

LAFARGE CANADA INC.

AMBIENT AIR QUALITY MONTHLY REPORT SEPTEMBER 2018

OCTOBER 23, 2018





AMBIENT AIR QUALITY MONTHLY REPORT

SEPTEMBER 2018

LAFARGE CANADA INC.

PROJECT NO.: 171-00556-00
DATE: OCTOBER 23, 2018

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October 23, 2018

LAFARGE CANADA INC.
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Attention: Janet Brygger

Dear Ms. Brygger

Subject: Ambient Air Quality Monthly Report - September 2018

The operational uptime for the meteorological systems and all analyzers at the Lagoon station was 100% in September. There were no exceedances of the 24-hour TSP and PM_{2.5} Alberta Ambient Air Quality Objectives (AAQOs) in September at the Lagoon monitoring location.

All analyzers at the Windridge station had 99.3% operational uptime in September. There was 1 exceedance of the 24-hour TSP AAAQO. There was 1 exceedance of the 24-hour PM_{2.5} AAAQO and zero exceedances of the 1-hour PM_{2.5} AAAQG.

Data collected at all of the GRIMM monitors are considered Industrial Ambient Monitors and are meant for assessing the performance of Lafarge Exshaw's Fugitive Dust Control Best Management Practices – Program, the GRIMM monitors are not Air Monitoring Directive (AMD) compliant. The operational uptime at the 3 monitors was as follows: 97.6% at the West monitor due to several hours of power outage; 100% at both the Berm the Entrance monitor stations. The Entrance GRIMM monitor exceeded the 24-hour TSP AAAQO for 14 days, with 2 exceedances of the 24-hour PM_{2.5} AAAQO, while the Berm GRIMM had 8 exceedances of the TSP Objective and 1 exceedance of the PM_{2.5} Objective. The West GRIMM monitor recorded 1 exceedance of the 24-hour PM_{2.5} Objective.

The 24-hour PM_{2.5} AAAQO exceedances at the Windridge and the GRIMM monitors all occurred on September 2, 2018. The Exshaw area, as well as much of BC and Alberta was still impacted heavily by smoke from wildfires during this time in early September. The smoky conditions from the wildfires was the primary cause of the exceedance reported on that day.

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements.

Sincerely,

Tyler Abel, M.Sc.
Group Manager, Air Quality
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October 23, 2018

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APPROVED¹ BY *(must be reviewed for technical accuracy prior to approval)*



October 23, 2018

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Date

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A DATA & CALIBRATION REPORTS

1 INTRODUCTION

This report summarizes the ambient air quality and meteorological data collected at the Lagoon, Windridge, 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 September 1, 2018 and September 30, 2018.

This monthly report was prepared by Hong Zhang, Air Quality Engineer with WSP, on behalf of Lafarge and was reviewed by Tyler Abel, Manager of Air Quality and Air Quality Specialist at WSP.

2 SEPTEMBER 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).

The 24-hour PM_{2.5} AAAQO exceedances at the Windridge and the GRIMM monitors all occurred on September 2, 2018. The Exshaw area, as well as much of BC and Alberta was still impacted heavily by smoke from wildfires during this time in early September. The smoky conditions from the wildfires was the primary cause of the exceedance reported on that day.

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	20.6	0	8.9	-
SO ₂ (ppb)	100	14.1	0	2.8	0
PM _{2.5} (µg/m ³)	100	51.0	0 ¹	29.8	0
PM ₁₀ (µg/m ³)	100	152.9	-	50.4	-
TSP (µg/m ³)	100	331.2	-	75.5	0
Temperature (°C)	100	25.0	-	15.7	-
Wind Speed (km/hr) /Direction (Degrees)	100	30.2/NW	-	19.3/W	-
Precipitation (mm)	100	5.3 ²	-	8.5 ³	-

¹ Any exceedances reported for 1-hour PM_{2.5} are over the guideline level (AAAQG) of 80 µg/m³.

² Maximum Daily Total Accumulation of Precipitation (mm)

³ Monthly Total Accumulation of Precipitation (mm)

Data Quality Notes:

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

Calibration/Maintenance Notes:

- The NO_x and SO₂ analyzers had 100% uptime for the month of September.
- The PM_{2.5}, PM₁₀, and TSP analyzers had 100% uptime for the month of September.
- The meteorological analyzers had 100% uptime for the month of September.

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)	99.3	51.9	0*	33.0	1
PM ₁₀ (µg/m ³)	99.3	357.6	-	93.2	-
TSP (µg/m ³)	99.3	466.3	-	128.8	1

* Any exceedances reported for 1-hour PM_{2.5} are over the guideline level (AAAQG) of 80 µg/m³.

Data Quality Notes:

- There was 1 day exceeding the 24-hour PM_{2.5} AAAQO due to the impacts of wildfire smoke from BC.
- There were no exceedance of the 1-hour PM_{2.5} AAAQG.
- There was 1 day exceeding the 24-hour TSP AAAQO.

Calibration/Maintenance Notes:

- All analyzers had 99.3% uptime for the month of September due to several hours of power failure.

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; however, these Industrial monitors are not Alberta Monitoring Directive (AMD) compliant and not required to show compliance with the AAAQO.

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)	97.6	60.0	0*	37.3	1
PM ₁₀ (µg/m ³)	97.6	65.0	-	38.7	-
TSP (µg/m ³)	97.6	155.2	-	35.4	0

* Any exceedances reported for 1-hour PM_{2.5} are over the guideline level (AAAQG) of 80 µg/m³.

Data Quality Notes:

- There was 1 day exceeding the 24-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There was no exceedances of the 1-hour PM_{2.5} AAAQG.
- There was no exceedance of the 24-hour TSP AAAQG.

Calibration/Maintenance Notes:

- The PM analyzers had 97.6% uptime for the month of September due to several hours of power outage.

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; however, these Industrial monitors are not Alberta Monitoring Directive (AMD) compliant and not required to show compliance with the AAAQO.

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)	100	99.1	2*	42.3	1
PM ₁₀ (µg/m ³)	100	806.6	-	216.7	-
TSP (µg/m ³)	100	2078.4	-	560.5	8

* Any exceedances reported for 1-hour PM_{2.5} are over the guideline level (AAAQG) of 80 µg/m³.

Data Quality Notes:

- There was 1 day exceeding the 24-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 2 hours exceeding the 1-hour PM_{2.5} AAAQG.
- There were 8 days exceeding the 24-hour TSP AAAQG.

Calibration/Maintenance Notes:

- The analyzers had 100% uptime for the month of September.

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; however, these Industrial monitors are not Alberta Monitoring Directive (AMD) compliant and not required to show compliance with the AAAQO.

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)	100	88.1	1*	47.5	2
PM ₁₀ (µg/m ³)	100	323.0	-	124.4	-
TSP (µg/m ³)	100	911.2	-	255.6	14

* Any exceedances reported for 1-hour PM_{2.5} are over the guideline level (AAAQG) of 80 µg/m³.

Data Quality Notes:

- There were 2 days exceeding the 24-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There was 1 hour exceeding the 1-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 14 days exceeding the 24-hour TSP AAAQG.

Calibration/Maintenance Notes:

- All analyzers had 100% uptime for the month of September.

3 LAGOON STATION

The Lagoon trailer contains NO_x, SO₂, TSP, PM₁₀, 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), a data summary table (Table 3-2), site visit notes, a wind rose (Figure 3-2) and tables and graphs illustrating the monitoring results for September 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 was calibrated on September 24th. The monitor had 100% uptime in September.

3.1.2 SO₂ MONITORING

The SO₂ monitor was calibrated on September 24th. The monitor had 100% uptime in September.

3.1.3 PM MONITORING

All BAM monitors were calibrated on September 24th. For the month of September, the PM_{2.5}, PM₁₀, and TSP analyzers had 100% operation time.

3.1.4 METEOROLOGICAL MONITORING

All meteorological sensors had 100% operation time.

3.2 MONITORING RESULTS AND TRENDS

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

Figure 3-3 graphically illustrates the time series for hourly concentrations as well as wind speed and direction, while Figure 3-4 shows daily average concentrations recorded during September 2018 for the pollutants listed in Table 3-2.

There were no exceedances for the 24-hour TSP (100 µg/m³) and PM_{2.5} (30 µg/m³) AAAQO. Historically in

September, the average number of 24-hour TSP AAQO exceedances and 24-hour PM_{2.5} AAAQO exceedances are both zero. The maximum number of 24-hour TSP and PM_{2.5} AAQO exceedances were both 5 in 2017.

The wind rose (Figure 3-2) indicates that the winds predominantly came from the east-northeast and west-southwest directions. These directions follow the general orientation of the valley.

Table 3-2 Summary of September 2018 data at Lagoon

Parameter	Guideline / 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	-	3.9	20.6	7	23	9.7	220.7	8.9	7	100
SO ₂ (ppb)	172	48	Lagoon	0	0	0.5	14.1	7	7	15.8	262.5	2.8	7	100
PM _{2.5} (µg/m ³)	80	30	Lagoon	0	0	6.7	51.0	2	5	10.4	250.9	29.8	2	100
PM ₁₀ (µg/m ³)	-	-	Lagoon	-	-	15.4	152.9	7	20	3.1	234.9	50.4	7	100
TSP (µg/m ³)	-	100	Lagoon	-	0	20.4	331.2	7	20	3.1	234.9	75.5	7	100
Temperature (°C)	-	-	Lagoon	-	-	6.5	25.0	7	16	12.0	253.2	15.7	7	100
Wind Speed (km/hr)/Direction (degrees)	-	-	Lagoon	-	-	12.1/	30.2	25	22	30.2	257.6	19.3/WSW	25	100
Precipitation (mm)	-	-	Lagoon	-	-	0.1	5.3	3	9	18.1	74.8	8.5	-	100

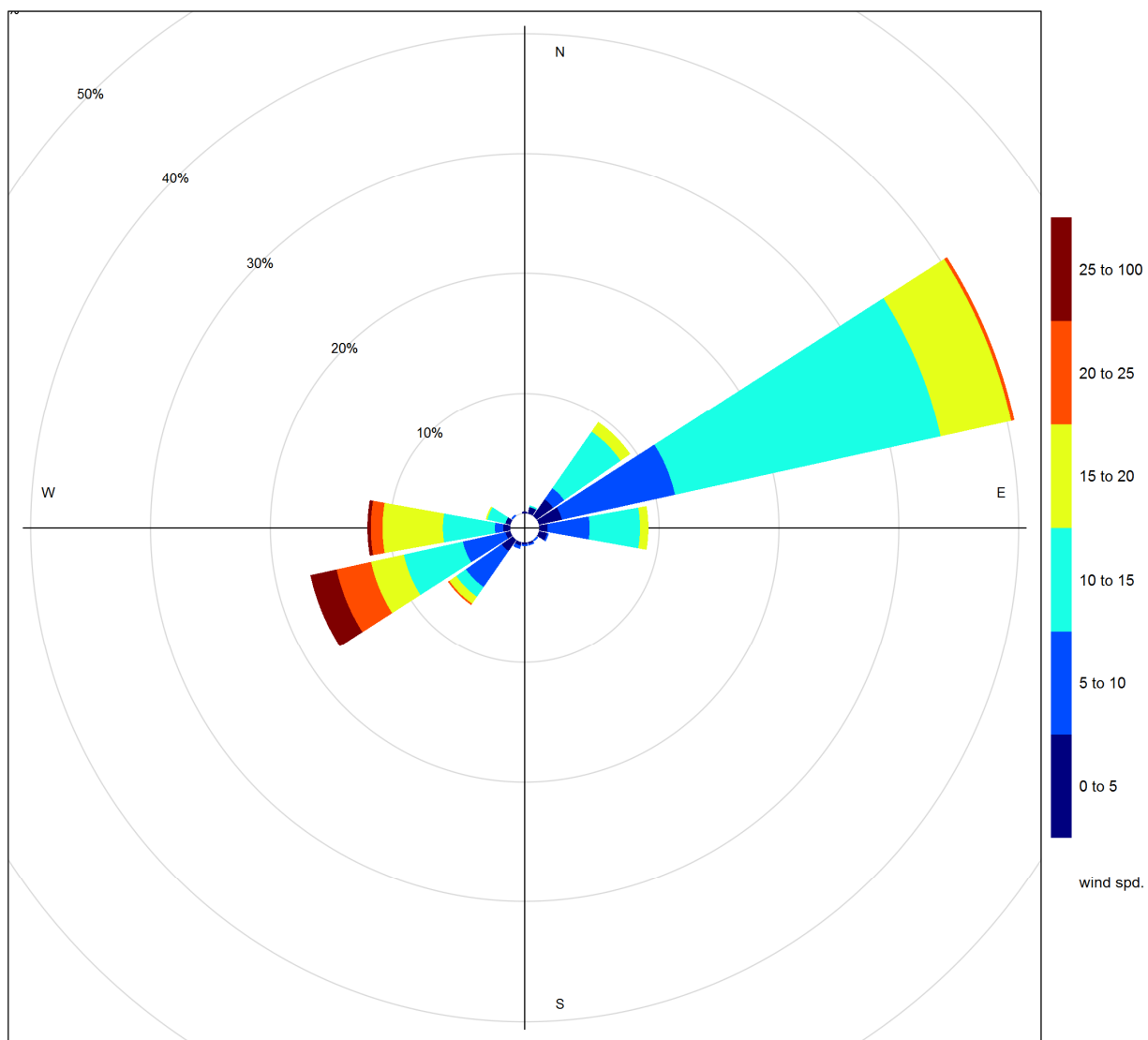


Figure 3-2 **September 2018 wind rose from the Lagoon Station**

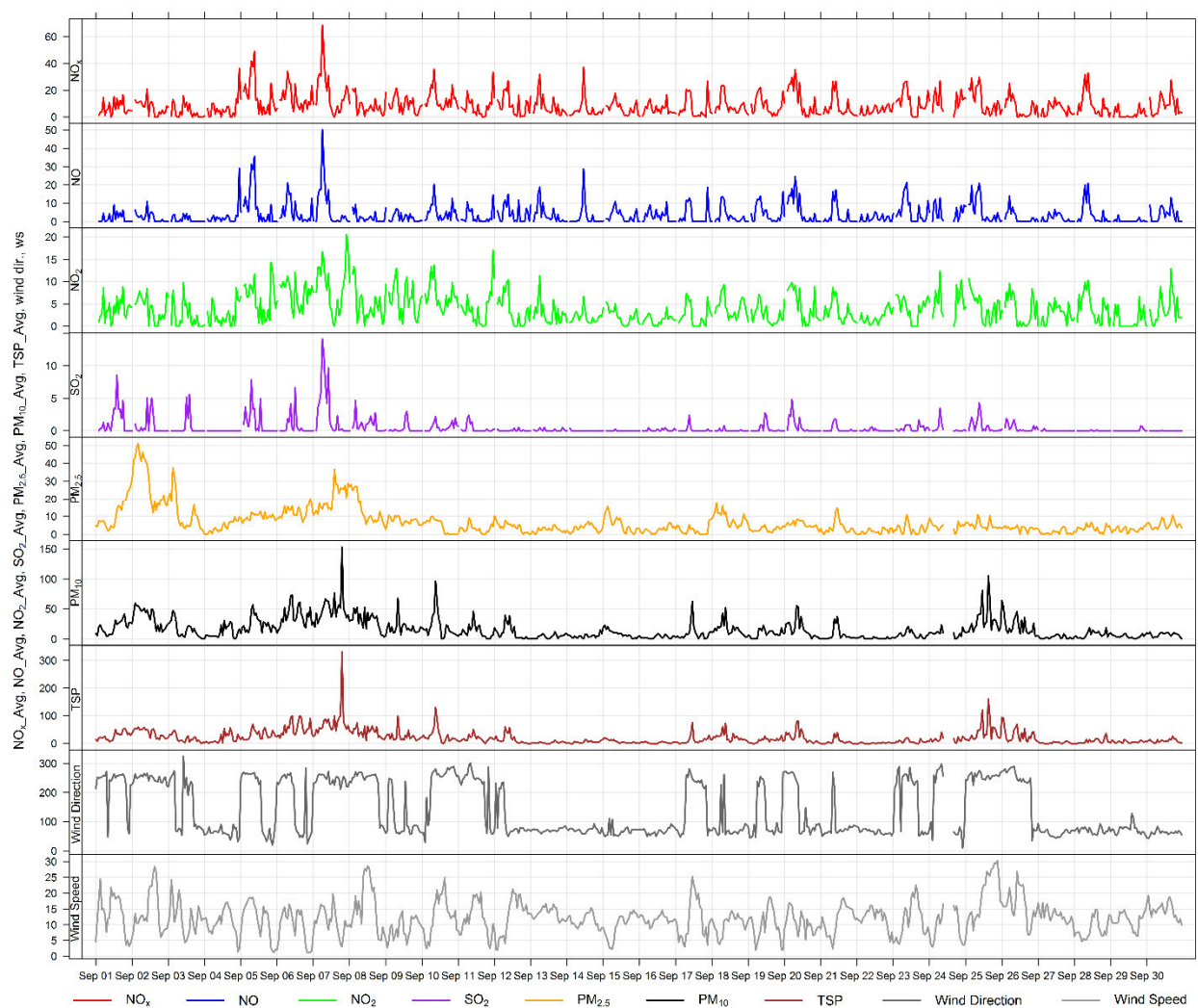


Figure 3-3 1-hour concentrations of NO_x, SO₂, particulate matter, wind direction and wind speed at the Lagoon station

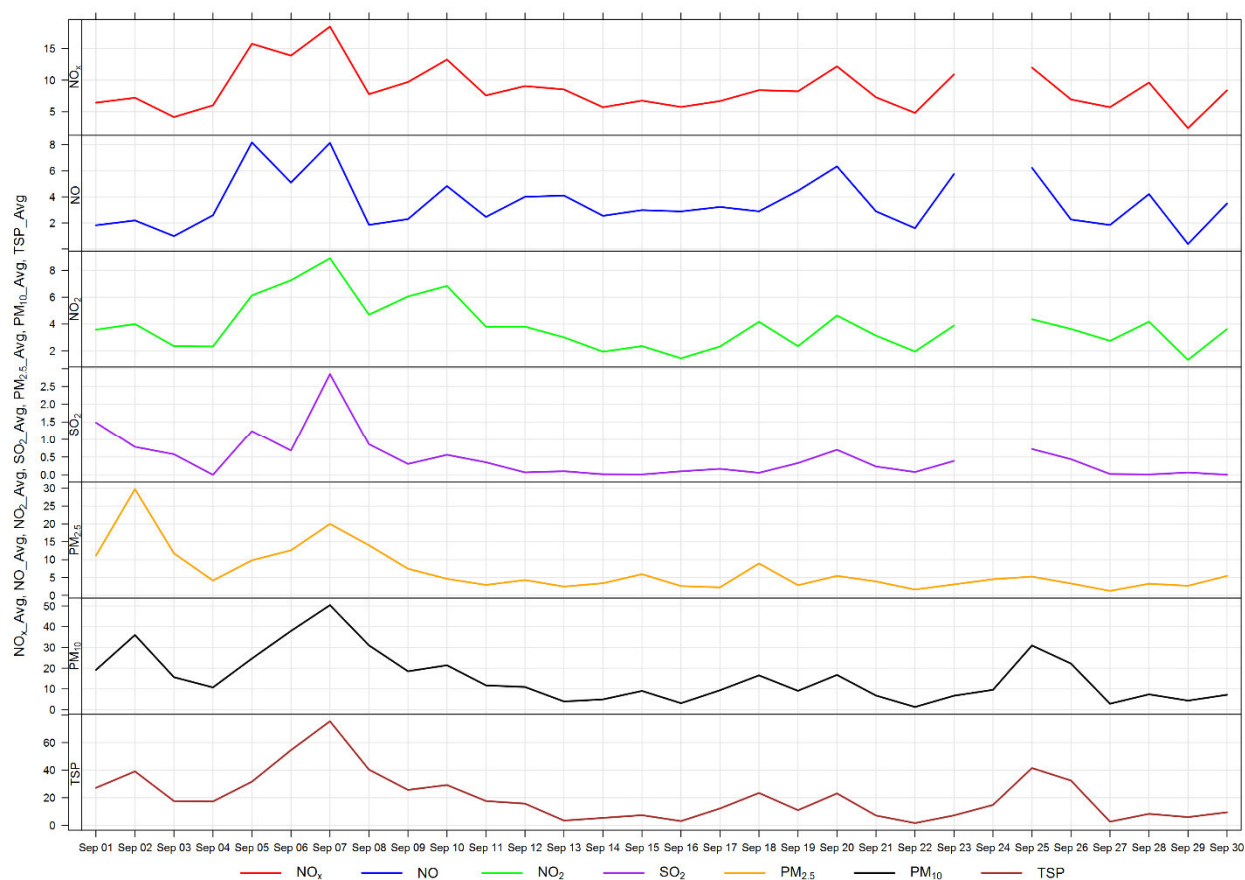


Figure 3-4 24-hour concentrations of NO_x, SO₂, and particulate matter at the Lagoon monitor

Figure 3-5 through Figure 3-7 show the variation in concentrations over various time averaging periods for PM, SO₂ and NO_x. The particulate matter plot in Figure 3-5 shows that PM₁₀ and TSP concentrations show a diurnal pattern associated with Lafarge operations, but also shows that this month the diurnal pattern was impacted by the smoke from wildfires early in the month.

Figure 3-6 shows the variation of SO₂ over various time periods. SO₂ concentrations patterns are dependent on the timing of the highest SO₂ concentrations recorded in the month. Figure 3-7 shows the variation of NO_x, NO and NO₂, with the peak of all three pollutants occurring in the early morning. This may be indicative of a peak in traffic.

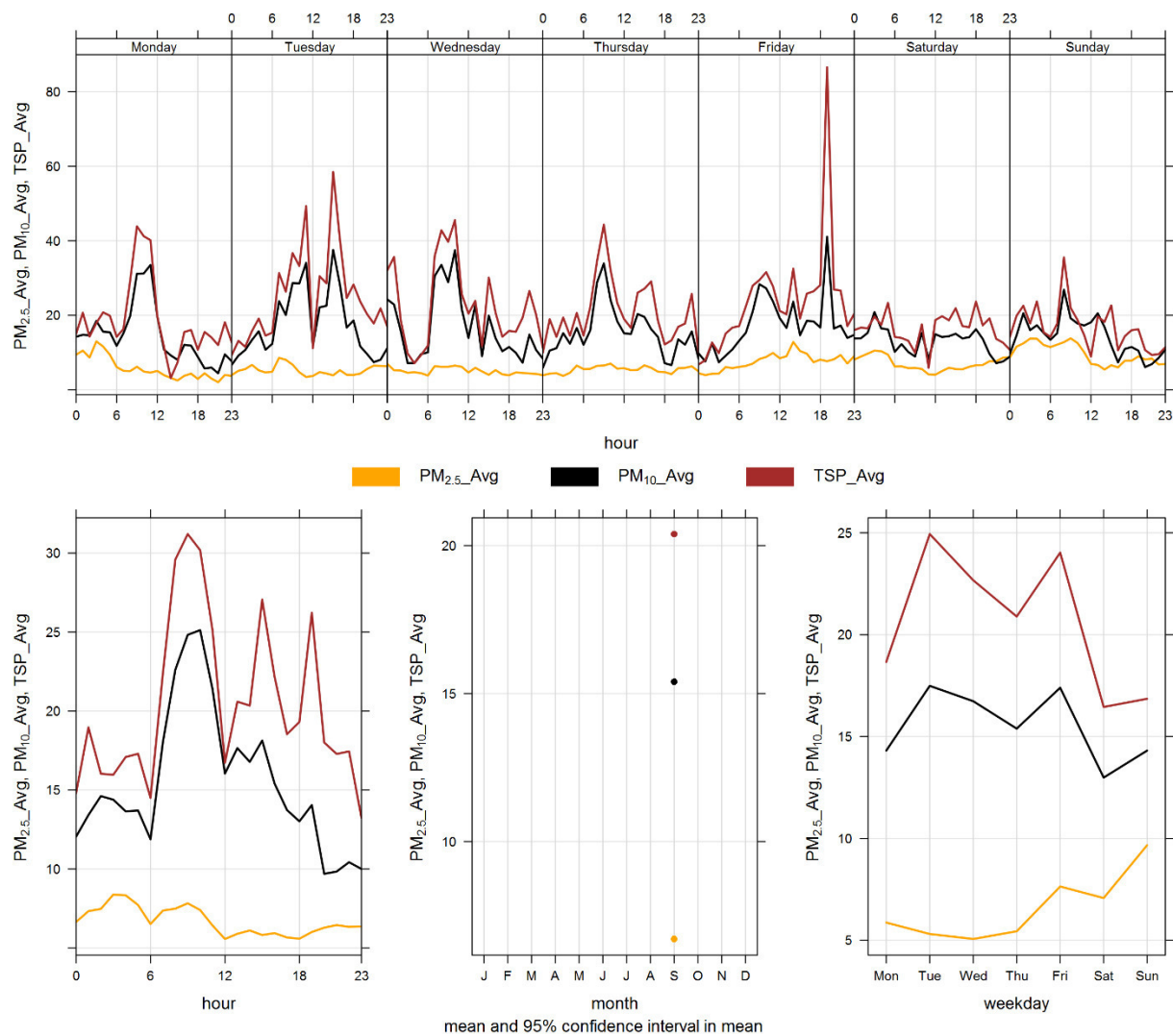


Figure 3-5 Lagoon monitor particulate matter time variation

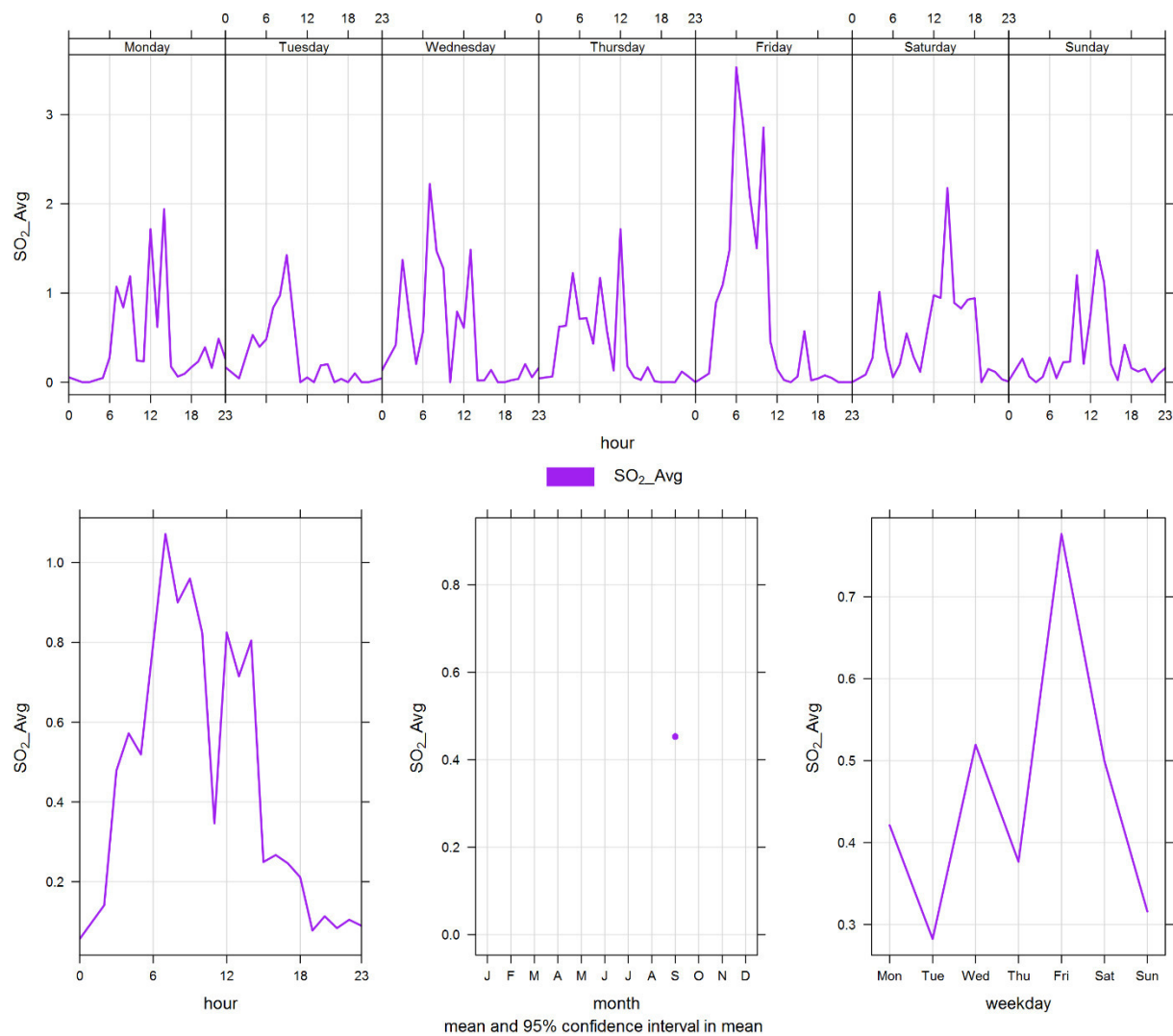


Figure 3-6 Lagoon monitor SO₂ time variation

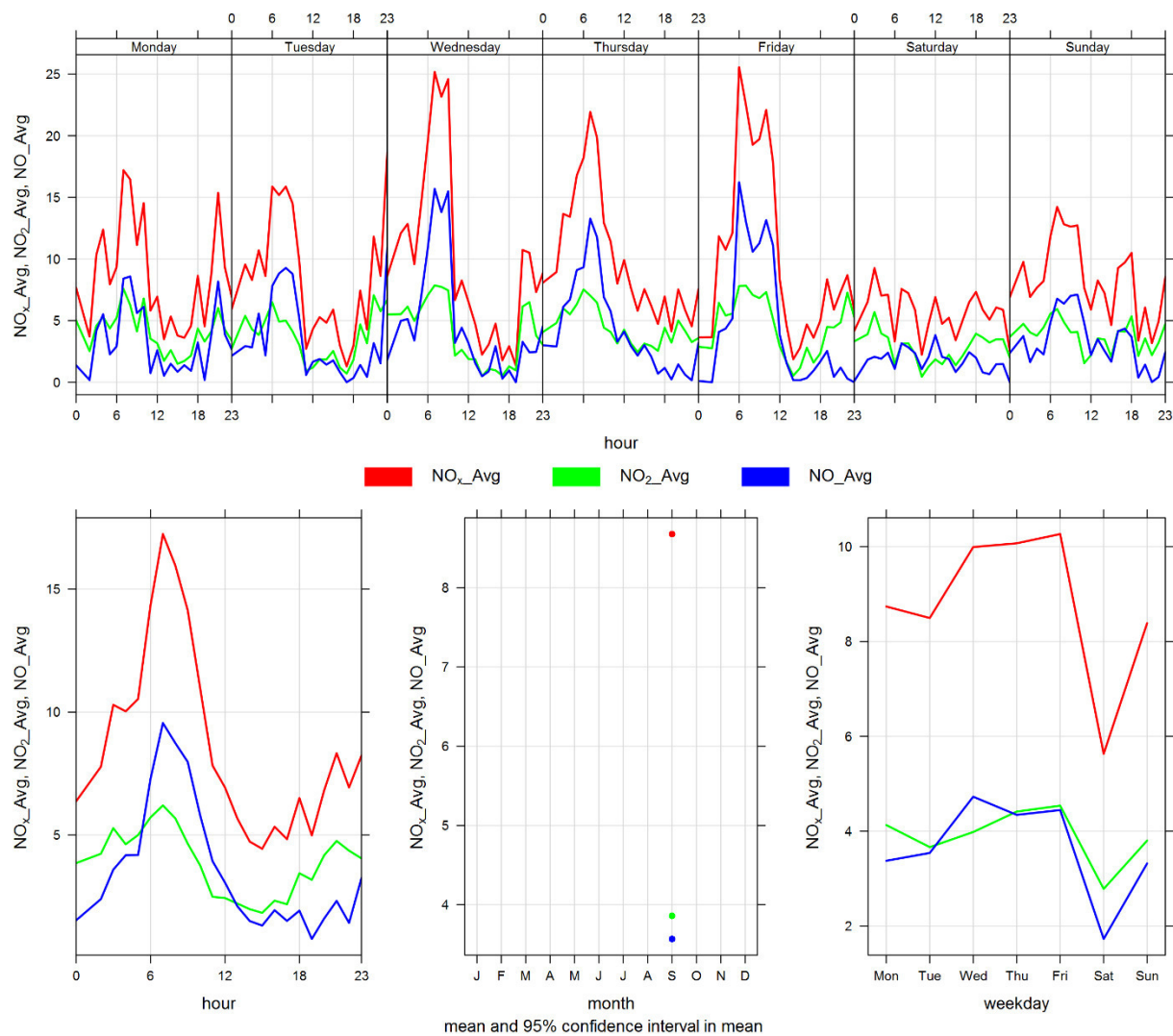


Figure 3-7 Lagoon monitor NO_x time variation

4 WINDRIDGE STATION

The Windridge station contains TSP, PM₁₀, 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), a data summary table (Table 4-2), a table of recorded exceedances (Table 4-3), site visit notes, and graphs illustrating the monitoring results for September 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

4.1 SITE VISIT NOTES

All BAM monitors were calibrated on September 20th. In addition, the TSP analyzer was calibrated on September 24th. The operation time for the BAM analyzers was 99.3% due to several hours of downtime in September.

4.2 MONITORING RESULTS AND TRENDS

Table 4-2 summarizes the hourly and daily concentrations recorded in September 2018 and Table 4-2 summarizes the recorded exceedances. Figure 4-1 illustrates the time series for hourly PM, Figure 4-2 illustrates the time series for daily PM, and Figure 4-3 illustrates the time series for hourly PM over different time periods.

There was 1 exceedance of the 24-hour PM_{2.5} AAAQO, zero exceedances of the 1-hour PM_{2.5} AAAQG, and 1 exceedances of the 24-hour TSP AAAQO. The exceedance of the 24-hour PM_{2.5} objective was influenced by the smoke from wildfires.

Table 4-2 Summary of September 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	1	7.4	51.9	2	3	13.6	263.8	33.0	2	99.3
PM₁₀ (µg/m ³)	-	-	Windridge	-	-	21.4	357.6	25	20	29.5	257.7	93.2	25	99.3
TSP (µg/m ³)	-	100	Windridge	-	1	28.7	466.3	25	16	26.1	257.6	128.8	25	99.3

Table 4-3 Days exceeding the TSP AAAQO or PM_{2.5} AAAQG at the Windridge Station

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						
02/09/2018	-	33	249.0	13.9	47.1	Wildfire smoke
25/09/2018	128.8	-	255.9	19.3	57.1	High evening wind speeds
Total # of Exceedances	1	1				

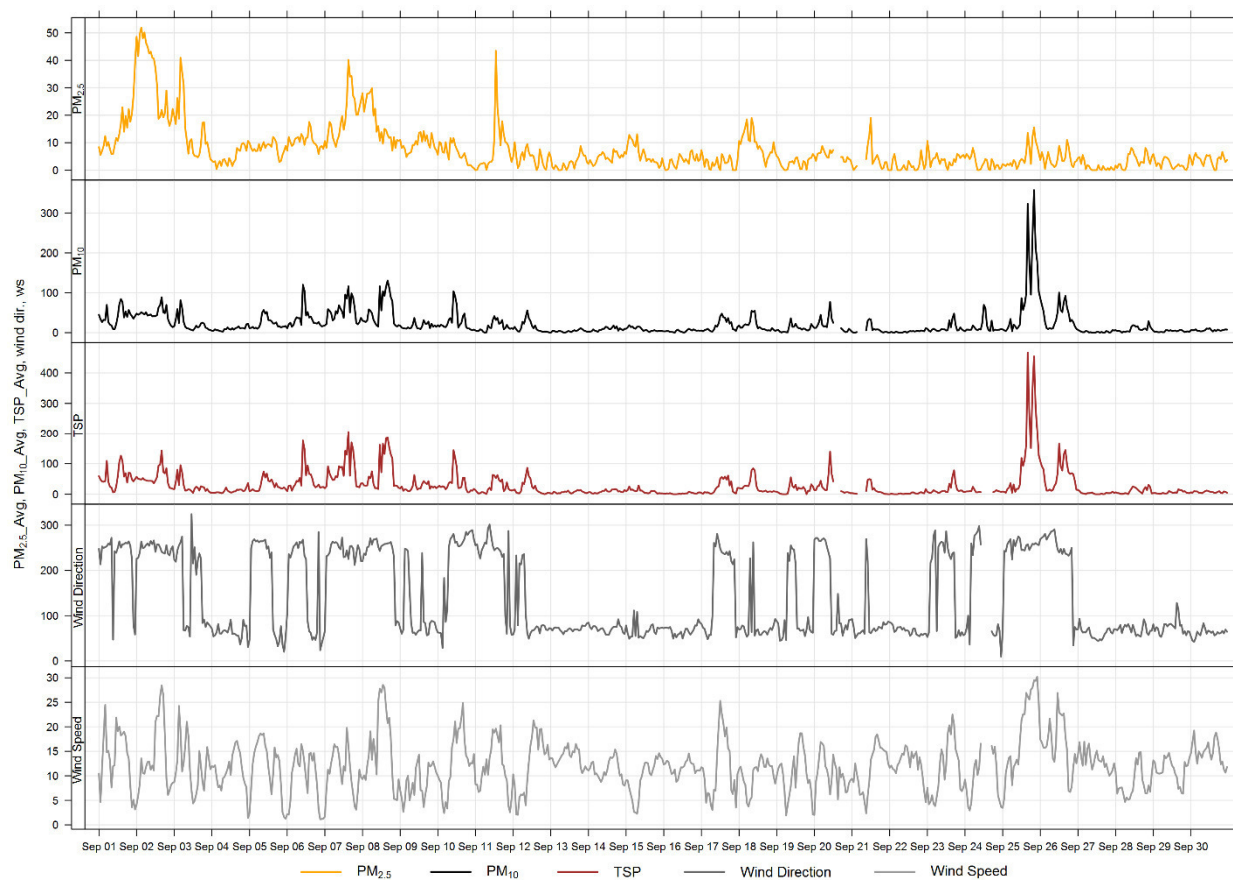


Figure 4-1 1-hour particulate matter concentrations recorded at the Windridge monitor

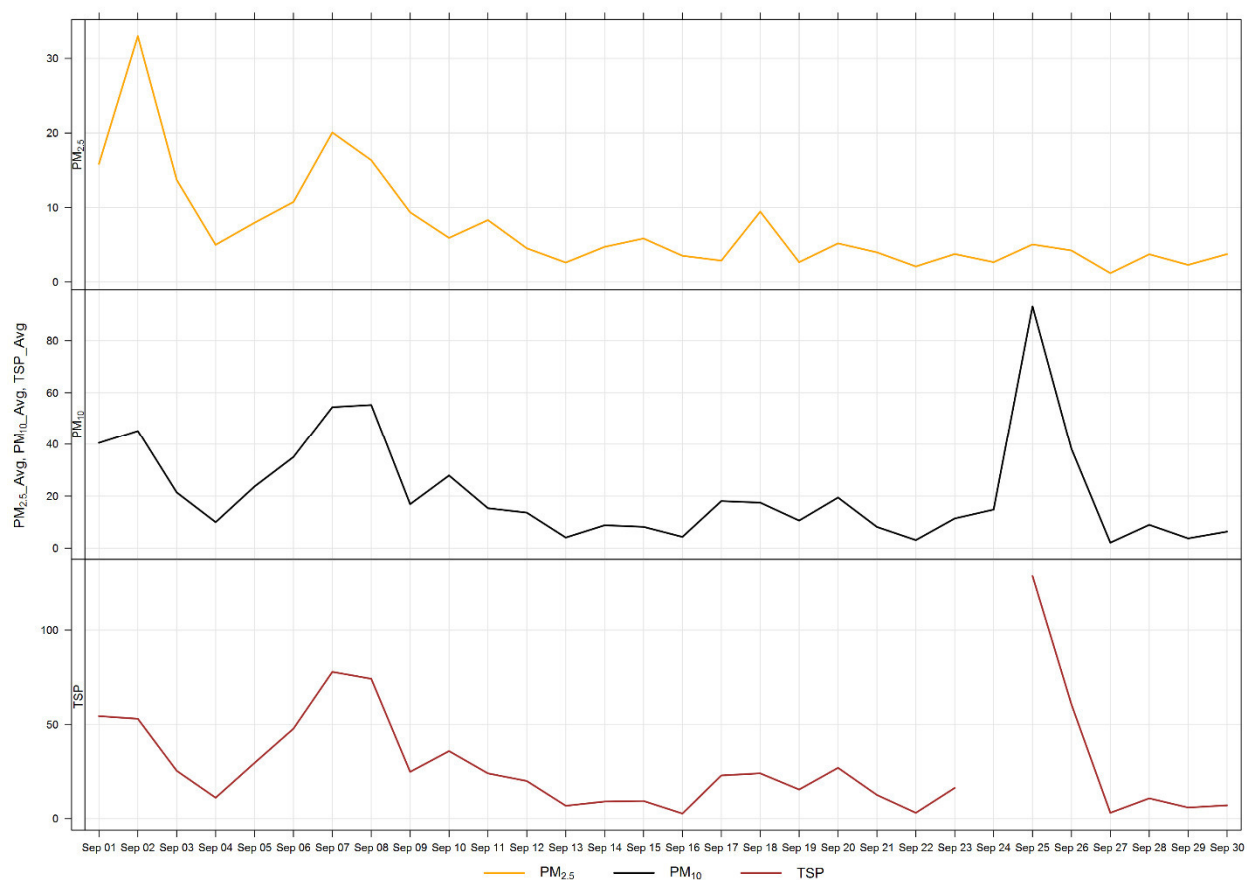


Figure 4-2 24-hour particulate matter concentrations at the Windridge monitor

Figure 4-3 shows the wind rose for the 1 day of TSP exceedance. The wind rose shows that the winds predominantly come from the west and west-southwest directions, and were over 25 km/hr.

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 September 2018 and indicates a diurnal pattern that differs from the Lagoon station and is influenced by higher wind events in the evening, particularly on the 1 day of TSP exceedance (September 25).

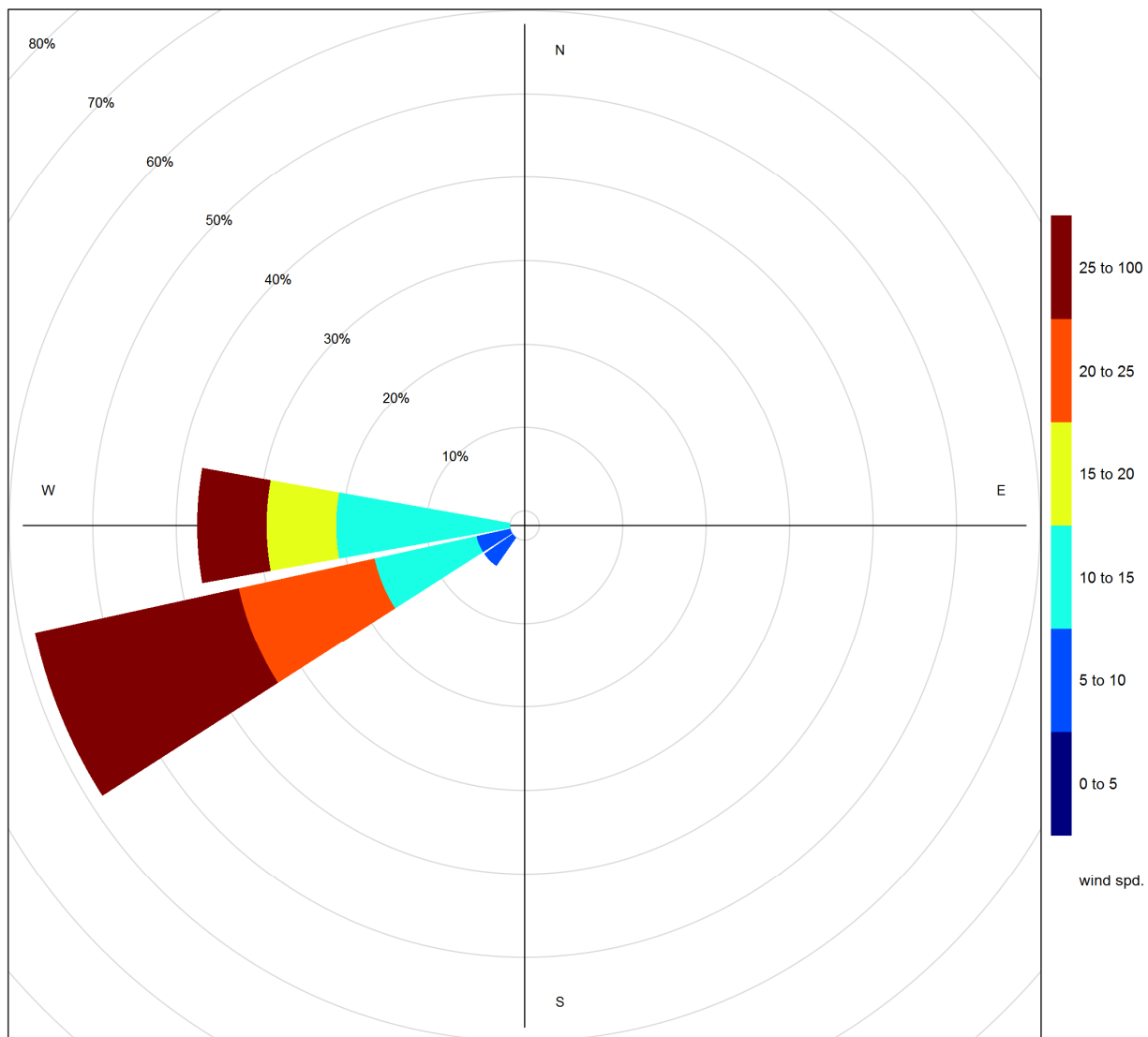


Figure 4-3 Wind rose for TSP exceedance day recorded at the Windridge Station

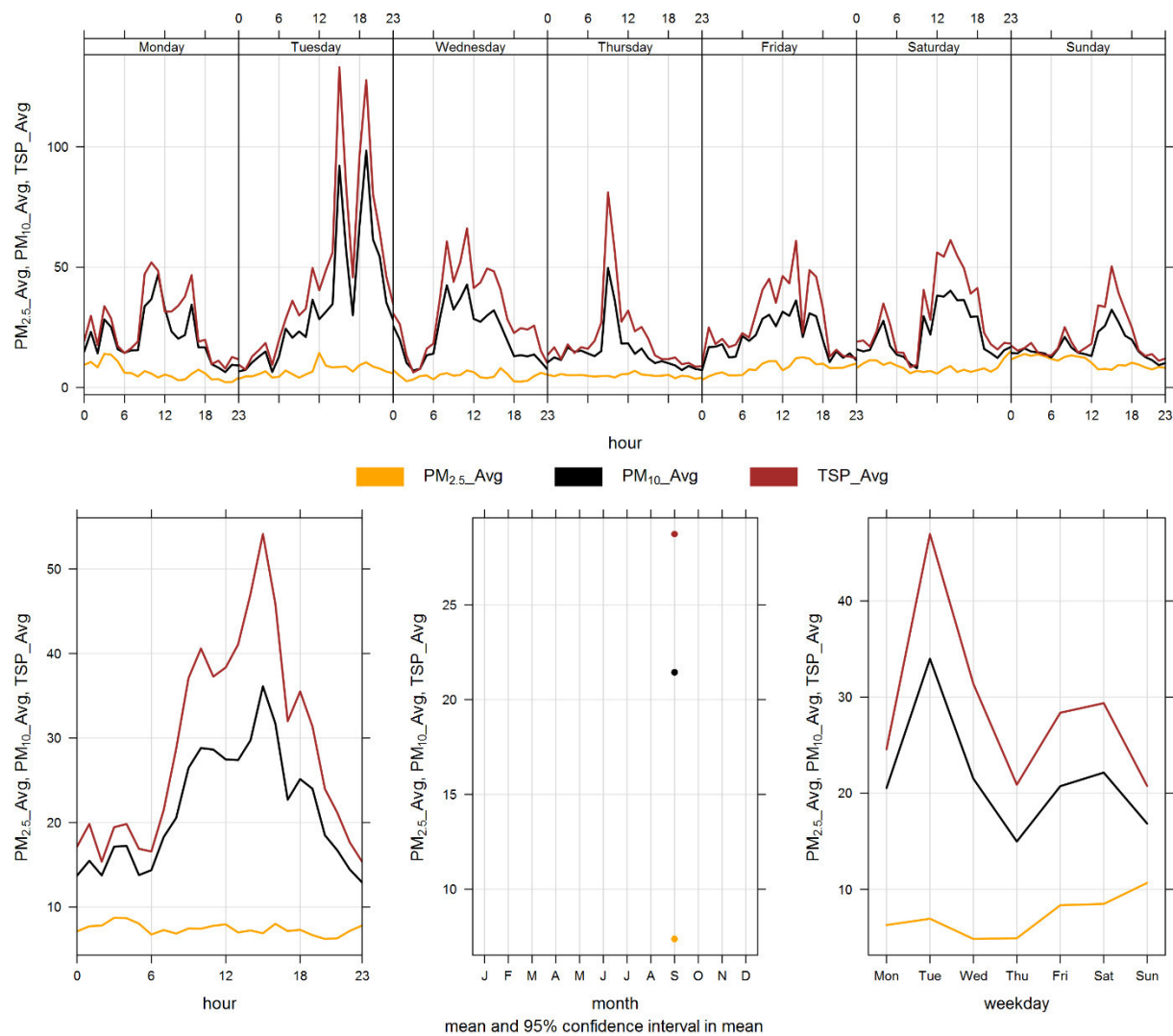


Figure 4-4 Windridge particulate matter time variation

5 WEST INDUSTRIAL GRIMM

5.1 SITE VISIT NOTES

Table 5-1 indicates the equipment that is installed at the West monitoring location. During the month of September, the West GRIMM had 97.6% uptime due to several hours of pump failure.

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 3-2 the majority of winds came from the west-southwest, west, and east-northeast directions during September. Table 5-2 summarizes the maximum 1-hour and 24-hour concentrations recorded over the course of the month. Table 5-3 summarizes the recorded exceedances. This is an industrial monitor that is not Alberta Monitoring Directive (AMD) compliant and is not required to show compliance with the AAAQO.

Figure 5-1 and Figure 5-2 show the hourly and daily PM_{2.5}, PM₁₀ and TSP concentrations recorded over the month. There was no exceedance of the 24-hour TSP guideline (100 µg/m³), but 1 exceedances of the PM_{2.5} (30 µg/m³) guideline. The exceedance of the 24-hour PM_{2.5} guideline was influenced by the smoke from wildfires. Historically in September, the average number of 24-hour TSP AAQO exceedances and 24-hour PM_{2.5} AAAQO exceedances are both zero. The maximum number of 24-hour TSP AAQO exceedances was 1 in 2017, while the maximum number of 24-hour PM_{2.5} AAAQO exceedances was 2 in 2017.

Table 5-2 Summary of September 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	1	8.2	60.0	2	3	13.6	263.8	37.3	2	97.6
PM₁₀ (µg/m ³)	-	-	West	-	-	11.5	65.0	6	14	14.4	65.5	38.7	2	97.6
TSP (µg/m³)	-	100	West	-	0	12.9	155.2	5	16	15.8	57.3	35.4	6	97.6

Table 5-3 Days exceeding the Guideline for TSP or PM_{2.5} 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 Grimm						
02/09/2018	-	37	249.0	13.9	47.1	Wildfire smoke
Total # of Exceedances	0	1				
Maximum # of Exceedances (September)	1 (2017)	2 (2017)				
Average # of Exceedances (September)	0	0				
Minimum # of Exceedances (September)	0 (2010, 2011, 2012, 2013, 2014, 2015, 2016)	0 (2010, 2011, 2012, 2013, 2014, 2015, 2016)				

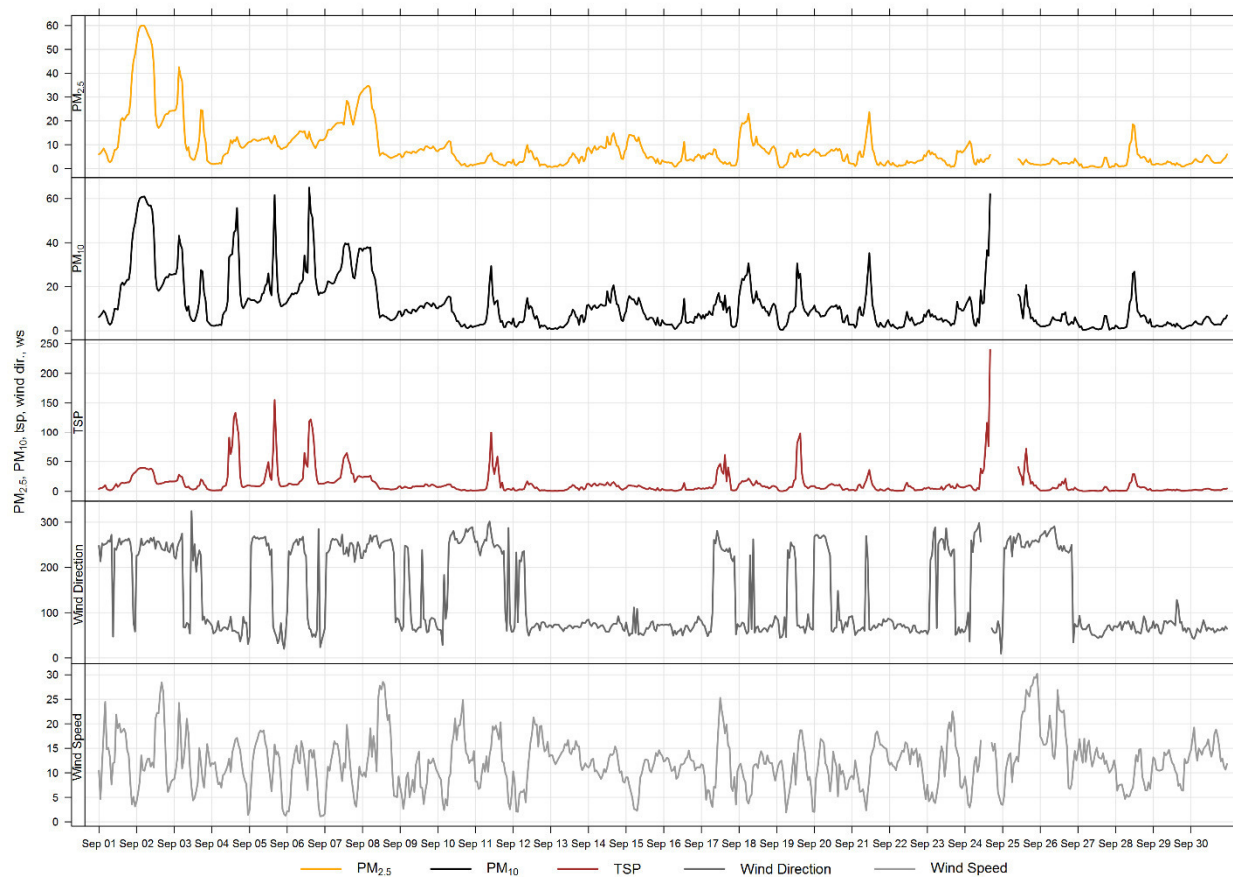


Figure 5-1 1-hour particulate matter concentrations at the West monitor

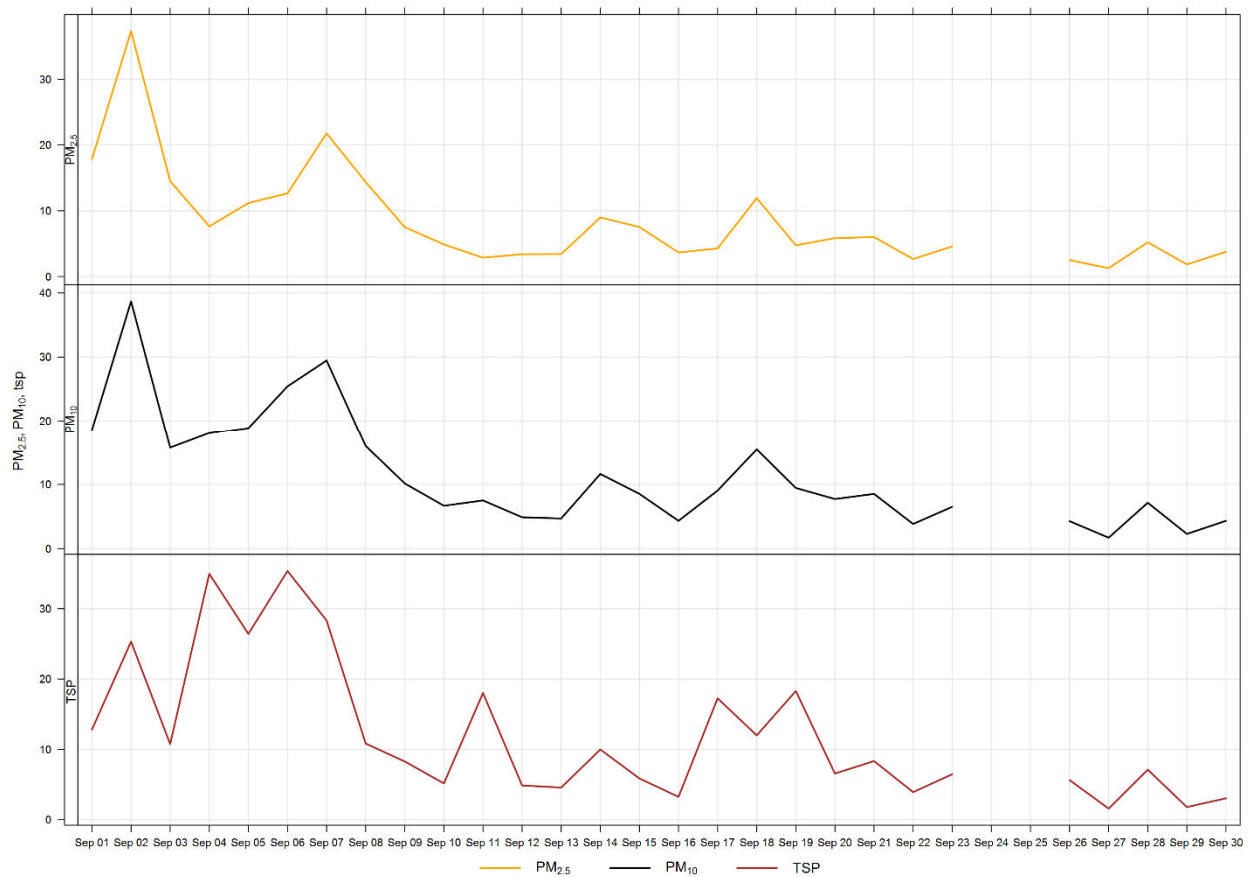


Figure 5-2 24-hour particulate matter concentrations at the West monitor

shows the wind roses for the 1 day of $PM_{2.5}$ exceedances. The wind rose shows that the winds predominantly come from the west and west-southwest directions, and were over 25 km/hr.

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 September 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.

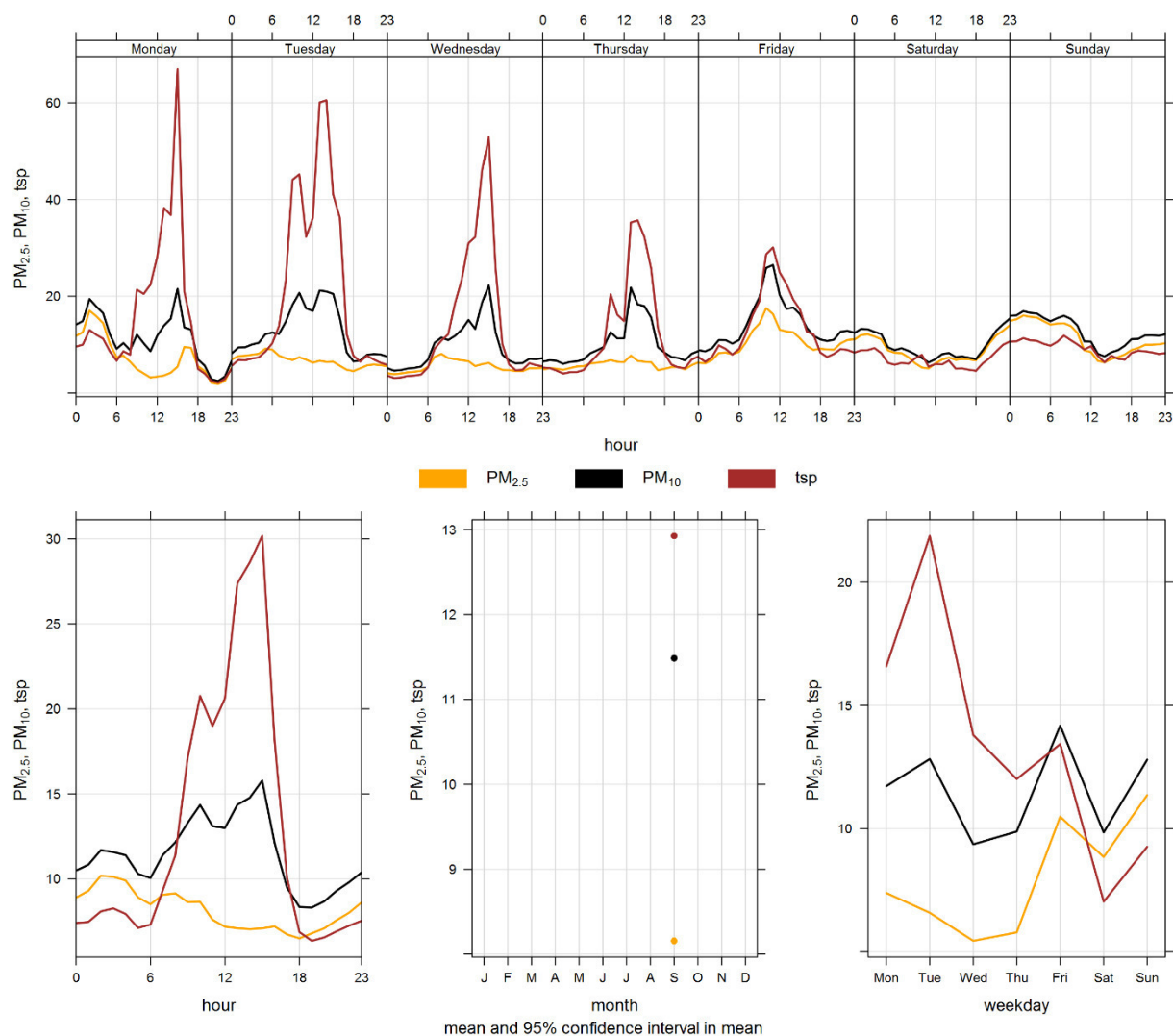


Figure 5-3 West particulate matter time variation

6 BERM INDUSTRIAL GRIMM

6.1 SITE VISIT NOTES

During the month of September, the Berm GRIMM had 100% uptime.

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 6-1 and Figure 6-2 show the hourly and daily PM_{2.5}, PM₁₀ and TSP concentrations recorded over the month. Table 6-2 summarizes the maximum 1-hour and 24-hour PM concentrations recorded during the month, and

Table 6-3 summarizes the recorded exceedances. This is an industrial monitor that is not Alberta Monitoring Directive (AMD) compliant and is not required to show compliance with the AAAQO.

In September, there were 8 and 1 exceedances of the 24-hour TSP (30 µg/m³) and PM_{2.5} (100 µg/m³) guidelines, respectively. The exceedance of the 24-hour PM_{2.5} guideline was influenced by the smoke from wildfires. Historically during the month of September, the Berm monitor records an average of 12 and 1 exceedances of the 24-hour TSP and PM_{2.5} guidelines respectively. The maximum number of TSP exceedances recorded during September occurred in 2011 where there were 19 days that exceeded the guideline. The minimum number of TSP exceedances was recorded during September 2013, which had 7 days that exceeded the guideline. The maximum number of PM_{2.5} exceedances occurred in September 2017 where 7 days of exceedances was observed.

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.

Table 6-2 Summary of September 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/m³)	80	30	Berm	2	1	10.6	99.1	25	15	26.9	255.3	42.3	2	100
PM₁₀ (µg/m³)	-	-	Berm	-	-	32.5	806.6	25	15	26.9	255.3	216.7	25	100
TSP (µg/m³)	-	100	Berm	-	8	74.5	2078.4	25	15	26.9	255.3	560.5	25	100

Table 6-3 Days exceeding the Guideline for TSP or PM_{2.5} 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						
01/09/2018	176.9	-	254.4	13.4	42.0	
02/09/2018	107.1	42	249.0	13.9	47.1	Wildfire smoke
06/09/2018	131.1	-	274.5	9.5	58.9	
07/09/2018	204.4	-	245.8	11.1	51.1	
08/09/2018	316.3	-	255.8	16.0	48.1	
11/09/2018	118.5	-	254.3	11.9	61.9	
25/09/2018	560.5	-	255.9	19.3	57.1	High evening wind speeds
26/09/2018	174.7	-	262.4	16.3	54.7	
Total # of Exceedances	8	1				
Maximum # of Exceedances (September)	19 (2011)	7 (2017)				
Average # of Exceedances (September)	12	1				
Minimum # of Exceedances (September)	7 (2013)	0 (2010, 2011, 2012, 2013, 2014, 2015)				

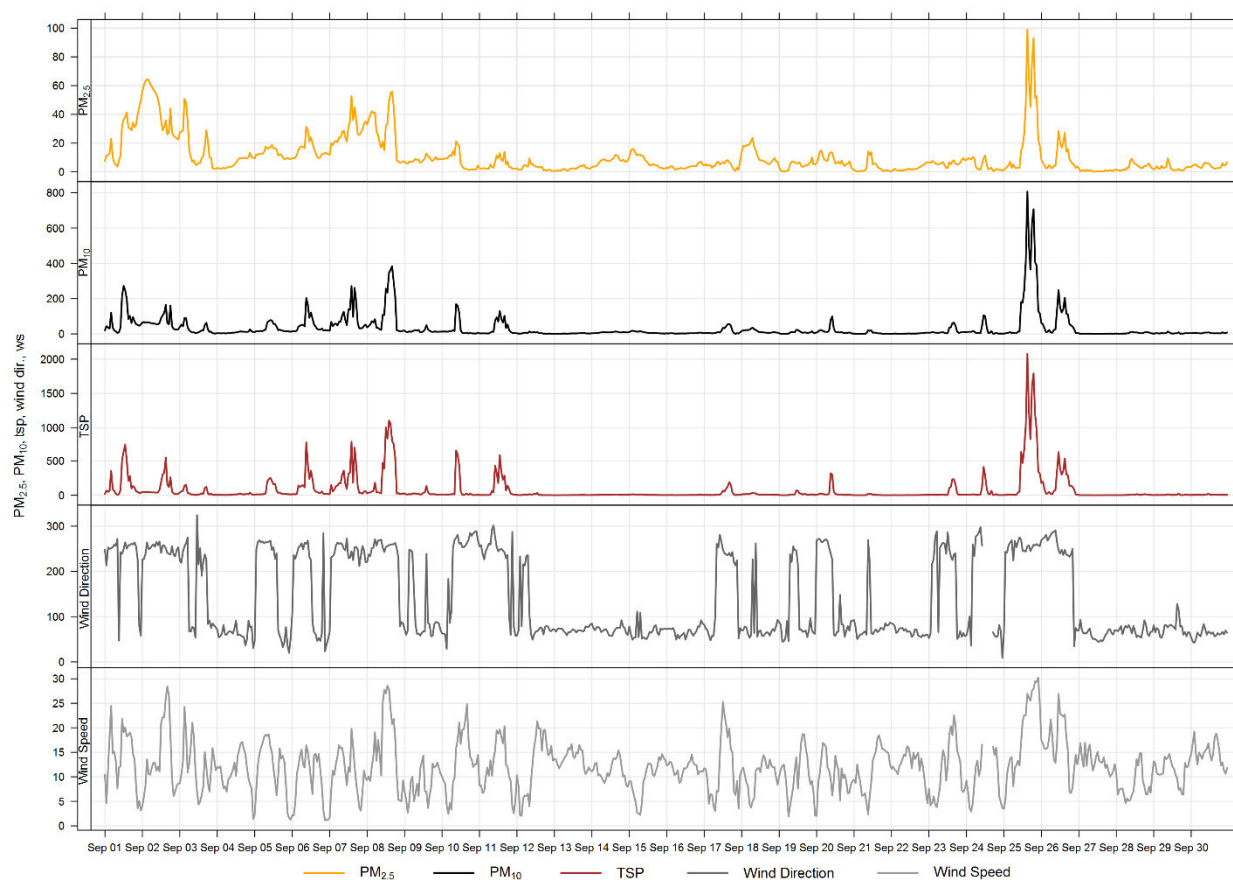


Figure 6-1 1-hour particulate matter concentrations recorded at the Berm monitor

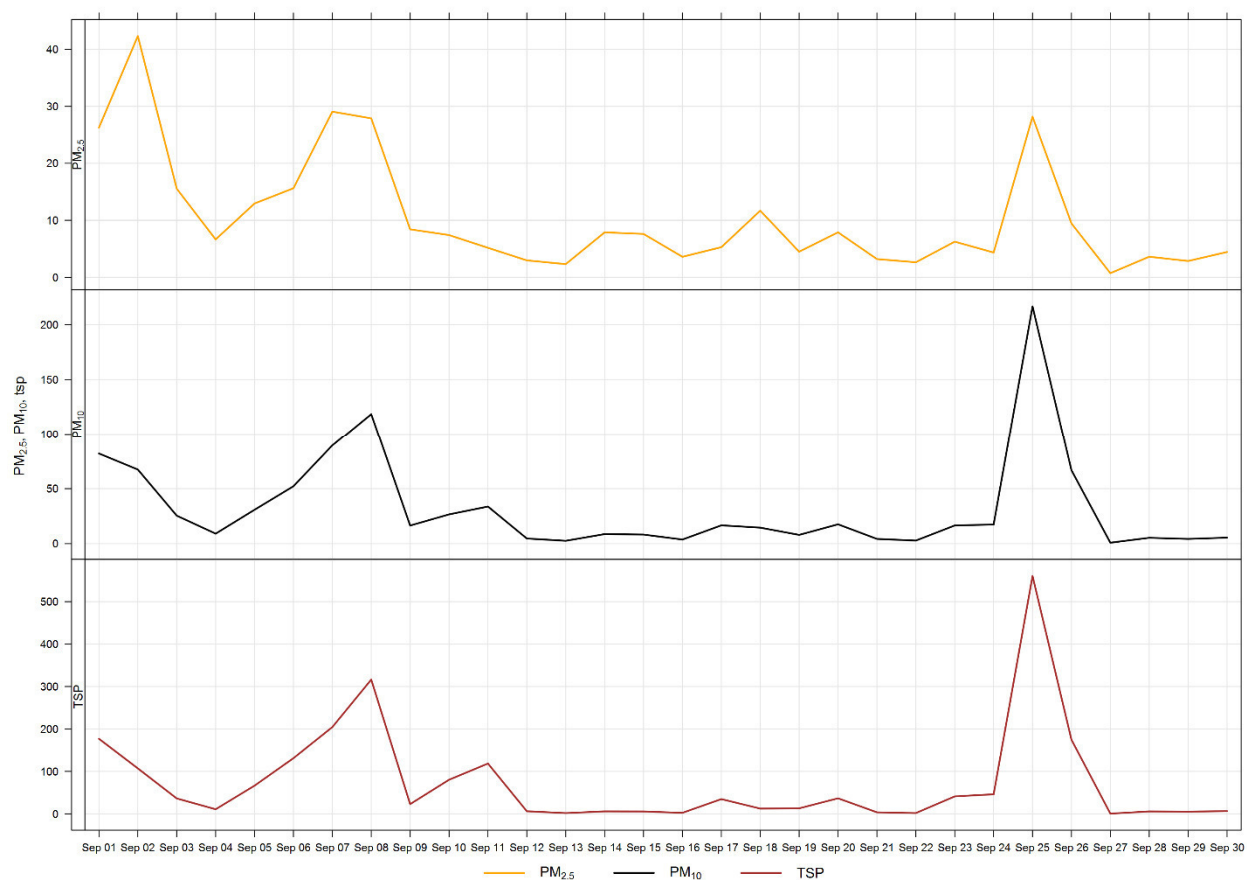


Figure 6-2 24-hour particulate matter concentrations recorded at the Berm monitor

Figure 6-3 shows the wind roses for the 8 days of TSP exceedances. The wind rose shows that the winds predominantly come from the west and west-southwest directions, and were over 20 km/hr.

Figure 6-4 shows the variation of PM recorded at the Berm monitor over various time averaging periods. The Berm monitor diurnal pattern is shifted to later in the day during September 2018, primarily due to the high wind speeds in the evening of the TSP exceedance event on September 25.

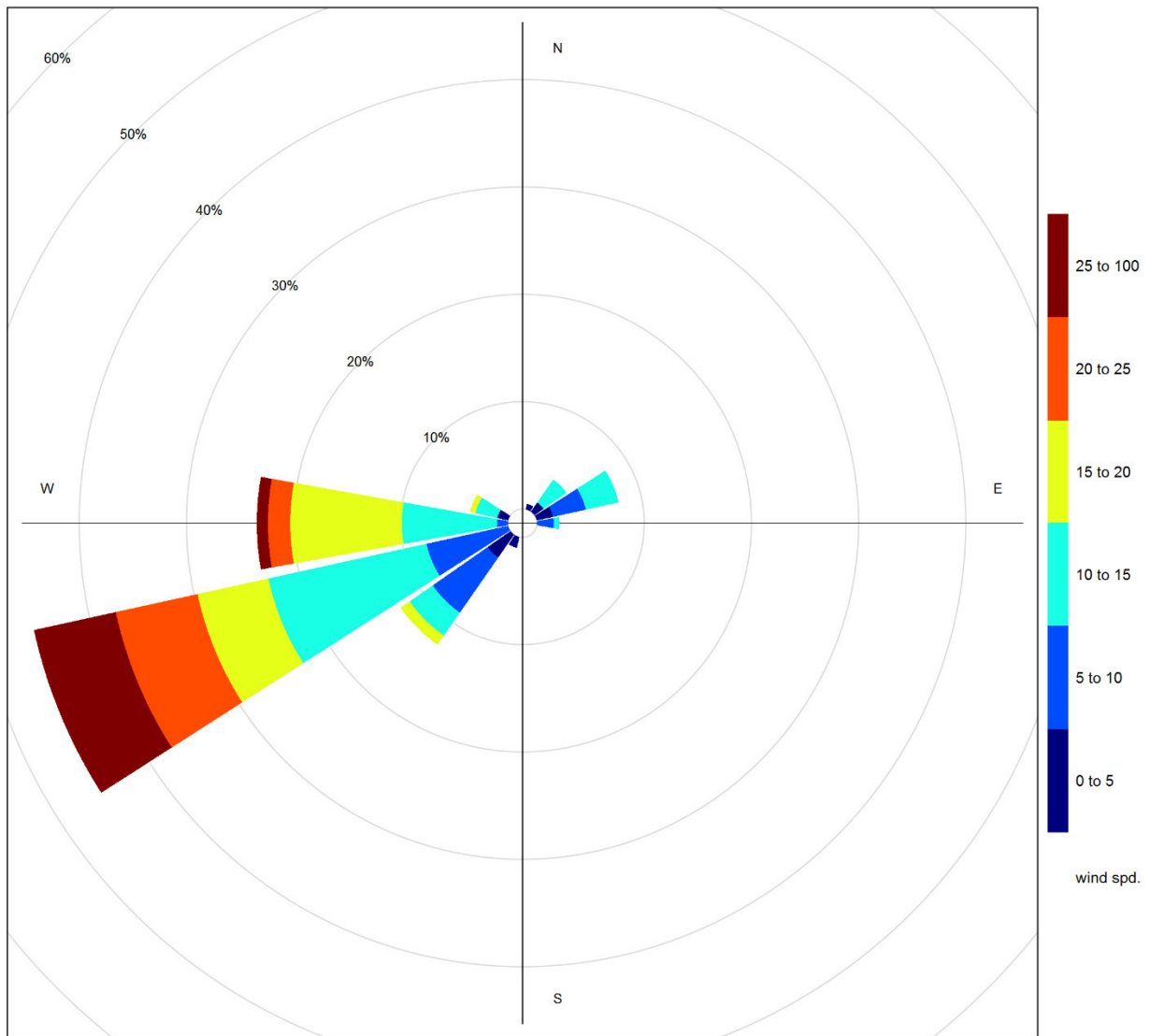


Figure 6-3 Wind rose for TSP exceedance days recorded at the Berm GRIMM

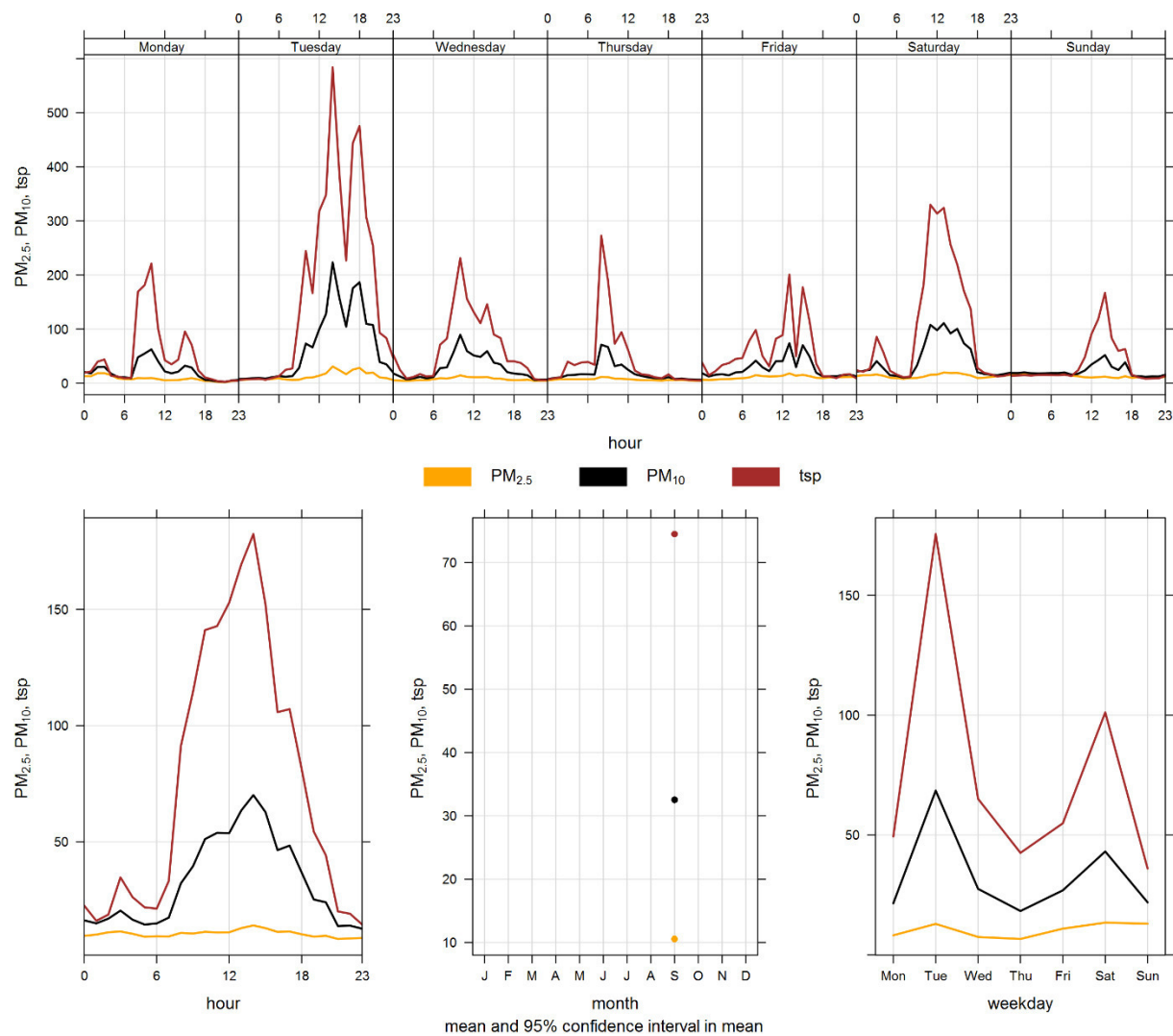


Figure 6-4 Berm particulate matter time variation

7 ENTRANCE INDUSTRIAL 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 September, the Entrance GRIMM had 100% uptime.

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 7-1 and Figure 7-2 show the hourly and daily PM_{2.5}, PM₁₀ and TSP concentrations recorded over the month. Table 7-2 summarizes the maximum 1-hour and 24-hour PM concentrations recorded during the month. Table 7-3 summarizes the recorded exceedances. This is an industrial monitor that is not Alberta Monitoring Directive (AMD) compliant and is not required to show compliance with the AAAQO.

During September, there were 14 and 2 exceedances of the 24-hour TSP (100 µg/m³) and PM_{2.5} (30 µg/m³) guidelines, respectively. The exceedances of the 24-hour PM_{2.5} objective were influenced by the smoke from wildfires. Historically, the Entrance monitor records an average of 15 and 1 exceedances of the 24-hour TSP and PM_{2.5} guidelines respectively, during the month of September. The maximum number of TSP exceedances recorded during September occurred in 2013, which had 22 days that exceeded the guideline. The minimum number of TSP exceedances recorded during September occurred in 2016, which had 9 days that exceeded the guideline. On the other hand, the maximum number of PM_{2.5} exceedances recorded during the month of September was 7 days of exceedance in 2017. The fewest number of PM_{2.5} exceedances for September was 0 days of exceedances occurring in 2011, 2015 and 2016.

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 high wind events. Trucks also pass near to the Entrance monitor as they enter and exit the Lafarge facility for loading and deliveries. 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. The CPR rail crossing is in disrepair and may be contributing to PM concentrations at the Entrance monitor. Lafarge has been informed the crossing is scheduled to be repaired in the spring of 2019.

Error! Reference source not found. shows the wind roses for the 2 days of PM_{2.5} exceedances. The wind rose shows that the winds predominantly come from the west and west-southwest directions, and were over 25 km/hr.

Figure 7-3 shows the wind roses for the 14 days that exceeded the TSP Guideline at the Entrance GRIMM. High wind speeds were not a primary factor in TSP exceedances in September at the Entrance station, which would suggest that some of the other sources, such as traffic and rail may have contributed to the exceedances.

Table 7-2 Summary of September 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} (µg/m ³)	80	30	Entrance	1	2	15.1	88.1	2	3	13.6	263.8	47.5	2	100
PM ₁₀ (µg/m ³)	-	-	Entrance	-	-	45.9	323.0	2	3	13.6	263.8	124.4	7	100
TSP (µg/m ³)	-	100	Entrance	-	14	93.2	911.2	24	16	16.1*	65.4*	255.6	26	100

*Wind speed and direction were taken from Day 24, hour 17:00 due to equipment maintenance on hour 16:00.

Table 7-3 Days exceeding the Guideline for TSP or PM_{2.5} 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						
02/09/2018	147.8	48	249.0	13.9	47.1	Wildfire smoke
05/09/2018	111.0	-	276.6	11.8	58.5	Wildfire smoke
06/09/2018	132.9	-	274.5	9.5	58.9	
07/09/2018	245.8	39	245.8	11.1	51.1	
08/09/2018	174.2	-	255.8	16.0	48.1	
11/09/2018	125.7	-	254.3	11.9	61.9	
17/09/2018	102.0	-	242.8	11.6	74.6	
18/09/2018	135.7	-	67.3	10.3	82.1	
19/09/2018	153.9	-	68.3	10.1	77.8	
20/09/2018	110.4	-	15.6	10.7	79.3	
24/09/2018	245.5	-	4.8	9.3	77.5	
25/09/2018	155.9	-	255.9	19.3	57.1	High evening wind speeds
26/09/2018	255.6	-	262.4	16.3	54.7	
28/09/2018	146.3	-	67.9	8.5	83.9	
Total # of Exceedances	14	2				

Maximum # of Exceedances (September)	22 (2013)	7 (2017)				
Average # of Exceedances (September)	15	1				
Minimum # of Exceedances (September)	9 (2016)	0 (2011, 2015, 2016)				

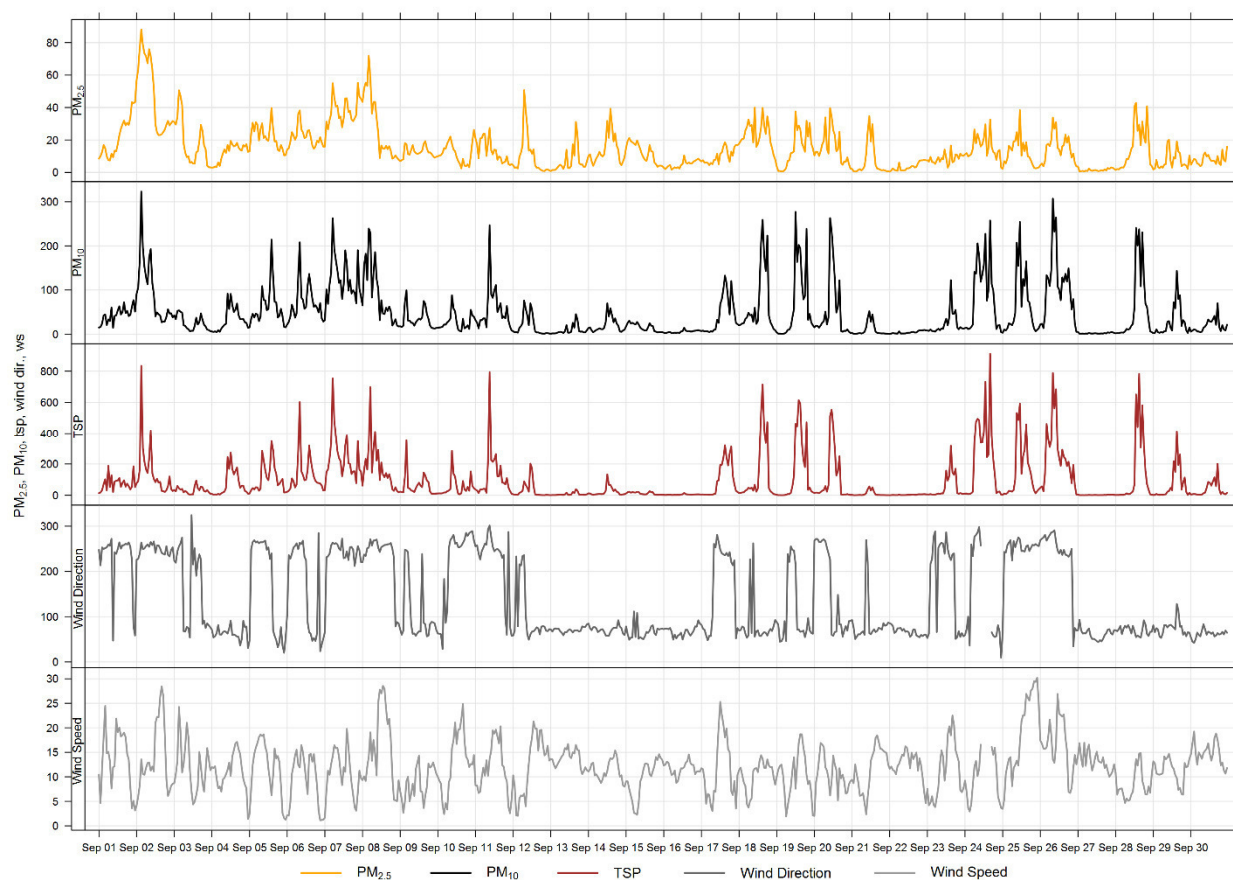


Figure 7-1 1-hour particulate matter concentrations recorded at the Entrance monitor

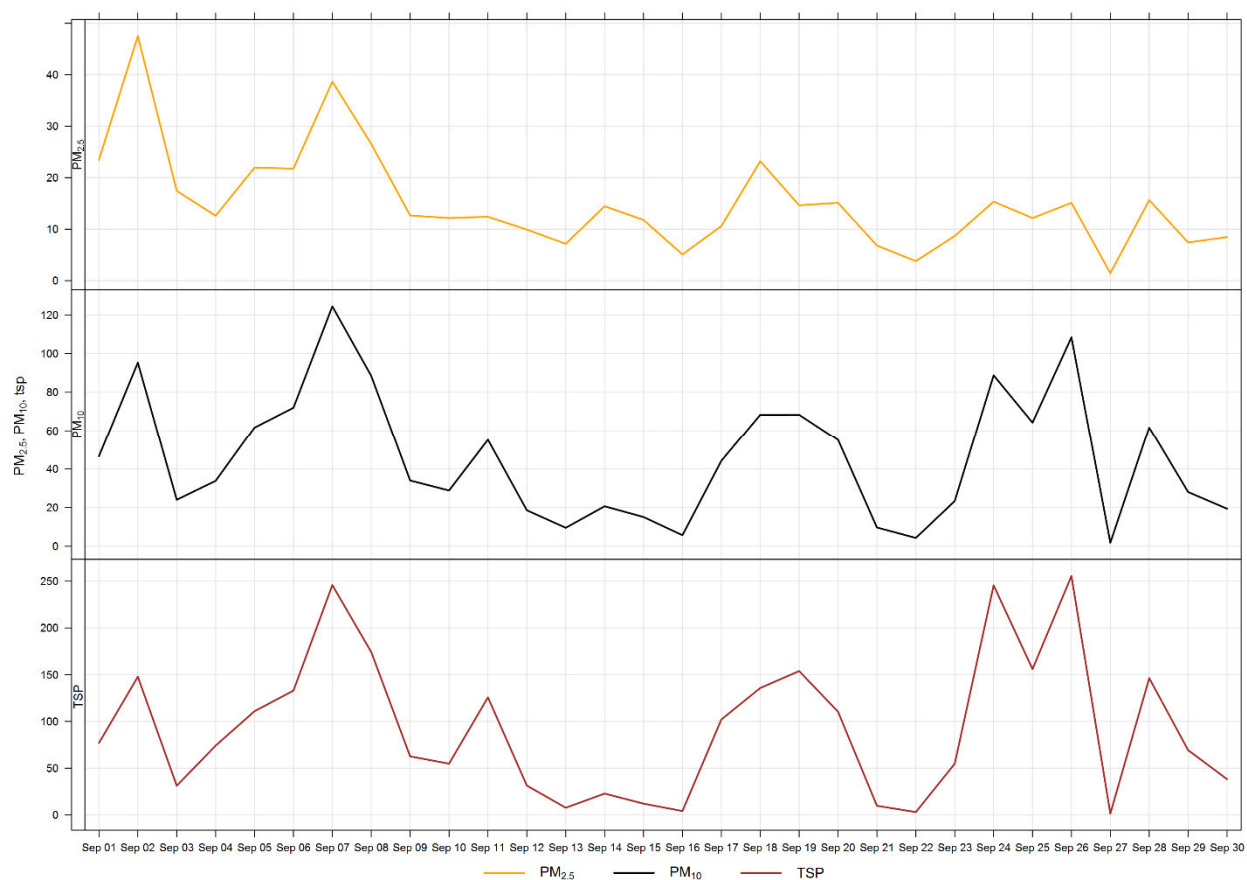


Figure 7-2 24-hour particulate matter concentrations at the Entrance monitor

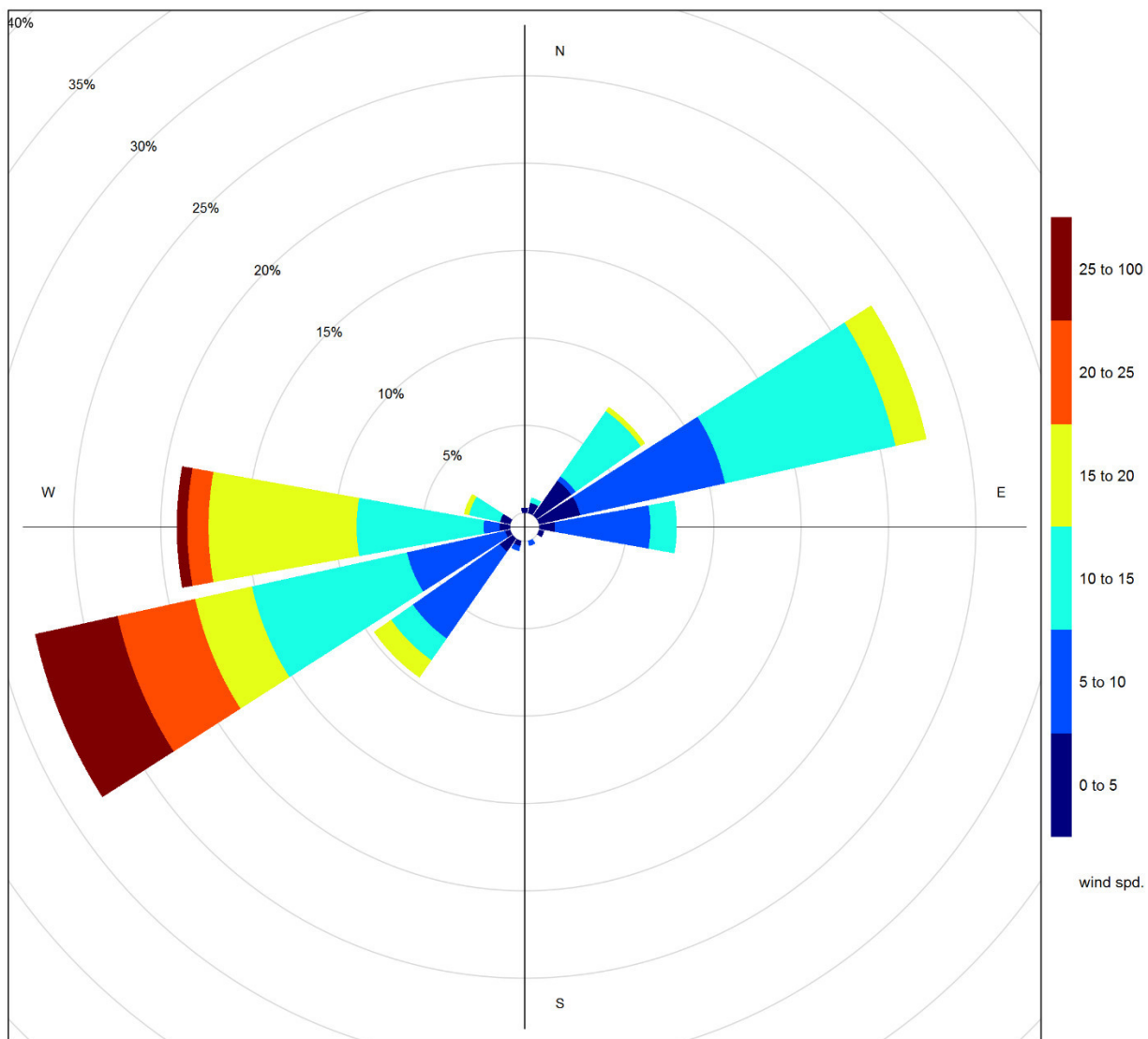


Figure 7-3 Wind rose for TSP exceedance days recorded at the Entrance GRIMM

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 September 2018 and shows a similar shift to the evening exhibited at all stations.

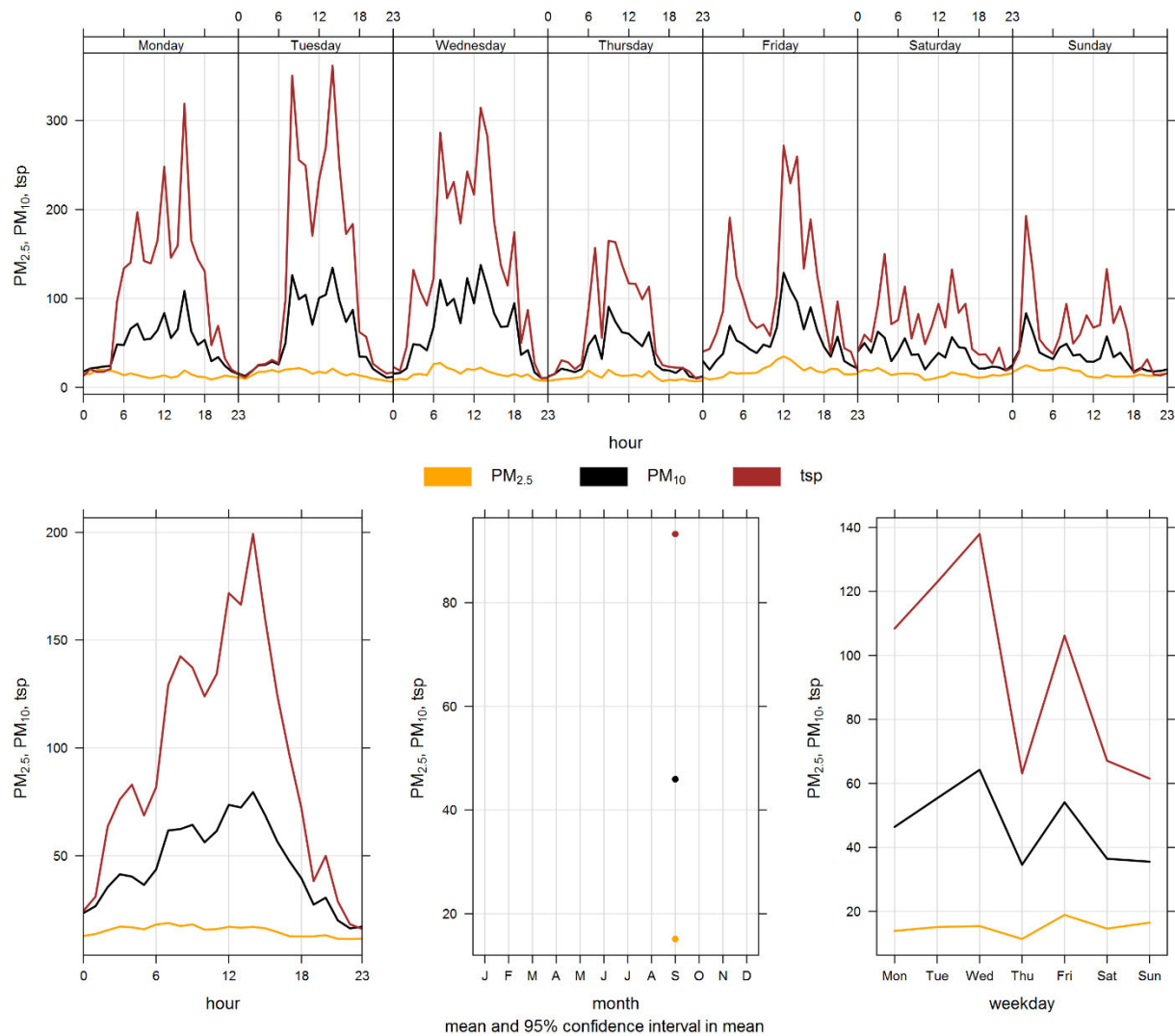


Figure 7-4 Entrance particulate matter time variation

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APPENDIX

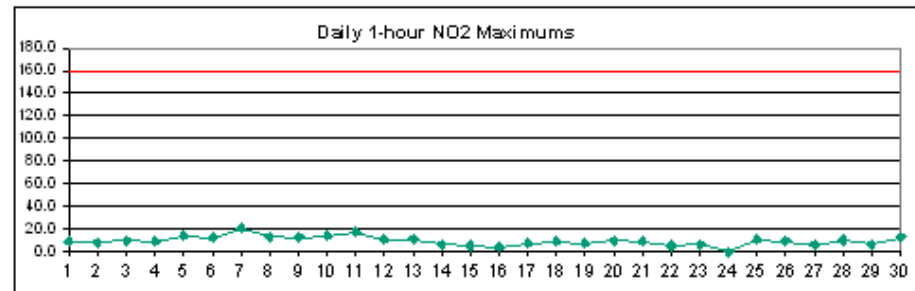
A DATA & CALIBRATION REPORTS

APPENDIX



Lagoon NO₂ (ppb) – September 2018

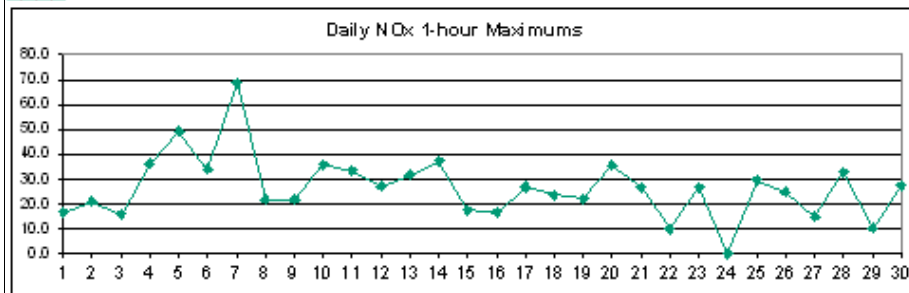
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.0	\$	1.0	2.3	2.8	8.5	0.6	3.5	3.3	5.2	0.0	0.7	4.6	2.9	6.7	2.8	5.9	5.1	8.9	2.5	1.8	4.1	4.8	4.3	3.6	8.9
2	4.4	\$	4.9	5.4	6.5	7.9	6.8	5.9	4.8	6.0	8.5	0.0	4.5	4.7	3.0	0.0	0.0	0.0	2.6	1.4	2.5	1.7	3.0	7.5	4.0	8.5
3	6.6	\$	0.3	8.1	5.0	0.2	0.0	0.0	1.3	0.8	9.8	4.6	5.1	1.9	5.3	0.9	0.0	1.6	0.4	2.5	0.0	0.0	0.0	0.0	2.4	9.8
4	0.3	\$	3.3	0.0	0.0	6.3	5.4	1.1	2.3	0.8	1.3	0.0	1.9	1.0	1.0	2.6	3.5	0.0	0.0	2.4	0.1	8.7	6.1	5.5	2.3	8.7
5	6.7	\$	9.1	9.5	6.6	6.6	9.3	8.7	7.5	11.7	4.1	4.2	0.7	6.3	0.4	3.8	1.0	1.2	3.8	1.3	14.3	12.6	7.9	4.0	6.1	14.3
6	5.6	\$	9.3	8.8	10.0	8.7	9.7	11.2	9.4	7.9	3.5	1.9	12.1	5.9	4.3	3.0	4.8	2.7	8.8	10.1	5.0	8.4	7.1	9.0	7.3	12.1
7	7.6	\$	7.6	13.2	13.3	11.3	16.7	14.5	10.3	8.1	11.9	4.4	3.6	0.7	0.0	2.6	6.0	2.4	3.1	7.7	9.1	11.9	20.6	18.0	8.9	20.6
8	9.8	\$	11.7	13.4	10.7	0.7	2.0	6.4	7.0	3.4	0.0	2.6	1.9	2.9	4.2	2.7	2.1	6.6	5.1	3.5	6.6	2.7	0.4	1.6	4.7	13.4
9	9.3	\$	7.6	5.2	4.8	8.9	10.8	13.0	7.6	1.4	4.0	0.5	4.1	9.7	11.0	4.2	6.3	6.3	10.2	2.7	1.0	0.8	3.6	6.1	6.1	13.0
10	6.8	\$	7.2	5.1	6.4	9.2	13.3	10.5	13.8	8.0	4.7	5.8	4.3	3.3	2.5	3.6	6.9	4.3	6.4	5.3	9.7	7.1	6.4	6.7	6.8	13.8
11	4.1	\$	4.7	3.8	3.0	2.5	7.1	3.8	3.2	4.4	1.0	1.5	0.1	4.4	0.6	0.6	0.0	0.0	0.2	5.5	5.3	7.7	6.9	17.1	3.8	17.1
12	10.7	\$	4.9	6.6	5.1	4.5	8.9	7.6	9.8	10.4	2.9	2.8	1.3	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.4	3.4	4.1	1.1	3.8	10.7
13	4.7	\$	1.7	4.2	2.9	6.7	11.3	2.3	4.8	2.5	1.1	0.7	0.9	0.4	0.9	6.0	3.7	0.4	3.9	0.6	0.9	3.2	2.7	2.7	3.0	11.3
14	0.8	\$	0.9	1.0	1.6	2.6	3.3	2.7	1.3	2.2	2.6	6.7	3.6	1.4	0.8	0.8	0.7	1.9	1.1	1.0	1.2	2.1	2.4	2.1	1.9	6.7
15	4.1	\$	5.4	4.9	3.0	3.4	3.3	3.2	5.0	2.6	1.7	1.9	0.9	0.2	0.0	0.0	0.1	0.7	2.5	1.5	1.7	3.0	3.9	1.1	2.4	5.4
16	0.5	\$	0.4	1.3	1.7	2.1	2.9	2.7	1.4	0.2	0.0	0.2	0.0	0.9	0.5	1.7	1.6	1.9	4.2	1.6	2.2	2.2	1.6	1.4	1.4	4.2
17	1.3	\$	0.7	1.4	1.9	2.4	2.6	7.4	6.8	5.5	5.9	0.2	0.0	0.0	0.0	0.0	0.0	1.8	1.4	0.3	0.0	6.6	4.2	3.1	2.3	7.4
18	2.2	\$	2.9	4.5	4.6	4.7	7.8	8.4	9.4	4.3	3.7	1.3	2.5	2.0	2.3	3.2	1.3	2.1	3.6	5.6	6.5	6.1	4.4	2.6	4.2	9.4
19	1.0	\$	3.8	0.9	2.4	3.5	4.1	7.1	6.5	3.0	1.6	3.5	4.5	1.0	0.8	0.5	0.0	0.6	0.5	0.7	1.5	3.6	1.6	1.3	2.4	7.1
20	6.0	\$	8.1	8.7	9.2	9.8	8.1	9.2	6.7	3.4	8.6	3.6	0.0	2.0	0.0	0.4	0.0	3.9	2.8	2.1	8.9	2.1	1.8	1.4	4.6	9.8
21	1.3	\$	1.5	4.5	3.2	2.0	3.8	4.3	8.7	6.7	7.8	5.5	1.6	1.9	0.7	0.4	2.0	1.9	5.0	2.8	2.7	1.7	1.1	1.0	3.1	8.7
22	0.7	\$	1.5	3.0	1.0	0.7	1.3	2.4	0.5	0.2	0.5	1.1	1.9	1.4	0.2	1.3	2.0	2.5	2.4	4.0	4.6	5.3	3.7	2.7	2.0	5.3
23	4.2	\$	7.0	6.9	5.7	3.1	5.8	6.8	5.7	3.8	2.3	3.5	0.0	0.0	0.0	0.0	0.0	4.7	3.1	3.9	5.6	4.5	5.8	6.8	3.9	7.0
24	5.4	\$	1.8	3.8	8.0	5.7	5.0	12.4	3.2	2.2	C	C	C	C	C	C	0.0	0.9	9.3	5.1	6.8	10.4	6.5	3.8	-	-
25	4.3	\$	10.7	8.9	7.7	6.9	5.7	6.3	5.1	6.9	6.2	0.9	0.2	0.0	3.5	3.7	0.0	0.7	3.4	5.2	0.7	5.7	5.7	1.5	4.4	10.7
26	3.6	\$	4.3	7.6	5.8	9.6	6.0	8.0	7.2	4.7	0.0	0.0	1.1	0.0	0.8	0.1	0.0	0.3	0.8	1.9	8.4	6.4	1.6	5.7	3.6	9.6
27	0.0	\$	0.2	2.3	0.0	0.1	1.0	5.3	4.9	4.0	3.1	6.4	4.1	4.3	4.7	3.2	3.3	3.2	2.2	0.0	5.3	3.0	1.5	1.2	2.7	6.4
28	1.8	\$	1.1	7.1	3.5	6.4	7.5	9.9	8.0	10.3	7.0	4.0	2.9	2.6	0.6	0.8	2.5	0.2	0.2	6.4	4.8	3.7	4.9	0.0	4.2	10.3
29	1.9	\$	0.0	4.9	2.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.9	6.6	1.3	2.2	4.6	0.4	1.3	6.6
30	0.0	\$	3.7	1.3	0.0	0.2	1.5	1.3	4.9	8.9	5.6	3.5	2.3	2.4	2.9	4.4	12.9	7.6	6.6	1.0	6.5	1.9	2.0	1.9	3.6	12.9
NO.	30	-	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	684	100%
MEAN	3.9	-	4.2	5.3	4.6	5.0	5.7	6.2	5.7	4.6	3.8	2.5	2.4	2.2	2.0	1.8	2.3	2.2	3.4	3.2	4.2	4.8	4.4	4.0		
MAX	10.7	-	11.7	13.4	13.3	11.3	16.7	14.5	13.8	11.7	11.9	6.7	12.1	9.7	11.0	6.0	12.9	7.6	10.2	10.1	14.3	12.6	20.6	18.0		



Number of 1HR Exceedences	0
Number of Non-Zero Readings	616
Maximum 1-HR Average	20.6 PPB
Maximum 24-HR Average	8.9 PPB
Monthly Calibration	6
Standard Deviation	3.4
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	3.9 PPB

Lagoon NOx (ppb) – September 2018

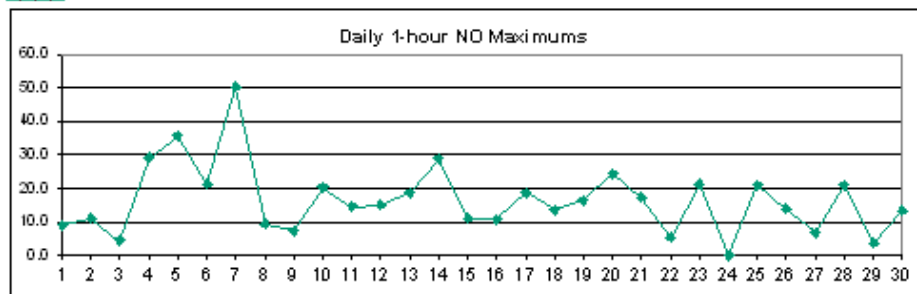
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.4	\$	1.3	3.5	3.7	14.6	1.1	5.2	5.8	10.8	0.0	2.2	15.1	5.5	13.8	6.4	12.3	9.2	16.6	3.5	2.3	4.7	5.3	4.6	6.4	16.6
2	4.7	\$	12.7	10.5	10.6	11.7	11.6	8.5	7.3	11.0	20.9	0.4	10.6	11.5	8.4	0.0	0.0	0.0	3.6	2.1	5.2	2.6	3.5	8.2	7.2	20.9
3	7.2	\$	0.8	13.0	10.4	0.8	0.0	0.0	4.1	1.5	15.8	7.5	11.0	4.3	10.1	2.4	0.0	2.9	0.9	3.0	0.0	0.0	0.0	0.0	4.2	15.8
4	1.0	\$	6.2	0.0	0.4	10.1	10.2	2.1	6.5	4.0	4.9	0.0	5.5	3.6	4.2	7.8	7.9	0.0	0.0	3.0	0.4	13.6	10.6	36.3	6.0	36.3
5	13.3	\$	19.1	24.4	16.2	13.5	28.8	41.8	37.6	49.0	12.4	13.8	2.1	12.3	1.5	7.6	2.2	3.3	9.2	1.6	25.2	14.2	8.6	4.4	15.7	49.0
6	6.5	\$	12.7	12.8	20.0	13.1	20.0	34.1	25.8	24.9	8.4	3.9	24.8	11.2	7.9	5.4	10.3	3.9	11.2	12.6	5.8	11.5	9.2	23.4	13.9	34.1
7	9.5	\$	9.1	28.5	32.3	30.6	68.7	47.4	27.3	19.5	31.0	9.4	6.1	1.6	0.0	4.0	8.3	3.0	3.7	12.9	12.4	16.6	23.3	19.6	18.5	68.7
8	10.1	\$	21.0	19.0	21.6	1.1	3.4	10.7	10.7	6.8	0.3	5.5	4.5	6.4	8.7	5.5	4.2	13.6	6.4	5.2	8.6	3.0	0.7	1.9	7.8	21.6
9	18.3	\$	9.8	6.2	6.0	13.8	17.1	21.6	15.7	3.3	10.5	2.0	7.1	14.9	16.1	5.8	12.2	9.9	14.2	3.1	1.3	1.1	4.9	8.2	9.7	21.6
10	8.7	\$	9.5	7.9	13.5	15.8	24.1	21.3	35.8	18.7	9.4	8.0	9.4	5.7	5.3	7.7	14.0	7.2	13.1	7.4	23.9	14.0	14.4	9.9	13.2	35.8
11	6.0	\$	7.3	6.2	5.4	3.7	19.4	11.6	10.3	13.1	3.0	4.1	1.3	9.4	2.1	2.6	0.0	0.0	0.6	8.4	5.7	11.0	9.5	33.4	7.6	33.4
12	14.2	\$	12.5	10.6	5.6	5.7	20.0	20.9	19.4	27.0	7.4	7.8	9.2	1.5	1.6	0.6	16.2	0.2	0.4	0.4	0.9	12.3	11.1	3.0	9.1	27.0
13	15.5	\$	3.1	10.8	9.0	23.9	31.9	6.2	16.9	8.8	5.3	4.1	4.2	2.9	4.2	14.8	7.7	2.1	9.3	1.0	1.2	5.7	4.3	3.1	8.5	31.9
14	1.1	\$	1.3	1.5	2.1	4.3	4.5	4.8	3.5	7.2	12.2	37.2	15.4	5.9	2.6	2.2	2.2	7.2	2.3	1.6	1.9	3.6	4.1	2.5	5.7	37.2
15	6.1	\$	8.3	7.9	4.8	8.8	10.3	13.4	17.6	9.2	7.6	9.9	6.0	4.3	0.9	1.4	0.8	1.4	6.7	3.9	3.2	8.8	12.5	1.5	6.8	17.6
16	0.7	\$	0.7	3.1	7.9	6.4	11.3	13.5	6.6	3.2	3.4	8.5	4.1	5.7	2.7	8.3	6.6	6.8	16.6	2.4	3.9	3.6	3.2	3.1	5.7	16.6
17	2.7	\$	1.2	4.8	3.8	5.9	4.7	20.6	19.3	20.0	18.4	1.9	0.4	0.6	0.6	1.3	0.4	3.7	2.0	1.0	0.0	26.8	10.2	3.5	6.7	26.8
18	2.7	\$	3.1	7.3	8.0	5.7	22.4	23.7	23.1	11.3	8.6	3.7	7.5	6.4	5.3	6.7	3.3	3.0	4.9	8.1	9.8	10.6	5.1	3.0	8.4	23.7
19	1.5	\$	9.6	2.5	3.7	13.6	18.1	20.6	22.0	12.2	6.5	11.4	12.5	4.5	3.8	3.3	0.6	3.0	0.9	1.1	5.0	5.8	7.7	19.3	8.2	22.0
20	10.4	\$	19.4	24.6	24.7	29.5	19.5	35.4	26.7	10.2	25.7	9.3	1.9	6.1	0.0	1.3	0.0	7.7	3.7	2.7	14.9	2.4	2.3	1.7	12.2	35.4
21	1.6	\$	2.6	7.4	4.3	2.7	7.5	6.3	26.7	19.3	26.8	15.4	4.0	4.5	2.5	2.1	3.7	3.7	13.4	4.9	3.3	2.2	1.4	1.4	7.3	26.8
22	0.9	\$	2.0	8.4	1.5	1.0	1.8	8.3	2.1	2.5	3.2	5.2	8.9	7.5	2.7	3.7	5.7	8.3	3.4	6.3	9.1	9.8	4.3	3.9	4.8	9.8
23	10.3	\$	11.2	12.7	13.8	7.7	16.6	25.0	26.2	26.7	13.0	15.4	1.7	0.0	0.0	0.0	0.0	15.2	6.6	7.3	6.2	6.1	9.4	19.9	10.9	26.7
24	12.1	\$	3.3	15.6	21.8	9.4	8.6	27.0	6.7	4.4	C	C	C	C	C	C	0.0	4.5	18.5	6.7	11.4	20.6	12.7	14.3	-	-
25	14.1	\$	21.5	19.7	29.0	14.9	11.4	23.3	23.6	29.6	22.7	3.1	2.9	1.7	7.7	6.5	0.7	2.1	6.4	10.2	1.3	12.1	9.3	1.9	12.0	29.6
26	5.5	\$	7.2	13.9	12.7	25.0	11.7	17.4	13.6	10.2	0.3	0.0	2.3	0.5	2.0	0.8	0.0	0.7	1.1	2.3	11.8	9.8	1.9	8.7	6.9	25.0
27	0.0	\$	0.6	6.5	0.0	0.6	1.4	12.1	10.0	7.8	6.3	14.7	8.7	10.5	11.1	8.6	6.8	5.2	3.6	0.3	8.2	3.9	2.4	2.0	5.7	14.7
28	2.3	\$	1.7	10.0	4.3	10.9	21.6	31.5	19.6	32.9	18.5	9.6	7.8	6.5	2.4	2.9	4.6	0.6	0.6	14.1	6.0	6.8	6.0	0.0	9.6	32.9
29	3.3	\$	0.0	7.5	3.6	10.0	0.0	0.3	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	1.8	0.0	3.5	10.4	2.3	4.0	6.6	0.8	2.4	10.4
30	0.4	\$	14.3	2.0	0.1	1.5	2.4	2.6	8.3	19.0	15.9	12.1	6.0	9.1	9.0	9.1	27.6	16.7	11.4	1.9	13.8	2.4	3.7	3.3	8.4	27.6
NO.	30	-	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	684	100%
MEAN	6.4	-	7.8	10.3	10.0	10.5	14.3	17.2	16.0	14.1	11.0	7.8	6.9	5.7	4.7	4.4	5.3	4.8	6.5	5.0	6.8	8.3	6.9	8.2		
MAX	18.3	-	21.5	28.5	32.3	30.6	68.7	47.4	37.6	49.0	31.0	37.2	24.8	14.9	16.1	14.8	27.6	16.7	18.5	14.1	25.2	26.8	23.3	36.3		



Number of Non-Zero Readings	644
Maximum 1-HR Average	68.7 PPB
Maximum 24-HR Average	18.5 PPB
Monthly Calibration	6
Standard Deviation	8.37
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	8.7 PPB

Lagoon NO (ppb) – September 2018

Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.0	\$	0.0	0.0	0.0	4.6	0.0	0.2	1.0	4.2	0.0	0.0	9.1	1.2	5.6	2.2	4.9	2.6	6.3	0.0	0.0	0.0	0.0	0.0	1.8	9.1
2	0.0	\$	6.4	3.7	2.6	2.3	3.4	1.2	1.1	3.5	11.0	0.0	4.7	5.3	3.9	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.2	11.0
3	0.0	\$	0.0	3.4	4.0	0.0	0.0	0.0	1.2	0.0	4.4	1.4	4.3	0.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.4
4	0.0	\$	1.4	0.0	0.0	2.2	3.3	0.0	2.6	1.6	2.0	0.0	2.0	1.0	1.6	3.6	2.8	0.0	0.0	0.0	0.0	3.3	3.0	29.0	2.6	29.0
5	5.0	\$	8.5	13.4	8.1	5.3	17.8	31.3	28.4	35.6	6.7	8.0	0.0	4.4	0.0	2.2	0.0	0.4	3.8	0.0	9.2	0.0	0.0	0.0	8.2	35.6
6	0.0	\$	1.9	2.5	8.4	2.9	8.7	21.1	14.7	15.4	3.2	0.5	11.0	3.6	2.0	0.8	3.9	0.0	0.8	0.9	0.0	1.6	0.5	12.8	5.1	21.1
7	0.4	\$	0.0	13.6	17.4	17.6	50.2	31.1	15.4	9.8	17.4	3.4	0.9	0.0	0.0	0.0	0.7	0.0	0.0	3.5	1.7	3.1	1.1	0.0	8.1	50.2
8	0.0	\$	7.8	4.0	9.2	0.0	0.0	2.8	2.1	1.8	0.0	1.3	1.0	2.0	2.9	1.2	0.6	5.4	0.0	0.1	0.4	0.0	0.0	0.0	1.9	9.2
9	7.4	\$	0.7	0.0	0.0	3.3	4.7	7.0	6.5	0.3	4.9	0.0	1.4	3.7	3.5	0.0	4.2	2.0	2.4	0.0	0.0	0.0	0.0	0.6	2.3	7.4
10	0.4	\$	0.7	1.3	5.6	5.1	9.2	9.1	20.3	9.1	3.1	0.7	3.5	0.7	1.3	2.5	5.5	1.3	5.2	0.6	12.6	5.3	6.4	1.7	4.8	20.3
11	0.3	\$	1.1	0.8	0.8	0.0	10.7	6.2	5.5	7.1	0.4	1.0	0.0	3.4	0.0	0.5	0.0	0.0	0.0	1.3	0.0	1.7	1.1	14.6	2.5	14.6
12	1.8	\$	5.9	2.5	0.0	0.0	9.5	11.7	8.0	14.9	2.8	3.4	6.4	0.0	0.6	0.0	11.7	0.0	0.0	0.0	0.0	7.3	5.3	0.3	4.0	14.9
13	9.1	\$	0.0	5.0	4.6	15.5	18.8	2.2	10.4	4.8	2.7	1.9	1.8	1.0	1.8	7.3	2.4	0.2	3.8	0.0	0.0	0.9	0.1	0.0	4.1	18.8
14	0.0	\$	0.0	0.0	0.0	0.1	0.0	0.5	0.6	3.4	8.0	28.8	10.3	2.9	0.3	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.1	0.0	2.5	28.8
15	0.4	\$	1.4	1.4	0.3	3.8	5.4	8.6	11.0	5.1	4.2	6.4	3.6	2.6	0.0	0.0	0.0	0.0	2.7	0.8	0.0	4.1	6.9	0.0	3.0	11.0
16	0.0	\$	0.0	0.2	4.6	2.7	6.8	9.1	3.6	1.5	1.9	6.7	2.6	3.2	0.7	5.1	3.3	3.3	10.7	0.0	0.1	0.0	0.0	0.1	2.9	10.7
17	0.0	\$	0.0	1.7	0.3	1.9	0.5	11.6	10.9	12.8	10.8	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	18.7	4.4	0.0	3.2	18.7
18	0.0	\$	0.0	1.3	1.8	0.0	13.0	13.6	12.1	5.4	3.3	0.7	3.4	2.8	1.5	1.8	0.4	0.0	0.0	0.9	1.7	2.9	0.0	0.0	2.9	13.6
19	0.0	\$	4.2	0.0	0.0	8.5	12.3	11.9	13.9	7.5	3.3	6.3	6.4	1.8	1.4	1.3	0.0	0.7	0.0	0.0	1.9	0.6	4.5	16.3	4.5	16.3
20	2.9	\$	9.7	14.3	13.9	18.0	9.8	24.4	18.4	5.3	15.4	4.1	0.5	2.5	0.0	0.0	0.0	2.2	0.0	0.0	4.4	0.0	0.0	0.0	6.3	24.4
21	0.0	\$	0.0	1.4	0.0	0.0	2.2	0.4	16.3	11.0	17.4	8.3	0.8	1.0	0.2	0.1	0.1	0.1	6.7	0.5	0.0	0.0	0.0	0.0	2.9	17.4
22	0.0	\$	0.0	3.8	0.0	0.0	0.0	4.2	0.1	0.7	1.1	2.5	5.4	4.5	0.9	0.8	2.1	4.1	0.0	0.8	2.9	2.9	0.0	0.0	1.6	5.4
23	4.4	\$	2.6	4.3	6.5	2.9	9.2	16.5	18.9	21.2	9.0	10.3	0.2	0.0	0.0	0.0	0.0	8.9	1.9	1.9	0.0	0.1	2.0	11.4	5.7	21.2
24	5.1	\$	0.0	10.2	12.3	2.1	2.0	12.9	1.9	0.5	C	C	C	C	C	C	0.0	2.1	7.7	0.1	3.0	8.7	4.7	9.0	-	-
25	8.3	\$	9.3	9.2	19.7	6.5	4.2	15.5	16.9	21.0	14.9	0.7	1.2	0.3	2.6	1.3	0.0	0.0	1.4	3.4	0.0	4.8	2.0	0.0	6.2	21.0
26	0.4	\$	1.4	4.7	5.5	13.8	4.3	7.9	4.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	0.0	1.5	2.3	13.8
27	0.0	\$	0.0	2.6	0.0	0.0	0.0	5.3	3.6	2.2	1.6	6.8	3.1	4.6	4.9	3.9	2.0	0.4	0.0	0.0	1.4	0.0	0.0	0.0	1.8	6.8
28	0.0	\$	0.0	1.4	0.0	3.0	12.6	20.0	10.1	20.9	9.9	4.1	3.4	2.4	0.2	0.5	0.6	0.0	0.0	6.1	0.0	1.6	0.0	0.0	4.2	20.9
29	0.0	\$	0.0	1.1	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.3	0.0	0.3	0.5	0.0	0.4	3.6
30	0.0	\$	9.1	0.0	0.0	0.0	0.0	0.0	1.8	8.5	8.7	7.0	2.1	5.2	4.6	3.2	13.1	7.6	3.3	0.0	5.7	0.0	0.1	0.0	3.5	13.1
NO.	30	-	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	684	100%
MEAN	1.5	-	2.4	3.6	4.2	4.2	7.3	9.6	8.7	8.0	5.8	3.9	3.1	2.1	1.5	1.3	1.9	1.5	1.9	0.8	1.6	2.3	1.4	3.2		
MAX	9.1	-	9.7	14.3	19.7	18.0	50.2	31.3	28.4	35.6	17.4	28.8	11.0	5.3	5.6	7.3	13.1	8.9	10.7	6.1	12.6	18.7	6.9	29.0		



Number of Non-Zero Readings 454

Maximum 1-HR Average 50.2 PPB

Maximum 24-HR Average 8.2 PPB

Monthly Calibration 6

Standard Deviation 5.568

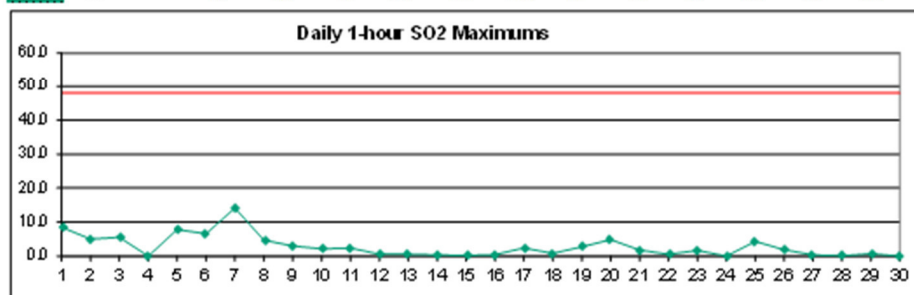
Operational Time 720 HRS

Operational Uptime 100.0 %

Monthly Average 3.6 PPB

Lagoon SO₂ (ppb) – September 2018

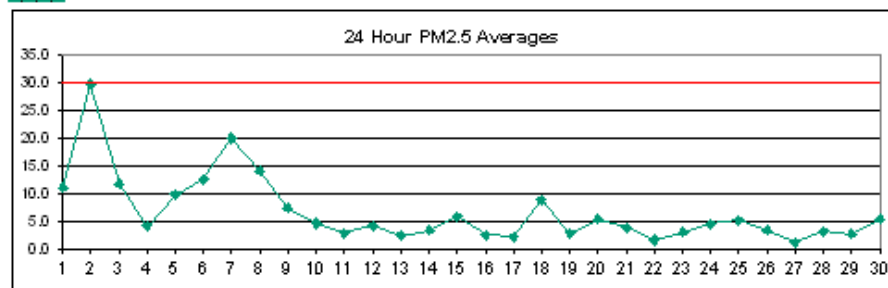
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0.0	S	0.0	0.4	0.4	1.2	0.0	0.1	1.2	0.5	0.0	1.8	3.5	3.3	8.8	3.3	3.3	1.9	4.8	0.0	0.0	0.0	0.0	0.0	1.5	8.8
2	0.0	S	1.0	0.2	0.0	0.0	0.5	0.0	0.3	0.2	5.0	0.0	3.1	5.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.0
3	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.1	1.9	5.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.8
4	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	S	1.0	3.8	1.8	0.8	1.9	7.8	3.3	3.4	0.0	0.3	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	7.8
6	0.0	S	0.0	0.0	0.0	0.0	0.0	1.8	1.4	4.2	0.3	0.0	8.8	0.7	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	8.8
7	0.0	S	0.0	3.5	4.4	5.9	14.1	11.5	7.1	4.3	9.7	1.3	0.8	0.1	0.0	0.2	2.3	0.1	0.2	0.3	0.0	0.0	0.0	0.0	2.8	14.1
8	0.0	S	0.4	1.0	4.8	0.4	0.3	0.8	1.3	0.5	0.0	1.0	1.1	1.4	2.3	1.1	0.8	2.8	0.1	0.0	0.0	0.0	0.0	0.0	0.9	4.8
9	0.1	S	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.4	2.4	3.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.0
10	0.0	S	0.0	0.0	0.0	0.0	0.4	0.8	1.4	2.2	0.4	0.5	0.0	0.0	0.2	0.0	0.3	0.4	0.8	0.9	1.8	0.4	1.9	0.9	0.8	2.2
11	0.7	S	0.2	0.0	0.0	0.0	1.9	2.4	1.1	1.4	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	0.2	0.4	2.4
12	0.3	S	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5
13	0.0	S	0.1	0.0	0.0	0.1	0.5	0.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.1	0.5
14	0.0	S	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	0.4
15	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	0.2
16	0.0	S	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.1	0.4	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.5
17	0.1	S	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.4	0.3	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	0.2	2.4
18	0.0	S	0.0	0.0	0.0	0.3	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	0.1	0.0	0.0	0.0	0.0	0.1	0.8
19	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.9	0.0	2.8	2.3	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	2.8
20	0.0	S	0.1	2.5	2.2	4.8	2.3	0.9	0.4	0.0	2.0	0.5	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.8
21	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.7	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	1.8
22	0.0	S	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.5	0.8	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
23	0.0	S	0.3	0.0	0.0	0.3	0.2	0.0	0.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.0	1.7	0.8	0.8	0.8	0.0	0.5	0.5	0.4	1.7
24	0.1	S	0.0	0.0	0.1	0.2	0.7	3.5	1.2	0.2	C	C	C	C	C	C	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	-	-
25	0.0	S	0.0	1.2	2.1	1.2	0.0	0.9	2.0	4.3	2.9	0.0	0.2	0.0	0.8	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.7	4.3
26	0.3	S	0.5	1.9	1.4	0.2	0.4	1.1	1.7	0.7	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.2	0.8	0.4	1.9
27	0.2	S	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	0.3
28	0.0	S	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
29	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	0.0	0.0	0.0	0.0	0.7	0.8	0.2	0.0	0.1	0.7
30	0.0	S	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
N.O.	30	-	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	684	100%
MEAN	0.1	-	0.1	0.5	0.8	0.5	0.8	1.1	0.9	1.0	0.8	0.3	0.8	0.7	0.8	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1		
MAX	0.7	-	1.0	3.8	4.8	5.9	14.1	11.5	7.1	4.3	9.7	2.8	8.8	5.0	8.8	3.3	3.3	2.8	4.8	0.9	1.8	0.8	1.9	0.9		



Number of 1HR Exceedences	0
Number of Non-Zero Readings	244
Maximum 1-HR Average	14.1 PPB
Maximum 24-HR Average	2.8 PPB
Monthly Calibration	6
Standard Deviation	1.296
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	0.5 PPB

Lagoon PM_{2.5} (µg/m³) – September 2018

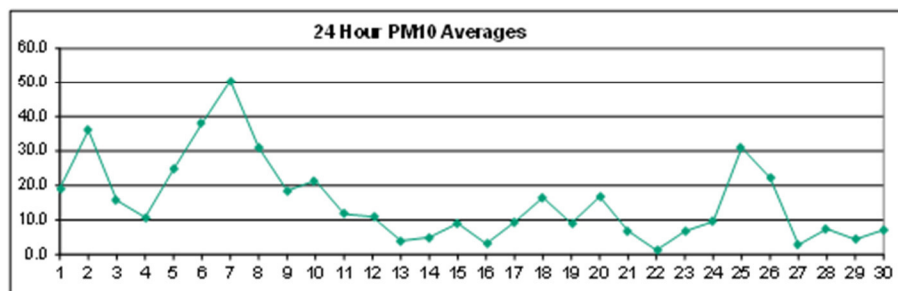
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	4.7	4.4	7.5	7.3	7.3	7.6	6.1	3.8	1.9	2.6	4.7	4.0	3.9	8.5	13.9	16.2	15.2	13.4	18.5	19.1	19.5	24.3	25.2	27.6	11.1	27.6
2	30.8	41.7	43.5	48.7	51.0	44.8	41.1	46.2	42.9	41.4	39.3	32.6	21.7	16.8	12.1	18.8	13.6	17.5	16.3	19.7	19.1	22.2	16.8	15.9	29.8	51.0
3	20.7	23.0	18.6	37.4	32.9	26.2	12.1	7.1	4.8	6.5	4.1	3.3	5.0	4.8	4.4	6.1	12.0	16.4	10.7	10.5	7.4	3.5	3.0	1.9	11.8	37.4
4	0.1	0.0	0.0	1.7	1.9	0.5	2.9	3.6	2.6	1.6	2.5	2.0	5.0	6.5	3.8	3.0	6.1	7.2	7.3	6.9	9.7	7.7	7.3	9.7	4.1	9.7
5	9.1	6.3	7.9	8.3	9.4	8.4	7.6	12.1	11.9	10.9	11.2	10.9	11.2	12.9	10.2	8.4	12.5	8.8	9.4	10.4	9.5	11.1	9.5	7.7	9.8	12.9
6	8.7	9.0	10.1	9.1	12.2	15.7	11.7	15.4	13.8	13.4	15.8	11.0	10.8	10.8	15.0	14.1	10.3	6.7	9.0	10.1	16.3	16.6	20.1	17.1	12.6	20.1
7	10.7	11.9	13.3	11.3	17.4	14.9	14.1	17.2	17.0	17.3	14.2	14.8	13.4	22.0	36.5	28.1	28.1	23.2	26.2	25.9	25.6	27.6	20.8	28.8	20.0	36.5
8	27.1	28.1	25.0	26.2	27.3	26.7	17.7	18.7	13.0	10.9	9.5	5.6	7.9	9.7	10.5	8.4	6.7	7.9	7.0	7.9	12.8	10.2	7.0	4.8	14.0	28.1
9	2.7	6.4	10.7	9.8	7.4	7.3	10.4	9.5	10.4	9.8	6.3	4.8	6.1	7.6	6.9	6.6	5.8	8.2	8.0	8.3	8.3	7.3	5.2	5.1	7.5	10.7
10	5.1	6.8	6.2	7.6	7.6	6.9	10.0	10.1	8.4	8.0	8.0	7.3	7.6	6.6	3.4	0.2	0.1	0.8	0.0	0.1	0.0	0.0	0.0	0.0	4.6	10.1
11	0.4	3.5	3.7	3.0	1.6	2.0	2.9	9.2	7.7	3.8	3.3	3.3	2.3	2.2	3.3	0.8	0.0	0.0	0.0	1.8	1.5	3.6	5.7	4.4	2.9	9.2
12	10.2	8.4	5.9	5.1	3.4	4.3	3.3	7.8	7.0	5.5	5.8	5.1	4.4	5.4	3.7	3.0	5.4	4.8	1.0	0.0	1.1	0.8	1.1	0.1	4.3	10.2
13	0.0	1.8	1.2	0.0	1.1	3.8	2.3	2.2	3.9	4.0	2.7	2.6	3.3	2.6	2.0	5.3	5.1	3.7	2.7	2.6	1.9	1.2	2.2	0.9	2.5	5.3
14	2.2	1.5	0.1	1.1	1.5	4.3	4.4	2.7	2.9	5.0	4.1	3.7	5.4	5.8	7.2	5.2	6.5	5.2	3.7	3.3	1.6	0.5	1.5	2.2	3.4	7.2
15	6.0	11.4	13.6	15.4	12.1	8.1	5.2	5.8	8.2	9.4	8.0	9.0	6.6	3.1	0.9	0.5	3.9	4.4	2.3	0.9	0.0	0.8	3.2	3.3	5.9	15.4
16	3.0	0.9	0.5	1.8	2.9	2.6	1.9	1.5	0.0	0.4	0.0	0.8	2.2	3.3	3.0	2.6	4.0	2.3	2.6	5.9	6.5	5.9	3.8	4.4	2.6	6.5
17	3.0	5.0	4.4	2.3	1.2	0.6	0.5	0.1	2.5	5.3	2.7	3.3	2.6	0.5	1.8	1.3	0.1	0.1	0.0	0.0	0.0	0.4	7.7	8.3	2.2	8.3
18	8.9	10.4	12.8	17.5	11.8	11.6	10.8	15.9	11.1	12.6	8.2	4.5	4.0	6.4	8.3	6.6	4.8	3.4	5.0	4.8	7.2	11.4	8.8	7.7	8.9	17.5
19	5.3	2.4	2.2	1.5	1.8	1.9	1.8	1.9	2.6	4.4	4.0	5.4	3.1	1.2	1.8	0.8	1.1	2.9	2.6	4.3	4.0	3.0	3.3	4.7	2.8	5.4
20	4.1	5.1	6.5	5.5	5.2	6.1	7.6	4.5	8.2	8.3	7.6	7.6	7.6	6.2	4.5	4.4	4.4	4.7	4.1	4.0	4.7	5.1	3.0	1.6	5.4	8.3
21	3.2	1.3	0.0	1.4	2.2	1.3	3.9	2.7	1.9	6.7	13.1	14.7	9.6	5.6	5.8	4.6	2.7	0.9	1.5	1.5	3.2	3.3	1.9	0.5	3.9	14.7
22	0.0	0.0	0.0	1.5	1.3	0.1	0.8	1.8	3.6	2.7	1.6	1.9	1.2	0.8	1.5	0.0	0.0	3.8	3.7	2.6	2.6	0.5	3.5	3.3	1.6	3.8
23	0.9	2.5	2.2	5.0	4.8	2.0	0.0	0.7	6.3	11.0	8.1	3.5	0.0	2.8	1.6	0.0	0.0	0.4	3.9	5.4	3.1	0.9	2.9	5.7	3.1	11.0
24	8.9	7.3	5.5	4.8	4.7	4.1	2.0	3.2	4.5	5.1	C	C	C	C	C	C	2.9	0.2	1.1	7.3	4.9	4.4	5.4	4.8	4.5	8.9
25	6.5	6.5	5.9	4.7	5.8	4.6	3.0	5.7	11.0	9.1	4.9	4.0	3.7	4.0	2.3	5.3	10.3	5.7	3.7	4.0	4.0	3.3	3.9	3.7	5.2	11.0
26	3.3	4.0	4.7	3.4	4.3	3.4	2.6	3.6	3.3	4.0	5.1	3.4	0.0	4.2	4.0	4.0	2.3	0.2	2.8	4.0	3.7	2.6	3.3	3.3	3.3	5.1
27	3.0	1.6	0.1	0.4	0.0	0.4	0.8	0.5	0.0	0.4	2.2	1.5	1.5	1.5	0.0	2.5	4.0	4.4	3.4	0.2	0.4	0.8	0.0	0.4	1.2	4.4
28	1.8	1.2	3.9	3.7	3.3	3.0	2.3	3.3	6.4	4.1	4.0	6.5	5.5	2.7	1.9	3.9	1.6	0.5	1.1	0.0	2.5	6.0	4.1	4.7	3.3	6.5
29	2.7	0.9	2.5	2.2	3.9	4.7	1.7	1.5	2.5	4.0	4.4	0.3	0.8	3.2	3.0	3.0	1.9	1.4	1.5	2.9	3.6	2.6	4.3	4.7	2.7	4.7
30	6.1	6.5	5.5	3.4	2.6	3.6	4.0	2.8	4.3	6.5	9.3	8.7	4.9	3.0	3.8	5.1	6.8	10.7	8.5	5.6	3.8	5.7	5.5	3.8	5.4	10.7
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	6.6	7.3	7.5	8.4	8.3	7.7	6.5	7.4	7.5	7.8	7.4	6.4	5.6	5.9	6.1	5.8	5.9	5.7	5.6	6.0	6.3	6.4	6.3	6.4		
MAX	30.8	41.7	43.5	48.7	51.0	44.8	41.1	46.2	42.9	41.4	39.3	32.6	21.7	22.0	36.5	28.1	28.1	23.2	26.2	25.9	25.6	27.6	25.2	28.8		



Number of 24HR Exceedences	0
Number of Non-Zero Readings	682
Maximum 1-HR Average	51.0 UG/M3
Maximum 24-HR Average	29.8 UG/M3
Monthly Calibration	6
Standard Deviation	7.51
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	6.7 UG/M3

Lagoon PM₁₀ (µg/m³) – September 2018

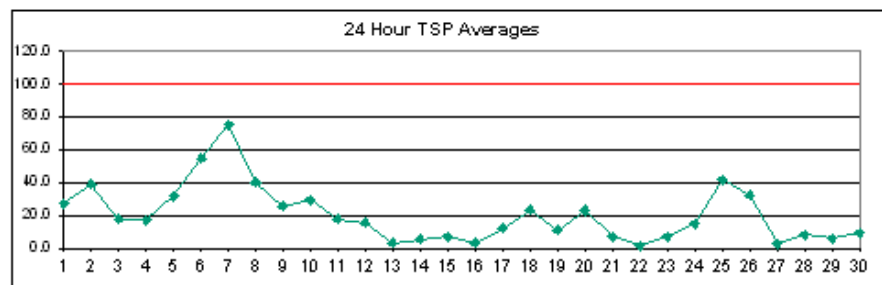
HOUR																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	8.6	5.4	20.3	23.2	16.4	12.2	10.8	4.9	4.6	7.7	7.1	8.0	17.8	31.2	24.5	26.2	28.9	29.7	35.6	41.5	22.2	18.3	27.3	27.0	19.2	41.5
2	25.7	42.0	59.8	55.1	54.9	51.5	48.4	47.3	51.2	44.2	47.8	38.8	32.0	50.0	47.4	30.3	12.7	22.5	12.5	25.1	11.7	14.9	17.4	22.7	36.0	59.8
3	25.5	27.6	31.6	47.4	43.4	32.2	9.6	4.1	5.3	8.2	4.1	3.3	15.0	21.4	21.6	19.6	11.5	17.3	11.6	7.5	4.7	2.7	0.7	0.0	15.7	47.4
4	0.5	6.5	6.0	4.7	4.6	4.6	4.6	5.3	4.0	2.7	8.5	23.1	6.0	30.7	16.7	20.5	22.2	28.8	25.8	2.8	0.0	1.8	10.8	16.6	10.7	30.7
5	9.0	19.1	22.2	11.2	15.3	10.3	17.9	48.8	56.5	39.8	43.1	34.1	30.5	29.7	10.1	28.3	26.4	21.1	27.4	19.8	11.1	22.5	19.6	18.2	24.7	56.5
6	9.7	15.3	18.7	32.6	27.9	52.2	30.6	37.5	50.2	72.2	73.1	30.7	30.5	36.2	58.0	61.4	42.0	35.4	22.1	19.0	43.0	36.4	52.8	23.5	37.9	73.1
7	27.5	19.9	43.0	25.7	33.4	38.3	47.6	55.8	66.5	63.0	62.9	49.9	36.3	44.3	76.5	36.8	50.7	56.6	51.6	152.9	50.9	43.4	35.4	40.3	50.4	152.9
8	23.5	31.6	31.7	51.3	43.0	53.0	25.5	41.9	30.2	18.0	52.7	17.0	44.1	31.0	37.9	42.4	35.4	34.5	38.0	23.5	16.4	6.4	6.0	3.4	31.0	53.0
9	5.2	18.8	26.7	11.7	19.9	9.8	11.3	19.9	67.7	24.2	6.6	22.3	25.5	23.7	15.1	18.1	14.9	13.5	21.9	12.5	10.8	11.4	12.7	19.9	18.5	67.7
10	18.2	16.2	14.9	16.8	5.8	16.4	22.0	39.2	43.1	96.4	58.8	34.5	24.7	0.0	0.0	3.8	22.8	21.7	13.8	11.5	10.8	8.8	8.1	6.1	21.4	96.4
11	4.7	7.2	7.4	15.8	12.3	8.2	5.4	24.8	14.6	18.7	46.1	24.6	12.6	20.5	22.8	10.6	4.9	4.6	4.0	0.0	0.0	0.0	5.1	6.6	11.7	46.1
12	18.4	13.9	10.9	3.6	3.9	9.8	10.7	39.3	28.2	23.8	38.6	15.6	10.3	20.5	2.5	1.9	1.9	1.9	2.6	0.0	0.5	3.8	0.0	0.0	11.0	39.3
13	0.0	0.0	0.4	0.6	0.0	4.4	5.3	6.0	8.6	6.1	2.1	0.0	0.0	1.8	4.5	5.9	11.8	6.9	0.9	3.8	5.4	5.3	6.0	9.2	4.0	11.8
14	6.1	6.1	5.5	2.7	1.3	4.5	2.7	1.3	4.5	5.3	1.4	0.6	7.7	8.0	3.5	3.9	4.0	5.9	6.6	2.1	5.2	4.7	14.8	9.0	5.0	14.8
15	13.7	22.8	15.8	20.7	14.4	12.8	12.1	10.2	10.7	10.7	8.1	9.3	8.7	4.8	6.6	6.0	4.7	6.6	5.4	0.8	0.0	1.8	0.6	3.8	9.1	22.8
16	4.6	2.1	1.9	1.9	1.9	0.6	0.0	0.0	0.0	0.0	3.1	5.9	8.6	8.1	4.1	1.4	3.2	7.8	5.4	2.7	0.0	0.6	4.5	4.6	3.1	8.6
17	2.7	4.6	2.7	1.7	3.9	1.4	4.5	8.5	7.4	9.9	30.8	62.7	19.5	11.0	6.2	0.8	3.8	8.5	10.0	0.3	0.0	2.2	9.7	12.0	9.4	62.7
18	10.6	12.0	18.0	13.9	20.6	19.0	20.8	43.0	21.9	52.0	17.8	7.7	9.3	10.7	21.8	13.8	18.6	18.9	13.7	11.5	8.2	6.7	3.4	2.9	16.5	52.0
19	5.9	5.4	0.0	0.0	0.0	1.1	0.0	17.3	16.9	13.6	22.5	15.6	6.4	9.2	12.6	13.3	13.4	8.9	6.7	8.0	6.1	6.6	18.3	9.8	9.1	22.5
20	6.7	24.9	25.6	27.8	21.2	7.3	9.9	19.8	55.2	53.6	17.2	37.5	23.0	13.9	12.8	10.2	9.4	6.2	0.2	3.8	5.9	4.1	3.3	0.7	16.8	55.2
21	0.0	0.0	0.0	0.0	0.0	0.6	1.9	1.7	5.8	33.2	26.0	37.3	18.4	2.0	4.5	7.9	6.7	3.4	3.9	3.3	1.4	2.6	2.0	1.3	6.8	37.3
22	1.3	2.5	2.6	4.6	5.3	0.0	0.0	0.0	0.0	0.0	0.0	3.7	2.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.7	0.0	2.4	1.3	5.3
23	2.6	1.3	3.2	5.2	8.6	10.0	4.9	5.5	8.3	17.7	20.8	10.6	15.9	10.3	6.8	2.2	1.3	2.5	7.7	3.5	0.0	1.0	5.1	6.6	6.7	20.8
24	10.6	10.7	9.4	8.1	9.3	12.0	11.2	8.8	23.6	10.1	C	C	C	C	C	C	10.3	0.0	0.0	3.6	8.5	4.1	19.6	12.7	9.6	23.6
25	10.6	11.1	11.4	19.2	25.4	11.3	18.6	22.1	39.8	41.2	41.9	80.9	19.4	26.6	28.9	105.3	67.2	14.6	31.0	32.4	30.5	21.3	13.1	18.6	30.9	105.3
26	63.8	53.2	29.9	14.0	9.5	17.2	11.7	16.6	32.5	38.3	45.7	21.2	8.5	31.5	10.9	36.1	13.7	9.5	9.4	12.0	11.5	26.4	4.9	5.4	22.2	63.8
27	5.3	2.1	0.0	0.0	0.4	2.5	2.6	0.7	1.2	3.9	4.0	5.3	7.3	8.0	6.1	0.8	1.9	8.5	5.5	0.0	0.0	2.8	0.7	0.0	2.9	8.5
28	3.7	4.6	1.4	1.3	1.9	0.0	0.5	2.5	7.2	11.9	18.6	7.2	14.5	12.2	10.1	10.1	12.7	7.6	4.8	5.9	8.3	18.5	3.6	8.5	7.4	18.6
29	10.0	6.8	6.0	4.7	3.3	3.0	2.6	4.6	5.3	8.4	8.5	3.5	2.0	1.3	3.0	0.6	0.0	0.0	2.5	2.6	5.9	8.6	4.2	7.9	4.4	10.0
30	10.0	8.8	11.3	6.2	1.4	3.2	3.9	3.3	7.2	10.0	10.7	8.8	8.7	10.7	10.7	7.5	4.8	8.5	10.0	8.8	8.1	6.7	3.2	0.0	7.2	11.3
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	12.0	13.4	14.6	14.4	13.6	13.7	11.9	18.0	22.6	24.8	25.1	21.4	16.0	17.7	16.8	18.1	15.4	13.7	13.0	14.0	9.7	9.8	10.4	10.0		
MAX	63.8	53.2	59.8	55.1	54.9	53.0	47.6	55.8	67.7	96.4	73.1	80.9	44.1	50.0	76.5	105.3	67.2	56.6	51.6	152.9	50.9	43.4	52.8	40.3		



Number of Non-Zero Readings	660
Maximum 1-HR Average	152.9 UG/M3
Maximum 24-HR Average	50.4 UG/M3
Monthly Calibration	6
Standard Deviation	16.87
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	15.4 UG/M3

Lagoon TSP ($\mu\text{g}/\text{m}^3$) – September 2018

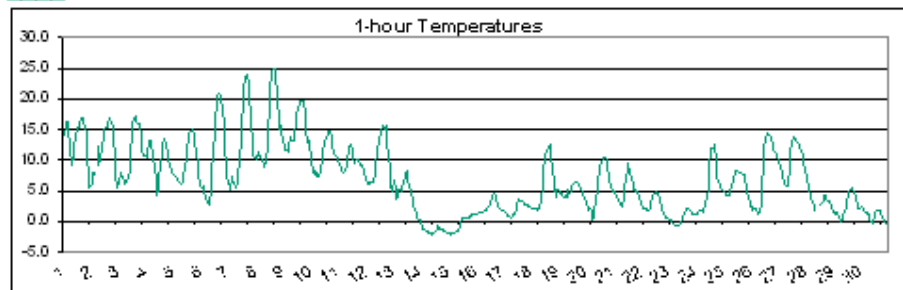
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	15.4	8.7	20.5	22.3	19.6	22.2	25.7	13.1	15.3	6.1	9.7	9.9	25.9	50.4	33.8	36.0	30.8	31.9	50.6	55.3	48.8	32.6	37.3	29.5	27.1	55.3
2	37.5	48.2	55.2	52.8	59.4	48.9	52.2	51.4	58.0	48.9	49.9	41.9	19.0	48.8	52.6	42.0	16.3	19.4	14.2	30.0	29.3	25.2	18.4	18.2	39.1	59.4
3	22.2	33.0	30.7	41.3	48.3	37.9	13.5	7.3	11.1	11.3	6.1	3.1	20.3	27.6	5.2	13.7	14.0	22.0	22.3	7.7	12.4	6.0	0.0	4.1	17.5	48.3
4	3.0	7.0	3.9	0.3	5.5	4.4	7.0	8.4	4.5	1.6	12.2	32.6	2.7	54.9	26.2	35.7	28.1	55.8	40.9	9.7	7.2	8.4	33.8	20.1	17.2	55.8
5	14.2	23.3	13.0	12.6	15.3	15.4	23.4	51.7	70.0	48.0	41.9	33.7	44.0	16.5	16.7	48.7	56.9	35.6	21.4	22.3	25.0	46.4	38.1	25.6	31.7	70.0
6	24.5	30.4	20.0	36.9	30.9	66.6	38.6	60.1	57.0	94.1	99.5	35.9	30.7	46.6	79.1	100.3	94.5	55.6	34.1	41.3	52.1	52.7	91.3	35.6	54.5	100.3
7	25.4	29.1	50.5	36.7	56.1	52.9	56.7	82.1	88.4	75.3	88.1	62.0	50.4	52.6	99.3	45.5	77.6	92.3	100.8	331.2	76.7	65.2	51.8	64.6	75.5	331.2
8	45.2	41.8	35.0	54.7	52.8	74.0	27.0	38.4	41.6	21.7	62.1	10.6	61.7	42.5	48.9	63.2	47.3	40.5	60.2	22.4	26.3	19.8	16.8	14.1	40.4	74.0
9	24.3	33.1	33.4	16.1	36.7	14.9	14.0	18.0	99.3	32.0	13.3	16.6	12.8	29.9	21.3	47.5	18.0	22.1	28.2	22.6	11.8	12.6	16.6	20.8	25.7	99.3
10	23.6	29.0	19.9	19.6	15.6	30.0	31.9	41.3	60.3	130.0	85.0	41.9	26.6	2.5	0.0	5.5	20.3	31.6	9.4	12.5	19.3	16.9	16.8	11.5	29.2	130.0
11	8.6	7.2	11.1	15.2	16.9	10.2	11.2	33.8	22.8	25.0	50.3	30.1	17.3	26.1	19.8	18.2	11.5	4.6	0.0	9.4	13.9	22.0	21.2	15.6	17.6	50.3
12	15.4	27.4	11.8	9.9	7.2	8.5	9.8	60.3	41.1	37.6	57.4	20.7	14.2	24.6	7.8	3.8	1.7	2.9	7.0	3.8	1.7	1.6	0.0	0.0	15.7	60.3
13	0.0	3.3	3.0	1.6	2.9	1.6	5.5	4.4	1.7	1.6	0.0	0.0	0.0	0.0	5.5	4.4	12.3	6.0	3.1	3.0	5.6	7.1	5.8	3.1	3.4	12.3
14	1.6	2.9	0.3	0.0	0.0	6.8	5.8	4.4	3.0	3.0	3.0	3.6	13.6	12.7	6.0	8.4	9.8	4.6	4.3	3.7	4.3	4.3	9.7	12.5	5.3	13.6
15	16.6	20.8	16.9	15.5	10.1	13.6	11.4	13.6	8.7	7.2	3.1	0.3	4.2	5.7	3.7	3.0	1.6	2.9	1.5	2.9	5.6	3.1	1.6	1.6	7.3	20.8
16	0.3	5.5	3.7	5.7	7.1	4.5	1.6	0.3	0.0	0.0	0.0	0.0	0.0	4.1	5.7	7.1	5.9	4.4	3.0	3.0	0.3	0.2	4.2	5.7	3.0	7.1
17	5.6	4.4	0.4	0.0	1.5	1.4	2.9	3.0	5.6	15.0	32.6	75.5	12.6	4.6	4.3	3.0	9.6	7.2	9.8	17.8	14.2	16.7	30.0	14.4	12.2	75.5
18	12.7	24.6	21.2	28.9	25.2	27.7	27.8	61.0	30.6	73.0	13.8	13.9	4.1	8.3	36.3	19.0	26.1	22.5	13.0	18.7	14.2	15.3	12.8	11.3	23.4	73.0
19	4.6	1.7	1.6	0.0	0.0	1.3	2.9	13.6	10.0	16.5	12.8	25.9	15.9	16.7	6.2	15.0	12.8	12.6	10.0	17.8	11.4	15.2	28.7	9.3	10.9	28.7
20	9.8	40.3	32.4	37.6	24.3	14.4	14.0	24.6	78.0	81.6	22.1	52.7	40.8	16.4	15.4	3.5	9.6	9.9	4.6	0.4	4.2	9.6	5.9	1.8	23.1	81.6
21	0.0	0.0	0.0	0.0	1.3	5.6	3.1	0.3	5.5	36.2	21.6	39.5	13.8	7.3	8.5	4.5	1.6	4.2	5.7	7.1	3.1	0.0	0.0	0.0	7.0	39.5
22	0.0	0.0	2.8	4.3	1.7	0.0	0.0	0.0	0.0	0.0	1.5	2.9	0.3	0.0	2.7	3.0	0.3	4.2	3.0	0.3	2.8	4.3	3.0	0.3	1.6	4.3
23	2.8	1.5	6.9	5.8	11.0	8.6	1.9	5.7	16.3	20.7	18.3	6.3	5.7	5.7	3.1	0.3	0.2	0.2	17.4	8.9	4.5	4.3	5.7	9.7	7.2	20.7
24	8.5	16.4	6.2	10.9	17.9	10.2	8.5	13.8	40.5	19.2	C	C	C	C	C	C	18.2	3.5	1.6	24.2	10.4	8.5	25.8	21.1	14.8	40.5
25	13.0	14.0	10.0	18.7	28.9	15.9	15.4	22.0	47.6	47.2	56.5	120.7	20.8	32.7	32.0	160.9	95.6	15.7	59.1	57.0	46.2	25.5	19.8	20.9	41.5	160.9
26	94.0	90.3	47.9	16.6	6.1	12.4	11.4	17.9	50.0	56.7	70.2	22.8	7.6	37.7	16.3	53.0	11.6	5.9	25.0	18.5	39.4	42.9	13.8	10.0	32.4	94.0
27	5.9	1.7	1.6	1.6	0.0	0.0	0.0	0.0	1.4	0.0	6.8	4.5	4.3	3.7	4.3	0.4	0.0	2.8	6.9	8.5	5.8	1.7	0.0	0.0	2.6	8.5
28	0.1	0.0	0.0	2.8	3.0	1.6	2.9	3.0	14.9	3.4	13.6	6.1	7.1	8.5	16.4	18.1	14.2	4.7	1.7	4.2	23.5	37.0	7.0	4.4	8.3	37.0
29	3.0	12.3	7.3	1.8	2.9	6.9	7.1	4.5	0.4	14.8	11.4	5.9	1.6	0.3	4.2	4.3	5.7	4.4	3.0	5.6	12.4	8.7	4.5	8.3	5.9	14.8
30	5.8	11.1	13.6	8.7	4.5	0.4	1.5	13.5	4.1	8.3	12.5	8.7	7.2	9.8	8.5	16.5	12.8	25.9	17.2	16.9	7.5	4.5	3.0	3.0	9.4	25.9
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	14.8	19.0	16.0	16.0	17.1	17.3	14.5	22.4	29.6	31.2	30.2	25.1	16.7	20.6	20.3	27.1	22.2	18.5	19.3	26.2	18.0	17.3	17.4	13.2		
MAX	94.0	90.3	55.2	54.7	59.4	74.0	56.7	82.1	99.3	130.0	99.5	120.7	61.7	54.9	99.3	160.9	95.6	92.3	100.8	331.2	76.7	65.2	91.3	64.6		



Number of 24HR Exceedences	0
Number of Non-Zero Readings	669
Maximum 1-HR Average	331.2 UG/M3
Maximum 24-HR Average	75.5 UG/M3
Monthly Calibration	6
Standard Deviation	25.1
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	20.4 UG/M3

Lagoon Temperature (°C) – September 2018

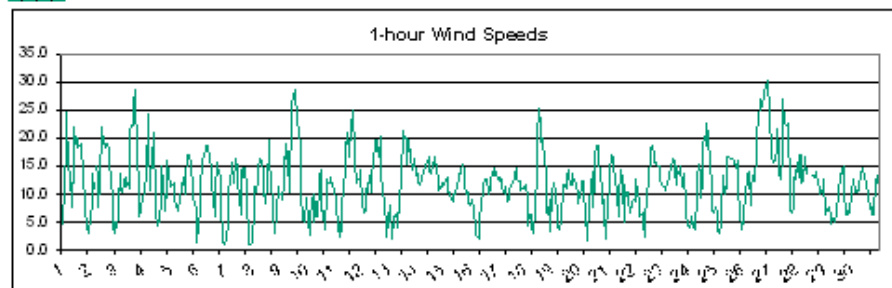
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	14.1	15.4	16.2	16.2	15.1	12.1	9.2	10.1	10.0	12.0	14.1	14.6	15.3	15.4	16.0	16.8	16.8	16.3	15.8	13.9	10.4	7.8	5.6	5.1	13.1	16.8
2	6.0	8.0	8.0	7.2	6.5	6.1	6.4	6.7	6.9	8.5	10.9	14.4	16.1	16.9	17.1	16.3	16.0	15.9	15.7	14.1	12.1	10.7	10.8	10.3	11.1	17.1
3	10.3	11.0	13.3	13.2	12.6	11.0	10.0	9.2	6.5	4.2	4.8	6.2	9.4	11.1	12.7	13.5	13.5	12.7	11.3	10.3	9.0	8.5	8.2	7.7	10.0	13.5
4	7.5	7.2	6.9	6.7	6.5	6.3	6.2	6.5	7.0	8.8	10.3	11.8	13.2	14.0	14.6	14.9	15.0	14.3	13.1	10.9	9.5	7.9	5.7	4.3	9.6	15.0
5	5.4	5.8	4.9	4.2	3.5	3.2	2.6	3.1	4.9	8.1	11.2	14.3	16.6	19.0	20.6	20.8	20.6	19.9	18.5	15.5	12.2	9.1	7.2	6.2	10.7	20.8
6	5.6	5.2	7.4	6.6	6.4	5.8	5.4	6.3	7.4	10.2	13.1	15.6	19.8	21.8	23.3	23.8	23.7	23.0	21.1	16.6	13.0	11.1	10.3	9.2	13.0	23.8
7	10.2	11.4	10.8	10.7	10.1	9.8	9.4	8.9	9.9	12.6	15.7	17.7	21.3	24.6	24.8	25.0	24.9	23.9	20.6	16.0	15.1	15.6	14.4	13.2	15.7	25.0
8	12.4	11.8	11.6	11.3	12.0	13.8	13.5	13.1	13.3	14.6	15.2	17.5	18.5	19.4	19.6	19.8	19.8	19.4	17.9	14.9	13.2	12.3	13.1	12.6	15.0	19.8
9	10.0	8.3	7.7	8.1	7.9	7.4	7.4	8.1	8.5	9.8	11.3	12.9	13.5	13.5	14.1	14.8	14.6	13.9	12.2	11.3	11.0	10.6	10.5	10.0	10.7	14.8
10	9.2	8.9	8.5	7.8	8.0	8.1	8.9	10.0	11.5	12.3	12.5	11.8	10.6	9.4	9.9	10.1	10.2	9.9	9.5	9.3	9.1	8.5	8.2	7.4	9.6	12.5
11	6.9	6.1	6.1	6.3	6.5	6.4	6.5	7.5	8.8	11.2	13.5	13.3	14.4	14.8	15.7	15.0	15.3	15.6	13.0	10.9	8.4	6.0	4.8	6.5	10.0	15.7
12	6.6	5.3	3.7	4.0	5.2	5.1	4.8	5.1	6.4	7.2	8.0	8.4	7.1	5.5	5.3	4.1	4.0	2.8	2.1	1.6	0.8	0.4	0.2	-0.3	4.3	8.4
13	-1.0	-1.3	-1.3	-1.5	-1.6	-1.7	-1.8	-2.0	-2.0	-2.1	-2.0	-1.9	-1.6	-1.2	-0.8	-0.9	-1.3	-1.2	-1.2	-1.5	-1.5	-1.6	-1.8	-1.9	-1.5	-0.8
14	-1.9	-1.9	-2.1	-2.0	-2.0	-1.9	-1.8	-1.6	-1.2	-1.0	-0.5	0.5	0.5	0.7	0.6	0.6	0.6	0.7	0.7	0.8	1.0	1.2	1.3	1.3	-0.3	1.3
15	1.3	1.3	1.4	1.4	1.4	1.3	1.4	1.6	1.9	2.2	2.4	2.7	3.0	3.9	4.4	4.4	4.1	3.5	3.0	2.5	2.2	1.9	1.7	1.6	2.4	4.4
16	1.5	1.3	1.2	0.9	0.7	0.6	0.6	0.7	1.0	1.3	2.0	2.7	3.6	3.6	3.3	3.3	3.4	3.1	2.7	2.7	2.5	2.3	2.2	2.2	2.1	3.6
17	2.1	2.1	2.1	2.1	1.9	2.0	2.1	2.5	3.4	6.1	8.5	9.9	10.9	11.2	11.8	12.2	12.5	11.1	8.6	6.3	5.8	4.0	5.2	5.4	6.2	12.5
18	4.8	4.6	4.4	4.1	4.0	4.0	4.4	4.0	5.2	4.6	4.8	5.6	5.9	6.3	6.4	6.5	6.5	6.2	5.6	5.2	4.8	4.3	3.9	3.5	5.0	6.5
19	3.0	2.2	1.9	2.0	1.6	0.3	0.5	1.8	3.3	5.2	6.6	8.2	9.3	9.6	10.1	10.3	10.3	10.1	8.4	7.7	6.7	5.9	4.8	3.7	5.6	10.3
20	4.7	4.7	4.3	3.6	3.4	3.0	2.5	2.7	3.6	4.9	7.3	8.4	9.6	7.8	7.7	7.3	5.7	5.3	5.0	4.8	4.8	4.3	4.0	3.6	5.1	9.6
21	3.2	2.2	2.0	2.0	1.9	1.9	2.1	3.0	3.9	4.6	4.6	4.6	4.6	4.8	4.4	3.8	3.3	2.7	2.2	1.5	0.9	0.7	0.5	0.4	2.6	4.8
22	0.4	0.2	-0.1	-0.3	-0.5	-0.6	-0.7	-0.8	-0.8	-0.6	-0.3	0.2	0.6	1.1	2.0	1.9	2.2	2.0	1.8	1.5	1.2	1.2	1.2	1.2	0.6	2.2
23	1.2	1.5	1.7	1.8	1.7	1.3	2.0	2.4	3.0	3.6	5.5	9.1	11.0	11.8	12.0	12.2	12.5	9.9	7.7	6.4	5.9	5.4	5.2	5.0	5.8	12.5
24	4.9	4.6	4.2	4.2	4.3	5.1	5.4	5.8	6.4	8.1	C	C	C	C	C	C	7.6	7.5	6.5	6.1	4.9	4.0	2.9	1.8	5.2	8.1
25	1.8	2.3	2.0	1.9	2.1	1.6	1.1	1.5	3.0	5.7	8.7	11.8	13.5	14.3	14.5	14.0	13.8	13.3	12.5	11.8	11.2	10.9	10.7	10.2	8.1	14.5
26	9.7	8.9	8.2	7.3	6.6	6.2	5.9	5.9	6.3	8.1	11.3	12.7	13.7	13.4	13.6	13.3	13.0	12.6	12.0	11.7	10.9	9.2	8.8	8.1	9.9	13.7
27	6.7	5.7	5.0	4.1	3.7	3.3	2.7	1.6	1.6	1.9	2.0	2.4	2.7	2.9	3.3	4.2	4.1	4.0	3.2	3.3	3.2	2.9	2.5	1.1	3.2	6.7
28	1.3	1.6	1.5	1.2	0.9	0.2	0.0	0.4	0.7	1.3	2.2	3.3	4.2	4.8	5.3	5.6	5.1	4.9	4.2	3.6	3.1	2.0	2.2	2.5	2.6	5.6
29	2.3	2.0	1.7	1.6	1.4	1.1	1.2	0.6	-0.1	-0.4	-0.1	0.5	1.4	1.8	1.8	1.6	1.6	1.3	0.9	0.3	-0.1	-0.5	-0.6	-0.9	0.9	2.3
30	-1.1	-1.2	-1.3	-1.4	-1.5	-1.5	-1.7	-2.2	-2.1	-2.0	-1.4	-0.5	0.5	1.3	1.6	1.1	0.7	0.1	-0.3	-0.7	-1.2	-1.5	-1.7	-1.9	-0.8	1.6
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	5.0	4.8	4.7	4.5	4.3	4.0	3.9	4.1	4.6	5.7	7.0	8.2	9.3	9.8	10.2	10.2	10.0	9.5	8.5	7.3	6.3	5.5	5.1	4.6		
MAX	14.1	15.4	16.2	16.2	15.1	13.8	13.5	13.1	13.3	14.6	15.7	17.7	21.3	24.6	24.8	25.0	24.9	23.9	21.1	16.6	15.1	15.6	14.4	13.2		



Number of Non-Zero Readings	714
Maximum 1-HR Average	25.0 C
Maximum 24-HR Average	15.7 C
Monthly Calibration	6
Standard Deviation	5.732
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	6.5 C

Lagoon Wind Speed (km/hr) – September 2018

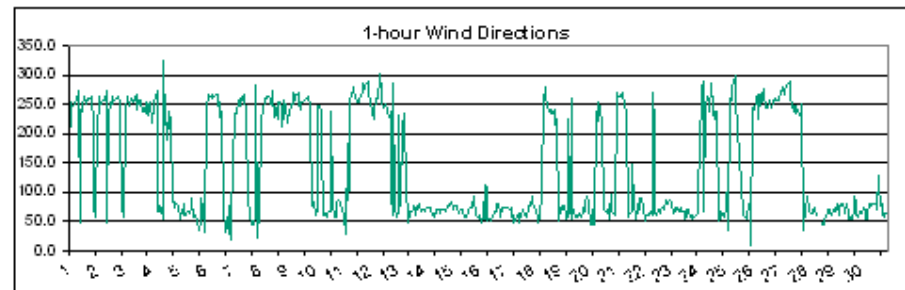
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	4.7	11.8	18.2	24.5	14.8	15.1	13.2	7.6	11.9	12.2	21.9	19.1	20.1	18.2	18.5	19.0	18.1	14.6	13.5	8.0	3.6	5.1	3.1	4.1	13.4	24.5
2	6.0	8.3	13.6	10.6	10.4	11.8	12.8	12.9	11.2	12.1	11.1	21.0	22.2	22.2	26.3	28.4	26.5	18.5	9.5	6.1	7.0	8.1	8.6	8.7	13.9	28.4
3	10.5	13.2	24.2	19.1	10.9	12.7	16.1	21.0	18.1	11.2	7.0	4.4	4.9	6.3	8.0	15.1	12.0	8.8	7.0	11.4	15.9	13.7	11.3	12.0	12.3	24.2
4	11.8	12.1	9.7	7.7	8.0	7.0	9.4	9.8	10.5	11.5	12.9	10.2	14.1	15.4	16.8	17.1	15.6	14.7	11.8	9.6	8.4	7.7	1.4	2.4	10.7	17.1
5	7.5	12.4	14.7	16.0	16.9	18.1	18.6	18.3	18.7	16.2	15.0	11.7	9.2	6.2	10.3	15.8	13.7	14.2	13.0	8.4	2.6	1.6	1.3	2.2	11.8	18.7
6	2.1	4.8	10.6	12.3	14.4	15.5	12.5	11.9	16.5	15.1	12.5	9.4	6.5	14.4	14.7	13.1	14.6	11.4	8.2	3.1	1.1	1.2	1.3	1.7	9.5	16.5
7	7.3	11.2	10.4	12.6	14.2	16.4	15.8	15.9	14.1	11.0	8.3	11.9	11.0	19.8	16.2	12.0	8.7	6.3	3.7	3.1	6.8	11.2	9.7	9.3	11.1	19.8
8	10.1	9.2	12.0	14.2	19.1	13.3	17.5	14.7	10.3	25.1	27.8	27.0	28.6	28.0	23.9	20.8	21.8	17.9	10.2	5.3	5.2	5.0	9.3	7.1	16.0	28.6
9	5.4	2.7	4.9	9.1	10.0	5.0	6.5	8.6	6.1	11.6	13.0	14.3	7.1	7.0	3.6	6.2	7.9	12.7	11.9	12.1	12.9	11.8	10.7	10.0	8.8	14.3
10	9.2	8.6	4.2	2.4	4.6	3.3	8.9	9.8	15.8	17.5	21.1	16.7	19.6	19.7	21.8	24.9	17.3	14.1	13.5	12.0	12.6	12.5	14.4	8.2	13.0	24.9
11	8.2	6.7	7.0	9.9	11.9	10.2	13.4	10.2	13.7	15.3	19.5	18.8	19.6	18.2	16.8	20.3	12.4	12.1	10.0	9.1	3.9	2.6	5.4	10.3	11.9	20.3
12	8.1	2.1	2.0	5.6	6.2	6.0	6.6	4.0	9.1	12.8	16.1	18.0	21.3	19.9	19.8	15.3	19.4	19.6	16.5	14.4	14.7	16.3	13.3	13.6	12.5	21.3
13	13.6	12.5	11.7	12.4	13.0	13.6	14.2	14.6	15.9	15.6	16.7	14.2	13.8	15.0	14.7	16.5	15.5	15.4	11.7	10.5	11.1	11.9	11.3	11.1	13.6	16.7
14	11.6	12.7	12.9	10.3	10.5	10.0	9.4	8.7	9.5	10.8	10.1	11.2	13.0	13.8	13.6	14.0	15.4	14.4	12.1	10.0	10.3	8.3	8.0	9.1	11.2	15.4
15	9.1	7.5	6.2	4.9	2.6	2.5	2.3	4.5	9.0	9.9	11.5	12.6	12.7	12.5	10.5	10.1	11.2	12.2	14.0	13.5	14.6	13.8	13.5	12.3	9.7	14.6
16	12.5	13.1	12.8	11.6	10.4	10.6	11.3	8.7	9.1	10.5	11.7	11.7	12.0	12.9	13.2	14.5	12.8	12.4	12.4	10.6	11.0	11.2	11.0	11.8	11.7	14.5
17	11.5	9.4	4.5	6.5	6.3	4.0	3.0	7.2	7.0	14.4	20.4	25.3	22.7	20.7	18.0	19.8	15.6	15.0	7.1	6.3	9.1	3.5	10.4	11.4	11.6	25.3
18	11.9	10.4	8.8	8.1	4.4	3.7	5.1	5.6	11.2	11.7	11.8	11.0	13.2	14.4	13.7	11.8	11.8	13.5	12.3	11.9	12.0	9.9	8.4	10.0	10.3	14.4
19	11.5	12.2	12.5	10.4	6.8	1.9	4.1	5.9	8.0	11.4	14.0	7.6	12.4	16.8	18.7	18.6	15.9	14.1	10.4	8.5	9.2	6.8	2.1	2.0	10.1	18.7
20	8.9	10.6	13.7	16.9	16.6	16.1	11.9	11.3	9.6	6.2	9.1	14.3	12.5	11.4	5.2	11.7	9.7	10.4	9.1	6.6	6.8	8.5	9.1	9.4	10.7	16.9
21	8.7	12.5	10.5	8.8	6.1	6.2	6.7	4.6	2.4	6.0	9.0	13.3	14.4	15.3	17.9	18.5	17.2	15.7	15.6	15.3	15.0	14.9	12.5	11.6	11.6	18.5
22	12.1	11.4	11.2	10.6	12.2	12.7	13.6	14.5	14.3	16.2	15.9	14.2	11.7	14.9	13.6	14.3	14.9	11.3	13.8	12.3	9.8	6.8	4.6	7.6	12.3	16.2
23	4.2	4.7	6.0	4.3	3.8	5.8	7.9	12.6	15.4	14.2	9.2	12.2	18.6	20.3	18.5	22.5	20.5	15.4	14.3	13.1	7.3	6.9	7.6	9.2	11.4	22.5
24	7.0	3.6	2.9	4.5	8.5	12.1	13.2	10.2	11.6	16.6	C	C	C	C	C	C	16.1	14.5	15.9	12.1	6.0	4.8	3.6	3.5	9.3	16.6
25	5.4	10.6	12.3	13.7	14.0	8.1	11.8	12.4	13.3	12.3	17.1	21.4	22.6	22.6	26.9	26.1	25.6	27.6	28.0	29.5	29.4	30.2	24.9	17.4	19.3	30.2
26	16.8	15.8	15.7	16.0	18.0	21.7	18.4	13.6	12.8	16.6	26.9	22.9	22.6	22.3	22.7	18.0	15.3	6.9	6.7	7.8	11.7	14.4	12.5	14.3	16.3	26.9
27	16.9	13.9	12.1	16.9	12.2	15.5	16.6	13.4	11.3	12.4	14.1	15.1	13.3	13.0	12.9	14.0	11.8	12.5	11.1	10.0	10.5	11.1	12.6	10.8	13.1	16.9
28	6.4	7.4	7.6	7.6	6.2	4.7	5.6	5.1	5.3	6.4	6.9	10.1	13.6	12.3	14.7	14.8	9.2	8.0	6.4	6.4	8.0	6.7	10.4	13.2	8.5	14.8
29	12.7	10.7	10.5	10.4	10.5	10.7	14.1	13.6	14.0	14.7	13.2	12.1	11.6	10.4	9.7	7.3	7.7	6.5	6.4	12.8	11.9	12.1	13.7	14.6	11.3	14.7
30	17.0	19.2	14.8	12.5	15.0	14.4	13.7	14.9	15.3	15.8	16.8	14.7	13.3	14.6	18.0	18.8	17.5	15.4	12.4	12.9	11.3	10.6	11.8	10.0	14.6	19.2
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	9.6	10.0	10.6	11.0	10.6	10.3	11.1	10.9	11.7	13.1	14.5	14.7	15.1	15.8	15.8	16.5	15.1	13.5	11.6	10.4	10.0	9.6	9.3	9.3		
MAX	17.0	19.2	24.2	24.5	19.1	21.7	18.6	21.0	18.7	25.1	27.8	27.0	28.6	28.0	26.9	28.4	26.5	27.6	28.0	29.5	29.4	30.2	24.9	17.4		



Number of Non-Zero Readings	714
Maximum 1-HR Average	30.2 KM/HR
Maximum 24-HR Average	19.3 KM/HR
Monthly Calibration	6
Standard Deviation	5.243
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	12.1 KM/HR

Lagoon Wind Direction (°) – September 2018

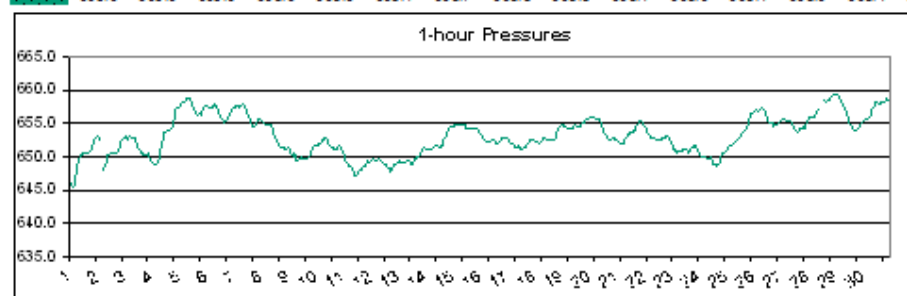
Day	HOUR																								MEAN	MAX
1	213.5	252.8	249.6	251.4	253.6	259.1	256.7	272.1	47.1	242.6	238.9	249.5	264.1	250.4	257.7	258.3	261.1	259.7	264.0	254.6	225.6	78.6	58.4	226.0	254.4	272.1
2	227.5	239.0	263.8	249.1	250.9	256.0	259.6	254.3	265.0	258.1	266.1	240.9	257.4	257.4	251.0	240.9	238.8	237.2	255.7	236.7	233.2	247.6	253.1	223.7	249.0	266.1
3	219.2	244.3	255.3	262.0	274.9	67.8	66.9	77.3	74.8	53.5	324.3	215.4	251.0	190.3	221.5	237.5	226.1	83.8	91.2	75.1	85.1	80.6	76.4	71.0	102.0	324.3
4	54.0	56.8	63.1	81.6	60.6	60.3	65.6	68.2	66.2	62.6	74.0	91.2	59.2	60.7	58.8	56.1	55.2	36.5	49.8	90.9	76.8	78.1	30.7	46.7	62.7	91.2
5	248.8	264.9	268.6	264.1	266.3	262.3	264.8	264.2	265.7	268.0	247.5	252.9	227.5	239.7	69.6	57.3	48.0	32.5	43.2	76.8	36.4	20.1	53.3	105.5	276.6	268.6
6	235.9	228.3	239.2	252.7	256.3	262.1	249.0	263.1	260.7	268.0	232.3	224.8	87.9	65.5	61.7	46.6	52.6	46.5	62.5	284.6	23.5	38.4	51.1	66.2	274.5	284.6
7	231.2	233.6	239.0	257.4	263.7	260.6	262.5	259.7	250.5	246.6	272.5	229.1	230.5	244.5	225.1	253.2	254.1	248.4	211.9	234.9	256.0	246.7	220.7	220.5	245.8	272.5
8	237.2	234.3	251.2	252.6	271.0	257.3	268.2	268.3	270.3	252.5	242.8	253.7	255.8	258.3	258.7	260.0	260.3	262.7	250.6	230.4	78.3	88.0	85.1	71.8	255.8	271.0
9	60.1	68.9	247.9	246.5	242.7	158.0	82.8	61.8	62.8	57.8	64.0	67.5	67.1	238.6	86.4	82.8	56.5	58.0	83.3	88.3	87.5	84.9	70.7	62.7	75.0	247.9
10	62.4	61.1	28.7	183.3	86.2	112.4	251.5	269.6	274.3	280.8	261.3	263.6	253.6	253.8	256.8	263.0	270.0	285.2	278.5	284.5	287.3	289.0	268.4	255.4	270.1	289.0
11	257.9	239.1	226.5	244.7	252.5	261.2	259.3	293.2	301.3	276.1	254.5	244.5	248.2	249.7	246.2	241.9	229.7	236.7	100.6	59.8	287.3	77.8	57.7	58.3	254.3	301.3
12	68.7	233.0	78.5	215.7	213.1	233.9	235.8	104.1	61.4	49.1	60.8	67.0	67.7	71.3	76.4	74.2	60.7	77.8	79.2	77.7	69.0	68.0	72.4	71.7	72.5	235.8
13	66.9	72.8	74.3	72.8	73.4	67.6	64.3	58.8	65.7	65.4	69.5	72.0	69.6	65.0	69.8	69.5	70.0	67.0	68.6	78.5	77.2	77.5	82.8	84.7	70.4	84.7
14	74.5	70.2	76.5	77.1	74.3	65.9	68.4	71.5	72.4	66.4	58.5	58.1	57.6	66.2	71.8	75.4	75.5	75.1	92.1	78.3	74.6	62.8	59.3	78.3	71.2	92.1
15	61.0	49.0	53.6	54.3	111.5	55.0	108.4	51.4	54.8	51.8	50.3	56.6	66.3	64.3	69.0	78.8	80.8	64.0	59.2	73.9	71.8	72.8	73.3	72.3	65.6	111.5
16	73.9	73.5	72.3	74.9	66.7	49.3	60.1	51.9	58.0	60.2	64.6	49.5	60.7	71.3	70.9	63.2	58.0	63.2	68.4	78.5	78.0	92.0	84.6	82.1	67.9	92.0
17	73.5	70.9	58.6	47.6	57.5	57.3	98.6	260.8	252.8	281.0	265.0	247.7	239.8	237.6	235.4	240.9	234.0	242.7	220.6	213.6	224.2	52.0	74.6	69.3	242.8	281.0
18	70.4	78.2	76.1	62.6	53.2	59.1	226.7	63.8	262.1	55.9	67.5	69.5	57.6	57.3	62.4	65.8	64.2	58.2	67.3	72.8	68.3	78.8	92.7	87.7	67.3	262.1
19	82.4	44.8	45.8	52.4	90.1	46.2	238.0	221.0	255.3	247.3	246.2	215.3	71.2	71.9	66.5	67.2	69.1	54.7	68.9	96.5	69.6	64.2	62.2	268.2	68.3	268.2
20	271.7	271.5	265.4	264.8	268.9	270.9	266.9	252.1	239.5	226.0	59.9	57.7	66.0	66.8	148.2	82.9	82.4	55.7	68.9	79.1	69.2	90.1	90.8	92.6	15.6	271.7
21	76.0	50.6	55.6	61.1	60.7	65.0	67.4	60.0	269.3	219.4	63.7	61.0	67.4	72.1	66.0	68.4	75.1	74.0	71.2	85.7	80.0	81.2	86.7	85.6	71.5	269.3
22	83.5	79.5	64.1	66.5	74.3	74.3	74.8	69.0	72.8	66.4	67.8	66.1	55.4	59.2	71.8	71.6	58.6	56.6	54.5	59.6	57.2	59.9	60.1	52.8	66.3	83.5
23	62.8	216.8	227.5	277.3	288.5	66.1	252.1	259.7	263.3	261.3	239.0	286.4	249.3	233.6	225.0	237.7	239.7	51.0	54.7	67.9	55.4	63.6	56.7	59.1	254.5	288.5
24	72.4	99.9	35.9	259.6	234.1	276.9	280.4	286.3	298.0	257.3	C	C	C	C	C	C	65.4	58.2	55.0	57.0	81.1	67.2	9.3	63.8	4.8	298.0
25	243.1	241.7	258.0	263.8	268.9	224.2	267.1	253.6	265.2	275.2	270.4	245.0	245.3	243.9	255.3	257.6	245.0	252.0	258.8	257.7	260.4	257.6	255.8	268.9	255.9	275.2
26	272.2	275.1	280.9	267.9	274.6	280.5	286.1	287.2	290.7	265.2	246.5	239.6	247.6	236.4	247.5	237.0	235.6	232.4	238.2	249.9	34.2	74.8	69.3	69.7	262.4	290.7
27	93.0	69.7	62.9	63.3	63.1	69.3	74.0	57.5	50.8	50.9	49.1	45.7	44.1	48.1	45.5	50.8	59.2	63.3	71.2	72.4	63.4	60.5	70.2	69.9	61.4	93.0
28	67.8	72.4	79.4	61.3	72.9	79.9	75.8	81.2	73.5	62.9	79.7	68.0	54.7	58.3	55.8	53.5	70.5	92.0	82.8	61.7	57.3	66.8	66.6	80.9	67.9	92.0
29	65.9	74.6	71.4	56.0	53.0	62.5	81.1	81.3	76.2	80.5	82.0	79.3	75.9	72.0	128.0	113.9	77.9	79.5	60.2	65.8	56.7	65.6	64.5	53.7	72.9	128.0
30	44.6	42.1	50.4	64.7	59.6	56.5	69.6	83.3	72.2	60.1	66.9	65.3	62.0	65.2	56.3	58.5	63.7	60.5	61.7	66.2	60.7	69.0	64.5	55.6	61.2	83.3
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	132.4	143.6	144.0	163.6	164.6	145.9	172.7	166.9	173.1	165.6	158.1	151.1	140.0	143.8	138.4	136.7	131.3	118.8	116.4	127.0	109.5	95.1	90.7	105.8		
MAX	272.2	275.1	280.9	277.3	288.5	280.5	286.1	293.2	301.3	281.0	324.3	286.4	264.1	258.3	258.7	263.0	270.0	285.2	278.5	284.6	287.3	289.0	268.4	268.9		



Number of Non-Zero Readings	714
Maximum 1-HR Average	324 degrees
Maximum 24-HR Average	277 degrees
Monthly Calibration	6
Standard Deviation	91.44
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	138.9 degrees

Lagoon Pressure (mmHg) – September 2018

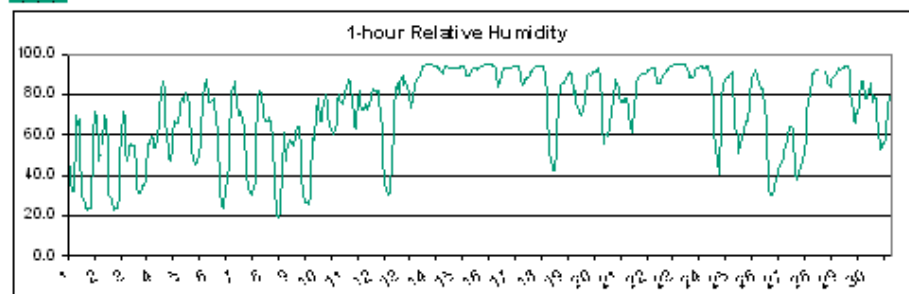
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	646.2	645.9	645.5	645.8	646.4	648.0	648.7	649.5	650.2	650.3	650.2	650.5	650.5	650.5	650.6	650.6	650.6	650.8	651.1	651.5	652.0	652.6	652.9	653.0	649.7	653.0
2	653.0	652.8	652.7	653.0	653.1	653.0	653.0	652.9	652.8	652.5	652.0	651.4	651.1	650.8	650.6	650.5	650.5	650.5	650.4	650.4	650.5	650.3	649.8	649.5	651.5	653.1
3	649.1	649.0	648.8	648.9	649.1	649.5	649.9	650.5	651.7	653.2	653.7	653.9	653.8	654.0	654.0	654.0	654.2	654.7	655.2	655.8	656.7	657.3	657.4	657.6	653.0	657.6
4	657.8	657.9	658.2	658.3	658.3	658.4	658.7	658.8	658.8	658.4	658.2	657.7	657.3	656.9	656.5	656.3	656.4	656.4	656.4	656.7	657.3	657.5	657.6	657.6	657.6	658.8
5	657.6	657.4	657.5	657.5	657.5	657.7	657.8	657.9	657.6	657.2	656.6	656.3	656.1	655.6	655.4	655.3	655.4	655.4	655.6	656.2	656.6	657.0	657.2	657.3	656.7	657.9
6	657.5	657.6	657.6	657.5	657.6	657.7	657.8	657.9	657.8	657.5	657.0	656.7	656.1	655.6	655.2	654.9	654.7	654.7	654.8	655.2	655.4	655.6	655.7	655.6	656.4	657.9
7	655.5	655.3	655.1	655.0	654.9	654.9	654.9	654.8	654.7	654.2	653.9	653.2	652.6	652.2	652.1	651.7	651.4	651.3	651.4	651.4	651.3	651.2	651.4	651.3	653.1	655.5
8	651.1	650.7	650.2	650.0	650.5	650.2	649.5	649.6	649.8	649.6	650.0	649.8	649.6	649.7	649.8	649.7	649.8	650.1	650.4	650.7	651.1	651.5	651.7	651.6	650.3	651.7
9	651.8	651.8	652.0	652.2	652.3	652.5	652.5	652.8	652.9	652.7	652.3	651.8	651.6	651.5	651.4	651.2	651.1	651.3	651.5	651.6	651.6	651.3	650.9	650.6	651.8	652.9
10	650.0	649.7	649.3	649.0	648.8	648.6	648.5	648.4	647.8	647.2	647.2	647.2	647.4	648.0	648.0	648.0	648.3	648.5	648.6	648.8	649.2	649.4	649.1	649.2	648.5	650.0
11	649.5	649.7	649.7	649.5	649.5	649.5	649.7	649.8	649.6	649.2	649.1	649.0	648.9	648.8	648.3	648.2	648.2	647.8	648.1	648.5	649.0	649.0	649.3	649.5	649.1	649.8
12	649.6	649.3	649.1	649.2	649.2	649.1	649.3	649.6	649.5	649.4	649.3	649.0	649.0	649.3	649.5	649.9	649.8	650.1	650.4	650.7	651.0	651.2	651.3	651.2	649.8	651.3
13	651.0	651.1	651.1	651.0	651.1	651.2	651.3	651.6	651.6	651.6	651.6	651.5	651.6	651.6	651.7	652.2	652.9	653.1	653.6	654.0	654.3	654.6	654.7	654.8	652.3	654.8
14	654.7	654.7	654.8	654.8	654.8	654.7	654.9	654.9	654.9	654.9	654.7	654.4	654.2	654.2	654.2	654.2	654.2	654.3	654.3	654.3	654.2	654.2	654.1	653.8	654.5	654.9
15	653.5	653.3	653.0	652.7	652.4	652.3	652.3	652.3	652.4	652.5	652.5	652.5	652.4	652.2	652.1	652.1	652.2	652.5	652.9	652.9	652.9	653.0	652.8	652.8	652.6	653.5
16	652.6	652.4	652.1	652.1	652.1	651.7	651.5	651.5	651.6	651.6	651.4	651.3	651.2	651.4	651.5	651.6	651.7	652.1	652.4	652.5	652.6	652.6	652.5	652.5	651.9	652.6
17	652.4	652.3	652.2	652.1	652.3	652.4	652.6	652.8	652.8	652.6	652.5	652.5	652.7	652.7	652.5	652.5	652.7	653.0	653.4	653.9	654.2	654.7	654.8	654.8	653.0	654.8
18	654.8	654.6	654.5	654.4	654.3	654.3	654.2	654.4	654.4	654.7	654.9	654.8	654.7	654.6	654.6	654.7	654.8	655.0	655.2	655.4	655.6	655.6	655.6	655.7	654.8	655.7
19	655.9	656.0	656.0	655.9	655.7	655.7	655.7	655.8	655.6	655.3	654.9	654.4	653.9	653.5	653.1	652.8	652.6	652.7	653.0	653.0	652.8	652.6	652.5	652.5	654.3	656.0
20	652.4	652.2	652.0	652.1	652.0	652.1	652.5	653.0	653.3	653.4	653.6	653.6	653.6	653.7	653.9	654.1	654.7	654.9	655.2	655.5	655.4	655.4	655.1	654.8	653.7	655.5
21	654.6	654.2	653.8	653.4	653.1	653.0	653.0	652.9	652.9	652.6	652.5	652.5	652.5	652.5	652.5	652.8	652.9	653.1	653.0	653.1	653.1	652.8	652.4	651.8	653.0	654.6
22	651.4	651.3	651.0	650.7	650.8	650.7	650.8	651.0	651.2	651.0	651.1	651.2	651.1	650.8	650.7	651.0	651.1	651.4	651.5	651.7	651.6	651.4	651.1	650.8	651.1	651.7
23	650.7	650.1	649.9	650.0	650.1	650.0	649.9	649.8	649.9	650.0	649.8	649.4	649.0	648.9	648.7	648.9	649.0	649.3	649.9	650.3	650.5	650.5	650.8	651.0	649.8	651.0
24	651.3	651.5	651.6	651.9	651.9	651.9	652.0	652.4	652.5	652.5	C	C	C	C	C	C	654.0	654.3	655.0	655.8	656.1	656.4	656.6	656.9	653.6	656.9
25	657.0	657.0	657.2	657.0	657.2	657.2	657.5	657.4	657.2	656.9	656.5	656.0	655.6	655.1	655.1	655.3	655.0	654.6	654.7	654.9	654.9	655.1	655.2	655.5	656.0	657.5
26	655.6	655.8	655.7	655.5	655.5	655.5	655.4	655.4	655.2	655.0	654.4	654.2	653.9	653.8	653.8	654.1	654.2	654.4	654.4	654.5	654.4	654.9	655.1	655.4	654.8	655.8
27	656.0	656.0	656.1	656.0	656.0	656.1	656.6	657.4	657.8	658.0	658.3	658.4	658.5	658.4	658.4	658.2	658.5	658.6	658.8	659.0	659.2	659.3	659.5	659.6	657.9	659.6
28	659.5	659.3	659.0	658.6	658.2	657.9	657.6	657.4	657.0	656.7	656.0	655.3	655.0	654.7	654.2	654.0	654.0	654.1	654.1	654.3	654.6	654.9	655.0	655.2	656.1	659.5
29	655.5	655.7	655.7	655.8	655.9	656.1	656.4	656.8	657.3	657.8	658.2	658.2	658.1	658.0	658.0	658.1	658.2	658.3	658.3	658.6	658.7	658.6	658.4	658.1	657.5	658.7
30	657.9	657.5	657.1	656.7	656.1	655.8	655.4	655.1	654.8	654.4	654.0	653.3	652.7	652.0	651.5	651.3	651.2	651.0	650.8	650.6	650.5	650.3	650.1	649.9	653.3	657.9
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	653.5	653.4	653.3	653.2	653.2	653.3	653.3	653.5	653.5	653.4	653.3	653.1	652.9	652.8	652.7	652.7	652.8	652.9	653.1	653.4	653.6	653.7	653.7	653.7		
MAX	659.5	659.3	659.0	658.6	658.3	658.4	658.7	658.8	658.8	658.4	658.3	658.4	658.5	658.4	658.4	658.2	658.5	658.6	658.8	659.0	659.2	659.3	659.5	659.6		



Number of Non-Zero Readings	714
Maximum 1-HR Average	660 MMHg
Maximum 24-HR Average	658 MMHg
Monthly Calibration	6
Standard Deviation	2.894
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	653.3 MMHg

Lagoon Relative Humidity (%) – September 2018

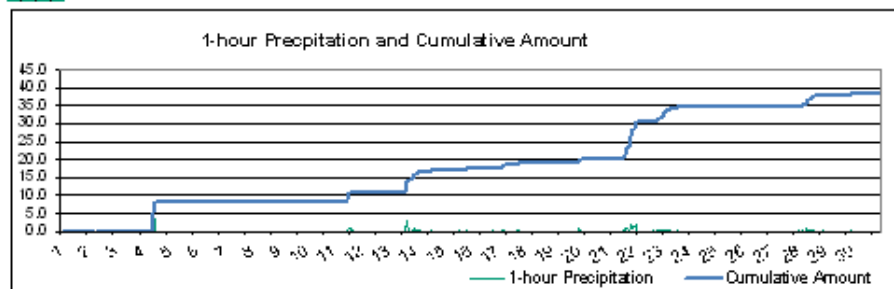
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	44.7	37.1	32.4	32.5	37.1	55.2	69.4	64.8	67.8	53.7	30.9	29.3	28.0	26.8	24.7	22.9	23.4	23.9	23.9	29.1	48.2	59.1	71.8	72.2	42.0	72.2
2	68.3	52.3	47.4	50.7	53.8	56.0	54.8	54.9	54.7	51.9	45.7	34.4	31.6	31.0	31.6	33.9	35.0	35.3	36.5	43.4	52.4	55.9	55.8	62.4	47.1	68.3
3	59.5	58.2	53.8	54.0	57.2	58.7	66.4	72.0	80.7	86.7	85.6	83.5	67.5	60.2	53.2	48.4	47.0	54.0	60.3	67.2	65.2	65.9	66.1	68.2	64.2	86.7
4	71.9	75.0	78.0	76.4	79.0	80.2	80.8	77.9	76.5	67.0	60.3	53.6	48.0	44.8	45.5	45.8	47.1	50.3	55.3	66.3	71.4	76.8	84.4	87.7	66.7	87.7
5	87.1	80.0	76.3	76.5	77.3	77.0	78.0	75.5	68.6	59.9	51.5	42.1	33.0	25.4	24.1	27.7	30.2	32.9	36.5	46.0	60.9	74.6	80.7	83.5	58.5	87.1
6	85.0	86.5	74.2	72.8	69.7	70.9	71.5	68.0	63.6	56.4	49.3	41.4	33.5	32.3	31.0	29.9	30.9	32.8	38.1	57.8	73.9	79.1	81.9	84.3	58.9	86.5
7	81.1	70.9	70.1	66.8	67.2	67.2	67.1	68.6	65.4	57.8	48.7	44.3	35.6	20.5	19.1	19.4	20.6	25.1	41.3	61.0	55.1	47.4	51.7	55.1	51.1	81.1
8	57.7	57.5	55.5	56.5	54.5	59.5	61.4	64.1	63.8	61.3	55.6	40.4	31.5	27.9	26.9	26.6	26.2	25.9	30.0	43.1	51.3	58.5	57.3	60.4	48.1	64.1
9	71.8	77.8	77.7	66.8	66.7	71.6	76.4	75.1	79.5	76.5	71.0	64.6	62.6	61.8	60.8	60.1	63.4	65.7	77.2	80.1	77.7	75.8	75.1	76.3	71.3	80.1
10	79.8	81.3	82.6	86.6	87.4	86.8	84.0	77.6	67.8	64.6	63.0	67.7	76.1	81.4	76.4	72.4	72.9	72.7	75.0	74.0	72.8	74.3	74.3	76.8	76.2	87.4
11	78.7	82.6	82.3	82.0	81.2	81.4	81.5	76.6	71.0	60.9	43.0	42.6	36.9	33.3	30.3	31.5	31.0	32.2	46.7	62.3	72.1	81.6	85.4	79.8	61.9	85.4
12	79.5	84.5	88.6	89.3	85.0	86.7	86.4	84.8	80.8	77.8	75.0	73.1	77.6	84.6	84.4	87.0	86.7	88.7	89.5	90.1	92.2	94.0	94.3	94.5	85.6	94.5
13	94.6	94.7	94.6	94.6	94.5	94.5	94.4	94.2	94.0	93.8	93.3	92.7	92.1	91.1	90.6	91.1	92.8	93.6	93.6	93.5	93.4	93.3	93.0	93.0	93.4	94.7
14	93.1	93.2	93.2	93.1	93.2	93.4	93.5	93.6	93.5	93.2	92.2	89.6	88.9	89.1	90.3	91.2	92.1	93.0	93.4	93.4	93.1	92.4	93.0	93.4	92.4	93.6
15	93.8	94.1	94.4	94.4	94.5	94.5	94.6	94.7	94.7	94.5	94.2	93.7	92.7	88.9	84.4	83.8	85.0	89.5	91.6	91.6	92.9	93.3	93.5	93.6	92.2	94.7
16	93.5	93.3	93.5	93.7	94.1	94.2	94.2	94.1	93.8	92.6	89.8	88.3	84.7	85.7	87.0	88.3	87.5	88.7	89.7	90.7	91.2	92.2	93.0	93.4	91.1	94.2
17	93.6	93.8	93.7	93.7	93.9	93.9	93.8	93.2	90.0	78.6	67.3	58.8	51.7	48.5	43.7	42.1	42.3	51.7	62.5	74.2	75.5	84.2	85.2	84.5	74.6	93.9
18	86.0	86.7	87.6	89.2	90.3	90.8	90.3	90.2	79.4	83.8	81.2	75.8	73.8	72.7	70.1	70.0	69.6	72.4	77.5	80.3	83.8	88.3	90.4	90.7	82.1	90.8
19	88.9	90.3	91.6	91.0	91.4	92.1	93.2	93.2	88.2	74.6	63.9	55.8	59.7	60.7	59.2	60.0	62.1	63.7	72.2	76.4	80.5	83.4	87.3	89.1	77.8	93.2
20	84.1	79.9	76.4	77.0	76.0	76.6	77.8	77.9	74.5	70.6	64.9	63.8	61.5	74.9	75.8	77.7	85.5	87.3	89.5	89.6	90.4	90.6	90.2	90.7	79.3	90.7
21	90.3	91.0	91.6	92.1	92.5	92.7	92.8	92.7	91.4	86.7	85.1	85.8	85.3	85.8	88.9	89.7	90.4	91.5	91.8	92.4	93.3	93.7	94.1	94.5	90.7	94.5
22	94.8	94.9	95.1	95.2	95.2	95.2	95.2	95.2	95.1	94.9	94.5	93.8	92.8	90.9	88.2	89.3	88.7	88.4	89.5	91.5	92.9	93.3	93.4	93.5	93.0	95.2
23	93.6	93.7	93.5	93.1	93.0	93.7	93.9	92.9	90.3	88.5	84.0	74.9	63.4	52.5	49.1	47.0	40.3	67.3	79.4	83.0	84.4	86.9	88.2	88.6	79.8	93.9
24	88.8	89.1	90.2	90.8	87.5	70.0	63.7	61.8	59.2	50.6	C	C	C	C	C	C	67.1	67.2	75.4	81.1	84.3	87.0	89.6	91.2	77.5	91.2
25	91.8	89.5	88.3	86.0	82.6	83.2	83.1	81.7	74.8	65.6	55.0	41.6	33.1	30.3	30.1	31.4	32.3	34.1	38.1	40.8	42.5	43.9	45.0	46.4	57.1	91.8
26	48.4	51.7	54.3	57.8	60.3	62.5	63.6	64.4	63.4	57.5	45.0	41.0	38.1	41.3	41.4	43.1	44.5	46.9	50.5	51.3	58.0	72.6	75.1	79.9	54.7	79.9
27	81.2	86.7	90.2	90.5	91.7	91.9	92.3	91.9	92.4	92.0	91.6	91.4	90.6	90.0	89.7	85.0	84.4	84.1	87.4	88.8	88.5	89.6	90.2	92.1	89.3	92.4
28	93.0	92.6	92.1	92.8	92.8	93.4	93.9	94.3	94.3	93.9	90.9	81.6	76.0	72.8	67.8	65.7	70.7	70.8	74.8	80.5	82.7	86.7	86.2	74.5	83.9	94.3
29	77.8	78.0	78.9	81.3	83.3	85.1	75.7	75.8	78.8	77.9	70.7	62.1	54.0	52.5	53.9	55.4	55.5	57.6	62.6	70.6	73.6	78.9	79.2	80.7	70.8	85.1
30	79.2	77.2	76.0	75.5	75.4	74.5	75.3	77.3	75.0	73.3	69.8	65.3	61.6	59.5	59.8	63.2	66.7	70.2	72.9	75.6	78.0	80.2	82.3	84.9	72.9	84.9
NO.	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	30	30	30	30	30	30	30	714	100%
MEAN	81.0	80.5	79.8	79.8	79.9	80.8	81.3	80.6	78.8	74.6	69.4	64.6	60.8	59.2	57.9	57.9	59.1	61.9	66.8	72.2	75.7	79.1	80.9	81.9		
MAX	94.8	94.9	95.1	95.2	95.2	95.2	95.2	95.2	95.1	94.9	94.5	93.8	92.8	91.1	90.6	91.2	92.8	93.6	93.6	93.5	93.4	94.0	94.3	94.5		



Number of Non-Zero Readings	714
Maximum 1-HR Average	95.2 %
Maximum 24-HR Average	93.4 %
Monthly Calibration	6
Standard Deviation	19.79
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	72.8 %

Lagoon Precipitation (mm) – September 2018

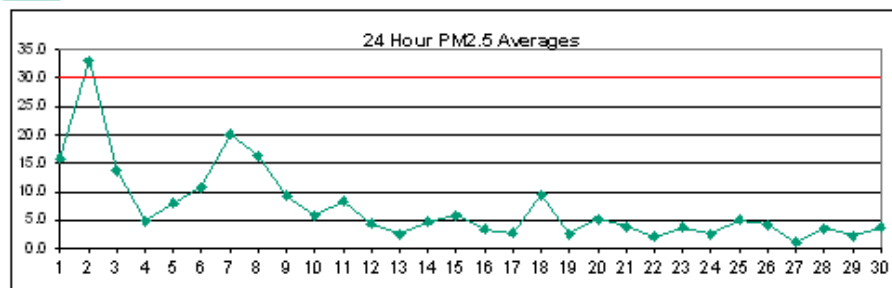
HOURLY																										
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	5.3	2.5	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	0.3	5.3
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	0.0	0.0	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	0.3	0.3	1.0	1.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
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	0.3	0.0	3.0	0.0	0.3	0.0	0.5	0.8	0.3	0.8	0.2	3.0	0.0
13	0.3	0.3	0.3	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	0.3
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	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
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	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
16	0.0	0.0	0.0	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
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	0.0	0.0	0.0	0.0	0.0	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	0.8	
19	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	0.5
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	0.3	0.0	0.8	0.8	1.0	0.5	0.8	2.0	1.3	1.0	0.3	0.4	2.0
21	1.8	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	0.3	0.0	0.0	0.0	0.3	0.0	0.3	0.5	0.5	0.2	1.8
22	0.3	0.5	0.5	0.5	0.3	0.0	0.3	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	0.1	0.5
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	0.3	0.0	0.3	0.0	0.0	0.0	0.8	0.5	0.3	0.3	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.0	0.2	1.0
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	0.3	0.0	0.0	0.0	0.3
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	720	100%
MEAN	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.3	0.1	0.1	0.1	0.1	0.2	1.8
MAX	1.8	0.5	0.5	0.5	0.3	0.3	0.8	0.5	5.3	2.5	0.5	0.3	1.0	1.0	0.0	3.0	0.8	1.0	0.5	0.8	2.0	1.3	1.0	1.0	0.4	2.0



Number of Non-Zero Readings	64
Maximum 1-HR Average	5.3 MM
Maximum 24-HR Average	0.4 MM
Monthly Calibration	0
Standard Deviation	0.297
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	0.06 MM

Windridge PM_{2.5} (µg/m³) – September 2018

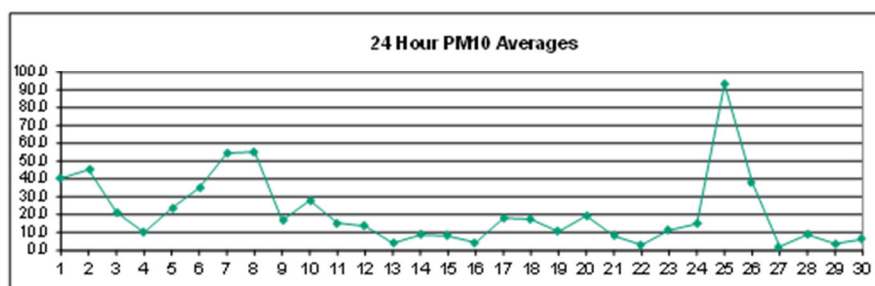
HOUR																									MEAN	MAX
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	5.5	7.0	8.9	12.4	8.8	10.2	7.7	5.9	5.9	8.8	11.7	10.7	13.2	17.0	22.9	14.0	19.7	15.5	22.3	17.6	20.4	26.9	38.6	48.6	15.8	48.6
2	41.5	49.5	51.9	48.0	50.1	46.4	45.0	42.5	43.2	41.0	40.6	37.2	31.3	18.7	19.5	21.9	19.2	20.7	29.0	18.6	16.2	18.1	22.3	19.7	33.0	51.9
3	16.8	26.2	18.7	40.9	35.8	30.9	15.3	10.9	6.0	10.6	11.3	6.2	5.1	5.1	4.7	5.6	9.3	17.2	17.4	9.5	10.2	7.3	4.0	3.4	13.7	40.9
4	2.9	3.3	0.4	2.2	3.3	1.5	3.7	4.0	2.6	1.5	4.4	3.3	1.5	3.0	3.8	8.0	7.3	7.0	9.5	9.9	9.1	7.0	10.6	9.9	5.0	10.6
5	8.0	7.0	7.7	7.0	7.0	9.5	7.0	8.8	10.2	8.1	9.2	9.5	9.1	8.5	12.1	11.3	10.2	5.9	2.9	3.3	5.5	7.0	8.8	7.1	8.0	12.1
6	12.1	10.2	8.8	9.4	11.4	11.7	12.1	10.3	13.1	12.0	9.2	11.7	11.8	17.5	15.7	11.0	9.9	9.5	8.7	5.9	8.4	8.8	7.8	10.6	10.7	17.5
7	8.2	12.9	17.6	16.6	12.1	10.2	8.5	11.1	12.5	16.7	19.7	14.7	17.7	25.2	40.2	34.1	34.3	27.1	25.9	20.2	20.2	22.8	25.3	28.1	20.1	40.2
8	21.3	24.6	27.8	27.9	28.6	29.8	19.8	22.4	14.0	16.0	10.7	13.8	9.6	15.0	14.6	12.8	11.7	12.0	7.1	12.0	8.1	11.0	10.6	11.0	16.3	29.8
9	8.1	8.8	7.6	4.8	5.9	6.2	6.6	9.2	9.2	10.6	9.3	13.6	13.8	10.3	14.2	10.7	12.8	9.8	8.2	13.5	10.6	8.1	7.3	5.6	9.4	14.2
10	10.2	9.8	6.6	6.3	10.2	6.5	3.8	11.7	9.9	11.7	9.1	7.7	6.5	4.8	4.4	5.2	6.2	4.0	1.8	1.8	1.8	1.1	0.7	0.0	5.9	11.7
11	0.0	1.5	2.2	2.3	2.6	2.5	0.1	2.2	2.9	3.0	3.8	11.4	43.5	22.9	16.3	9.0	17.8	13.1	10.3	9.9	8.7	5.4	3.0	4.9	8.3	43.5
12	10.2	5.0	0.8	1.9	5.4	6.5	3.8	8.1	9.5	6.6	5.1	5.5	5.1	2.5	0.0	1.3	7.6	5.1	2.2	0.7	0.1	4.5	6.5	4.7	4.5	10.2
13	1.1	0.4	1.7	1.1	0.0	0.0	0.1	2.6	1.4	0.0	1.2	2.9	3.3	2.9	0.5	3.0	4.1	5.2	8.7	6.6	5.3	5.3	2.9	2.2	2.6	8.7
14	3.6	2.6	1.5	1.9	3.0	4.8	5.5	5.5	6.6	5.8	4.0	4.5	4.0	3.3	2.7	7.7	6.6	6.9	5.3	4.4	5.5	4.8	6.6	6.0	4.7	7.7
15	9.6	12.8	11.7	11.0	9.2	8.5	13.1	6.6	3.4	5.6	7.6	5.8	3.3	4.0	4.0	3.0	4.0	2.9	2.9	2.5	0.8	1.6	4.3	1.8	5.8	13.1
16	0.0	0.0	0.5	3.7	4.0	2.2	1.1	0.4	3.0	5.9	5.1	4.0	2.9	4.0	3.3	2.3	6.7	7.3	4.4	3.4	5.8	3.3	3.8	7.3	3.5	7.3
17	4.7	1.2	4.0	3.6	0.4	0.1	2.8	1.5	2.3	4.7	1.1	0.0	5.8	4.7	2.6	2.6	3.0	5.5	3.9	0.0	0.0	0.0	3.6	10.6	2.9	10.6
18	9.5	12.1	13.6	15.8	18.5	11.0	10.5	19.0	16.3	10.3	10.2	7.7	8.8	7.7	6.9	3.6	1.2	4.1	5.2	6.5	6.3	10.2	6.6	5.1	9.4	19.0
19	4.5	2.9	1.5	0.7	0.0	0.0	0.4	2.9	3.0	3.3	2.4	4.4	4.7	2.5	0.4	0.5	3.3	2.8	0.1	3.7	4.4	4.4	5.9	5.1	2.7	5.9
20	3.4	5.9	6.2	6.3	8.8	7.3	5.8	4.8	4.5	7.3	6.3	7.3	C	C	C	C	4.8	4.8	3.0	2.9	4.8	4.0	3.7	1.8	5.2	8.8
21	0.0	0.7	1.5	PO	PO	PO	PO	PO	4.0	9.2	12.8	19.0	2.2	3.3	4.4	5.5	4.0	1.8	0.4	0.7	2.9	2.9	0.0	0.0	4.0	19.0
22	0.0	4.0	5.9	2.6	0.0	0.0	0.0	0.7	1.8	0.4	0.0	3.4	2.2	1.1	1.5	0.0	0.0	0.3	2.2	7.2	3.3	0.4	2.2	10.6	2.1	10.6
23	6.6	1.1	3.3	4.4	4.4	6.2	4.0	2.2	4.0	3.7	4.0	1.5	0.0	2.9	1.8	1.8	4.0	2.9	5.9	5.5	4.4	5.1	5.5	4.4	3.7	6.6
24	5.9	5.1	4.0	5.1	8.1	5.9	2.6	0.0	0.0	0.3	1.7	2.6	4.0	3.7	0.4	0.0	4.0	2.9	0.4	1.8	1.8	0.4	0.8	2.2	2.7	8.1
25	1.8	1.5	2.3	1.8	2.6	1.5	3.7	2.9	0.4	1.5	3.3	4.0	3.7	2.6	6.3	13.5	8.4	2.2	12.1	15.5	10.6	8.8	6.2	3.7	5.0	15.5
26	6.5	4.4	0.5	3.7	6.6	4.0	2.2	1.8	1.1	1.7	4.1	8.9	6.6	3.3	3.3	4.7	11.0	8.8	4.8	1.8	1.1	2.9	3.3	4.4	4.2	11.0
27	4.8	2.2	5.5	3.7	0.3	1.8	1.5	0.4	0.0	0.0	0.0	0.0	1.8	0.4	0.0	1.5	0.5	0.0	0.7	0.0	1.1	0.4	0.0	1.7	1.2	5.5
28	0.8	2.2	2.2	0.4	0.0	0.0	1.5	5.9	5.9	8.1	7.3	5.5	4.7	3.0	1.5	2.9	2.9	2.6	8.1	7.0	4.0	2.2	4.8	5.9	3.7	8.1
29	3.7	1.5	2.6	2.2	0.4	3.3	4.8	4.8	4.4	3.7	2.2	0.7	0.3	1.1	1.5	2.2	1.5	1.6	1.5	0.4	0.0	1.1	5.5	4.0	2.3	5.5
30	1.9	4.8	6.2	4.8	4.5	4.0	2.6	1.5	4.0	5.5	5.1	5.5	3.3	1.5	0.0	0.0	4.0	4.8	4.1	6.6	4.8	2.9	3.7	3.7	3.7	6.6
NO.	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	711	99%
MEAN	7.1	7.7	7.8	8.7	8.7	8.0	6.7	7.3	6.8	7.4	7.4	7.8	7.9	7.0	7.2	6.9	8.0	7.1	7.3	6.7	6.2	6.3	7.2	7.8	7.5	
MAX	41.5	49.5	51.9	48.0	50.1	46.4	45.0	42.5	43.2	41.0	40.6	37.2	43.5	25.2	40.2	34.1	34.3	27.1	29.0	20.2	20.4	26.9	38.6	48.6	17.4	70.0



Number of 24HR Exceedences	1	Proposed Guideline	
Number of Non-Zero Readings	677		
Maximum 1-HR Average	51.9 UG/M3		
Maximum 24-HR Average	33.0 UG/M3		
		Operational Time	715 HRS
Monthly Calibration	4	Operational Uptime	99.3 %
Standard Deviation	8.4	Monthly Average	7.4 UG/M3

Windridge PM₁₀ (µg/m³) – September 2018

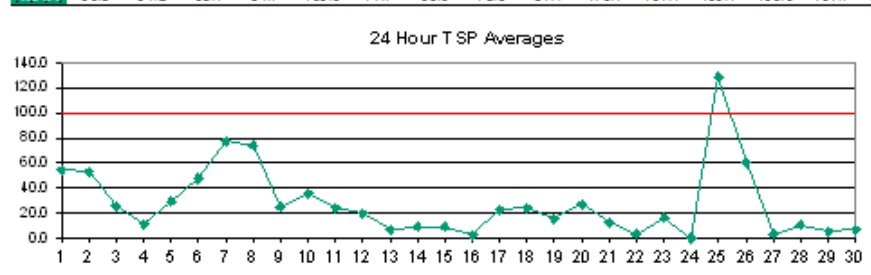
HOUR																										MEAN	MAX
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	33.5	26.6	32.2	31.5	69.6	26.3	20.2	18.0	9.0	8.5	21.3	41.2	71.2	84.3	76.7	38.1	53.2	39.6	56.8	47.0	41.3	35.2	41.5	47.7	40.4	84.3	
2	45.0	47.1	51.2	48.4	45.7	51.2	42.9	44.3	45.6	41.1	41.4	41.4	43.9	63.4	69.3	88.7	51.2	48.9	69.5	34.2	23.7	17.0	13.9	16.3	45.2	88.7	
3	33.4	59.1	24.1	81.2	62.2	27.1	14.6	11.1	10.3	8.2	6.8	5.5	10.5	17.4	13.2	14.9	23.2	25.1	22.5	12.5	11.0	7.6	6.7	4.7	21.4	81.2	
4	4.8	8.2	6.1	5.9	4.0	3.3	2.7	9.0	8.4	13.1	8.9	7.6	11.0	7.6	11.1	12.6	15.8	11.1	11.8	11.8	9.9	21.0	22.2	11.3	10.0	22.2	
5	11.8	14.4	10.4	12.5	9.7	13.4	22.9	50.0	56.8	47.8	51.9	31.5	31.5	28.6	23.1	23.1	25.7	16.0	16.0	13.2	14.6	15.4	16.6	11.1	23.7	56.8	
6	21.1	25.0	14.7	19.1	31.7	38.6	36.5	36.4	19.4	120.1	105.1	43.0	51.7	37.9	40.5	32.2	23.8	23.8	22.8	26.5	19.5	15.9	16.8	18.2	35.0	120.1	
7	21.7	59.0	54.8	48.8	30.9	34.7	54.0	48.1	68.7	59.6	53.0	36.9	95.5	85.7	116.3	50.8	98.3	88.1	61.8	24.4	21.1	26.1	37.0	30.1	54.4	116.3	
8	28.7	26.7	30.7	58.3	54.7	48.8	32.1	24.4	18.0	15.4	116.3	55.7	103.9	92.6	115.7	130.6	112.8	89.2	79.0	23.0	18.1	15.4	18.9	17.3	55.3	130.6	
9	12.5	11.1	10.4	10.0	13.1	10.4	12.0	19.9	36.9	19.4	10.4	10.4	9.1	16.2	31.4	22.6	22.5	27.7	11.3	22.2	14.7	18.1	14.7	18.8	16.9	36.9	
10	15.4	19.5	18.1	14.7	14.0	19.8	32.3	36.6	24.8	104.0	91.8	71.2	12.6	19.6	24.1	41.3	47.8	14.5	10.4	10.3	7.5	6.2	7.5	5.4	27.9	104.0	
11	3.9	4.2	8.2	6.8	1.9	0.0	0.9	18.0	12.5	11.4	31.8	41.2	31.7	36.9	22.4	24.0	31.7	8.2	11.3	19.4	12.4	9.5	11.0	9.1	15.3	41.2	
12	14.5	8.2	3.3	2.8	10.3	27.2	22.7	39.0	55.8	36.3	29.6	16.9	11.1	17.9	8.2	5.4	4.7	3.3	1.9	2.6	2.6	1.9	0.5	0.0	13.6	55.8	
13	4.1	4.7	2.6	2.0	4.0	4.0	2.9	0.5	0.0	1.5	4.0	3.3	1.3	4.1	6.1	4.3	5.5	8.3	11.2	8.9	5.4	4.0	2.6	2.6	4.1	11.2	
14	2.6	3.5	8.1	5.1	4.0	2.0	6.9	6.6	9.5	9.6	14.6	13.8	9.6	8.4	12.6	18.0	10.5	15.8	4.9	11.0	8.4	6.0	9.7	9.8	8.8	18.0	
15	13.3	18.7	13.9	15.2	11.1	9.8	14.6	15.3	13.8	8.9	4.4	6.0	6.8	3.3	1.3	4.8	4.8	6.1	4.7	3.4	4.7	4.2	4.0	3.3	8.2	18.7	
16	3.4	4.0	3.8	1.9	1.9	1.2	0.0	5.5	7.5	4.0	2.6	1.2	0.0	2.7	6.9	9.6	7.5	5.5	8.2	6.1	4.8	5.4	4.8	5.4	4.3	9.6	
17	3.4	6.2	7.6	9.6	6.1	3.3	2.8	7.8	18.1	14.8	23.5	41.6	47.5	38.6	37.6	26.9	36.6	22.5	26.2	8.9	7.5	4.3	14.6	18.0	18.1	47.5	
18	12.1	12.6	18.2	20.9	19.5	19.0	27.4	54.7	52.1	54.7	22.8	10.5	13.8	11.0	8.3	8.9	6.8	5.4	5.9	4.9	11.7	7.5	4.4	6.2	17.5	54.7	
19	6.8	2.6	0.5	1.9	1.9	1.2	0.9	17.5	35.9	14.6	14.8	22.2	14.5	11.3	11.0	7.6	10.4	9.6	6.1	5.5	7.9	21.5	15.9	11.8	10.6	35.9	
20	11.9	17.7	27.1	44.4	19.4	15.4	16.6	13.9	41.0	77.0	35.5	24.8	C	C	C	C	11.3	7.6	3.3	1.2	2.7	9.7	6.2	1.9	13.4	77.0	
21	0.0	0.0	1.5	PO	PO	PO	PO	PO	PO	6.0	30.1	34.4	32.9	6.2	9.0	7.6	8.3	7.6	4.7	1.6	0.5	1.9	1.9	0.3	0.3	8.1	34.4
22	1.9	0.5	0.0	2.6	1.2	0.0	0.0	0.0	1.9	2.6	0.0	2.6	4.0	3.3	4.0	3.0	4.0	4.7	3.3	5.4	4.7	3.3	11.1	9.7	3.1	11.1	
23	4.7	2.6	7.6	9.7	7.6	4.7	4.0	5.5	9.0	8.3	8.3	5.4	6.2	30.8	13.6	36.5	47.7	19.5	5.4	6.2	13.2	8.3	5.4	3.3	11.4	47.7	
24	7.6	7.6	6.9	7.6	18.1	13.2	8.1	6.2	9.0	7.9	24.6	69.6	61.0	17.4	6.1	4.1	30.0	4.7	7.6	6.7	6.9	7.6	9.0	8.1	14.8	69.6	
25	6.0	4.1	9.0	17.5	34.3	3.4	20.1	16.0	9.7	13.9	20.4	86.4	57.0	70.4	97.0	323.0	173.8	95.4	240.3	357.6	212.0	179.4	103.5	85.8	93.2	357.6	
26	69.5	54.0	26.5	11.2	9.0	11.8	9.7	10.4	21.3	30.9	51.4	100.4	56.9	51.4	77.4	92.1	63.2	49.1	28.0	32.2	26.6	16.0	9.7	6.9	38.2	100.4	
27	4.7	2.6	1.2	1.2	4.3	3.3	0.5	1.2	0.0	0.0	0.0	1.9	1.9	0.0	1.9	0.0	0.0	4.0	2.9	0.0	1.2	6.2	5.4	6.1	2.1	6.2	
28	4.3	4.7	3.3	0.0	2.6	1.5	3.3	3.3	2.7	14.7	18.8	18.1	14.6	18.0	8.3	6.9	6.9	9.7	10.4	6.3	28.8	15.3	9.7	4.7	9.0	28.8	
29	1.9	2.6	1.2	1.2	1.9	1.2	1.2	6.2	6.1	4.8	6.1	4.3	4.7	5.4	3.3	4.8	6.9	6.7	4.0	1.5	2.6	3.3	1.9	6.2	3.8	6.9	
30	6.2	6.2	8.3	4.7	4.7	3.3	3.3	4.8	6.2	10.4	9.6	11.1	6.1	2.9	6.8	4.1	7.6	5.9	4.8	6.2	6.9	8.1	7.6	6.8	6.4	11.1	
NO.	30	30	30	29	29	29	29	29	30	30	30	30	29	29	29	29	29	30	30	30	30	30	30	30	711	99%	
MEAN	13.7	15.5	13.7	17.1	17.2	13.8	14.4	18.3	20.5	26.5	28.8	28.6	27.5	27.4	29.7	36.1	31.7	22.7	25.1	24.0	18.5	16.7	14.4	12.9	42.0		
MAX	69.5	59.1	54.8	81.2	69.6	51.2	54.0	54.7	68.7	120.1	116.3	100.4	103.9	92.6	116.3	323.0	173.8	95.4	240.3	357.6	212.0	179.4	103.5	85.8	91.1	433.3	



Number of Non-Zero Readings	691		
Maximum 1-HR Average	357.6 UG/M3		
Maximum 24-HR Average	93.2 UG/M3		
Monthly Calibration	4	Operational Time	715 HRS
Standard Deviation	31.43	Operational Uptime	99.3 %
		Monthly Average	21.4 UG/M3

Windridge TSP ($\mu\text{g}/\text{m}^3$) – September 2018

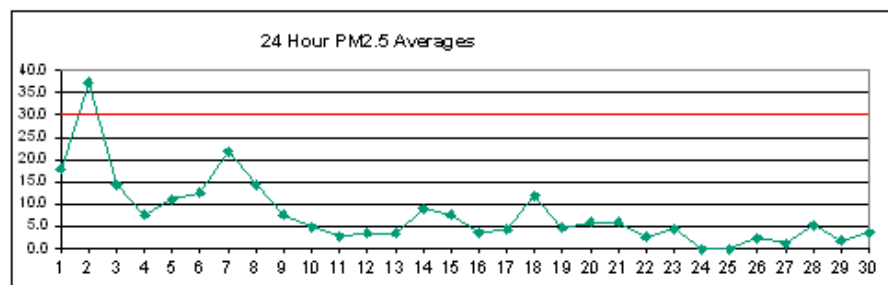
Day	HOUR																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	47.7	41.4	40.7	42.9	109.0	40.5	24.5	21.5	8.2	7.1	24.9	58.2	108.0	125.8	108.5	57.8	68.5	38.3	70.3	68.7	48.4	42.2	49.3	56.9	54.4	125.8
2	50.6	49.2	47.8	52.6	47.0	45.5	43.5	43.5	43.5	42.7	35.7	44.4	56.0	93.6	97.0	142.7	72.4	68.4	84.5	36.3	20.9	19.5	17.4	16.5	53.0	142.7
3	39.8	79.9	29.5	94.7	71.2	29.9	11.8	12.2	16.0	14.6	10.3	4.2	18.2	24.4	20.8	12.0	25.9	23.8	22.2	10.5	17.3	8.9	5.4	4.7	25.4	94.7
4	4.7	4.8	6.2	6.1	5.4	3.3	4.1	11.2	21.5	11.7	8.2	5.5	6.0	9.0	9.0	14.8	13.9	15.3	14.5	9.7	11.9	22.6	36.2	9.7	11.1	36.2
5	11.9	16.3	11.8	10.4	9.7	11.3	26.9	53.7	74.3	54.5	67.1	43.5	42.2	48.3	38.3	22.6	35.6	23.8	22.4	18.9	18.9	22.3	16.6	9.9	29.6	74.3
6	28.0	28.5	11.3	23.9	31.1	43.5	40.9	53.0	28.0	175.7	148.1	61.6	93.9	66.1	65.2	51.0	29.3	22.5	25.3	31.4	21.0	23.1	23.7	19.6	47.7	175.7
7	25.4	91.2	68.1	56.1	46.4	47.2	59.0	55.3	91.4	87.2	89.7	60.2	142.0	129.2	206.4	60.6	169.4	145.8	94.7	25.9	24.5	22.5	35.1	35.7	77.9	206.4
8	28.8	28.0	28.4	57.6	52.3	74.7	32.8	19.6	20.2	16.8	161.4	71.6	165.0	131.7	183.1	185.5	153.9	130.8	117.0	26.6	28.7	27.2	20.9	18.7	74.2	185.5
9	25.0	11.2	16.0	14.6	10.1	9.8	15.5	26.4	62.7	28.5	14.7	19.5	18.8	33.5	42.7	37.1	33.1	42.5	17.6	25.8	21.7	25.1	19.6	23.8	24.8	62.7
10	27.3	23.1	25.9	24.4	16.1	22.6	36.5	39.9	36.0	144.0	119.9	89.7	20.2	20.3	23.5	53.4	53.5	17.3	6.2	6.3	12.5	11.3	17.4	13.1	35.8	144.0
11	6.8	1.9	3.4	6.9	6.1	3.3	0.8	16.1	20.8	13.3	63.2	61.0	52.8	62.3	46.3	41.5	48.5	9.8	16.4	38.3	18.1	13.2	11.8	13.2	24.0	63.2
12	15.2	5.4	3.3	2.8	9.4	37.8	33.3	58.1	86.1	58.9	51.6	24.9	18.3	27.8	13.1	8.6	6.1	3.3	1.9	0.0	1.3	4.7	3.9	2.6	19.9	86.1
13	2.0	8.2	5.4	1.9	3.3	2.7	6.9	6.2	9.0	7.6	11.7	5.4	2.0	4.1	8.3	9.7	13.9	11.8	13.8	8.9	6.8	4.0	3.4	6.2	6.8	13.9
14	6.9	3.3	1.7	4.0	2.7	2.7	6.2	6.9	11.2	10.5	16.6	9.7	8.2	9.1	15.3	15.3	16.7	15.2	8.6	9.6	6.8	6.3	13.6	9.7	9.0	16.7
15	13.4	25.0	13.9	15.3	11.8	9.7	10.7	28.4	11.8	11.7	7.5	4.0	4.0	2.7	4.2	11.1	9.7	11.1	6.1	1.6	3.3	2.6	2.6	1.9	9.3	28.4
16	1.2	2.6	1.9	3.3	1.2	0.0	0.0	0.0	0.5	1.2	0.6	2.6	1.6	2.6	2.7	8.2	6.1	4.7	3.3	1.9	2.0	5.5	6.1	4.0	2.7	8.2
17	1.3	6.8	5.5	6.1	3.3	1.2	2.8	6.9	16.8	23.1	25.6	51.5	56.1	50.0	57.5	48.0	60.6	28.2	41.9	8.9	4.7	2.2	20.3	20.2	22.9	60.6
18	18.8	18.3	25.2	28.0	26.6	26.2	42.0	78.9	84.3	77.3	27.8	13.8	10.4	10.3	8.3	9.6	11.7	7.0	8.6	9.0	7.6	9.6	8.6	8.2	24.0	84.3
19	5.4	1.9	0.5	0.0	0.0	0.0	1.6	25.1	55.0	26.5	21.1	30.6	13.3	20.9	18.1	17.5	23.6	15.7	0.0	11.1	10.8	32.1	25.7	13.2	15.4	55.0
20	13.4	25.9	27.6	43.9	23.0	17.4	13.2	14.1	65.4	138.9	66.4	42.3	C	C	C	C	9.6	8.2	4.8	6.2	6.8	5.4	3.3	3.3	27.0	138.9
21	2.7	1.9	1.3	PO	PO	PO	PO	PO	10.3	47.1	49.2	47.8	14.7	19.4	11.7	8.9	7.0	6.9	5.4	2.6	0.5	0.5	0.0	0.0	12.5	49.2
22	1.2	0.5	0.0	0.0	0.0	1.9	2.6	0.5	0.5	1.2	1.2	1.2	1.3	5.5	6.1	3.3	1.9	1.7	4.8	6.8	4.0	2.9	16.6	7.5	3.1	16.6
23	5.4	4.1	7.0	13.1	9.6	7.5	4.1	5.5	9.0	10.4	11.1	6.7	7.4	34.1	21.0	58.7	77.9	34.7	14.5	10.0	11.8	11.7	7.6	7.6	16.3	77.9
24	9.0	9.0	9.7	9.9	24.3	15.1	6.2	6.2	7.5	6.8	C	C	C	C	C	C	C	6.9	9.0	13.2	10.0	9.0	7.6	8.6	N/A	107.7
25	7.6	4.8	16.7	21.0	35.8	4.8	31.5	7.6	17.4	17.5	31.7	118.3	92.2	113.4	161.0	466.3	260.5	151.0	345.5	453.9	283.9	213.4	127.4	107.7	123.8	466.3
26	90.8	81.5	37.1	11.8	11.8	15.3	11.0	13.9	27.3	35.8	68.3	165.4	91.5	77.4	130.2	144.2	97.8	71.0	66.3	68.7	65.4	43.5	14.6	13.9	60.6	165.4
27	10.4	4.2	2.7	1.9	0.0	3.3	3.3	4.0	5.4	1.9	0.0	0.0	0.0	0.0	1.9	0.0	0.5	4.7	3.3	3.3	4.0	8.2	4.2	6.1	3.1	10.4
28	4.0	3.3	1.2	0.5	1.2	3.3	2.6	0.0	9.7	17.5	25.2	23.1	20.2	15.3	10.4	6.1	2.0	16.0	23.1	13.3	30.8	23.0	2.6	3.3	10.7	30.8
29	4.0	2.7	1.9	1.2	1.2	4.0	2.6	1.9	3.4	10.4	7.6	5.4	4.0	6.1	4.2	16.0	13.6	13.2	8.3	9.7	5.4	4.0	3.3	6.2	5.9	16.0
30	4.8	9.7	9.0	9.0	4.7	4.7	3.3	6.2	9.7	11.8	10.4	8.3	7.0	6.9	4.0	4.8	7.6	9.7	4.7	3.4	9.0	7.6	4.8	8.3	7.0	11.8



Number of 24HR Exceedences	1	Proposed Guideline
Number of Non-Zero Readings	684	
Maximum 1-HR Average	466.3 UG/M3	
Maximum 24-HR Average	128.8 UG/M3	
IZS Calibration Time		
Down Time	0	Operational Time
Standard Deviation	44.9	Operational Uptime
		Monthly Average
		715 HRS
		99.3 %
		28.7 UG/M3

West PM_{2.5} (µg/m³) – September 2018

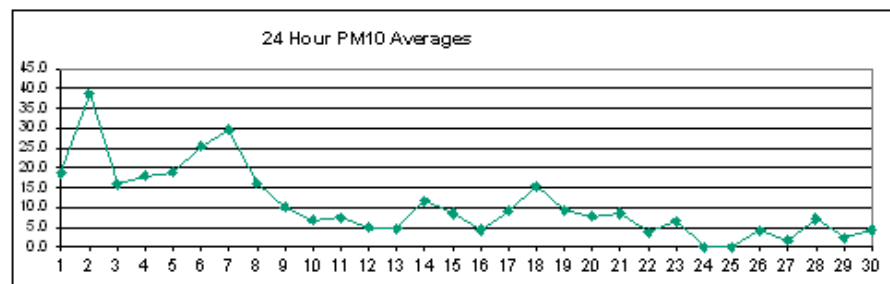
HOUR																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	6.5	7.3	8.4	7.1	5.8	3.4	2.6	3.3	5.2	7.8	8.0	8.9	14.5	20.3	21.2	20.1	21.4	22.5	22.8	27.4	39.0	45.1	47.8	52.3	17.9	523
2	57.0	59.3	60.0	60.0	59.8	58.5	56.8	55.3	53.9	51.0	43.1	23.5	18.3	17.0	17.8	19.1	20.5	22.4	22.9	23.0	24.1	24.2	24.3	24.2	37.3	600
3	24.7	27.6	42.5	38.8	36.7	21.7	10.8	7.7	9.0	5.0	4.2	3.6	3.7	6.1	8.4	12.6	24.6	24.3	14.5	11.3	3.3	2.7	2.2	1.9	14.5	42.5
4	1.9	1.9	2.1	2.1	2.3	2.1	4.9	5.8	6.2	6.4	8.6	11.9	10.6	12.0	11.5	13.2	11.2	9.4	8.7	8.8	9.3	10.1	10.9	11.2	7.6	13.2
5	11.3	12.0	12.2	12.0	11.6	11.7	12.0	12.5	12.3	12.6	12.5	13.2	11.8	10.6	12.0	13.8	11.9	9.4	9.2	8.1	8.3	8.7	8.9	9.5	11.2	13.8
6	10.6	11.1	12.1	12.8	13.4	14.1	14.7	15.7	15.5	15.3	15.7	13.4	12.5	15.4	12.4	11.0	9.6	8.6	9.9	11.3	12.0	11.9	12.0	12.5	12.6	15.7
7	13.8	16.1	16.4	16.4	17.2	17.9	18.7	19.1	19.1	19.1	19.3	18.4	23.5	28.4	27.5	24.0	20.7	18.4	21.4	24.7	27.6	30.6	31.7	32.5	21.8	32.5
8	33.4	33.9	34.5	34.7	33.5	25.4	24.4	21.5	16.9	10.0	5.4	6.2	6.6	5.9	5.8	5.2	4.8	4.4	4.6	4.9	5.2	5.4	6.0	6.0	14.4	34.7
9	4.7	5.2	6.6	7.1	6.8	6.8	6.3	7.1	7.0	6.6	7.3	7.9	8.2	8.0	7.6	9.2	9.3	9.0	8.4	8.5	9.3	8.5	7.4	7.3	7.5	9.3
10	8.0	8.3	8.3	8.7	9.6	10.7	11.5	11.3	6.4	5.9	5.0	3.4	3.2	2.2	1.4	1.5	2.0	1.1	0.9	1.2	1.7	1.3	1.5	1.7	4.9	11.5
11	1.9	2.0	2.2	2.2	2.3	2.5	3.8	5.2	5.7	6.5	4.0	3.2	2.9	2.6	1.9	1.7	1.7	1.2	1.3	2.5	2.8	2.7	2.2	3.8	2.9	6.5
12	1.6	1.3	1.9	2.8	2.7	2.7	3.5	7.4	9.9	6.6	7.5	7.0	4.7	3.7	4.6	3.3	1.1	1.8	1.6	1.8	1.4	0.6	1.0	0.7	3.4	9.9
13	0.7	0.8	1.1	0.8	1.3	1.8	1.3	1.2	1.7	2.1	2.8	4.4	4.9	6.5	5.9	4.6	4.2	2.2	4.6	5.0	3.0	4.2	8.1	8.8	3.4	8.8
14	7.6	6.5	8.2	9.4	7.9	8.1	9.1	9.3	9.0	8.5	8.7	13.4	10.1	9.9	13.6	14.8	12.2	9.7	9.2	6.9	4.3	3.9	7.0	8.1	9.0	14.8
15	12.0	14.1	14.1	13.7	13.7	12.1	11.4	13.1	10.5	8.8	7.0	6.2	4.6	4.3	4.8	4.9	4.6	3.7	2.4	4.1	2.1	1.9	3.5	2.9	7.5	14.1
16	2.8	2.5	2.6	2.4	2.5	1.5	0.7	1.0	2.0	2.7	3.1	6.2	11.2	3.7	3.3	3.6	3.9	3.5	3.2	4.8	5.0	5.9	5.5	4.1	3.7	11.2
17	5.3	4.2	5.7	5.9	6.5	6.1	5.8	8.1	7.8	4.7	4.2	3.0	2.7	2.0	2.8	1.8	1.9	2.6	1.3	1.2	1.5	3.8	12.1	4.3	12.1	
18	17.0	19.0	18.8	19.5	19.8	23.0	18.2	12.1	9.6	10.3	13.4	10.0	9.9	9.1	8.5	8.2	7.2	6.7	6.0	7.5	8.8	9.3	8.3	5.6	11.9	23.0
19	1.9	0.5	0.4	0.4	1.3	1.7	2.9	5.8	6.6	6.3	5.0	5.0	7.9	5.6	5.0	5.5	6.1	6.0	5.9	5.4	6.1	6.9	7.3	8.2	4.7	8.2
20	6.9	6.9	6.5	5.3	5.4	5.5	5.5	6.4	6.8	7.3	8.0	7.4	7.7	8.4	7.5	8.2	7.0	3.4	3.0	4.6	5.9	2.4	2.1	2.0	5.8	8.4
21	2.0	1.0	1.9	6.3	7.3	4.8	4.9	8.7	13.3	18.4	23.6	15.5	8.2	6.6	3.6	1.8	1.4	2.6	1.8	1.4	1.3	2.5	3.3	2.0	6.0	23.6
22	1.5	2.4	1.6	1.1	0.8	1.5	1.1	1.3	1.5	1.6	3.3	2.3	2.7	2.7	2.5	2.2	2.7	3.2	3.2	3.5	3.6	5.6	5.1	6.8	2.7	6.8
23	7.6	5.9	6.8	5.9	6.0	4.6	4.3	4.4	4.2	3.3	3.3	1.9	1.3	1.6	0.6	0.9	0.8	2.5	7.4	6.9	7.4	6.7	7.2	8.0	4.6	8.0
24	9.1	10.2	11.5	10.0	4.9	2.1	1.6	3.7	2.5	4.0	2.9	2.7	3.9	4.2	4.3	5.7	PO	PO	PO	PO	PO	PO	PO	PO	4.6	8.0
25	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	4.0	3.5	2.4	1.6	2.9	3.8	2.7	2.4	1.8	2.0	1.7	1.8	1.5	1.4		
26	1.5	1.6	1.6	1.8	1.9	2.1	3.2	4.2	3.5	3.4	3.0	1.9	1.9	2.3	2.2	2.4	2.3	1.9	2.2	2.8	2.3	4.2	3.2	2.4	2.5	4.2
27	1.2	1.9	0.4	0.4	0.4	0.6	0.7	1.0	1.1	1.0	0.7	0.6	0.5	0.7	0.7	2.0	4.6	4.6	2.5	0.4	0.6	1.0	0.8	2.0	1.3	4.6
28	1.6	0.9	0.8	1.1	1.0	1.2	1.5	4.7	10.2	11.5	18.5	17.9	10.5	6.0	5.5	4.5	4.7	5.0	4.4	3.0	2.7	4.0	1.8	1.7	5.2	18.5
29	1.6	2.1	2.0	1.8	1.8	1.8	2.1	2.1	3.0	2.6	2.6	1.8	2.1	1.4	2.3	1.7	1.6	0.9	0.8	1.1	1.5	1.7	2.0	2.0	1.8	3.0
30	2.4	3.4	4.0	3.3	2.9	2.7	2.6	3.9	4.9	5.7	5.4	4.7	3.4	2.8	2.3	2.4	2.5	2.5	2.5	3.3	4.1	4.6	5.9	7.7	3.7	7.7
NO.	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	703	98%
MEAN	8.9	9.3	10.2	10.1	9.9	8.9	8.5	9.1	9.1	8.6	8.6	7.6	7.2	7.1	7.0	7.1	7.2	6.7	6.5	6.8	7.1	7.6	8.0	8.6		
MAX	57.0	59.3	60.0	60.0	59.8	58.5	56.8	55.3	53.9	51.0	43.1	23.5	23.5	28.4	27.5	24.0	24.6	24.3	22.9	27.4	39.0	45.1	47.8	52.3		



Number of 24HR Exceedences	1	Proposed Guideline
Number of Non-Zero Readings	703	
Maximum 1-HR Average	60.0 UG/M3	
Maximum 24-HR Average	37.3 UG/M3	
IZS Calibration Time		Operational Time
Down Time	0	Operational Uptime
Standard Deviation	9.519	Monthly Average
		703 HRS
		97.6 %
		8.2 UG/M3

West PM₁₀ (µg/m³) – September 2018

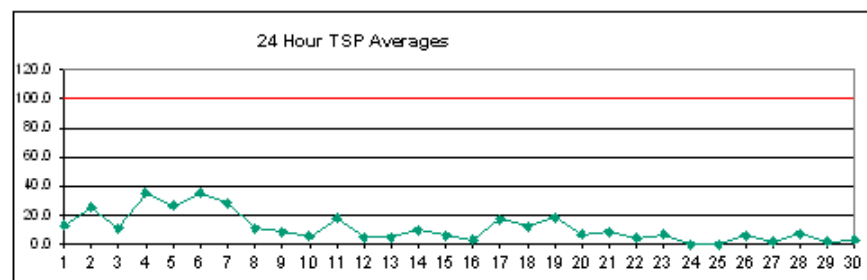
HOUR																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	6.9	7.9	9.1	8.1	6.1	3.6	2.7	3.5	6.2	10.0	9.9	9.7	15.1	20.8	21.9	20.8	21.9	23.2	23.2	27.8	39.7	45.8	48.8	53.4
2	57.9	60.0	60.6	60.8	60.9	59.4	57.6	56.8	56.9	54.3	45.2	25.3	19.1	18.2	18.9	20.2	21.5	23.6	24.4	24.3	25.7	25.5	25.5	25.7
3	25.8	28.9	43.1	39.1	37.2	23.1	11.7	9.1	11.2	6.7	5.0	4.4	4.5	6.6	9.4	13.6	27.5	26.9	17.3	13.7	4.5	3.6	2.7	2.3
4	2.2	2.2	2.6	2.5	2.8	2.5	7.2	8.5	9.3	13.2	33.4	34.4	34.8	44.5	45.5	55.7	38.3	17.4	11.5	10.2	11.5	13.1	14.6	14.5
5	13.8	13.9	13.9	13.3	12.7	13.1	13.8	16.6	17.1	20.3	21.3	26.0	18.5	16.1	34.6	61.6	34.4	18.0	13.6	11.1	11.3	12.0	12.2	13.2
6	14.6	15.5	16.9	16.5	17.2	16.9	18.1	21.3	21.8	23.2	34.1	26.9	26.3	65.0	53.8	51.6	40.5	24.4	19.4	16.3	17.4	17.1	17.3	17.8
7	19.9	22.5	22.2	21.6	21.4	21.8	23.8	25.6	26.8	27.6	30.8	38.0	39.7	39.2	39.5	35.6	29.0	24.4	23.8	29.0	33.9	37.4	37.3	36.2
8	37.4	37.3	38.0	37.5	37.8	27.6	25.7	23.5	18.5	11.3	6.0	6.8	7.1	6.5	6.4	5.7	5.3	4.7	4.9	5.2	5.8	7.0	8.7	8.9
9	6.6	7.4	9.3	9.6	8.6	8.2	7.9	9.6	9.5	8.6	9.7	10.6	11.3	11.2	10.3	12.2	12.8	12.4	11.8	11.0	12.5	11.8	10.3	10.1
10	11.0	11.1	11.7	12.2	13.6	15.0	15.6	15.2	8.7	8.1	6.7	4.5	4.3	3.0	1.9	2.2	2.9	1.5	1.2	1.6	2.3	1.7	1.9	2.1
11	2.3	2.4	2.9	2.8	2.9	3.4	5.4	11.4	22.5	29.3	16.2	12.0	13.2	13.8	7.4	4.0	4.5	1.7	1.7	3.6	4.1	3.8	3.0	5.6
12	2.2	1.7	2.5	4.0	3.8	3.8	4.9	10.8	14.9	9.9	11.2	10.4	7.1	5.4	6.7	4.7	1.4	2.4	2.1	2.4	1.8	0.8	1.3	0.8
13	0.8	0.9	1.2	0.8	1.4	1.9	1.5	1.5	2.3	3.0	4.0	6.5	7.2	9.6	8.7	6.4	5.8	2.7	6.6	7.1	3.8	5.7	11.4	11.8
14	10.7	9.5	11.0	11.5	10.3	10.5	11.4	12.0	11.5	11.3	11.5	18.0	13.8	12.7	18.6	20.7	16.4	12.1	11.6	8.2	4.9	4.3	7.3	8.9
15	13.6	15.7	14.9	14.2	14.2	12.5	11.8	15.0	13.0	10.5	8.3	7.2	5.2	5.0	5.8	5.9	5.7	4.1	2.6	5.9	2.6	2.3	4.8	3.6
16	3.0	2.8	2.8	2.7	3.0	1.8	0.8	1.1	2.2	3.1	3.7	7.1	14.5	4.1	3.5	3.7	4.1	3.8	3.6	6.4	5.9	7.8	7.0	5.4
17	7.1	5.6	7.5	7.1	8.9	7.6	7.1	11.5	12.0	15.2	17.1	13.1	13.0	9.5	16.0	8.3	10.2	10.9	2.4	1.7	1.8	2.1	5.6	15.6
18	20.0	23.6	22.9	24.8	25.4	30.6	24.9	16.7	12.5	14.0	17.9	14.1	14.2	11.9	10.3	10.9	8.9	8.8	6.8	8.9	11.1	12.3	11.5	7.9
19	2.6	0.7	0.4	0.5	1.7	2.2	4.2	7.9	8.7	8.6	9.8	11.1	30.6	23.8	25.9	14.5	10.6	8.8	8.1	6.8	8.5	9.4	10.0	11.5
20	8.9	8.6	8.1	6.4	6.6	6.6	7.1	8.8	9.6	10.5	11.1	10.9	11.1	11.7	9.8	11.1	9.3	4.0	3.7	5.8	7.0	2.8	2.8	2.8
21	2.9	1.4	2.8	9.4	10.8	7.1	6.9	11.2	16.9	25.9	35.2	23.0	11.9	8.9	4.6	2.4	1.8	3.7	2.5	1.8	1.8	3.7	4.9	2.9
22	2.0	2.9	1.8	1.4	0.9	1.6	1.4	1.7	2.0	5.0	8.6	5.7	4.5	6.0	4.0	2.5	2.9	3.5	3.3	3.9	4.2	7.4	6.3	8.6
23	9.4	6.4	7.5	6.2	6.7	5.2	5.0	5.2	5.7	4.1	4.8	4.9	4.2	3.8	2.4	3.2	3.0	6.1	13.2	10.1	10.0	9.1	9.3	10.7
24	12.5	13.8	15.4	13.1	6.3	2.8	2.1	5.5	3.7	18.3	12.4	12.6	25.5	36.5	34.1	62.1	PO	PO	PO	PO	PO	PO	PO	PO
25	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	16.5	15.3	9.5	5.6	14.6	20.7	11.4	10.1	5.6	6.1	4.2	4.8	3.1	2.8
26	1.9	2.1	2.0	2.4	2.5	2.8	4.6	6.2	5.2	4.9	4.8	4.9	4.3	7.7	7.3	8.4	3.9	2.6	3.1	4.1	3.1	6.2	4.5	3.1
27	1.7	2.0	0.4	0.4	0.5	0.7	0.9	1.3	1.5	1.5	1.0	0.8	0.6	0.9	1.0	2.8	6.8	6.7	3.5	0.5	0.7	1.4	1.0	2.4
28	1.9	1.1	1.0	1.3	1.2	1.4	1.8	6.2	12.7	14.5	25.9	26.8	15.7	8.8	7.9	6.4	6.8	7.1	6.3	4.0	3.4	5.3	2.0	1.9
29	1.8	2.4	2.3	2.0	2.0	2.1	2.6	2.6	3.9	3.3	3.3	2.3	2.9	1.8	3.3	2.3	2.1	1.0	1.0	1.2	1.8	2.1	2.4	2.3
30	2.8	3.6	4.3	3.4	3.1	3.0	2.9	4.7	5.6	6.5	6.3	5.5	4.0	3.3	2.7	2.8	2.9	2.9	2.8	4.2	5.4	5.5	7.0	8.6
NO.	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29
MEAN	10.5	10.8	11.7	11.6	11.4	10.3	10.1	11.4	12.1	13.3	14.4	13.1	13.0	14.4	14.8	15.8	12.1	9.5	8.3	8.3	8.7	9.3	9.8	10.4
MAX	57.9	60.0	60.6	60.8	60.9	59.4	57.6	56.8	56.9	54.3	45.2	38.0	39.7	65.0	53.8	62.1	40.5	26.9	24.4	29.0	39.7	45.8	48.8	53.4



Number of Non-Zero Readings	703	
Maximum 1-HR Average	65.0 UG/M3	
Maximum 24-HR Average	38.7 UG/M3	
IZS Calibration Time	OperatioEI Time	703 HRS
Down Time	OperatioEI Uptime	97.6 %
Standard Deviation	Monthly Average	11.5 UG/M3

West TSP ($\mu\text{g}/\text{m}^3$) – September 2018

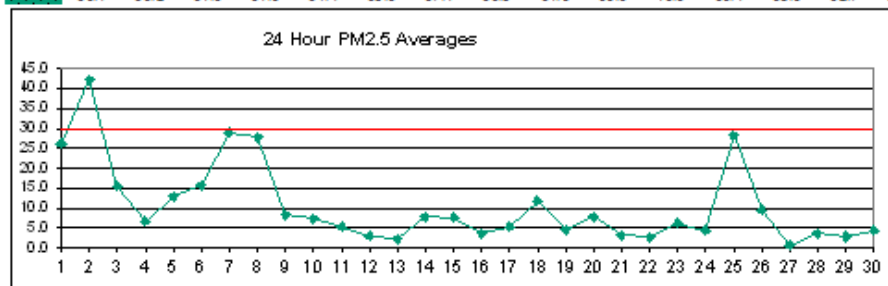
HOUR	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																								MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	5.6	5.7	7.4	10.4	4.0	2.4	1.8	2.3	4.1	8.3	12.3	7.5	10.0	13.6	14.3	13.6	14.2	15.1	15.0	18.0	25.9	29.7	31.6	34.6	12.8	34.6
2	37.5	38.8	39.1	39.3	39.5	38.5	37.2	36.9	38.4	36.5	29.7	17.2	12.6	12.3	12.8	13.5	14.0	15.4	16.0	15.8	16.7	16.5	16.6	16.7	25.3	39.5
3	16.9	18.8	28.0	25.3	24.1	15.2	7.7	6.7	8.1	4.9	3.5	3.1	3.7	4.4	8.9	9.4	19.8	18.0	11.7	9.1	3.9	3.1	2.0	1.6	10.7	28.0
4	1.5	1.5	1.8	1.7	2.0	1.8	7.4	8.7	10.2	23.5	90.1	62.7	77.3	125.5	133.7	114.3	96.4	26.0	8.8	6.8	7.8	9.1	10.4	9.8	35.0	133.7
5	9.1	9.1	9.0	8.7	8.2	8.5	9.3	12.3	13.8	25.0	37.7	49.0	25.1	19.1	67.4	155.2	83.3	27.9	11.9	8.0	8.1	8.9	9.1	10.0	26.4	155.2
6	13.0	12.7	11.9	11.0	11.5	11.1	12.2	16.1	17.9	21.7	64.3	45.8	41.3	119.0	122.5	108.9	82.4	41.2	19.4	12.4	12.9	12.6	12.9	13.7	35.4	122.5
7	15.0	15.6	14.9	14.7	14.2	14.7	17.1	19.2	21.2	23.1	39.0	55.7	60.4	64.2	52.3	45.2	30.3	29.4	15.6	19.5	25.0	25.6	24.5	23.6	28.3	64.2
8	24.4	24.5	24.6	24.6	26.2	18.1	16.7	15.5	12.4	7.8	4.2	4.7	4.9	4.5	4.3	3.9	3.6	3.1	3.3	3.4	3.9	5.0	7.8	8.4	10.8	26.2
9	5.2	6.1	7.9	6.9	5.8	5.5	5.4	8.2	7.7	8.6	8.9	8.4	8.7	8.9	8.0	12.0	11.5	8.9	9.1	11.4	10.9	9.6	7.7	7.2	8.3	12.0
10	7.7	7.6	8.5	9.3	9.7	11.4	11.9	11.6	7.5	7.2	5.7	3.5	3.5	2.5	1.6	2.1	2.8	1.3	0.9	1.3	2.0	1.2	1.3	1.5	5.2	11.9
11	1.5	1.7	2.1	2.0	2.0	2.5	5.0	19.4	49.9	100.0	42.8	29.1	43.3	58.2	29.0	6.2	14.8	2.4	1.3	3.7	4.1	3.3	2.4	5.6	18.0	100.0
12	1.8	1.3	2.0	3.4	3.2	3.1	4.1	11.1	16.8	11.3	13.0	12.0	8.0	5.1	6.7	3.7	1.0	1.9	1.7	1.9	1.4	0.6	1.0	0.6	4.9	16.8
13	0.6	0.7	0.8	0.5	0.9	1.2	1.0	1.1	2.0	2.8	3.8	6.9	7.6	10.8	9.5	6.1	5.6	2.0	6.3	6.6	3.1	4.9	12.0	12.7	4.6	12.7
14	10.8	8.3	11.7	13.4	10.0	9.8	12.5	12.1	11.5	10.2	11.0	15.1	11.6	9.7	13.6	15.5	12.2	8.3	9.5	5.8	3.3	2.9	4.7	5.7	10.0	15.5
15	8.9	10.2	9.6	9.2	9.2	8.0	7.7	10.0	8.6	7.1	5.8	5.0	3.6	3.6	6.1	3.9	3.8	2.7	1.8	5.6	1.9	1.6	4.2	2.7	5.9	10.2
16	1.9	1.8	1.9	2.0	2.2	1.4	0.5	0.7	1.5	2.1	2.6	6.6	14.0	2.9	2.3	2.4	2.7	2.5	2.4	4.8	4.1	5.5	4.8	4.1	3.2	14.0
17	5.1	4.3	5.3	4.8	6.7	5.8	5.3	10.4	12.4	35.3	42.3	46.1	33.8	29.5	61.0	16.7	40.1	23.9	2.4	1.6	1.6	2.1	5.5	12.0	17.3	61.0
18	13.8	17.3	16.4	17.7	18.0	21.4	18.4	13.5	9.8	12.1	17.9	12.5	13.4	10.1	7.8	8.9	7.1	7.6	4.8	6.3	8.8	9.2	8.2	6.5	12.0	21.4
19	2.1	0.5	0.3	0.3	1.2	1.6	3.7	6.9	7.5	7.5	17.6	20.9	80.8	88.5	97.2	31.6	15.6	8.9	7.4	5.0	7.1	8.8	8.9	9.0	18.3	97.2
20	6.0	5.8	5.5	4.2	4.4	4.4	5.0	7.3	9.9	11.3	12.7	11.3	10.1	10.6	9.9	11.2	7.3	2.8	2.8	4.0	4.7	1.9	2.0	2.2	6.6	12.7
21	2.5	1.1	2.7	10.3	11.5	6.2	5.7	12.4	18.1	26.8	35.8	20.9	10.8	7.6	3.5	1.9	1.3	3.7	2.4	1.4	1.5	3.6	5.1	3.0	8.3	35.8
22	1.7	2.0	1.2	1.0	0.6	1.0	1.0	1.3	1.7	9.7	14.6	8.3	8.8	6.3	5.4	1.7	1.9	2.3	2.2	2.7	3.0	5.3	4.4	6.0	3.9	14.6
23	6.4	4.2	4.9	4.0	4.4	3.5	3.7	3.6	7.9	2.9	4.4	9.0	10.1	11.9	6.6	8.7	4.9	5.4	12.2	8.6	7.2	6.6	6.4	7.4	6.5	12.2
24	8.7	9.3	10.3	8.7	4.3	2.0	1.7	5.8	3.6	38.0	30.4	36.9	71.7	116.7	75.6	239.6	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO
25	PO	PO	PO	PO	PO	PO	PO	PO	PO	40.6	30.1	24.9	10.7	46.5	71.5	34.5	26.4	12.6	15.8	9.2	10.2	6.1	4.0	1.4		
26	1.4	1.6	1.4	1.7	1.8	2.0	3.9	6.3	5.2	4.7	5.7	11.9	10.0	16.3	12.7	21.2	3.7	2.0	2.5	3.8	2.7	6.3	4.0	2.3	5.6	21.2
27	1.4	1.4	0.3	0.3	0.3	0.5	0.7	0.9	1.3	1.4	0.8	0.7	0.5	0.7	0.8	2.8	7.5	7.3	3.8	0.4	0.5	1.2	0.7	1.6	1.6	7.5
28	1.3	0.8	0.7	0.9	0.8	1.0	1.3	5.2	13.7	15.8	28.9	28.7	16.8	8.6	7.7	6.2	6.9	6.9	6.0	3.1	2.5	4.3	1.3	1.3	7.1	28.9
29	1.2	1.7	1.5	1.3	1.3	1.4	2.0	2.0	3.4	2.7	2.6	1.8	2.7	1.5	3.3	2.1	1.9	0.7	0.7	0.9	1.3	1.5	1.8	1.7	1.8	3.4
30	2.0	2.4	2.9	2.2	2.0	2.0	2.0	3.5	3.8	4.5	4.6	3.8	2.9	2.3	1.9	2.0	2.2	2.1	1.9	3.2	4.2	3.8	4.9	5.8	3.0	5.8
NO.	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	703	98%
MEAN	7.4	7.5	8.1	8.3	7.9	7.1	7.3	9.3	11.4	17.1	20.8	19.0	20.6	27.4	28.6	30.2	18.1	10.1	6.9	6.4	6.6	6.9	7.2	7.5		
MAX	37.5	38.8	39.1	39.3	39.5	38.5	37.2	36.9	49.9	100.0	90.1	62.7	80.8	125.5	133.7	239.6	96.4	41.2	19.4	19.5	25.9	29.7	31.6	34.6		



Number of 24HR Exceedences	0	Proposed Guideline
Number of Non-Zero Readings	703	
Maximum 1-HR Average	155.2 UG/M3	
Maximum 24-HR Average	35.4 UG/M3	
IZS Calibration Time		Operational Time
Down Time	0	Operational Uptime
Standard Deviation	20.88	Monthly Average
		703 HRS
		97.6 %
		12.9 UG/M3

Berm PM_{2.5} (µg/m³) – September 2018

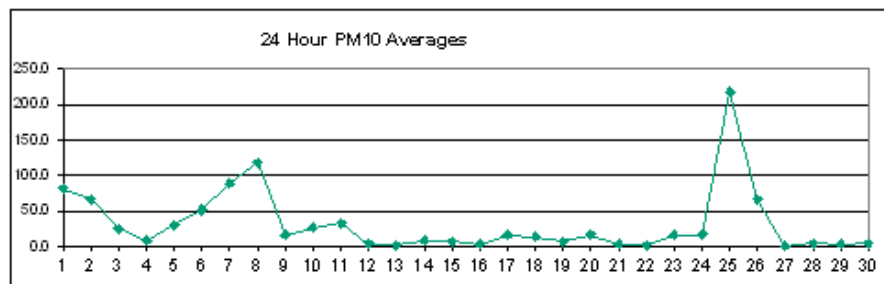
DAY	HOUR																								MEAN	MAX
1	11.5	11.7	12.8	23.0	10.4	6.3	5.0	3.7	8.0	11.4	32.0	36.4	38.0	41.3	31.0	30.2	28.9	34.2	31.1	33.0	39.9	45.1	49.4	56.1	26.3	56.1
2	60.4	63.2	64.3	64.0	61.4	59.5	57.4	55.9	54.0	50.6	45.3	36.0	28.9	31.4	35.9	26.0	27.4	43.9	27.5	25.1	24.2	23.3	22.5	27.4	42.3	64.3
3	28.2	28.6	50.7	48.3	35.8	15.6	10.5	7.1	8.1	5.1	4.8	6.3	6.2	9.6	10.9	18.0	29.0	21.3	10.2	9.7	2.6	2.0	2.0	2.8	15.6	50.7
4	2.4	2.4	2.4	2.7	2.4	2.7	3.4	3.4	3.6	4.2	5.0	6.5	8.0	9.4	9.4	9.4	9.8	9.8	9.5	10.2	13.3	10.2	9.9	9.4	6.6	13.3
5	12.0	12.1	12.5	12.8	12.5	13.8	17.5	16.0	16.7	17.0	18.7	16.3	16.6	15.6	11.4	12.2	11.9	10.1	8.6	9.4	9.6	9.0	9.0	9.6	13.0	18.7
6	9.4	10.1	11.7	15.5	17.0	17.8	17.5	16.5	31.5	28.6	21.3	24.0	19.9	16.0	13.1	10.3	9.7	10.0	12.4	12.4	13.4	12.9	12.3	12.0	15.6	31.5
7	19.8	18.6	20.8	21.6	20.7	23.9	23.8	27.7	28.6	24.1	21.1	31.1	35.3	52.7	36.0	45.0	36.4	26.2	25.7	27.4	29.5	33.4	35.0	32.9	29.1	52.7
8	36.5	39.5	42.2	41.0	41.4	27.9	25.6	20.2	16.9	21.0	15.1	32.3	33.6	48.9	54.7	55.9	45.6	28.2	8.0	7.3	6.3	6.6	7.3	7.2	27.9	55.9
9	6.0	5.8	7.1	7.0	7.2	7.9	9.0	8.3	8.6	6.3	7.0	8.1	9.5	12.9	10.8	10.2	8.1	7.6	8.9	10.4	8.5	8.8	8.8	9.0	8.4	12.9
10	9.0	9.3	9.4	10.3	11.6	11.0	14.5	11.6	21.2	19.5	17.7	5.5	3.7	2.5	2.1	1.9	1.3	1.4	1.9	1.8	1.7	1.9	4.5	2.4	7.4	21.2
11	2.2	2.5	2.6	2.3	2.2	2.2	5.2	3.4	2.9	7.0	11.5	9.5	12.9	8.4	7.5	13.9	5.2	7.2	3.2	3.4	2.2	2.2	2.2	2.3	5.2	13.9
12	1.4	1.6	1.6	3.8	4.7	4.3	3.6	9.3	5.5	5.5	4.4	3.7	3.5	3.1	3.3	3.4	1.2	1.4	0.9	1.3	1.6	0.7	0.6	0.7	3.0	9.3
13	0.6	1.1	0.8	0.8	1.4	2.1	1.7	0.9	1.2	2.0	2.3	2.6	2.2	2.3	3.0	3.6	4.4	3.7	5.0	2.9	2.7	2.3	2.4	3.5	2.3	5.0
14	3.6	3.9	3.8	5.6	6.9	8.0	8.4	8.8	8.0	7.6	7.4	8.0	8.8	9.7	11.8	11.7	10.2	8.1	7.7	8.6	7.3	7.1	7.9	10.4	7.9	11.8
15	14.8	16.0	15.3	13.0	11.4	12.1	11.9	11.1	10.9	8.2	7.3	6.1	4.5	4.5	5.3	4.9	4.7	4.4	3.3	2.6	2.7	2.2	2.2	3.1	7.6	16.0
16	2.4	3.3	4.1	3.3	1.8	1.6	2.3	2.2	2.7	2.4	2.4	2.3	3.1	3.2	3.9	3.9	4.0	4.1	4.1	6.1	6.5	7.1	4.9	4.5	3.6	7.1
17	5.3	4.2	4.8	4.6	2.7	4.2	4.1	6.5	6.9	5.2	5.8	6.8	5.9	7.5	8.2	6.6	5.7	3.1	1.5	0.8	2.9	1.5	8.0	13.9	5.3	13.9
18	18.2	17.7	18.6	18.4	19.1	21.8	23.6	17.4	15.2	11.6	8.8	7.9	8.1	7.5	7.1	6.2	5.5	5.7	6.9	8.1	9.6	7.4	7.0	3.3	11.7	23.6
19	0.8	0.5	0.4	0.3	0.7	1.2	5.3	7.0	7.3	6.6	6.1	6.0	6.7	4.3	3.4	3.8	4.6	4.4	5.6	6.5	10.0	5.2	5.2	6.0	4.5	10.0
20	9.0	14.0	14.9	11.2	8.4	7.9	7.7	12.4	13.6	13.4	9.3	5.8	6.3	7.1	5.5	7.8	5.3	4.1	5.6	5.5	7.3	3.9	2.0	1.2	7.9	14.9
21	0.7	0.3	0.2	0.5	0.8	0.6	1.0	2.7	14.2	11.7	13.7	5.2	5.8	5.6	3.6	2.5	2.4	1.0	0.5	1.0	1.1	0.7	0.5	0.5	3.2	14.2
22	1.1	2.1	1.2	1.0	0.8	0.9	0.6	1.4	1.2	1.6	2.4	1.5	1.8	1.9	1.9	2.1	2.6	3.3	3.9	4.8	5.0	6.4	6.8	6.6	2.6	6.8
23	6.3	7.6	6.8	5.9	5.5	5.1	5.7	6.0	6.8	4.5	2.9	2.7	6.7	5.3	7.4	8.0	5.5	5.4	5.3	6.4	8.4	9.6	8.0	8.4	6.3	9.6
24	9.3	9.3	8.7	10.3	9.5	3.7	2.1	1.8	1.6	5.4	9.4	11.4	5.0	1.8	2.1	2.8	0.7	0.9	1.9	1.9	1.3	1.4	0.9	1.3	4.3	11.4
25	2.4	3.6	4.7	7.0	2.7	5.1	3.0	2.5	2.9	2.8	14.8	17.8	26.5	46.6	99.1	65.8	45.3	77.3	93.1	51.6	52.7	22.3	18.2	8.5	28.2	99.1
26	6.3	4.5	2.4	3.0	4.7	2.8	2.6	4.2	4.2	13.6	28.5	20.5	16.9	20.6	27.2	14.0	15.8	8.9	7.0	5.6	4.8	2.8	3.8	2.4	9.5	28.5
27	0.5	1.0	1.1	0.5	1.3	0.5	1.2	0.8	0.1	0.2	0.1	0.5	0.3	0.4	0.3	0.4	1.2	0.6	0.7	1.3	0.8	0.6	1.5	1.5	0.7	1.5
28	1.3	0.9	0.9	1.3	1.8	1.3	2.9	2.8	8.1	9.1	6.5	5.7	5.0	4.0	3.3	2.6	2.7	4.1	3.9	5.0	5.7	3.5	2.4	1.7	3.6	9.1
29	2.3	3.9	2.4	2.1	4.3	2.6	2.9	3.5	9.4	6.1	2.4	1.4	1.2	1.3	1.3	2.0	1.1	1.1	1.1	2.3	3.3	3.3	3.5	3.5	2.9	9.4
30	4.4	4.9	5.2	3.9	3.4	2.7	3.0	5.6	6.4	5.9	6.0	5.0	3.4	2.8	2.3	2.5	2.6	2.5	3.1	6.1	4.4	4.8	6.6	9.1	4.4	9.1
NO.	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	720	100%
MEAN	9.6	10.1	11.1	11.5	10.5	9.2	9.4	9.4	10.9	10.6	11.3	11.1	11.1	12.9	14.1	12.9	11.3	11.5	10.3	9.3	9.6	8.3	8.5	8.7		
MAX	60.4	63.2	64.3	64.0	61.4	59.5	57.4	55.9	54.0	50.6	45.3	36.4	38.0	52.7	99.1	65.8	45.6	77.3	93.1	51.6	52.7	45.1	49.4	56.1		



Number of 24HR Exceedences	1	Proposed Guideline
Number of Non-Zero Readings	720	
Maximum 1-HR Average	99.1 UG/M3	
Maximum 24-HR Average	42.3 UG/M3	
Monthly Calibration	0	
Standard Deviation	13.2	
Operational Time	720 HRS	
Operational Uptime	100.0 %	
Monthly Average	10.6 UG/M3	

Berm PM₁₀ (µg/m³) – September 2018

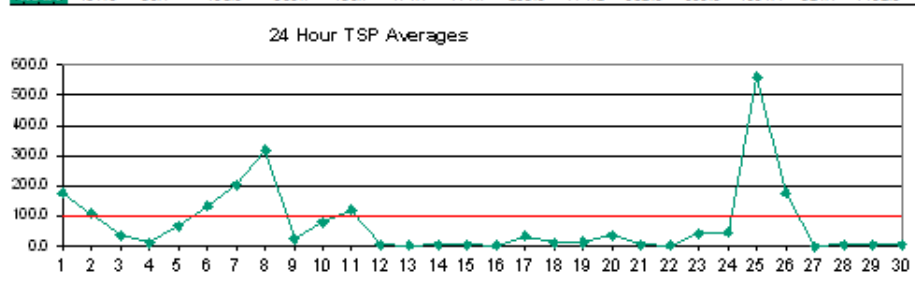
HOUR																										
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	43.5	35.2	30.6	120.2	35.8	19.7	14.1	5.0	9.7	35.6	216.2	272.1	246.5	198.2	84.7	101.6	61.8	95.0	70.6	55.1	50.6	46.3	52.9	65.1	81.9	272.1
2	66.9	64.9	66.0	65.3	62.2	60.6	58.5	57.8	55.4	53.7	62.1	89.5	105.5	118.8	164.6	61.8	54.5	160.5	43.3	28.3	25.2	24.4	26.2	39.5	67.3	164.6
3	52.5	42.7	90.4	88.6	37.4	20.3	12.9	8.2	8.9	5.4	5.6	9.3	13.7	19.8	18.6	50.5	62.8	25.4	11.3	12.9	3.9	2.5	2.5	4.2	25.4	90.4
4	3.7	3.6	3.2	4.4	2.9	3.3	4.6	4.6	5.1	7.3	7.3	8.4	10.4	12.4	13.8	12.3	12.4	12.0	11.2	12.9	26.5	14.1	11.0	10.4	9.1	26.5
5	15.7	15.3	16.1	16.9	16.5	19.8	25.6	64.5	72.6	77.8	76.0	56.5	56.6	40.9	21.1	24.0	19.7	18.2	15.1	14.7	15.2	13.0	12.5	14.5	30.8	77.8
6	15.1	15.7	18.5	41.3	46.0	51.5	50.8	42.9	203.8	165.2	91.4	121.6	86.5	53.2	41.9	27.7	24.5	24.0	29.9	19.8	21.8	20.8	19.3	18.3	52.1	203.8
7	67.6	43.5	57.0	57.5	48.1	68.2	69.1	104.0	125.4	79.1	50.6	138.4	136.9	271.0	96.8	261.0	178.9	59.0	31.8	32.0	33.0	46.2	52.5	37.3	89.4	271.0
8	43.8	52.9	72.1	65.0	83.0	35.5	33.4	26.6	22.3	107.7	106.8	256.3	234.1	346.0	363.4	383.9	295.8	209.9	20.6	18.3	14.0	14.7	18.0	18.4	118.4	383.9
9	11.8	10.1	14.4	11.3	15.0	19.1	21.6	18.4	22.6	9.1	10.0	14.6	24.2	48.9	26.2	17.9	12.9	11.0	12.8	13.5	11.0	12.6	12.6	13.0	16.4	48.9
10	12.9	13.5	12.3	12.9	16.3	16.1	21.0	15.9	168.4	159.8	120.9	18.6	5.7	3.6	5.2	5.9	2.7	5.5	3.5	2.6	2.3	2.6	6.6	3.2	26.6	168.4
11	2.8	3.3	3.4	2.9	2.7	2.8	7.7	12.7	12.0	76.1	93.2	70.5	129.3	84.7	64.9	102.3	33.7	53.3	20.9	11.6	6.1	4.5	4.7	3.3	33.7	129.3
12	1.8	2.1	2.0	5.5	7.0	6.2	5.3	13.8	8.2	8.3	10.5	7.8	11.0	4.3	4.3	4.2	1.4	1.6	1.0	1.5	1.7	0.8	0.7	0.8	4.7	13.8
13	0.6	1.2	0.9	0.8	1.4	2.2	1.8	0.9	1.3	2.5	2.7	3.1	2.7	2.7	3.5	4.0	4.9	4.2	6.3	3.0	2.9	2.4	2.5	3.7	2.6	6.3
14	3.8	4.5	4.0	6.0	7.2	8.6	8.9	9.6	8.7	8.9	8.3	9.0	10.0	11.6	13.1	12.4	11.4	8.2	8.1	9.6	9.0	8.8	8.1	10.7	8.7	13.1
15	15.5	18.0	16.2	14.2	12.1	13.1	15.2	12.8	11.2	8.3	7.4	6.2	4.6	4.8	6.1	5.3	5.3	4.7	3.5	2.8	2.9	2.3	2.3	3.3	8.2	18.0
16	2.5	3.5	4.3	3.5	1.9	1.7	2.4	2.3	2.8	2.5	2.5	2.4	3.2	3.3	4.1	4.0	4.0	4.2	4.1	6.5	6.8	7.5	5.0	4.6	3.7	7.5
17	5.6	4.4	5.1	4.7	2.7	4.5	4.5	8.3	9.5	7.7	17.7	34.2	32.1	43.5	54.3	56.6	47.7	19.0	3.9	1.1	4.2	2.0	9.8	15.8	16.6	56.6
18	20.7	20.2	22.7	21.2	24.1	30.8	35.0	26.1	22.6	16.1	10.8	9.3	9.8	8.0	7.7	6.7	6.1	6.7	7.4	8.7	10.1	7.7	7.3	3.4	14.5	35.0
19	0.8	0.5	0.4	0.3	0.9	1.5	7.9	10.2	10.6	9.5	23.1	22.4	15.6	10.1	6.1	8.2	7.9	5.2	6.8	8.5	14.5	6.0	6.0	7.9	8.0	23.1
20	12.9	20.5	22.2	16.6	12.3	11.7	11.0	18.5	78.9	98.7	31.1	11.8	8.8	9.4	7.8	10.7	5.8	4.5	6.2	6.3	8.1	4.2	2.2	1.3	17.6	98.7
21	0.8	0.4	0.3	0.5	0.9	0.6	1.1	3.9	21.1	17.0	20.3	6.5	7.6	6.4	4.2	3.1	3.2	1.1	0.5	1.1	1.1	0.7	0.5	0.6	4.3	21.1
22	1.1	2.2	1.3	1.1	0.8	1.0	0.6	1.6	1.3	1.7	2.7	1.6	1.9	1.9	2.0	2.3	2.7	3.5	4.0	5.0	5.1	7.4	7.1	6.9	2.8	7.4
23	7.0	9.6	8.7	7.1	6.6	6.1	7.7	8.2	9.6	6.1	3.5	3.7	35.8	37.6	61.2	63.0	46.6	12.8	6.0	7.6	10.6	11.8	9.7	10.0	16.5	63.0
24	11.8	11.9	11.8	14.4	13.8	5.4	4.9	5.1	4.3	46.2	105.7	99.8	35.4	5.5	6.3	16.0	1.6	2.1	5.6	2.6	1.7	2.0	1.3	1.8	17.4	105.7
25	3.5	5.3	6.9	10.4	3.8	7.4	4.3	3.8	12.4	13.5	180.9	176.5	249.6	406.2	806.6	508.2	365.2	630.2	706.4	405.5	386.6	129.5	115.9	61.7	216.7	806.6
26	53.8	31.8	9.3	12.3	22.2	7.8	6.5	22.5	24.8	133.5	248.1	150.2	121.4	138.5	205.0	115.0	110.0	56.0	47.9	42.3	27.2	5.5	6.6	3.1	66.7	248.1
27	0.6	1.3	1.2	0.6	1.5	0.7	1.5	0.9	0.1	0.3	0.2	0.6	0.4	0.4	0.3	0.4	1.6	0.7	0.8	1.7	1.0	0.7	1.9	1.6	0.9	1.9
28	1.4	0.9	1.0	1.6	2.3	1.5	4.0	3.2	11.0	12.2	9.4	8.0	8.5	6.7	4.3	3.8	4.1	8.9	8.9	9.1	8.1	4.2	2.7	1.9	5.3	12.2
29	2.8	5.1	2.8	2.5	5.8	3.3	3.7	4.7	13.5	8.5	3.1	2.2	2.2	4.0	3.5	9.1	1.7	1.8	1.9	3.9	4.7	3.6	4.3	4.2	4.3	13.5
30	5.3	5.5	5.7	4.4	3.8	3.0	3.5	6.6	7.9	7.4	8.7	6.7	4.1	4.1	2.9	4.1	3.6	3.4	3.5	8.9	5.1	5.3	7.5	10.4	5.5	10.4
NO.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	720	100%
MEAN	16.3	15.0	17.0	20.5	16.6	14.5	15.0	17.5	32.2	39.5	51.2	53.9	53.8	63.5	70.2	62.9	46.5	48.4	36.8	25.2	24.0	13.8	14.0	12.7		
MAX	67.6	64.9	90.4	120.2	83.0	68.2	69.1	104.0	203.8	165.2	248.1	272.1	249.6	406.2	806.6	508.2	365.2	630.2	706.4	405.5	386.6	129.5	115.9	65.1		



Number of Non-Zero Readings	720
Maximum 1-HR Average	806.6 UG/M3
Maximum 24-HR Average	216.7 UG/M3
Monthly Calibration	0
Standard Deviation	73.5
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	32.5 UG/M3

Berm TSP ($\mu\text{g}/\text{m}^3$) – September 2018

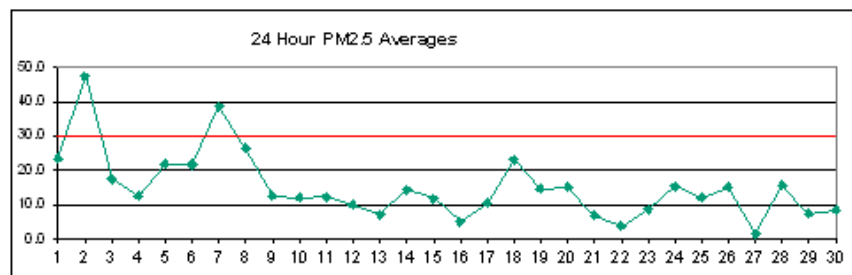
HOUR																										
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	67.0	48.6	65.5	355.7	90.9	60.2	22.6	5.6	14.6	76.3	512.5	638.5	735.9	505.8	208.7	278.0	97.6	133.3	111.1	53.7	50.7	30.4	34.6	48.5	176.9	735.9
2	44.5	45.2	44.0	43.8	42.2	40.6	40.4	36.6	41.1	79.6	190.3	303.1	323.9	549.1	156.5	117.1	260.5	51.3	26.8	17.4	16.6	19.1	39.9	107.1	549.1	
3	54.1	65.2	138.5	151.2	28.2	28.2	11.7	12.2	6.0	3.5	4.5	9.5	14.4	25.1	19.8	104.7	121.2	25.4	8.1	23.2	5.1	4.1	3.9	3.2	36.3	151.2
4	3.7	4.7	2.1	3.9	2.0	2.2	3.4	3.6	4.8	7.9	12.9	9.3	13.9	21.7	24.0	12.7	12.8	13.4	20.5	14.5	37.6	13.1	7.2	6.8	10.8	37.6
5	12.4	10.9	11.7	12.5	12.9	18.7	26.3	198.7	233.9	253.2	206.9	156.5	167.3	65.9	35.3	38.2	24.4	19.6	16.8	20.5	13.1	14.2	11.2	13.6	66.4	253.2
6	15.3	13.1	17.4	141.7	119.5	138.8	144.5	113.7	771.2	456.4	238.3	355.7	230.3	80.6	54.4	45.7	34.4	30.1	55.1	19.4	20.5	20.1	16.5	15.0	131.1	771.2
7	148.5	54.3	85.3	128.6	140.6	171.7	174.7	298.0	357.7	171.0	91.4	310.8	327.2	780.1	182.9	694.1	440.6	121.7	33.2	33.9	22.9	51.9	59.0	26.1	204.4	780.1
8	38.5	38.4	55.8	59.7	180.7	42.1	41.3	35.6	25.7	470.1	390.2	1001.1	824.7	1102.6	1059.8	790.4	745.8	546.6	24.0	31.7	14.7	22.0	23.8	25.7	316.3	1102.6
9	12.8	10.8	16.1	12.1	23.5	26.7	24.2	19.6	21.1	8.8	13.9	35.9	41.8	132.1	42.1	17.4	13.1	14.6	16.4	9.4	7.9	9.4	9.7	10.0	22.9	132.1
10	9.9	10.2	8.5	8.9	12.0	13.0	17.2	13.4	651.6	592.3	440.6	49.5	7.1	3.2	14.7	23.4	3.9	24.2	8.1	2.4	2.0	2.4	6.6	2.6	80.3	651.6
11	2.0	2.6	2.6	2.1	1.8	1.9	8.2	61.9	39.9	430.9	327.0	178.3	582.9	341.1	226.9	284.5	69.9	139.2	85.7	22.8	15.1	8.1	6.1	3.0	118.5	582.9
12	1.3	1.4	1.4	5.5	7.3	6.3	4.9	15.5	8.6	9.0	21.6	14.5	33.7	3.4	3.2	2.9	0.9	1.1	0.7	1.0	1.1	0.5	0.4	0.5	6.1	33.7
13	0.4	0.8	0.6	0.5	0.9	1.4	1.3	0.6	0.9	1.9	1.9	2.4	2.1	1.9	2.5	2.9	3.9	2.9	4.8	1.9	1.9	1.6	1.6	2.5	1.8	4.8
14	2.6	3.1	2.6	3.9	4.6	5.6	5.7	6.3	5.7	6.0	5.5	6.2	6.8	8.2	9.2	8.3	7.6	5.3	5.3	6.2	6.3	6.6	5.3	7.0	5.8	9.2
15	10.2	12.8	10.8	9.9	8.2	8.6	11.9	8.7	7.3	5.3	4.8	4.0	3.0	3.1	4.1	3.5	3.5	3.0	2.2	1.8	1.8	1.5	1.5	2.2	5.6	12.8
16	1.6	2.3	2.8	2.3	1.2	1.1	1.6	1.5	1.8	1.6	1.6	1.5	2.1	2.1	2.7	2.6	2.6	2.7	2.7	4.2	4.4	4.9	3.2	3.0	2.4	4.9
17	3.6	2.8	3.3	3.1	1.8	3.0	3.0	7.8	9.0	8.3	27.1	65.9	53.8	92.9	127.9	189.5	153.4	42.2	9.8	0.9	4.4	1.6	7.3	11.0	34.7	189.5
18	14.8	14.7	17.3	15.3	18.0	25.7	36.5	29.2	25.2	13.6	7.8	6.4	7.5	6.4	7.3	6.2	7.0	8.4	4.9	5.8	6.6	5.0	4.8	2.2	12.3	36.5
19	0.6	0.4	0.2	0.2	0.6	1.2	8.8	10.3	10.3	8.9	68.2	63.9	26.2	25.0	9.8	17.7	15.3	3.7	5.3	6.4	13.7	4.0	4.0	6.6	13.0	68.2
20	11.9	21.2	24.6	16.4	11.5	11.2	10.2	20.5	318.7	297.8	50.8	18.5	11.1	10.1	7.8	11.1	3.8	3.0	4.1	4.2	5.3	2.7	1.4	0.8	36.6	318.7
21	0.5	0.2	0.2	0.3	0.6	0.4	0.7	3.5	21.1	14.3	19.0	4.8	5.9	4.5	2.8	2.2	2.3	0.7	0.3	0.7	0.7	0.5	0.3	0.4	3.6	21.1
22	0.7	1.4	0.8	0.7	0.5	0.7	0.4	1.0	0.9	1.2	1.8	1.0	1.2	1.3	1.3	1.5	1.8	2.2	2.6	3.2	3.3	5.0	4.6	4.5	1.8	5.0
23	4.7	8.0	6.7	4.9	4.4	4.5	7.0	7.4	9.3	5.2	2.6	3.4	104.4	124.0	233.1	230.3	159.7	28.3	4.0	5.2	7.6	8.1	6.9	6.9	41.1	233.1
24	8.6	8.4	8.3	11.5	12.4	4.6	4.2	7.4	9.8	121.2	411.9	279.1	94.0	17.9	11.5	63.8	4.8	1.8	16.1	2.2	1.3	1.9	1.0	1.6	46.1	411.9
25	3.5	5.8	7.0	11.2	3.2	7.6	4.1	3.8	38.6	51.9	630.3	471.3	667.9	1021.7	2078.4	1244.1	816.8	1614.8	1790.5	1185.3	956.1	345.7	315.0	176.7	560.5	2078.4
26	197.5	86.7	20.9	27.2	46.1	22.8	14.6	60.0	76.2	349.1	627.8	387.1	298.4	348.9	535.0	300.4	292.7	137.5	138.6	121.5	83.1	12.3	6.8	2.3	174.7	627.8
27	0.4	0.9	0.8	0.4	1.0	0.4	1.0	0.6	0.1	0.2	0.1	0.4	0.2	0.3	0.2	0.3	1.2	0.5	0.6	1.4	0.8	0.5	1.4	1.0	0.6	1.4
28	0.9	0.6	0.7	1.1	2.0	1.2	4.1	2.2	8.3	9.4	8.1	6.5	15.2	10.2	3.9	4.4	9.0	15.7	10.7	9.2	7.2	3.0	1.8	1.3	5.7	15.7
29	2.2	3.8	1.9	1.6	4.3	2.2	2.6	3.8	13.3	7.5	2.8	4.5	2.8	7.9	6.6	23.8	1.9	1.3	1.5	5.6	10.7	2.4	3.4	3.0	5.1	23.8
30	3.9	3.8	4.0	6.4	4.6	3.9	2.7	4.6	9.7	9.3	22.1	8.4	3.1	9.1	7.5	8.8	5.2	9.6	2.4	8.3	3.5	3.5	5.3	7.5	6.6	22.1
NO.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	720	100%
MEAN	22.6	16.1	18.7	34.8	26.3	21.9	21.3	33.2	91.3	114.4	141.1	142.8	152.9	169.4	182.4	152.3	105.8	107.1	81.3	54.4	44.2	20.1	19.1	14.5		
MAX	197.5	86.7	138.5	355.7	180.7	171.7	174.7	298.0	771.2	592.3	630.3	1001.1	824.7	1102.6	2078.4	1244.1	816.8	1614.8	1790.5	1185.3	956.1	345.7	315.0	176.7		



Number of 24HR Exceedences	8	Proposed Guideline
Number of Non-Zero Readings	720	
Maximum 1-HR Average	2078.4	UG/M3
Maximum 24-HR Average	560.5	UG/M3
IZS Calibration Time		Operational Time
Monthly Calibration	0	Operational Uptime
Standard Deviation	200.9	Monthly Average
		720 HRS
		100.0 %
		74.5 UG/M3

Entrance PM_{2.5} (µg/m³) – September 2018

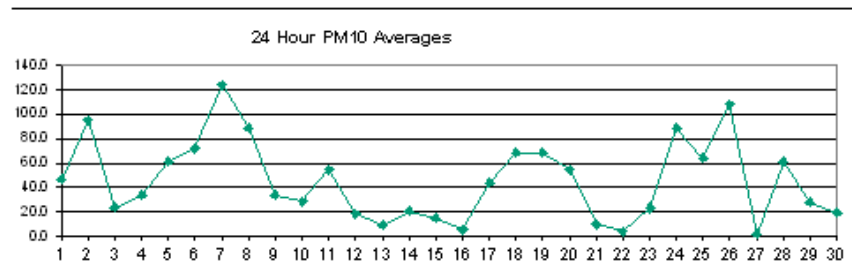
HOURLY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	10.0	12.6	16.8	14.9	9.8	7.5	7.4	11.4	9.4	13.4	13.0	17.4	22.9	26.8	29.6	31.9	29.0	30.6	29.2	33.6	43.2	42.7	43.3	56.8	23.5	56.8
2	63.4	76.8	88.1	78.6	73.4	71.6	67.3	75.9	71.6	63.7	51.6	29.7	24.7	23.0	23.0	23.5	24.8	26.5	29.4	31.8	29.0	30.4	31.6	31.1	47.5	88.1
3	29.5	34.0	50.6	47.0	41.5	17.7	12.1	9.4	9.9	5.9	6.4	5.5	5.4	12.3	13.0	19.3	29.2	25.6	16.6	14.3	4.1	3.2	3.0	3.0	17.4	50.6
4	3.0	3.6	3.4	6.1	4.0	8.5	11.7	14.1	12.1	16.9	13.2	19.4	17.3	16.0	16.5	18.2	15.3	14.0	13.4	16.8	15.9	17.4	12.7	13.0	12.6	19.4
5	23.7	30.6	25.2	30.9	29.5	19.7	26.6	30.2	21.2	22.4	20.0	19.5	28.3	39.7	26.8	19.0	19.3	13.9	13.2	16.9	14.6	10.6	10.6	14.2	21.9	39.7
6	14.8	19.0	24.8	22.8	20.1	22.3	36.0	38.2	26.5	24.7	21.2	21.7	25.7	26.0	21.8	16.5	14.6	16.0	19.5	18.5	21.7	18.5	15.9	15.9	21.8	38.2
7	31.3	26.5	32.3	35.9	55.0	46.2	40.7	41.0	33.4	34.4	27.8	33.3	45.6	45.6	37.2	37.9	32.6	31.6	33.3	35.4	55.2	46.7	45.4	43.4	38.7	55.2
8	51.7	55.3	53.4	72.0	57.9	36.3	43.4	43.4	33.3	24.4	8.9	16.6	14.6	14.5	16.3	14.3	16.1	13.4	8.5	9.0	10.5	9.0	7.8	7.0	26.6	72.0
9	7.6	8.1	18.0	17.4	11.3	10.9	13.8	16.8	13.0	11.9	11.4	11.7	12.3	13.4	17.6	19.3	14.7	12.3	12.3	11.3	10.0	9.1	9.6	9.9	12.7	19.3
10	10.4	10.6	11.9	15.0	14.6	17.8	19.8	22.0	17.5	14.1	13.0	9.4	6.9	5.3	2.5	8.3	4.1	3.8	5.0	3.2	10.2	19.0	26.2	21.0	12.2	26.2
11	17.3	8.7	20.9	21.1	23.7	23.7	10.2	18.2	27.4	13.6	11.1	14.0	13.7	7.8	9.8	9.2	5.5	6.1	6.7	10.0	5.1	4.5	5.1	4.4	12.4	27.4
12	2.8	3.1	2.4	9.6	12.2	16.6	50.7	38.4	28.2	13.4	14.0	11.5	14.2	4.3	2.9	3.0	2.0	1.3	0.9	0.8	1.7	1.8	1.2	0.8	9.9	50.7
13	1.5	1.5	1.6	2.7	3.9	4.7	4.0	2.1	4.8	14.0	2.6	2.7	3.9	17.3	10.3	31.1	23.4	5.7	4.8	4.9	3.4	3.6	6.8	10.2	7.1	31.1
14	11.1	6.9	4.1	6.2	8.7	10.2	12.6	10.6	9.8	11.0	18.7	31.7	21.3	39.3	29.2	19.1	24.1	16.5	14.0	5.8	4.5	6.7	9.3	15.3	14.4	39.3
15	19.4	21.2	19.2	18.6	17.7	16.9	19.7	17.0	14.4	11.3	9.4	7.7	7.1	10.9	16.7	13.0	12.8	6.2	5.1	3.5	4.1	4.2	3.9	3.0	11.8	21.2
16	2.0	3.0	4.0	4.5	1.7	2.4	3.1	2.7	3.2	2.4	4.5	5.2	10.4	6.2	5.4	6.0	5.4	5.5	6.7	7.2	7.8	8.4	7.5	6.8	5.1	10.4
17	7.5	5.9	6.2	5.8	4.5	5.8	5.0	7.6	7.8	11.4	5.0	11.6	12.3	16.1	18.6	16.2	10.0	6.5	12.8	10.3	15.8	17.0	16.8	17.7	10.6	18.6
18	19.4	20.7	20.8	25.8	28.0	32.6	28.5	29.2	18.4	39.9	15.8	17.6	21.2	27.6	39.8	28.8	23.7	34.5	28.3	18.6	15.0	10.7	8.0	3.7	23.2	39.9
19	0.8	0.9	0.5	0.6	1.4	2.7	7.1	7.4	11.8	12.2	12.9	37.6	26.0	28.9	26.7	18.1	15.6	12.7	31.8	22.1	30.6	17.7	14.9	10.4	14.6	37.6
20	12.7	12.5	10.1	13.1	17.3	19.4	33.9	14.5	11.6	39.6	34.2	26.0	23.1	13.0	14.1	25.0	5.8	4.7	6.8	6.5	9.2	5.1	2.3	2.1	15.1	39.6
21	0.6	0.5	0.6	1.5	2.0	1.2	2.1	3.9	11.4	25.5	34.6	19.1	29.7	14.4	4.5	2.4	2.1	1.6	1.3	1.5	1.1	0.8	0.7	0.4	6.8	34.6
22	1.1	2.5	1.5	1.3	1.0	6.1	1.2	1.3	1.3	1.4	2.6	2.5	2.9	3.8	3.9	3.0	3.4	5.6	7.2	7.4	7.4	7.8	7.4	7.5	3.8	7.8
23	6.6	9.6	6.4	6.3	5.2	7.4	9.5	6.5	8.7	8.1	14.1	9.0	2.9	5.0	16.6	6.2	6.8	11.1	10.7	8.4	11.5	10.4	10.2	11.1	8.7	16.6
24	11.9	9.9	10.4	11.3	14.7	26.4	17.9	23.7	20.3	16.0	17.2	21.0	29.6	10.2	15.4	32.6	15.7	12.6	11.8	7.8	12.9	13.7	3.0	2.1	15.3	32.6
25	6.9	5.6	8.6	16.4	15.0	13.4	19.1	19.3	24.8	16.6	38.4	10.3	18.3	13.1	18.6	9.8	9.5	7.3	4.9	2.9	2.5	2.7	3.1	4.5	12.2	38.4
26	5.4	3.8	7.0	16.9	17.6	16.2	20.0	33.8	26.9	30.9	15.1	14.0	10.5	16.0	16.9	23.2	18.4	22.1	14.2	9.1	11.6	5.8	3.7	3.6	15.1	33.8
27	0.6	0.8	0.9	0.6	1.1	0.8	2.3	1.3	0.9	1.2	1.4	1.1	0.8	1.0	1.3	1.0	1.8	1.2	2.7	2.1	3.0	2.9	2.2	1.6	1.4	3.0
28	2.1	1.9	2.7	3.1	3.0	4.8	8.4	8.2	10.7	14.5	16.2	40.6	42.9	25.6	29.4	16.8	31.3	22.3	18.2	40.7	21.4	5.0	3.9	1.8	15.6	42.9
29	2.3	7.7	3.4	2.6	3.7	2.9	4.7	5.2	19.1	20.1	7.2	3.0	9.4	8.5	19.1	12.8	11.7	3.7	4.7	4.9	4.1	2.1	10.4	4.7	7.4	20.1
30	6.5	8.3	7.9	5.5	5.0	3.8	4.7	10.6	12.2	9.8	10.8	8.4	7.0	7.2	7.0	5.2	10.1	5.6	4.5	14.0	7.6	6.8	15.8	18.3	8.4	18.3
NO.	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	720	100%
MEAN	12.8	13.7	15.5	17.1	16.8	15.9	18.1	18.8	17.4	18.1	15.7	16.0	17.0	16.6	17.0	16.4	14.6	12.7	12.6	12.6	13.2	11.5	11.4	11.5		
MAX	63.4	76.8	88.1	78.6	73.4	71.6	67.3	75.9	71.6	63.7	51.6	40.6	45.6	45.6	39.8	37.9	32.6	34.5	33.3	40.7	55.2	46.7	45.4	56.8		



Number of 24HR Exceedences	2	Proposed Guideline
Number of Non-Zero Readings	720	
Maximum 1-HR Average	88.1 UG/M3	
Maximum 24-HR Average	47.5 UG/M3	
Monthly Calibration	0	
Standard Deviation	13.52	
Operational Time	720 HRS	
Operational Uptime	100.0 %	
Monthly Average	15.1 UG/M3	

Entrance PM₁₀ (µg/m³) – September 2018

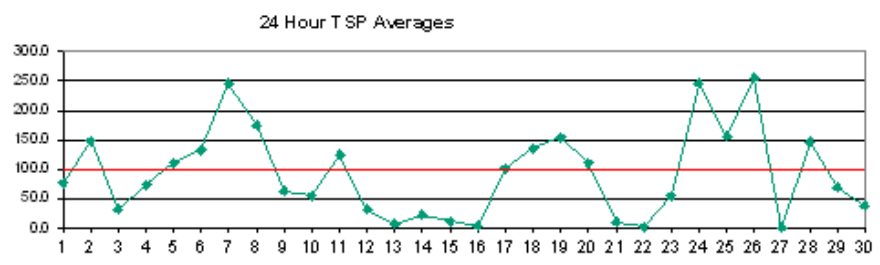
HOUR																									MEAN	MAX
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	16.1	23.8	42.5	44.3	20.6	33.3	29.5	60.2	14.4	40.8	42.5	53.7	63.0	44.5	49.6	72.0	47.7	52.4	40.8	43.4	61.7	76.8	51.1	91.3	46.5	91.3
2	105.2	166.2	323.0	195.9	152.5	129.2	112.9	173.4	192.9	116.2	90.3	40.5	49.1	45.0	42.3	26.9	28.3	28.7	39.1	56.2	46.8	47.0	37.9	42.4	95.3	323.0
3	33.8	52.2	53.7	50.4	48.7	20.2	18.3	13.5	10.9	6.3	7.5	7.4	18.0	37.1	21.7	26.9	46.8	32.5	21.2	17.1	10.0	9.1	6.5	5.7	24.0	53.7
4	5.0	5.9	4.5	8.7	5.3	12.4	17.1	21.0	23.3	91.6	57.0	91.1	65.6	50.1	55.6	69.1	43.1	33.8	33.8	34.3	26.8	25.3	14.6	15.2	33.8	91.6
5	34.3	45.9	37.8	46.3	44.2	29.3	39.6	108.7	77.3	76.4	54.1	56.8	109.3	214.1	130.0	73.1	72.1	37.6	41.1	57.2	40.8	16.4	15.3	21.9	61.6	214.1
6	27.6	39.9	66.6	54.2	37.3	47.1	131.6	208.0	82.8	77.8	57.5	61.2	109.4	136.3	107.5	80.1	61.8	65.3	59.7	49.1	70.4	35.8	28.5	31.5	72.0	208.0
7	101.1	68.5	112.4	139.2	262.7	192.8	167.5	144.3	116.2	121.9	79.5	111.9	189.8	159.8	98.5	122.9	92.0	99.2	93.2	69.8	190.2	103.4	84.6	65.0	124.4	262.7
8	155.5	182.1	122.4	239.2	229.5	83.0	137.9	185.8	124.7	102.9	31.5	76.6	46.9	45.4	59.7	52.6	62.4	52.4	19.5	25.1	33.5	19.5	17.3	17.6	88.5	239.2
9	16.1	19.1	73.3	99.1	30.5	30.8	25.7	25.2	19.1	26.7	31.4	35.2	32.9	37.5	75.0	68.6	45.7	34.8	19.7	14.2	13.3	12.6	13.9	14.3	33.9	99.1
10	15.0	15.4	16.6	21.8	21.4	26.6	29.6	35.4	87.9	58.2	51.6	25.4	9.6	7.1	6.0	34.6	13.2	15.3	19.7	11.6	55.0	42.5	39.3	31.5	28.8	87.9
11	25.9	13.0	31.3	31.7	35.5	35.5	15.2	86.9	246.9	90.1	82.2	99.4	111.2	49.8	59.0	69.7	36.3	39.9	35.7	63.6	30.7	17.0	8.2	6.4	55.1	246.9
12	4.0	4.2	3.2	14.2	18.2	24.9	76.1	57.5	42.3	20.1	69.5	56.6	28.6	6.1	3.6	3.8	2.3	1.5	1.0	0.9	2.2	2.2	1.3	0.9	18.6	76.1
13	1.6	1.5	1.6	2.9	4.4	5.2	4.4	2.4	6.3	20.2	3.1	3.2	5.1	25.4	14.8	45.0	33.1	6.8	5.3	5.8	3.7	3.9	8.8	13.6	9.5	45.0
14	14.9	8.4	4.2	6.7	9.2	11.0	13.0	11.4	10.9	14.2	27.2	69.6	40.3	58.5	43.2	26.9	35.6	23.7	19.1	5.9	5.1	8.1	10.1	17.5	20.6	69.6
15	25.5	30.2	24.0	25.4	23.5	21.9	27.3	22.1	14.9	11.6	9.5	8.0	8.4	15.3	24.6	19.0	18.3	6.5	5.5	3.7	4.4	4.6	4.3	3.2	15.1	30.2
16	2.1	3.1	4.1	4.9	1.9	2.5	3.1	2.8	3.4	2.4	5.8	6.7	14.4	7.9	6.4	6.8	5.7	5.8	7.1	7.5	8.3	8.9	7.7	7.0	5.7	14.4
17	7.7	6.1	6.4	6.0	4.6	6.3	5.5	9.5	10.6	32.3	25.5	68.1	79.3	101.9	132.6	115.0	79.3	44.6	120.3	77.7	52.1	25.4	22.3	19.9	44.1	132.6
18	21.3	24.0	24.8	34.3	37.8	48.2	42.5	43.7	27.6	59.7	23.1	29.9	100.9	207.2	258.9	176.5	143.0	223.3	41.9	26.7	19.8	11.5	8.6	3.8	68.3	258.9
19	0.9	1.0	0.5	0.6	1.5	3.5	9.4	10.1	17.1	38.1	57.2	277.0	163.5	202.0	194.4	119.3	78.6	86.7	238.6	32.3	45.5	26.3	20.1	15.3	68.3	277.0
20	18.9	18.3	14.8	19.6	25.9	29.1	50.9	21.6	37.9	262.9	233.2	182.3	125.7	48.8	61.6	121.9	7.0	5.3	7.3	7.2	10.5	5.4	2.5	2.6	55.0	262.9
21	0.7	0.6	0.8	1.8	2.4	1.3	2.3	5.3	15.3	37.5	51.8	28.2	44.4	20.9	5.4	2.8	2.4	1.8	1.5	1.7	1.2	0.8	0.8	0.4	9.7	51.8
22	1.2	2.5	1.6	1.4	1.1	6.1	1.3	1.3	1.4	1.4	2.7	3.0	3.1	4.6	5.2	3.5	3.6	6.7	8.6	8.2	8.6	9.4	8.5	7.9	4.3	9.4
23	7.3	10.5	7.0	6.5	5.6	9.4	12.0	8.9	12.7	11.9	24.5	34.6	19.7	39.0	122.1	46.5	46.0	54.7	15.3	10.9	15.7	13.2	12.3	13.6	23.3	122.1
24	14.5	11.3	12.3	15.9	21.9	140.8	136.8	205.4	176.9	118.4	134.6	156.4	227.3	75.8	101.3	257.4	113.4	98.9	52.4	11.5	19.2	20.6	4.4	2.9	88.8	257.4
25	10.3	8.3	12.9	24.5	22.6	20.1	28.7	47.6	207.1	154.7	254.2	61.9	124.9	109.5	164.7	76.0	71.8	51.7	27.6	12.4	6.5	9.5	13.2	21.9	64.3	254.2
26	23.4	13.5	44.1	133.4	126.4	109.0	145.7	307.0	232.3	264.4	107.9	100.7	76.7	128.3	118.1	136.6	119.1	149.1	97.5	55.9	79.2	23.6	5.1	5.0	108.4	307.0
27	0.8	0.9	1.2	0.7	1.2	1.0	2.5	1.5	1.1	1.5	1.9	1.4	1.0	1.1	1.4	1.2	2.4	1.5	3.9	3.0	4.1	4.1	2.7	1.7	1.8	4.1
28	2.3	2.1	3.2	3.5	3.2	6.2	11.7	10.2	12.1	18.7	23.1	60.8	240.9	200.9	237.5	108.5	230.3	129.2	68.9	61.1	32.0	6.4	4.4	2.0	61.6	240.9
29	2.5	10.6	4.1	2.9	4.6	3.3	6.3	7.0	27.9	29.4	14.7	8.1	72.0	58.5	143.2	79.5	87.9	18.3	31.5	26.9	8.7	2.6	14.8	5.6	28.0	143.2
30	8.2	10.5	9.4	6.0	5.6	4.4	5.5	14.3	17.0	22.1	32.9	28.8	27.5	33.6	41.2	21.1	69.7	16.2	6.9	20.0	10.2	8.4	21.2	23.8	19.4	69.7
NO.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	720	100%
MEAN	23.4	26.7	35.5	41.4	40.3	36.5	43.7	61.7	62.4	64.3	56.3	61.5	73.6	72.4	79.5	68.8	56.6	47.5	39.5	27.4	30.5	20.0	16.3	17.1		
MAX	155.5	182.1	323.0	239.2	262.7	192.8	167.5	307.0	246.9	264.4	254.2	277.0	240.9	214.1	258.9	257.4	230.3	223.3	238.6	77.7	190.2	103.4	84.6	91.3		



Number of Non-Zero Readings	720
Maximum 1-HR Average	323.0 UG/M3
Maximum 24-HR Average	124.4 UG/M3
Monthly Calibration	0
Standard Deviation	57.01
Operational Time	720 HRS
Operational Uptime	100.0 %
Monthly Average	45.9 UG/M3

Entrance TSP ($\mu\text{g}/\text{m}^3$) – September 2018

HOUR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	MAX
1	17.5	32.2	71.8	101.9	30.7	187.8	52.8	128.4	20.7	87.5	92.2	94.1	110.5	53.5	77.8	95.4	54.8	73.9	57.3	37.0	54.3	184.9	51.6	77.1	76.9	187.8
2	89.1	163.7	834.3	301.7	214.7	165.9	142.3	232.9	418.5	141.8	103.8	83.7	104.7	80.8	85.1	27.9	25.9	20.8	31.9	57.1	119.5	39.6	27.2	34.0	147.8	834.3
3	25.1	58.7	44.6	36.2	40.4	18.5	27.3	19.7	7.6	4.1	5.7	5.5	57.9	94.2	45.1	32.0	55.6	51.2	25.9	23.2	33.4	19.3	9.9	8.1	31.2	94.2
4	3.8	5.2	3.5	8.6	4.4	12.3	17.6	22.9	47.1	244.2	168.8	272.8	167.7	133.5	154.1	177.2	95.3	47.7	60.5	60.5	27.8	22.3	10.3	10.8	74.1	272.8
5	31.7	45.3	37.5	51.2	49.5	28.9	42.0	283.9	225.3	159.5	111.5	96.2	172.0	347.0	288.1	172.2	136.2	63.3	72.2	88.2	104.0	17.2	18.4	21.8	111.0	347.0
6	28.6	42.6	107.5	89.5	49.8	68.8	285.1	601.7	153.5	130.1	96.0	99.1	161.4	318.1	228.1	164.8	117.9	91.2	80.2	78.0	74.8	61.7	29.7	32.4	132.9	601.7
7	147.8	165.9	236.1	334.7	753.7	483.3	380.6	281.9	237.9	218.0	121.7	184.3	319.6	388.4	204.9	200.1	135.4	151.9	152.4	76.8	346.5	164.8	150.2	61.3	245.8	753.7
8	161.7	232.1	164.7	336.7	697.3	144.7	300.1	410.2	221.3	290.2	96.7	208.9	133.5	115.6	141.4	110.1	133.9	96.2	37.6	28.1	51.0	27.1	18.9	22.7	174.2	697.3
9	20.2	18.9	116.0	351.1	47.2	43.0	30.1	27.6	20.0	45.5	65.0	79.6	61.1	51.2	145.0	126.3	94.3	84.8	24.0	9.8	10.1	9.7	11.0	11.4	62.6	351.1
10	11.9	11.6	12.7	17.7	17.3	25.8	29.4	39.8	283.5	137.6	118.8	51.6	8.1	6.0	13.1	91.0	36.8	27.7	53.1	28.8	151.8	59.2	45.3	36.4	54.8	283.5
11	29.9	14.5	35.8	36.5	40.3	40.4	15.7	220.1	794.3	225.0	212.9	227.6	262.8	120.0	120.1	188.6	81.4	78.7	69.6	110.4	49.8	27.1	9.9	5.9	125.7	794.3
12	3.5	3.8	2.6	15.3	19.7	28.3	88.1	66.4	48.8	22.8	201.9	172.3	60.5	5.3	2.6	2.6	1.6	1.0	0.7	0.6	2.0	1.7	0.8	0.6	31.4	201.9
13	1.1	1.0	1.1	1.9	2.9	3.7	3.2	1.8	5.0	16.4	2.4	2.5	4.3	21.2	13.3	38.6	28.7	4.7	3.4	3.9	2.5	2.7	6.0	12.0	7.7	38.6
14	11.1	5.5	2.8	4.7	6.0	7.3	8.4	7.4	11.4	28.8	132.8	66.6	65.9	46.9	26.5	37.2	22.4	18.2	3.9	3.4	5.5	6.6	11.4	22.8	132.8	
15	19.0	22.1	16.2	19.9	17.7	17.0	21.3	20.9	9.6	7.5	6.1	5.2	6.3	14.9	26.0	18.9	19.0	4.3	3.6	2.4	2.8	3.0	2.8	2.2	12.0	26.0
16	1.3	2.0	2.6	3.2	1.3	1.6	2.0	1.8	2.2	1.6	4.5	6.0	14.6	6.9	5.0	4.8	3.8	3.7	4.6	5.0	5.5	5.8	5.0	4.5	4.1	14.6
17	5.0	4.0	4.2	3.9	3.0	4.1	3.6	7.5	10.5	90.0	95.1	194.5	194.7	239.1	319.2	241.6	190.7	268.1	311.3	125.0	70.6	28.7	21.0	13.9	102.0	319.2
18	14.9	17.7	18.5	29.3	34.3	47.7	42.6	47.9	29.2	66.7	23.0	44.2	255.3	535.0	714.1	425.6	335.4	472.5	44.8	25.8	17.1	7.5	5.6	2.4	135.7	714.1
19	0.6	0.7	0.3	0.4	1.0	3.1	7.5	7.5	15.2	57.8	126.2	461.9	446.6	613.8	592.1	339.3	225.0	179.8	471.9	34.2	48.5	26.1	18.5	14.9	153.9	613.8
20	16.8	16.1	12.7	20.6	28.9	32.9	58.0	23.0	63.7	512.0	553.2	448.6	301.2	125.7	153.8	248.9	5.1	3.5	4.8	4.7	6.9	3.5	1.6	2.1	110.4	553.2
21	0.5	0.4	0.7	1.2	1.6	0.9	1.5	4.6	13.9	38.7	56.1	29.8	50.0	21.7	3.8	1.9	1.6	1.2	1.0	1.1	0.8	0.6	0.6	0.3	9.8	56.1
22	0.7	1.6	1.0	0.9	0.8	4.0	0.8	0.9	1.0	1.0	1.8	2.2	2.1	3.9	4.7	2.6	2.3	5.6	6.0	5.6	6.0	6.9	5.8	5.2	3.1	6.9
23	4.8	6.8	4.6	4.2	3.7	7.7	10.7	8.1	12.3	11.3	38.1	157.1	93.9	124.2	316.1	144.6	130.7	169.1	14.2	9.2	13.7	9.9	8.9	10.2	54.8	316.1
24	10.7	7.4	8.3	12.7	22.7	341.0	474.9	494.3	485.6	336.8	338.4	409.6	731.4	243.8	260.3	911.2	378.6	228.8	132.6	12.5	21.3	23.3	4.2	2.6	245.5	911.2
25	10.7	8.1	13.6	27.8	26.0	23.1	33.0	101.3	531.8	487.1	592.3	137.0	249.4	291.6	458.8	209.3	178.0	135.7	74.0	30.6	12.0	26.3	37.4	47.6	155.9	592.3
26	56.7	25.4	141.1	461.4	363.5	308.4	352.5	787.8	561.6	683.9	298.1	240.5	187.6	291.2	246.0	232.4	186.5	214.0	153.2	76.9	193.7	63.0	3.9	4.1	255.6	787.8
27	0.6	0.6	0.8	0.5	0.9	0.6	1.7	1.0	0.8	1.1	1.6	1.0	0.7	0.8	1.0	0.8	1.8	1.1	4.1	2.9	3.4	3.5	2.0	1.1	1.4	4.1
28	1.5	1.4	2.1	2.3	2.1	5.5	11.9	7.2	7.9	15.0	24.3	68.7	650.9	442.3	782.8	305.5	581.2	325.8	156.3	70.4	35.8	5.6	3.0	1.4	146.3	782.8
29	1.7	8.2	3.0	2.0	3.5	2.2	4.5	6.2	22.5	26.5	46.7	32.1	217.0	148.8	413.0	192.8	260.0	35.4	80.2	112.9	21.0	1.9	15.5	4.2	69.2	413.0
30	6.4	8.1	6.6	3.9	4.0	3.2	4.0	12.8	16.6	46.4	85.1	79.1	61.7	88.1	114.0	57.8	200.9	40.1	7.0	21.2	9.0	6.3	15.4	20.0	38.2	200.9
NO.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	720	100%
MEAN	24.5	31.1	63.6	76.1	83.0	68.7	81.8	129.2	142.5	137.2	123.9	134.3	171.8	166.4	199.2	159.7	124.5	96.8	71.9	38.2	50.0	28.8	18.2	16.1		
MAX	161.7	232.1	834.3	461.4	753.7	483.3	474.9	787.8	794.3	683.9	592.3	461.9	731.4	613.8	782.8	911.2	581.2	472.5	471.9	125.0	346.5	184.9	150.2	77.1		



911.2	301.2	41.2	411.3	125.0	346.0	104.3	100.2	11.1	
Number of 24HR Exceedences				14 Proposed Guideline					
Number of Non-Zero Readings				720					
Maximum 1-HR Average				911.2 UG/M3					
Maximum 24-HR Average				255.6 UG/M3					
				Operational Time				720 HRS	
Monthly Calibration				0	Operational Uptime				100.0 %
Standard Deviation				146.0	Monthly Average				93.2 UG/M3

MetOne BAM PM_{2.5} Calibration



STATION: Lafarge
LOCATION: Exshaw - Lagoon
START TIME (MST): 10:50

OPERATOR: Darrin Pike
DATE: September 24, 2018
END TIME (MST): 11:35

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	PM2.5	Audit Device S/N	624
Serial Number	T19087	Certification Date	30-Nov-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (° C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	11.0	651	0.00	16.7	11:30
	MEASURED (AF)	11.0	652	0.40	16.70	11:31
	AF Difference (AF-I)	0.0	1	0.40	0.00	0:01
Adjusted Data	MEASURED (M)	11.0	651	0.40	16.70	11:30
	Adj Difference (M-I)	0.0	0	0.40	0.00	0:00
	LIMITS	± 2.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: 1/2 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

MetOne BAM PM₁₀ Calibration



STATION: Lafarge
LOCATION: Exshaw - Lagoon
START TIME (MST): 11:50

OPERATOR: Darrin Pike
DATE: September 24, 2018
END TIME (MST): 12:30

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	PM10	Audit Device S/N	624
Serial Number	A3315	Certification Date	11?30?17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (° C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	10.5	652	0.00	16.7	12:26
	MEASURED (AF)	10.5	652	0.40	16.60	12:25
	AF Difference (AF-I)	0	0	0.40	-0.10	0:01
Adjusted Data	MEASURED (M)	10.5	652	0.40	16.64	12:26
	Adj Difference (M-I)	0.0	0	0.40	-0.06	0:00
	LIMITS	± 2.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: half roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

0

MetOne BAM TSP Calibration



STATION: Lafarge
LOCATION: Exshaw - Lagoon
START TIME (MST): 12:30

OPERATOR: Darrin Pike
DATE: September 24, 2018
END TIME (MST): 13:00

MONITOR INFO / PARAMETER VALUES:

Make/Model	MetOne BAM	Audit Device Model	Delta Cal
Configuration	TSP	Audit Device S/N	624
Serial Number	A3589	Certification Date	30-Nov-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (° C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	8.5	652	0.00	16.7	12:54
	MEASURED (AF)	8.5	652	0.90	16.65	12:53
	AF Difference (AF-I)	0.0	0	0.90	-0.05	0:01
Adjusted Data	MEASURED (M)	8.5	652	0.90	16.65	12:54
	Adj Difference (M-I)	0.0	0	0.90	-0.05	0:00
	LIMITS	± 4.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: new roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

Calibration Report

Parameter **NO_x-NO-NO₂**
Air Monitoring Network **Lafarge - Exshaw**



Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason:	Routine	Installation	Removal
Start Time (MST)	11:05	End Time (MST)	15:25
Barometric Pressure	652 mmHg	Station Temperature	22.2 Deg C
Calibrator	SABIO 2010	Serial Number	103951108
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	1.001798	0.995406	0.995290
Data Offset	0.699425	2.299028	2.569386
After			
Data Slope	1.005439	0.996136	0.990770
Data Offset	1.514421	2.418365	2.643456
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	0.953		0.957	
NO Offset	-0.600	mV	-0.6	mV
NOX Slope	0.956		0.952	
NOX Offset	0.600	mV	0.6	mV
HVPS	771.000	V	771	V
Moly Temp	316.600	degC	314.0	degC
O3 Flow	80.000	ccm	80	ccm
RxCell Press	4.400	inHg	4.5	inHg
Sample press	23.700	inHg	23.9	inHg
Sample flow	439	ccm	439	ccm

Notes: No adjustments done

Calibration Report

Parameter **NO_x-NO-NO₂**
Air Monitoring Network **Lafarge - Exshaw**

Station Information

Calibration Date: September 24, 2018 Station Location: Exshaw - Lagoon

Calibration Data

	Dilution flow rate (ccm)	Source gas flow rate (ccm)	Calculated NO _x conc (ppb)	Calculated NO conc (ppb)	Calculated NO ₂ conc (ppb)	Indicated NO _x conc (ppb)	Indicated NO conc (ppb)	Indicated NO ₂ conc (ppb)	NO _x Correction factor	NO Correction factor
zero	5000	0.00	0.0	0.0	0.0	-1.4	-1.2	-1.7	N/A	N/A
1	5000	39.00	398.6	397.8	0.8	398.3	399.7	-2.5	1.0007	0.9954
2	5000	20.00	205.2	204.8	0.4	202.8	203.1	-1.3	1.0115	1.0084
3	7000	14.00	102.8	102.6	0.2	99.8	99.6	-1.2	1.0298	1.0305
AFZ	5000	0	0.0	0.0	0.0	-1.4	-1.2	-1.7	0.0000	0.0000
AFS	5000	39	398.6	397.8	0.8	398.8	395.3	2.3	0.9996	1.0065
Average Correction Factor									1.0140	1.0114

As Found Concentrations: NO_x= 402.4 NO= 399.0 As Found Percent Change NO_x= 1.0% NO= 0.3%

GPT Calibration Data

Dilution Flow 5000 ccm Source Gas Flow 39.00 ccm

O ₃ Setpoint (V)	Indicated NO high point (ppb)	Indicated NO drop conc (ppb)	Calculated NO ₂ conc (ppb)	Indicated NO _x conc (ppb)	Indicated NO conc (ppb)	Indicated NO ₂ conc (ppb)	NO _x Correction factor	NO Correction factor	NO ₂ Correction factor	Converter Efficiency
0	-1.2	-1.2	0.0	-1.4	-1.2	-1.7	N/A	N/A	N/A	N/A
NO point	398.1	398.1	0.0	397.6	398.1	-1.7	1.0013	1.0000	N/A	N/A
0.78V	398.1	112.5	285.6	396.4	112.5	282.7	1.0042	1.0000	1.0102	99.0%
0.5V	398.1	230.1	168.0	396.6	230.1	165.0	1.0038	1.0000	1.0178	98.2%
0.3V	398.1	320.7	77.3	398.1	320.7	75.9	1.0000	1.0000	1.0184	98.2%
Average Correction Factor							1.0027	1.0000	1.0155	98.5%

AIC Data

	Previous calibration				Current calibration			
Parameter	NO _x	NO ₂	NO		NO _x	NO ₂	NO	
Auto zero	1.4	-1.5	1.5	ppb	1.0	-0.2	1.4	ppb
Auto span	391.6	-1.4	391.9	ppb	385.8	-2.7	387.0	ppb

Calibration Performed By: Darrin pike

Calibration Summary

Parameter NO₂

Air Monitoring Network Lafarge - Exshaw



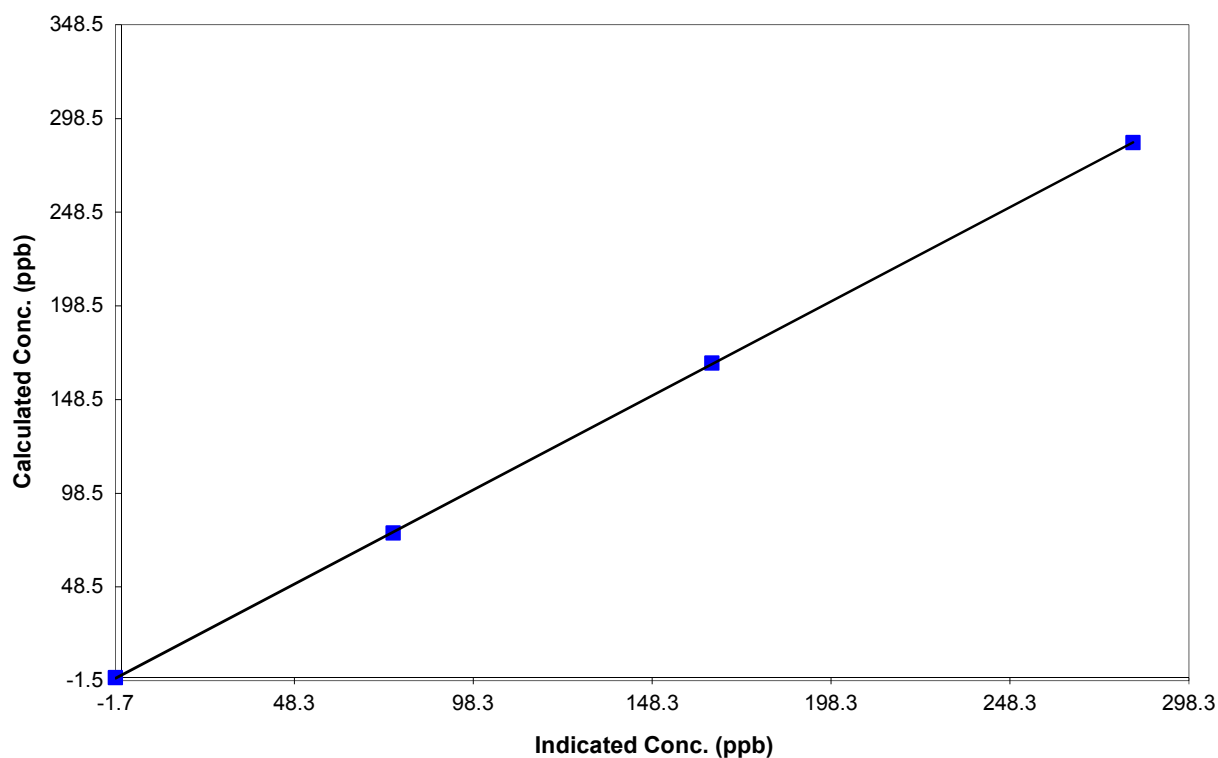
Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	11:05	End Time (MST)	15:25
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.7	N/A	Correlation Coefficient	0.999986
285.6	282.7	1.0102		
168.0	165.0	1.0178		
77.3	75.9	1.0184	Slope	1.005439
			Intercept	1.514421

NO₂ Calibration Curve



Calibration Summary

Parameter NO_x

Air Monitoring Network Lafarge - Exshaw



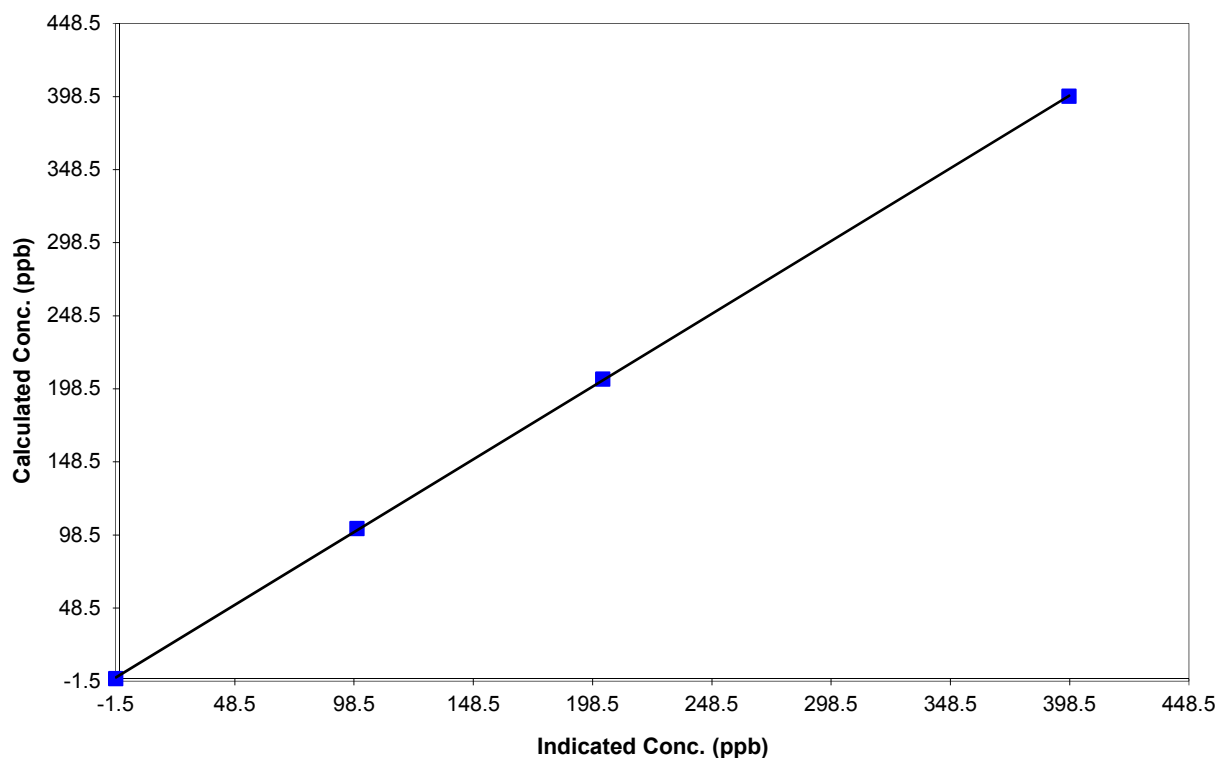
Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	11:05	End Time (MST)	15:25
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.4	N/A	Correlation Coefficient	0.999967
398.6	398.3	1.0007		
205.2	202.8	1.0115		
102.8	99.8	1.0298	Slope	0.996136
			Intercept	2.418365

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network Lafarge - Exshaw



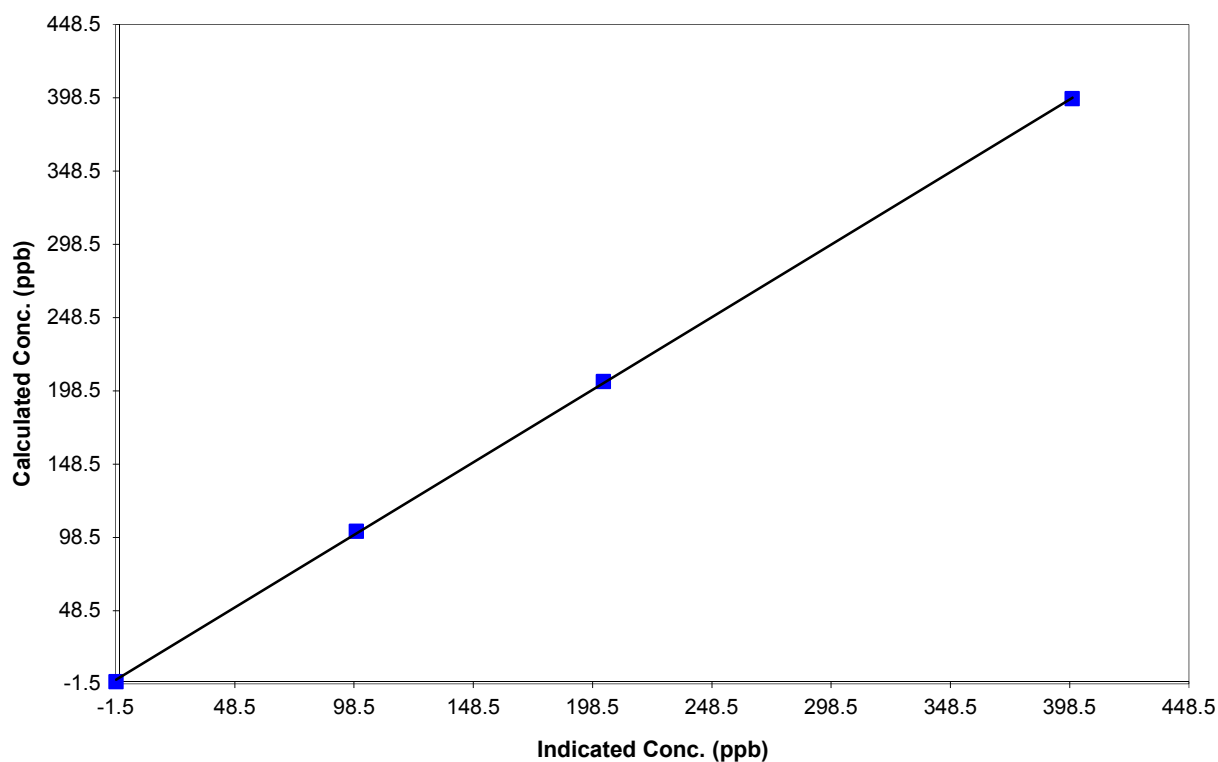
Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	11:05	End Time (MST)	15:25
Analyzer make	T200	Analyzer serial #	642

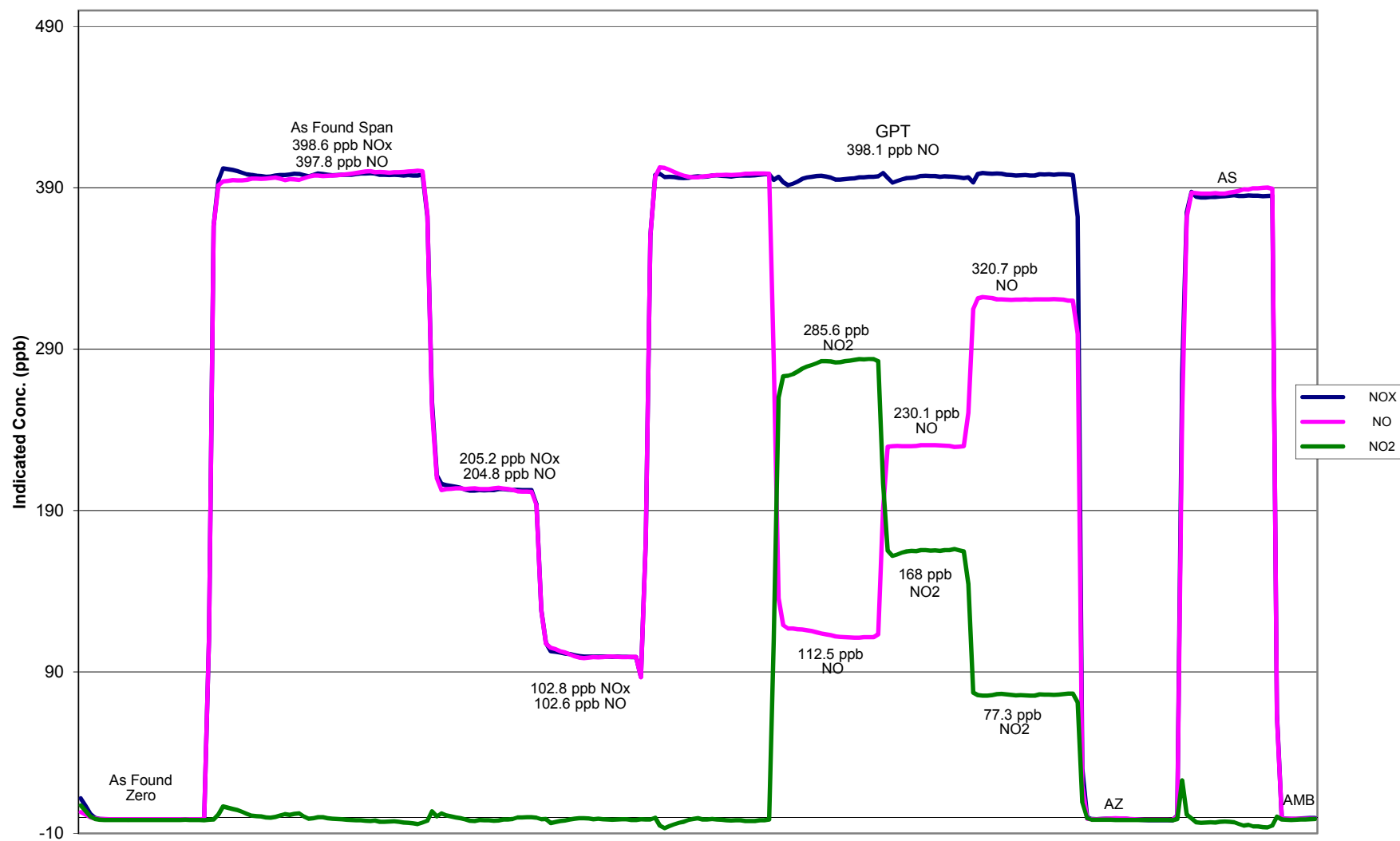
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.2	N/A	Correlation Coefficient	0.999938
397.8	399.7	0.9954		
204.8	203.1	1.0084		
102.6	99.6	1.0305	Slope	0.990770
			Intercept	2.643456

NO Calibration Curve



NOX Calibration



September 24, 2018

Calibration Report



AIR QUALITY MONITORING

Parameter SO2

Air Monitoring Network Lafarge - Exshaw

Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason:	Routine	Install	Removal
Start Time (MST)	11:00	End Time (MST)	15:30
Barometric Pressure	652 mmHg	Station Temperature	22.2 Deg C
Calibrator	SABIO 2010	Serial Number	103951108
Cal Gas Concentration	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	0.996958	Calculated slope	0.998253
Calculated intercept	0.757858	Calculated intercept	1.674779
Analyzer make	API Model 102A	Analyzer serial #	393

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Slope	1.18		1.18	
Offset	43.2	mV	43.2	mV
Pressure	23.8	in Hg	23.9	in Hg
Sample Flow	418	ccm	418	ccm
UV Lamp	3395	mV	3436	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	-0.8	N/A
5000	39.00	393.2	392.6	1.0014
5000	20.00	202.4	200.6	1.0089
7000	14.00	101.4	99.0	1.0241
5000	0	0.0	-0.8	As found zero
5000	39	393.2	392.5	As found span
Average Correction Factor				1.0114

Calculated value of As Found Response: 392.9 ppb Percent Change of As Found: 0.1%

	before calibration		after calibration	
Auto zero	N/A	ppb	-0.3	ppb
Auto span	N/A	ppb	385.3	ppb

Notes: No adjustments done.

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter SO2

Air Monitoring Network Lafarge - Exshaw



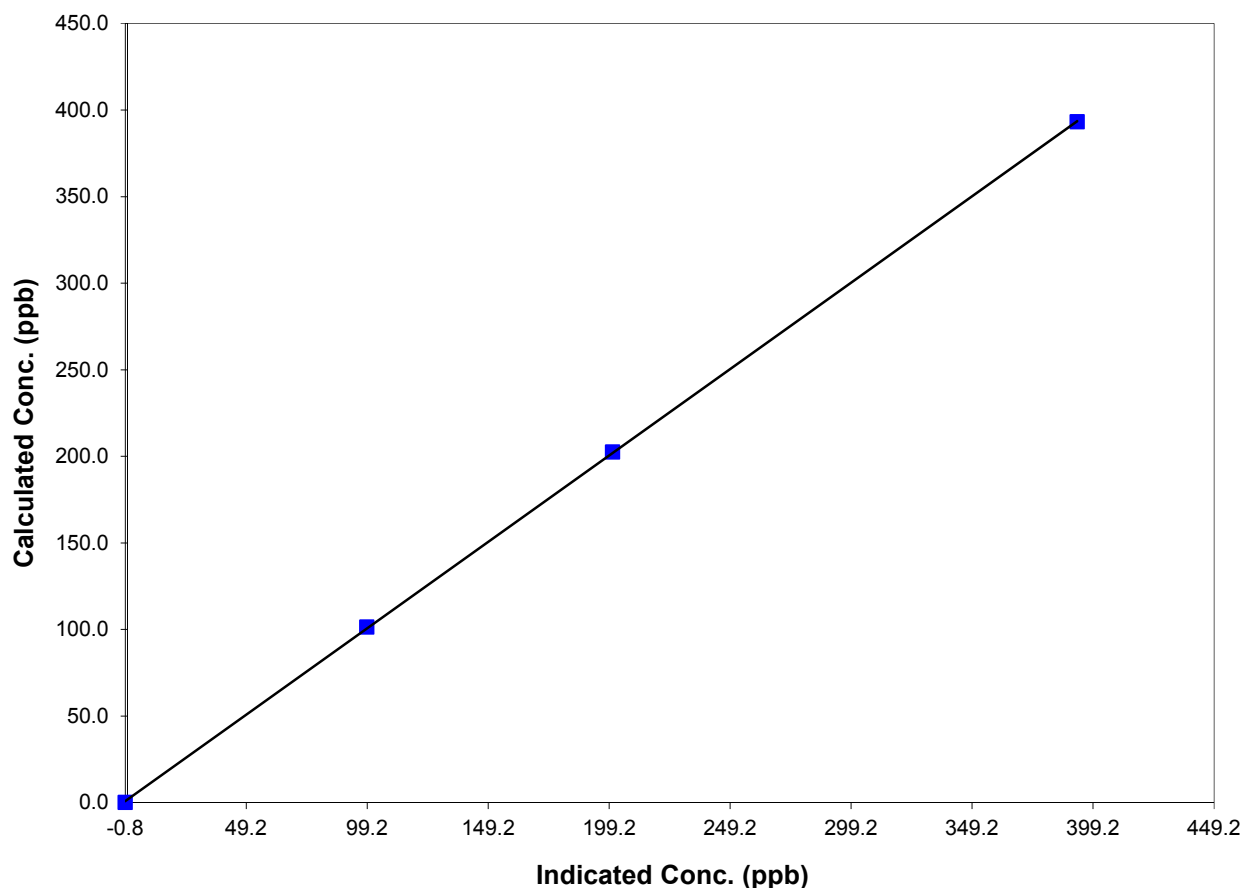
Station Information

Calibration Date	September 24, 2018	Previous Calibration	August 30, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	11:00	End Time (MST)	15:30
Analyzer make/model	API Model 102A	Analyzer serial #	393

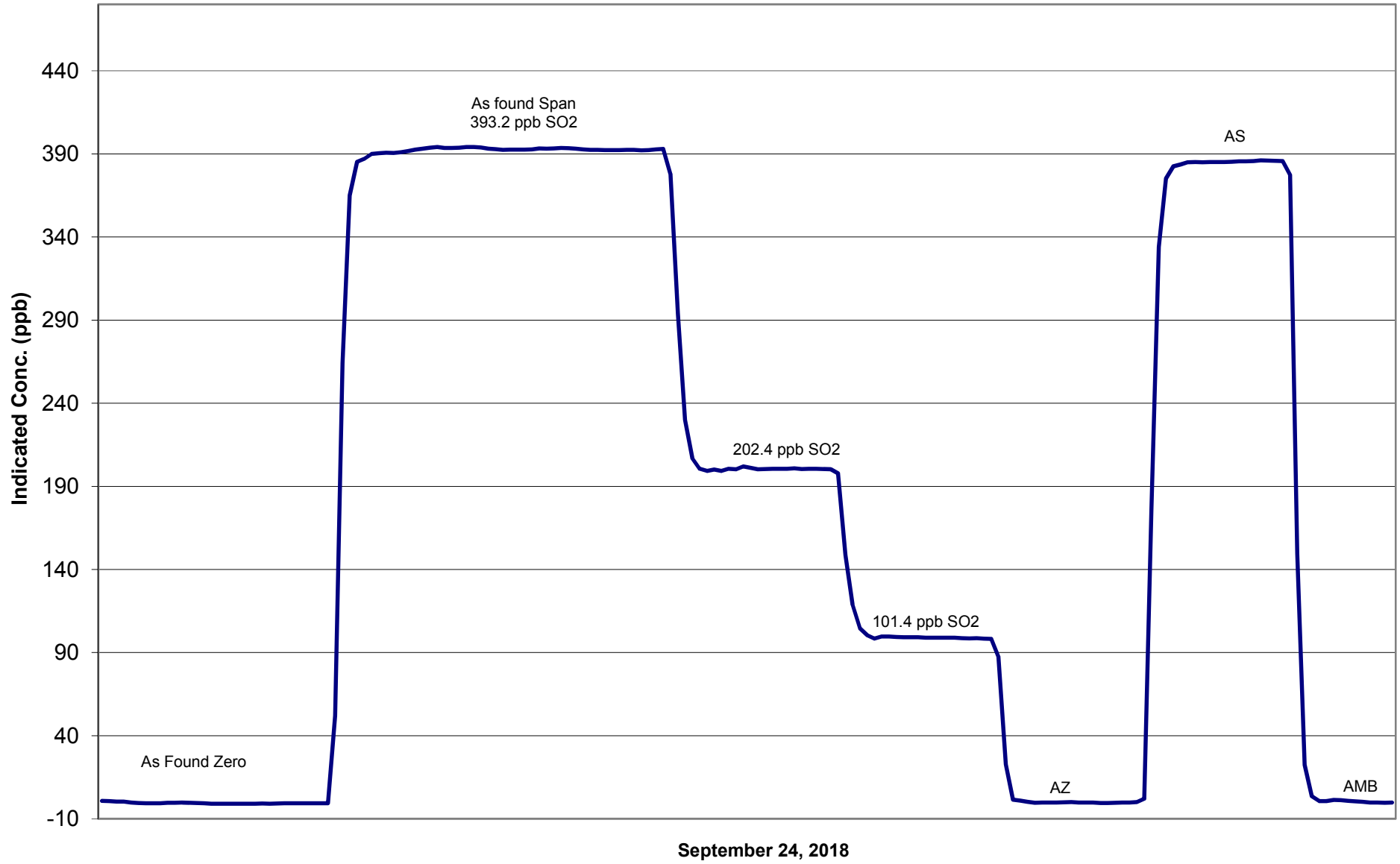
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-0.8	N/A	Correlation Coefficient	0.999977
393.2	392.6	1.0014		
202.4	200.6	1.0089		
101.4	99.0	1.0241	Slope	0.998253
			Intercept	1.674779

SO2 Calibration Curve



SO2 Calibration



AIR QUALITY MONITORING
Field Service Report

Air Monitoring Network / Client: Lafarge – Exshaw

Station Information

Visit Date: September 24, 2018	Project Number: 151-09626-00
Station Location: Exshaw – Lagoon	Station Name: Lafarge – Exshaw
Reason for Visit: Routine monthly calibrations	
Arrival Time: 10:00 MST	Departure Time: 16:30 MST
Weather Conditions: light rain	

Record of Hours

Parts Used

Employee	Category	Hours	Qty	Parts Description
DP	TRA	3	2	47mm filters
DP	CAL	7.5		

Station Information

Time (MST) Comments

10:00 – Signed in at Lafarge Plant

10:05 – arrived at Windridge station. Completed TSP calibration.

10:50 - Arrived at Lagoon station. Started unloading and setting up gear

11:00 - Started AF calibrator Zero on NOx and SO2.

11:35 – AF Zero was good. Started AF calibrator Span.

10:45 – Flagged all PM channels for calibrations.

12:00 - NOx/SO2 spans adjusted

13:00 - SO2 calibration completed, no issues noted. NOx GPT reference point started, no issues noted in the first portion of the calibration.

13:30 - Started introducing O3 for GPT portion of calibration.

11:35 - BAM PM2.5 calibration completed with no issues.

12:30 - BAM PM10 calibration completed with no issues

13:00 - BAM TSP calibration completed with no issues.

14:35 - GPT portion of calibration went well, no issues noted. Started AIC on NOx and SO2.

14:45 Left station & proceeded to the Grimm sites



AIR QUALITY MONITORING
Field Service Report

West Sharp:

Measured Sample flow = 1.113 LPM

Sharp AmbT = 8.6 degC

Audit AmbT = 9 degC

Berm Sharp:

Measured Sample flow = 1.102 LPM

Sharp AmbT = 9.6 degC

Audit AmbT = 9 degC

Entrance Sharp:

Measured Sample flow = 1.12 LPM

Sharp AmbT = 7.7 degC

Audit AmbT = 8 degC

16:30 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



STATION: Lafarge
LOCATION: Exshaw - Windridge
START TIME (MST): 12:15

OPERATOR: Darrin Pike
DATE: September 20, 2018
END TIME (MST): 13:05

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
Configuration PM2.5
Serial Number U21074

Audit Device Model Delta Cal
Audit Device S/N 624
Certification Date 30-Nov-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (° C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	9.0	651	0.00	16.7	13:02
	MEASURED (AF)	10.0	652	0.60	16.67	13:03
	AF Difference (AF-I)	1.0	1	0.60	-0.03	0:01
Adjusted Data	MEASURED (M)	9.0	651	0.60	16.67	13:02
	Adj Difference (M-I)	0.0	0	0.60	-0.03	0:00
	LIMITS	± 2.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: new roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

MetOne BAM PM₁₀ Calibration



STATION: Lafarge
LOCATION: Exshaw - Windridge
START TIME (MST): 12:50

OPERATOR: Darrin Pike
DATE: September 20, 2018
END TIME (MST): 13:25

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
PM10
Serial Number U21075

Audit Device Model Delta Cal
Audit Device S/N 624
Certification Date 30-Nov-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (°C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	9.6	651	0.00	16.7	13:18
	MEASURED (AF)	10.5	651	0.40	17.00	13:19
	AF Difference (AF-I)	0.9	0	0.40	0.30	0:01
Adjusted Data	MEASURED (M)	9.6	651	0.40	16.70	13:18
	Adj Difference (M-I)	0.0	0	0.40	0.00	0:00
	LIMITS	± 2.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: new roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

MetOne BAM TSP Calibration



STATION: Lafarge
LOCATION: Exshaw - Windridge
START TIME (MST): 10:05

OPERATOR: Darrin pike
DATE: September 24, 2018
END TIME (MST): 10:35

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
Configuration TSP
Serial Number U21073

Audit Device Model Delta Cal
Audit Device S/N 624
Certification Date 30-Nov-17

AUDIT / CALIBRATION RESULTS:

		Ambient Temp. (°C)	Ambient Pres. (mmHg)	Leak Check (L/min)	Flow Rate (lpm)	Time settings (hh:mm)
As Found Data	Audit values (I)	9.0	650	0.00	16.7	10:31
	MEASURED (AF)	7.9	650	0.50	16.70	10:32
	AF Difference (AF-I)	-1.1	0	0.50	0.00	0:01
Adjusted Data	MEASURED (M)	9.0	650	0.50	16.70	10:31
	Adj Difference (M-I)	0.0	0	0.50	0.00	0:00
	LIMITS	± 2.0 °C	5 mm Hg	1.0 L/min	± 1.0 L/min	±2 min

Sample Head Inspect/Cleaning: inspected and cleaned

Status of sampling tape: new roll

Nozzle Inspection / cleanliness: clean

COMMENTS:



AIR QUALITY MONITORING
Field Service Report

Air Monitoring Network / Client: Lafarge – Exshaw

Station Information

Visit Date: September 20, 2018	Project Number: 151-09626-00
Station Location: Exshaw – Windridge	Station Name: Lafarge – Windridge
Reason for Visit: Routine monthly calibrations	
Arrival Time: 11:30 MST	Departure Time: 14:00 MST
Weather Conditions: rain and 7 degC.	

Record of Hours

Parts Used

Employee	Category	Hours	Qty	Parts Description
DP	CAL	2.5		
DP	TRV	3		

Station Information

Time (MST) Comments

11:30 – Arrived at Lafarge plant and signed in

12:15 - Flagged all PM channels at Windridge site for BAM 1020 calibrations.

13:05 - BAM PM2.5 calibration completed with no issues.

13:25 - BAM PM10 calibration completed with no issues.

14:00 - BAM TSP calibration unable to complete due to rain. No adjustments made.

14:00 – Left site

NOTES:

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

Technician: Darrin Pike