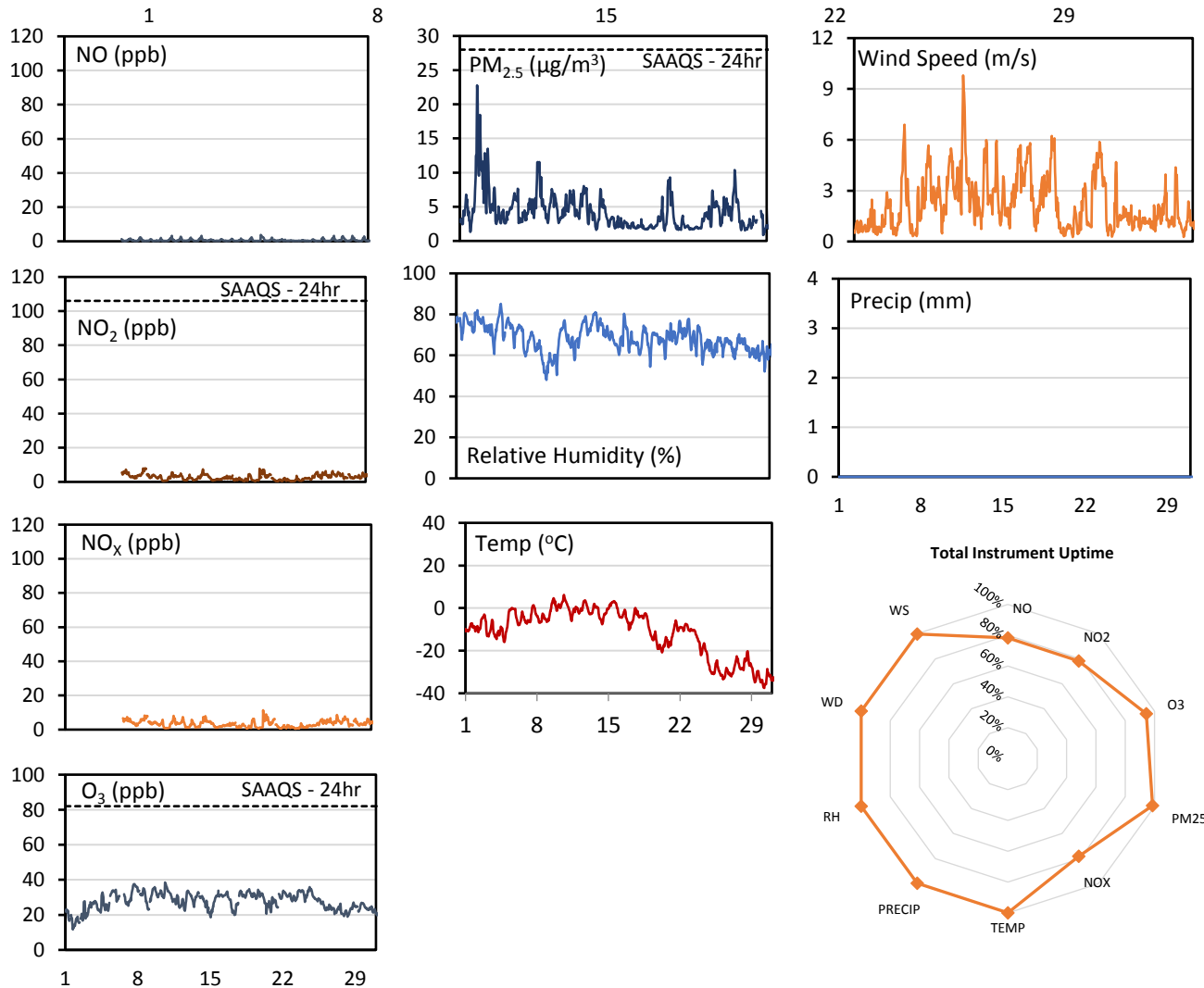
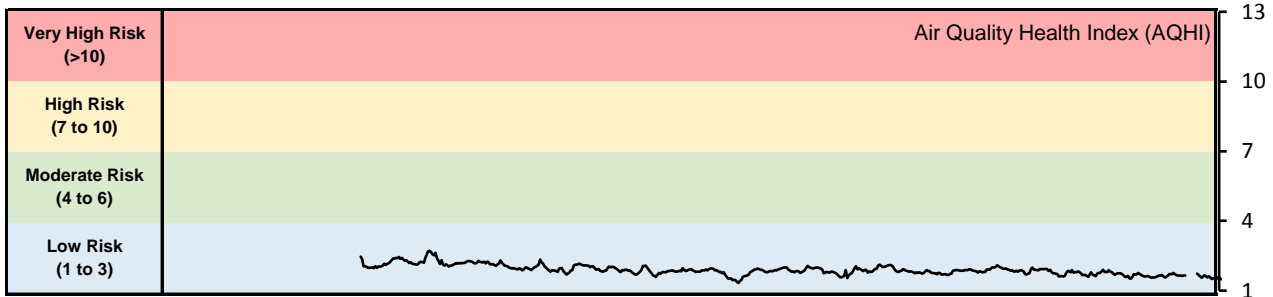
### Monthly Update

- Achieved >80% of scheduled uptime for all parameters except O<sub>3</sub> (63%)
- Downtime of 4% results from routine daily internal zeroes and spans
- Downtime due to instrument issues
- Calibration performed December 4, 2017

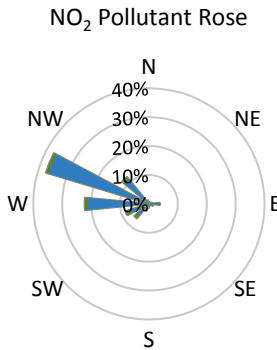
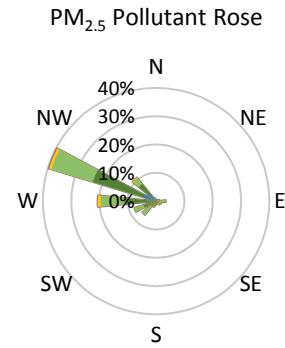
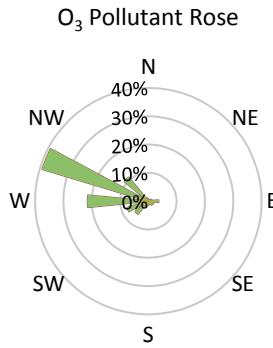
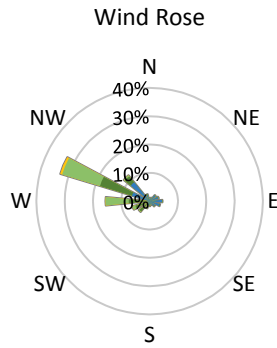
## WYAMZ Unity Station - December 2017 Summary Report

Pollutants		Month Records		24-Hour Records				1-Hour Records			
				Maximum		SAAQS Standard	Exceed Days	Maximum		SAAQS Standard	Exceed Hours
				Conc.	Time			Conc.	Time		
Name	Conc. Unit	Avg. Conc.	Total Uptime	Conc.	Time	SAAQS Standard	Exceed Days	Conc.	Time	SAAQS Standard	Exceed Hours
NO	ppb	0.7	78%	1.1	Dec-31	-	-	5.8	Dec-31 11:00	-	-
NO <sub>2</sub>	ppb	2.8	78%	5.3	Dec-06	106	0	8.0	Dec-09 00:00	159	0
NO <sub>x</sub>	ppb	3.5	78%	5.8	Dec-06	-	-	12.4	Dec-31 11:00	-	-
O <sub>3</sub>	ppb	27.4	94%	33.4	Dec-10	-	-	38.5	Dec-10 15:00	82	0
PM <sub>2.5</sub>	µg/m <sup>3</sup>	4.2	99%	9.3	Dec-03	28	0	22.8	Dec-02 17:00	-	-

SAAQS: Saskatchewan Ambient Air Quality Standards



## WYAMZ Unity Station - December 2017 Summary Report



Parameters	Unit	Color Code for Wind Speed and Pollution Concentration Class						
		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	
Wind Speed	m/s	0 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 40	40 ≤ C < 60	60 ≤ C < 82	C ≥ 82	
O <sub>3</sub>	ppb	0 ≤ C < 5	5 ≤ C < 15	15 ≤ C < 30	30 ≤ C < 100	100 ≤ C < 212	C ≥ 212	
NO <sub>2</sub>	ppb	0 ≤ C < 2	2 ≤ C < 4	4 ≤ C < 10	10 ≤ C < 20	20 ≤ C < 30	C ≥ 30	
PM <sub>2.5</sub>	µg/m <sup>3</sup>							

### Monthly Update

- Achieved >90% of scheduled uptime for all parameters except for NO/NO<sub>2</sub>/NO<sub>x</sub> (78%)
- Downtime of 4% results from routine daily internal zeroes and spans
- Repaired NO<sub>x</sub> analyzer installed December 5, 2017
- Calibration performed December 6, 2017