REPORT N^{O} 171-00556-00

AMBIENT AIR QUALITY MONTHLY REPORT

JANUARY 2018

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Lafarge Canada Inc.

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1 INTRODUCTION

This report summarizes the ambient air quality and meteorological data collected at the Lagoon monitoring location and the GRIMM monitors in Exshaw, AB. The station is operated by WSP on behalf of Lafarge Canada Inc. (Lafarge) and is a requirement of Lafarge's Approval 1702-02-04. This report contains data collected between January 1, 2018 and January 31, 2018.

This monthly report was prepared by Byeong Kim, an Air Quality Specialist with WSP, on behalf of Lafarge and was reviewed by Tyler Abel, Manager of Air Quality and Air Quality Specialist at WSP.

2 JANUARY 2018 REPORT SUMMARY

This summary section provides the pertinent details on data collected and maintenance/calibration activities at each of the monitoring locations. The monitoring results for the stations are described in further detail in their corresponding sections. Maximum hourly concentrations are shown for all particulate matter size fractions, but there are no Alberta Ambient Air Quality Objectives (AAAQO) for 1-hour PM concentrations. The exceedances reported for 1-hour $PM_{2.5}$ are those above the 1-hour $PM_{2.5}$ Alberta Ambient Air Quality Guidelines (AAAQG).

2.1 LAGOON STATION

Table 2-1 Lagoon station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of AAAQO or AAAQG	Maximum Concentration	Exceedances of AAAQO
NO_2 (ppb)	100.0	30.0	0	21.1	-
SO_2 (ppb)	100.0	15.5	0	3.5	0
$PM_{2.5}$ (µg/m^3)	100.0	27.0	0	19.0	0
PM_{10} (µg/m^3)	100.0	356.5	-	56.3	-
TSP (µg/m^3)	100.0	544.9	-	70.9	0
Temperature (°C)	100.0	7.6	-	4.2	-
Wind Speed (km/hr) /Direction (Degrees)	100.0	50.7/W	-	37.4/WSW	-
Precipitation (mm)	93.8	0.5	-	1*	-

* Monthly Total Accumulation of Precipitation (mm)

Data Quality Notes:

- There was no exceedance of the 24-hour $PM_{2.5}$ AAAQO and the 1-hour $PM_{2.5}$ AAAQG.
- There was no exceedance of the 24-hour TSP AAAQO.
- 46 hours of precipitation data (starting from 2AM on January 30th) have been invalidated because a wind gust blew over the precipitation gauge. Gauge was repaired on February 1st.

Calibration/Maintenance Notes:

- The monitor had 100% uptime for the month of January.
- The precipitation gauge was repaired on February 1st.

2.2 WINDRIDGE STATION

Table 2-2 Windridge station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of AAAQO or AAAQG	Maximum Concentration	Exceedances of AAAQO
$PM_{2.5}$ (µg/m^3)	100.0	39.2	0*	18.0	0
PM_{10} (µg/m^3)	100.0	463.8	-	128.7	-
TSP (µg/m^3)	100.0	504.1	-	180.6	7

* Any exceedances reported for 1-hour $PM_{2.5}$ are over the guideline level (AAAQG) of 80 µg/m^3.

Data Quality Notes:

- There was no exceedance of the 24-hour $PM_{2.5}$ AAAQO or the 1-hour $PM_{2.5}$ AAAQG.
- There were 7 exceedances of the 24-hour TSP AAAQO.

Calibration/Maintenance Notes:

- The monitor had 100% uptime for the month of January.

2.3 WEST GRIMM

The GRIMM monitors are Industrial Ambient Monitors meant to aid Lafarge in assessing the performance of their Fugitive Dust Control Best Management Practices – Program (FDCBMP-P). The AAAQO are used as Guidelines to evaluate the performance of the FDCBMP-P.

Table 2-3 West station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of Guidelines	Maximum Concentration	Exceedances of Guidelines
$PM_{2.5}$ (µg/m^3)	100.0	43.1	0*	22.9	0
PM_{10} (µg/m^3)	100.0	195.6	-	43.1	-
TSP (µg/m^3)	100.0	632.7	-	180.2	1

*Exceedance of 1-hour AAAQG

Data Quality Notes:

- There were no exceedances of the 24-hour $PM_{2.5}$ AAAQO or the 1-hour $PM_{2.5}$ AAAQG.
- There was 1 exceedance of the 24-hour TSP AAAQO.

Calibration/Maintenance Notes:

- The monitor had 100% uptime for the month of January.

2.4 BERM GRIMM

The GRIMM monitors are Industrial Ambient Monitors meant to aid Lafarge in assessing the performance of their FDCBMP-P. The AAAQO are used as Guidelines to evaluate the performance of the FDCBMP-P.

Table 2-4 Berm station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of Guidelines	Maximum Concentration	Exceedances of Guidelines
$PM_{2.5}$ (µg/m^3)	86.7	67.6	0*	27.4	0
PM_{10} (µg/m^3)	86.7	664.2	-	193.5	-
TSP (µg/m^3)	86.7	2475.1	-	601.5	14

* The exceedances reported for 1-hour $PM_{2.5}$ are over the guideline level (AAAQG) of 80 µg/m^3.

Data Quality Notes:

- There were 0 and 14 exceedances of the 24-hour $PM_{2.5}$ and TSP AAAQO, respectively.
- There was no exceedance of the 1-hour $PM_{2.5}$ AAAQG.

Calibration/Maintenance Notes:

- The monitor had 86.7% uptime for the month of January due to 99 hours of power outage.

2.5 ENTRANCE GRIMM

The GRIMM monitors are Industrial Ambient Monitors meant to aid Lafarge in assessing the performance of their FDCBMP-P. The AAAQO are used as Guidelines to evaluate the performance of the FDCBMP-P.

Table 2-5 Entrance station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of Guidelines	Maximum Concentration	Exceedances of Guidelines
$PM_{2.5}$ (µg/m^3)	99.5	123.5	1*	22.0	0
PM_{10} (µg/m^3)	99.5	522.9	-	82.0	-
TSP (µg/m^3)	99.5	1616.5	-	370.7	11

* The exceedances reported for 1-hour $PM_{2.5}$ are over the guideline level (AAAQG) of 80 µg/m^3.

Data Quality Notes:

- There were 0 and 11 exceedances of the 24-hour $PM_{2.5}$ and TSP AAAQO, respectively.
- There was 1 exceedance of the 1-hour $PM_{2.5}$ AAAQG.

Calibration/Maintenance Notes:

→ The monitor had 99.5% uptime for the month of January due to 4 hours of instrument error.

3 LAGOON STATION

The Lagoon trailer contains NO_x, SO_2, TSP, PM_{10}, and $PM_{2.5}$ analyzers as well as meteorological sensors, and is shown in Figure 3-1. An ambient air quality station has been at this location since 2002, providing a long-term data record for air quality in the Exshaw area.

This section provides a summary of the monitoring activities for the Lagoon ambient air quality station, including: a table of instrumentation (Table 3-1), site visit notes, wind roses (Figure 3-3, 3-4, 3-5) and tables and graphs illustrating the monitoring results for January 2018.

All of the monitors comply with Alberta Environment and Parks Air Monitoring Directive (2016).

Table 3-1 Instrumentation List at the Lagoon Station

Equipment Description	Parameter Measured
MetOne BAM-1020 FRM Continuous Particulate Monitor	$PM_{2.5}$ Concentrations
MetOne BAM-1020 Continuous Particulate Monitor	PM_{10} Concentrations
MetOne BAM-1020 Continuous Particulate Monitor	TSP Concentrations
TEI 42C	Oxides of Nitrogen
Teledyne API 102A	Sulphur Dioxide
MetOne 130 Rain/Snow Gauge	Precipitation
MetOne Wind Sensor	Wind Speed
	Wind Direction
MetOne Ambient Temperature Sensor	Ambient Temperature

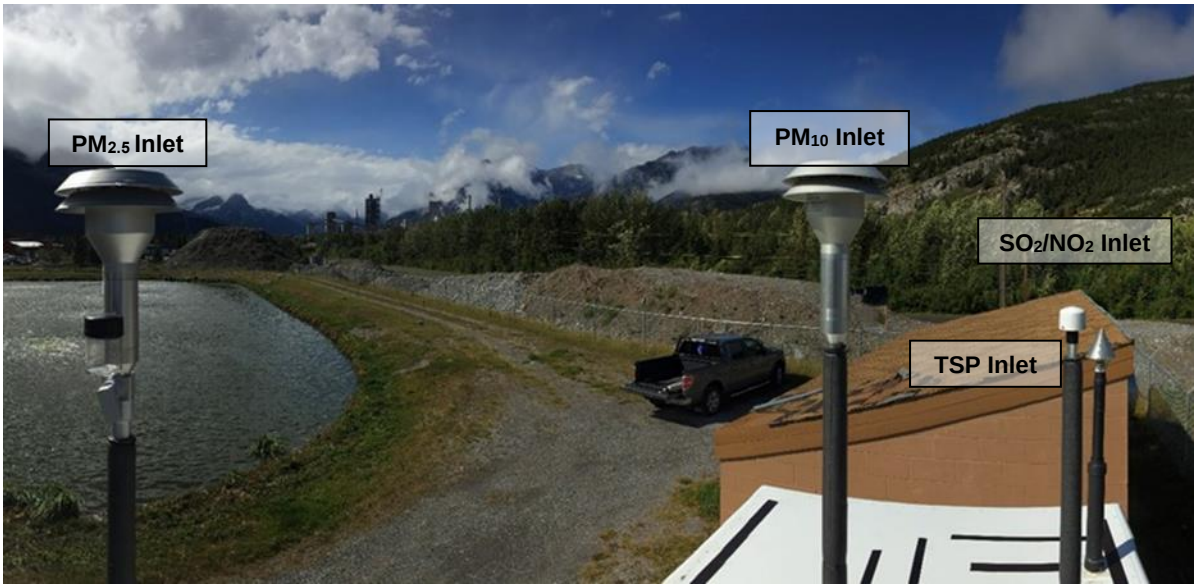


Figure 3-1 Inlets on the top of WSP's Lagoon monitor

3.1 SITE VISIT NOTES

A summary of site visit notes for each of the monitors is provided in this section.

3.1.1 NO_X MONITORING

The NO_x monitor underwent monthly calibration on January 4th and had 100% uptime.

3.1.2 SO_2 MONITORING

The SO_2 monitor underwent monthly calibration on January 4th and had 100% uptime.

3.1.3 PM MONITORING

All BAM monitors underwent monthly calibration on January 4th. The operation time for all PM monitors was 100%.

3.1.4 METEOROLOGICAL MONITORING

All meteorological sensors had 100% uptime for the month of January, except for the precipitation gauge. The operation uptime for precipitation was 93.8% due to 46 hours of invalid data starting from 2AM on January 30th after a wind gust blew over the precipitation gauge.

3.2 MONITORING RESULTS AND TRENDS

The following wind rose (Figure 3-3) illustrates the frequency of wind speed by wind direction for the month of January 2018. Table 3-2 summarizes the hourly and daily concentrations recorded in January 2018. Figure 3-4 graphically illustrates the time series for hourly concentrations as well as

wind speed and direction, while Figure 3-5 shows daily average concentrations recorded during January 2018 for the pollutants listed in Table 3-2.

There was no exceedance of both the 24-hour TSP (100 µg/m^3) and $PM_{2.5}$ (30 µg/m^3) AAAQO. Historically in January, there was 1 exceedance of the 24-hour TSP AAQO in 2015 and 2016 and no exceedances of the 24-hour $PM_{2.5}$ AAQO.

Since flooding in 2013, the Municipal District has built up stockpiles of dirt on the far western edge of the wastewater treatment facility. During the summer of 2016, the Municipal District has planted grass seed on these stockpiles in an effort to reduce the amount of fugitive dust generated. Figure 3-2 shows the extent of the grass planted by the MD.

Figure 3-2 Grass planted on the stockpiles near the Lagoon monitor. Photo taken January 12, 2016.

The wind rose (Figure 3-3) indicates that the winds predominantly came from the west, following the general orientation of the valley. As typical of the wind characteristics at the Lagoon site, the westerly winds were more intense (higher than 20 km/hr) than the easterly winds.

Table 3-2 Summary of January 2018 data at Lagoon

Parameter	Objectives		Station	Exceedances		Monthly Average	1-hour					24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration/ Meteorological Variable	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration/ Meteorological Variable	Day	
NO_2 (ppb)	159	-	Lagoon	0	-	6.6	30.0	11	23	8.3	224.0	21.1	11	100.0
SO_2 (ppb)	172	48	Lagoon	0	0	1.2	15.5	15	11	32.8	279.0	3.5	15	100.0
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Lagoon	0	0	6.0	27.0	28	20	13.1	67.3	19.0	28	100.0
PM_{10} ($\mu g/m^3$)	-	-	Lagoon	-	-	23.8	356.5	28	9	3.0	270.5	56.3	28	100.0
TSP ($\mu g/m^3$)	-	100	Lagoon	-	0	27.6	544.9	28	9	3.0	270.5	70.9	28	100.0
Temperature (°C)	-	-	Lagoon	-	-	-4.1	7.6	29	14	46.4	257.3	4.2	6	100.0
Wind Speed (km/hr)/Direction (degrees)	-	-	Lagoon	-	-	21.9	50.7/W	17	15	50.7	250.9	37.4/WSW	17	100.0
Precipitation (mm)	-	-	Lagoon	-	-	0.0	0.5					1.0	-	93.8

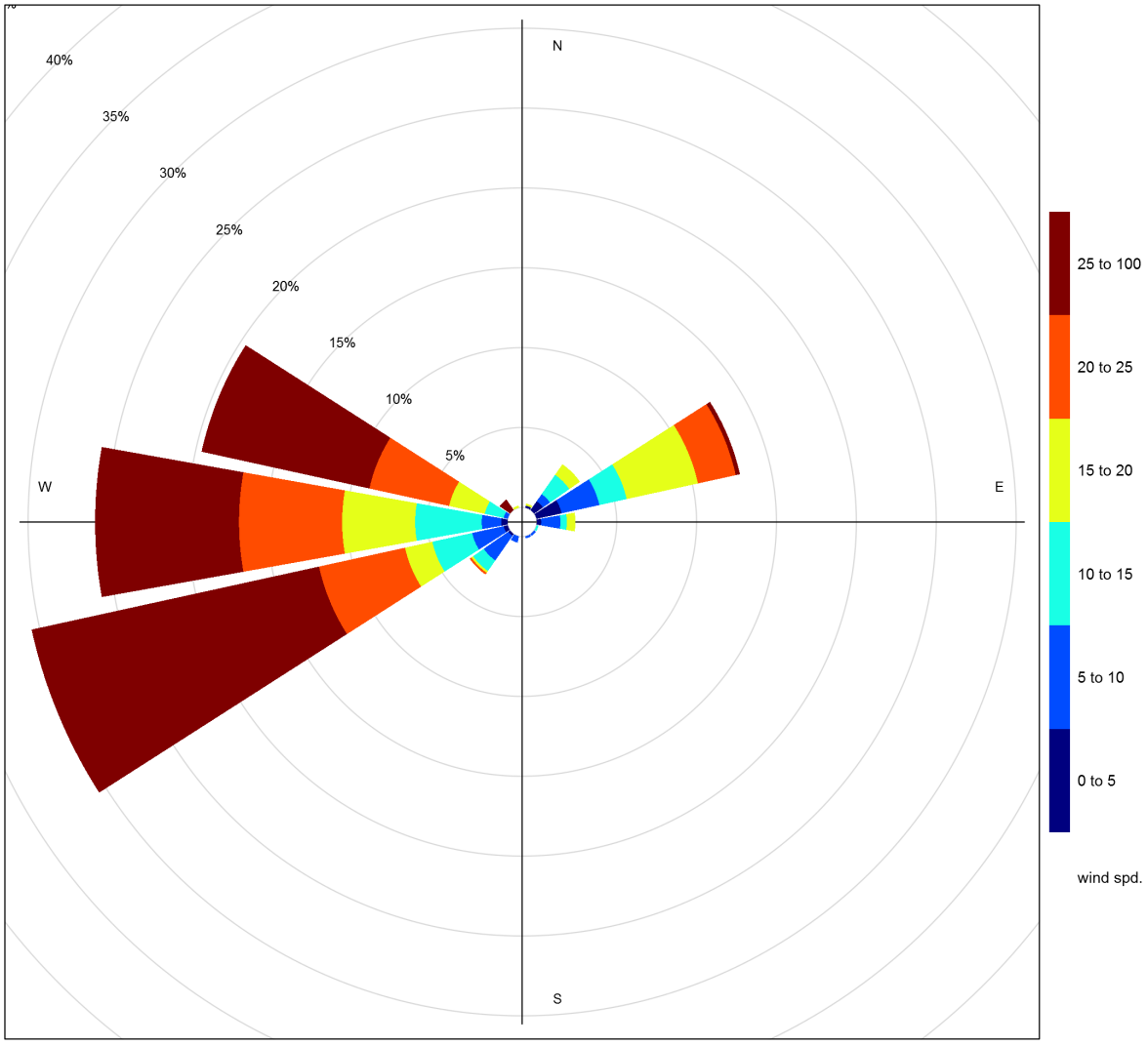


Figure 3-3 January 2018 wind rose from the Lagoon Station

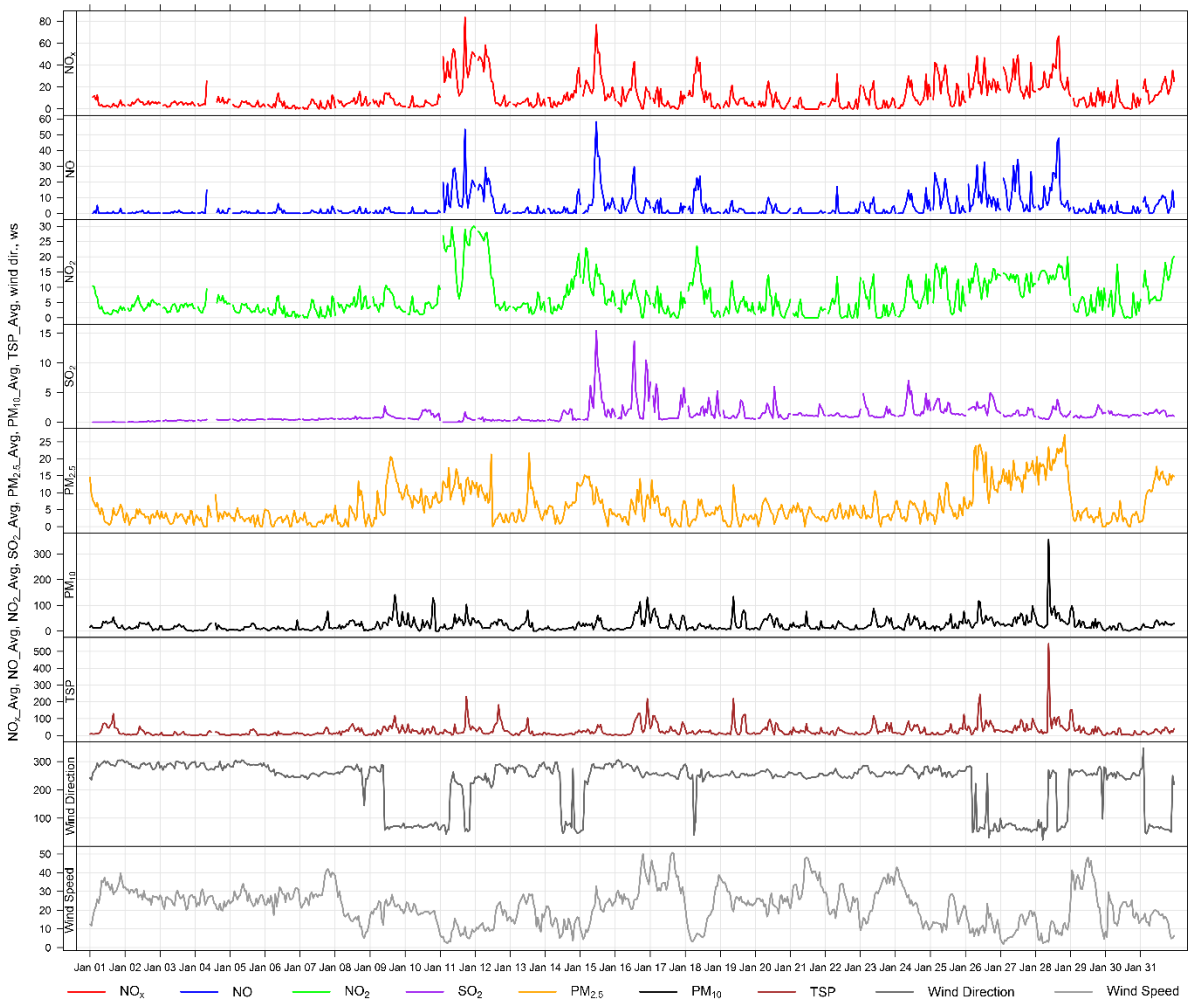


Figure 3-4 1-hour concentrations of NO_x, SO_2, particulate matter, wind direction and wind speed at the Lagoon monitor

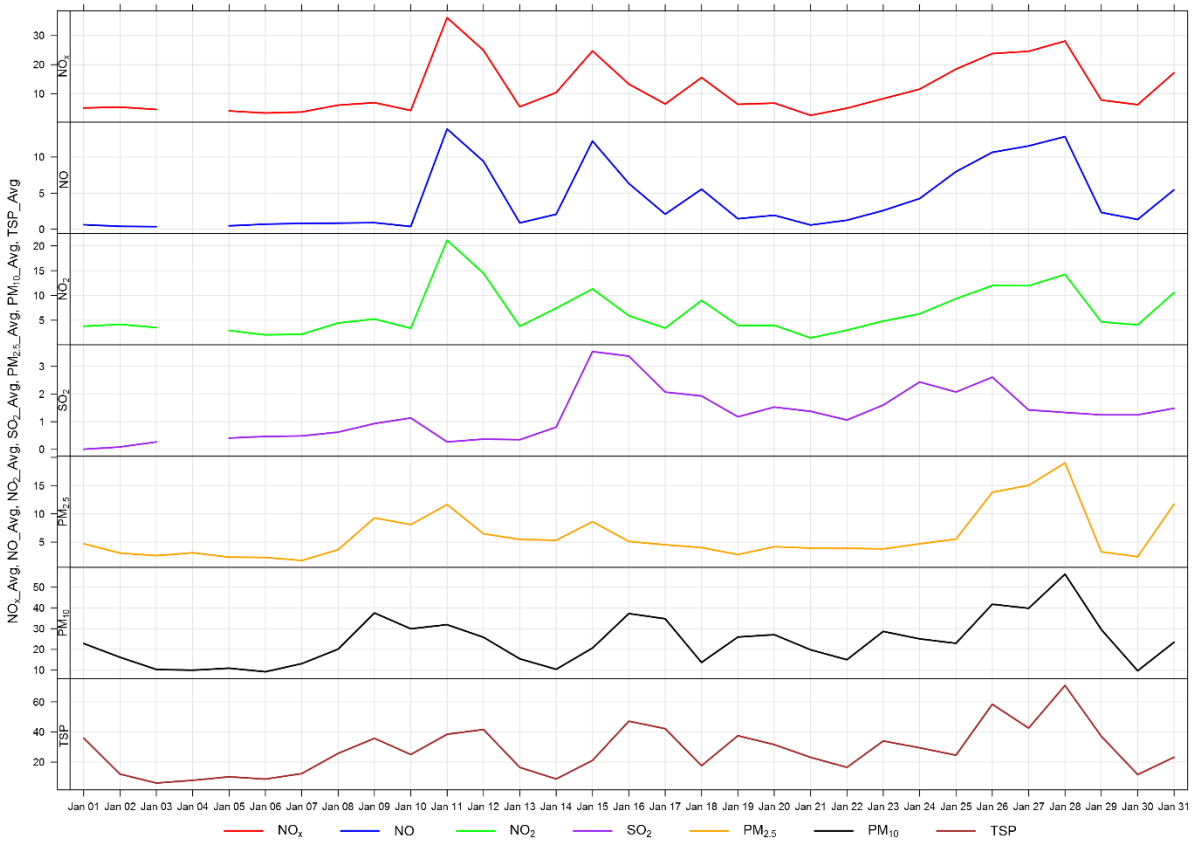


Figure 3-5 24-hour concentrations of NO_x, SO_2, and particulate matter at the Lagoon monitor

Figure 3-6 through Figure 3-8 show the variation in concentrations over various time averaging periods for PM, SO_2 and NO_x. The particulate matter plot in Figure 3-6 shows that PM_{10} and TSP concentrations tended to rise through the morning before peaking mid-day and decreasing during the afternoon and evening. PM_{10} and TSP are generally associated with dust from fugitive sources.

Figure 3-7 shows the variation of SO_2 over various time periods. SO_2 concentrations were very low in January. Figure 3-8 shows the variation of NO_x, NO and NO_2, with the peak of all three pollutants occurring in the morning between 6 am and noon. This may be indicative of a peak in traffic.

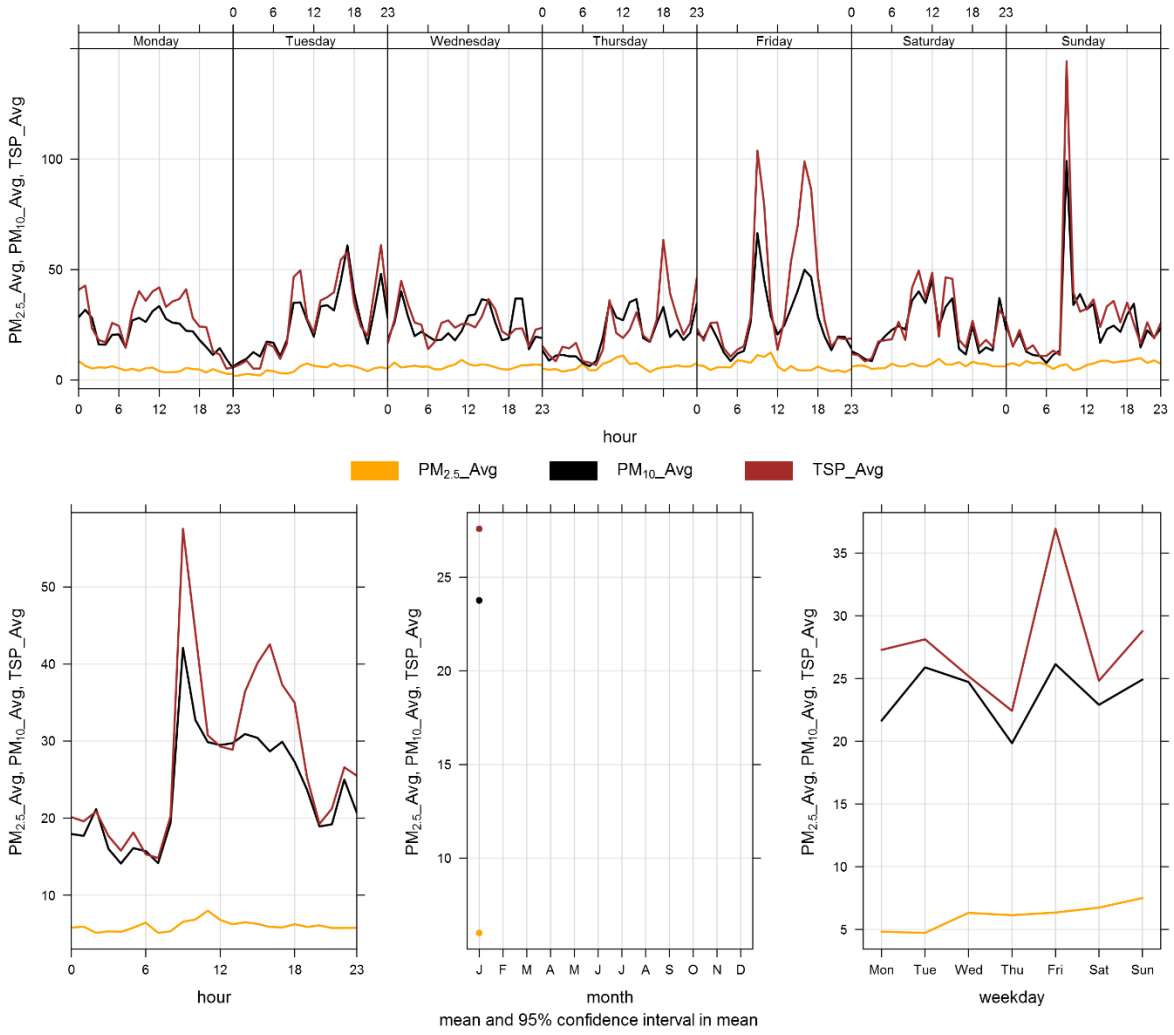


Figure 3-6 Lagoon Monitor particulate matter time variation

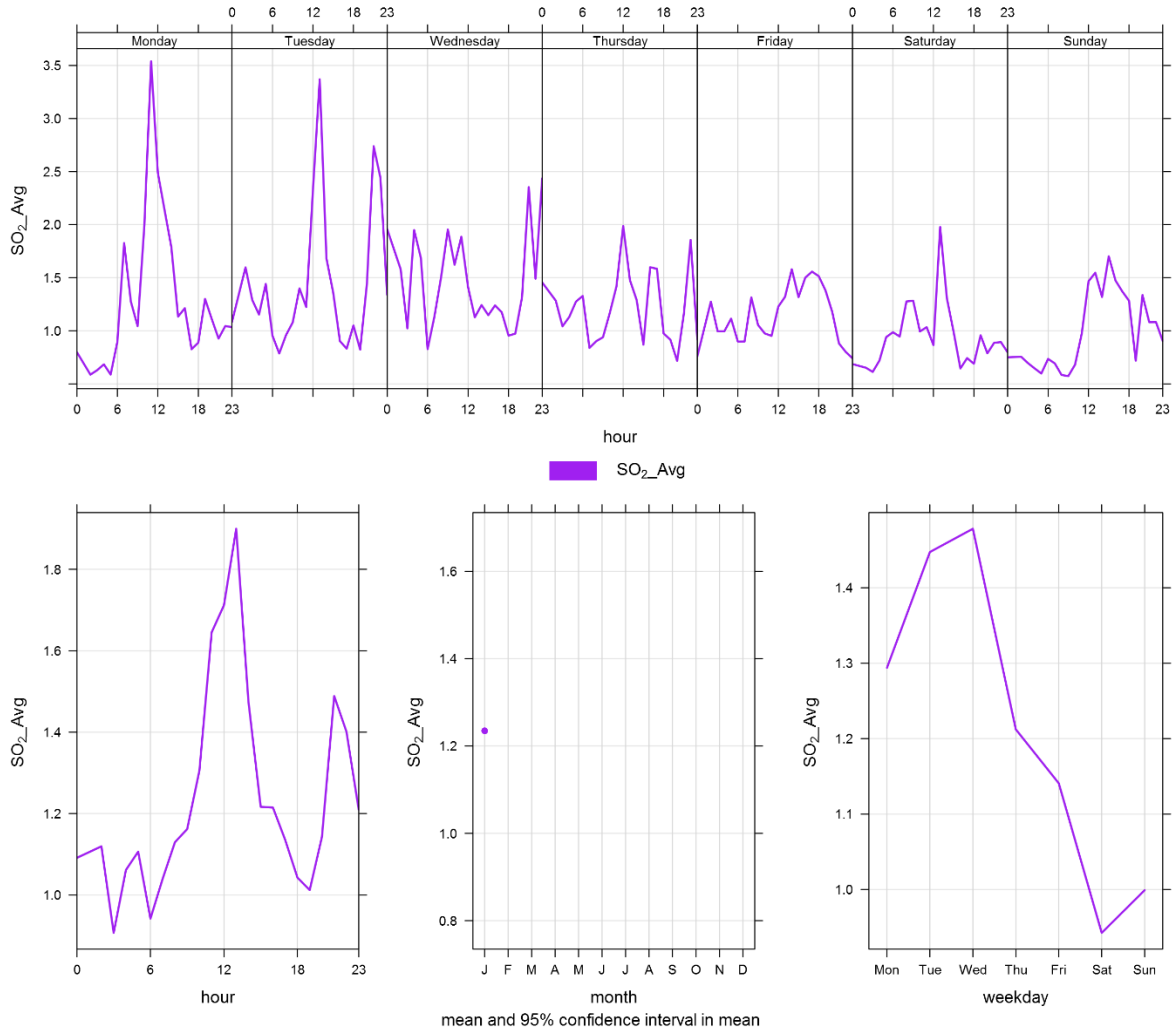


Figure 3-7 Lagoon Monitor SO_2 time variation

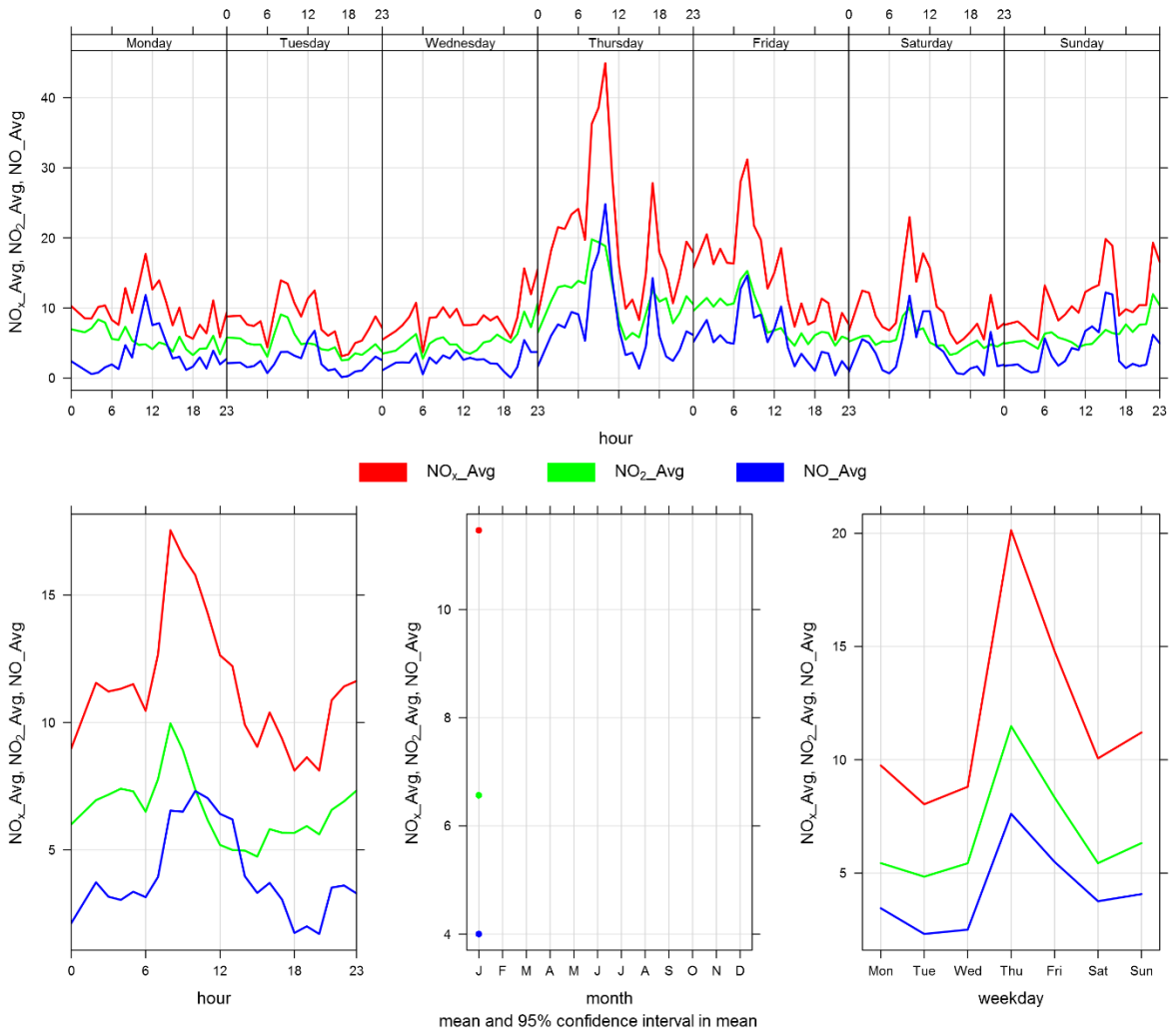


Figure 3-8 Lagoon Monitor NO_x time variation

4 WINDRIDGE STATION

4.1 SITE VISIT NOTES

The Windridge station contains TSP, PM_{10}, and $PM_{2.5}$ analyzers only. This section provides a summary of the monitoring activities for the Windridge ambient air quality station, including: a table of instrumentation (Table 4-1), site visit notes, wind rose (Figure 4-3) and tables and graphs illustrating the monitoring results for January 2018.

All of the monitors comply with Alberta Environment and Parks Air Monitoring Directive (2016).

Table 4-1 Equipment at the Windridge monitoring location

Equipment Description	Parameter Measured
MetOne BAM-1020 FRM Continuous Particulate Monitor	$PM_{2.5}$ Concentrations
MetOne BAM-1020 Continuous Particulate Monitor	PM_{10} Concentrations
MetOne BAM-1020 Continuous Particulate Monitor	TSP Concentrations

4.2 SITE VISIT NOTES

All BAM monitors were calibrated on January 3rd, and the operation time for the all BAM monitors was 100% in January.

4.3 MONITORING RESULTS AND TRENDS

The following wind rose (Figure 4-3) illustrates the frequency of wind speed by wind direction for the month of January 2018. Table 4-2 summarizes the hourly and daily concentrations recorded in January 2018. Figure 4-4 illustrates the time series for hourly PM.

There were 7 exceedances of the 24-hour TSP (100 µg/m^3) and no exceedance of the $PM_{2.5}$ (30 µg/m^3) AAAQO.

Based on the limited data record at this station, it appears that PM concentrations at this station are highest during high wind speed events from the WSW. The wind rose (Figure 4-3) shows the 7 days exceeding the 24-hour TSP Objective. During the exceedance days, the winds were predominantly from the WSW and over 20 km/hr.

Table 4-2 Summary of January 2018 data at the Windridge Station

Parameter	Guideline / Objective		Station	Exceedances		Monthly Average	Maximum 1-hour					Maximum 24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration	Day	
$PM_{2.5}$ (µg/m^3)	80	30	Windridge	0	0	6.1	39.2	31	19	13.0	59.9	18.0	28	100.0
PM_{10} (µg/m^3)	-	-	Windridge	-	-	47.2	463.8	17	2	42.0	259.0	128.7	17	100.0
TSP (µg/m^3)	-	100	Windridge	-	7	70.3	504.1	28	9	3.0	270.5	180.6	17	100.0

Table 4-3 Days exceeding the Guideline for TSP at the Windridge Monitor

Date	TSP (ug/m^3)	$PM_{2.5}$ (ug/m^3)	Average Wind Direction (degrees)	Average Wind Speed (km/hr)	Average RH (%)	Root Cause (Provided by Lafarge)
Windridge						
1/17/2018	180.6	-	255.0	37.4	42.3	high wind event
1/19/2018	143.0	-	252.2	26.9	42.0	high wind event
1/20/2018	115.7	-	256.0	23.9	47.0	high wind event
1/21/2018	137.0	-	249.4	35.4	40.8	high wind event
1/22/2018	101.9	-	252.3	24.2	45.3	high wind event
1/23/2018	148.7	-	259.9	26.5	49.5	high wind event
1/29/2018	162.9	-	260.4	32.4	59.0	high wind event
Total # of Exceedances	**7**	**0**				

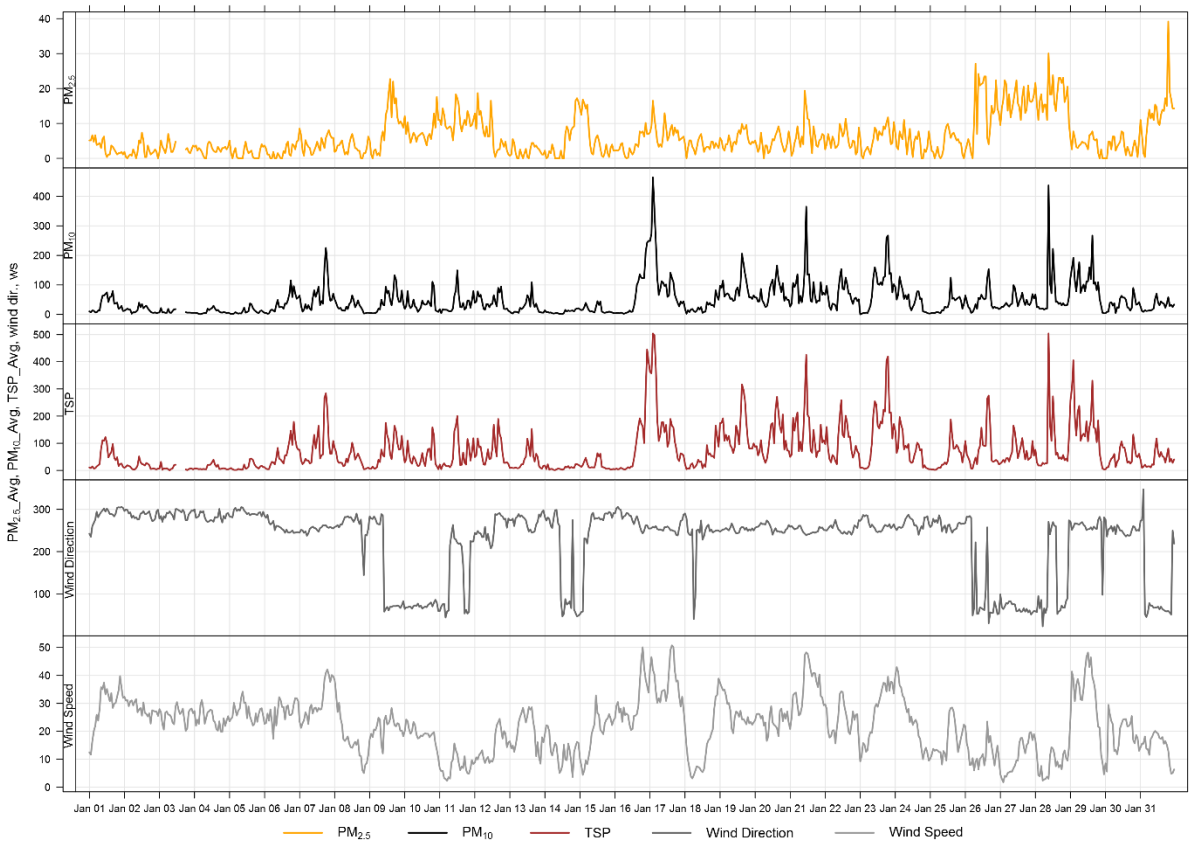


Figure 4-1 1-hour particulate matter concentrations recorded at the Windridge monitor

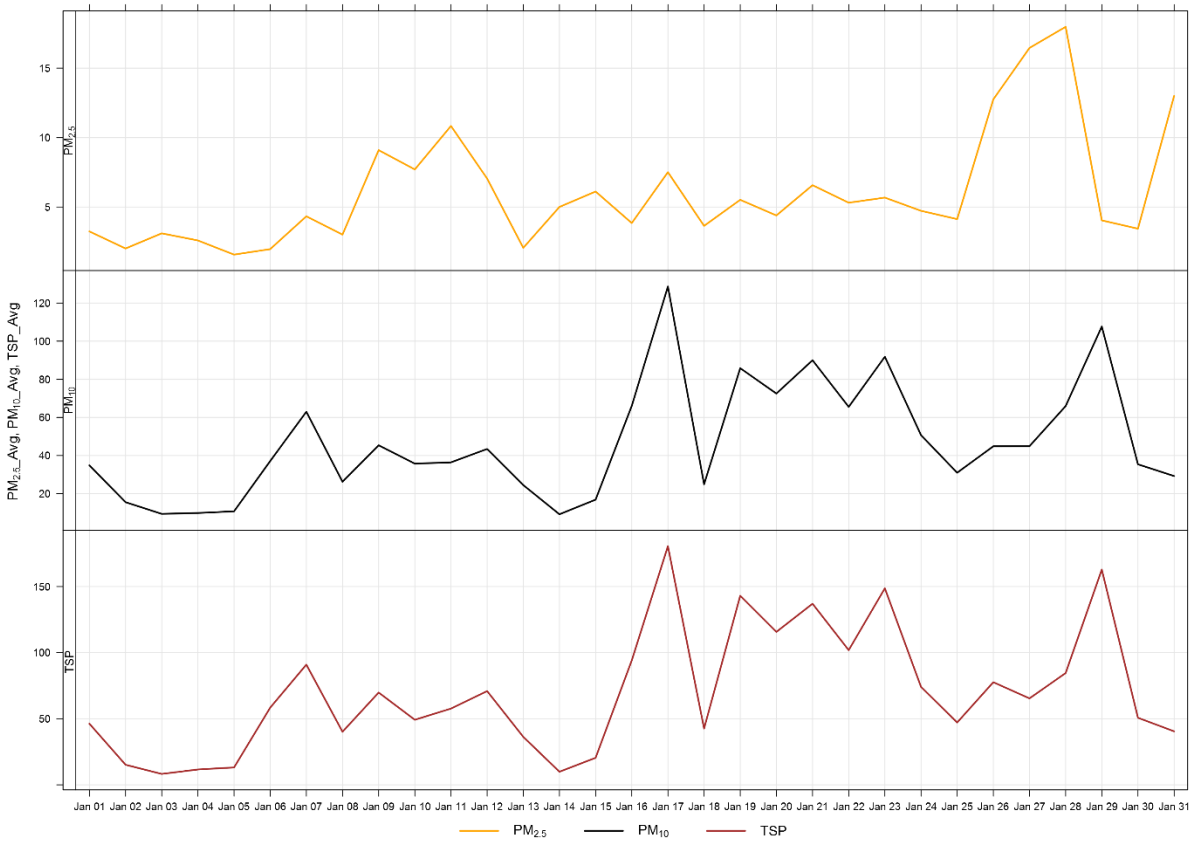


Figure 4-2 24-hour particulate matter concentrations at the Windridge monitor

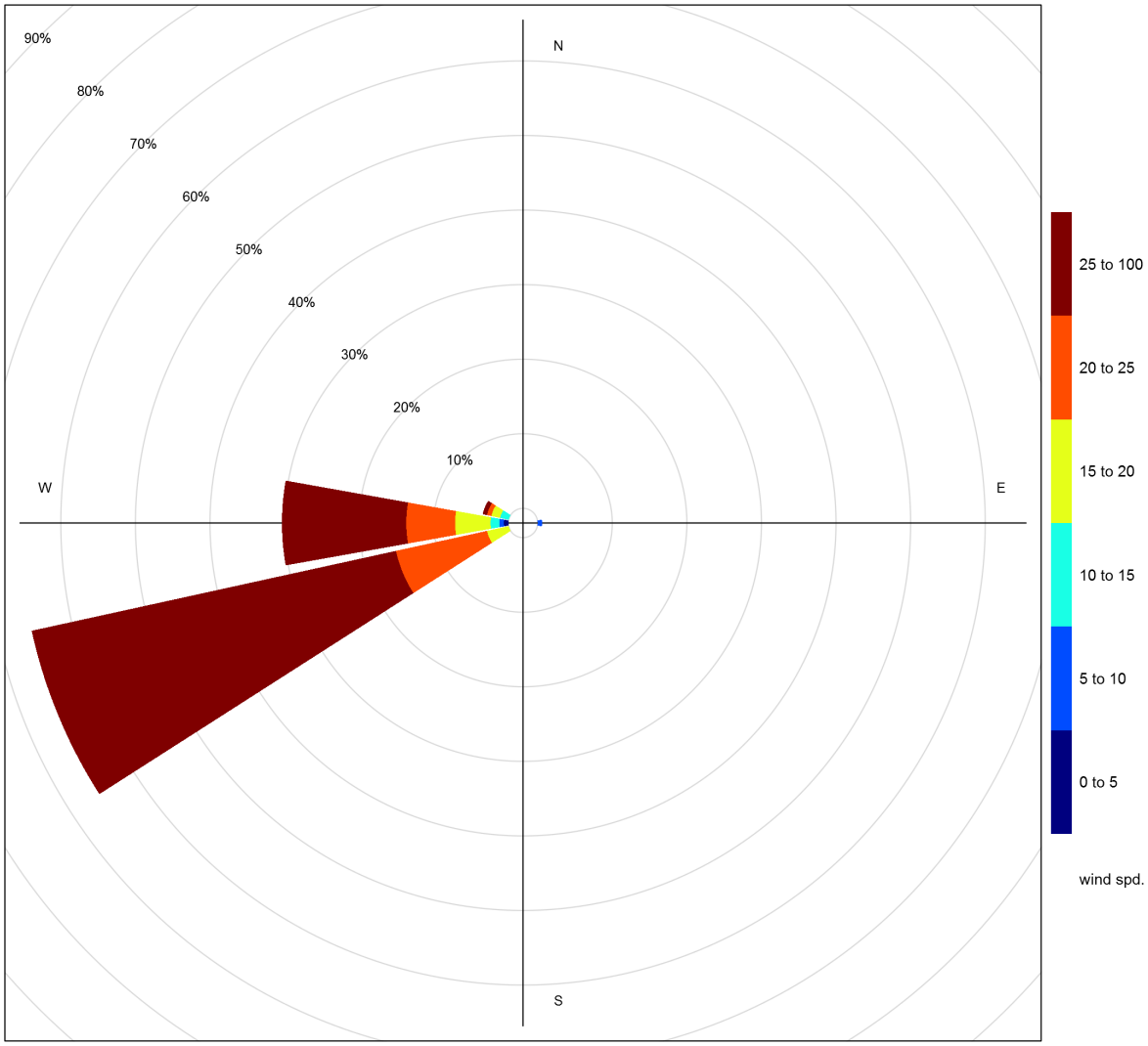


Figure 4-3 Wind rose for TSP exceedance days recorded at the Windridge Station

Figure 4-4 illustrates the hourly PM concentrations recorded at the Windridge monitor, averaged over different time periods. The plot across the top shows the variation of PM over the course of a week, while the bottom three plots show the changes in PM over the course of a day, month and weekday, respectively. Figure 4-4 is based on data collected during January 2018 and indicates a diurnal pattern that is similar to the Lagoon station and will be analyzed as the data record is added to at this station.

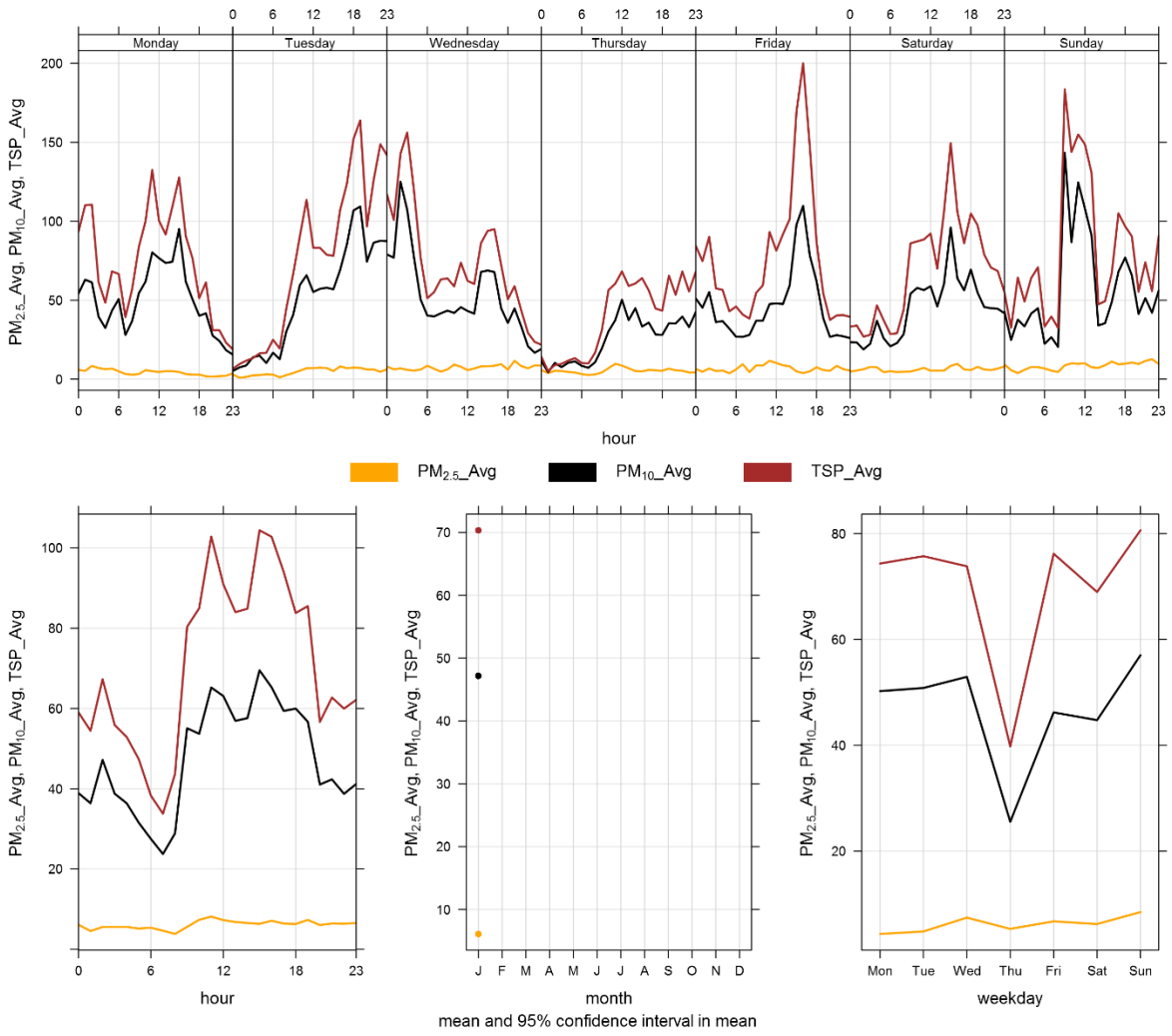


Figure 4-4 Windridge particulate matter time variation

5 WEST GRIMM

5.1 SITE VISIT NOTES

Table 5-1 indicates the equipment that is installed at the West monitoring location. During the month of January, the West GRIMM had 100 % uptime.

Table 5-1 Equipment at the West monitoring location

Equipment Description	Parameter Measured
GRIMM 365 Continuous Particulate Monitor	$PM_{2.5}$, PM_{10}, TSP Concentrations

5.2 MONITORING RESULTS AND TRENDS

The West GRIMM was installed in its current location in order to monitor “background” PM concentrations since the predominant wind pattern is from west to east in the valley. As indicated in Figure 3-3, the majority of winds came from the west during January. Table 5-2 summarizes the maximum 1-hour and 24-hour concentrations recorded over the course of the month.

Figure 5-1 and Figure 5-2 show the hourly and daily $PM_{2.5}$, PM_{10} and TSP concentrations recorded over the month. There was 1 and 0 exceedance of the 24-hour TSP (100 µg/m^3) and $PM_{2.5}$ (30 µg/m^3) Guidelines, respectively. Exceedances of the TSP Guideline at the West monitor in January are rare, with a maximum of 7 days exceeding the Guideline in 2013, and all other years reporting zero exceedances.

Table 5-2 Summary of January 2018 data at the West GRIMM

Parameter	Guideline		Station	Exceedances		Monthly Average	Maximum 1-hour					Maximum 24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration	Day	
$PM_{2.5}$ (µg/m^3)	80	30	West	0	0	4.9	43.1	27	12	9.5	59.6	22.9	27	100.0
PM_{10} (µg/m^3)	-	-	West	-	-	12.4	195.6	24	13	23.4	262.2	43.1	31	100.0
TSP (µg/m^3)	-	100	West	-	1	30.8	632.7	10	17	17.9	76.8	180.2	10	100.0

Table 5-3 Days exceeding the Guideline for TSP at the West GRIMM

Date	TSP (ug/m^3)	$PM_{2.5}$ (ug/m^3)	Average Wind Direction (degrees)	Average Wind Speed (km/hr)	Average RH (%)	Root Cause (Provided by Lafarge)
West						
1/10/2018	180.2	-	71.5	18.9	72.3	
Total # of Exceedances	**1**	**0**				
Maximum # of Exceedances (January)	**7 (2013)**	**2 (2010)**				
Average # of Exceedances (January)	**2**	**0**				
Minimum # of Exceedances (January)	**0 (2015 ~ 2017)**	**0 (2011, 2012, 2014 ~ 2017)**				

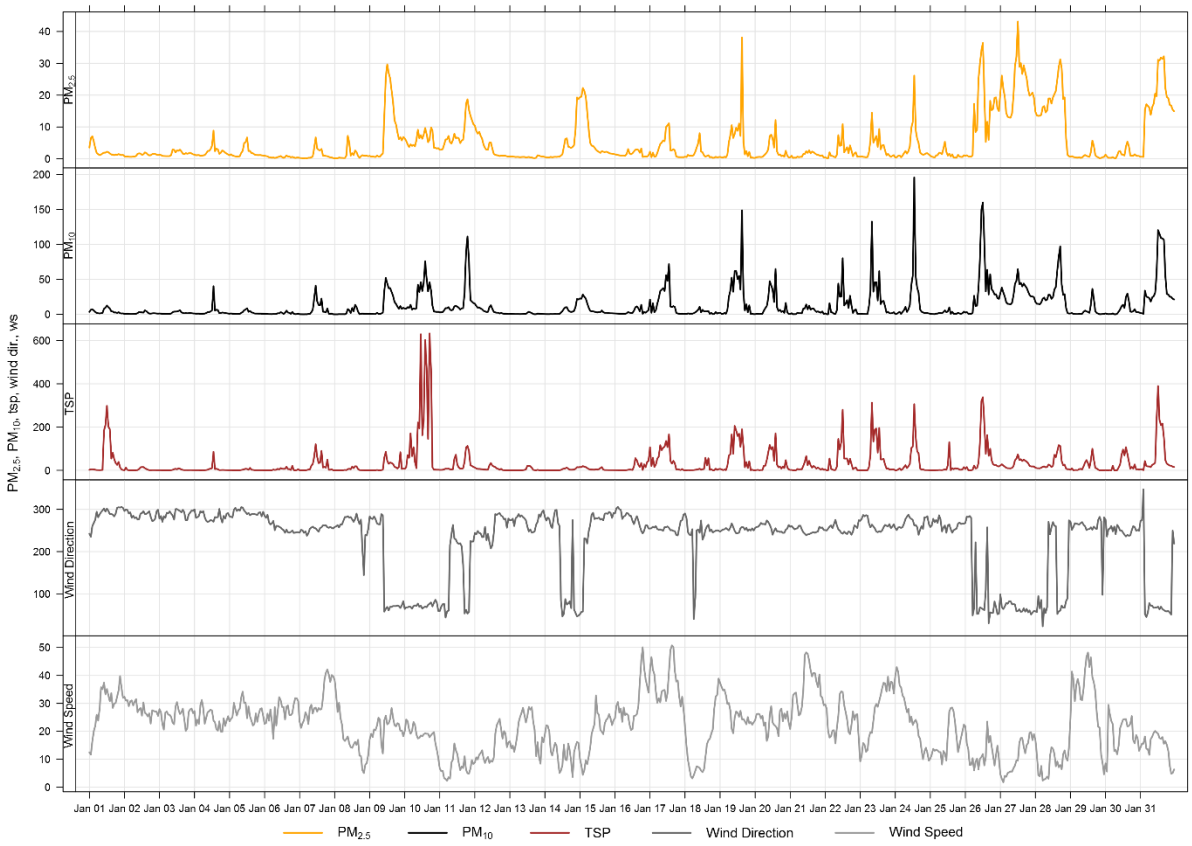


Figure 5-1 1-hour particulate matter concentrations at the West monitor

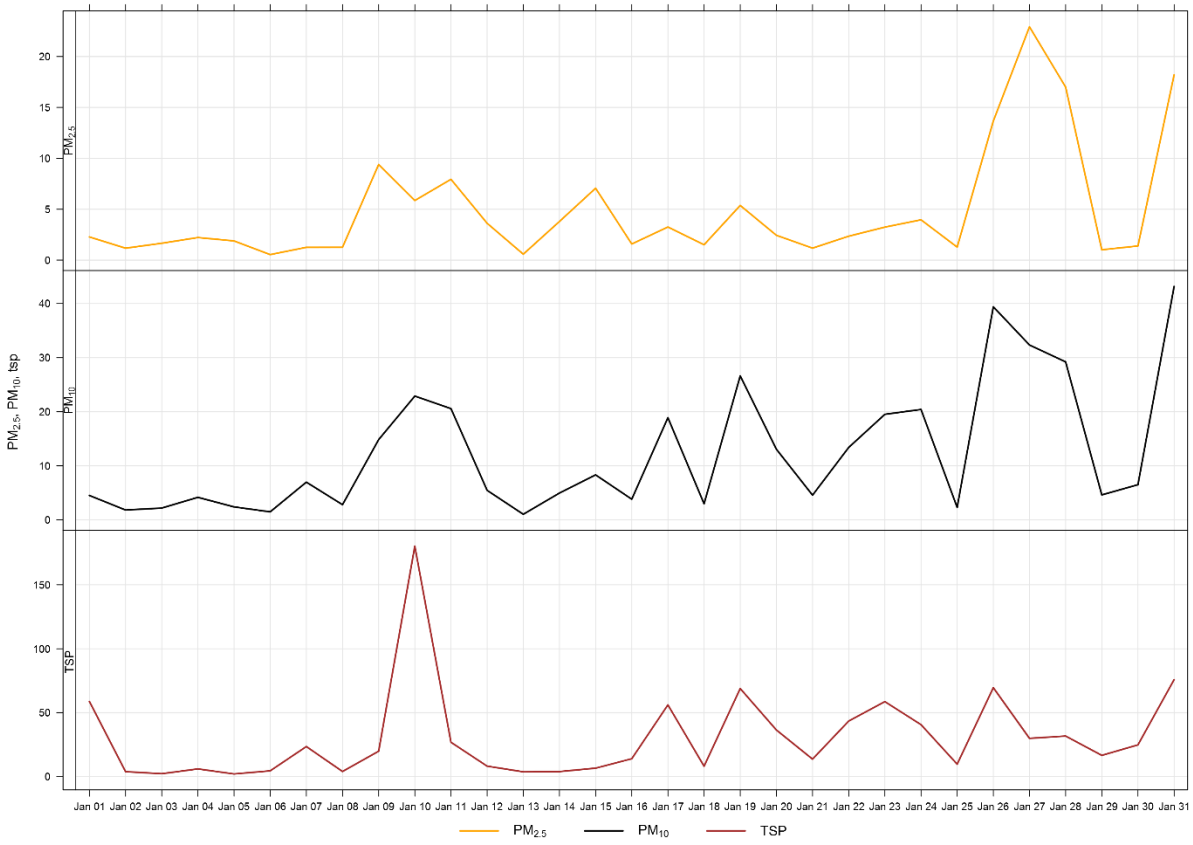


Figure 5-2 24-hour particulate matter concentrations at the West monitor

Figure 5-3 illustrates the hourly PM concentrations recorded at the West monitor, averaged over different time periods. The plot across the top shows the variation of PM over the course of a week, while the bottom three plots show the changes in PM over the course of a day, month and weekday, respectively. Figure 5-3 is based on data collected during January 2018 and indicates a strong relationship between TSP and hours which Lafarge is typically operational. Due to the proximity of the West monitor to the highway, the daily variations in PM may also be a result of higher traffic volume during daylight hours.

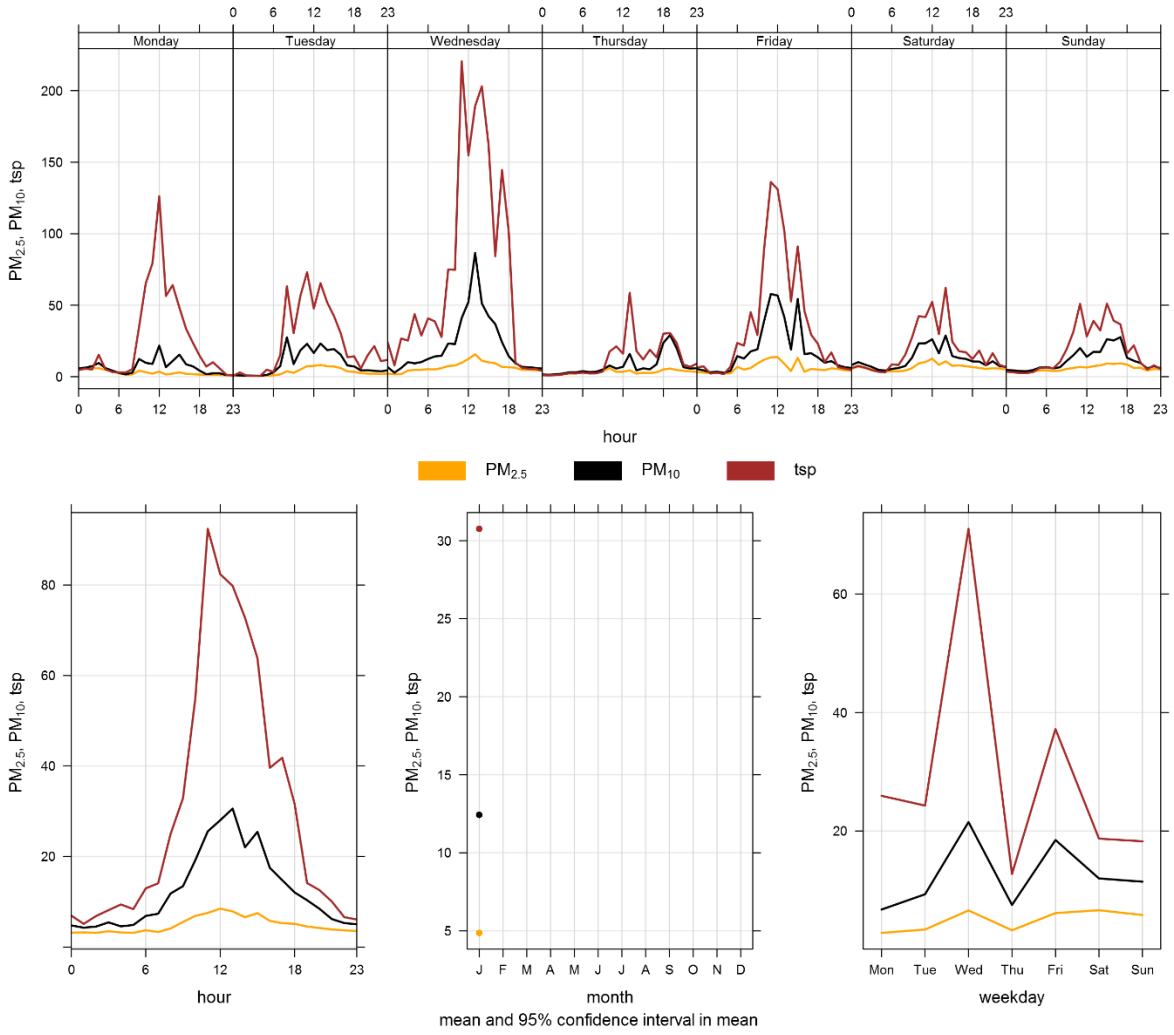


Figure 5-3 West particulate matter time variation

6 BERM GRIMM

6.1 SITE VISIT NOTES

During the month of January, the Berm GRIMM had 86.7% uptime due to 99 hours of power outage.

Table 6-1 Equipment at the Berm monitoring location

Equipment Description	Parameter Measured
GRIMM 365 Continuous Particulate Monitor	$PM_{2.5}$, PM_{10}, TSP Concentrations

6.2 MONITORING RESULTS AND TRENDS

The Berm monitor was placed at its current location as a result of the dispersion modelling conducted for the facility in 2009. Figure 5-1 and Figure 5-2 show the hourly and daily $PM_{2.5}$, PM_{10} and TSP concentrations recorded over the month. Table 5-2 summarizes the maximum 1-hour and 24-hour PM concentrations recorded during the month, and Table 5-3 summarizes the recorded exceedances.

In January, there were 14 and 0 exceedances of the 24-hour TSP (30 µg/m^3) and $PM_{2.5}$ (100 µg/m^3) Guidelines, respectively. Historically, the Berm monitor records an average of 19 and 0 exceedances of the 24-hour TSP and $PM_{2.5}$ Guidelines respectively, during the month of January. The largest number of TSP exceedances recorded during January occurred in 2013, which had 26 days that exceeded the Guideline. The fewest number of TSP exceedances was recorded during January 2016, which had 13 days that exceeded the Guideline. The largest number of $PM_{2.5}$ exceedances recorded during January occurred in 2015, which had 3 days that exceeded the Guideline.

It should also be noted that the GRIMM monitors become more conservative in the reported PM concentrations as the size fraction increases. The $PM_{2.5}$ size fraction has been shown to match other regulatory approved $PM_{2.5}$ monitors, but the TSP concentrations recorded by the GRIMM tend to be higher than regulatory approved monitors (Levelton, 2015).

The Berm monitor is located along a ridge at the edge of the Lafarge property and is in an area where on-site trucks drive through site, which can create fugitive dust. Quarry blasting also has the potential to impact short term PM immediately following a blast. High TSP concentrations in the month generally corresponded to the high wind speed events recorded in January.

Table 6-2 Summary of January 2018 data at the Berm GRIMM

Parameter	Guideline		Station	Exceedances		Monthly Average	Maximum 1-hour					Maximum 24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration	Day	
$PM_{2.5}$ (µg/m^3)	80	30	Berm	0	0	11.3	67.6	17	1	46.6	255.4	27.4	23	86.7
PM_{10} (µg/m^3)	-	-	Berm	-	-	62.1	664.2	17	1	46.6	255.4	193.5	23	86.7
TSP (µg/m^3)	-	100	Berm	-	14	202.8	2475.1	17	1	46.6	255.4	601.5	23	86.7

Table 6-3 Days exceeding the Guideline for TSP at the Berm Monitor

Date	TSP (ug/m^3)	$PM_{2.5}$ (ug/m^3)	Average Wind Direction (degrees)	Average Wind Speed (km/hr)	Average RH (%)	Root Cause (Provided by Lafarge)
Berm						
1/6/2018	240.3	-	256.4	27.0	51.5	high wind event
1/7/2018	393.9	-	254.3	30.4	49.4	high wind event
1/16/2018	371.3	-	273.6	30.1	62.6	high wind event
1/17/2018	590.8	-	255.0	37.4	42.3	high wind event
1/19/2018	374.7	-	252.2	26.9	42.0	high wind event
1/20/2018	292.9	-	256.0	23.9	47.0	high wind event
1/21/2018	450.4	-	249.4	35.4	40.8	high wind event
1/22/2018	325.4	-	252.3	24.2	45.3	high wind event
1/23/2018	601.5	-	259.9	26.5	49.5	high wind event
1/24/2018	184.2	-	264.6	24.7	61.1	high wind event
1/25/2018	141.1	-	261.2	16.7	66.6	
1/26/2018	165.5	-	34.8	12.0	67.1	
1/29/2018	515.8	-	260.4	32.4	59.0	high wind event
1/30/2018	182.8	-	249.3	19.1	54.9	
Total # of Exceedances	**14**	**0**				
Maximum # of Exceedances (January)	**26 (2013)**	**3 (2015)**				
Average # of Exceedances (January)	**19**	**0**				
Minimum # of Exceedances (January)	**13 (2016)**	**0 (2011, 2014, 2016, 2017)**				

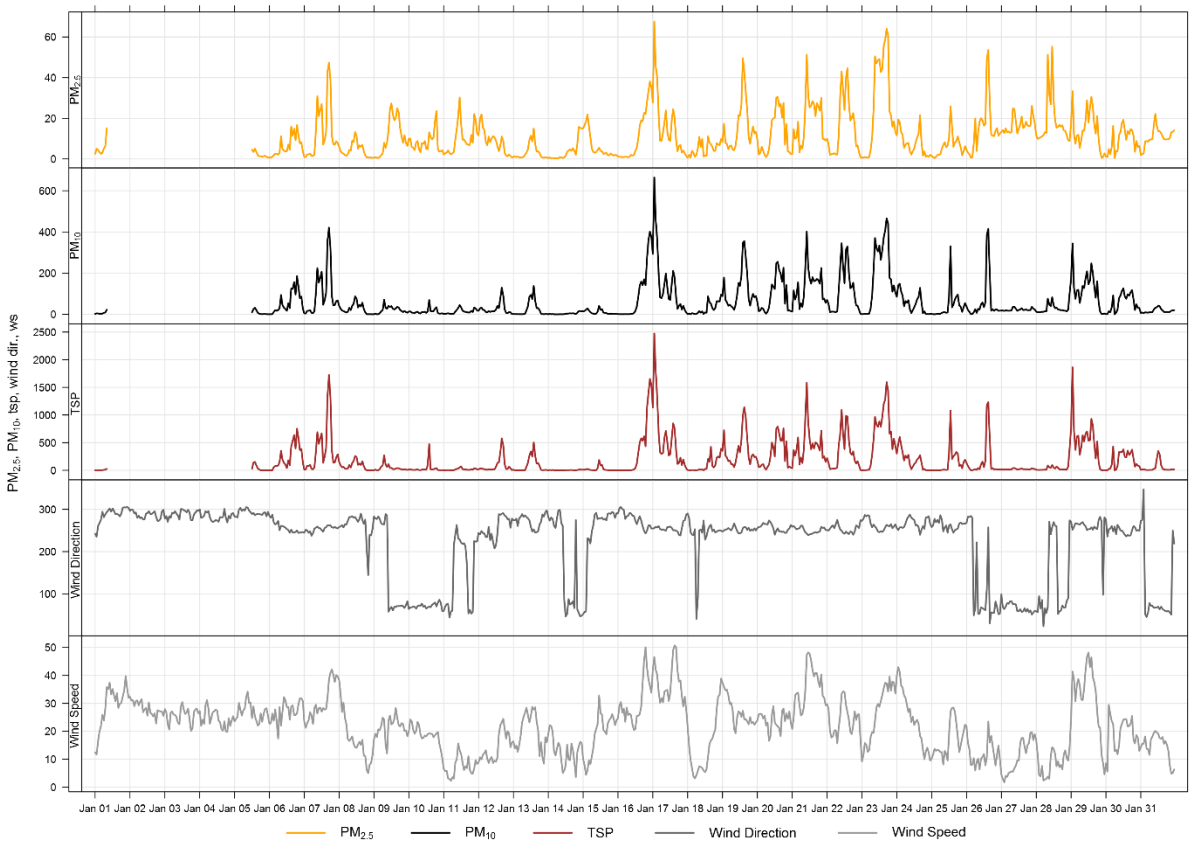


Figure 6-1 1-hour particulate matter concentrations recorded at the Berm monitor

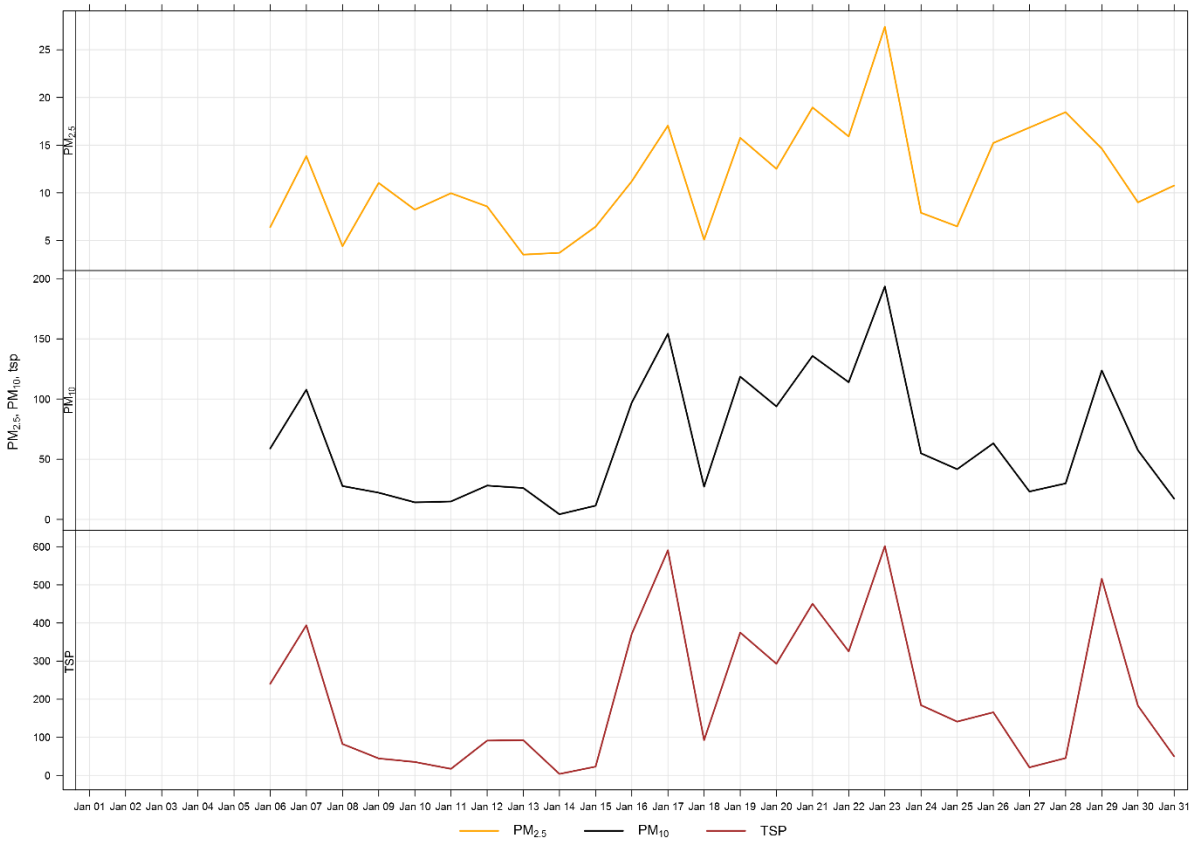


Figure 6-2 24-hour particulate matter concentrations recorded at the Berm monitor

Figure 6-3 shows the wind rose for the 14 days which recorded a TSP exceedance. This wind rose shows that the winds predominantly come from the west and over 25 km/kr.

Figure 6-4 shows the variation of PM recorded at the Berm monitor over various time averaging periods. Similar to the Entrance monitor, the Berm, on average, records elevated PM concentrations during standard operating hours of Lafarge.

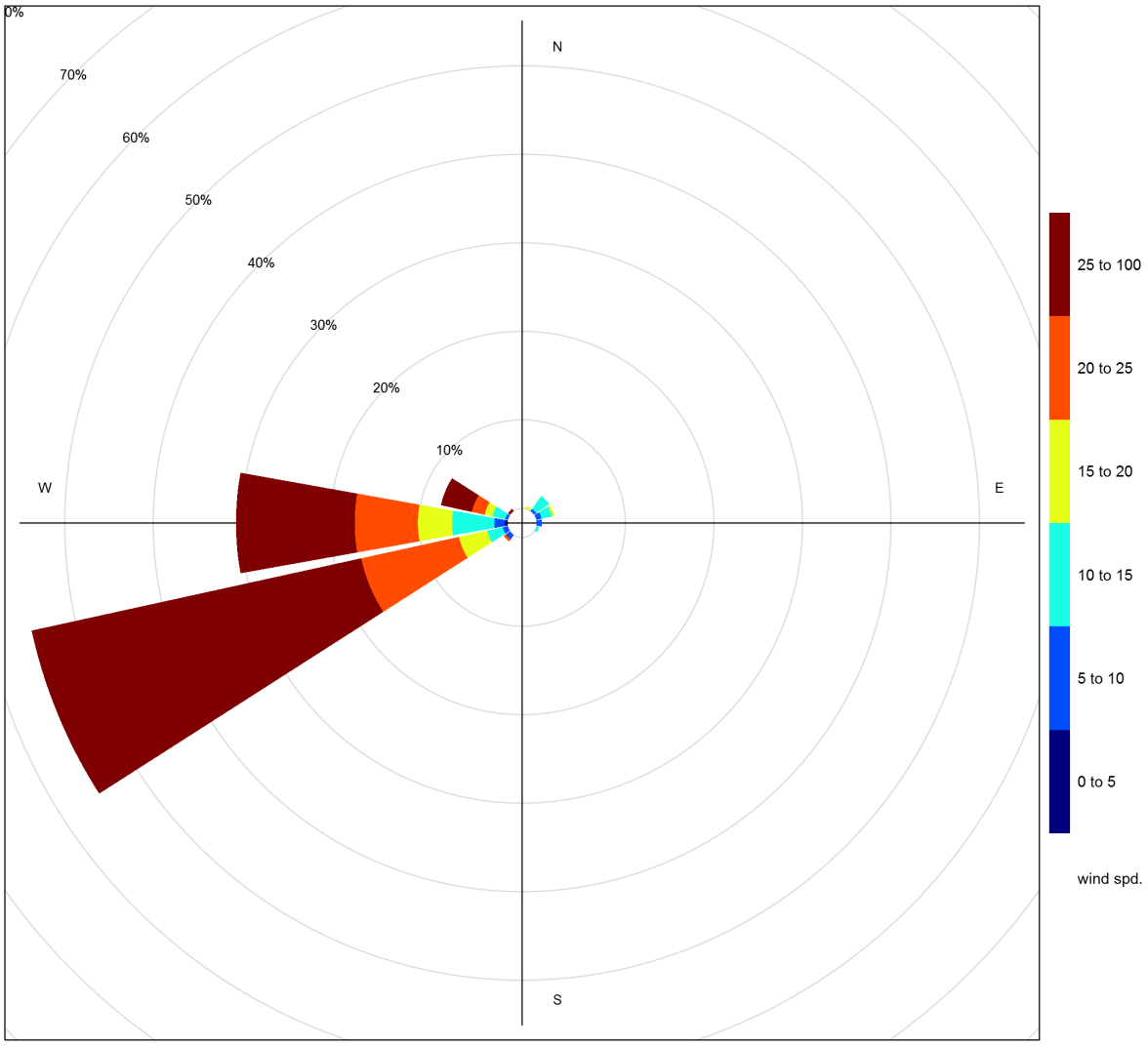


Figure 6-3 Wind rose for TSP exceedance days recorded at the Berm GRIMM

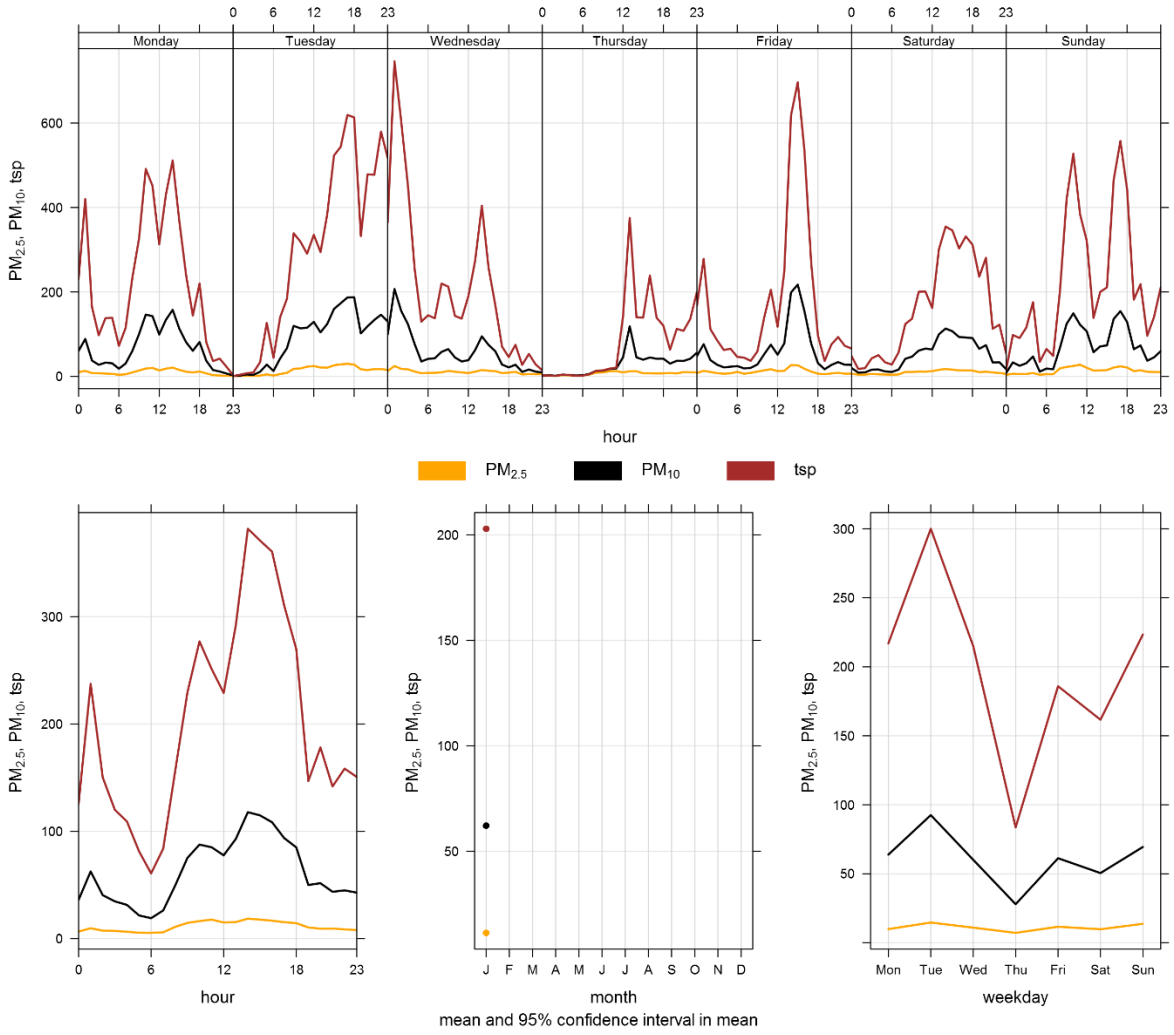


Figure 6-4 Berm particulate matter time variation

7 ENTRANCE GRIMM

7.1 SITE VISIT NOTES

This station was found to be in good operating condition and no repairs were required during the month. During the month of January, the Entrance GRIMM had 99.5% uptime due to 4 hours of instrument error.

Table 7-1 Equipment at the Entrance monitoring location

Equipment Description	Parameter Measured
GRIMM 365 Continuous Particulate Monitor	$PM_{2.5}$, PM_{10}, TSP Concentrations

7.2 MONITORING RESULTS AND TRENDS

The Entrance monitor was placed at its current location as a result of dispersion modelling conducted in 2009. This area was indicated as being the area where the maximum PM concentrations were expected. Figure 6-1 and Figure 6-2 show the hourly and daily $PM_{2.5}$, PM_{10} and TSP concentrations recorded over the month. Table 6-2 summarizes the maximum 1-hour and 24-hour PM concentrations recorded during the month. Table 6-3 summarizes the recorded exceedances.

During January, there were 11 and 0 exceedances of the 24-hour TSP (100 µg/m^3) and $PM_{2.5}$ (30 µg/m^3) Guideline, respectively. Historically, the Entrance monitor records an average of 20 and 1 exceedances of the 24-hour TSP and $PM_{2.5}$ Guidelines respectively, during the month of January. The largest number of TSP exceedances recorded during January occurred in 2014, which had 29 days that exceeded the Guideline. The fewest number of TSP exceedances recorded during January occurred in 2011, which also had 11 days that exceeded the Guideline. The largest number of $PM_{2.5}$ exceedances recorded during January occurred in 2013, which had 5 days that exceeded the Guideline.

It should also be noted that the GRIMM monitors become more conservative in the reported PM concentrations as the size fraction increases. The $PM_{2.5}$ size fraction has been shown to match other regulatory approved $PM_{2.5}$ monitors, but the TSP concentrations recorded by the GRIMM tend to be higher than regulatory approved monitors (Levelton, 2015).

The Entrance monitor is impacted by fugitive dust from plant activities, and the high wind events described under the Berm monitor section. Trucks also queue nearby the Entrance monitor while waiting to be loaded with material. Additionally, the monitor is closely located to Highway 1A. Traffic, particularly large trucks, can create dust while crossing over the railway tracks. This can all lead to the monitor recording high TSP concentrations, which are typically associated with fugitive dust sources.

Figure 7-3 shows the wind roses for the days that exceeded the TSP Guidelines at the Entrance GRIMM. During the 11 TSP exceedance days, winds were predominantly from the west and above 25 km/hr.

Table 7-2 Summary of January 2018 data at the Entrance GRIMM

Parameter	Guideline		Station	Exceedances		Monthly Average	Maximum 1-hour					Maximum 24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration	Day	
$PM_{2.5}$ ($\mu g/m^3$)	80	30	Entrance	1	0	9.4	123.5	24	19	10.0	253.9	22.0	27	99.5
PM_{10} ($\mu g/m^3$)	-	-	Entrance	-	-	30.7	522.9	24	19	10.0	253.9	82.0	1	99.5
TSP ($\mu g/m^3$)	-	100	Entrance	-	11	105.0	1616.5	1	15	33.6	289.2	370.7	1	99.5

Table 7-3 Days exceeding the Guideline for TSP at the Entrance Monitor

Date	TSP (ug/m^3)	$PM_{2.5}$ (ug/m^3)	Average Wind Direction (degrees)	Average Wind Speed (km/hr)	Average RH (%)	Root Cause (Provided by Lafarge)
Entrance						
1/1/2018	370.7	-	291.9	29.0	67.6	high wind event
1/2/2018	334.3	-	287.4	28.2	68.7	high wind event
1/12/2018	151.3	-	263.4	14.2	71.0	
1/16/2018	248.9	-	273.6	30.1	62.6	high wind event
1/17/2018	261.1	-	255.0	37.4	42.3	high wind event
1/19/2018	121.0	-	252.2	26.9	42.0	high wind event
1/21/2018	175.5	-	249.4	35.4	40.8	high wind event
1/22/2018	108.3	-	252.3	24.2	45.3	high wind event
1/23/2018	174.5	-	259.9	26.5	49.5	high wind event
1/24/2018	112.3	-	264.6	24.7	61.1	high wind event
1/29/2018	172.5	-	260.4	32.4	59.0	high wind event
Total # of Exceedances	**11**	**0**				
Maximum # of Exceedances (January)	**29 (2014)**	**5 (2013)**				
Average # of Exceedances (January)	**20**	**1**				
Minimum # of Exceedances (January)	**11 (2011)**	**0 (2011, 2012, 2015 ~ 2017)**				

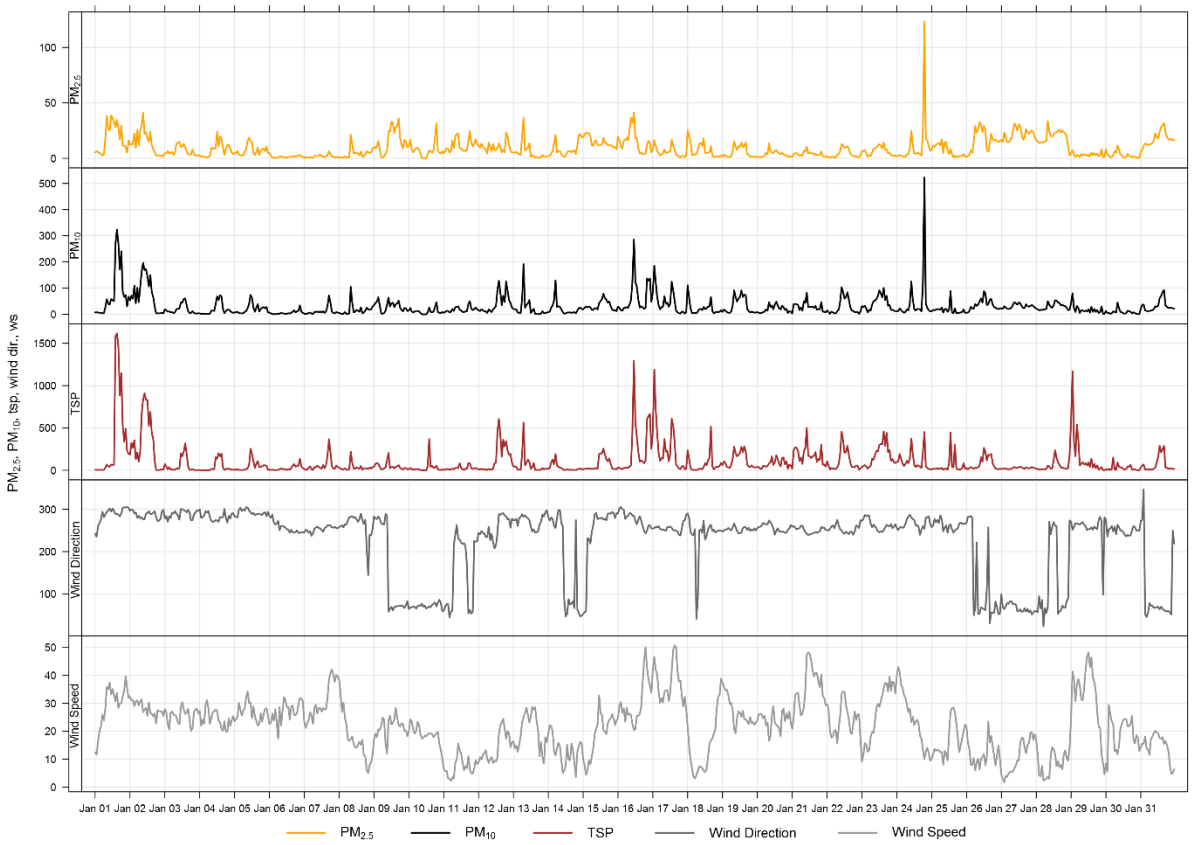


Figure 7-1 1-hour particulate matter concentrations recorded at the Entrance monitor

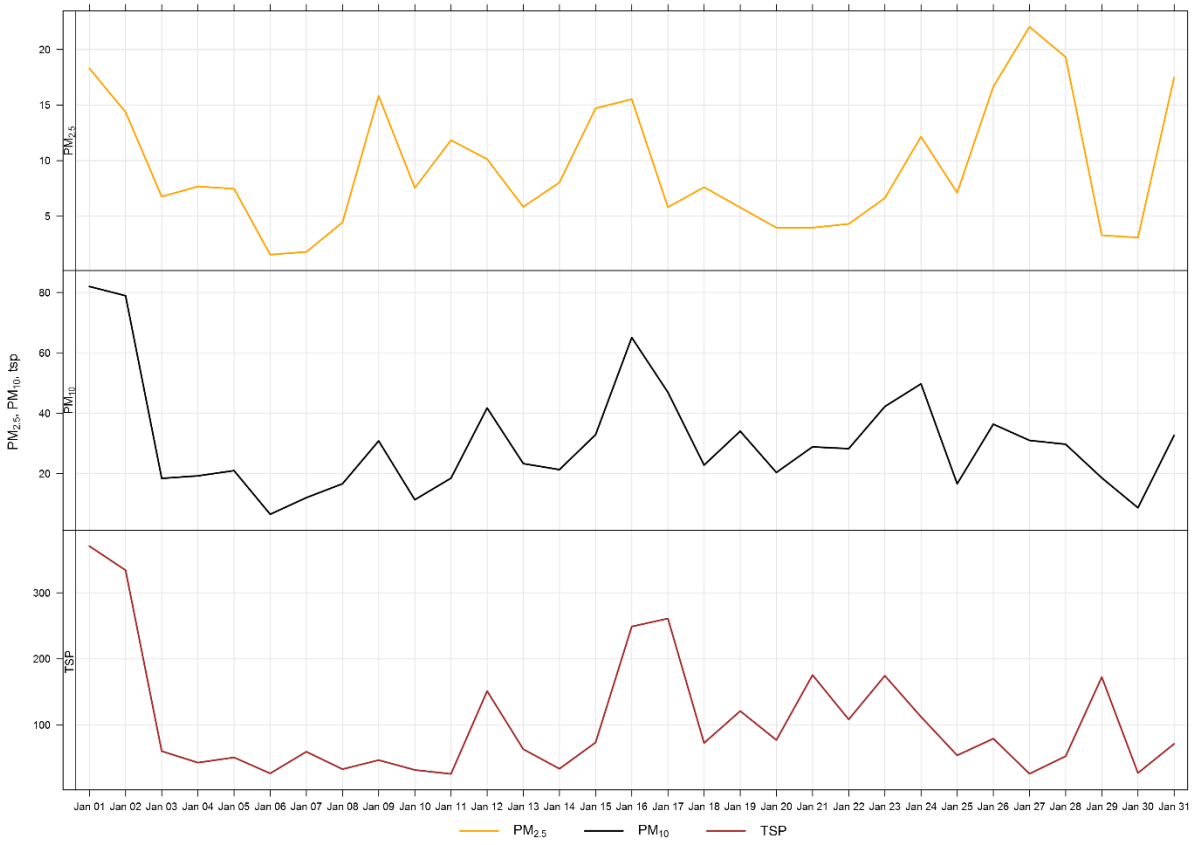


Figure 7-2 24-hour particulate matter concentrations at the Entrance monitor

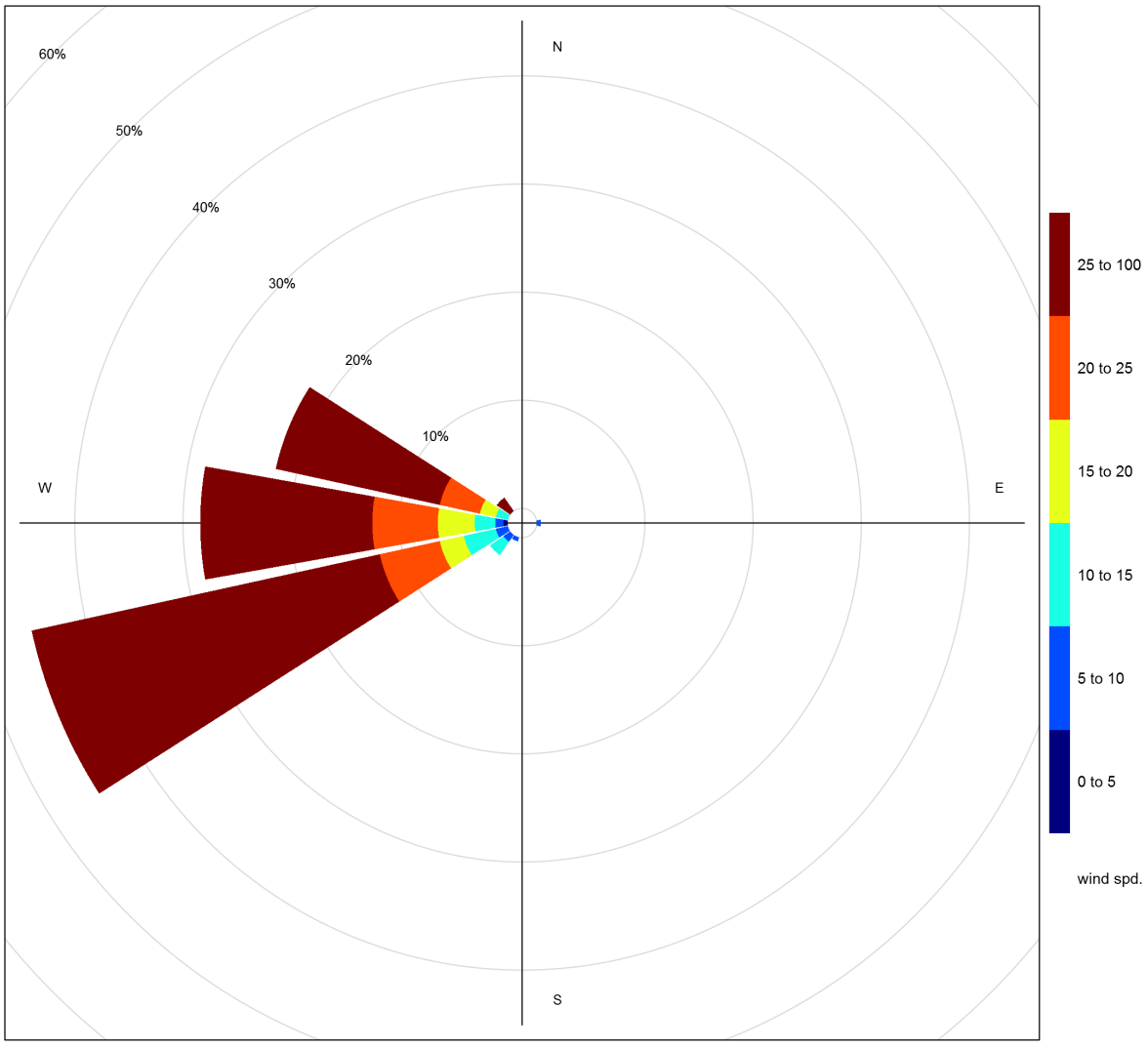


Figure 7-3 Wind rose for TSP exceedance days recorded at the Entrance GRIMM

Figure 7-4 illustrates the hourly PM concentrations recorded at the Entrance monitor, averaged over different time periods. The plot across the top shows the variation of PM over the course of a week, while the bottom three plots show the changes in PM over the course of a day, month and weekday, respectively. Figure 7-4 is based on data collected during January 2018 and shows the strong diurnal pattern typical of this station.

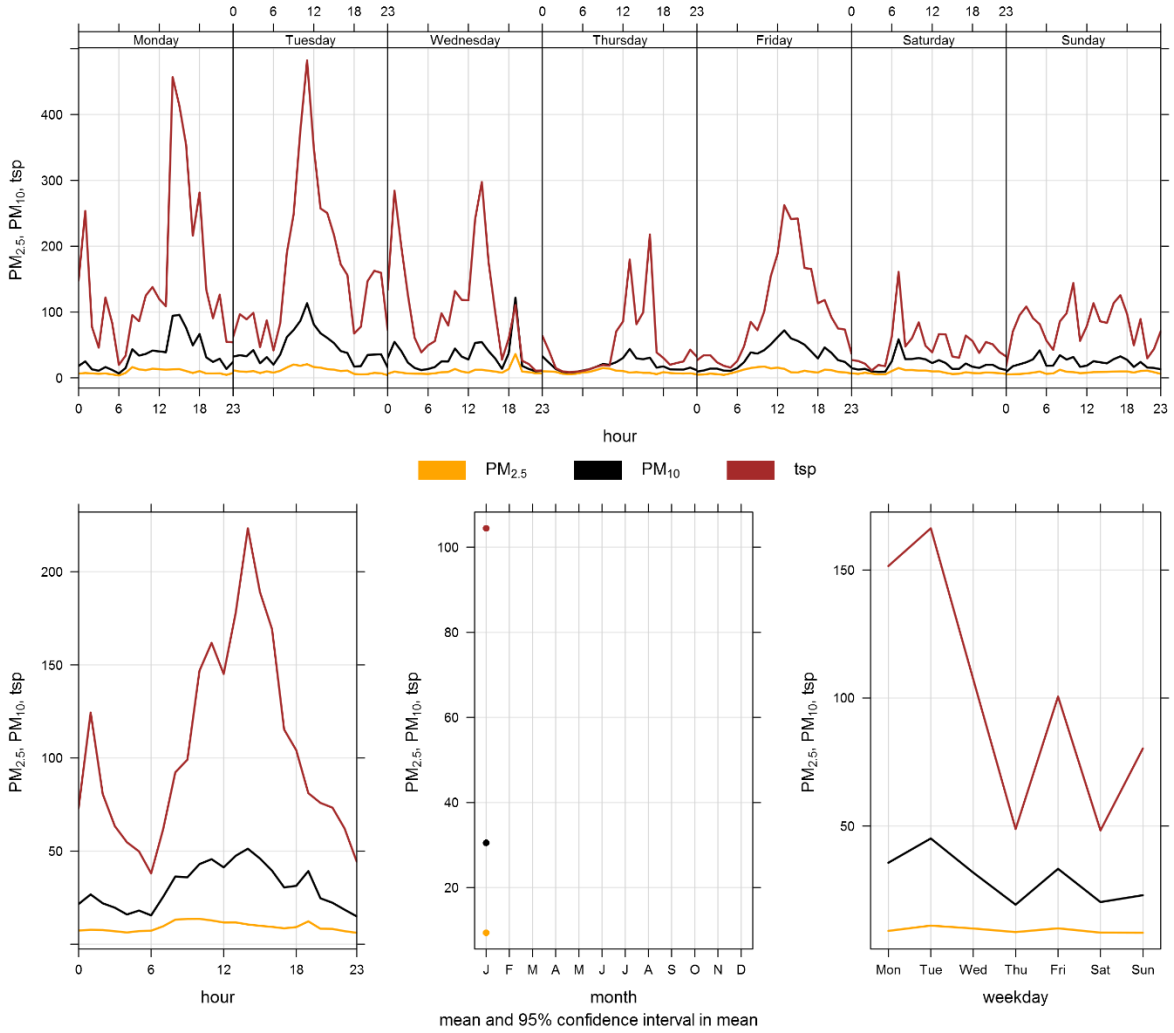


Figure 7-4 Entrance particulate matter time variation

BIBLIOGRAPHY

- Alberta Environment and Parks. (2016, June). Alberta Ambient Air Quality Objectives and Guidelines Summary. Alberta, Canada.
- Alberta Environment and Parks. (2016, January). Air Monitoring Directive. Alberta, Canada.
- Carslaw, D.C. and K. Ropkins, (2012). Openair — an R package for air quality data analysis. Environmental Modelling & Software. Volume 27–28, 52–61.
- Levelton Consultants Ltd. (2015, June 15). Comparison of GRIMM and E-BAM Data. Alberta, Canada.

Appendix A

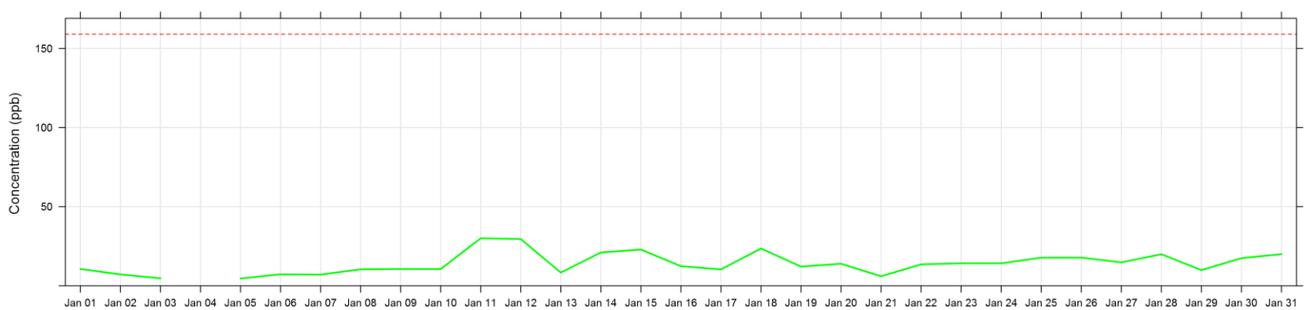
DATA & CALIBRATION REPORTS

Lagoon NO_2 (ppb) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	10.6	S	10.4	10.0	7.4	6.7	3.6	3.0	3.7	2.1	1.4	1.4	1.7	1.3	1.1	1.3	2.7	2.3	2.3	1.6	2.8	3.8	2.5	3.4	10.6	3.8
2	2.5	S	3.1	2.2	2.5	4.3	3.6	5.0	5.8	7.2	5.1	3.9	3.3	2.1	3.1	3.4	4.9	3.6	5.5	5.9	5.0	5.0	4.2	4.5	7.2	4.2
3	4.3	S	3.2	3.4	2.9	1.7	2.0	2.0	3.6	4.4	4.5	3.5	1.9	2.3	4.1	4.3	3.4	4.5	4.8	3.5	4.3	4.1	4.6	3.2	4.8	3.5
4	3.0	S	3.6	2.5	1.8	1.7	3.3	3.9	9.4	C	C	C	C	C	C	4.9	7.6	5.8	5.8	7.3	4.9	5.5	4.5	4.8	-	-
5	4.6	S	4.2	2.6	1.9	1.7	1.5	2.2	4.6	4.3	4.1	4.6	3.2	3.2	2.3	1.8	2.2	2.0	3.5	4.3	1.9	1.7	1.9	3.0	4.6	2.9
6	2.1	S	3.2	1.4	1.0	0.9	2.7	1.3	6.6	7.3	3.4	2.9	1.3	3.9	0.1	1.7	0.5	0.7	0.6	2.0	2.1	0.0	1.2	0.1	7.3	2.0
7	0.7	S	0.8	0.0	0.3	0.0	1.8	2.8	5.9	5.7	3.1	2.4	0.9	0.0	3.6	0.5	0.7	0.0	1.0	3.9	2.4	0.4	7.1	6.2	7.1	2.2
8	0.9	S	5.0	3.3	4.4	3.2	1.7	2.8	4.3	4.0	3.5	4.6	4.3	6.9	3.5	4.5	8.5	10.4	2.8	3.5	6.6	7.1	3.2	3.2	10.4	4.4
9	3.7	S	6.8	3.9	4.4	3.2	2.0	4.6	4.5	3.8	9.4	10.6	9.3	9.5	8.3	8.1	6.9	4.1	3.2	3.2	3.8	2.8	2.4	1.9	10.6	5.2
10	2.0	S	1.2	1.1	4.5	7.0	2.2	1.8	2.6	1.8	1.2	1.2	1.1	1.5	4.9	4.5	5.1	4.7	3.2	3.0	3.7	4.1	4.6	10.6	10.6	3.4
11	9.3	S	26.9	22.8	21.7	23.5	23.4	23.5	29.8	25.7	22.4	13.8	8.5	6.2	8.6	11.2	18.9	29.0	25.2	24.0	23.7	28.5	29.6	30.0	30.0	21.1
12	29.6	S	28.3	27.9	27.0	26.2	25.2	27.5	27.9	23.7	19.2	13.0	13.0	8.7	3.8	4.4	4.2	2.5	3.3	3.7	5.3	2.3	2.6	3.5	29.6	14.5
13	3.7	S	3.5	3.1	2.3	3.5	3.5	3.5	4.0	4.9	4.6	4.7	4.8	1.7	3.5	1.2	1.3	2.5	3.9	8.4	6.8	2.6	3.8	5.2	8.4	3.8
14	1.9	S	6.4	6.6	1.7	1.2	3.7	2.4	2.4	4.4	3.4	2.8	4.2	7.1	6.7	10.9	7.4	8.7	12.7	9.3	13.6	13.8	18.4	21.0	21.0	7.4
15	13.3	S	11.3	17.3	22.9	21.4	13.6	9.8	8.2	7.2	13.2	17.4	13.7	14.4	11.2	11.2	10.6	4.9	4.2	5.9	6.1	5.4	8.8	7.7	22.9	11.3
16	4.1	S	3.0	3.1	1.7	9.1	5.1	4.2	6.7	7.4	8.4	6.3	10.9	12.4	9.2	7.5	5.7	4.3	0.2	0.0	2.9	8.9	7.7	7.0	12.4	5.9
17	4.5	S	4.7	3.2	7.4	10.4	1.6	7.9	3.6	2.3	1.3	1.4	3.9	2.0	0.1	1.2	1.7	0.7	0.0	0.0	2.0	8.5	3.2	6.7	10.4	3.4
18	4.8	S	8.8	11.4	11.5	10.7	14.6	16.9	23.6	18.1	17.2	11.4	10.2	4.6	9.0	6.2	8.6	9.9	1.8	1.8	0.2	1.0	2.4	2.0	23.6	9.0
19	0.2	S	0.6	2.1	3.6	2.4	1.3	8.7	12.1	7.4	4.8	2.4	1.6	3.7	5.4	5.4	6.8	3.5	5.3	2.3	2.7	2.1	4.9	1.6	12.1	4.0
20	1.2	S	2.7	5.2	1.6	3.7	2.2	2.7	11.9	13.9	7.5	6.8	0.6	3.5	8.0	3.6	5.3	1.7	0.6	0.1	0.0	1.7	2.9	3.9	13.9	4.0
21	6.0	S	1.3	0.6	1.9	0.2	4.4	6.0	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	3.6	2.3	2.8	6.0	1.4
22	2.8	S	1.5	2.7	5.0	6.4	4.5	5.7	13.6	7.0	1.2	0.0	0.0	0.3	0.7	0.1	4.5	1.3	0.1	0.0	1.6	5.0	0.0	4.9	13.6	3.0
23	13.1	S	11.9	8.9	6.4	6.8	2.9	9.4	10.9	14.2	4.5	0.1	0.0	0.0	0.0	0.5	4.4	0.8	4.1	0.4	1.1	2.6	4.8	3.1	14.2	4.8
24	0.7	S	0.4	0.4	2.2	2.1	3.4	7.0	12.0	14.2	9.9	12.2	6.4	5.9	4.9	5.5	3.0	3.1	5.3	6.6	7.8	14.2	4.6	12.7	14.2	6.3
25	8.8	S	4.9	15.3	17.8	15.8	14.2	9.6	16.3	14.4	16.9	15.5	6.0	5.7	1.7	1.0	1.6	5.3	10.9	12.6	2.6	2.1	10.3	5.4	17.8	9.3
26	4.0	S	12.7	8.1	12.9	11.3	14.5	17.8	16.5	12.3	9.9	6.0	9.5	13.0	11.4	6.9	12.4	11.3	12.4	16.1	15.8	12.4	14.3	14.1	17.8	12.0
27	13.8	S	14.6	14.4	14.0	12.9	12.3	14.4	12.9	14.1	11.7	14.1	13.7	9.3	7.2	6.7	7.1	12.2	14.4	10.9	8.2	14.8	10.1	11.1	14.8	12.0
28	11.0	S	12.4	14.2	15.2	15.4	15.5	14.9	13.7	11.2	13.9	12.6	14.0	12.5	13.3	16.2	17.6	16.4	17.0	13.2	12.5	13.1	20.0	11.6	20.0	14.2
29	7.3	S	4.5	2.3	2.0	1.9	4.7	5.8	6.9	6.5	4.3	0.6	0.9	2.5	7.5	1.9	3.3	1.7	7.1	9.9	4.0	8.9	2.5	9.6	9.9	4.6
30	5.6	S	3.5	6.8	8.9	0.6	1.7	7.8	17.5	10.8	4.3	3.3	1.3	0.1	0.0	0.4	0.1	0.0	0.2	8.2	3.8	0.9	5.2	2.3	17.5	4.1
31	5.9	S	10.1	15.4	10.4	10.3	4.6	6.0	5.9	6.6	7.0	5.7	5.7	5.7	5.9	9.9	13.4	18.1	14.7	12.3	13.6	16.6	19.4	20.0	20.0	10.6
Hourly Max	29.6	-	28.3	27.9	27.0	26.2	25.2	27.5	29.8	25.7	22.4	17.4	14.0	14.4	13.3	16.2	18.9	29.0	25.2	24.0	23.7	28.5	29.6	30.0		
Hourly Average	6.0	-	7.0	7.2	7.4	7.3	6.5	7.8	10.0	8.9	7.4	6.2	5.2	5.0	5.0	4.7	5.8	5.7	5.7	5.9	5.6	6.6	6.9	7.3		

S = SPAN C = CALIBRATION

Daily 1-hour NO_2 Maximums (ppb) at Trailer

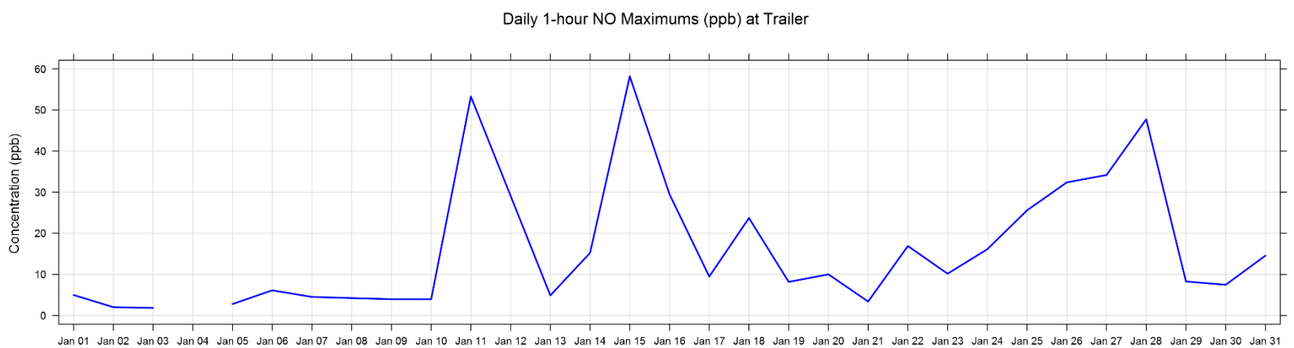


Number of 1HR Exceedances	0		Objective	159	PPB
Number of Non-Zero Readings	679				
Maximum 1-HR Average	30.0	PPB			
Maximum 24-HR Average	21.1	PPB			
IZS Calibration Time	31	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	6.1		Monthly Average	6.6	PPB

Lagoon NO (ppb) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	2.3	S	0.0	1.3	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.7	3.1	0.0	0.0	5.0	0.6
2	0.0	S	0.0	0.0	0.0	0.6	0.0	0.0	1.1	0.9	1.1	1.0	2.0	0.3	0.1	0.0	1.3	0.0	0.0	0.0	0.0	0.1	0.0	0.5	2.0	0.4
3	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	1.3	0.9	0.5	1.8	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	1.8	0.4
4	0.0	S	0.0	0.0	0.5	0.9	0.1	0.0	14.8	C	C	C	C	C	C	0.6	2.9	0.0	0.0	2.0	0.0	0.0	0.0	3.2	-	-
5	2.8	S	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.0	0.6	1.5	0.0	1.1	0.1	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.2	2.8	0.5
6	0.0	S	0.0	0.2	0.0	0.0	0.9	0.0	1.7	6.1	2.2	2.8	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.7
7	0.0	S	0.0	0.0	0.0	0.0	0.4	0.4	2.0	1.5	0.7	0.9	0.0	0.0	2.8	0.0	0.0	0.0	0.0	2.7	0.0	0.0	4.5	2.7	4.5	0.8
8	0.0	S	2.0	1.1	1.6	0.0	0.0	0.0	0.0	0.0	0.7	1.0	1.1	2.1	0.0	0.2	2.3	4.2	0.0	0.0	0.0	3.0	0.0	0.0	4.2	0.8
9	0.8	S	0.4	0.0	1.8	0.0	0.0	1.9	0.0	0.0	3.6	2.8	2.5	4.0	0.9	0.6	1.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.0	0.9
10	0.0	S	0.0	0.0	0.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	4.0	0.4
11	0.8	S	19.6	0.6	6.4	18.9	5.6	3.7	15.8	27.8	28.8	20.3	10.1	4.8	4.8	3.8	12.2	53.3	12.9	3.6	9.9	15.2	21.1	19.1	53.3	13.9
12	17.1	S	14.8	18.4	17.5	15.2	7.4	29.1	18.3	22.3	20.0	11.5	10.5	4.1	0.1	0.1	0.0	0.0	0.0	2.8	5.9	0.0	0.0	1.1	29.1	9.4
13	1.2	S	0.0	0.0	0.0	0.6	0.4	0.0	0.5	0.7	0.8	2.9	3.9	0.1	1.2	0.0	0.0	0.0	0.0	4.9	0.5	0.0	0.0	2.3	4.9	0.9
14	0.0	S	2.9	2.8	0.0	0.0	2.0	0.0	0.0	1.0	0.0	0.6	1.0	4.1	0.9	3.3	0.0	0.0	0.0	0.0	1.9	0.0	11.9	15.3	15.3	2.1
15	5.7	S	0.0	0.6	1.8	1.0	5.5	5.1	5.0	10.3	35.2	58.2	36.1	36.2	19.9	13.9	9.5	1.6	3.5	6.6	3.1	5.6	9.9	6.5	58.2	12.2
16	2.6	S	2.2	0.3	0.0	9.9	3.6	1.3	4.2	6.5	8.9	9.6	22.3	29.5	9.0	4.9	1.7	0.7	0.0	0.0	3.7	9.7	7.4	7.8	29.5	6.3
17	3.6	S	3.7	0.7	6.4	8.4	0.0	9.5	0.2	0.6	0.0	0.8	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.4	0.4	4.6	9.5	2.1
18	3.9	S	2.3	4.5	0.0	0.0	15.6	14.5	22.6	15.2	23.7	6.1	3.5	0.2	6.1	1.0	3.2	3.5	0.0	0.0	0.0	0.0	0.9	0.7	23.7	5.5
19	0.0	S	0.0	0.8	2.4	0.0	0.0	5.3	8.2	1.4	1.9	1.1	0.7	3.3	3.0	2.5	2.2	0.0	0.0	0.0	0.0	0.0	0.6	0.0	8.2	1.4
20	0.0	S	0.0	0.8	0.0	1.3	0.0	0.0	6.6	10.0	6.3	4.9	0.0	3.0	6.1	1.6	1.4	0.1	0.0	0.0	0.0	0.0	0.5	1.7	10.0	1.9
21	3.1	S	0.0	0.0	0.3	0.0	3.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.7	0.3	0.5	3.4	0.6
22	0.7	S	0.0	0.0	0.5	1.8	1.4	0.0	16.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	2.7	0.0	2.2	16.9	1.2
23	7.3	S	7.2	4.1	1.2	1.8	0.0	6.6	5.9	10.2	1.7	0.0	0.0	0.0	0.0	0.0	2.6	0.0	1.6	0.0	0.0	0.8	3.9	4.6	10.2	2.6
24	0.0	S	0.0	0.0	0.5	0.0	2.8	5.3	9.3	14.5	8.5	12.6	4.8	3.6	1.6	1.0	0.2	0.0	0.2	0.3	5.0	16.1	2.9	8.4	16.1	4.2
25	2.0	S	2.5	25.6	22.0	18.0	15.1	3.1	7.8	10.8	21.9	16.5	7.6	4.8	0.0	0.1	0.0	0.4	11.1	6.7	0.0	0.9	4.7	1.6	25.6	8.0
26	0.6	S	18.4	1.2	4.6	5.2	12.2	16.5	30.8	9.9	13.7	6.4	17.1	32.4	14.4	4.2	11.7	8.9	4.2	10.2	8.1	1.6	9.2	3.3	32.4	10.7
27	2.2	S	22.2	19.1	14.1	2.7	1.5	6.5	14.7	30.3	14.0	27.5	34.2	13.1	7.9	7.0	1.4	2.1	5.5	1.8	1.1	26.4	6.3	3.6	34.2	11.5
28	3.9	S	5.0	2.3	2.9	3.8	17.2	8.7	5.1	7.2	16.4	14.6	25.9	25.4	22.5	45.6	47.7	9.7	5.7	5.5	4.1	6.0	8.0	1.5	47.7	12.8
29	3.4	S	3.9	0.0	0.0	0.0	2.9	1.4	1.6	3.0	2.0	0.0	0.1	1.0	6.3	0.0	1.3	0.0	4.7	8.3	3.0	5.2	0.0	5.1	8.3	2.3
30	0.0	S	1.3	3.4	5.4	0.0	0.0	0.0	7.5	1.3	0.8	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.7	1.4	0.0	4.1	0.0	7.5	1.3
31	1.9	S	7.4	10.5	3.9	5.3	0.0	0.0	0.0	0.9	4.2	5.6	5.9	8.7	8.7	11.5	10.3	10.3	4.6	0.0	2.6	4.6	14.6	3.9	14.6	5.5
Hourly Max	17.1	-	22.2	25.6	22.0	18.9	17.2	29.1	30.8	30.3	35.2	58.2	36.1	36.2	22.5	45.6	47.7	53.3	12.9	10.2	9.9	26.4	21.1	19.1		
Hourly Average	2.1	-	3.7	3.2	3.0	3.4	3.2	3.9	6.5	6.5	7.3	7.0	6.4	6.2	4.0	3.3	3.7	3.1	1.7	2.0	1.7	3.5	3.6	3.3		

S = SPAN C = CALIBRATION

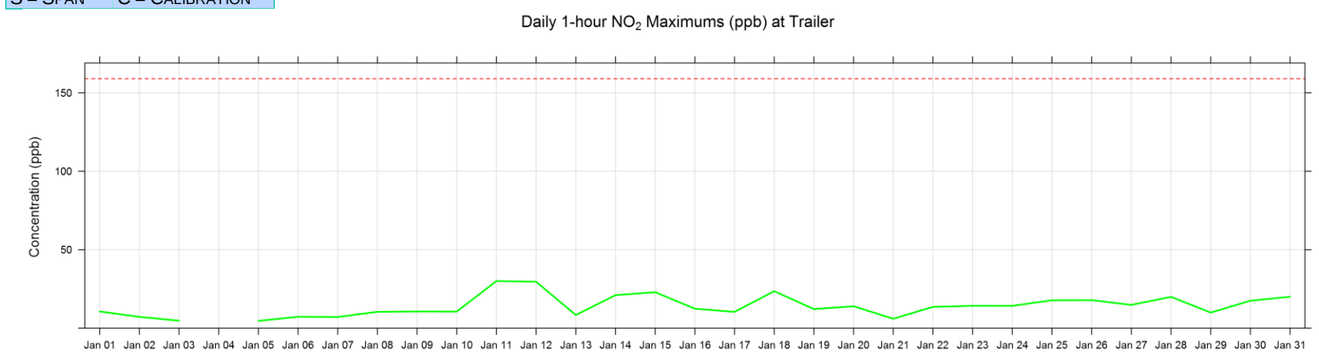


Number of 1HR Exceedances	n/a		Objective	n/a	PPB
Number of Non-Zero Readings	452				
Maximum 1-HR Average	58.2	PPB			
Maximum 24-HR Average	13.9	PPB			
IZS Calibration Time	31	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	7.3		Monthly Average	4.0	PPB

Lagoon NO_x (ppb) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	13.7	**S**	10.9	12.1	8.3	12.7	3.6	3.1	3.8	2.4	2.3	2.5	3.4	2.3	1.7	2.2	5.0	2.8	3.3	1.7	4.6	8.0	3.2	4.0	13.7	5.1
2	2.6	**S**	3.7	3.3	3.1	6.0	4.4	6.0	8.0	9.2	7.3	6.0	6.5	3.6	4.3	4.5	7.3	3.7	5.9	6.7	5.2	6.2	4.8	6.1	9.2	5.4
3	5.5	**S**	3.3	3.5	3.5	1.7	1.9	2.5	5.8	5.8	7.0	5.6	3.6	5.4	6.1	6.2	3.6	4.9	5.7	3.9	4.8	4.1	6.6	4.4	7.0	4.6
4	2.9	**S**	4.7	2.7	3.4	3.7	4.6	4.1	25.4	**C**	**C**	**C**	**C**	**C**	**C**	6.5	11.4	6.2	6.7	10.3	4.9	6.5	5.0	9.1	-	-
5	8.5	**S**	4.2	2.7	2.0	1.8	1.6	3.3	7.0	6.4	5.8	7.3	4.3	5.4	3.5	2.5	2.4	2.1	4.3	7.6	2.0	1.8	3.0	4.4	8.5	4.1
6	2.1	**S**	4.0	2.7	1.7	1.2	4.8	1.6	9.3	14.5	6.6	6.7	2.5	6.9	0.4	2.7	0.7	1.0	0.7	2.7	3.2	0.0	1.5	0.2	14.5	3.4
7	1.1	**S**	1.3	0.0	0.5	0.0	3.4	4.4	9.0	8.3	4.9	4.5	1.6	0.0	7.5	1.1	1.3	0.0	2.0	7.7	3.6	0.4	12.8	10.1	12.8	3.7
8	1.1	**S**	8.2	5.6	7.2	3.7	1.9	3.7	4.8	5.2	5.4	6.8	6.6	10.1	4.6	5.7	11.9	15.8	3.0	3.5	7.0	11.2	3.3	3.4	15.8	6.1
9	5.7	**S**	8.3	4.9	7.4	3.9	2.4	7.7	5.5	4.3	14.2	14.6	12.9	14.6	10.3	9.8	9.0	4.3	3.4	3.5	5.4	3.0	2.6	2.0	14.6	6.9
10	2.2	**S**	1.4	1.2	5.7	12.1	2.3	2.1	3.3	2.1	1.8	2.0	2.2	2.7	8.1	5.9	5.6	4.7	3.3	3.2	3.6	4.1	4.6	13.3	13.3	4.2
11	11.0	**S**	47.5	24.3	28.9	43.3	30.0	28.2	46.9	54.7	52.3	35.2	19.3	12.0	14.4	16.0	32.3	83.7	39.5	28.8	34.9	45.1	52.2	50.6	83.7	36.1
12	48.1	**S**	44.5	47.7	45.9	42.7	33.9	58.0	47.6	47.3	40.5	25.6	24.5	13.9	4.9	5.5	4.7	2.6	4.4	7.6	12.4	2.4	2.9	5.8	58.0	24.9
13	6.1	**S**	4.3	4.0	2.3	5.2	5.0	4.5	5.7	6.6	6.5	8.8	9.9	2.8	5.8	1.9	1.5	3.0	4.0	14.4	8.5	2.6	4.5	8.6	14.4	5.5
14	3.0	**S**	10.4	10.5	2.0	1.4	6.9	3.4	2.4	6.6	4.6	4.6	6.4	12.4	8.7	15.3	7.7	8.6	13.7	10.2	16.6	14.7	31.6	37.6	37.6	10.4
15	20.1	**S**	12.0	19.0	26.0	23.6	20.4	16.1	14.4	18.7	49.7	77.0	51.2	51.9	32.3	26.3	21.3	7.6	8.9	13.8	10.5	12.2	20.0	15.4	77.0	24.7
16	7.9	**S**	6.4	4.6	2.4	20.2	9.9	6.7	12.0	15.0	18.4	17.0	34.5	43.2	19.4	13.5	8.6	6.2	0.5	0.0	7.7	19.8	16.2	15.9	43.2	13.3
17	9.2	**S**	9.6	5.1	15.0	20.0	2.2	18.6	5.0	4.1	2.5	3.3	6.9	3.5	0.7	2.4	2.5	0.9	0.2	0.0	3.6	16.1	4.8	12.4	20.0	6.5
18	10.0	**S**	12.2	17.0	11.8	11.4	31.5	32.8	47.6	34.5	42.3	18.7	14.8	6.0	16.4	8.4	13.0	14.6	2.3	2.3	0.3	1.7	4.5	3.9	47.6	15.6
19	0.5	**S**	1.2	4.1	7.2	3.5	2.0	15.2	21.5	10.0	7.9	4.7	3.6	8.2	9.6	9.1	10.2	4.4	6.2	2.8	3.2	2.4	6.7	2.0	21.5	6.4
20	1.4	**S**	3.6	7.2	1.9	6.2	2.6	3.5	19.7	25.2	15.0	12.9	1.6	7.7	15.2	6.4	8.0	3.1	0.7	0.3	0.0	2.4	4.7	6.8	25.2	6.8
21	10.4	**S**	2.3	1.2	3.4	0.3	8.6	10.6	1.6	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	6.4	3.8	4.5	10.6	2.6
22	4.7	**S**	2.1	3.1	6.7	9.4	7.1	6.8	31.7	9.6	2.0	0.9	0.0	1.0	1.6	0.8	6.5	2.0	0.3	0.0	1.9	8.9	0.0	8.3	31.7	5.0
23	21.6	**S**	20.3	14.1	8.7	9.7	3.4	17.1	18.0	25.6	7.3	0.8	0.1	0.3	0.4	1.4	8.1	1.5	6.9	0.6	1.9	4.6	9.9	8.8	25.6	8.3
24	1.2	**S**	0.6	0.7	3.9	3.0	7.4	13.5	22.5	30.0	19.7	26.0	12.4	10.7	7.7	7.7	4.3	3.8	6.6	8.0	14.0	31.5	8.6	22.3	31.5	11.6
25	11.9	**S**	8.6	42.1	41.0	35.0	30.5	13.8	25.3	26.5	40.1	33.2	14.9	11.7	2.8	2.2	2.8	6.9	23.3	20.5	2.7	4.3	16.2	8.1	42.1	18.5
26	5.9	**S**	32.2	10.5	18.7	17.8	28.0	35.6	48.6	23.3	24.7	13.5	27.7	46.6	27.0	12.2	25.3	21.4	17.7	27.5	25.2	15.2	24.7	18.5	48.6	23.8
27	17.1	**S**	38.0	34.8	29.3	16.7	14.9	22.0	28.7	45.6	26.8	42.8	49.1	23.4	16.1	14.7	9.6	15.3	21.0	13.7	10.3	42.4	17.5	15.7	49.1	24.6
28	16.0	**S**	18.4	17.5	19.2	20.3	33.9	24.7	19.9	19.5	31.5	28.3	41.1	39.0	37.0	63.0	66.5	27.1	23.7	19.7	17.6	20.2	29.0	14.1	66.5	28.1
29	11.7	**S**	9.4	2.8	2.6	2.5	8.7	8.2	9.5	10.6	7.4	1.4	2.1	4.5	14.7	2.6	5.5	2.2	12.7	19.1	7.9	15.1	2.8	15.7	19.1	7.8
30	6.2	**S**	5.8	11.3	15.6	0.8	2.0	8.8	26.2	13.3	6.3	5.5	2.8	0.7	0.3	1.1	0.4	0.0	0.3	14.2	6.5	1.2	10.6	3.0	26.2	6.2
31	9.2	**S**	18.7	27.3	15.5	16.8	4.8	6.4	6.9	8.7	12.4	12.5	12.8	15.7	15.9	22.7	25.0	29.7	20.5	13.5	17.5	22.5	35.3	25.2	35.3	17.2
Hourly Max	48.1	-	47.5	47.7	45.9	43.3	33.9	58.0	48.6	54.7	52.3	77.0	51.2	51.9	37.0	63.0	66.5	83.7	39.5	28.8	34.9	45.1	52.2	50.6		
Hourly Average	9.0	-	11.6	11.2	11.3	11.5	10.5	12.7	17.5	16.5	15.8	14.3	12.6	12.2	9.9	9.0	10.4	9.4	8.1	8.6	8.1	10.9	11.4	11.6		

S = Span C = Calibration

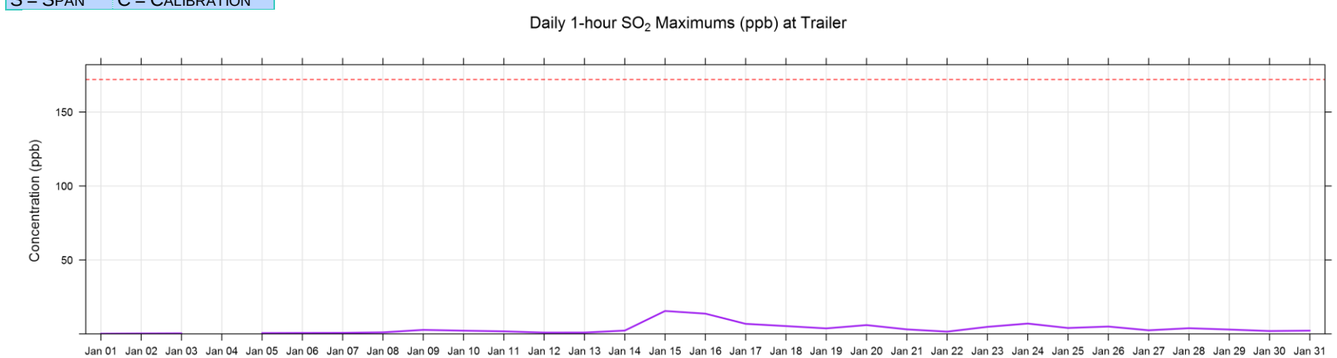


Number of 1HR Exceedances	n/a		Objective	n/a	PPB
Number of Non-Zero Readings	687				
Maximum 1-HR Average	83.7	PPB			
Maximum 24-HR Average	36.1	PPB			
IZS Calibration Time	31	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	12.5		Monthly Average	11.5	PPB

Lagoon SO_2 (ppb) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	0.0	**S**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2	0.0	**S**	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.1
3	0.2	**S**	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.1	0.4	0.3
4	0.2	**S**	0.3	0.3	0.3	0.3	0.3	0.3	0.5	**C**	**C**	**C**	**C**	**C**	**C**	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	-	-
5	0.5	**S**	0.5	0.4	0.3	0.2	0.2	0.4	0.5	0.3	0.3	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.4
6	0.4	**S**	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.6	0.5	0.5	0.3	0.5	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.6	0.5
7	0.5	**S**	0.5	0.3	0.4	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.7	0.4	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.5
8	0.5	**S**	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	1.0	0.5	0.7	0.9	0.6	0.6	0.6	0.7	0.6	0.6	1.0	0.6
9	0.7	**S**	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.9	2.7	1.7	1.3	1.2	1.1	1.0	0.9	0.8	0.6	0.7	0.7	0.6	0.6	0.6	2.7	0.9
10	0.6	**S**	0.7	0.6	0.6	0.6	0.4	0.5	0.5	0.4	0.8	1.2	2.0	1.9	2.2	1.7	2.0	2.1	1.3	1.5	0.8	0.9	1.3	1.5	2.2	1.1
11	0.3	**S**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	1.7	0.9	0.6	0.7	0.5	0.4	0.4	1.7	0.3
12	0.4	**S**	0.6	0.6	0.5	0.9	0.1	0.5	0.4	0.4	0.4	0.2	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.4	0.3	0.2	0.2	0.9	0.4
13	0.3	**S**	0.3	0.3	0.3	0.5	0.9	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.2	0.2	0.2	0.4	0.2	0.3	0.3	0.2	0.9	0.3
14	0.2	**S**	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.7	1.7	2.0	1.7	1.3	1.4	2.2	2.2	0.4	0.6	0.4	0.5	0.5	2.2	0.8
15	0.4	**S**	0.4	0.4	0.5	0.4	2.1	6.2	3.4	2.4	7.6	15.5	10.0	8.3	5.9	3.4	3.3	1.3	0.9	2.1	1.7	0.8	2.3	1.9	15.5	3.5
16	1.0	**S**	0.6	0.8	0.6	2.9	1.7	1.1	1.6	2.2	2.2	2.3	8.4	13.7	5.3	3.7	1.7	0.7	0.7	0.5	3.0	10.5	8.9	3.6	13.7	3.4
17	6.8	**S**	4.4	1.7	6.4	5.2	0.5	0.6	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	1.8	4.6	2.6	5.8	6.8	2.1
18	3.2	**S**	2.7	1.0	0.8	0.8	1.1	1.2	1.5	1.2	1.2	2.4	2.7	1.1	2.2	1.6	4.1	2.9	1.2	1.2	0.6	2.4	5.3	1.7	5.3	1.9
19	1.0	**S**	1.9	0.7	0.8	0.8	0.6	0.7	1.0	1.1	0.7	0.7	1.3	1.7	3.7	3.5	2.4	0.6	0.7	0.7	0.6	0.6	0.6	0.5	3.7	1.2
20	0.6	**S**	0.6	0.6	1.1	1.6	1.5	1.7	3.2	2.7	1.7	1.3	0.7	6.0	3.4	1.9	0.8	1.3	0.8	0.6	0.5	0.6	0.6	1.5	6.0	1.5
21	1.4	**S**	1.2	1.3	1.2	1.2	1.6	1.6	1.2	1.2	1.1	1.2	1.1	1.2	1.0	1.1	1.0	1.1	1.1	1.0	3.0	2.5	2.1	1.2	3.0	1.4
22	1.1	**S**	1.1	1.2	1.2	1.1	1.1	1.3	1.5	1.5	1.1	0.9	1.0	1.0	1.1	1.0	0.8	0.8	0.9	0.8	0.9	1.0	0.9	1.0	1.5	1.1
23	2.2	**S**	4.8	3.4	2.5	2.3	1.0	1.0	1.1	1.0	0.8	0.9	0.8	0.8	0.8	0.9	0.9	1.6	2.7	1.5	2.2	1.3	1.3	1.2	4.8	1.6
24	1.0	**S**	1.0	1.1	1.1	1.1	1.3	2.7	4.8	7.0	4.6	5.3	2.5	1.3	1.3	1.1	1.2	1.1	1.8	1.4	2.5	4.9	2.1	3.7	7.0	2.4
25	2.0	**S**	2.1	2.9	3.4	4.0	3.9	1.8	1.7	1.6	2.3	1.8	3.3	3.2	1.6	1.4	1.5	1.3	1.4	1.4	1.2	1.3	1.3	1.1	4.0	2.1
26	1.1	**S**	2.1	2.3	2.4	2.6	2.6	2.0	3.4	2.4	2.5	2.4	2.7	2.9	1.9	1.1	2.7	5.0	4.7	4.2	3.2	2.2	1.9	1.8	5.0	2.6
27	1.5	**S**	1.2	0.9	1.0	1.1	1.1	1.0	1.1	1.5	1.3	1.9	2.0	1.1	1.2	1.3	1.1	1.2	1.3	2.4	2.0	2.2	2.2	1.0	2.4	1.4
28	0.9	**S**	0.9	0.7	0.6	0.6	0.7	0.5	0.5	0.6	1.0	1.6	2.7	2.3	2.1	3.8	2.9	1.6	1.3	1.0	1.1	0.9	1.2	1.3	3.8	1.3
29	1.9	**S**	0.8	1.0	1.1	0.8	0.7	1.1	0.9	0.8	0.7	0.7	0.8	0.8	0.9	0.8	1.1	1.2	2.0	3.0	2.3	2.2	1.4	1.6	3.0	1.2
30	1.6	**S**	1.9	1.4	1.9	1.2	1.2	1.1	1.3	1.4	1.2	1.2	1.0	1.0	1.1	1.1	0.8	1.0	1.1	1.3	1.2	1.1	1.3	1.1	1.9	1.2
31	1.2	**S**	1.6	1.4	1.3	1.3	1.6	1.6	1.5	1.6	1.9	2.2	1.6	1.4	1.8	1.9	2.0	1.8	0.9	1.1	1.1	1.1	1.2	1.0	2.2	1.5
Hourly Max	6.8	-	4.8	3.4	6.4	5.2	3.9	6.2	4.8	7.0	7.6	15.5	10.0	13.7	5.9	3.8	4.1	5.0	4.7	4.2	3.2	10.5	8.9	5.8		
Hourly Average	1.1	-	1.1	0.9	1.1	1.1	0.9	1.0	1.1	1.2	1.3	1.6	1.7	1.9	1.5	1.2	1.2	1.1	1.0	1.0	1.1	1.5	1.4	1.2		

S = SPAN C = CALIBRATION

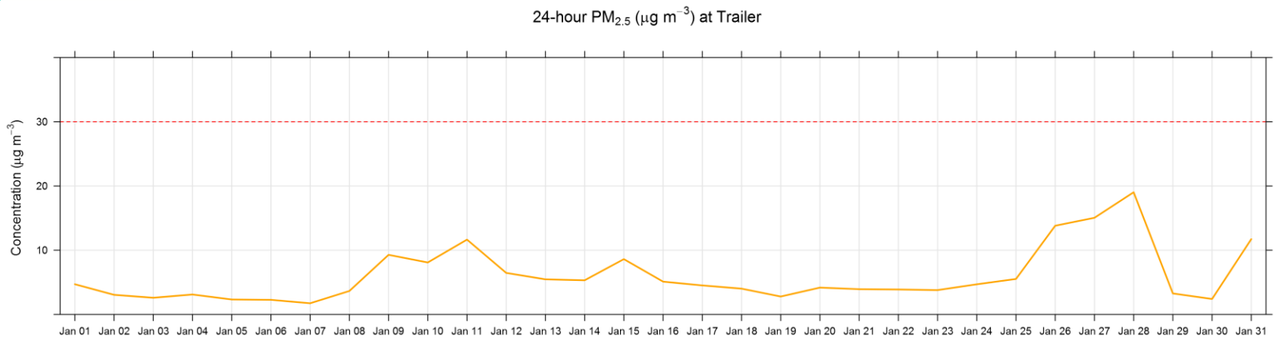


Number of 1HR Exceedances	0		Objective	172	PPB
Number of 24HR Exceedances	0		Objective	48	PPB
Number of Non-Zero Readings	667				
Maximum 1-HR Average	15.5	PPB			
Maximum 24-HR Average	3.5	PPB			
IZS Calibration Time	31	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	1.5		Monthly Average	1.2	PPB

Lagoon $PM_{2.5}$ ($\mu g/m^3$) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	14.5	9.6	7.8	6.9	5.8	7.1	4.8	3.6	5.5	4.0	1.5	1.2	1.2	0.4	0.8	2.2	5.5	3.7	3.3	4.0	5.1	6.5	5.4	2.6	14.5	4.7
2	1.2	4.0	3.0	0.4	1.9	2.6	2.6	2.5	5.1	3.7	5.1	4.0	3.7	3.7	2.6	3.0	3.0	0.8	3.3	3.7	2.6	3.0	4.7	3.3	5.1	3.1
3	2.3	4.4	2.6	2.6	4.0	2.6	1.5	0.8	0.8	1.2	2.6	4.0	2.6	3.0	3.7	3.7	2.6	1.9	0.8	3.0	2.2	4.7	4.4	0.4	4.7	2.6
4	2.2	3.3	2.6	1.9	2.6	1.2	0.0	0.0	0.0	6.2	4.7	2.9	**C**	**C**	9.4	4.8	1.5	4.0	3.3	2.3	4.4	4.0	3.0	4.0	9.4	3.1
5	3.3	2.6	2.6	1.5	3.7	5.5	4.0	2.6	2.9	2.2	1.5	2.2	2.3	2.6	1.2	3.0	3.3	0.0	1.5	3.3	0.8	0.0	0.0	3.3	5.5	2.3
6	5.1	4.8	4.7	3.7	0.8	0.0	0.1	1.5	1.9	2.6	2.6	3.0	1.2	1.9	2.2	3.3	2.2	0.0	0.1	2.6	4.7	3.0	1.2	1.5	5.1	2.3
7	2.6	2.4	1.9	4.2	2.2	0.4	1.2	1.2	0.1	0.0	0.0	0.0	1.2	1.5	1.2	1.9	0.8	1.5	3.7	2.6	3.3	3.7	1.5	3.0	4.2	1.7
8	6.2	3.3	0.8	1.2	0.0	0.0	0.4	2.2	0.8	0.0	6.2	5.5	4.0	3.7	1.9	3.0	13.4	9.1	10.5	7.3	2.6	0.1	1.9	3.7	13.4	3.7
9	1.9	0.0	0.4	2.6	2.2	10.5	7.6	4.4	4.0	3.3	3.7	12.3	14.8	18.1	20.6	20.2	17.3	15.9	13.4	12.7	10.1	10.1	8.0	8.7	20.6	9.3
10	10.9	12.3	9.4	9.1	7.6	5.5	9.1	8.0	7.6	6.9	7.6	11.2	6.9	4.0	9.1	8.7	6.9	5.5	5.8	8.7	8.4	10.1	8.0	6.9	12.3	8.1
11	7.3	7.6	13.4	12.7	11.6	11.6	17.3	8.0	9.8	11.2	12.7	17.0	15.5	11.2	12.7	9.1	6.6	9.1	13.7	14.5	11.9	9.6	13.4	12.3	17.3	11.7
12	11.2	13.0	8.7	11.9	12.3	10.1	9.4	7.6	9.8	6.9	8.0	21.3	0.0	0.8	2.2	2.2	3.3	4.0	3.0	1.5	1.2	3.7	1.9	1.2	21.3	6.5
13	3.0	4.0	4.0	1.6	1.2	2.2	5.1	4.4	1.9	1.5	2.6	4.0	10.1	21.6	11.2	11.6	9.8	5.6	7.6	5.8	4.4	2.6	1.9	3.6	21.6	5.5
14	4.8	3.6	5.5	6.2	5.8	5.8	3.3	0.8	3.3	1.9	0.8	1.2	2.2	4.0	7.3	6.2	5.5	6.2	6.2	7.3	6.9	7.6	13.0	12.3	13.0	5.3
15	11.9	12.3	13.4	15.2	14.8	14.4	14.8	11.9	12.3	6.5	6.9	11.7	9.8	7.6	6.9	8.0	5.1	3.5	1.9	0.0	5.1	5.1	3.6	4.0	15.2	8.6
16	3.3	3.0	3.7	3.7	2.6	1.5	3.0	3.0	1.2	0.4	4.8	8.0	6.9	4.7	3.7	10.9	7.3	14.1	8.0	2.6	1.5	7.3	9.4	8.3	14.1	5.1
17	5.5	13.7	8.7	6.9	8.7	9.1	6.2	3.6	3.3	4.0	3.0	5.5	5.8	4.7	1.2	0.0	1.2	2.2	1.2	0.4	0.0	0.1	5.8	7.6	13.7	4.5
18	7.3	4.4	0.4	0.0	1.2	1.9	2.2	1.9	3.3	8.0	6.2	8.0	5.5	4.4	3.0	4.0	3.6	3.3	4.1	4.0	3.6	5.8	4.7	5.8	8.0	4.0
19	6.2	4.4	1.5	1.9	1.2	0.0	0.0	0.0	1.9	12.3	8.3	4.0	1.9	0.1	0.0	1.9	3.7	3.0	2.2	1.9	3.0	3.3	2.2	2.2	12.3	2.8
20	3.7	3.0	0.0	1.5	3.3	6.9	7.6	8.4	7.3	6.5	5.1	4.0	3.7	0.8	1.9	3.3	5.1	5.1	6.5	4.8	3.3	2.2	2.2	4.0	8.4	4.2
21	5.1	4.0	6.2	5.5	4.4	6.9	5.5	4.4	5.1	3.0	0.0	3.0	4.0	5.8	5.4	4.0	3.7	3.0	2.6	3.0	2.2	1.9	3.0	3.0	6.9	3.9
22	1.5	1.5	2.2	4.1	4.8	5.1	3.0	2.2	3.0	5.8	6.9	4.4	2.2	3.0	4.7	3.7	2.3	6.2	5.1	3.3	6.2	5.1	3.7	3.3	6.9	3.9
23	2.6	2.6	6.2	4.4	2.2	3.3	3.0	2.6	3.0	8.0	10.5	9.1	5.5	1.2	0.0	2.6	3.0	3.0	3.0	3.7	2.2	1.9	3.7	4.1	10.5	3.8
24	7.2	7.6	5.1	5.1	2.6	2.2	3.0	1.5	2.2	5.8	7.6	7.3	6.5	6.9	5.8	5.1	4.0	0.8	3.7	4.0	7.6	5.1	1.9	4.0	7.6	4.7
25	4.0	3.3	3.3	0.8	2.2	5.1	9.8	7.6	4.7	4.0	9.8	13.0	12.3	6.2	5.8	4.7	3.0	4.0	2.2	3.0	6.5	5.1	3.3	8.7	13.0	5.5
26	6.5	5.5	5.5	7.6	6.2	7.3	22.3	23.8	16.6	23.8	24.2	22.3	20.5	13.0	22.0	10.9	6.9	10.9	17.7	13.0	10.9	10.9	10.1	13.4	24.2	13.8
27	12.7	14.4	17.0	13.4	15.9	12.7	16.6	10.9	13.7	19.5	15.2	13.7	14.8	14.1	13.0	10.1	15.2	14.1	19.0	16.2	16.6	17.3	19.5	15.8	19.5	15.0
28	15.2	20.6	12.3	18.8	17.7	18.4	17.7	13.7	17.7	23.4	17.0	16.6	19.8	18.8	20.5	23.1	21.6	23.1	22.0	24.5	27.0	17.7	18.0	11.6	27.0	19.0
29	9.1	5.5	2.2	1.5	2.2	4.7	3.7	1.9	4.2	4.4	5.1	5.5	3.0	2.6	3.3	2.6	1.2	2.6	3.0	2.6	5.5	2.2	0.0	0.0	9.1	3.3
30	0.0	1.2	0.8	1.2	1.5	4.0	4.0	3.0	1.5	3.0	7.6	4.1	1.5	2.6	2.2	0.8	0.0	0.0	3.0	3.7	3.3	4.4	3.3	1.2	7.6	2.4
31	1.5	1.5	2.6	6.9	9.4	10.5	10.9	10.3	10.5	13.0	14.4	17.7	14.4	13.7	15.9	16.2	14.1	14.1	12.3	12.3	15.5	13.7	15.2	14.8	17.7	11.7
Hourly Max	15.2	20.6	17.0	18.8	17.7	18.4	22.3	23.8	17.7	23.8	24.2	22.3	20.5	21.6	22.0	23.1	21.6	23.1	22.0	24.5	27.0	17.7	19.5	15.8		
Hourly Average	5.8	5.9	5.1	5.3	5.2	5.8	6.4	5.1	5.3	6.6	6.8	8.0	6.8	6.2	6.5	6.3	5.9	5.8	6.2	5.9	6.1	5.7	5.7	5.8		

C = CALIBRATION

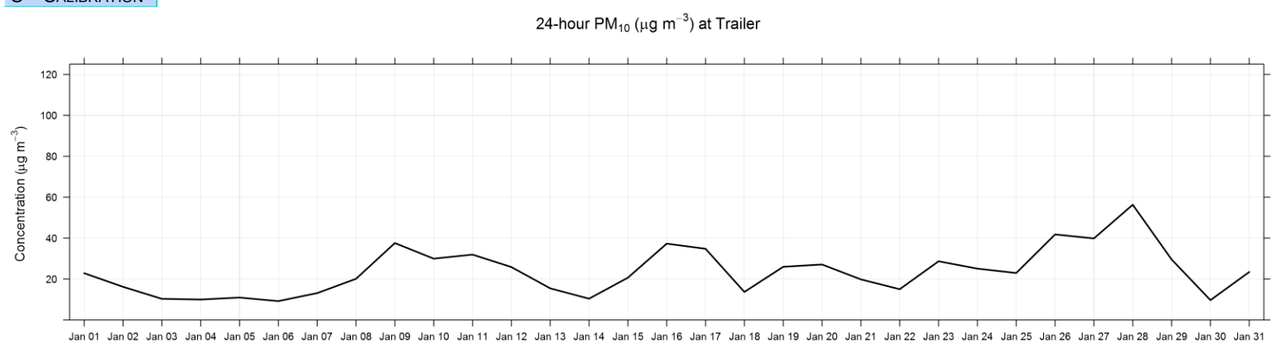


Number of 1HR Exceedances	0		Guideline	80	UG/M3
Number of 24HR Exceedances	0		Objective	30	UG/M3
Number of Non-Zero Readings	710				
Maximum 1-HR Average	27.0	UG/M3			
Maximum 24-HR Average	19.0	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0	%
Standard Deviation	5.3		Monthly Average	6.0	UG/M3

Lagoon PM_{10} (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	14.6	21.0	12.5	13.2	13.2	12.5	11.8	11.8	17.4	37.2	31.5	37.9	30.1	31.5	34.7	34.3	54.0	30.8	26.6	13.9	12.5	13.2	22.3	10.4	54.0	22.9
2	6.1	7.5	11.1	16.7	9.8	8.3	11.1	11.1	19.5	11.1	32.9	30.8	30.1	29.4	27.2	25.2	34.3	21.6	16.0	2.6	6.1	8.3	6.6	5.5	34.3	16.2
3	19.5	18.8	4.0	4.7	4.0	6.1	6.1	6.7	8.3	7.5	20.9	16.0	19.5	27.3	21.6	15.3	19.7	9.8	4.7	1.2	3.3	2.7	0.0	0.0	27.3	10.3
4	1.9	1.2	3.3	4.0	3.3	3.3	2.6	4.7	6.8	18.1	25.9	30.1	**C**	**C**	30.8	6.1	23.1	15.3	10.4	6.9	9.7	6.8	1.2	4.0	30.8	10.0
5	5.4	5.4	5.5	4.0	4.0	4.7	2.6	2.8	5.4	4.0	16.7	16.0	14.6	16.0	18.8	30.1	30.0	23.1	8.3	9.0	7.5	6.8	9.7	12.4	30.1	10.9
6	9.7	6.1	2.6	2.6	6.8	11.1	12.5	9.7	6.8	18.5	9.0	10.4	12.5	9.0	3.3	2.7	5.4	10.4	9.7	4.8	4.0	4.7	42.0	6.8	42.0	9.2
7	5.5	6.8	9.7	6.1	4.0	4.7	4.0	2.6	1.2	6.1	10.4	11.1	18.1	16.0	3.3	4.0	8.3	27.3	42.8	76.6	12.5	13.2	9.7	11.1	76.6	13.1
8	12.4	10.4	12.5	24.5	7.5	18.8	13.2	16.0	28.0	23.9	38.5	40.0	42.1	38.6	20.9	25.2	27.9	18.0	35.7	17.4	1.2	4.7	2.6	2.6	42.1	20.1
9	6.8	5.4	9.8	9.0	19.5	36.4	24.5	6.8	11.1	34.3	33.6	30.2	21.6	54.8	49.1	41.4	83.6	140.7	93.5	34.3	18.1	22.3	75.2	40.0	140.7	37.6
10	24.5	25.9	70.3	22.3	13.9	26.6	53.4	26.6	14.6	5.4	0.0	7.6	42.8	14.6	24.5	38.6	26.6	9.0	32.9	128.8	110.5	0.0	0.0	0.0	128.8	30.0
11	14.6	14.6	11.8	25.9	9.0	6.9	9.0	12.5	9.7	23.8	65.4	30.1	37.3	52.7	40.7	42.1	21.7	33.6	102.7	51.3	31.5	21.7	49.9	48.4	102.7	31.9
12	35.7	30.8	40.7	32.2	25.2	10.4	11.1	11.8	13.2	11.8	10.4	28.7	27.3	35.0	34.3	22.3	45.4	40.7	44.2	26.6	20.9	30.8	23.8	7.5	45.4	25.9
13	6.1	4.0	0.5	5.5	14.6	9.0	7.5	17.4	24.5	25.1	31.5	41.4	80.9	21.6	14.6	32.9	0.0	0.4	0.0	4.0	9.7	7.5	5.4	6.8	80.9	15.5
14	11.8	9.0	18.2	7.5	6.1	4.7	2.7	1.9	6.9	8.3	4.0	6.1	8.3	7.5	7.5	9.7	11.1	12.5	12.5	17.4	4.0	9.0	28.0	35.1	35.1	10.4
15	21.6	18.1	30.1	18.1	29.4	21.6	25.9	21.6	29.4	6.1	18.8	36.4	61.1	39.3	49.8	19.5	8.3	9.7	8.3	1.9	2.7	9.6	5.4	2.8	61.1	20.7
16	5.4	8.3	9.6	6.8	4.7	4.7	6.9	9.7	12.5	12.7	11.1	17.4	27.3	58.3	74.5	69.6	84.3	113.2	25.2	38.6	18.1	63.9	130.8	81.5	130.8	37.3
17	30.8	56.2	80.1	88.6	55.5	56.2	22.4	11.8	12.5	13.2	11.8	18.8	9.7	26.3	65.3	44.2	28.0	27.3	9.0	8.9	6.1	34.3	59.7	58.3	88.6	34.8
18	29.4	3.3	9.6	13.2	10.4	16.7	3.3	4.7	8.3	24.5	29.4	19.7	19.5	18.1	8.9	16.8	13.2	24.5	8.3	9.7	11.8	8.3	6.4	11.1	29.4	13.7
19	11.1	9.7	9.8	9.0	6.1	7.5	9.7	6.8	53.4	133.6	40.7	17.4	12.6	13.2	16.6	66.0	80.8	71.0	9.0	10.4	6.1	7.5	9.0	6.8	133.6	26.0
20	12.7	11.1	6.8	6.6	23.1	34.3	44.1	48.4	42.0	56.0	66.0	57.5	32.9	16.0	45.6	50.5	24.5	13.2	27.3	9.0	6.8	4.7	4.0	7.5	66.0	27.1
21	26.6	16.0	32.2	18.1	16.7	20.2	11.1	22.3	20.9	25.9	18.8	75.9	21.6	18.1	7.5	9.0	8.3	9.0	17.4	6.1	6.8	39.3	13.2	14.6	75.9	19.8
22	11.8	11.8	13.2	10.4	11.8	23.8	10.4	9.7	25.2	38.6	28.7	28.7	20.9	14.6	13.9	13.9	9.0	4.7	6.8	6.8	6.8	23.8	8.9	6.8	38.6	15.0
23	10.4	10.4	7.5	12.5	13.9	19.5	23.8	21.6	42.8	87.2	67.4	39.3	16.0	20.2	14.6	18.8	20.9	28.0	56.2	49.1	30.1	50.5	19.5	8.3	87.2	28.7
24	11.1	11.8	18.8	12.5	11.1	5.4	3.3	33.6	44.2	66.0	23.1	26.6	38.1	58.3	43.5	49.8	32.9	8.3	18.1	19.5	37.1	9.7	11.1	8.3	66.0	25.1
25	8.2	16.0	19.5	2.6	20.2	16.0	16.0	3.3	9.6	10.4	20.2	33.6	24.5	35.0	66.0	11.1	11.1	28.7	11.1	10.4	37.8	35.7	28.0	75.9	75.9	23.0
26	32.9	30.1	44.2	31.1	14.6	11.8	24.5	31.5	32.9	116.6	112.5	53.3	28.0	35.0	60.3	43.5	43.5	51.6	53.4	32.9	19.5	33.6	35.7	30.1	116.6	41.8
27	23.8	25.2	28.0	19.5	21.6	25.2	26.6	22.4	18.1	44.2	54.1	30.3	54.8	48.4	68.9	61.8	26.6	22.3	61.8	30.8	38.6	36.4	97.0	70.3	97.0	39.8
28	56.9	30.0	23.8	19.5	18.4	13.9	13.2	18.8	24.5	356.5	102.7	62.5	80.1	96.3	49.0	69.6	70.9	38.6	45.6	37.8	35.7	28.7	25.9	32.9	356.5	56.3
29	81.5	97.7	72.4	14.6	18.1	25.9	42.1	14.6	35.0	35.0	13.9	12.6	13.2	14.6	10.4	35.0	12.5	47.0	13.2	34.5	33.6	20.9	8.3	3.3	97.7	29.6
30	1.9	9.0	10.4	18.1	5.4	18.1	18.1	4.7	4.8	29.4	30.8	17.4	3.3	4.0	4.0	2.6	0.0	1.2	6.5	6.9	9.7	13.2	8.3	4.7	30.8	9.7
31	5.4	17.4	28.0	16.7	15.1	15.0	13.9	11.1	11.8	13.9	34.3	42.1	35.7	22.3	28.0	31.5	23.1	35.8	29.4	26.1	27.3	23.1	27.3	28.7	42.1	23.5
Hourly Max	81.5	97.7	80.1	88.6	55.5	56.2	53.4	48.4	53.4	356.5	112.5	75.9	80.9	96.3	74.5	69.6	84.3	140.7	102.7	128.8	110.5	63.9	130.8	81.5		
Hourly Average	17.9	17.7	21.2	16.0	14.1	16.1	15.7	14.2	19.4	42.1	32.7	29.9	29.5	29.7	30.9	30.4	28.7	29.9	27.3	23.7	18.9	19.2	25.0	20.7		

C = CALIBRATION

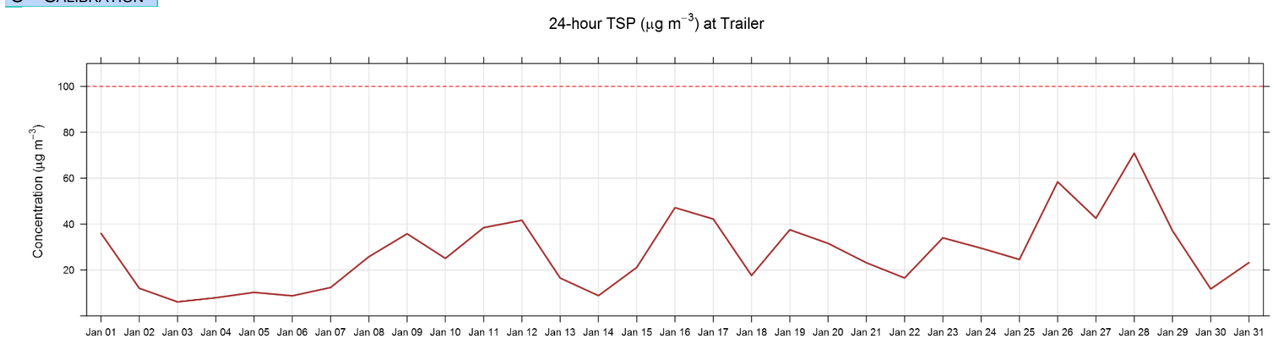


Number of 1HR Exceedances	n/a		Objective	n/a	UG/M3
Number of Non-Zero Readings	733				
Maximum 1-HR Average	356.5	UG/M3			
Maximum 24-HR Average	56.3	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0	%
Standard Deviation	24.8		Monthly Average	23.8	UG/M3

Lagoon TSP (μg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	8.5	9.9	8.5	8.5	9.9	11.3	12.8	21.0	37.5	69.3	72.1	69.3	48.6	44.4	62.4	72.1	128.7	45.7	44.4	37.5	12.6	8.5	8.5	11.2	128.7	36.0
2	5.7	3.0	7.1	5.7	3.0	4.3	7.1	8.5	5.7	16.8	55.5	36.1	30.6	22.3	7.1	16.8	18.2	11.4	5.7	0.2	3.0	7.1	4.3	3.0	55.5	12.0
3	5.7	18.2	0.2	1.6	3.0	0.0	0.2	3.0	0.0	3.0	21.2	16.8	3.0	3.8	7.1	15.4	23.6	5.7	4.3	3.0	4.1	3.0	0.0	0.0	23.6	6.1
4	0.2	3.0	1.6	4.3	7.1	1.6	0.2	0.2	3.0	19.6	29.2	19.6	**C**	**C**	19.6	19.6	17.0	4.3	4.3	7.1	6.0	1.6	3.0	1.6	29.2	7.9
5	0.2	5.7	5.7	4.3	5.7	4.3	4.3	0.2	4.3	5.7	5.7	9.9	7.1	7.1	33.4	30.6	38.9	29.2	16.8	0.2	4.3	8.5	7.1	5.7	38.9	10.2
6	4.3	4.3	0.2	1.5	7.1	5.7	14.0	18.2	0.0	25.1	8.5	9.9	8.5	6.1	7.1	5.7	4.3	4.3	8.5	9.9	18.2	9.9	16.8	11.3	25.1	8.7
7	11.3	12.6	8.5	1.6	1.6	5.7	4.3	1.6	3.0	4.3	8.5	9.9	15.4	11.3	11.3	11.2	11.2	33.4	48.6	40.3	9.9	9.9	7.1	14.0	48.6	12.3
8	9.9	15.4	9.9	25.1	1.6	25.1	19.3	25.1	33.4	26.5	47.2	56.9	67.9	47.2	26.5	37.5	45.8	20.9	41.7	22.3	4.3	1.6	1.5	5.7	67.9	25.8
9	8.5	3.0	15.4	1.7	3.0	32.0	25.1	4.3	19.6	51.3	52.7	36.1	26.1	52.4	58.3	40.2	80.4	117.7	49.0	43.0	13.9	27.9	62.4	34.8	117.7	35.8
10	13.9	27.8	66.5	22.3	15.4	37.5	26.5	27.9	27.9	12.7	9.9	18.2	41.7	4.4	16.8	37.5	37.5	11.3	22.3	55.5	44.5	8.5	8.5	5.7	66.5	25.0
11	16.8	15.4	9.9	34.8	26.4	19.6	18.2	18.2	3.0	4.4	66.6	18.2	12.7	14.0	14.0	15.4	18.2	48.3	231.1	124.6	59.7	33.4	55.5	44.5	231.1	38.4
12	38.9	23.7	33.4	48.6	37.5	15.4	11.3	8.5	9.9	8.5	14.1	20.9	18.2	52.7	67.9	74.9	181.2	102.5	85.9	43.4	28.2	26.5	26.5	20.9	181.2	41.6
13	11.1	5.7	0.0	4.3	12.6	7.1	0.2	19.0	26.5	25.1	33.4	44.4	103.8	18.2	8.5	25.1	0.2	3.0	4.3	4.3	9.9	8.5	3.0	16.8	103.8	16.5
14	15.4	4.3	14.0	8.5	8.5	4.3	5.7	4.3	0.2	1.6	6.0	4.3	1.6	3.0	7.1	8.5	8.4	11.4	14.0	4.3	7.1	19.6	18.2	30.6	30.6	8.8
15	20.9	18.2	26.5	25.1	19.6	36.1	27.8	9.9	20.9	12.6	15.4	32.0	62.4	47.2	65.2	20.9	11.3	11.3	5.7	3.0	5.7	4.3	1.6	3.0	65.2	21.1
16	5.7	4.0	3.0	3.0	1.6	4.3	3.0	0.0	4.3	4.3	7.1	14.2	33.5	76.2	96.9	110.8	132.9	128.9	40.3	18.2	30.6	79.0	217.5	112.2	217.5	47.1
17	41.7	59.6	117.7	114.9	87.3	77.6	26.6	16.8	25.1	16.8	11.1	25.1	18.2	26.5	54.1	32.0	25.1	32.0	14.0	7.1	7.1	32.0	79.0	65.2	117.7	42.2
18	38.9	8.5	14.0	15.4	16.8	27.8	9.9	7.1	14.0	22.3	33.4	18.2	24.9	23.7	19.6	23.7	18.2	30.7	9.9	11.2	8.5	3.0	7.1	15.4	38.9	17.6
19	14.0	11.3	8.5	8.5	7.1	14.2	9.9	7.1	67.9	218.6	54.8	19.6	5.7	5.7	22.3	103.9	121.8	124.6	19.6	11.3	8.5	8.5	9.9	16.8	218.6	37.5
20	7.1	9.9	12.6	9.9	19.6	34.8	36.1	47.2	32.0	79.0	96.9	65.2	27.8	5.7	76.2	67.9	36.1	27.8	25.1	14.0	7.1	7.1	5.7	7.1	96.9	31.6
21	26.5	5.7	47.2	27.8	20.9	23.7	14.0	30.6	23.7	26.5	17.1	69.3	26.5	23.7	15.4	11.3	14.2	5.7	18.2	12.6	11.3	47.2	19.6	16.8	69.3	23.1
22	12.6	19.6	8.6	5.7	23.7	26.1	3.0	3.0	33.4	47.2	29.2	30.6	23.7	19.6	14.2	14.0	9.9	8.5	9.9	8.5	7.2	20.9	9.9	7.1	47.2	16.5
23	7.1	9.9	9.9	7.1	8.5	18.2	16.8	29.2	48.6	116.3	92.8	50.0	11.2	24.9	19.6	22.3	33.4	27.8	76.2	56.9	26.5	73.5	15.4	14.0	116.3	34.0
24	18.2	12.6	14.2	14.0	6.3	5.7	8.5	27.8	61.0	84.5	40.3	27.8	38.9	62.4	54.1	65.1	45.8	12.6	15.4	24.9	48.6	4.3	7.1	7.1	84.5	29.5
25	5.7	18.2	8.5	5.7	7.1	18.2	6.0	6.1	7.1	8.5	15.4	29.2	19.6	30.6	69.3	22.3	16.8	25.1	8.5	14.0	41.7	44.4	37.5	124.2	124.2	24.6
26	40.3	30.6	55.5	43.0	7.1	8.5	29.2	45.8	32.0	182.6	243.5	79.0	23.7	43.0	91.4	70.7	54.1	88.7	65.2	52.7	19.6	32.7	30.6	32.0	243.5	58.4
27	24.6	25.1	20.9	23.5	30.6	24.5	23.7	20.9	14.1	37.7	59.6	29.2	54.1	48.6	94.2	84.5	32.0	23.7	69.3	32.0	37.5	34.8	101.1	74.8	101.1	42.5
28	52.7	37.5	20.9	16.8	32.0	9.9	19.6	16.8	18.4	544.9	127.4	40.3	85.9	108.0	62.4	102.5	109.4	54.1	59.6	44.4	37.5	27.8	30.6	41.7	544.9	70.9
29	152.1	150.8	63.8	26.5	30.6	30.6	59.6	14.2	32.0	45.8	15.4	11.4	7.1	7.1	9.9	38.9	9.9	54.1	19.1	48.5	34.8	22.3	4.2	1.6	152.1	37.1
30	1.6	15.4	8.5	8.5	9.9	23.7	23.6	5.7	4.4	44.4	40.3	3.0	5.7	4.4	5.7	8.6	7.1	3.0	3.0	3.0	26.5	14.1	5.7	5.7	44.4	11.7
31	3.9	18.2	25.9	19.6	18.2	4.3	8.5	11.3	15.4	18.2	36.1	38.9	25.1	22.3	11.3	33.4	27.8	48.6	44.4	25.1	12.6	27.9	19.6	40.3	48.6	23.2
Hourly Max	152.1	150.8	117.7	114.9	87.3	77.6	59.6	47.2	67.9	544.9	243.5	79.0	103.8	108.0	96.9	110.8	181.2	128.9	231.1	124.6	59.7	79.0	217.5	124.2		
Hourly Average	20.1	19.6	20.9	17.7	15.8	18.1	15.3	14.8	20.3	57.5	44.1	30.7	29.3	28.9	36.4	40.1	42.6	37.3	35.0	25.3	19.2	21.2	26.6	25.5		

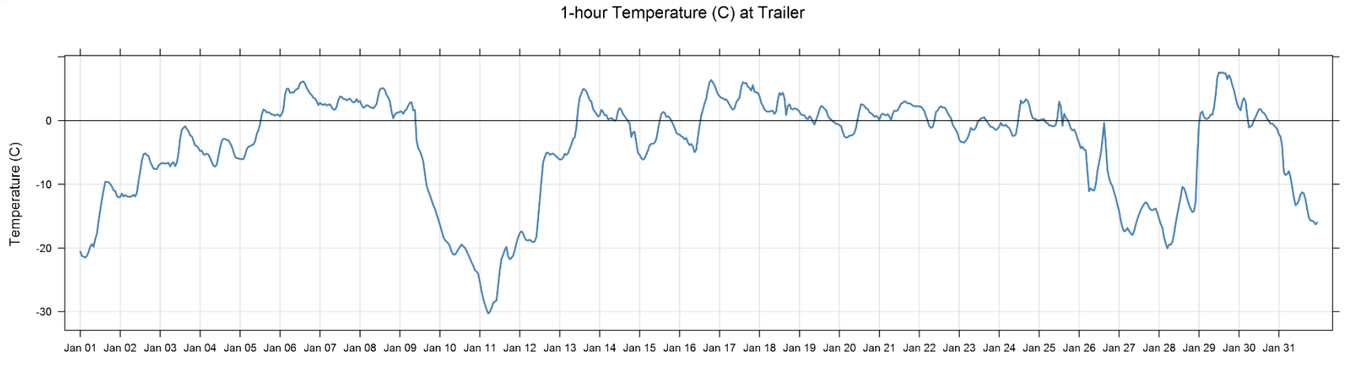
C = CALIBRATION



Number of 24HR Exceedances	0		Objective	100	UG/M3
Number of Non-Zero Readings	735				
Maximum 1-HR Average	544.9	UG/M3			
Maximum 24-HR Average	70.9	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0	%
Standard Deviation	36.3		Monthly Average	27.6	UG/M3

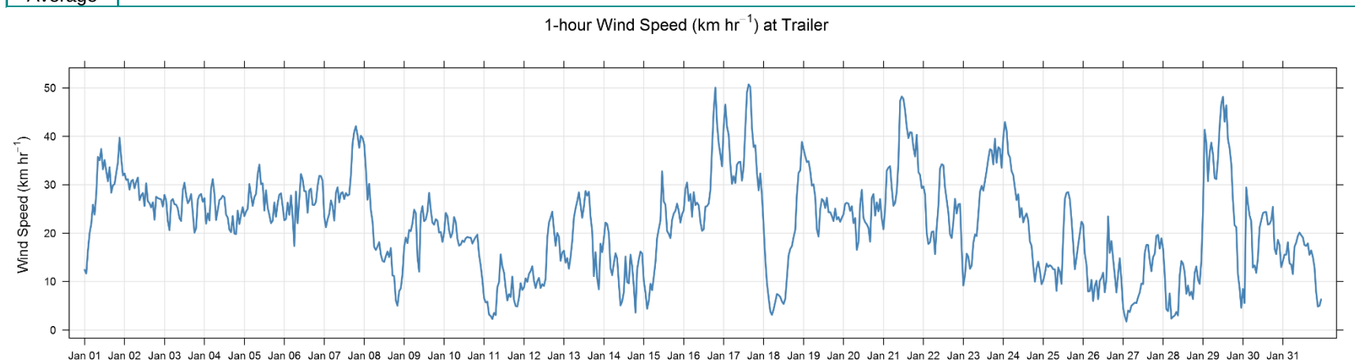
Lagoon Temperature (°C) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	-20.6	-21.3	-21.4	-21.5	-21.2	-20.6	-19.8	-19.4	-19.8	-18.6	-17.8	-15.8	-14.0	-12.4	-10.9	-9.6	-9.6	-9.7	-10.0	-10.3	-11.0	-11.1	-11.8	-12.0	-9.6	-15.4
2	-12.0	-11.5	-11.9	-11.7	-11.9	-11.9	-12.0	-11.9	-11.7	-11.9	-11.3	-9.5	-8.0	-6.3	-5.3	-5.1	-5.4	-5.5	-6.5	-7.0	-7.5	-7.6	-7.6	-7.1	-5.1	-9.1
3	-6.8	-6.6	-6.7	-6.8	-6.7	-6.6	-7.2	-6.7	-6.5	-7.2	-6.6	-5.1	-2.8	-1.5	-1.1	-0.9	-1.3	-1.7	-2.4	-2.5	-3.2	-3.9	-4.0	-4.3	-0.9	-4.5
4	-4.8	-4.7	-5.3	-5.4	-5.2	-5.3	-5.9	-6.5	-7.1	-7.2	-6.9	-5.6	-4.2	-3.2	-2.8	-2.9	-3.1	-3.1	-3.6	-4.1	-4.9	-5.7	-5.9	-6.0	-2.8	-5.0
5	-6.0	-6.0	-6.1	-5.4	-4.5	-4.1	-4.0	-3.8	-3.8	-3.2	-2.1	-1.5	-0.6	0.9	1.7	1.6	1.3	1.3	1.2	0.9	0.9	0.8	0.9	0.9	1.7	-1.6
6	0.6	1.0	1.7	4.1	5.0	5.0	4.3	4.4	4.4	4.7	4.9	5.1	5.9	6.0	6.2	5.8	5.1	4.7	4.2	4.0	3.6	3.5	3.0	2.4	6.2	4.2
7	2.8	2.5	2.4	2.6	2.4	2.5	2.5	2.1	1.7	1.7	2.2	3.2	3.8	3.7	3.4	3.4	3.2	3.3	3.4	3.1	2.8	2.9	3.4	2.9	3.8	2.8
8	3.1	2.4	2.0	2.2	2.4	2.3	2.1	2.0	1.9	2.2	2.6	3.9	4.9	5.1	5.1	4.8	4.0	3.6	3.0	1.4	0.4	1.0	1.2	1.2	5.1	2.7
9	1.4	1.4	1.1	1.5	1.8	2.3	2.8	2.9	1.6	1.7	-3.1	-4.3	-4.8	-5.5	-6.4	-8.3	-10.2	-11.0	-11.7	-12.5	-13.3	-13.8	-14.7	-15.5	2.9	-4.9
10	-16.3	-17.2	-18.2	-18.7	-19.0	-19.3	-19.7	-20.5	-21.0	-21.0	-20.7	-20.2	-19.9	-19.4	-19.7	-20.0	-20.5	-21.0	-21.6	-22.2	-22.7	-23.5	-23.7	-24.0	-16.3	-20.4
11	-25.3	-26.7	-27.9	-28.8	-29.6	-30.3	-30.0	-29.4	-28.6	-28.4	-28.3	-25.9	-23.5	-21.7	-21.1	-20.3	-19.8	-21.3	-21.8	-21.5	-21.2	-20.3	-19.2	-18.3	-18.3	-24.6
12	-17.7	-17.4	-17.7	-18.4	-18.8	-18.8	-18.7	-18.9	-19.1	-19.0	-18.2	-15.5	-12.4	-9.5	-6.6	-5.7	-5.1	-5.1	-5.4	-5.3	-5.2	-5.4	-5.6	-5.9	-5.1	-12.3
13	-6.1	-6.1	-5.9	-5.2	-5.4	-5.1	-4.4	-3.8	-2.9	-2.6	-1.1	1.8	3.6	4.3	4.9	4.9	4.6	3.9	3.2	3.0	1.8	1.4	1.1	0.6	4.9	-0.4
14	0.8	1.7	1.4	0.8	0.8	0.2	0.3	0.4	0.2	-0.1	0.2	1.5	2.0	1.7	1.0	0.7	0.3	0.0	-0.5	-2.6	-1.9	-1.8	-3.5	-5.1	2.0	-0.1
15	-5.4	-5.9	-6.1	-5.9	-5.3	-4.7	-3.9	-3.6	-3.6	-3.5	-2.9	-1.5	-0.1	1.0	1.3	1.3	0.6	0.7	0.4	0.0	-0.6	-1.1	-1.9	-2.1	1.3	-2.2
16	-2.2	-2.5	-2.6	-2.9	-2.7	-3.5	-3.9	-3.7	-4.1	-5.0	-4.6	-2.6	-0.8	0.8	1.7	2.7	3.4	4.9	6.0	6.4	6.0	5.5	4.8	4.1	6.4	0.2
17	3.8	3.6	3.5	3.3	3.3	3.0	2.5	2.0	1.7	1.9	2.8	3.3	3.5	5.2	6.0	5.9	5.9	5.3	5.1	4.7	5.6	4.5	4.4	4.4	6.0	4.0
18	3.8	2.8	2.3	1.8	1.5	1.4	1.4	1.5	1.5	1.0	1.4	3.2	4.3	4.0	4.4	3.5	0.9	2.3	2.5	1.9	1.8	1.9	1.8	1.7	4.4	2.3
19	1.4	0.9	0.9	0.8	0.4	0.2	0.7	0.4	-0.2	-0.6	0.1	0.8	1.7	2.3	2.2	1.9	1.7	0.9	0.4	0.2	-0.1	-0.3	-0.5	-0.6	2.3	0.6
20	-0.7	-0.9	-1.8	-2.5	-2.7	-2.6	-2.4	-2.4	-2.3	-1.9	-1.1	0.3	1.5	2.5	2.5	2.3	1.9	1.8	1.3	1.2	0.9	0.6	0.8	0.5	2.5	-0.1
21	0.1	0.8	1.1	0.9	0.8	1.0	0.6	0.1	1.1	1.6	1.5	1.6	2.1	2.7	2.8	3.0	2.9	2.7	2.7	2.6	2.4	2.3	2.2	2.3	3.0	1.7
22	2.2	2.2	1.9	1.5	0.7	-0.1	-0.9	-1.1	-1.0	-0.1	1.3	1.6	2.0	2.2	2.0	2.1	1.8	1.2	0.8	0.4	-0.6	-1.1	-1.5	-2.0	2.2	0.6
23	-3.0	-3.4	-3.4	-3.5	-3.1	-2.7	-2.0	-1.1	-1.5	-1.4	-1.1	-0.3	0.0	0.3	0.4	0.5	0.1	-0.3	-0.7	-1.0	-1.0	-1.3	-1.5	-1.3	0.5	-1.3
24	-0.9	-0.4	-0.8	-0.8	-0.7	-1.0	-1.2	-1.7	-2.4	-2.4	-2.1	-0.7	1.4	3.1	2.7	2.9	3.3	3.1	2.5	1.2	0.5	0.3	0.2	0.0	3.3	0.3
25	0.1	0.1	0.2	0.2	-0.3	-0.4	-0.8	-0.8	-0.9	-0.9	-0.6	0.5	3.0	2.2	-0.8	1.1	0.5	0.1	-0.4	-1.3	-1.5	-1.4	-2.0	-2.8	3.0	-0.3
26	-3.5	-4.3	-4.1	-4.6	-4.7	-8.1	-11.1	-10.6	-10.9	-11.0	-10.0	-7.9	-6.5	-5.2	-3.0	-0.4	-3.7	-7.8	-9.0	-9.8	-10.3	-11.2	-12.1	-13.2	-0.4	-7.6
27	-14.2	-15.7	-16.8	-17.4	-17.3	-16.9	-17.3	-17.7	-18.0	-17.4	-16.3	-15.5	-14.7	-14.1	-13.5	-13.1	-12.8	-13.0	-13.6	-14.0	-14.1	-13.9	-13.8	-14.5	-12.8	-15.2
28	-15.4	-16.2	-16.8	-18.3	-19.2	-20.1	-19.5	-19.5	-19.1	-17.8	-16.1	-14.7	-13.4	-12.0	-10.4	-10.6	-11.4	-12.4	-13.2	-13.9	-14.4	-14.2	-12.7	-5.8	-5.8	-14.9
29	-0.5	1.2	1.4	0.6	0.3	0.3	0.5	0.9	0.9	2.0	4.0	6.7	7.6	7.5	7.6	7.4	7.4	6.5	7.1	6.6	5.6	4.8	3.6	2.5	7.6	3.8
30	2.0	1.6	3.0	3.5	3.0	0.8	-1.1	-0.9	-0.7	0.1	0.6	1.2	1.8	1.8	1.3	1.2	0.8	0.3	-0.1	-0.5	-0.5	-0.7	-1.0	-1.3	3.5	0.7
31	-2.2	-2.5	-4.2	-8.1	-8.5	-8.4	-8.0	-8.9	-10.4	-12.1	-13.3	-13.1	-12.5	-11.6	-11.2	-11.5	-12.4	-13.9	-15.2	-15.7	-15.7	-15.9	-16.3	-16.0	-2.2	-11.1
Hourly Max	3.8	3.6	3.5	4.1	5.0	5.0	4.3	4.4	4.4	4.7	4.9	6.7	7.6	7.5	7.6	7.4	7.4	6.5	7.1	6.6	6.0	5.5	4.8	4.4		
Hourly Average	-4.6	-4.7	-5.0	-5.2	-5.3	-5.5	-5.7	-5.7	-5.8	-5.7	-5.2	-4.0	-2.9	-2.1	-1.8	-1.7	-2.1	-2.6	-3.0	-3.4	-3.8	-4.0	-4.3	-4.3		



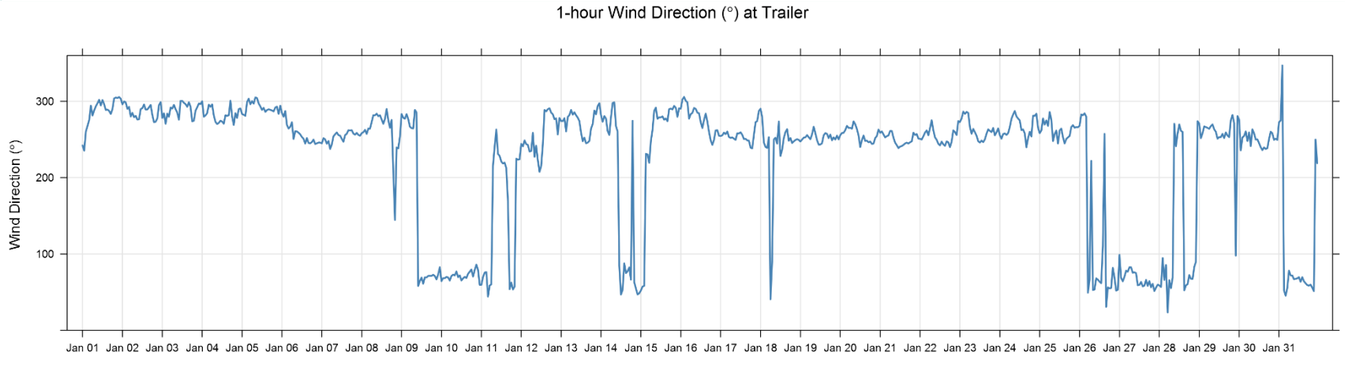
Lagoon Wind Speed (km/hr) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	12.4	11.7	16.4	20.0	21.9	25.9	23.8	28.1	35.8	35.1	37.4	33.2	35.1	32.8	30.7	33.6	28.4	29.9	30.1	32.4	34.6	39.7	35.5	32.0	39.7	29.0
2	32.3	31.0	31.1	29.0	30.8	31.0	29.3	30.6	31.5	26.8	27.8	28.3	25.6	30.3	26.6	26.2	25.3	26.4	22.8	27.5	27.3	27.1	27.0	25.5	32.3	28.2
3	27.9	26.8	22.5	20.6	26.7	27.1	26.0	25.9	25.1	23.1	22.5	28.9	30.4	27.8	26.2	26.8	28.1	24.3	20.1	21.0	26.9	27.8	28.1	26.5	30.4	25.7
4	27.2	22.0	24.1	22.6	29.3	31.2	28.2	22.7	24.7	26.9	27.1	27.7	27.4	23.8	23.2	20.7	20.2	23.6	19.9	19.8	24.7	21.9	23.8	25.4	31.2	24.5
5	23.5	24.5	25.1	30.1	27.8	25.6	27.4	28.1	32.2	34.2	30.1	30.3	24.7	28.9	25.3	23.8	22.1	22.6	26.4	23.4	26.2	27.9	28.2	25.5	34.2	26.8
6	22.7	22.9	26.3	23.8	27.8	23.4	17.3	28.6	22.1	27.1	32.2	31.1	28.7	28.7	24.2	28.8	29.2	25.9	25.8	26.5	29.7	31.8	31.8	30.8	32.2	27.0
7	23.4	21.2	22.9	24.0	26.8	25.6	22.6	28.4	29.5	26.4	28.2	28.5	27.0	28.3	27.8	28.0	32.0	38.5	40.9	42.1	40.3	37.6	40.1	39.6	42.1	30.4
8	38.4	33.3	26.9	30.2	24.8	22.4	17.1	16.5	17.3	18.2	15.6	14.3	14.1	15.2	16.2	15.1	16.9	11.3	11.1	6.1	5.0	8.0	8.6	11.6	38.4	17.3
9	17.1	19.1	17.9	20.7	20.4	22.1	24.9	24.1	15.2	12.0	23.9	25.6	22.5	22.9	24.4	28.3	24.8	22.2	21.7	22.9	22.6	20.1	20.3	18.2	28.3	21.4
10	20.0	24.2	23.5	20.6	19.1	20.1	23.3	22.3	18.9	17.4	17.6	18.5	18.2	19.0	19.2	19.1	19.1	17.9	18.6	19.2	19.7	15.6	13.3	10.3	24.2	18.9
11	6.6	5.7	5.9	3.2	2.9	2.3	3.5	3.1	8.8	9.9	15.6	13.2	11.9	8.7	6.1	7.4	6.8	11.0	6.2	5.0	4.9	6.6	9.7	8.3	15.6	7.2
12	8.8	10.7	9.9	11.6	12.2	13.2	10.2	8.7	10.1	10.8	8.7	9.5	9.1	10.6	19.0	22.2	23.2	24.5	20.8	17.4	20.0	19.2	14.3	16.0	24.5	14.2
13	16.4	13.9	14.9	12.7	15.1	18.4	23.2	25.1	26.6	28.4	25.8	23.2	25.5	28.7	27.7	28.6	23.4	20.4	11.1	16.1	10.7	8.4	17.8	16.1	28.7	19.9
14	18.9	22.2	21.9	20.0	12.8	11.3	13.8	15.9	14.8	9.7	5.1	5.9	7.8	15.2	9.9	9.6	15.6	13.2	9.0	3.6	12.5	14.6	16.2	15.8	22.2	13.1
15	10.2	7.7	4.4	6.0	9.6	8.2	11.0	14.0	19.0	20.9	22.6	32.8	26.6	25.9	20.5	19.8	19.0	22.7	24.1	24.6	26.1	24.6	22.2	23.9	32.8	18.6
16	24.7	29.1	30.5	26.7	28.1	23.4	28.5	25.8	26.3	25.7	22.4	20.5	20.8	25.5	25.6	26.1	28.9	37.4	45.3	50.1	42.6	38.6	36.3	33.8	50.1	30.1
17	42.0	46.6	42.0	40.3	34.3	30.2	31.8	30.4	34.2	34.7	34.8	30.8	33.8	41.7	49.1	50.7	50.2	41.7	37.8	38.2	32.5	28.9	32.4	27.8	50.7	37.4
18	21.5	14.6	9.7	6.7	3.8	3.1	4.3	5.8	7.4	7.2	6.8	5.9	5.4	6.4	10.8	15.4	16.7	17.3	19.2	20.6	28.1	32.5	33.0	38.9	38.9	14.2
19	37.4	35.9	34.7	34.9	32.9	29.8	30.1	27.5	20.8	19.3	24.9	27.1	26.7	25.2	27.3	24.3	24.4	23.6	22.5	25.1	22.8	23.3	22.3	23.2	37.4	26.9
20	23.9	26.1	26.3	26.1	24.6	25.6	22.1	23.1	16.5	18.2	25.9	29.0	23.2	22.3	21.8	21.1	18.2	27.3	28.1	23.6	26.4	24.5	27.1	23.0	29.0	23.9
21	20.8	25.0	32.9	33.5	33.8	29.3	25.7	26.2	28.6	34.6	47.3	48.2	47.7	45.4	41.9	39.6	40.9	40.8	37.8	35.8	40.3	32.6	32.0	29.3	48.2	35.4
22	29.7	28.0	20.0	17.7	18.2	20.3	20.4	15.7	21.3	25.6	33.4	34.3	34.0	29.4	26.9	24.3	19.8	19.0	22.3	27.1	24.1	26.0	26.1	16.8	34.3	24.2
23	9.2	11.4	15.8	15.1	12.6	13.3	18.0	19.7	19.4	23.7	28.5	29.8	28.8	30.8	32.9	35.4	37.4	37.1	34.2	39.5	34.6	37.8	37.4	33.5	39.5	26.5
24	39.8	43.0	41.2	36.4	35.7	32.8	32.0	29.4	26.8	28.0	23.3	25.2	22.2	23.4	24.1	22.7	18.3	17.4	13.3	10.0	12.8	14.1	12.2	9.5	43.0	24.7
25	10.2	11.7	13.7	13.0	13.4	13.1	12.5	12.5	8.1	12.9	12.0	9.5	19.2	27.1	28.3	28.5	27.0	22.9	17.9	12.5	14.9	17.6	19.9	22.4	28.5	16.7
26	21.8	15.7	13.5	8.0	8.1	10.4	6.0	9.1	10.2	6.4	10.2	10.8	11.8	7.8	10.7	23.5	15.9	18.4	14.7	11.3	7.8	11.5	14.8	10.1	23.5	12.0
27	4.6	2.9	1.7	4.0	3.7	5.0	5.3	5.7	5.6	6.8	7.7	9.6	9.5	15.9	17.6	17.6	14.4	12.1	15.0	15.8	19.4	19.7	16.8	19.0	19.7	10.6
28	16.9	11.6	4.3	3.9	7.6	2.4	2.7	3.0	3.7	3.0	11.2	14.3	13.7	11.9	7.5	9.2	7.1	7.9	6.4	11.8	13.1	10.4	9.5	14.2	16.9	8.6
29	24.7	41.4	38.6	30.7	36.5	38.7	36.3	31.4	31.2	35.3	42.1	46.7	48.2	43.0	46.4	39.4	37.6	34.3	26.8	21.7	21.3	11.5	8.7	4.6	48.2	32.4
30	8.5	5.6	29.4	26.1	23.7	22.5	12.9	13.4	11.8	14.8	21.1	22.6	24.1	24.4	24.4	21.8	21.9	22.7	25.4	16.8	15.7	18.6	17.6	13.0	29.4	19.1
31	14.2	15.6	15.6	18.1	13.8	13.5	11.6	17.2	18.1	19.4	20.1	19.6	19.1	17.6	17.4	17.9	15.5	16.4	15.1	13.0	7.8	4.8	5.0	6.3	20.1	14.7
Hourly Max	42.0	46.6	42.0	40.3	36.5	38.7	36.3	31.4	35.8	35.3	47.3	48.2	48.2	45.4	49.1	50.7	50.2	41.7	45.3	50.1	42.6	39.7	40.1	39.6		
Hourly Average	21.2	21.3	21.4	20.5	20.6	20.0	19.4	19.9	20.0	20.7	23.0	23.7	23.3	24.0	23.9	24.4	23.5	23.6	22.3	22.0	22.4	22.1	22.2	21.0		



Lagoon Wind Direction (°) – January 2018

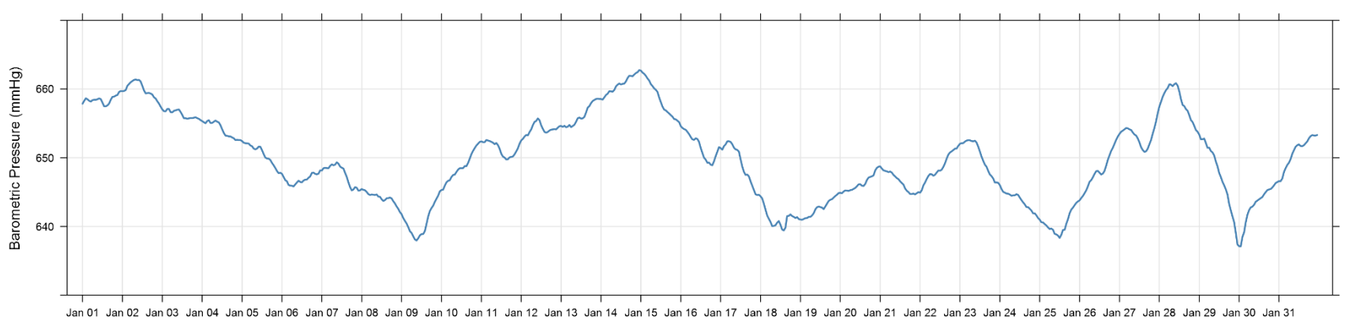
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
b	242.3	235.4	260.4	267.8	275.4	294.3	281.3	288.0	293.4	297.4	302.0	294.5	301.7	296.2	288.6	289.2	287.4	283.3	289.7	303.7	304.9	304.2	305.6	303.4	305.6	291.9
2	296.0	299.9	298.5	290.1	292.7	280.0	284.8	279.1	281.0	276.1	276.5	289.8	291.0	295.7	289.0	289.2	292.1	295.3	282.2	272.5	273.3	277.6	295.0	298.9	299.9	287.4
3	278.0	284.1	270.5	283.8	279.8	291.8	290.4	295.4	289.6	285.3	275.9	300.5	300.5	298.0	296.2	292.8	298.8	292.7	273.7	274.6	287.7	292.2	297.1	296.3	300.5	289.3
4	300.0	279.7	281.5	284.5	295.5	292.8	295.8	281.4	273.0	270.2	271.7	274.6	273.5	270.6	281.7	280.8	281.7	300.9	280.1	268.9	284.4	278.1	289.7	290.6	300.9	282.9
5	283.3	282.3	280.9	299.0	303.4	296.1	300.2	296.9	305.1	304.2	297.1	293.3	288.7	291.3	286.1	288.5	289.5	288.8	288.0	286.7	291.9	293.0	283.4	294.2	305.1	292.7
6	284.6	279.8	287.2	269.1	264.3	266.6	272.6	250.7	260.8	260.5	258.8	256.7	253.2	251.0	244.6	251.9	245.4	244.9	246.6	249.9	244.1	244.9	245.9	245.9	287.2	256.4
7	244.9	251.6	250.1	244.4	247.9	237.5	243.3	254.1	256.7	259.2	255.8	255.0	250.9	247.0	255.6	257.4	262.1	261.8	262.2	257.6	256.3	258.6	255.9	254.9	262.2	254.3
8	258.2	259.5	262.5	257.2	264.4	264.2	272.9	281.8	281.7	283.8	280.4	281.7	276.2	270.5	277.0	290.0	275.2	265.3	275.6	208.6	144.6	239.5	238.2	253.6	290.0	266.8
9	283.3	278.4	277.2	283.2	276.7	266.8	264.7	264.4	288.7	285.4	58.1	64.7	69.1	61.0	69.4	69.1	71.3	71.4	71.3	72.8	71.2	66.7	73.1	82.6	288.7	39.2
10	64.4	68.4	68.3	70.1	69.3	65.2	71.2	73.0	71.9	77.1	69.7	72.0	65.3	68.1	70.1	68.5	74.1	76.8	79.7	70.5	79.1	86.1	79.2	59.5	86.1	71.5
11	59.5	69.9	75.7	76.4	44.3	58.6	60.3	215.2	240.8	263.0	231.0	228.4	221.1	218.5	219.6	212.5	168.7	53.8	62.5	53.5	57.2	224.8	223.5	224.0	263.0	209.8
12	244.2	241.0	248.8	243.9	242.8	234.3	234.9	258.7	227.2	241.8	222.6	207.6	215.0	243.3	288.7	286.7	289.6	290.9	285.1	283.0	276.6	277.7	256.6	278.1	290.9	263.4
13	274.2	274.1	277.8	260.5	279.5	282.0	288.7	282.4	285.6	281.7	278.6	274.1	258.9	247.7	252.3	245.0	245.9	248.1	264.1	270.2	287.8	283.0	293.7	297.5	297.5	270.6
14	282.0	273.2	280.6	277.4	261.0	255.9	279.1	297.7	298.6	267.5	260.4	85.0	46.9	52.8	87.7	75.0	77.3	82.4	66.4	274.5	63.2	54.9	47.0	48.6	298.6	335.8
15	52.2	57.3	58.3	231.3	230.3	219.3	247.5	262.4	287.5	291.7	277.0	279.0	278.8	280.2	275.8	277.5	273.9	289.8	290.3	289.3	294.0	291.5	279.6	290.9	294.0	282.1
16	290.3	302.3	305.7	300.6	298.7	277.3	283.2	284.8	291.2	290.1	285.1	284.3	272.6	264.9	275.5	283.8	273.5	259.9	248.9	242.9	249.5	261.9	262.2	254.8	305.7	273.6
17	254.5	255.4	259.0	256.9	260.4	253.2	252.1	252.7	251.0	249.4	258.0	257.8	259.4	256.1	250.5	250.9	248.8	248.4	239.3	238.2	255.6	272.5	274.1	287.2	287.2	255.0
18	290.2	278.9	246.0	240.2	238.9	253.0	40.7	90.9	250.0	252.3	244.5	273.6	228.3	236.7	251.8	259.7	263.5	248.2	252.0	245.3	247.5	249.3	250.4	249.5	290.2	253.8
19	247.3	249.9	252.4	252.7	255.8	252.9	250.3	256.7	266.7	258.1	249.1	243.3	243.4	245.0	255.4	258.3	257.4	251.7	256.4	248.9	252.7	249.9	255.0	250.1	266.7	252.2
20	255.7	258.5	258.7	262.3	267.8	265.1	265.3	264.1	273.7	269.9	263.6	255.1	240.0	249.1	255.1	248.0	248.5	246.3	247.3	244.2	244.6	251.8	254.5	262.9	273.7	256.0
21	258.7	260.5	256.6	252.6	254.3	255.3	261.2	261.1	252.4	245.8	242.5	238.7	240.7	241.4	242.9	244.7	245.8	244.6	246.4	247.5	258.9	255.9	257.0	251.2	261.2	249.4
22	250.8	249.9	254.3	259.1	261.9	255.5	265.0	275.2	262.0	252.7	249.5	244.3	242.3	247.2	243.6	241.6	247.5	246.3	239.9	247.1	261.9	259.6	255.8	274.1	275.2	252.3
23	272.9	277.5	286.6	283.4	286.1	284.7	266.3	257.5	263.8	259.5	254.9	247.7	245.9	248.5	246.5	250.1	257.5	263.3	261.1	259.6	265.0	255.4	259.2	264.5	286.6	259.9
24	255.6	251.0	257.1	257.9	255.9	258.2	266.3	277.0	282.7	287.3	280.2	277.4	274.9	262.2	263.1	257.9	239.7	251.6	260.1	253.9	281.1	280.9	283.7	265.4	287.3	264.6
25	258.1	261.8	277.5	269.5	274.8	267.7	285.9	276.1	247.9	257.0	261.6	244.7	261.8	264.2	253.0	244.7	250.6	252.7	254.5	266.2	268.7	265.4	266.1	266.0	285.9	261.2
26	267.9	282.7	281.8	284.2	279.8	49.2	66.3	221.9	52.7	53.5	68.1	66.4	63.7	61.7	110.5	257.4	30.7	56.3	54.9	55.5	82.0	69.1	52.0	53.1	284.2	34.8
27	98.9	68.7	64.3	70.2	78.2	76.8	82.6	82.6	75.4	76.0	74.9	59.0	59.6	63.5	57.6	58.6	66.1	58.1	64.5	56.4	60.9	51.4	55.9	59.9	98.9	63.0
28	58.8	56.8	94.7	66.0	85.6	23.5	65.8	55.3	69.1	270.5	241.1	257.8	269.7	261.3	259.9	52.4	58.9	60.5	72.4	67.5	67.3	83.0	89.9	273.9	273.9	49.0
29	270.9	251.7	258.2	267.0	266.2	265.2	264.0	267.5	269.7	263.3	260.0	251.0	253.0	253.1	257.3	251.8	259.2	255.2	253.1	274.9	282.1	271.6	97.8	280.7	282.1	260.4
30	276.1	235.7	252.6	254.6	260.5	248.0	259.2	241.3	263.2	258.0	249.9	250.2	245.1	239.9	236.0	239.5	237.6	238.5	250.6	260.2	258.0	249.5	251.1	249.3	276.1	249.3
31	272.5	274.9	347.0	52.4	45.4	55.6	78.2	71.9	71.9	66.9	67.5	68.0	69.7	63.6	69.7	64.3	61.7	59.3	58.6	59.9	55.9	51.3	249.9	218.9	347.0	57.6
Hourly Max	300.0	302.3	347.0	300.6	303.4	296.1	300.2	297.7	305.1	304.2	302.0	300.5	301.7	298.0	296.2	292.8	298.8	300.9	290.3	303.7	304.9	304.2	305.6	303.4		
Hourly Average	236.3	233.9	239.7	234.5	235.4	224.1	223.9	236.1	238.2	243.7	231.2	225.0	221.3	221.0	226.2	223.8	215.5	212.5	212.2	216.3	213.2	221.0	221.9	234.9		



Lagoon Pressure (mmHg) – January 2018

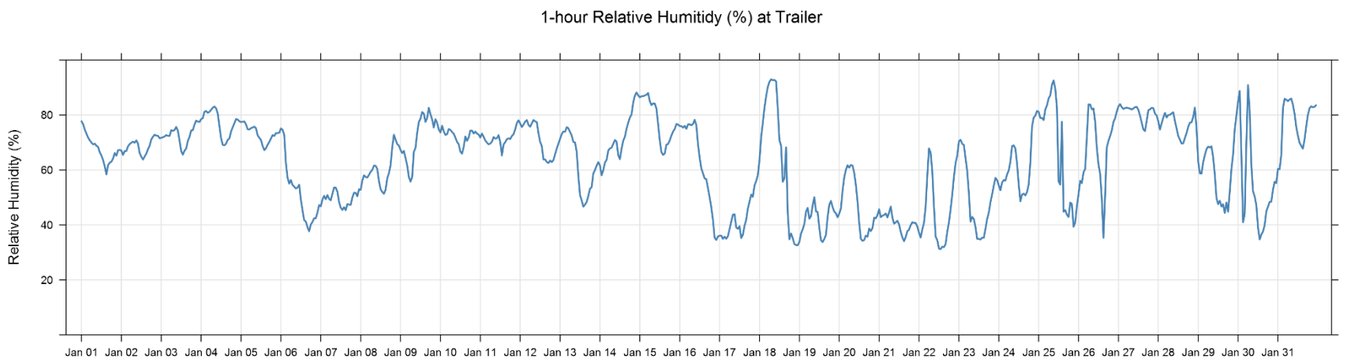
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	657.9	658.3	658.7	658.5	658.3	658.2	658.4	658.4	658.4	658.5	658.6	658.5	658.0	657.5	657.5	657.6	657.9	658.5	658.9	658.9	659.0	659.1	659.6	659.7	659.7	658.5
2	659.7	659.7	659.9	660.5	660.7	661.0	661.2	661.3	661.4	661.3	661.3	661.1	660.5	659.8	659.4	659.4	659.4	659.3	659.2	658.8	658.6	658.2	657.9	657.4	661.4	659.9
3	657.0	656.8	656.8	657.1	657.1	656.6	656.6	656.8	656.9	657.0	657.0	656.7	656.2	655.7	655.7	655.7	655.7	655.8	655.8	655.8	655.9	655.8	655.7	655.5	657.1	656.3
4	655.3	655.2	655.0	655.3	655.5	655.1	655.1	655.2	655.4	655.2	655.1	654.7	654.2	653.6	653.2	653.2	653.1	653.1	653.0	652.8	652.6	652.6	652.6	652.6	655.5	654.1
5	652.4	652.2	652.1	652.1	652.1	651.8	651.7	651.3	651.2	651.3	651.6	651.6	651.1	650.5	650.0	649.9	649.9	649.7	649.3	648.9	648.5	648.1	647.7	647.8	652.4	650.5
6	647.7	647.2	646.7	646.6	646.0	646.0	645.9	645.8	646.1	646.4	646.7	646.5	646.4	646.7	646.8	646.8	647.1	647.3	647.8	647.8	647.6	647.6	647.7	648.2	648.2	646.9
7	648.1	648.5	648.5	648.5	648.5	648.8	649.0	648.9	649.0	649.3	649.1	648.7	648.5	648.4	647.8	647.2	646.4	645.7	645.3	645.4	645.7	645.6	645.2	645.3	649.3	647.6
8	645.5	645.3	645.3	645.0	644.7	644.6	644.7	644.6	644.6	644.7	644.4	644.3	644.0	643.7	643.8	644.1	644.1	644.2	644.1	643.7	643.4	642.9	642.6	642.1	645.5	644.2
9	641.8	641.2	640.8	640.4	639.9	639.3	639.1	638.6	638.1	638.0	638.3	638.7	638.9	638.9	639.3	640.4	641.4	642.2	642.7	643.0	643.6	644.0	644.5	645.1	645.1	640.8
10	645.3	645.4	645.9	646.4	646.6	646.7	647.2	647.5	647.5	647.9	648.3	648.5	648.5	648.5	648.8	648.8	649.2	649.9	650.5	651.0	651.4	651.8	652.0	652.3	652.3	648.6
11	652.4	652.3	652.3	652.6	652.5	652.4	652.3	652.2	652.0	652.1	651.8	651.3	650.6	650.2	650.0	649.8	649.8	650.1	650.1	650.2	650.5	650.9	651.4	652.1	652.6	651.3
12	652.5	652.8	653.1	653.3	653.3	653.7	654.1	654.7	655.2	655.4	655.7	655.5	654.7	654.2	653.8	653.6	653.8	654.0	654.1	654.1	654.2	654.1	654.4	654.6	655.7	654.1
13	654.6	654.5	654.6	654.4	654.5	654.8	654.5	654.6	654.8	655.2	655.7	655.8	655.7	655.7	655.9	656.6	657.3	657.5	657.9	658.3	658.4	658.6	658.6	658.6	658.6	656.1
14	658.5	658.5	658.8	659.1	659.3	659.7	659.7	659.6	659.9	660.4	660.6	660.8	660.7	660.8	660.8	661.1	661.6	661.9	661.9	661.9	662.1	662.3	662.4	662.7	662.7	660.6
15	662.7	662.4	662.2	661.9	661.5	661.2	660.7	660.4	660.1	659.9	659.6	658.8	658.1	657.5	657.0	656.9	656.7	656.4	656.2	656.0	655.6	655.6	655.4	655.2	662.7	658.7
16	654.6	654.3	654.2	654.1	653.8	653.4	653.0	652.7	652.6	652.8	652.7	652.3	651.4	650.7	650.0	649.7	649.3	649.3	649.0	648.9	649.5	650.2	650.9	651.5	654.6	651.7
17	651.4	651.2	651.7	652.0	652.4	652.4	652.3	652.0	651.5	651.2	651.1	650.9	649.8	648.7	648.0	647.5	647.6	647.3	646.6	645.9	645.3	644.7	644.6	644.6	652.4	649.2
18	644.4	644.1	643.3	642.5	641.6	641.1	640.7	640.1	640.1	640.2	640.6	640.8	640.3	639.6	639.4	639.8	641.5	641.5	641.8	641.5	641.4	641.2	641.4	641.1	644.4	641.2
19	641.0	641.0	641.1	641.2	641.2	641.4	641.4	641.6	641.9	642.5	642.8	642.9	642.8	642.7	642.5	642.9	643.3	643.7	643.9	644.0	644.2	644.4	644.6	644.9	644.9	642.7
20	644.9	644.8	645.1	645.2	645.2	645.2	645.3	645.3	645.5	645.6	645.8	646.1	646.2	645.9	645.9	646.2	646.8	647.1	647.2	647.3	647.4	648.2	648.5	648.7	648.7	646.2
21	648.7	648.4	648.2	648.1	648.0	647.9	648.0	647.9	647.5	647.3	647.0	646.9	646.6	646.3	646.1	645.5	645.2	645.0	644.7	644.7	644.8	644.7	644.8	645.0	648.7	646.6
22	644.9	645.3	646.0	646.4	646.9	647.3	647.6	647.6	647.4	647.5	647.9	648.1	648.1	648.3	648.7	649.2	649.9	650.5	650.8	650.9	651.1	651.3	651.3	651.7	651.7	648.5
23	652.0	652.1	652.1	652.4	652.5	652.6	652.5	652.4	652.4	652.5	652.2	651.6	650.9	650.2	649.6	649.0	648.7	648.1	647.6	647.3	647.0	646.4	646.4	646.4	652.6	650.2
24	646.0	645.5	645.0	644.9	644.8	644.8	644.6	644.5	644.5	644.5	644.7	644.6	644.2	643.8	643.5	643.2	642.8	642.8	642.6	642.3	641.9	641.9	641.6	641.2	646.0	643.8
25	641.0	640.6	640.6	640.3	640.2	639.9	639.6	639.7	639.5	638.9	638.8	638.7	638.3	638.8	639.5	639.5	640.4	641.1	641.9	642.5	642.7	643.1	643.4	643.6	643.6	640.5
26	643.8	644.1	644.4	644.8	645.3	645.8	646.5	646.7	647.2	647.6	648.1	648.1	647.8	647.6	647.7	648.1	648.8	649.7	650.3	651.0	651.4	652.0	652.6	653.1	653.1	648.0
27	653.5	653.8	653.9	654.1	654.3	654.3	654.1	654.0	653.7	653.4	653.2	652.8	652.2	651.5	651.1	650.9	650.9	651.3	652.0	652.6	653.5	654.3	655.3	656.5	656.5	653.2
28	657.4	658.1	658.9	659.4	659.8	660.1	660.7	660.6	660.4	660.7	660.9	660.5	659.7	658.5	657.7	657.5	657.1	656.8	656.2	655.5	655.2	654.6	654.0	653.8	660.9	658.1
29	653.4	652.7	652.7	652.8	652.1	651.4	651.5	651.0	650.8	650.3	649.4	648.7	647.8	647.2	646.5	646.0	645.4	644.7	643.3	642.3	641.5	640.6	639.1	637.4	653.4	647.4
30	637.1	637.1	638.5	639.1	640.6	641.7	642.4	642.8	642.9	643.2	643.6	643.8	643.9	644.1	644.3	644.7	645.0	645.3	645.4	645.4	645.7	646.0	646.3	646.5	646.5	643.1
31	646.6	646.6	647.0	647.9	648.5	649.0	649.3	649.8	650.6	651.1	651.6	651.8	651.9	651.7	651.7	651.8	652.1	652.4	652.8	653.1	653.3	653.2	653.2	653.3	653.3	650.8
Hourly Max	662.7	662.4	662.2	661.9	661.5	661.2	661.2	661.3	661.4	661.3	661.3	661.1	660.7	660.8	660.8	661.1	661.6	661.9	661.9	661.9	662.1	662.3	662.4	662.7		
Hourly Average	650.1	650.0	650.1	650.2	650.3	650.3	650.3	650.3	650.3	650.4	650.5	650.3	649.9	649.6	649.4	649.4	649.6	649.7	649.8	649.7	649.8	649.8	649.9	649.9		

1-hour Barometric Pressures (mmHg) at Trailer



Lagoon Relative Humidity (%) – January 2018

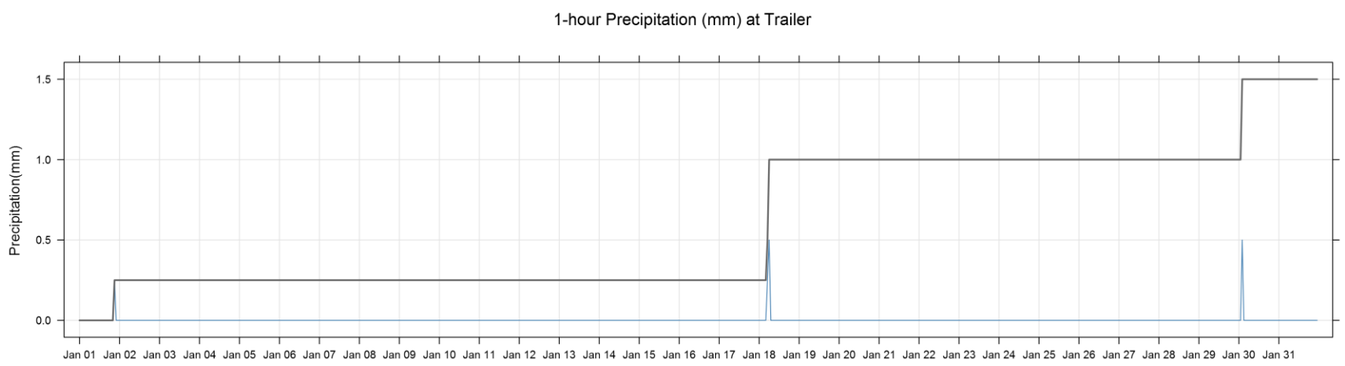
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	77.7	76.6	74.7	73.2	71.8	70.7	69.9	69.3	69.6	68.8	68.4	66.4	65.2	63.6	61.3	58.4	61.7	62.7	63.0	64.1	66.1	65.2	67.2	67.3	77.7	67.6
2	67.0	65.5	66.8	66.9	68.6	69.4	69.9	70.3	69.9	70.8	69.6	66.1	64.8	63.8	64.9	65.9	67.5	68.8	71.1	72.1	72.8	72.5	72.4	71.5	72.8	68.7
3	71.7	71.9	72.2	72.7	72.4	72.4	74.5	74.2	74.5	75.6	74.3	70.7	66.8	65.5	67.0	67.8	70.6	72.0	74.4	74.4	76.5	77.9	77.6	77.5	77.9	72.7
4	78.5	78.8	81.2	81.5	80.8	81.1	81.9	82.6	83.1	82.4	80.5	76.0	71.6	69.1	68.9	69.6	70.9	71.4	74.0	75.5	77.0	78.5	78.3	77.7	83.1	77.1
5	77.4	77.5	77.6	76.6	74.8	74.7	75.2	75.4	75.8	75.2	72.6	71.7	70.9	68.7	67.2	67.8	69.2	70.2	71.4	72.6	72.4	73.4	73.4	73.5	77.6	73.1
6	75.1	74.6	72.8	62.6	57.2	55.0	56.3	54.6	53.9	53.3	53.6	54.6	49.3	45.4	41.7	41.2	39.2	37.7	40.2	41.1	42.4	42.4	44.5	47.2	75.1	51.5
7	46.8	49.2	50.6	49.4	50.9	49.5	49.0	51.3	53.6	53.5	52.1	48.4	46.3	45.5	46.4	45.3	47.6	47.4	47.3	50.0	51.7	51.7	50.4	53.0	53.6	49.4
8	52.8	56.1	58.1	57.5	57.2	58.2	59.3	60.0	61.5	61.5	60.4	56.0	53.0	52.0	51.3	52.8	56.9	58.8	61.7	68.2	72.8	71.1	69.4	68.9	72.8	59.8
9	67.3	66.1	66.9	64.4	61.6	57.4	55.7	57.4	66.6	68.0	73.4	77.4	78.7	81.1	80.5	77.4	78.9	82.6	80.3	78.4	75.4	78.4	77.2	74.8	82.6	71.9
10	73.6	76.1	74.0	72.8	73.0	74.9	74.5	73.8	73.2	71.8	70.2	69.4	66.7	65.9	68.4	72.2	70.6	71.8	74.3	74.3	73.2	73.9	73.2	72.9	76.1	72.3
11	71.8	73.2	72.1	70.7	69.9	69.3	69.6	70.3	72.0	71.4	71.6	72.6	70.1	65.2	69.2	70.1	71.2	71.5	71.2	72.3	73.0	74.8	77.1	78.1	78.1	71.6
12	76.9	75.6	76.5	77.6	78.1	76.4	75.7	77.0	78.2	77.7	77.4	73.4	70.2	68.7	63.8	63.8	62.9	62.5	63.4	62.8	63.6	65.7	67.8	69.5	78.2	71.0
13	71.3	73.0	74.0	73.9	75.6	75.1	73.8	72.5	70.2	70.0	66.6	57.9	50.9	48.9	46.7	47.4	48.3	50.6	53.1	53.7	58.7	60.0	61.6	62.8	75.6	62.4
14	61.7	58.1	59.9	62.7	63.7	67.1	67.8	68.1	69.5	70.9	70.3	65.4	63.9	67.7	70.6	72.1	75.0	77.2	79.0	80.1	84.5	87.0	88.2	87.1	88.2	71.6
15	86.4	86.8	86.8	87.1	87.4	88.0	85.0	83.6	84.2	84.1	82.3	76.6	70.8	66.5	65.5	66.0	69.2	69.4	70.8	72.5	74.0	74.9	76.7	76.5	88.0	78.0
16	76.0	75.9	75.4	76.0	74.9	76.6	76.6	76.2	76.7	78.2	76.3	69.4	64.5	60.5	58.8	56.9	56.7	53.4	50.0	46.4	41.8	35.4	34.5	35.8	78.2	62.6
17	36.1	36.1	34.9	35.7	35.0	35.9	38.5	41.2	43.7	43.9	39.1	38.6	39.5	35.2	36.4	39.7	41.8	45.9	48.5	51.0	50.2	54.3	56.0	58.0	58.0	42.3
18	63.5	71.9	77.1	82.6	86.8	90.2	92.1	93.0	92.6	92.7	92.2	82.5	70.9	68.8	55.7	57.0	68.2	44.4	34.7	36.9	35.2	33.1	32.7	32.6	93.0	66.1
19	33.8	36.8	38.4	40.4	44.8	46.2	42.3	43.1	47.1	50.1	44.9	44.7	39.0	34.4	33.8	34.9	36.4	42.8	47.3	48.7	46.5	44.9	44.2	42.8	50.1	42.0
20	44.1	46.0	52.4	57.3	60.1	61.7	60.8	61.8	61.6	59.0	54.6	48.6	40.7	34.9	34.2	34.5	36.1	35.7	38.7	37.8	38.8	42.6	42.4	43.6	61.8	47.0
21	45.7	42.8	43.4	43.6	44.2	42.7	44.5	46.7	42.6	40.5	40.9	41.5	40.2	37.5	35.4	34.1	35.6	37.7	38.3	39.9	41.0	40.7	40.7	39.4	46.7	40.8
22	37.2	35.4	38.4	40.8	46.7	58.0	67.8	66.3	59.4	46.6	35.8	34.4	31.4	31.2	32.1	31.9	33.0	37.5	40.9	45.6	51.0	57.4	62.5	65.2	67.8	45.3
23	70.4	71.0	69.5	69.1	64.2	59.6	51.6	41.2	42.9	42.1	39.2	34.9	34.9	34.7	35.4	35.3	38.6	42.2	44.5	48.3	51.2	54.3	57.1	56.3	71.0	49.5
24	54.4	52.6	55.4	56.3	56.1	58.4	59.8	63.1	68.7	68.9	67.8	62.3	54.8	48.6	51.0	51.4	50.7	52.0	54.7	62.7	75.7	79.1	79.7	81.5	81.5	61.1
25	81.1	78.9	78.9	78.1	82.0	83.5	86.0	87.2	91.0	92.6	89.6	82.7	55.8	54.7	77.5	44.8	45.4	43.7	42.9	48.1	47.6	39.3	40.9	46.8	92.6	66.6
26	51.2	56.0	55.2	59.1	60.4	71.9	83.9	83.8	82.1	82.4	77.6	68.1	62.0	58.6	49.4	35.3	50.7	68.2	70.6	72.3	74.4	77.4	78.8	81.2	83.9	67.1
27	83.1	83.9	82.9	82.2	82.5	82.7	82.5	82.3	82.0	82.4	82.8	83.0	81.9	79.7	77.2	74.7	74.1	77.8	81.7	82.0	82.6	82.5	80.5	79.8	83.9	81.1
28	77.7	74.7	77.0	79.0	80.8	79.1	80.0	80.0	80.6	81.0	77.8	75.1	72.4	71.0	69.6	69.7	71.6	73.4	75.7	77.2	77.3	79.3	82.7	75.3	82.7	76.6
29	63.2	58.8	58.7	62.8	65.4	67.6	68.5	68.2	68.6	64.7	58.4	49.8	47.6	48.8	46.7	47.5	44.3	48.1	44.8	52.1	60.3	65.6	74.8	79.9	79.9	59.0
30	84.9	88.8	65.4	41.0	44.0	69.8	90.9	81.3	61.8	52.2	50.3	47.2	39.1	34.7	36.5	37.6	39.9	44.9	46.6	48.4	48.4	52.8	55.7	55.2	90.9	54.9
31	60.4	60.3	65.5	82.4	85.9	85.6	85.0	85.6	86.0	83.8	80.5	75.7	72.5	69.9	68.7	67.8	71.0	75.7	80.0	82.4	83.1	82.8	83.0	83.6	86.0	77.4
Hourly Max	86.4	88.8	86.8	87.1	87.4	90.2	92.1	93.0	92.6	92.7	92.2	83.0	81.9	81.1	80.5	77.4	78.9	82.6	81.7	82.4	84.5	87.0	88.2	87.1		
Hourly Average	65.1	65.5	65.6	65.7	66.3	68.0	69.3	69.1	69.1	68.3	66.2	62.6	58.3	56.2	55.9	54.5	56.6	58.0	59.2	61.0	62.6	63.5	64.6	65.0		



Lagoon Precipitation (mm) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Total
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.3
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.8
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	-	-
31	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	**IV**	-	-
Hourly Max	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0		
Hourly Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

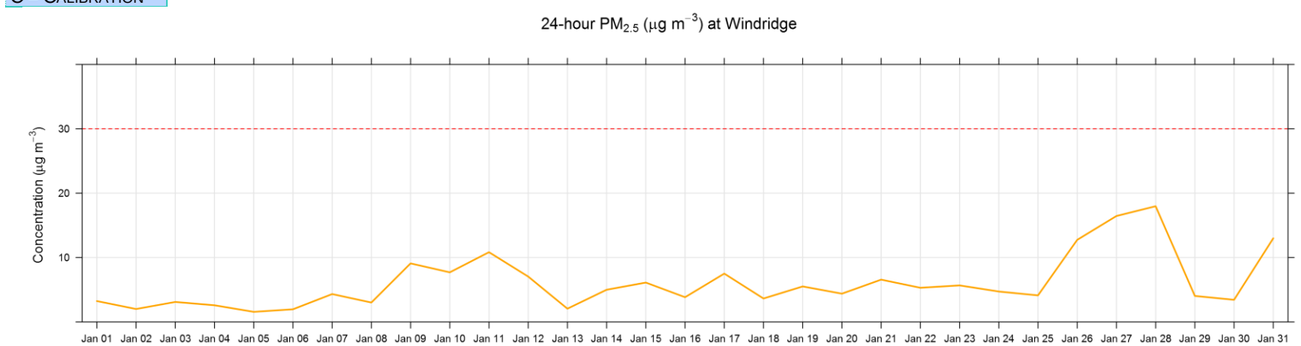
IV = INVALID (PRECIP GAUGE TIPPED OVER)



Windridge $PM_{2.5}$ (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	5.1	5.1	6.6	4.8	6.6	3.8	4.0	4.4	2.9	5.5	6.2	1.5	0.4	1.1	1.1	3.7	3.3	2.6	1.8	1.1	1.5	1.5	1.8	1.1	6.6	3.2
2	1.8	0.4	0.0	0.7	1.1	0.7	2.6	1.5	0.0	1.8	5.1	4.4	7.3	5.1	0.4	0.4	3.7	2.2	1.1	1.5	1.8	2.6	1.8	0.0	7.3	2.0
3	1.8	5.1	3.3	2.6	1.5	3.3	7.0	4.8	1.8	1.8	2.9	4.8	**C**	**C**	**C**	**C**	**C**	**C**	2.6	2.9	1.8	1.4	2.6	3.7	7.0	3.1
4	3.3	3.7	2.2	2.9	2.6	1.8	0.7	0.0	0.0	4.0	4.8	4.4	2.9	2.2	1.8	1.8	3.3	2.6	1.8	2.9	2.9	3.3	2.6	3.3	4.8	2.6
5	5.1	1.5	0.0	1.8	2.9	0.4	0.0	0.0	0.0	0.0	2.8	4.8	2.6	1.5	1.8	2.2	0.4	0.0	0.0	0.0	0.0	2.6	4.0	3.3	5.1	1.6
6	3.7	2.8	1.1	1.1	0.0	0.0	1.8	0.0	0.0	1.5	0.7	0.0	0.0	2.1	1.5	4.0	4.8	1.1	0.7	4.0	3.7	2.6	4.8	5.1	5.1	2.0
7	8.5	6.6	2.2	0.7	5.2	4.0	3.3	2.9	1.0	1.1	2.2	3.3	4.8	3.3	2.2	5.9	4.4	2.9	5.9	7.0	8.1	6.6	5.9	5.9	8.5	4.3
8	1.8	2.2	3.7	3.7	4.4	5.1	2.9	1.1	1.8	1.1	4.0	5.9	7.0	5.2	2.9	2.8	2.2	2.1	0.0	0.0	1.5	1.5	2.9	6.2	7.0	3.0
9	5.1	1.1	0.0	2.2	2.6	0.9	1.5	0.7	5.9	7.7	5.1	12.5	13.9	18.7	22.7	11.7	22.0	15.8	17.2	11.7	9.9	10.6	9.9	8.8	22.7	9.1
10	12.1	7.0	10.3	7.0	4.4	5.9	7.3	6.6	4.8	6.2	6.6	7.0	7.3	6.6	5.1	3.7	6.2	7.0	5.5	8.1	12.8	8.8	17.6	11.0	17.6	7.7
11	11.0	9.5	14.3	12.5	9.2	8.4	8.8	9.2	8.4	5.1	9.5	18.3	17.2	15.4	9.9	7.7	9.5	11.0	9.5	13.6	12.1	9.2	9.5	11.0	18.3	10.8
12	12.8	8.4	18.7	12.5	13.6	10.6	7.3	6.2	9.2	6.2	6.2	16.5	9.9	2.2	0.4	1.8	2.6	2.6	5.5	4.4	3.3	4.8	2.2	1.1	18.7	7.0
13	0.7	1.1	5.5	4.4	1.5	0.0	0.0	2.6	1.1	0.0	1.5	2.7	0.4	0.0	2.6	4.4	4.4	3.3	3.7	2.9	2.6	1.8	1.1	1.1	5.5	2.1
14	2.2	0.0	0.4	2.1	1.5	4.0	2.6	0.0	0.0	0.0	0.0	2.2	0.0	0.0	7.0	9.2	8.1	5.1	8.1	8.8	9.2	16.5	17.2	16.1	17.2	5.0
15	14.3	12.5	16.9	15.8	14.3	15.4	9.2	3.8	1.5	1.1	4.0	5.9	6.6	5.1	2.9	0.7	0.4	1.5	3.9	1.5	0.4	2.9	3.9	2.2	16.9	6.1
16	2.2	2.3	2.2	2.6	4.0	4.4	1.8	0.4	0.0	0.2	2.9	1.8	1.1	1.8	4.0	3.9	3.3	7.7	7.3	7.7	6.2	10.1	7.0	7.0	10.1	3.8
17	7.5	9.2	16.5	11.7	8.4	4.8	3.3	4.0	3.3	6.6	12.9	9.2	5.1	6.2	8.4	9.5	6.6	8.8	7.3	8.1	5.1	5.5	5.8	6.2	16.5	7.5
18	4.0	0.0	2.9	5.1	5.1	3.3	2.6	1.1	2.9	5.1	6.2	7.0	4.4	1.8	2.9	3.3	3.3	2.6	4.8	4.8	2.9	4.4	3.7	2.9	7.0	3.6
19	5.9	5.1	2.9	2.2	4.0	4.0	6.6	4.8	1.8	4.4	4.8	4.0	7.0	8.1	7.0	9.9	8.4	8.4	9.5	5.9	4.4	4.0	4.8	4.4	9.9	5.5
20	5.1	3.7	1.8	2.9	7.3	4.0	0.0	3.7	3.7	1.4	1.8	3.7	5.5	5.1	6.6	7.7	9.2	7.3	4.8	3.3	1.8	2.6	4.4	7.7	9.2	4.4
21	5.1	0.7	1.8	4.4	5.9	9.2	5.7	3.3	6.2	4.0	19.4	15.2	11.4	11.0	5.9	1.5	9.2	6.6	3.7	3.3	5.1	5.5	7.0	6.6	19.4	6.6
22	2.6	4.0	7.0	5.2	2.9	6.2	5.1	2.9	3.3	4.0	9.9	8.4	6.3	7.3	11.3	8.1	4.8	2.9	3.3	5.1	4.8	1.1	1.8	8.8	11.3	5.3
23	5.9	0.7	0.0	1.8	2.6	3.3	2.2	1.1	3.7	5.5	8.8	8.1	5.1	7.7	7.0	6.6	9.2	8.4	10.3	11.7	7.7	4.0	4.4	10.4	11.7	5.7
24	7.3	3.3	2.6	7.7	6.2	5.5	11.0	6.2	1.1	5.1	8.4	3.7	0.4	4.8	6.2	5.5	7.7	5.1	0.0	0.0	2.6	1.8	3.3	7.7	11.0	4.7
25	4.8	2.1	1.8	0.0	1.5	3.3	0.7	0.0	0.7	2.6	7.3	9.2	9.9	8.1	5.9	7.0	7.3	6.2	5.1	5.5	4.4	4.4	1.1	0.0	9.9	4.1
26	2.2	3.7	5.5	4.0	1.4	0.0	10.6	27.1	7.0	24.2	20.9	21.3	21.6	23.4	23.4	5.9	4.0	8.8	15.0	12.8	13.6	22.4	14.3	12.8	27.1	12.8
27	9.5	14.3	16.9	22.4	21.3	13.7	18.3	11.7	13.9	16.5	19.4	22.3	15.8	14.7	11.0	17.6	20.5	13.0	13.9	20.9	16.5	16.1	16.5	18.3	22.4	16.5
28	21.6	15.4	11.0	16.5	18.3	13.2	15.4	15.4	11.0	30.0	18.3	18.3	23.8	15.8	13.6	18.7	23.0	23.1	21.6	23.1	16.1	17.6	20.5	10.1	30.0	18.0
29	5.5	2.6	7.7	5.9	3.3	2.9	3.7	4.0	4.8	4.4	4.4	3.7	2.6	6.6	7.0	7.7	5.5	5.1	5.5	1.5	0.0	2.6	0.0	0.0	7.7	4.0
30	0.0	0.0	4.8	4.8	2.6	6.2	6.2	2.2	3.3	4.0	4.8	7.7	7.4	3.3	0.9	3.3	2.2	0.7	0.7	3.3	5.1	3.3	0.4	5.1	7.7	3.4
31	11.0	6.6	1.5	0.4	6.6	11.0	13.9	11.4	12.8	11.0	15.4	14.7	10.3	9.5	12.5	13.9	13.6	17.2	15.0	39.2	19.1	16.9	14.3	14.3	39.2	13.0
Hourly Max	21.6	15.4	18.7	22.4	21.3	15.4	18.3	27.1	13.9	30.0	20.9	22.3	23.8	23.4	23.4	18.7	23.0	23.1	21.6	23.1	16.5	22.4	20.5	18.3		
Hourly Average	6.0	4.5	5.7	5.7	5.5	5.0	5.1	4.4	3.5	5.4	7.1	7.9	7.2	6.7	6.3	6.1	6.9	6.0	6.0	6.2	5.6	6.1	6.1	6.3		

C = Calibration

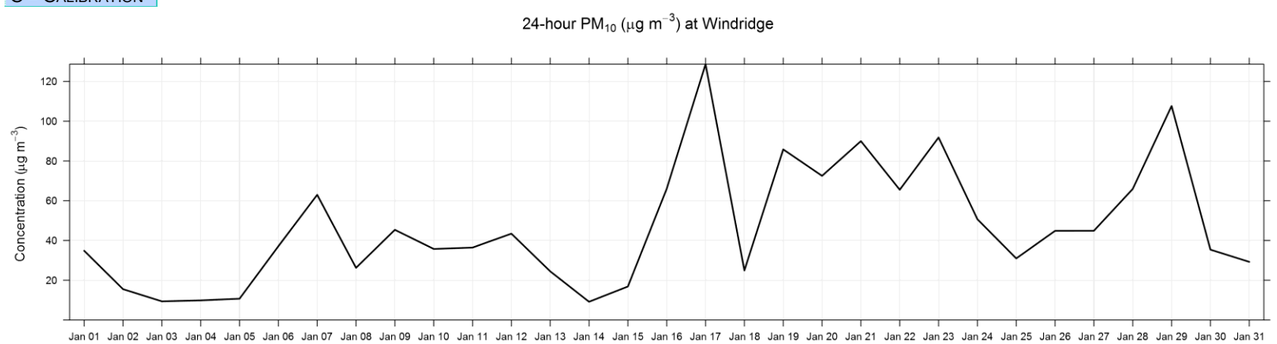


Number of 1HR Exceedances	0		Guideline	80	UG/M3
Number of 24HR Exceedances	0		Objective	30	UG/M3
Number of Non-Zero Readings	703				
Maximum 1-HR Average	39.2	UG/M3			
Maximum 24-HR Average	18.0	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	5.5		Monthly Average	6.1	UG/M3

Windridge PM_{10} (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	10.4	7.6	13.2	12.5	7.1	7.6	13.2	13.6	43.0	63.4	64.0	69.1	74.6	42.1	59.1	60.5	79.0	36.5	37.9	40.0	18.9	22.4	28.7	11.8	79.0	34.8
2	12.5	16.0	19.6	16.9	16.0	2.6	7.6	6.9	9.7	14.6	40.0	24.5	35.1	21.0	26.6	29.4	21.0	14.6	9.0	6.2	5.4	6.9	4.0	6.1	40.0	15.5
3	6.9	21.7	6.9	7.6	5.4	5.4	18.9	6.2	5.5	11.8	17.4	18.1	C	C	C	C	C	C	7.6	6.2	6.2	6.2	5.4	5.4	21.7	9.4
4	5.5	5.4	4.5	1.9	1.2	2.6	4.0	4.7	4.7	19.6	14.6	18.8	21.7	29.4	20.3	13.2	15.3	9.7	6.9	6.2	8.3	6.9	4.7	6.2	29.4	9.8
5	4.0	1.7	1.9	3.3	7.6	4.7	3.2	4.0	3.3	11.1	23.1	6.2	8.3	11.1	37.4	34.4	21.7	14.6	10.4	6.2	4.7	12.0	13.2	8.7	37.4	10.7
6	5.4	5.4	2.6	3.5	13.2	16.7	13.2	9.7	32.2	49.2	24.5	25.3	25.1	19.6	37.2	35.8	49.2	70.3	115.4	59.0	95.7	71.0	53.4	57.6	115.4	37.1
7	64.0	30.1	9.7	16.0	34.4	19.6	31.5	19.6	14.6	55.5	81.6	59.7	74.6	93.6	31.5	45.6	36.4	158.5	225.4	165.5	78.1	47.1	48.5	70.3	225.4	63.0
8	51.3	39.3	25.2	19.6	22.4	13.9	13.2	12.5	26.6	18.2	35.6	41.4	64.7	49.2	24.5	33.7	47.8	31.5	24.5	16.0	3.3	4.0	5.5	5.9	64.7	26.2
9	4.7	4.7	4.0	4.3	4.7	9.0	19.6	17.4	49.9	33.7	30.9	93.6	71.0	80.2	48.5	30.9	66.1	132.4	118.3	61.2	42.8	42.8	80.9	37.2	132.4	45.4
10	18.9	28.0	78.8	31.6	21.7	27.3	50.5	28.0	22.3	9.0	15.3	23.8	47.1	35.8	33.0	34.4	46.4	37.9	27.3	110.5	95.7	14.6	11.1	9.0	110.5	35.7
11	17.9	4.3	17.4	16.0	16.0	15.3	11.8	11.1	11.8	20.3	63.3	81.5	149.3	67.5	25.2	24.5	39.3	16.7	22.4	47.1	47.1	23.1	46.4	78.8	149.3	36.4
12	39.3	43.5	78.1	60.5	66.6	43.5	19.6	16.0	35.1	34.4	24.5	35.1	35.8	65.4	43.5	27.3	90.1	74.6	94.3	45.6	18.9	18.1	20.1	12.5	94.3	43.4
13	9.7	4.7	3.3	9.0	9.0	8.3	5.4	22.4	18.2	22.4	30.4	38.6	65.4	54.1	26.6	109.1	40.7	25.2	36.5	20.3	8.3	7.6	6.2	6.2	109.1	24.5
14	13.9	8.2	8.3	5.9	6.7	4.0	3.3	4.0	5.4	4.0	1.9	1.9	1.2	4.7	15.3	10.4	13.2	11.8	12.5	13.2	10.4	18.1	20.2	21.0	21.0	9.2
15	17.4	14.7	16.0	25.2	39.3	26.7	15.3	9.7	11.2	9.0	6.9	25.3	44.9	32.4	43.5	10.2	6.9	5.4	7.0	7.6	9.7	8.3	6.7	4.7	44.9	16.8
16	4.0	4.7	5.5	4.0	6.2	4.7	2.6	4.0	6.1	7.6	13.2	9.0	9.7	27.3	56.2	99.9	111.9	135.9	124.6	122.5	123.3	209.2	243.1	249.4	249.4	66.0
17	248.7	272.6	463.8	355.2	245.9	123.2	66.1	85.8	112.6	107.7	96.4	101.6	59.7	64.0	141.2	123.9	110.5	66.8	52.2	38.6	27.3	43.5	37.2	44.2	463.8	128.7
18	18.8	2.6	13.9	8.3	16.7	18.8	11.8	8.3	12.5	23.8	16.7	25.2	5.4	9.0	9.7	42.1	33.0	39.3	30.8	32.2	25.9	81.6	61.2	49.9	81.6	24.9
19	97.1	90.8	114.7	60.5	67.5	71.7	66.8	52.7	54.8	46.3	48.5	82.3	91.5	62.6	102.8	205.7	173.7	140.8	113.3	81.6	57.6	59.0	52.7	64.7	205.7	85.8
20	57.6	56.9	43.5	44.9	86.6	47.1	37.9	25.9	27.3	45.6	87.7	104.9	117.6	66.1	122.3	165.5	119.0	97.2	76.0	105.7	46.2	59.8	49.9	49.2	165.5	72.5
21	26.6	36.5	107.0	92.9	106.3	135.9	37.9	63.3	41.4	76.7	157.7	365.0	134.5	136.6	46.4	42.9	109.8	62.6	39.3	46.3	45.6	109.1	66.8	72.8	365.0	90.0
22	66.8	96.4	60.5	25.9	15.3	36.5	35.1	30.8	13.2	80.2	123.9	153.5	86.5	85.1	124.8	104.2	71.0	70.8	49.2	35.8	53.4	56.9	45.4	51.3	153.5	65.5
23	0.5	2.6	4.7	4.7	6.2	4.7	16.0	30.1	61.9	125.3	159.9	138.7	103.5	100.6	108.4	99.9	125.3	129.5	260.0	267.1	136.6	140.3	75.1	102.1	267.1	91.8
24	93.6	50.6	66.8	128.1	102.8	83.7	52.7	65.4	52.0	68.2	27.3	14.1	25.2	35.4	53.4	78.1	78.1	52.0	54.1	10.4	9.0	7.6	4.7	3.3	128.1	50.7
25	3.3	5.3	5.4	4.2	7.6	8.3	6.2	4.7	13.9	13.9	26.6	23.8	24.9	43.5	124.6	53.4	55.8	47.8	52.0	56.2	59.8	47.1	19.6	35.3	124.6	31.0
26	64.0	44.9	25.9	20.3	5.4	8.2	18.1	34.4	18.9	56.2	52.0	66.8	56.2	51.3	54.1	123.2	153.5	83.0	30.1	21.0	25.9	22.4	22.4	18.2	153.5	44.8
27	21.0	25.9	25.9	32.3	39.3	31.6	26.6	33.7	36.5	99.3	88.7	56.9	27.3	44.2	55.0	73.9	46.4	32.3	49.9	34.4	32.3	41.4	68.9	54.1	99.3	44.9
28	67.5	24.5	25.9	18.9	18.9	20.3	16.7	19.6	20.3	437.1	105.7	71.8	222.0	128.9	42.8	42.8	35.8	39.3	30.8	37.9	30.8	30.8	33.0	60.4	437.1	65.9
29	124.6	157.0	191.6	114.7	78.1	132.4	176.8	73.1	90.1	101.3	78.5	111.9	112.6	159.2	119.7	267.0	104.2	108.4	82.3	109.1	52.7	29.4	5.4	4.0	267.0	107.7
30	4.0	9.0	9.6	39.3	41.4	30.1	37.9	4.7	24.4	22.4	54.1	63.3	56.9	56.9	49.9	24.5	21.3	13.2	22.4	89.7	64.0	33.0	35.1	42.1	89.7	35.4
31	26.7	11.8	9.0	13.9	11.8	12.5	13.2	13.2	16.0	20.3	53.4	70.3	40.7	30.9	44.2	38.9	36.5	23.1	36.9	58.3	28.7	32.3	25.2	33.7	70.3	29.2
Hourly Max	248.7	272.6	463.8	355.2	245.9	135.9	176.8	85.8	112.6	437.1	159.9	365.0	222.0	159.2	141.2	267.0	173.7	158.5	260.0	267.1	136.6	209.2	243.1	249.4		
Hourly Average	39.3	37.2	48.5	39.6	37.2	32.1	28.0	24.1	29.3	56.3	53.7	65.1	63.9	57.8	58.0	70.6	66.3	60.6	60.7	56.6	41.5	42.7	39.2	41.4		

C = CALIBRATION

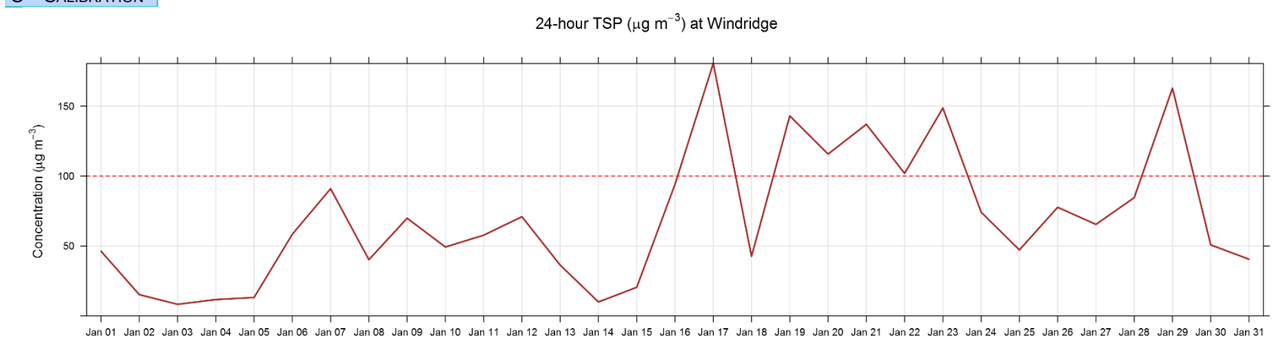


Number of 1HR Exceedances	n/a		Objective	n/a	UG/M3
Number of Non-Zero Readings	738				
Maximum 1-HR Average	463.8	UG/M3			
Maximum 24-HR Average	128.7	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	52.4		Monthly Average	47.2	UG/M3

Windridge TSP (μg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	11.1	8.3	14.6	7.6	8.3	14.6	18.9	23.8	79.5	111.2	109.1	122.5	98.4	47.8	59.1	67.6	97.1	46.4	37.9	48.5	16.0	23.8	25.2	13.2	122.5	46.3
2	9.7	13.9	18.9	16.7	14.0	6.9	3.3	3.3	8.3	17.8	51.2	30.1	23.8	21.7	18.1	27.3	24.5	19.6	5.5	6.2	7.6	5.5	4.0	6.9	51.2	15.2
3	6.9	31.5	2.6	7.6	6.2	8.3	4.0	0.5	5.5	7.6	19.6	21.0	C	C	C	C	C	C	3.3	1.2	4.3	7.6	6.9	4.0	31.5	8.2
4	6.9	7.6	6.2	4.7	5.4	4.0	5.5	4.7	4.3	20.3	20.3	21.7	30.1	39.3	21.7	14.0	21.0	5.4	5.4	7.6	8.3	6.9	4.0	4.0	39.3	11.6
5	6.2	9.0	4.3	1.9	1.7	1.9	5.5	4.0	2.6	2.9	21.7	6.9	8.3	13.9	42.8	43.5	38.6	23.1	14.6	10.4	6.9	14.6	17.4	12.5	43.5	13.1
6	11.8	6.2	4.7	4.7	20.3	31.5	29.4	22.4	46.3	83.0	43.5	40.0	33.0	25.9	55.5	55.5	80.2	109.8	146.5	94.3	178.9	115.4	85.8	76.7	178.9	58.4
7	76.0	37.2	23.1	29.4	42.7	36.5	36.5	25.9	28.7	87.2	131.0	80.9	115.4	164.1	44.2	55.5	59.0	266.3	284.0	224.0	103.5	61.2	62.3	108.4	284.0	91.0
8	83.0	67.5	35.1	28.0	28.7	27.3	15.3	18.8	43.5	30.1	55.5	66.8	102.0	77.4	40.0	50.6	61.9	48.5	34.5	21.0	4.7	5.4	8.3	10.0	102.0	40.2
9	6.2	6.2	13.9	7.6	7.6	12.3	39.3	30.8	76.7	56.0	51.3	174.7	128.8	111.9	59.0	41.4	92.2	164.1	145.8	99.9	76.7	78.1	127.4	68.2	174.7	69.8
10	29.4	40.7	109.1	58.4	33.0	24.5	51.3	42.8	27.3	16.0	18.2	35.1	64.0	32.3	16.0	56.2	78.1	80.2	38.6	158.5	127.5	24.5	15.1	4.7	158.5	49.2
11	21.7	4.7	18.9	25.9	17.4	15.3	16.8	11.8	20.3	42.1	145.3	164.2	200.1	97.1	19.6	21.0	66.1	28.7	21.7	115.5	90.1	36.5	65.4	118.3	200.1	57.7
12	49.2	55.5	117.6	85.2	87.3	51.8	22.4	21.0	44.0	77.4	41.4	44.2	80.8	168.3	87.3	51.7	189.5	135.3	118.3	64.0	28.0	28.0	30.1	23.8	189.5	70.9
13	8.7	9.7	8.9	8.6	11.1	8.3	8.3	13.2	22.4	22.4	41.4	50.6	116.9	86.5	52.7	152.8	54.9	33.0	61.2	50.6	16.0	9.0	6.8	17.4	152.8	36.3
14	18.1	4.7	22.4	2.7	5.4	5.4	1.9	1.2	4.0	6.9	6.2	4.0	2.6	4.7	13.9	11.2	16.0	8.3	12.5	10.4	9.0	23.1	23.1	20.3	23.1	9.9
15	16.7	13.2	20.4	34.4	46.4	25.9	11.8	10.4	11.8	11.1	11.1	34.4	63.3	52.0	61.2	13.2	11.8	9.7	6.2	6.2	6.9	3.3	4.0	5.4	63.3	20.4
16	4.0	6.9	4.0	5.5	9.7	7.0	4.3	3.3	7.6	11.8	8.3	14.6	14.6	42.8	78.1	120.4	161.3	191.6	172.7	162.0	100.8	280.4	445.4	401.7	445.4	94.1
17	362.9	357.3	504.0	497.6	377.7	187.4	108.4	130.2	176.8	177.5	140.1	167.4	87.2	104.9	189.4	164.8	158.5	106.3	79.5	43.5	34.4	62.6	60.4	54.8	504.0	180.6
18	23.1	4.7	7.6	6.2	21.6	25.9	8.3	13.6	21.6	39.3	30.8	33.0	8.2	22.4	13.7	92.9	58.2	63.3	52.7	53.4	46.3	164.8	123.2	87.9	164.8	42.6
19	174.0	175.4	191.6	109.1	131.0	110.5	126.7	91.5	83.7	64.0	85.1	164.8	142.2	95.7	184.5	316.4	296.6	261.4	177.5	111.2	80.7	80.2	80.2	99.2	316.4	143.0
20	87.2	89.4	55.5	68.9	111.2	64.0	43.5	28.0	40.7	73.9	124.6	169.7	174.0	99.9	226.2	270.6	212.8	160.6	139.4	205.7	76.7	109.1	73.1	72.4	270.6	115.7
21	49.9	58.3	193.7	146.3	190.5	213.4	71.0	105.6	70.3	135.9	269.2	425.7	204.3	194.4	73.8	65.4	149.3	97.8	49.2	70.3	71.0	168.3	103.5	111.2	425.7	137.0
22	97.1	160.0	77.4	41.4	30.1	56.9	49.9	33.7	23.1	131.0	199.3	258.6	131.0	122.5	201.5	176.8	123.2	124.6	73.6	47.1	63.4	90.8	71.2	61.9	258.6	101.9
23	9.0	9.7	9.0	5.4	7.6	9.0	17.4	47.1	101.3	207.1	254.3	242.4	164.1	154.9	179.7	172.6	223.3	217.0	404.5	419.4	212.0	213.5	117.6	170.5	419.4	148.7
24	146.5	64.7	83.7	196.5	169.2	150.0	77.4	90.7	83.7	97.1	35.1	28.0	30.8	54.1	71.7	102.0	95.0	73.8	78.1	10.4	18.9	9.7	7.6	4.7	196.5	74.1
25	4.7	3.3	3.3	1.9	2.6	8.1	10.4	9.7	21.0	21.7	29.4	23.1	34.5	77.4	187.4	128.1	79.5	81.6	93.6	85.8	69.0	64.7	29.4	61.9	187.4	47.2
26	108.4	59.0	47.1	33.7	6.2	7.6	29.4	47.1	23.1	74.6	89.4	157.0	94.3	89.5	90.8	264.2	275.5	168.3	37.3	31.6	34.4	38.6	34.4	22.4	275.5	77.6
27	25.2	30.6	38.6	30.1	44.2	45.7	33.0	52.7	67.6	164.8	139.4	93.6	44.9	67.5	89.4	119.0	75.3	40.8	72.5	39.3	43.7	49.2	108.4	54.6	164.8	65.4
28	76.0	30.1	18.2	18.2	17.4	28.0	23.8	25.9	26.6	504.1	169.1	109.1	272.7	158.5	57.6	65.4	43.5	47.8	41.4	56.9	37.9	43.5	34.4	123.2	504.1	84.6
29	258.6	301.6	405.2	195.8	128.8	216.3	237.4	109.8	127.4	135.2	125.3	180.3	107.2	158.5	184.5	330.5	158.5	153.5	104.2	183.8	64.0	31.5	6.9	4.0	405.2	162.9
30	4.0	11.1	12.5	31.5	42.8	48.5	60.5	12.5	32.0	40.0	87.2	106.3	84.4	84.4	59.0	28.7	33.8	25.2	32.2	131.7	86.5	52.8	49.2	61.2	131.7	50.7
31	38.6	9.7	13.9	21.0	13.2	15.0	15.3	11.1	22.4	21.0	80.9	117.6	66.8	49.9	67.5	52.7	48.5	29.4	53.4	80.9	32.4	42.1	28.0	40.7	117.6	40.5
Hourly Max	362.9	357.3	504.0	497.6	377.7	216.3	237.4	130.2	176.8	504.1	269.2	425.7	272.7	194.4	226.2	330.5	296.6	266.3	404.5	419.4	212.0	280.4	445.4	401.7		
Hourly Average	59.7	55.9	69.1	57.0	54.2	48.4	39.0	34.5	44.4	82.3	85.1	102.3	91.8	85.2	85.5	106.2	104.7	96.3	84.8	85.7	57.5	63.4	61.0	62.8		

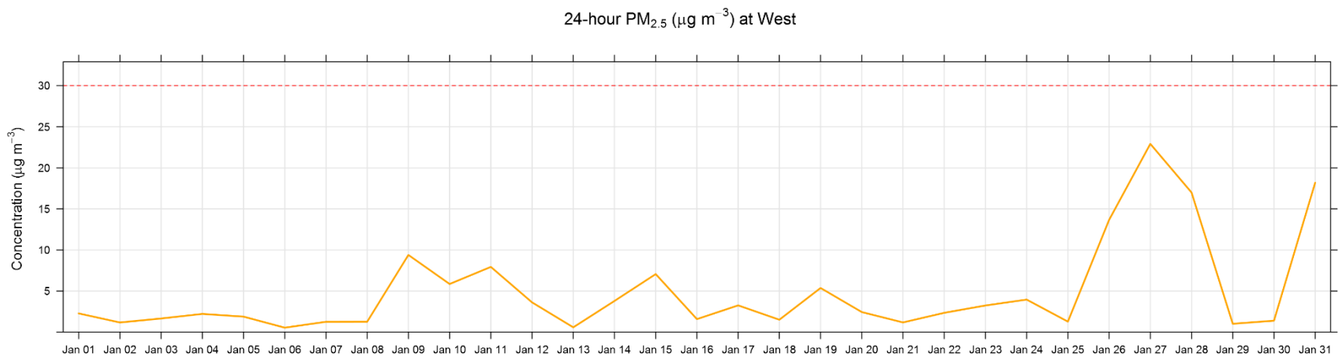
C = CALIBRATION



Number of 24HR Exceedances	7		Objective	100	UG/M3
Number of Non-Zero Readings	738				
Maximum 1-HR Average	504.1	UG/M3			
Maximum 24-HR Average	180.6	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	6	HRS	Operational Uptime	100.0	%
Standard Deviation	78.3		Monthly Average	70.3	UG/M3

West $PM_{2.5}$ (µg/m^3) – January 2018

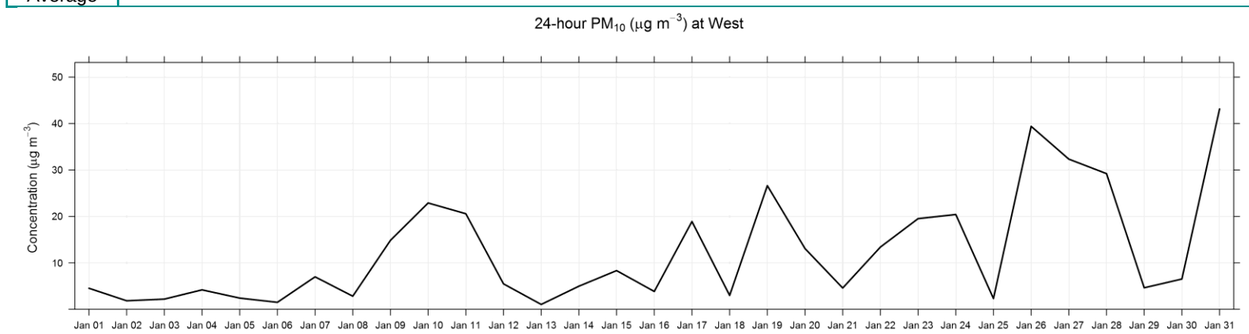
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	3.5	6.5	7.1	5.5	3.4	1.8	1.4	1.1	1.3	1.7	1.9	1.9	2.2	2.1	1.7	1.4	1.3	1.2	1.3	1.2	1.5	1.3	1.2	1.2	7.1	2.3
2	0.8	0.7	0.7	0.6	0.6	0.6	0.7	0.7	0.9	1.5	1.7	1.6	1.2	1.4	2.0	1.8	1.3	1.1	1.1	1.4	1.6	1.5	1.3	1.2	2.0	1.2
3	1.3	1.2	0.9	0.9	0.8	0.8	0.8	0.8	1.2	2.9	2.8	2.0	2.6	2.5	2.9	2.3	1.6	1.4	1.8	1.6	1.7	1.9	1.7	1.4	2.9	1.7
4	1.3	1.1	1.2	1.2	0.9	1.0	1.1	1.2	1.7	2.4	2.5	3.0	4.1	8.8	2.4	3.2	3.0	1.5	1.9	2.6	2.4	1.9	1.6	1.3	8.8	2.2
5	1.1	1.4	1.0	0.9	0.8	0.7	0.8	0.8	1.9	2.5	4.9	5.2	6.7	2.4	2.5	1.8	1.7	1.4	1.2	1.2	1.2	1.2	1.1	1.0	6.7	1.9
6	0.9	0.9	0.8	0.5	0.4	0.3	0.4	0.3	0.3	0.5	0.7	0.9	0.5	0.3	0.5	1.0	0.7	0.7	0.4	0.6	0.4	0.3	0.3	0.4	1.0	0.5
7	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.8	3.4	6.7	3.3	2.8	2.7	3.1	1.0	1.0	0.9	0.8	0.6	0.4	0.4	0.2	6.7	1.3
8	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.2	1.0	7.2	5.1	1.0	1.8	1.2	2.6	2.1	0.9	0.3	0.8	1.1	0.9	0.9	1.0	0.8	7.2	1.3
9	0.9	0.7	0.8	0.6	0.6	1.0	0.7	0.7	1.3	1.7	13.1	25.6	29.7	27.0	25.3	21.4	17.7	12.1	10.8	8.3	6.2	6.8	5.8	6.8	29.7	9.4
10	6.4	5.6	4.5	3.7	4.5	4.1	4.4	3.9	5.9	9.1	6.5	7.4	6.3	7.6	9.7	7.7	5.2	6.0	9.8	8.9	3.5	3.4	3.2	3.3	9.8	5.9
11	2.8	2.8	3.0	4.5	6.1	6.1	7.2	5.2	4.8	5.9	7.9	6.5	6.6	6.4	4.9	5.7	6.0	10.1	17.3	18.7	15.4	13.6	12.2	10.9	18.7	7.9
12	10.4	8.7	7.9	8.5	7.2	6.3	4.4	3.4	2.8	2.9	5.0	5.1	3.2	1.5	1.3	1.1	1.0	0.8	1.0	0.9	0.9	0.9	0.8	0.7	10.4	3.6
13	0.8	0.7	0.7	0.6	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.4	0.5	0.6	0.4	0.4	0.2	0.2	0.3	1.1	1.0	0.8	0.7	0.7	1.1	0.6
14	0.5	0.5	0.4	0.4	0.6	0.5	0.6	0.6	0.6	0.6	0.7	1.0	1.4	3.8	6.2	6.4	3.8	3.6	3.4	3.7	4.3	9.3	19.3	18.8	19.3	3.8
15	19.4	19.5	22.2	21.3	19.5	14.7	9.3	5.0	4.1	4.0	3.5	2.8	2.4	2.1	1.9	2.4	2.2	2.1	2.2	2.1	1.8	1.6	1.6	1.5	22.2	7.1
16	1.4	1.3	1.2	1.1	1.0	1.0	1.0	1.0	1.5	3.0	1.7	1.4	1.7	2.3	2.8	2.9	2.8	1.9	3.2	0.6	0.7	0.7	0.7	1.1	3.2	1.6
17	2.2	0.5	1.9	0.6	0.8	1.8	3.3	4.6	5.1	5.8	5.5	10.0	10.5	11.2	2.7	2.7	3.0	2.6	0.7	0.6	0.5	0.5	0.5	0.5	11.2	3.3
18	0.7	0.5	1.2	0.9	1.0	0.8	1.2	2.2	3.6	4.9	8.0	2.3	2.0	1.0	0.7	0.9	1.1	0.5	0.6	0.3	0.3	0.6	0.4	0.5	8.0	1.5
19	0.6	0.4	0.4	0.6	0.4	1.3	5.1	7.4	10.5	6.5	7.8	9.7	8.8	11.1	7.2	38.1	5.2	1.4	2.4	0.8	2.2	0.3	0.4	0.3	38.1	5.4
20	0.3	0.5	0.6	0.6	0.5	0.6	1.0	1.5	2.0	3.0	7.1	7.6	6.4	3.5	12.2	2.3	1.3	1.4	0.8	1.1	0.6	2.5	1.0	0.4	12.2	2.4
21	0.4	0.9	0.3	0.3	0.3	0.7	0.5	0.6	0.6	1.5	1.5	2.4	1.9	2.7	1.7	2.3	2.1	1.7	1.3	1.3	1.1	0.9	1.1	0.4	2.7	1.2
22	0.5	0.2	0.2	2.0	0.9	0.9	0.6	0.4	1.3	7.4	4.1	4.2	10.9	2.0	2.8	3.6	1.8	4.2	2.6	0.8	1.7	2.0	0.6	0.7	10.9	2.4
23	0.6	0.8	0.6	0.6	0.5	0.6	2.1	5.8	14.5	5.0	6.1	7.2	3.7	9.4	3.0	4.2	4.4	2.6	1.1	1.6	1.0	0.6	0.9	1.1	14.5	3.2
24	0.4	0.5	0.9	1.0	0.5	1.0	1.8	2.4	1.6	2.4	3.9	9.7	11.6	26.1	9.0	6.3	4.9	2.0	1.5	1.3	1.4	1.7	1.7	1.4	26.1	4.0
25	1.0	0.7	0.5	0.4	1.1	1.1	1.9	1.8	1.4	3.2	5.3	2.2	1.0	1.6	0.7	1.4	0.4	0.3	0.3	1.2	0.7	0.6	0.6	1.1	5.3	1.3
26	1.0	1.1	0.8	0.7	0.6	1.1	17.3	8.4	9.1	25.1	29.9	34.1	36.4	21.1	5.3	11.6	6.0	18.2	15.3	15.7	19.1	19.3	15.8	15.0	36.4	13.7
27	20.8	26.1	22.1	19.6	14.4	13.2	13.0	12.9	14.3	19.9	29.1	32.2	43.1	28.9	30.1	26.6	29.4	27.2	25.3	21.8	19.8	20.2	20.8	19.1	43.1	22.9
28	14.8	13.6	13.5	13.5	13.8	16.2	16.6	14.6	15.2	18.9	19.0	17.4	19.3	20.3	21.3	25.0	28.9	31.2	28.4	18.8	19.3	6.4	1.3	0.8	31.2	17.0
29	0.7	0.8	0.6	0.5	0.4	0.3	0.5	0.3	0.4	0.9	1.2	0.9	0.8	0.6	2.1	5.7	4.1	1.2	0.7	0.5	0.2	0.3	0.5	0.6	5.7	1.0
30	1.3	0.7	0.3	0.3	0.3	0.5	0.2	0.2	1.0	2.3	2.5	1.4	1.3	1.0	3.8	5.4	4.0	1.0	0.9	0.9	1.4	1.0	0.9	0.9	5.4	1.4
31	0.6	0.6	0.6	15.4	17.1	16.6	16.1	13.8	16.2	17.3	20.5	19.7	31.1	30.9	31.8	31.4	32.2	22.3	19.4	19.0	17.0	16.7	15.4	14.9	32.2	18.2
Hourly Max	20.8	26.1	22.2	21.3	19.5	16.6	17.3	14.6	16.2	25.1	29.9	34.1	43.1	30.9	31.8	38.1	32.2	31.2	28.4	21.8	19.8	20.2	20.8	19.1		
Hourly Average	3.2	3.2	3.1	3.5	3.2	3.1	3.7	3.3	4.1	5.5	6.9	7.5	8.5	7.9	6.6	7.5	5.8	5.3	5.1	4.5	4.2	3.9	3.7	3.5		



Number of 1HR Exceedances	0		Guideline	80	UG/M3
Number of 24HR Exceedances	0		Guideline	30	UG/M3
Number of Non-Zero Readings	744				
Maximum 1-HR Average	43.1	UG/M3			
Maximum 24-HR Average	22.9	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0	%
Standard Deviation	7.2		Monthly Average	4.9	UG/M3

West PM_{10} (µg/m^3) – January 2018

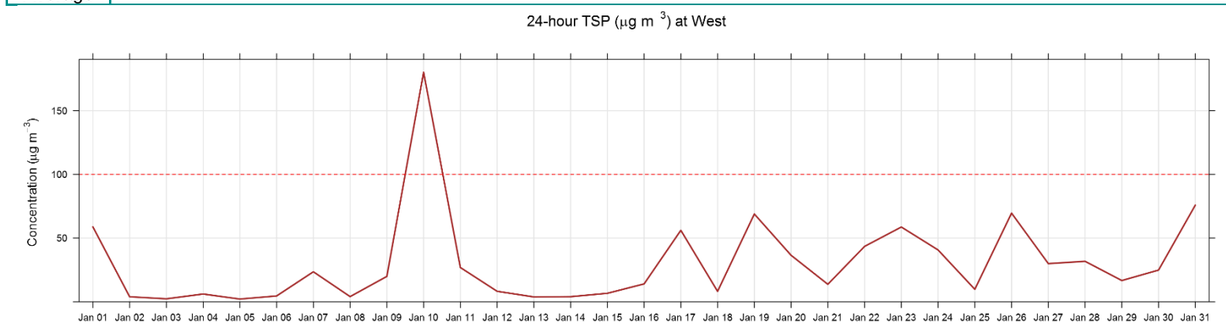
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	3.6	6.7	7.2	5.6	3.6	2.0	1.7	1.4	1.7	2.2	8.1	9.6	12.6	10.2	8.4	4.4	4.2	2.7	2.8	2.1	3.1	1.7	1.4	1.5	12.6	4.5
2	0.9	0.9	1.0	0.8	0.7	0.7	0.7	0.7	1.0	1.8	3.4	3.0	2.9	2.6	5.7	4.7	2.6	1.3	1.2	1.5	1.7	1.6	1.4	1.2	5.7	1.8
3	1.4	1.2	0.9	0.9	0.9	0.9	0.9	0.9	1.3	3.2	4.0	4.1	4.2	4.9	5.9	3.0	2.0	1.6	1.9	1.7	1.8	1.9	1.7	1.5	5.9	2.2
4	1.4	1.2	1.2	1.2	1.0	1.0	1.1	1.3	1.9	3.2	3.3	4.2	5.9	40.2	5.5	6.7	6.2	1.7	2.0	2.7	2.4	2.0	1.7	1.4	40.2	4.2
5	1.1	1.4	1.1	0.9	0.8	0.7	0.8	0.8	2.2	3.4	6.0	7.0	8.8	3.8	5.1	2.9	2.4	1.4	1.3	1.3	1.2	1.3	1.1	1.0	8.8	2.4
6	0.9	0.9	0.8	0.5	0.5	0.4	0.7	0.6	0.7	1.7	1.5	3.2	2.3	0.8	2.4	5.4	2.7	2.2	0.9	3.5	1.0	0.4	0.6	1.1	5.4	1.5
7	0.3	0.3	0.2	0.2	0.3	0.2	0.8	0.7	3.0	6.7	23.0	41.0	19.0	13.6	13.1	22.5	3.9	3.8	2.9	8.5	1.1	1.0	1.2	0.3	41.0	7.0
8	0.2	0.1	0.2	0.5	0.4	0.4	0.4	0.3	1.3	7.7	5.9	2.0	9.2	4.6	13.7	10.4	4.1	0.4	1.0	1.3	1.0	0.9	1.0	0.8	13.7	2.8
9	1.0	0.8	0.8	0.7	0.6	2.3	0.9	0.7	1.4	2.6	33.2	52.1	44.4	37.4	37.6	32.1	26.5	17.7	15.1	11.1	8.1	11.9	7.9	9.4	52.1	14.8
10	8.4	8.2	10.4	9.3	13.8	7.0	8.6	7.6	8.7	42.5	32.1	46.0	33.4	45.4	75.9	51.0	32.8	45.8	34.5	12.5	4.1	3.9	3.5	3.7	75.9	22.9
11	2.9	3.0	3.4	6.0	9.0	8.9	10.4	6.9	5.8	6.9	11.4	12.4	11.0	9.5	7.1	8.7	9.0	31.3	89.3	111.3	74.6	20.3	18.3	16.3	111.3	20.6
12	15.4	12.2	9.7	9.9	8.5	7.4	5.1	4.3	3.5	3.7	10.5	13.1	8.0	3.7	2.9	2.4	2.4	1.4	2.3	1.4	1.0	1.1	0.9	0.7	15.4	5.5
13	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.7	0.8	0.7	2.5	3.7	2.8	1.9	0.6	0.3	0.4	1.3	1.0	0.8	0.8	0.7	3.7	1.0
14	0.6	0.5	0.4	0.4	0.7	0.5	0.6	0.8	0.6	0.7	0.7	2.6	4.8	8.1	10.1	10.4	6.0	4.1	3.6	4.0	5.1	10.8	22.1	21.3	22.1	5.0
15	22.8	22.4	28.5	25.3	22.6	15.9	9.7	5.2	4.5	4.4	3.8	3.3	2.9	3.5	3.3	5.5	3.2	2.2	2.3	2.1	1.8	1.7	1.6	1.5	28.5	8.3
16	1.4	1.3	1.2	1.1	1.0	1.0	1.1	1.0	1.6	3.4	2.5	1.9	2.1	5.3	10.2	11.5	8.8	4.6	13.7	1.0	3.4	2.4	4.3	6.2	13.7	3.8
17	21.2	2.3	15.9	3.2	6.0	15.3	23.2	33.3	35.3	37.5	33.4	55.7	47.9	72.0	11.4	10.5	11.8	10.7	2.2	1.3	1.1	0.8	1.0	0.7	72.0	18.9
18	0.9	0.7	1.5	1.1	1.2	1.1	1.7	3.0	4.6	6.7	10.9	3.0	6.5	4.3	4.3	4.4	4.9	0.7	2.2	0.5	0.7	3.4	1.3	2.1	10.9	3.0
19	2.4	1.0	0.6	2.1	0.9	6.3	24.9	33.9	52.5	32.4	61.8	62.2	50.4	55.1	35.4	148.8	29.9	5.7	14.3	3.2	12.9	0.8	1.1	0.4	148.8	26.6
20	0.4	0.9	0.8	0.7	0.8	1.0	5.4	9.0	12.1	23.3	47.4	41.4	35.2	17.7	65.0	10.4	4.8	6.6	3.6	4.9	2.1	16.4	3.1	0.7	65.0	13.1
21	0.7	1.7	0.3	0.4	0.5	2.4	1.7	1.8	1.5	8.3	8.6	14.2	7.3	12.5	6.9	8.4	8.4	5.6	3.6	4.3	3.3	2.4	4.2	0.8	14.2	4.6
22	1.5	0.4	0.2	15.9	3.2	2.7	0.9	0.7	5.9	44.0	25.4	25.5	80.2	12.8	15.6	20.4	9.2	26.7	13.4	2.1	5.7	7.2	1.0	0.8	80.2	13.4
23	0.7	0.9	0.7	0.7	0.5	0.8	12.1	34.4	132.6	32.5	45.9	46.2	19.9	61.7	14.7	18.6	19.2	11.6	2.5	3.7	1.7	1.5	2.0	3.0	132.6	19.5
24	0.5	0.8	2.4	3.6	0.7	3.7	6.1	10.8	3.6	7.2	13.8	42.0	55.3	195.6	54.2	38.3	30.5	7.0	3.9	2.9	1.9	1.8	1.9	1.4	195.6	20.4
25	1.0	0.7	0.6	0.4	1.2	1.3	2.2	2.0	1.5	3.5	5.7	3.2	4.3	9.9	1.0	3.7	0.9	1.1	1.0	2.4	1.4	1.0	1.6	4.0	9.9	2.3
26	2.6	3.3	1.1	1.2	0.8	2.3	26.7	12.0	12.6	37.2	78.0	149.1	159.8	104.2	32.8	63.7	28.6	57.2	36.2	33.3	28.5	28.8	23.5	22.2	159.8	39.4
27	30.5	38.4	31.5	25.6	17.4	15.1	14.9	14.4	16.8	27.4	43.6	48.3	64.7	43.3	45.1	40.0	44.1	40.8	38.0	32.6	27.8	25.7	25.6	24.5	64.7	32.3
28	17.8	15.2	15.1	14.4	17.1	22.5	24.1	20.0	21.1	28.2	27.7	22.3	24.6	35.6	39.3	63.7	83.1	97.1	42.9	27.8	28.9	9.2	2.0	1.3	97.1	29.2
29	1.4	2.0	0.7	0.7	0.6	0.6	0.9	0.6	1.0	3.7	5.5	4.2	3.7	2.3	14.3	36.5	22.5	4.6	2.0	1.2	0.3	0.4	0.7	0.8	36.5	4.6
30	1.5	0.8	0.4	0.6	0.5	1.5	0.3	0.2	1.1	3.9	7.2	11.6	13.8	9.3	24.8	29.7	19.9	4.0	3.7	4.5	7.4	3.4	3.3	2.8	29.7	6.5
31	1.8	1.6	0.9	33.9	25.4	24.5	23.3	18.3	24.2	26.0	30.7	57.3	120.4	115.1	109.1	108.5	106.7	55.6	29.1	28.5	25.4	24.9	22.4	21.4	120.4	43.1
Hourly Max	30.5	38.4	31.5	33.9	25.4	24.5	26.7	34.4	132.6	44.0	78.0	149.1	159.8	195.6	109.1	148.8	106.7	97.1	89.3	111.3	74.6	28.8	25.6	24.5		
Hourly Average	4.8	4.3	4.5	5.4	4.6	4.9	6.9	7.4	11.8	13.4	19.2	25.6	28.0	30.6	22.0	25.5	17.5	14.8	12.1	10.3	8.4	6.2	5.3	5.0		



Number of 1HR Exceedances	n/a		Guideline	n/a	UG/M3
Number of Non-Zero Readings	744				
Maximum 1-HR Average	195.6	UG/M3			
Maximum 24-HR Average	43.1	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0	%
Standard Deviation	21.8		Monthly Average	12.4	UG/M3

West TSP (μg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	2.4	4.3	4.7	3.8	2.5	1.5	1.3	1.1	1.4	1.9	184.4	209.3	297.9	202.0	189.6	54.7	80.9	51.3	33.7	25.2	38.8	13.5	3.9	1.5	297.9	58.8
2	0.6	12.4	1.9	0.6	0.4	0.4	0.5	0.5	0.7	1.3	5.9	13.8	15.1	15.1	9.9	6.3	2.8	0.9	0.8	1.0	1.1	1.0	0.9	0.8	15.1	3.9
3	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.9	2.1	5.1	7.1	4.9	9.3	7.6	3.6	1.9	1.1	1.2	1.1	1.2	1.2	1.1	0.9	9.3	2.3
4	0.9	0.8	0.8	0.8	0.6	0.6	0.7	0.8	1.4	2.5	5.8	8.1	10.1	85.3	5.8	7.4	4.6	1.1	1.3	1.7	1.6	1.3	1.1	0.9	85.3	6.1
5	0.7	0.9	0.7	0.6	0.5	0.5	0.5	0.6	1.6	2.7	4.7	7.3	6.2	2.5	11.2	2.5	2.0	0.9	0.8	0.8	0.8	0.8	0.7	0.7	11.2	2.1
6	0.6	0.6	0.5	0.3	0.3	0.6	3.2	1.7	2.5	6.9	4.0	10.4	7.4	6.7	7.0	16.3	5.8	5.9	1.2	20.7	0.9	0.3	0.9	5.0	20.7	4.6
7	0.2	0.2	0.2	0.1	0.2	1.4	3.2	3.7	20.6	29.3	63.4	120.7	62.9	33.3	35.8	89.7	13.0	16.1	12.3	49.2	2.2	2.2	4.8	0.2	120.7	23.5
8	0.1	0.1	0.1	0.3	0.2	0.3	0.8	2.0	0.8	5.3	7.3	5.0	17.1	9.8	18.9	18.2	5.8	1.3	0.7	0.8	0.6	0.6	0.6	0.5	18.9	4.1
9	0.6	0.5	0.5	0.4	0.4	1.8	0.6	0.5	0.9	2.9	58.6	85.2	44.4	30.0	35.9	33.6	29.0	16.6	13.2	8.7	15.3	83.7	6.7	7.7	85.2	19.9
10	7.0	14.3	70.6	58.2	170.6	65.7	106.9	38.7	9.6	221.2	194.2	629.0	162.1	231.8	602.4	471.8	145.3	632.7	467.7	13.7	3.0	2.8	2.3	2.5	632.7	180.2
11	1.9	2.0	2.2	4.5	7.6	7.0	8.0	4.7	3.9	5.0	53.2	72.0	26.1	13.3	7.9	7.8	9.8	41.6	105.6	112.7	89.1	23.5	20.3	15.9	112.7	26.9
12	12.9	8.7	6.4	6.5	5.6	4.9	3.5	3.2	2.6	3.1	23.2	33.6	21.7	17.9	15.0	9.0	6.7	2.6	6.6	1.5	0.7	0.7	0.6	0.5	33.6	8.2
13	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.9	1.8	4.1	20.8	20.5	19.3	12.1	2.0	0.9	0.2	2.3	0.7	0.5	0.5	0.4	20.8	3.8
14	0.4	0.3	0.3	0.3	0.7	0.3	0.4	0.5	0.4	0.4	0.5	1.9	5.6	8.0	9.2	12.7	7.3	2.8	2.3	2.6	3.5	7.3	14.5	14.0	14.5	4.0
15	15.1	14.8	19.6	16.9	14.9	10.3	6.3	3.4	2.9	2.9	2.5	4.6	3.4	5.2	10.5	14.7	3.2	1.4	1.5	1.4	1.2	1.1	1.0	1.0	19.6	6.7
16	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	1.1	2.3	3.0	2.7	1.5	17.1	56.1	45.8	25.9	15.6	33.8	1.6	27.5	14.3	37.9	44.1	56.1	14.0
17	106.3	19.5	57.8	15.7	26.7	54.0	63.6	116.0	93.1	104.7	109.5	135.5	107.3	166.5	44.0	30.7	43.5	32.4	3.9	4.7	2.9	1.3	5.8	0.8	166.5	56.1
18	0.7	0.4	1.1	0.8	0.9	0.9	1.4	2.2	3.1	4.7	7.5	2.5	5.0	6.4	57.6	22.7	55.6	2.0	4.9	0.4	0.5	7.4	2.1	5.4	57.6	8.2
19	6.7	4.2	0.9	3.3	0.8	20.6	68.1	74.1	166.0	77.0	205.3	184.4	158.7	169.0	108.3	189.6	107.9	14.0	38.0	10.5	41.9	0.6	2.7	0.4	205.3	68.9
20	0.3	1.5	2.2	0.5	1.7	1.3	21.3	21.5	47.8	82.6	117.1	97.8	107.5	44.1	171.2	26.2	13.9	17.4	8.2	17.2	10.2	46.8	13.8	3.9	171.2	36.5
21	1.7	2.0	0.2	0.3	0.5	6.2	4.0	5.2	4.7	20.4	38.3	65.7	23.8	43.4	23.4	12.5	20.1	15.4	8.0	12.8	7.9	3.2	7.6	2.2	65.7	13.7
22	3.2	0.3	0.2	54.1	7.3	3.4	1.0	1.6	17.0	145.0	96.6	130.6	279.8	54.7	54.1	54.4	27.0	53.4	29.6	5.4	9.7	13.3	0.8	0.8	279.8	43.5
23	0.5	0.6	0.4	0.5	0.4	0.5	15.0	73.6	313.0	132.7	187.8	193.0	81.8	195.6	50.4	50.5	52.8	26.8	8.2	9.5	3.5	3.5	4.0	3.6	313.0	58.7
24	0.3	0.7	3.9	9.1	1.1	5.6	14.8	23.6	10.0	18.6	30.1	103.3	110.0	305.7	152.7	88.5	77.6	8.8	2.9	3.8	1.5	1.2	1.3	0.9	305.7	40.7
25	0.7	0.5	0.4	0.3	0.8	0.8	1.6	1.4	1.0	2.3	3.7	2.4	23.4	129.8	0.8	10.3	5.3	9.6	8.3	7.7	2.9	2.2	4.0	14.5	129.8	9.8
26	6.0	14.9	0.9	0.8	0.5	2.4	22.2	9.2	10.3	33.9	125.4	319.3	337.8	218.7	76.3	163.3	67.2	99.7	46.5	28.3	24.3	24.7	18.9	18.1	337.8	69.6
27	22.5	27.8	22.1	17.2	11.5	9.8	9.7	9.3	11.2	19.4	46.5	54.5	73.6	48.0	51.1	43.0	49.6	44.4	40.0	32.9	20.7	18.2	18.1	17.7	73.6	30.0
28	12.1	9.9	9.8	9.4	11.8	16.4	17.9	14.1	15.3	26.4	23.0	15.5	20.4	71.6	61.1	89.4	116.3	112.2	42.5	23.1	26.0	7.7	5.0	5.2	116.3	31.8
29	2.4	9.1	0.5	1.6	1.5	1.3	5.4	6.8	4.0	18.6	36.0	47.2	32.8	10.8	47.2	99.7	50.5	11.6	8.4	2.8	0.4	0.3	0.5	0.6	99.7	16.7
30	1.0	0.5	0.3	1.0	0.4	21.2	0.2	0.1	0.7	13.2	27.0	70.9	95.9	69.3	106.9	75.7	41.7	8.2	15.3	8.0	26.9	4.5	5.0	3.0	106.9	24.9
31	4.9	4.6	0.8	42.8	19.6	18.2	18.1	14.8	25.0	28.9	34.7	228.0	389.3	232.9	208.6	215.7	153.1	47.7	30.8	26.3	22.1	21.1	16.9	15.3	389.3	75.8
Hourly Max	106.3	27.8	70.6	58.2	170.6	65.7	106.9	116.0	313.0	221.2	205.3	629.0	389.3	305.7	602.4	471.8	153.1	632.7	467.7	112.7	89.1	83.7	37.9	44.1		
Hourly Average	6.9	5.1	6.8	8.1	9.4	8.4	13.0	14.1	25.0	32.9	55.0	92.4	82.4	79.8	72.8	63.8	39.6	41.8	31.6	14.1	12.6	10.0	6.6	6.1		

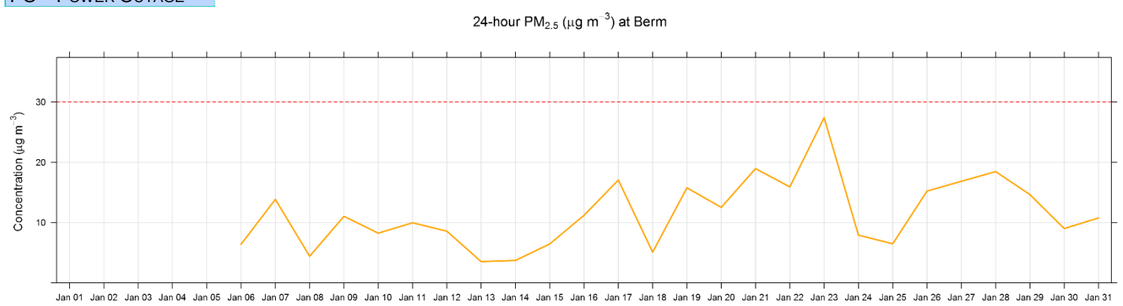


Number of 24HR Exceedances	1		Guideline	100	UG/M3
Number of Non-Zero Readings	744				
Maximum 1-HR Average	632.7	UG/M3			
Maximum 24-HR Average	180.2	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0	%
Standard Deviation	67.8		Monthly Average	30.8	UG/M3

Berm $PM_{2.5}$ (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	2.5	5.0	4.5	3.4	2.6	3.1	5.1	6.4	15.2	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
2	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
3	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
4	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
5	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	4.6	3.4	5.1	3.5	1.8	1.4	1.4	1.0	1.4	1.6	1.0	0.8	-	-
6	0.7	0.7	1.2	1.9	2.6	2.6	2.1	3.1	11.2	4.9	4.1	3.7	3.8	7.1	4.5	16.0	11.5	14.8	9.2	16.6	11.4	7.7	8.2	3.7	16.6	6.4
7	1.0	0.9	2.2	2.3	2.6	1.6	1.4	2.3	13.9	30.9	21.1	24.1	27.0	7.1	9.2	13.0	42.9	47.4	39.1	11.3	7.3	7.1	8.7	7.8	47.4	13.8
8	6.1	3.8	3.0	2.6	1.9	1.6	2.4	4.4	4.1	8.9	8.4	13.2	11.3	5.1	6.7	6.0	7.0	3.8	1.8	0.9	0.8	0.7	0.6	0.6	13.2	4.4
9	0.6	0.9	0.6	0.6	1.0	1.9	2.7	7.9	5.5	8.3	13.9	24.5	27.3	22.0	19.1	20.0	25.0	22.8	15.2	11.1	7.9	11.7	8.0	6.4	27.3	11.0
10	10.0	10.1	5.9	5.6	4.4	8.1	8.8	4.7	3.4	7.8	7.5	8.8	4.9	4.9	13.1	10.8	9.6	10.6	18.6	23.6	4.7	3.6	3.9	4.3	23.6	8.2
11	2.2	2.8	3.1	4.2	3.0	2.3	2.8	3.5	9.6	14.7	21.1	30.2	17.2	9.5	9.6	8.4	7.3	6.9	6.9	11.9	8.0	22.1	19.2	12.6	30.2	10.0
12	11.7	19.7	22.0	15.5	14.1	8.4	6.8	11.0	8.3	10.1	11.3	10.6	9.1	6.3	3.9	6.6	11.0	8.9	3.1	1.6	1.4	2.2	1.5	0.8	22.0	8.6
13	1.0	1.3	1.0	1.1	0.8	0.8	0.7	1.1	2.0	3.2	4.7	9.4	11.4	8.6	15.0	7.5	3.6	3.8	3.0	1.2	0.8	0.6	0.8	0.8	15.0	3.5
14	0.5	0.7	0.4	0.5	0.3	0.3	0.3	0.4	0.9	0.7	0.5	0.8	1.6	3.5	4.1	4.7	4.0	5.3	3.9	2.1	7.3	15.7	15.3	15.0	15.7	3.7
15	15.1	16.5	18.7	21.8	16.4	10.8	5.1	3.5	3.1	3.4	4.4	5.5	4.0	3.8	2.5	2.8	3.0	1.9	1.8	2.7	2.1	1.7	2.0	1.9	21.8	6.4
16	1.3	1.1	1.1	0.9	1.0	1.1	1.1	0.9	1.1	2.0	1.7	2.1	3.9	5.7	10.2	16.4	19.0	18.6	22.7	22.2	28.0	33.4	38.1	35.4	38.1	11.2
17	27.7	67.6	45.5	40.2	21.9	9.1	8.9	12.9	17.9	23.9	13.2	9.5	8.9	18.7	24.5	20.3	9.6	3.8	6.4	6.9	3.1	4.2	2.8	1.4	67.6	17.0
18	0.6	2.0	0.7	4.0	3.0	1.1	2.1	5.2	10.9	6.0	9.8	1.3	1.7	1.6	11.2	8.0	7.3	5.9	3.9	4.0	7.8	7.2	6.8	9.8	11.2	5.1
19	8.5	17.3	7.9	7.5	4.8	6.5	6.6	4.6	4.3	6.6	12.3	21.6	21.3	26.9	49.6	42.6	32.9	24.2	10.8	7.5	12.2	15.9	12.6	13.3	49.6	15.8
20	9.4	2.2	3.0	6.0	4.1	2.0	1.0	2.1	4.9	11.1	19.1	19.9	20.4	30.2	30.4	25.8	27.1	20.3	27.6	7.1	17.1	3.6	3.5	2.5	30.4	12.5
21	2.4	14.6	10.0	10.6	18.3	3.2	6.6	5.2	10.9	26.4	51.3	31.2	25.3	26.2	28.4	27.0	21.1	27.4	25.9	23.7	30.1	9.9	9.8	9.1	51.3	18.9
22	9.9	7.3	2.0	2.4	2.5	2.8	2.3	2.2	11.4	30.5	43.0	33.9	24.2	39.8	44.6	27.8	18.9	20.2	22.5	16.6	6.2	6.6	3.2	0.9	44.6	15.9
23	0.6	0.8	1.0	0.7	0.7	1.0	4.4	10.6	24.3	50.5	47.0	48.5	49.1	42.7	44.3	55.5	58.7	64.0	60.9	23.4	21.5	15.9	18.4	13.2	64.0	27.4
24	11.6	19.4	18.1	13.2	11.9	5.5	7.1	7.7	7.9	3.9	2.2	3.8	5.1	8.2	10.6	12.5	21.6	8.3	1.7	3.7	1.2	1.6	1.1	2.1	21.6	7.9
25	1.6	0.9	0.5	1.1	2.0	2.1	2.3	5.1	6.8	8.2	5.8	6.5	10.6	25.9	16.3	6.0	8.1	8.7	11.1	8.3	5.8	1.8	3.8	6.3	25.9	6.5
26	4.5	3.1	2.3	0.7	0.9	7.5	19.9	3.9	13.2	18.4	20.1	19.0	16.4	17.2	49.4	53.6	27.4	11.9	11.5	11.2	13.9	15.2	11.5	12.5	53.6	15.2
27	13.3	14.2	12.7	15.0	13.0	13.5	12.9	13.3	25.0	24.4	18.4	12.5	14.9	17.0	20.9	15.2	15.9	18.3	16.4	16.2	16.4	26.1	21.0	17.6	26.1	16.8
28	11.6	9.9	10.3	10.7	11.1	11.8	13.2	12.9	51.3	32.1	26.9	55.2	28.8	19.1	15.5	15.8	16.8	15.9	16.5	14.0	13.8	11.8	9.1	8.9	55.2	18.5
29	17.5	33.4	12.3	7.5	11.4	11.9	5.5	9.3	14.0	13.9	19.1	28.9	17.9	25.3	30.5	25.4	16.4	12.5	21.1	9.5	3.7	0.6	0.9	2.8	33.4	14.6
30	1.2	1.0	4.8	2.4	5.9	16.2	0.5	3.9	3.8	11.7	13.3	17.6	19.2	14.2	9.4	13.8	12.2	14.7	14.3	11.4	3.5	8.8	5.7	6.5	19.2	9.0
31	2.0	2.3	2.7	8.6	8.9	8.5	9.5	9.6	9.8	16.9	22.2	16.4	13.7	13.6	12.7	11.0	9.8	9.6	9.7	9.7	10.3	13.1	13.4	14.1	22.2	10.8
Hourly Max	27.7	67.6	45.5	40.2	21.9	16.2	19.9	13.3	51.3	50.5	51.3	55.2	49.1	42.7	49.6	55.5	58.7	64.0	60.9	23.7	30.1	33.4	38.1	35.4		
Hourly Average	6.5	9.6	7.3	7.1	6.3	5.4	5.3	5.8	10.9	14.6	16.2	17.6	15.0	15.3	18.6	17.6	16.6	15.3	14.3	10.3	9.2	9.3	8.6	7.8		

PO = POWER OUTAGE

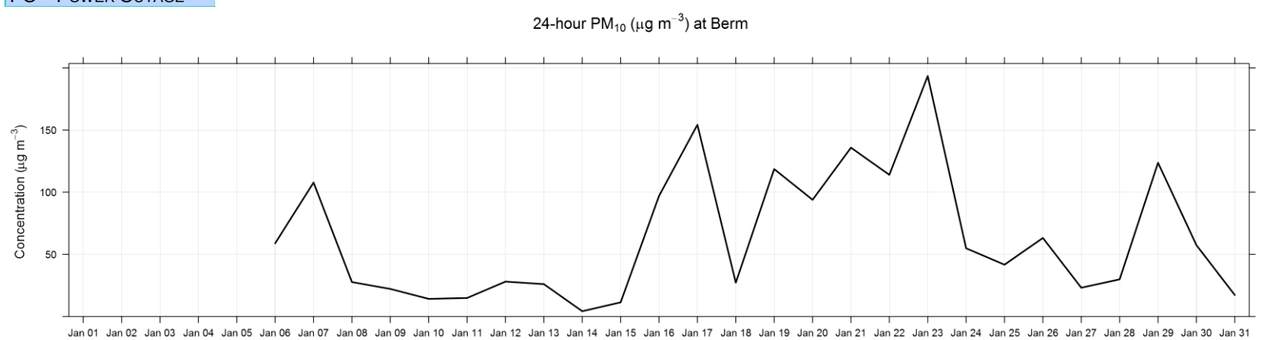


Number of 1HR Exceedances	0		Guideline	80	UG/M3
Number of 24HR Exceedances	0		Guideline	30	UG/M3
Number of Non-Zero Readings	645				
Maximum 1-HR Average	67.6	UG/M3			
Maximum 24-HR Average	27.4	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	645	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	86.7	%
Standard Deviation	11.2		Monthly Average	11.3	UG/M3

Berm PM_{10} (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	2.6	5.2	4.6	3.8	3.1	4.1	7.5	9.4	22.6	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
2	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
3	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
4	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	-	-
5	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	9.8	25.3	32.0	21.1	7.7	3.5	1.8	1.2	1.7	2.1	1.3	0.9	-	-
6	0.8	0.8	1.6	11.9	20.2	17.3	20.7	30.2	94.1	44.9	32.7	26.3	17.4	53.4	30.4	125.4	123.3	156.0	96.4	185.4	132.5	78.4	86.4	27.9	185.4	58.9
7	5.1	4.3	17.4	17.4	20.4	7.6	5.7	15.9	103.5	224.4	154.9	176.6	207.5	46.6	67.5	102.6	354.3	420.8	324.2	89.2	43.6	45.3	64.6	67.3	420.8	107.8
8	41.8	27.6	18.9	16.2	12.4	9.1	12.9	31.8	21.0	41.7	51.7	87.4	76.9	33.7	46.1	38.5	56.7	26.1	9.9	1.2	1.0	1.2	0.9	0.7	87.4	27.7
9	0.8	3.6	0.8	1.1	6.0	15.2	20.9	70.9	32.1	27.5	40.6	36.5	39.9	27.7	24.3	29.1	36.4	33.2	21.8	16.2	11.3	16.9	11.4	8.2	70.9	22.2
10	13.8	14.7	8.5	7.9	5.8	11.6	12.7	6.3	4.3	11.6	11.1	12.9	7.2	14.1	69.8	16.0	14.4	15.7	27.6	34.7	6.2	4.2	4.3	5.5	69.8	14.2
11	2.3	3.3	4.0	5.7	3.7	2.4	3.2	3.9	13.8	21.8	31.1	45.3	34.4	18.2	13.9	12.3	10.3	9.1	9.4	17.5	11.3	33.1	28.8	18.8	45.3	14.9
12	17.2	29.5	32.9	23.1	20.7	11.5	9.7	16.4	12.2	14.6	15.8	16.0	23.7	41.0	30.3	78.1	129.6	91.6	24.2	7.4	6.2	11.1	10.0	1.6	129.6	28.1
13	1.9	1.7	1.3	1.6	1.1	1.0	1.0	1.5	3.1	19.8	39.9	85.8	94.3	74.3	138.4	66.4	30.7	30.3	20.7	3.9	1.7	0.8	2.0	2.1	138.4	26.1
14	0.6	2.9	0.8	2.1	0.6	0.4	0.4	0.5	1.0	0.8	0.6	1.3	3.2	4.1	4.4	5.6	4.5	5.8	4.3	2.2	7.5	16.5	16.5	15.5	16.5	4.3
15	15.2	16.6	23.0	29.2	19.0	11.2	5.4	3.9	3.3	3.6	13.2	41.7	22.1	25.6	8.6	7.6	6.3	2.9	2.2	3.4	2.7	2.0	2.5	2.4	41.7	11.4
16	1.6	1.2	1.2	1.0	1.2	1.3	1.3	1.1	1.4	2.6	3.1	6.6	16.8	38.8	86.1	140.1	158.8	141.3	170.3	141.5	273.5	359.7	401.6	375.8	401.6	97.0
17	293.1	664.2	457.2	367.2	201.7	82.8	79.2	99.2	148.5	198.2	130.1	74.8	70.3	145.7	211.2	179.3	84.5	26.4	41.7	50.4	24.0	42.0	21.3	9.3	664.2	154.3
18	1.4	4.2	0.9	6.0	4.4	1.4	2.3	7.3	16.0	8.6	14.6	1.7	9.4	8.0	87.8	59.4	52.3	30.3	21.4	30.4	63.1	64.2	62.4	95.8	95.8	27.2
19	88.7	178.6	70.8	59.0	42.2	47.2	39.3	33.7	22.0	46.8	92.9	152.2	138.1	188.0	346.9	356.1	278.6	198.6	75.7	42.6	77.0	99.4	82.9	89.4	356.1	118.6
20	59.8	15.4	19.4	31.4	27.0	12.0	3.7	13.4	33.0	86.6	145.3	134.9	123.3	247.8	255.2	215.4	197.8	159.1	226.2	52.0	142.2	17.7	19.0	16.1	255.2	93.9
21	13.7	115.9	72.4	94.9	155.6	25.2	54.0	37.0	89.4	225.1	402.1	229.4	173.4	149.3	180.5	161.2	163.2	171.9	166.2	149.2	224.9	72.6	76.7	56.0	402.1	135.8
22	69.8	50.6	11.1	13.3	13.5	12.9	10.7	15.5	116.9	228.5	345.1	233.7	151.7	314.3	329.1	206.5	127.3	133.1	153.5	88.5	43.6	42.0	21.8	2.4	345.1	114.0
23	1.3	1.7	2.6	1.9	2.5	4.0	29.3	91.4	211.6	370.3	321.4	305.3	334.0	264.6	311.4	372.9	407.8	466.0	440.3	177.6	169.6	110.3	140.3	105.6	466.0	193.5
24	85.8	140.8	148.7	110.9	90.6	39.1	64.5	57.1	68.9	25.4	6.7	20.0	34.6	50.9	73.2	84.5	128.9	59.1	5.4	14.8	1.5	2.0	1.3	2.8	148.7	54.9
25	2.1	1.1	0.5	1.6	2.8	3.0	3.1	7.3	10.2	11.0	7.7	9.5	91.9	330.2	34.2	47.5	72.3	86.6	95.9	43.4	36.9	12.6	34.8	54.7	330.2	41.7
26	38.7	21.4	12.8	1.4	1.9	10.4	25.3	7.4	27.0	24.2	49.0	57.6	34.9	59.3	387.1	414.7	201.1	17.8	25.0	17.1	24.0	23.7	17.1	17.9	414.7	63.2
27	18.1	18.6	16.8	19.2	18.0	17.5	17.7	19.6	37.5	36.5	27.3	17.3	21.4	24.2	30.0	21.2	21.6	24.0	20.3	20.6	20.6	36.5	27.6	23.7	37.5	23.2
28	13.4	10.5	10.8	11.0	12.8	12.7	15.0	15.3	76.2	48.2	40.3	82.9	43.0	29.9	32.7	24.6	22.7	20.2	21.0	17.7	17.9	15.0	23.1	101.0	101.0	29.9
29	172.9	344.3	130.5	75.8	115.6	119.3	55.5	92.8	138.1	128.0	176.2	208.9	146.4	163.4	247.5	198.5	134.1	81.0	160.7	56.2	14.3	1.8	2.8	4.4	344.3	123.7
30	1.6	1.4	15.2	10.9	34.7	92.0	0.7	8.0	22.4	78.8	91.4	113.4	126.4	86.8	75.9	97.3	90.5	107.5	117.5	72.8	21.5	48.6	31.4	31.0	126.4	57.4
31	6.5	9.1	6.4	9.9	9.0	8.5	10.4	10.1	11.3	24.1	32.2	34.6	42.3	39.5	25.9	18.8	11.7	11.7	11.6	11.1	12.1	17.8	19.1	20.3	42.3	17.3
Hourly Max	293.1	664.2	457.2	367.2	201.7	119.3	79.2	99.2	211.6	370.3	402.1	305.3	334.0	330.2	387.1	414.7	407.8	466.0	440.3	185.4	273.5	359.7	401.6	375.8		
Hourly Average	36.0	62.6	40.4	34.7	31.4	21.5	19.0	26.2	49.7	75.1	87.6	85.1	77.6	92.8	117.8	114.8	108.4	93.7	85.0	49.9	51.6	43.6	44.9	42.9		

PO = Power Outage

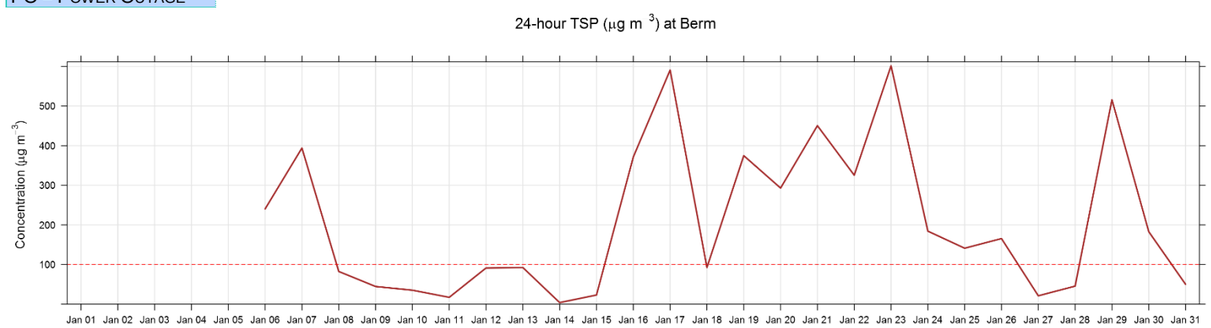


Number of 1HR Exceedances	n/a		Guideline	n/a	UG/M3
Number of Non-Zero Readings	645				
Maximum 1-HR Average	664.2	UG/M3			
Maximum 24-HR Average	193.5	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	645	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	86.7	%
Standard Deviation	90.0		Monthly Average	62.1	UG/M3

Berm TSP (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	1.7	3.4	3.0	2.8	2.7	4.1	8.2	10.6	26.2	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	-	-
2	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	-	-
3	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	-	-
4	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	-	-
5	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	**PO**	26.7	140.0	153.3	89.7	33.0	13.8	1.5	0.9	1.6	1.8	1.0	0.6	-	-
6	0.5	0.5	1.4	56.4	77.5	78.4	86.5	149.3	352.7	192.9	133.5	104.0	39.3	178.7	91.8	429.3	532.0	636.5	394.8	753.4	581.9	365.1	387.3	142.6	753.4	240.3
7	14.7	13.3	85.1	76.1	99.7	25.6	18.3	52.9	335.9	689.1	478.7	580.7	668.8	136.5	244.0	393.9	1331.6	1724.5	1324.2	358.3	138.9	141.7	232.9	289.1	1724.5	393.9
8	153.4	89.8	53.6	62.7	33.5	26.5	33.1	95.4	50.1	130.6	168.9	257.8	242.0	99.1	121.9	95.8	164.1	75.2	18.3	1.3	0.7	1.6	1.1	1.5	257.8	82.4
9	0.5	12.3	1.1	1.7	22.4	67.1	89.7	270.1	104.8	60.2	111.0	40.6	43.2	23.4	20.8	31.0	40.9	36.5	24.4	17.9	11.6	18.9	11.6	7.1	270.1	44.5
10	13.4	16.6	9.1	8.1	5.4	12.1	13.3	5.9	3.4	12.0	12.0	14.1	9.1	93.8	475.1	18.1	16.4	17.5	31.8	40.1	6.0	3.2	3.0	4.6	475.1	35.2
11	1.5	2.3	3.3	5.3	2.9	1.6	2.2	2.6	15.5	25.1	34.3	52.5	70.9	22.1	14.3	12.5	10.1	6.9	8.3	18.7	10.0	38.1	33.1	18.5	70.9	17.2
12	16.6	33.0	35.8	24.4	21.1	10.6	8.8	17.9	12.9	14.2	15.5	18.4	63.1	132.3	145.6	323.9	577.2	453.9	111.7	23.3	26.3	65.0	35.2	3.5	577.2	91.3
13	10.8	1.5	1.1	1.3	0.9	0.9	0.8	1.4	2.9	64.7	137.4	267.0	338.6	249.6	505.3	266.8	122.8	132.6	80.2	8.4	3.4	3.8	8.7	6.1	505.3	92.4
14	0.5	7.0	2.8	8.1	0.7	0.6	0.3	0.5	0.7	1.0	0.5	1.0	3.5	3.3	3.2	6.5	5.6	3.9	2.8	1.4	4.8	11.2	11.6	10.3	11.6	3.8
15	9.8	10.7	16.0	25.3	12.6	7.3	3.6	2.6	2.1	2.5	36.7	186.7	88.7	97.4	20.3	8.9	6.0	3.7	1.6	2.8	2.1	1.4	2.0	1.9	186.7	23.0
16	1.2	0.8	0.9	0.7	1.0	1.0	1.0	0.8	1.1	2.1	7.4	13.0	39.6	123.5	320.2	506.7	577.9	533.7	614.6	434.6	1135.6	1393.2	1653.6	1547.4	1653.6	371.3
17	1136.1	2475.1	1792.2	1336.6	684.5	325.2	296.0	312.9	588.9	713.1	504.4	269.0	291.0	575.6	849.9	758.8	373.3	114.9	133.6	228.1	94.1	195.7	95.6	34.2	2475.1	590.8
18	4.8	3.8	0.7	6.2	4.5	1.2	1.5	6.3	15.1	8.0	15.3	1.4	25.2	25.7	203.8	152.1	424.7	78.6	51.8	91.3	229.3	249.3	229.5	390.5	424.7	92.5
19	352.4	723.9	267.5	231.1	165.3	175.7	112.8	108.3	57.2	144.3	293.2	441.6	325.2	552.3	992.4	1141.6	954.0	581.8	234.8	108.2	254.0	289.9	239.5	246.6	1141.6	374.7
20	169.5	56.8	64.7	100.6	110.0	42.9	12.6	60.9	100.3	248.3	502.9	418.8	250.9	752.1	789.8	666.3	538.6	537.0	757.1	165.8	522.1	44.6	68.6	48.9	789.8	292.9
21	37.0	365.3	269.5	371.5	594.2	103.4	231.9	131.5	380.0	934.5	1586.3	859.3	563.5	382.1	486.5	395.8	504.5	487.9	428.5	355.6	717.8	221.8	250.9	151.2	1586.3	450.4
22	220.8	135.0	23.1	27.8	30.4	30.9	36.4	48.9	455.8	650.5	1093.1	659.8	383.6	982.4	973.2	554.9	319.4	283.2	341.1	181.0	122.0	164.6	87.4	4.5	1093.1	325.4
23	1.3	2.1	3.8	3.5	8.8	8.4	86.6	280.9	554.5	965.5	829.8	784.2	881.8	787.1	961.8	1198.5	1279.7	1594.5	1441.5	666.1	700.9	383.0	571.1	439.8	1594.5	601.5
24	303.0	478.3	603.4	455.3	324.6	176.4	263.6	225.7	279.5	100.4	20.8	65.1	113.4	139.3	196.7	219.4	274.4	141.7	9.6	23.8	1.7	1.5	0.9	2.6	603.4	184.2
25	1.9	1.0	0.4	1.4	2.4	2.4	2.3	6.9	9.9	10.0	6.2	9.4	328.6	1078.8	202.1	253.9	282.5	331.5	301.7	80.0	99.1	37.0	145.2	191.4	1078.8	141.1
26	133.4	78.9	33.0	1.8	1.7	10.8	17.5	7.9	41.1	19.6	108.7	155.7	55.8	171.9	1182.9	1231.2	572.6	25.6	40.5	14.5	20.7	16.6	14.4	14.3	1231.2	165.5
27	12.9	12.6	11.7	13.4	13.4	11.9	12.8	16.3	41.2	40.8	28.7	14.1	19.3	24.3	33.0	21.4	19.0	20.6	16.0	17.1	17.1	38.4	25.9	23.3	41.2	21.0
28	10.2	6.9	7.0	7.1	8.8	8.4	10.1	10.5	87.0	55.2	45.0	95.8	47.7	32.8	67.1	47.4	18.9	14.2	15.4	12.9	12.7	10.9	66.7	392.1	392.1	45.5
29	766.1	1862.7	725.4	368.9	610.8	626.3	281.7	418.0	633.5	523.6	667.0	701.4	537.0	545.3	930.5	807.2	470.4	215.1	519.4	139.5	21.0	1.2	2.0	4.4	1862.7	515.8
30	1.3	1.3	24.4	31.8	101.6	430.4	0.5	10.9	75.2	328.6	329.9	325.1	377.5	243.9	233.9	356.5	276.8	312.3	373.4	211.5	67.3	115.1	83.3	74.9	430.4	182.8
31	8.1	15.8	13.1	10.4	5.8	5.5	7.0	6.8	8.3	25.7	36.8	199.8	349.0	287.0	95.9	32.9	12.7	9.7	8.6	7.8	8.1	13.2	14.9	16.4	349.0	50.0
Hourly Max	1136.1	2475.1	1792.2	1336.6	684.5	626.3	296.0	418.0	633.5	965.5	1586.3	859.3	881.8	1078.8	1182.9	1231.2	1331.6	1724.5	1441.5	753.4	1135.6	1393.2	1653.6	1547.4		
Hourly Average	125.3	237.4	150.1	120.0	109.2	81.3	60.7	83.8	156.9	229.3	277.1	251.4	229.0	291.9	382.1	371.1	360.7	310.6	269.9	146.8	178.2	141.8	158.4	150.7		

PO = POWER OUTAGE

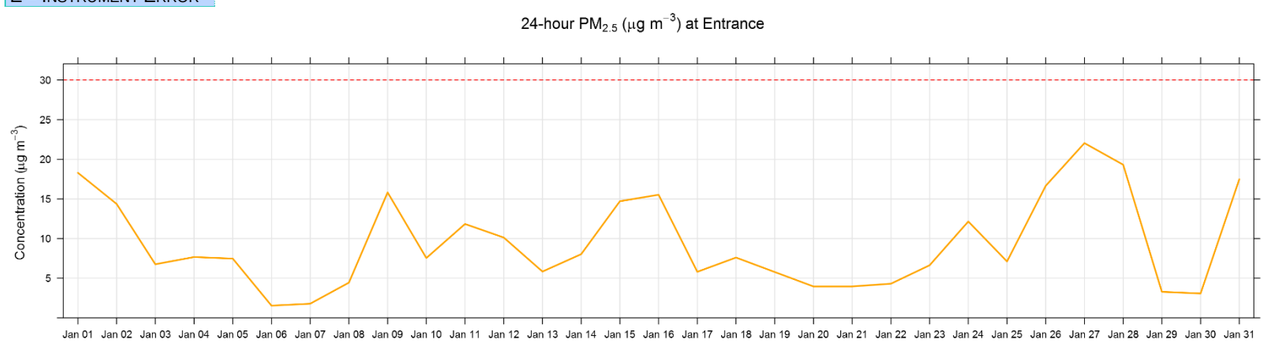


Number of 24HR Exceedances	14		Guideline	100	UG/M3
Number of Non-Zero Readings	645				
Maximum 1-HR Average	2475.1	UG/M3			
Maximum 24-HR Average	601.5	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	645	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	86.7	%
Standard Deviation	324.4		Monthly Average	202.8	UG/M3

Entrance $PM_{2.5}$ (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	5.3	6.5	5.6	4.7	4.1	2.5	3.3	17.6	38.3	26.5	25.2	38.7	36.3	33.1	28.0	34.6	27.9	17.2	29.3	11.5	11.5	10.2	5.1	16.2	38.7	18.3
2	12.3	13.0	12.7	22.4	9.5	25.8	12.0	24.7	29.3	41.0	22.1	23.5	17.5	15.0	23.9	11.5	8.2	5.7	2.4	2.7	2.6	2.4	2.6	2.0	41.0	14.4
3	4.5	4.6	6.6	4.7	4.8	5.7	3.1	5.4	13.3	14.2	14.8	10.4	10.5	13.1	9.8	6.0	3.9	3.4	3.6	8.1	4.2	2.6	2.3	3.0	14.8	6.8
4	2.3	1.7	1.6	1.4	1.1	1.2	1.3	2.1	9.3	9.3	8.6	9.6	24.2	11.1	19.8	17.3	9.3	3.2	7.9	11.9	11.9	8.9	5.3	4.0	24.2	7.7
5	4.8	5.1	6.7	3.3	2.7	2.5	2.9	6.2	8.4	15.5	18.6	15.6	14.6	4.9	3.0	6.1	9.9	3.1	6.7	8.3	8.8	6.6	10.5	4.8	18.6	7.5
6	4.6	2.5	0.9	0.3	0.4	0.4	0.9	1.3	1.9	1.4	1.1	0.7	0.8	1.2	1.2	1.4	1.6	2.2	1.5	2.2	2.4	3.2	1.7	1.2	4.6	1.5
7	0.6	0.6	0.7	0.9	1.0	0.6	0.4	2.1	2.2	1.9	2.3	3.6	1.6	2.0	1.3	1.6	3.1	6.3	3.9	1.7	1.4	0.9	1.3	1.1	6.3	1.8
8	0.8	0.7	0.8	0.6	1.9	0.6	0.8	1.1	21.2	12.4	4.5	4.7	5.3	4.4	2.8	6.2	1.5	2.0	3.2	6.4	5.5	4.8	5.5	8.6	21.2	4.4
9	10.2	9.1	11.1	15.5	7.9	1.0	1.0	1.7	4.3	6.8	24.4	24.3	32.8	32.1	22.9	28.0	29.1	35.9	18.3	12.2	9.1	16.7	15.4	9.9	35.9	15.8
10	10.7	16.6	8.1	5.5	7.4	9.3	9.4	8.1	4.3	**E**	**E**	**E**	**E**	3.9	7.0	6.6	5.1	7.1	18.6	31.6	6.4	5.0	4.4	6.3	31.6	9.1
11	4.7	6.3	9.1	8.8	5.1	6.7	16.0	9.1	20.0	22.0	22.0	9.2	8.7	7.1	6.8	6.7	7.8	15.2	24.6	14.3	10.9	13.1	17.1	13.1	24.6	11.8
12	11.1	9.7	13.2	10.7	8.9	8.0	4.4	14.1	10.1	6.6	13.0	7.2	7.5	9.7	13.5	9.6	5.4	7.6	5.5	23.3	19.7	12.3	6.9	5.3	23.3	10.1
13	5.2	5.1	5.9	4.5	4.0	3.2	19.9	36.7	6.9	8.8	9.0	13.6	1.4	2.6	2.5	0.7	0.6	0.5	0.6	0.9	2.9	1.6	1.3	1.7	36.7	5.8
14	2.2	2.1	4.4	6.5	13.2	21.0	5.3	6.5	6.7	3.8	2.3	1.3	2.3	5.6	6.4	6.5	5.2	6.8	7.2	3.9	11.4	21.2	21.9	19.2	21.9	8.0
15	18.8	21.7	23.2	22.5	22.7	19.8	11.8	11.4	15.3	15.9	12.3	11.7	11.6	12.7	18.4	14.2	13.8	11.9	12.2	11.9	11.2	9.8	10.2	8.1	23.2	14.7
16	19.7	16.3	11.1	9.0	16.0	16.7	18.3	16.6	25.4	36.5	31.8	41.5	18.1	18.1	9.3	4.5	5.1	3.7	3.6	4.5	12.2	15.7	13.6	5.4	41.5	15.5
17	8.3	16.3	11.2	6.8	4.8	2.7	3.1	4.6	7.9	4.7	5.3	5.9	6.5	16.7	11.3	7.7	3.0	2.7	1.2	1.0	2.2	2.0	1.1	2.3	16.7	5.8
18	25.8	19.5	15.2	2.7	3.5	3.5	3.6	8.0	13.3	13.8	11.2	18.1	4.9	4.9	5.0	5.5	10.8	2.9	1.0	1.6	2.0	1.7	1.6	2.6	25.8	7.6
19	1.7	3.3	2.4	1.6	1.2	1.3	1.8	6.8	15.4	10.5	7.9	11.0	10.4	14.3	9.9	11.1	14.2	3.7	3.2	1.3	1.7	1.5	1.4	1.2	15.4	5.8
20	1.5	1.3	1.1	1.4	1.8	2.5	4.9	3.6	13.5	6.2	5.2	4.8	6.5	7.5	5.6	4.2	3.9	5.0	3.8	2.8	2.9	1.3	1.9	1.8	13.5	4.0
21	1.1	4.2	4.4	4.7	3.6	2.3	3.1	2.4	6.8	6.2	10.6	4.3	5.4	4.3	4.7	3.3	3.9	2.9	2.9	3.1	6.3	1.9	1.6	1.3	10.6	4.0
22	2.0	1.1	0.5	1.6	1.5	0.8	1.0	3.4	3.8	6.4	13.0	11.6	9.7	9.9	11.0	8.3	4.3	2.9	2.3	1.6	1.9	1.5	0.6	2.9	13.0	4.3
23	6.7	6.4	7.6	4.4	1.6	2.9	2.1	5.2	8.8	9.0	9.8	11.7	12.7	11.6	8.9	14.1	7.4	8.3	4.7	4.9	2.9	2.7	2.4	2.5	14.1	6.6
24	2.0	2.0	3.1	2.3	2.0	1.2	1.7	3.5	3.7	9.8	24.7	12.0	4.6	3.9	4.7	4.6	3.8	2.5	24.0	123.5	17.8	16.1	11.0	7.2	123.5	12.2
25	7.5	11.3	10.3	12.1	13.3	13.5	11.6	17.2	4.7	14.6	14.4	6.7	4.0	8.5	3.8	1.0	2.4	1.2	1.3	1.8	2.2	2.1	3.7	1.5	17.2	7.1
26	1.5	2.2	3.4	7.2	5.0	14.9	29.1	23.4	25.8	32.8	29.4	23.9	29.2	25.9	7.3	6.2	13.8	22.2	17.1	16.5	16.8	15.7	14.8	15.6	32.8	16.7
27	16.5	14.9	23.4	19.5	14.6	14.8	16.0	18.3	24.8	31.5	28.9	25.2	30.6	28.4	21.4	17.0	18.8	26.4	23.6	22.2	24.2	25.1	23.4	19.3	31.5	22.0
28	16.4	15.5	13.8	14.5	13.9	14.5	15.3	15.8	33.7	24.9	20.1	19.6	21.4	23.4	23.4	24.9	25.9	23.3	25.1	23.3	22.7	19.7	9.9	2.7	33.7	19.3
29	4.7	7.4	3.0	1.3	2.9	2.5	1.1	3.8	3.2	3.2	3.3	2.3	3.1	1.7	5.0	3.1	4.6	2.9	4.3	1.9	2.7	8.3	1.0	1.7	8.3	3.3
30	8.3	3.6	2.8	0.8	1.3	3.1	6.3	5.0	11.6	8.1	3.6	2.7	1.1	0.8	1.3	4.1	2.0	1.6	1.0	1.8	1.4	0.6	0.6	0.4	11.6	3.1
31	5.9	8.0	11.3	13.5	12.8	12.2	12.3	13.0	13.8	16.1	22.6	19.6	17.8	23.5	28.2	29.8	31.8	23.4	19.5	17.1	16.9	17.8	16.3	16.4	31.8	17.5
Hourly Max	25.8	21.7	23.4	22.5	22.7	25.8	29.1	36.7	38.3	41.0	31.8	41.5	36.3	33.1	28.2	34.6	31.8	35.9	29.3	123.5	24.2	25.1	23.4	19.3		
Hourly Average	7.3	7.7	7.6	7.0	6.3	7.0	7.2	9.6	13.2	14.0	14.1	13.2	12.0	11.7	10.6	9.9	9.3	8.5	9.2	12.3	8.3	8.2	7.0	6.1		

E = Instrument Error

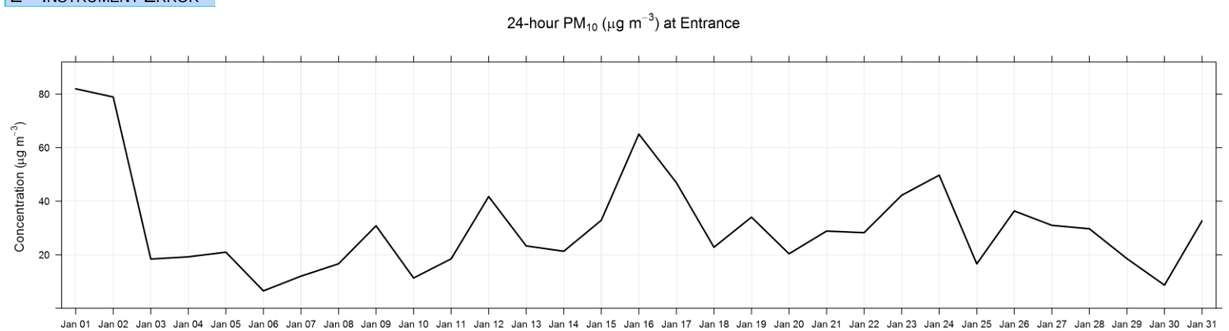


Number of1HR Exceedances	1		Guideline	80	UG/M3
Number of 24HR Exceedances	0		Guideline	30	UG/M3
Number of Non-Zero Readings	740				
Maximum 1-HR Average	123.5	UG/M3			
Maximum 24-HR Average	22.0	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	740	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	99.5	%
Standard Deviation	9.3		Monthly Average	9.4	UG/M3

Entrance PM_{10} (µg/m^3) – January 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	7.0	7.7	6.8	5.9	5.7	3.4	4.9	26.3	57.4	39.7	37.9	58.1	54.5	50.5	269.7	323.6	272.2	171.6	240.6	86.2	66.4	73.8	30.2	67.5	323.6	82.0
2	53.5	71.1	59.8	109.5	42.4	101.2	46.6	102.8	162.6	196.5	169.4	172.5	145.9	106.6	149.7	84.5	65.9	29.7	3.5	3.9	3.6	4.1	5.1	3.7	196.5	78.9
3	19.0	14.9	10.4	11.1	7.2	8.5	4.5	8.0	19.9	21.0	22.1	45.0	44.5	58.5	60.7	34.9	12.4	4.9	5.3	12.2	6.0	3.5	2.9	4.2	60.7	18.4
4	3.3	2.3	1.9	1.7	1.1	1.3	1.5	2.7	13.9	13.9	12.8	39.8	68.7	54.8	73.1	68.0	21.5	4.5	11.8	17.8	17.8	13.3	7.7	5.8	73.1	19.2
5	7.1	7.5	10.0	4.7	3.9	3.6	4.2	9.2	12.6	23.2	40.4	74.0	62.3	25.7	9.8	25.4	38.7	10.4	20.1	25.1	27.6	22.8	27.7	7.1	74.0	21.0
6	6.9	3.5	1.6	0.5	0.7	0.7	2.5	2.7	5.1	3.8	3.2	2.2	2.3	4.3	3.0	5.9	10.0	15.1	7.5	11.6	13.6	34.0	9.9	5.3	34.0	6.5
7	2.6	2.4	2.4	5.5	6.7	2.8	1.2	8.7	9.1	10.6	7.9	10.9	7.0	11.9	5.4	10.8	32.2	71.8	44.9	10.3	4.4	3.6	8.2	6.6	71.8	12.0
8	5.3	3.0	2.5	2.4	8.2	1.9	1.9	3.6	105.1	45.5	7.9	9.9	16.8	13.7	9.9	26.6	4.0	6.5	14.2	25.2	18.7	17.8	18.6	29.2	105.1	16.6
9	35.3	43.2	48.8	64.6	33.2	3.0	2.6	4.8	14.8	36.7	63.7	29.9	41.8	44.3	27.3	38.7	41.9	52.0	25.7	16.4	11.4	24.2	22.3	12.7	64.6	30.8
10	13.9	24.1	11.4	7.1	10.2	12.8	13.1	11.2	5.2	**E**	**E**	**E**	**E**	7.2	25.7	9.3	8.1	10.3	27.3	46.6	8.6	5.8	4.8	8.6	46.6	13.6
11	5.6	8.9	13.5	13.1	7.1	9.7	20.7	13.0	26.8	29.3	30.3	17.1	14.4	9.6	8.4	11.0	12.0	39.7	50.0	21.5	16.1	19.7	25.7	19.5	50.0	18.5
12	15.4	12.5	19.4	14.4	12.1	10.8	5.3	18.6	13.6	8.8	18.4	24.6	31.5	91.3	128.4	85.1	35.1	71.1	46.9	125.4	89.0	54.6	43.0	26.1	128.4	41.7
13	20.1	19.8	18.3	6.7	5.9	4.7	58.6	191.9	25.0	36.6	41.7	54.5	5.4	13.3	21.1	1.6	1.4	1.0	1.0	2.7	11.7	4.8	4.6	6.4	191.9	23.3
14	8.7	10.1	25.1	33.4	53.5	130.1	27.7	30.9	29.1	19.4	8.2	2.6	3.8	6.8	6.7	7.2	5.6	7.1	7.8	4.1	13.9	23.3	25.8	20.2	130.1	21.3
15	19.2	24.8	29.1	26.7	28.9	27.0	17.3	17.0	22.8	23.8	18.4	43.4	50.1	58.5	78.5	62.2	56.0	44.6	48.7	30.9	18.7	14.6	15.2	12.2	78.5	32.9
16	29.5	24.5	16.6	13.4	23.9	25.1	27.4	24.9	38.1	54.7	131.9	286.1	123.2	105.0	57.1	26.2	30.6	26.1	21.4	24.8	137.1	129.0	137.0	48.4	286.1	65.1
17	84.4	185.6	123.1	66.9	34.9	19.2	27.3	29.6	69.2	40.0	44.7	29.1	41.5	124.6	93.7	53.3	14.0	7.7	3.9	2.8	10.5	9.1	3.0	7.9	185.6	46.9
18	110.9	63.3	22.8	3.9	5.2	5.1	4.7	11.1	19.8	20.5	16.0	28.4	19.8	22.5	30.1	29.5	65.8	13.7	3.3	7.0	9.6	8.9	9.8	15.2	110.9	22.8
19	9.6	18.2	13.9	8.1	5.8	5.8	10.7	34.3	91.4	66.4	48.9	60.4	65.6	91.3	66.4	75.2	72.6	20.2	13.1	7.1	10.3	8.2	6.4	7.0	91.4	34.0
20	8.3	5.9	4.0	5.4	8.4	10.8	18.4	14.1	46.6	27.6	33.6	19.4	37.1	48.1	34.5	22.6	19.2	32.9	27.4	16.8	21.1	4.8	11.8	9.6	48.1	20.3
21	3.0	38.7	39.7	38.7	35.8	16.0	26.0	13.8	49.7	43.9	82.5	27.9	29.1	28.5	30.0	24.7	32.0	17.5	20.3	19.4	46.8	10.3	9.9	7.8	82.5	28.8
22	15.0	9.0	2.3	10.1	7.4	3.4	3.7	12.2	17.6	48.1	103.6	85.0	60.4	65.7	84.0	56.5	27.3	14.4	13.3	8.3	8.5	8.9	1.5	11.2	103.6	28.2
23	31.1	28.0	32.8	21.4	7.1	17.2	14.5	37.2	50.1	52.5	58.8	70.3	91.3	80.0	65.0	100.8	54.3	70.7	32.5	36.3	17.0	17.7	13.7	12.7	100.8	42.2
24	12.5	12.4	22.7	15.7	10.1	5.9	9.4	19.1	15.2	43.1	125.2	58.7	20.4	14.4	20.6	20.3	19.2	11.5	121.6	522.9	41.0	24.1	16.5	10.8	522.9	49.7
25	11.2	17.0	15.5	18.1	20.0	20.3	17.3	25.8	6.5	20.0	20.9	9.9	17.8	88.5	6.8	4.9	23.1	4.3	4.6	5.6	7.3	8.3	18.8	5.8	88.5	16.6
26	6.1	6.5	12.9	28.6	22.4	22.0	39.6	32.5	36.8	49.1	60.4	44.9	87.9	80.3	35.2	38.7	55.3	59.0	37.8	27.3	25.2	22.1	19.9	21.8	87.9	36.3
27	23.5	21.1	30.7	26.3	20.7	20.4	22.0	25.5	36.8	46.6	41.9	36.7	45.2	41.9	31.9	24.0	23.9	38.1	31.5	29.2	32.3	35.6	31.1	26.5	46.6	31.0
28	21.4	19.7	15.1	17.0	16.5	18.3	18.4	21.3	49.8	37.3	28.2	25.7	34.2	54.0	52.4	45.5	43.8	34.3	36.6	32.5	31.4	25.5	16.1	17.6	54.0	29.7
29	43.6	80.3	23.7	9.3	31.9	24.5	5.2	15.8	14.5	11.8	14.1	10.6	19.4	6.5	28.8	9.6	20.7	9.6	16.2	5.1	8.8	30.3	2.2	2.5	80.3	18.5
30	12.4	5.2	6.2	1.9	4.1	11.1	9.4	7.0	44.8	23.2	9.3	7.9	3.7	2.7	4.4	13.8	11.3	10.1	3.2	7.6	5.0	1.3	1.1	0.7	44.8	8.6
31	22.0	36.4	37.3	14.7	13.0	12.6	12.8	14.1	15.6	20.2	30.6	28.9	33.0	61.3	70.4	85.6	92.7	34.6	28.5	24.1	24.6	24.9	23.0	22.3	92.7	32.6
Hourly Max	110.9	185.6	123.1	109.5	53.5	130.1	58.6	191.9	162.6	196.5	169.4	286.1	145.9	124.6	269.7	323.6	272.2	171.6	240.6	522.9	137.1	129.0	137.0	67.5		
Hourly Average	21.5	26.7	22.0	19.6	15.9	18.0	15.5	25.5	36.3	37.1	44.4	47.1	42.6	47.5	51.3	46.0	39.4	30.5	31.3	39.3	24.6	22.2	18.5	14.9		

E = INSTRUMENT ERROR

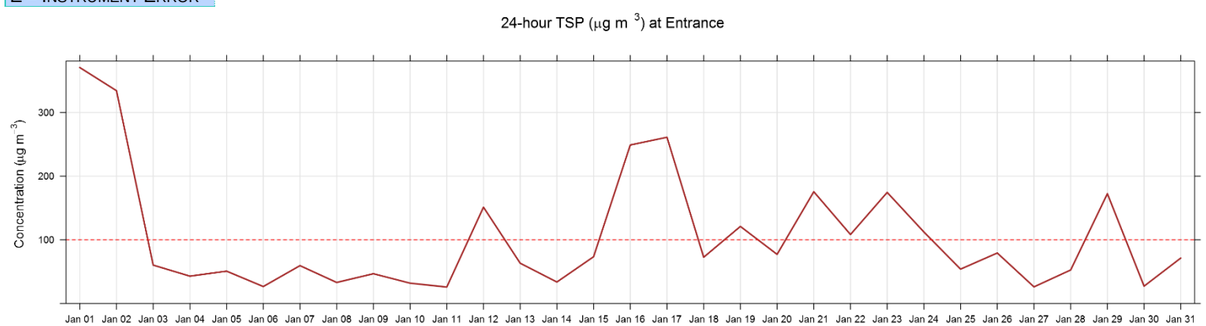


Number of 1HR Exceedances	n/a		Guideline	n/a	UG/M3
Number of Non-Zero Readings	740				
Maximum 1-HR Average	522.9	UG/M3			
Maximum 24-HR Average	82.0	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	740	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	99.5	%
Standard Deviation	40.7		Monthly Average	30.7	UG/M3

Entrance TSP (µg/m^3) – January 2018

Day/ Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	5.6	5.3	4.7	4.6	5.4	3.4	5.3	30.6	66.7	46.1	44.0	67.5	63.3	66.1	1582.5	1616.5	1468.6	883.5	1146.3	527.0	338.6	490.8	228.2	195.4	1616.5	370.7
2	187.0	322.2	266.5	355.8	130.6	209.5	102.9	219.7	655.3	833.5	907.8	833.0	830.1	525.3	687.1	439.2	367.6	111.6	3.3	3.6	3.2	7.2	10.8	9.4	907.8	334.3
3	73.5	43.0	13.3	35.8	7.8	9.1	4.2	8.0	21.3	21.5	23.7	201.3	166.5	219.4	317.0	197.2	46.5	4.7	5.1	12.6	5.3	2.8	2.2	4.1	317.0	60.3
4	3.1	1.9	1.4	1.2	0.8	0.9	1.1	2.2	15.3	14.5	14.1	154.0	138.9	200.5	165.9	195.4	36.0	4.1	13.0	19.6	19.0	13.8	7.3	5.3	200.5	42.9
5	6.9	7.5	10.1	4.6	3.6	3.5	4.0	9.5	13.7	24.3	64.3	255.1	188.6	105.1	28.7	77.0	109.3	38.3	39.1	46.7	58.8	57.8	54.2	7.0	255.1	50.7
6	6.7	3.7	8.3	1.9	4.1	1.8	6.0	11.7	21.6	14.9	15.2	9.3	4.3	12.1	8.8	25.4	53.7	72.0	43.8	49.3	55.2	137.2	43.2	27.4	137.2	26.6
7	14.1	5.8	8.4	30.8	46.8	12.0	4.0	38.0	34.0	56.3	39.9	27.3	20.4	61.3	23.4	65.0	172.0	366.7	215.8	49.6	20.7	18.6	56.8	38.1	366.7	59.4
8	30.8	22.1	8.7	13.7	22.9	7.5	4.4	12.6	218.6	91.2	21.6	20.6	35.5	23.9	20.8	49.6	6.3	23.4	24.9	24.2	17.1	33.0	21.6	36.4	218.6	33.0
9	40.1	76.1	82.7	77.1	40.9	10.6	13.5	22.8	35.6	121.9	204.6	23.9	39.8	42.1	22.5	39.9	47.4	60.0	28.6	16.7	10.0	27.3	24.7	12.3	204.6	46.7
10	13.6	27.9	12.6	6.8	10.4	13.6	14.3	11.8	4.2	**E**	**E**	**E**	**E**	47.9	368.8	40.0	53.4	27.8	31.7	54.1	9.0	4.9	3.5	8.0	368.8	38.2
11	4.5	9.1	15.0	14.9	6.7	10.5	19.3	13.8	27.8	27.1	29.1	83.4	30.3	10.5	6.0	17.6	17.7	84.8	83.6	24.0	16.6	21.6	27.7	17.0	84.8	25.8
12	11.6	9.1	18.5	11.3	9.5	9.7	3.8	15.0	11.7	6.8	19.1	80.7	93.4	448.5	606.2	427.1	161.7	362.2	282.5	342.7	231.5	185.0	192.2	90.2	606.2	151.3
13	44.2	46.2	39.5	7.2	6.3	4.8	190.2	562.4	57.7	94.0	127.2	94.3	19.6	36.0	86.2	5.4	4.1	5.3	3.5	8.2	26.7	11.1	18.2	19.3	562.4	63.2
14	19.8	25.5	91.2	125.2	72.6	190.9	60.0	39.4	32.4	26.3	14.3	2.6	5.3	11.9	4.6	7.3	3.6	4.6	5.1	2.7	9.8	16.6	22.2	14.0	190.9	33.7
15	12.5	16.6	19.7	18.2	20.4	20.3	15.6	17.9	22.7	26.8	20.3	190.6	199.5	200.2	256.0	185.7	129.5	106.3	140.0	75.2	22.4	15.7	16.5	12.9	256.0	73.4
16	33.5	28.1	18.1	14.1	27.2	28.4	31.4	28.5	43.6	62.4	504.2	1295.7	561.9	398.3	219.1	102.2	115.0	103.1	84.2	113.1	602.2	641.9	665.3	253.2	1295.7	248.9
17	451.9	1189.7	717.3	441.6	200.4	110.9	145.7	137.5	368.6	219.0	229.5	105.6	196.6	608.3	529.9	344.0	65.6	43.9	20.1	14.1	45.4	50.6	13.2	17.3	1189.7	261.1
18	235.8	133.4	25.9	3.7	5.2	4.4	3.3	7.9	17.1	18.5	12.8	36.8	83.2	61.0	116.3	148.1	517.0	47.6	10.9	29.8	44.1	39.7	53.2	87.0	517.0	72.6
19	61.2	106.4	84.2	39.3	34.1	30.0	65.6	140.8	278.9	203.2	164.6	183.6	206.7	276.6	213.7	281.4	217.3	68.3	44.6	38.4	57.8	40.5	33.5	33.8	281.4	121.0
20	39.8	36.3	16.6	17.3	53.2	50.3	42.0	51.9	81.6	94.1	163.4	63.1	94.5	178.1	134.2	74.9	45.6	144.8	150.7	70.1	107.8	17.8	66.3	56.5	178.1	77.1
21	19.1	234.4	271.4	265.4	230.8	109.2	148.9	75.5	221.0	267.9	500.2	174.0	166.0	144.8	167.7	168.3	213.9	97.4	135.2	120.9	302.4	65.8	68.4	44.1	500.2	175.5
22	106.2	54.5	9.5	26.8	21.6	17.3	15.9	31.9	73.0	196.5	455.6	354.0	207.6	213.3	288.2	183.5	88.6	41.1	38.5	35.9	56.4	55.0	5.8	22.5	455.6	108.3
23	38.7	52.3	59.9	43.6	19.1	36.6	52.3	136.3	126.2	181.9	229.4	224.5	300.3	309.0	307.0	459.5	288.9	442.0	214.3	240.6	110.5	132.2	96.2	85.7	459.5	174.5
24	99.3	103.7	193.6	135.8	77.7	52.1	74.9	111.4	84.9	139.2	374.0	194.2	64.4	39.6	59.7	50.6	42.6	27.8	215.2	452.4	46.7	26.3	17.8	11.1	452.4	112.3
25	11.9	18.7	16.8	19.6	22.0	21.6	18.3	28.1	6.4	17.6	18.3	8.4	89.7	446.7	37.6	36.7	300.6	17.8	13.5	6.5	10.6	25.0	83.2	18.4	446.7	53.9
26	26.7	13.9	23.9	39.0	25.8	19.0	29.1	25.2	36.2	55.2	153.9	100.2	264.9	219.0	116.6	182.2	179.5	192.6	86.9	45.4	20.7	16.7	14.2	16.0	264.9	79.3
27	17.6	16.2	21.6	18.8	14.5	14.2	15.0	17.8	30.1	38.3	31.4	28.8	36.4	39.4	35.9	24.2	18.7	34.9	25.6	23.8	28.1	37.8	29.6	26.5	39.4	26.0
28	17.6	15.8	9.9	12.1	12.3	13.5	13.3	17.0	55.7	42.4	21.7	20.9	121.8	235.7	147.9	93.5	64.6	33.6	31.0	24.8	24.6	17.7	27.8	186.9	235.7	52.6
29	583.2	1169.1	343.6	166.1	539.8	368.7	57.4	75.7	96.0	69.0	83.4	56.8	92.8	40.2	136.8	31.7	77.3	25.4	58.3	7.7	18.2	37.2	2.1	2.3	1169.1	172.5
30	12.5	4.9	17.1	3.0	15.7	150.9	8.7	7.1	91.1	43.4	32.8	34.7	13.4	12.1	16.3	44.4	43.9	64.1	6.2	14.2	8.8	4.5	1.4	1.7	150.9	27.2
31	31.4	57.1	68.4	10.0	8.4	8.2	8.5	9.6	11.1	17.8	32.1	91.7	161.7	289.6	212.4	248.4	287.4	33.8	27.7	20.0	23.3	20.1	17.8	15.4	289.6	71.3
Hourly Max	583.2	1189.7	717.3	441.6	539.8	368.7	190.2	562.4	655.3	833.5	907.8	1295.7	830.1	608.3	1582.5	1616.5	1468.6	883.5	1146.3	527.0	602.2	641.9	665.3	253.2		
Hourly Average	72.9	124.4	80.6	63.4	54.7	49.8	38.0	61.9	92.3	102.4	151.8	167.2	149.9	178.1	223.3	189.1	169.2	115.3	104.2	81.1	75.9	73.3	62.1	44.4		

E = INSTRUMENT ERROR



Number of 24HR Exceedances	11		Guideline	100	UG/M3
Number of Non-Zero Readings	740				
Maximum 1-HR Average	1616.5	UG/M3			
Maximum 24-HR Average	370.7	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	740	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	99.5	%
Standard Deviation	184.8		Monthly Average	105.0	UG/M3

MetOne BAM $PM_{2.5}$ Calibration

AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - Lagoon	DATE:	January 4, 2018
START TIME (MST):	11:50	END TIME (MST):	12:25

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	PM2.5	Audit Device S/N	682
Serial Number	T19087	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-4.3	652	0.00	16.7	12:23
As Found Data	MEASURED (AF)	-4.4	652	0.20	16.69	12:23
	AF Difference (AF-I)	-0.1	0	0.20	-0.01	0:00
Adjusted Data	MEASURED (M)	-4.4	652	0.20	16.69	12:23
	Adj Difference (M-I)	-0.1	0	0.20	-0.01	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned.

Status of sampling tape: half roll

Nozzle Inspection / cleanliness: Inspected and cleaned.

COMMENTS:

Performed self-test, all passed…

MetOne BAM PM_{10} Calibration

AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - Lagoon	DATE:	January 4, 2018
START TIME (MST):	11:50	END TIME (MST):	12:05

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	PM10	Audit Device S/N	682
Serial Number	A3315	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-4.0	653	0.00	16.7	12:02
As Found Data	MEASURED (AF)	-4.0	652	0.40	16.70	12:01
	AF Difference (AF-I)	0.5	-1	0.40	0.00	0:01
Adjusted Data	MEASURED (M)	-4.0	652	0.40	16.70	12:02
	Adj Difference (M-I)	0.0	-1	0.40	0.00	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned

Status of sampling tape: New roll

Nozzle Inspection / cleanliness: Inspected and cleaned

COMMENTS:

Performed self test, all passed.

MetOne BAM TSP Calibration

AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - Lagoon	DATE:	January 4, 2018
START TIME (MST):	11:50	END TIME (MST):	13:05

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	TSP	Audit Device S/N	682
Serial Number	A3589	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚ C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-3.3	651	0.00	16.7	13:03
As Found Data	MEASURED (AF)	-3.4	652	0.50	16.66	13:03
	AF Difference (AF-I)	-0.1	1	0.50	-0.04	0:00
Adjusted Data	MEASURED (M)	-3.4	652	0.50	16.66	13:03
	Adj Difference (M-I)	-0.1	1	0.50	-0.04	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned

Status of sampling tape: half roll

Nozzle Inspection / cleanliness: Inspected and cleaned.

COMMENTS:

Performed self test, all passed.

Calibration Report

Parameter **NO_X-NO-NO_2**

Air Monitoring Network **Lafarge - Exshaw**

WSP AIR QUALITY MONITORING

Station Information

Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon

Reason: Routine | Installation | Removal | Other:

Start Time (MST)	9:45		End Time (MST)	14:05	
Barometric Pressure	651	mmHg	Station Temperature	23.0	Deg C
Calibrator	SABIO 2010		Serial Number	7201211	
NO Cal Gas Conc	51.4	ppm	Cal Gas Expiry Date	February 14, 2020	
NOx Cal Gas Conc	51.5	ppm	Cal Gas Serial #	cc27839	

DACS Information

DACS make: Campbell Scientific CR1000 | DACS serial No.: 67802

Parameter		NO2	NOx	NO
Before	Data Slope	0.997349	0.995418	0.998828
	Data Offset	0.938610	2.306683	2.054353
After	Data Slope	1.000345	0.994834	0.992617
	Data Offset	1.011397	1.332581	1.292509
Channel #		3	1	2
Voltage Range		0 - 5 VDC	0 - 5 VDC	0 - 5 VDC

Analyzer Information

Analyzer make/model: T200 | Analyzer serial #: 642

Test Point	before		after	
Concentration range	0 - 500	ppb	0 - 500	ppb
NO Slope	1.033		1.056	
NO Offset	0.0	mV	0.0	mV
NOX Slope	1.032		1.056	
NOX Offset	0.6	mV	0.6	mV
HVPS	771	V	771	V
Moly Temp	315.0	degC	317.1	degC
O3 Flow	83	ccm	82	ccm
RxCell Press	6.4	inHg	6.4	inHg
Sample press	24.5	inHg	23.9	inHg
Sample flow	450	ccm	440	ccm

Notes: Adjusted Span.

Calibration Report

Parameter **NOx-NO-NO_2**

Air Monitoring Network **Lafarge - Exshaw**

WSP AIR QUALITY MONITORING

Station Information

Calibration Date: January 4, 2017 Station Location: Exshaw - Lagoon

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NOx conc (ppb)	Calculated NO conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor
zero	5000	0.00	0.0	0.0	0.0	-1.2	-1.2	-1.1	N/A	N/A
1	5000	39.00	398.6	397.8	0.8	399.5	399.7	-1.0	0.9977	0.9953
2	5000	20.00	205.2	204.8	0.4	204.5	204.5	-0.7	1.0032	1.0013
3	7000	14.00	102.8	102.6	0.2	102.1	102.2	-1.2	1.0072	1.0037
AFZ	5000	0.00	0.0	0.0	0.0	-1.2	-1.2	-1.1	0.0000	0.0000
AFS	5000	40.00	408.7	407.9	0.8	387.3	387.1	-0.5	1.0553	1.0539
							Average Correction Factor		1.0027	1.0001

As Found Concentrations: NO_X= 390.8 NO= 390.3 As Found Percent Change NO_X= -4.4% NO= -4.3%

GPT Calibration Data

Dilution Flow 5000 ccm Source Gas Flow 39.00 ccm

O3 Setpoint (V)	Indicated NO high point (ppb)	Indicated NO drop conc (ppb)	Calculated NO2 conc (ppb)	Indicated NOx conc (ppb)	Indicated NO conc (ppb)	Indicated NO2 conc (ppb)	NOx Correction factor	NO Correction factor	NO2 Correction factor	Converter Efficiency
0	-1.2	-1.2	0.0	-1.2	-1.2	-1.1	N/A	N/A	N/A	N/A
NO point	400.7	400.7	0.0	401.1	400.7	-0.3	0.9992	1.0000	N/A	N/A
0.66V	400.7	101.9	298.8	400.0	101.9	297.2	1.0018	1.0000	1.0056	99.4%
0.46V	400.7	215.8	184.9	401.8	215.8	185.0	0.9973	1.0000	0.9999	100.0%
0.3V	400.7	308.1	92.7	400.1	308.1	91.1	1.0015	1.0000	1.0167	98.4%
					Average Correction Factor		1.0002	1.0000	1.0074	99.3%

AIC Data

	Previous calibration				Current calibration			
Parameter	NOx	NO2	NO		NOx	NO2	NO	
Auto zero	0.8	-0.5	0.6	ppb	0.0	-0.1	0.1	ppb
Auto span	388.0	-0.7	389.7	ppb	392.5	-0.2	392.3	ppb

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter **NO_2**

Air Monitoring Network **Lafarge - Exshaw**

WSP AIR QUALITY MONITORING

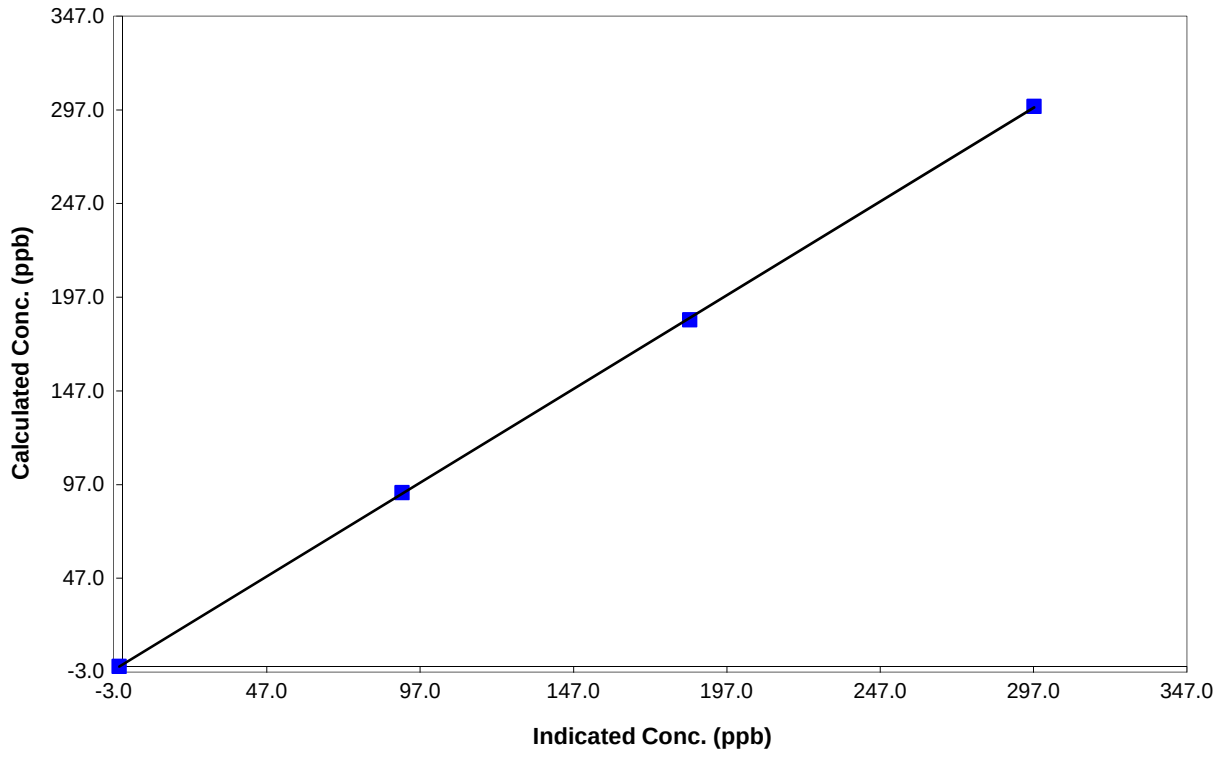
Station Information

Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	9:45	End Time (MST)	14:05
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.1	N/A		
298.8	297.2	1.0056	Correlation Coefficient	0.999964
184.9	185.0	0.9999		
92.7	91.1	1.0167	Slope	1.000345
			Intercept	1.011397

NO_2 Calibration Curve



Calibration Summary

Parameter **NO_x**

Air Monitoring Network **Lafarge - Exshaw**

WSP AIR QUALITY MONITORING

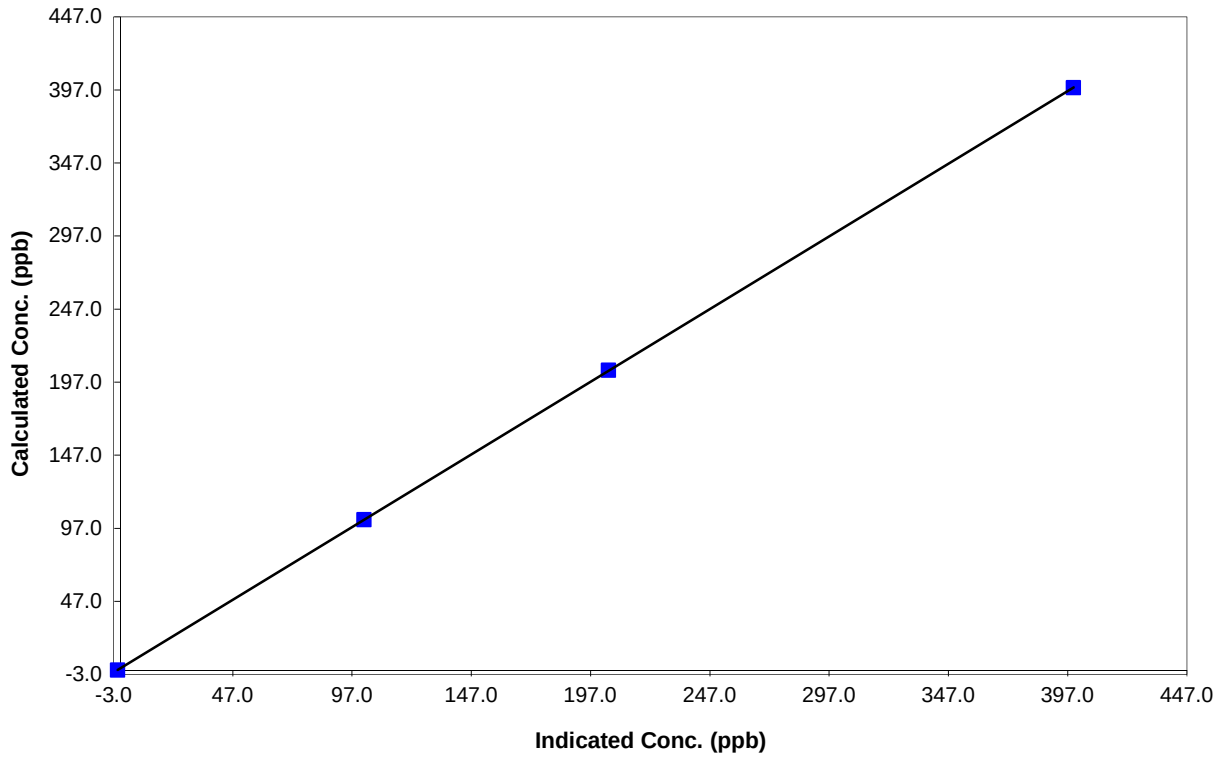
Station Information

Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	9:45	End Time (MST)	14:05
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.2	N/A		
398.6	399.5	0.9977	Correlation Coefficient	0.999998
205.2	204.5	1.0032		
102.8	102.1	1.0072	Slope	0.994834
			Intercept	1.332581

NOx Calibration Curve



Calibration Summary

Parameter **NO**

Air Monitoring Network **Lafarge - Exshaw**

AIR QUALITY MONITORING

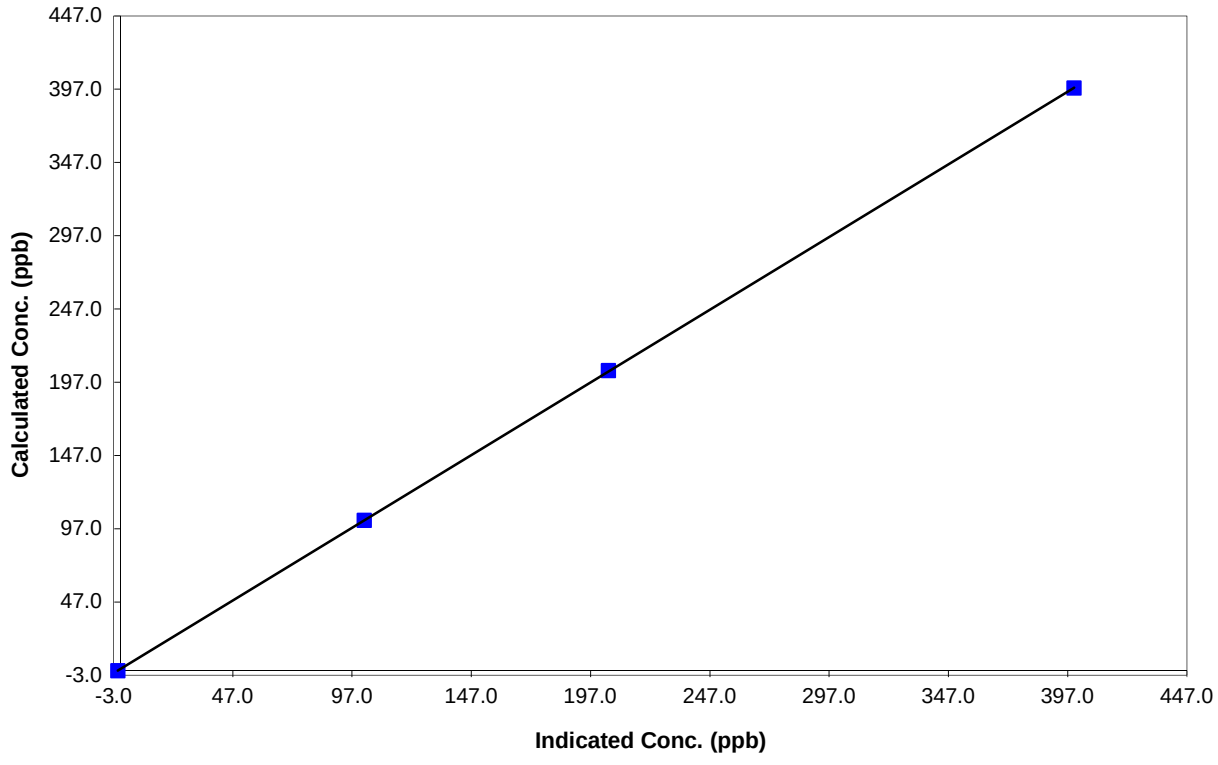
Station Information

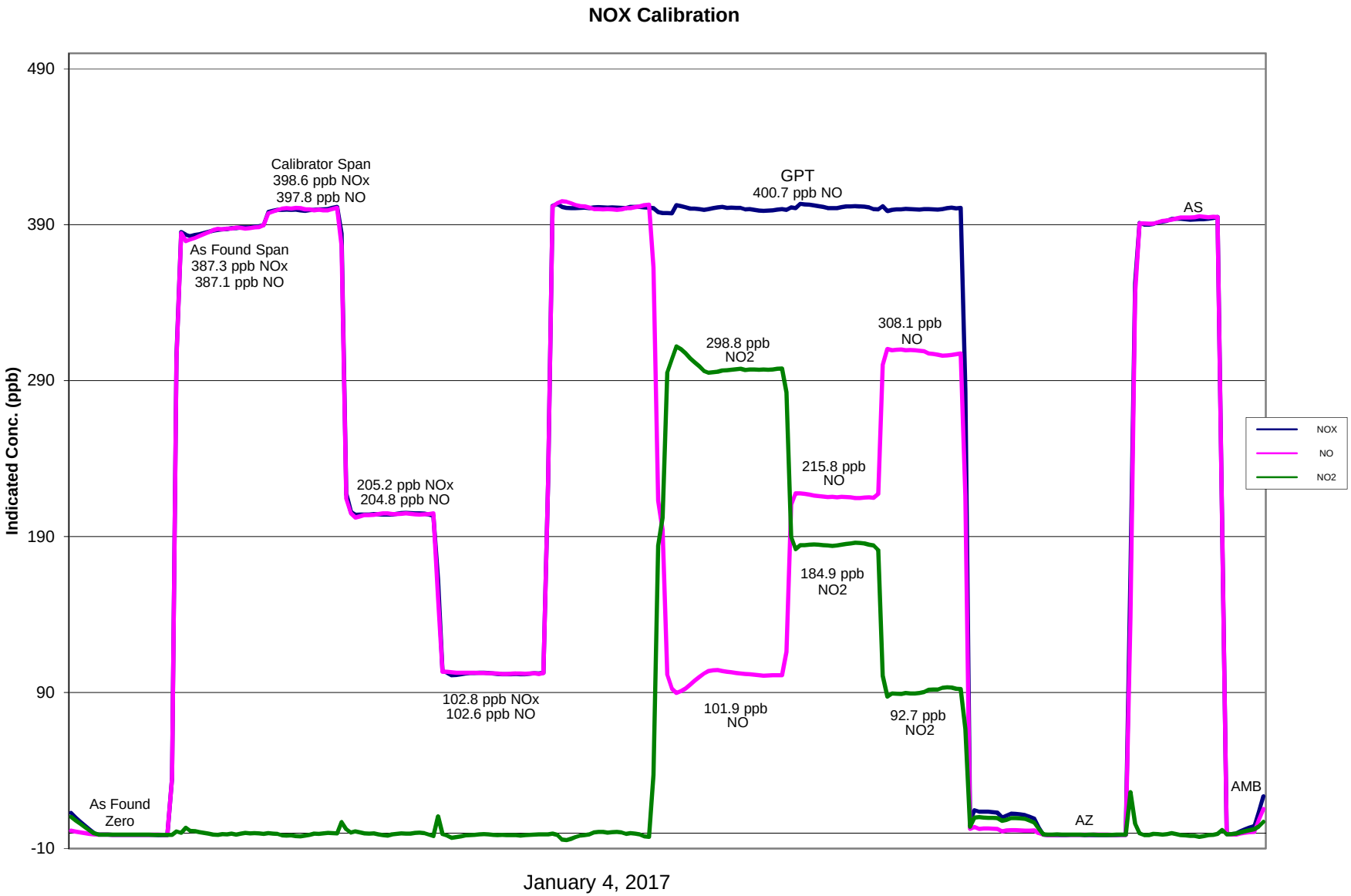
Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	9:45	End Time (MST)	14:05
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.2	N/A		
397.8	399.7	0.9953	Correlation Coefficient	0.999996
204.8	204.5	1.0013		
102.6	102.2	1.0037	Slope	0.992617
			Intercept	1.292509

NO Calibration Curve




NOX Calibration
490
390
290
190
90
-10
Indicated Conc. (ppb)
Calibrator Span
398.6 ppb NOx
397.8 ppb NO
As Found Span
387.3 ppb NOx
387.1 ppb NO
205.2 ppb NOx
204.8 ppb NO
102.8 ppb NOx
102.6 ppb NO
GPT
400.7 ppb NO
298.8 ppb
NO2
308.1 ppb
NO
215.8 ppb
NO
184.9 ppb
NO2
101.9 ppb
NO
92.7 ppb
NO2
AS
AMB
AZ
As Found
Zero
NOX
NO
NO2
January 4, 2017

Calibration Report

Parameter **SO2**

Air Monitoring Network **Lafarge - Exshaw**

WSP AIR QUALITY MONITORING

Station Information

Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason: Routine	Install	Removal	Other:
Start Time (MST)	9:45	End Time (MST)	14:05
Barometric Pressure	650 mmHg	Station Temperature	23.0 Deg C
Calibrator	SABIO 2010	Serial Number	7201211
Cal Gas Concentratio	50.8 ppm	Cal Gas Expiry Date	July 14, 2020
Gas Cert Reference	cc27839		
DACS make	Campbell Scientific CR1000	DACS serial No.	67802
DACS voltage range	0 - 5 VDC	DACS channel #	4
	Before		After
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	0.995685	Calculated slope	0.995532
Calculated intercept	1.100005	Calculated intercept	-0.228171
Analyzer make	API Model 102A	Analyzer serial #	393

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Slope	0.911		0.927	
Offset	44.4	mV	44.4	mV
Pressure	24.1	in Hg	23.8	in Hg
Sample Flow	498	ccm	491	ccm
UV Lamp	2731.9	mV	2694	mV
HVPS	690	V	690	V
PMT Temp	7.3	degC	7.3	degC

Calibration Data

Dilution air flow rate (cc/min)	Source gas flow rate (cc/min)	Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)
5000	0.00	0.0	0.1	N/A
5000	39.00	393.2	395.1	0.9952
5000	20.00	202.4	203.7	0.9936
7000	14.00	101.4	102.1	0.9927
5000	0.00	0.0	0.1	As found zero
5000	39.00	393.2	385.4	As found span
			Average Correction Factor	0.9938

Calculated value of As Found Response: 384.7 ppb Percent Change of As Found: 2.1%

	before calibration		after calibration	
Auto zero	0.2	ppb	0.2	ppb
Auto span	383.5	ppb	390.7	ppb

Notes: Adjusted Span…

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter **SO2**

Air Monitoring Network **Lafarge - Exshaw**

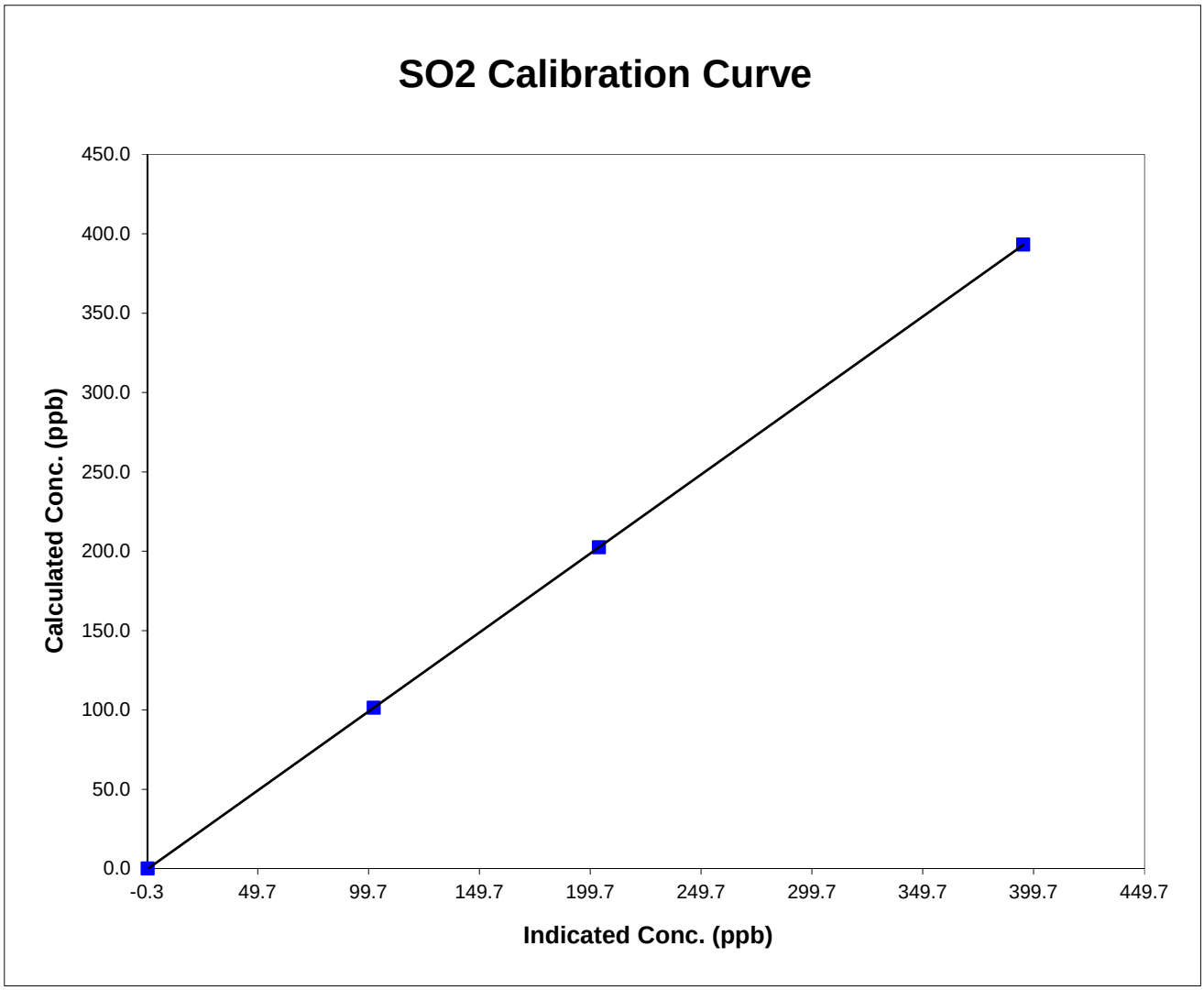
WSP AIR QUALITY MONITORING

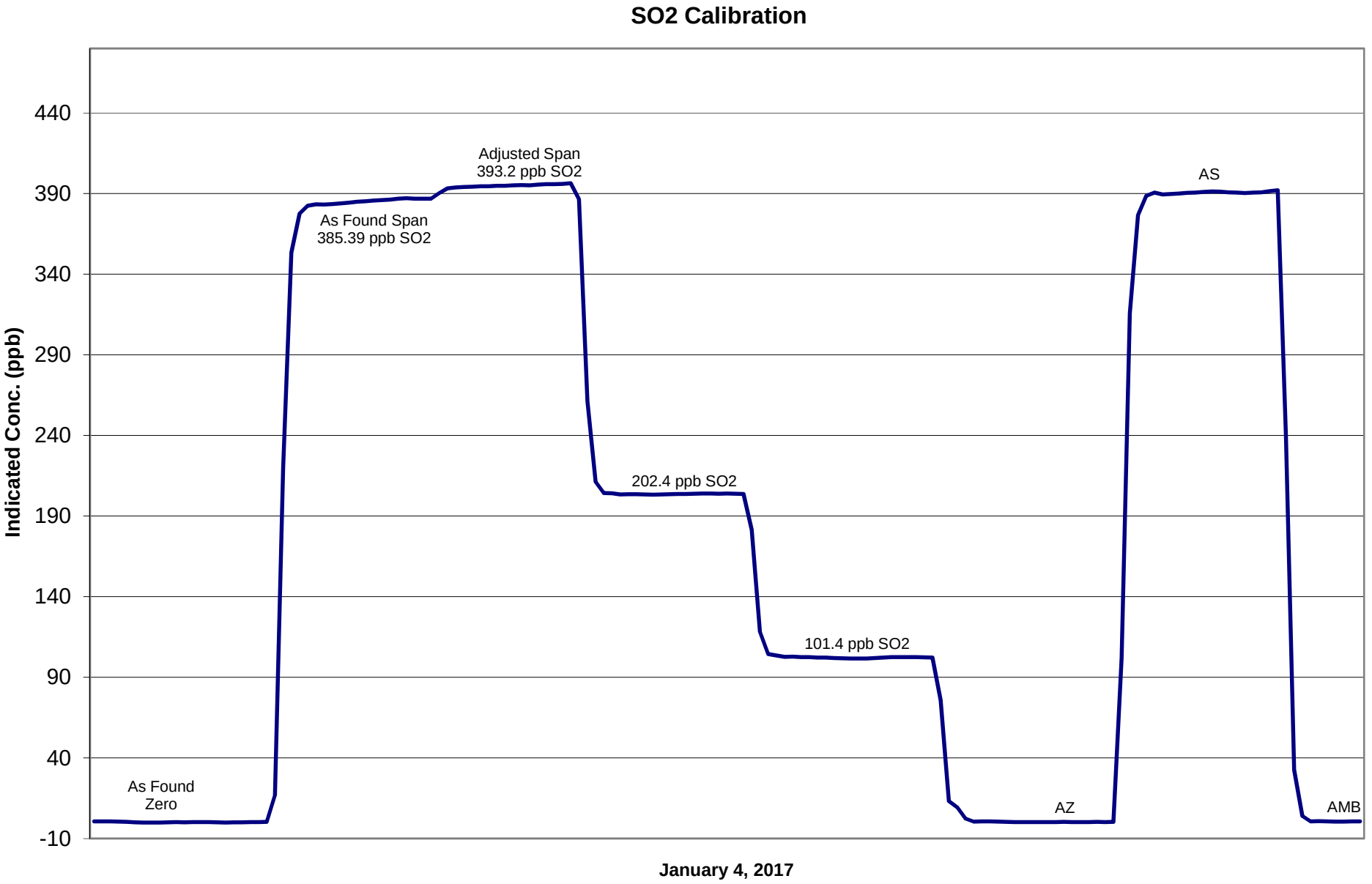
Station Information

Calibration Date	January 4, 2017	Previous Calibration	December 7, 2017
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	9:45	End Time (MST)	14:05
Analyzer make/model	API Model 102A	Analyzer serial #	393

Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.1	N/A		
393.2	395.1	0.9952	Correlation Coefficient	0.999999
202.4	203.7	0.9936		
101.4	102.1	0.9927	Slope	0.995532
			Intercept	-0.228171




SO2 Calibration
Indicated Conc. (ppb)
440
390
340
290
240
190
140
90
40
-10
As Found Zero
As Found Span 385.39 ppb SO2
Adjusted Span 393.2 ppb SO2
202.4 ppb SO2
101.4 ppb SO2
AZ
AS
AMB
January 4, 2017

AIR QUALITY MONITORING

Field Service Report

Air Monitoring Network / Client: Lafarge – Exshaw

Station Information

Visit Date: January 4, 2018 Project Number: 151-09626-00
Station Location: Exshaw – Lagoon Station Name: Lafarge – Exshaw
Reason for Visit: Routine monthly calibrations
Arrival Time: 09:00 MST Departure Time: 15:30 MST
Weather Conditions: 26kph winds from the W, clear and -4 degC.

Record of Hours ***Parts Used***

Employee	Category	Hours	Qty	Parts Description
DP	TRA	3	2	47mm filters
DP	CAL	6.5		

Station Information

Time (MST) Comments

09:00 – Signed in at Lafarge Plant

09:20 - Arrived at station. Started unloading and setting up gear

09:45 - Started AF calibrator Zero on NOx and SO2.

10:05 – AF Zero was good. Started AF calibrator Span.

10:40 – Flagged all PM channels for calibrations.

10:28 - NOx/SO2 spans adjusted

11:40 - BAM PM2.5 calibration completed with no issues.

12:05 - BAM PM10 calibration completed with no issues.

11:28 - SO2 calibration completed, no issues noted. NOx GPT reference point started, no issues noted in the first portion of the calibration.

11:52 - Started introducing O3 for GPT portion of calibration.

12:40 - BAM TSP calibration completed with no issues.

13:00 - GPT portion of calibration went well, no issues noted. Started AIC on NOx and SO2.

14:30 Left station & proceeded to the Grimm sites

AIR QUALITY MONITORING

Field Service Report

West Sharp:
No access due to snow and bad road conditions, pullout area not cleared.

Berm Sharp:
No power, the incoming power was determined to be the issue after testing. Lafarge was notified and electricians will be looking into it.

Entrance Sharp:
Measured Sample flow = 1.15 LPM
Sharp AmbT = -4 degC
Audit AmbT = -3.4 degC

15:30 Left plant after signing out.

NOTES:
- All analyzers in sample mode → OK
- Confirmed operation of manifold intake fan → OK
- All sample lines connected properly → OK

Technicians – Darrin Pike

MetOne BAM $PM_{2.5}$ Calibration

AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - Windridge	DATE:	January 3, 2018
START TIME (MST):	11:50	END TIME (MST):	12:25

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	PM2.5	Audit Device S/N	682
Serial Number	U21074	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-3.5	654	0.00	16.7	12:21
As Found Data	MEASURED (AF)	-3.5	652	0.50	16.63	12:22
	AF Difference (AF-I)	0.0	-2	0.50	-0.07	0:01
Adjusted Data	MEASURED (M)	-3.5	652	0.50	16.63	12:21
	Adj Difference (M-I)	0.0	-2	0.50	-0.07	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned.

Status of sampling tape: half roll

Nozzle Inspection / cleanliness: Inspected and cleaned.

COMMENTS:

Performed self-test, all passed.

MetOne BAM PM_{10} Calibration

WSP
AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - windridge	DATE:	December 11, 2017
START TIME (MST):	12:30	END TIME (MST):	12:45

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
	PM10	Audit Device S/N	682
Serial Number	U21075	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-2.3	653	0.00	16.7	12:45
As Found Data	MEASURED (AF)	-2.3	653	0.40	16.71	12:45
	AF Difference (AF-I)	0.0	0	0.40	0.01	0:00
Adjusted Data	MEASURED (M)	-2.3	653	0.40	16.71	12:45
	Adj Difference (M-I)	0.0	0	0.40	0.01	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned

Status of sampling tape: half roll

Nozzle Inspection / cleanliness: Inspected and cleaned

COMMENTS:

Performed self test, all passed.

MetOne BAM TSP Calibration

AIR QUALITY MONITORING

STATION:	Lafarge	OPERATOR:	Darrin Pike
LOCATION:	Exshaw - Windridge	DATE:	January 3, 2018
START TIME (MST):	12:44	END TIME (MST):	13:10

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	TSP	Audit Device S/N	682
Serial Number	U21073	Certification Date	11-May-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (˚C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
	Audit values (I)	-2.2	653	0.00	16.7	13:10
As Found Data	MEASURED (AF)	-2.3	653	0.20	16.80	13:11
	AF Difference (AF-I)	-0.1	0	0.20	0.10	0:01
Adjusted Data	MEASURED (M)	-2.2	653	0.20	16.75	13:10
	Adj Difference (M-I)	0.0	0	0.20	0.05	0:00
	LIMITS	± 4.0 ^{0}C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: Cleaned

Status of sampling tape: new roll

Nozzle Inspection / cleanliness: Inspected and cleaned.

COMMENTS:

Performed self test, all passed.

AIR QUALITY MONITORING

Field Service Report

Air Monitoring Network / Client: Lafarge – Exshaw

Station Information

Visit Date: January 3, 2018 Project Number: 151-09626-00
Station Location: Exshaw – Windridge Station Name: Lafarge – Windridge
Reason for Visit: trouble call for Berm Grimm. Routine monthly calibrations
Arrival Time: 11:00 MST Departure Time: 14:00 MST
Weather Conditions: clear and -4 degC.

Record of Hours ***Parts Used***

Employee	Category	Hours	Qty	Parts Description
DP	CAL	4		
	TRV	3		

Station Information

Time (MST) Comments

10:00 – Arrived at LaFarge plant, signed in at the Plant

There was no data coming from the Berm Grimm. Unable to access site due to wildlife. Will return tomorrow to fix issue.

11:50 - Flagged all PM channels at Windridge site

12:25 - BAM PM2.5 calibration completed with no issues.

12:45 - BAM PM10 calibration completed with no issues. .

13:10 - BAM TSP calibration completed with no issues.

14:00 - Left site after signing out of control room.

NOTES:
- All analyzers in sample mode → OK
- Confirmed operation of manifold intake fan → OK
- All sample lines connected properly → OK

Technician: Darrin Pike