

LAFARGE CANADA INC.

AMBIENT AIR QUALITY MONTHLY REPORT AUGUST 2018

SEPTEMBER 28, 2018





AMBIENT AIR QUALITY MONTHLY REPORT

AUGUST 2018

LAFARGE CANADA INC.

PROJECT NO.: 171-00556-00
DATE: SEPTEMBER 28, 2018

WSP
SUITE 1000
840 HOWE STREET
VANCOUVER, BC, CANADA V6Z 2M1

T: +1 604 685-9381
F: +1 604 683-8655
WSP.COM



September 28, 2018

LAFARGE CANADA INC.
Highway 1A
Exshaw, AB T0L 2C0

Attention: Janet Brygger

Dear Ms. Brygger

Subject: Ambient Air Quality Monthly Report - August 2018

The operational uptime for the meteorological systems and all analyzers, with the exception of the PM₁₀ analyzer, at the Lagoon station was 100% in August. The PM₁₀ analyzer had 96.2% operational uptime. There were 8 and 17 exceedances of the 24-hour TSP and PM_{2.5} Alberta Ambient Air Quality Objectives (AAAQOs) in August at the Lagoon monitoring location.

All analyzers at the Windridge station had 100% operational uptime in August. There were 10 exceedances of the 24-hour TSP AAAQO. There were 17 exceedances of the 24-hour PM_{2.5} AAAQO and 119 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 operational uptime at the 3 monitors was as follows: 43.5% at the West monitor due to extensive days of pump failure, 69.9% at the Berm monitor due to extensive days of pump failure, and 100% at the Entrance monitor. The Entrance GRIMM monitor exceeded the 24-hour TSP AAAQO for 22 days and 21 exceedances of the 24-hour PM_{2.5} AAAQO, while the Berm GRIMM had 14 exceedances of the TSP Objective and 16 exceedances of the PM_{2.5} Objective. During limited operation, the West GRIMM monitor did not record any exceedances of the 24-hour TSP Objective, but recorded 3 and 11 exceedances of the 24-hour and the 1-hour PM_{2.5} AAAQG.

It is important to note that the Exshaw area and much of BC and Alberta were impacted heavily by smoke from wildfires during August 2018. Smoke from wildfires were the primary cause of elevated levels of particulate matter at all monitoring stations.

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
Environment

SUITE 1000
840 HOWE STREET
VANCOUVER, BC, CANADA V6Z 2M1

T: +1 604 685-9381
F: +1 604 683-8655
wsp.com

SIGNATURES

PREPARED BY



September 11, 2018

Hong Zhang, P.Eng
Senior Air Quality Engineer

Date

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



September 28, 2018

Tyler Abel, M.Sc.
Manager, Air Quality, Environment

Date

WSP Canada Inc. (WSP) prepared this report solely for the use of the intended recipient, LAFARGE CANADA INC., in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

The original of this digital file will be conserved by WSP for a period of not less than 10 years. As the digital file transmitted to the intended recipient is no longer under the control of WSP, its integrity cannot be assured. As such, WSP does not guarantee any modifications made to this digital file subsequent to its transmission to the intended recipient.

¹ Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.



TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	AUGUST 2018 REPORT SUMMARY	2
2.1	Lagoon Station	2
2.2	Windridge Station.....	3
2.3	West Grimm	3
2.4	Berm Grimm.....	4
2.5	Entrance GrimM.....	4
3	LAGOON STATION	6
3.1	Site Visit Notes	7
3.1.1	NO _x Monitoring.....	7
3.1.2	SO ₂ Monitoring	7
3.1.3	PM Monitoring	7
3.1.4	Meteorological Monitoring.....	7
3.2	Monitoring Results and Trends	7
4	WINDRIDGE STATION.....	18
4.1	Site Visit Notes	18
4.2	Monitoring Results and Trends	18
5	WEST INDUSTRIAL GRIMM	25
5.1	Site Visit Notes	25
5.2	Monitoring Results and Trends	25
6	BERM INDUSTRIAL GRIMM	33
6.1	Site Visit Notes	33
6.2	Monitoring Results and Trends	33
7	ENTRANCE INDUSTRIAL GRIMM	41
7.1	Site Visit Notes	41
7.2	Monitoring Results and Trends	41

BIBLIOGRAPHY49

TABLES

TABLE 2-1	LAGOON STATION DATA SUMMARY.....	2
TABLE 2-2	WINDRIDGE STATION DATA SUMMARY	3
TABLE 2-3	WEST STATION DATA SUMMARY.....	3
TABLE 2-4	BERM STATION DATA SUMMARY.....	4
TABLE 2-5	ENTRANCE STATION DATA SUMMARY	5
TABLE 3-1	INSTRUMENTATION LIST AT THE LAGOON STATION.....	6
TABLE 3-2	SUMMARY OF AUGUST 2018 DATA AT LAGOON.....	9
TABLE 3-3	DAYS EXCEEDING THE TSP AAAQO OR PM _{2.5} AAAQG AT THE LAGOON STATION	10
TABLE 4-1	EQUIPMENT AT THE WINDRIDGE MONITORING LOCATION.....	18
TABLE 4-2	SUMMARY OF AUGUST 2018 DATA AT THE WINDRIDGE STATION	19
TABLE 4-3	DAYS EXCEEDING THE TSP AAAQO OR PM _{2.5} AAAQG AT THE WINDRIDGE STATION	20
TABLE 5-1	EQUIPMENT AT THE WEST MONITORING LOCATION.....	25
TABLE 5-2	SUMMARY OF AUGUST 2018 DATA AT THE WEST GRIMM	27
TABLE 5-3	DAYS EXCEEDING THE GUIDELINE FOR TSP OR PM _{2.5} AT THE WEST GRIMM.....	28
TABLE 6-1	EQUIPMENT AT THE BERM MONITORING LOCATION.....	33
TABLE 6-2	SUMMARY OF AUGUST 2018 DATA AT THE BERM GRIMM	34
TABLE 6-3	DAYS EXCEEDING THE GUIDELINE FOR TSP OR PM _{2.5} AT THE BERM MONITOR.....	35
TABLE 7-1	EQUIPMENT AT THE ENTRANCE MONITORING LOCATION.....	41
TABLE 7-2	SUMMARY OF AUGUST 2018 DATA AT THE ENTRANCE GRIMM.....	42
TABLE 7-3	DAYS EXCEEDING THE GUIDELINE FOR TSP OR PM _{2.5} AT THE ENTRANCE MONITOR.....	43

FIGURES

FIGURE 3-1	INLETS ON THE TOP OF WSP'S LAGOON MONITOR	7
FIGURE 3-2	AUGUST 2018 WIND ROSE FROM THE LAGOON STATION.....	12
FIGURE 3-3	1-HOUR CONCENTRATIONS OF NO _x , SO ₂ , PARTICULATE MATTER, WIND DIRECTION AND WIND SPEED AT THE LAGOON STATION	13
FIGURE 3-4	24-HOUR CONCENTRATIONS OF NO _x , SO ₂ , AND PARTICULATE MATTER AT THE LAGOON MONITOR.....	14
FIGURE 3-5	LAGOON MONITOR PARTICULATE MATTER TIME VARIATION	15
FIGURE 3-6	LAGOON MONITOR SO ₂ TIME VARIATION	16
FIGURE 3-7	LAGOON MONITOR NO _x TIME VARIATION	17
FIGURE 4-1	1-HOUR PARTICULATE MATTER CONCENTRATIONS RECORDED AT THE WINDRIDGE MONITOR	22
FIGURE 4-2	24-HOUR PARTICULATE MATTER CONCENTRATIONS AT THE WINDRIDGE MONITOR.....	23
FIGURE 5-1	1-HOUR PARTICULATE MATTER CONCENTRATIONS AT THE WEST MONITOR.....	30
FIGURE 5-2	24-HOUR PARTICULATE MATTER CONCENTRATIONS AT THE WEST MONITOR.....	31
FIGURE 5-3	WEST PARTICULATE MATTER TIME VARIATION	32
FIGURE 6-1	1-HOUR PARTICULATE MATTER CONCENTRATIONS RECORDED AT THE BERM MONITOR	37
FIGURE 6-2	24-HOUR PARTICULATE MATTER CONCENTRATIONS RECORDED AT THE BERM MONITOR	38
FIGURE 6-3	WIND ROSE FOR TSP EXCEEDANCE DAYS RECORDED AT THE BERM GRIMM.....	39
FIGURE 6-4	BERM PARTICULATE MATTER TIME VARIATION	40
FIGURE 7-1	1-HOUR PARTICULATE MATTER CONCENTRATIONS RECORDED AT THE ENTRANCE MONITOR.....	45

FIGURE 7-2	24-HOUR PARTICULATE MATTER CONCENTRATIONS AT THE ENTRANCE MONITOR	46
FIGURE 7-3	WIND ROSE FOR TSP EXCEEDANCE DAYS RECORDED AT THE ENTRANCE GRIMM	47
FIGURE 7-4	ENTRANCE PARTICULATE MATTER TIME VARIATION	48

APPENDICES

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 August 1, 2018 and August 31, 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 AUGUST 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).

It is important to note that the Exshaw area and much of BC and Alberta were impacted heavily by smoke from wildfires during August 2018. Smoke from wildfires were the primary cause of elevated levels of particulate matter at all stations reported below.

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	20.9	0	10.6	-
SO ₂ (ppb)	100	12	0	2.8	0
PM _{2.5} (µg/m ³)	100	237.0	118 ¹	143.4	17
PM ₁₀ (µg/m ³)	96.2	292.5	-	175.7	-
TSP (µg/m ³)	100	476.9	-	202.8	8
Temperature (°C)	100	35.1	-	24.6	-
Wind Speed (km/hr) /Direction (Degrees)	100	32.6/NNW	-	20.7/WNW	-
Precipitation (mm)	100	6.8 ²	-	37.8 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 17 days exceeding the 24-hour PM_{2.5} AAAQO due to the impacts of wildfire smoke from BC.
- There were 118 hours exceeding the 1-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 8 days exceeding the 24-hour TSP AAAQO due to the impacts of wildfire smoke from BC.

Calibration/Maintenance Notes:

- The NO_x and SO₂ analyzers had 100% uptime for the month of August.
- The PM_{2.5} and TSP analyzers had 100% uptime for the month of August.
- The PM₁₀ analyzer had 96.2% uptime for the month of August because of several hours where the instrument's filter tape ran out and 3 hours of instrument error.
- The meteorological analyzers had 100% uptime for the month of August.

2.2 WINDRIDGE STATION

Table 2-2 Windridge station data summary

Parameter	Data Completeness (%)	1-Hour Average		24-hour Average	
		Maximum Concentration	Exceedances of AAAQO or AAAQG	Maximum Concentration	Exceedances of AAAQO
PM _{2.5} (µg/m ³)	100	239.1	119*	141.4	17
PM ₁₀ (µg/m ³)	100	390.4	-	182.3	-
TSP (µg/m ³)	100	503.4	-	207.2	10

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

Data Quality Notes:

- There were 17 days exceeding the 24-hour PM_{2.5} AAAQO due to the impacts of wildfire smoke from BC.
- There were 119 hours exceeding the 1-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 10 days exceeding the 24-hour TSP AAAQO due to the impacts of wildfire smoke from BC.

Calibration/Maintenance Notes:

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

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)	43.5	91.4	11*	63.8	3
PM ₁₀ (µg/m ³)	43.5	95.7	-	67.6	-

TSP ($\mu\text{g}/\text{m}^3$)	43.5	93.7	-	46.8	0
--	------	------	---	------	---

* Any exceedances reported for 1-hour $\text{PM}_{2.5}$ are over the guideline level (AAQG) of $80 \mu\text{g}/\text{m}^3$.

Data Quality Notes:

- There were 3 days exceeding the 24-hour $\text{PM}_{2.5}$ AAQG due to the impacts of wildfire smoke from BC.
- There were 11 hours exceeding the 1-hour $\text{PM}_{2.5}$ AAQG due to the impacts of wildfire smoke from BC.
- There was no exceedances of the 24-hour TSP AAQG.

Calibration/Maintenance Notes:

- Due to an extended period of pump failure (August 1st) and instrument removal due to a laser error (August 7th – 24th), the analyzer had 43.5% uptime for the month of August.

2.4 BERM GRIMM

The GRIMM monitors are Industrial Ambient Monitors meant to aid Lafarge in assessing the performance of their FDCBMP-P. The AAQO 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 AAQO.

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
$\text{PM}_{2.5}$ ($\mu\text{g}/\text{m}^3$)	69.9	217.4	133*	124.6	16
PM_{10} ($\mu\text{g}/\text{m}^3$)	69.9	652.6	-	222.3	-
TSP ($\mu\text{g}/\text{m}^3$)	69.9	2203.3	-	739.5	14

* Any exceedances reported for 1-hour $\text{PM}_{2.5}$ are over the guideline level (AAQG) of $80 \mu\text{g}/\text{m}^3$.

Data Quality Notes:

- There were 16 days exceeding the 24-hour $\text{PM}_{2.5}$ AAQG due to the impacts of wildfire smoke from BC.
- There were 133 hours exceeding the 1-hour $\text{PM}_{2.5}$ AAQG due to the impacts of wildfire smoke from BC.
- There were 14 days exceeding the 24-hour TSP AAQG due to the impacts of wildfire smoke from BC.

Calibration/Maintenance Notes:

- Due to an extended period of pump failure (August 1st – 8th) and several hour of instrument error later in the month, the analyzer had 69.9% uptime for the month of August.

2.5 ENTRANCE GRIMM

The GRIMM monitors are Industrial Ambient Monitors meant to aid Lafarge in assessing the performance of their FDCBMP-P. The AAQO 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	219.7	186*	129.0	21
PM ₁₀ (µg/m ³)	100	435.6	-	239.4	-
TSP (µg/m ³)	100	953.0	-	422.5	22

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

Data Quality Notes:

- There were 21 days exceeding the 24-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 186 hours exceeding the 1-hour PM_{2.5} AAAQG due to the impacts of wildfire smoke from BC.
- There were 22 days exceeding the 24-hour TSP AAAQG due to the impacts of wildfire smoke from BC.

Calibration/Maintenance Notes:

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

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 August 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 August 30th. The monitor had 100% uptime in August.

3.1.2 SO₂ MONITORING

The SO₂ monitor was calibrated on August 30th. The monitor had 100% uptime in August.

3.1.3 PM MONITORING

All BAM monitors were calibrated on August 30th. For the month of August, the PM_{2.5} and TSP analyzers had 100% operation time. the PM₁₀ analyzer had 96.2% 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 August 2018. Table 3-2 summarizes the hourly and daily concentrations recorded in August 2018. Table 3-3 summarizes the recorded exceedances.

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 August 2018 for the pollutants listed in Table 3-2.

There were 8 and 17 exceedances for the 24-hour TSP ($100 \mu\text{g}/\text{m}^3$) and PM_{2.5} ($30 \mu\text{g}/\text{m}^3$) AAAQO, respectively. Historically in August, the average number of 24-hour TSP AAQO exceedances and 24-hour PM_{2.5} AAAQO exceedances are both one. The maximum number of 24-hour TSP AAQO exceedances was 5 in 2015, while the maximum number of 24-hour PM_{2.5} AAQO exceedances was 6 in 2017. Both of those years were also heavily impacted to wildfire smoke.

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

Table 3-2 Summary of August 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	-	5.3	20.9	23	23	14.4	50.4	10.6	9	100
SO ₂ (ppb)	172	48	Lagoon	0	0	0.9	12	7	3	13.2	284.5	2.8	15	100
PM _{2.5} (µg/m ³)	80	30	Lagoon	118	17	45.7	237	16	0	12.0	85.1	143.4	16	100
PM ₁₀ (µg/m ³)	-	-	Lagoon	-	-	62.3	292.5	15	22	17.6	91.5	175.7	16	96.2
TSP (µg/m ³)	-	100	Lagoon	-	8	75.8	476.9	16	21	2.8	6.4	202.8	16	100
Temperature (°C)	-	-	Lagoon	-	-	16.5	35.1	10	17	16.6	229.6	24.6	10	100
Wind Speed (km/hr)/Direction (degrees)	-	-	Lagoon	-	-	20.7/SSW	32.6	31	12	32.6	252.5	20.7/WSW	31	100
Precipitation (mm)	-	-	Lagoon	-	-	0.1	6.8					37.8		100

Table 3-3 Days exceeding the TSP AAAQO or PM_{2.5} AAAQG at the Lagoon 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)
Lagoon						
07/08/2018	-	37.79	264.79	15.24	35.30	Wildfire smoke
08/08/2018	127.20	60.05	251.34	11.99	39.02	Wildfire smoke
09/08/2018	157.20	68.19	257.53	11.89	35.32	Wildfire smoke
10/08/2018	-	54.98	234.76	10.62	33.51	Wildfire smoke
11/08/2018	109.05	74.50	76.26	15.01	48.76	Wildfire smoke
14/08/2018	-	38.07	270.02	16.27	40.45	Wildfire smoke
15/08/2018	182.29	117.16	278.39	14.44	40.89	Wildfire smoke
16/08/2018	202.79	143.44	254.40	9.35	53.42	Wildfire smoke
17/08/2018	128.77	63.19	246.99	10.86	37.45	Wildfire smoke
18/08/2018	164.27	107.83	63.91	11.55	53.62	Wildfire smoke
19/08/2018	-	66.44	62.64	10.61	60.80	Wildfire smoke
20/08/2018	-	40.65	72.94	8.31	65.41	Wildfire smoke
22/08/2018	-	63.53	271.51	13.41	37.95	Wildfire smoke
23/08/2018	123.93	89.05	252.39	11.96	36.98	Wildfire smoke
24/08/2018	-	76.39	62.26	11.21	78.91	Wildfire smoke

25/08/2018	-	57.89	263.84	13.83	64.00	Wildfire smoke
26/08/2018	-	49.51	262.79	13.90	59.86	Wildfire smoke
Total # of Exceedances	8	17				
Maximum # of Exceedances (August)	5 (2015)	6 (2017)				
Average # of Exceedances (August)	1	1				
Minimum # of Exceedances (August)	0 (2012, 2013, 2014, 2016)	0 (2011, 2012, 2013, 2014, 2016)				

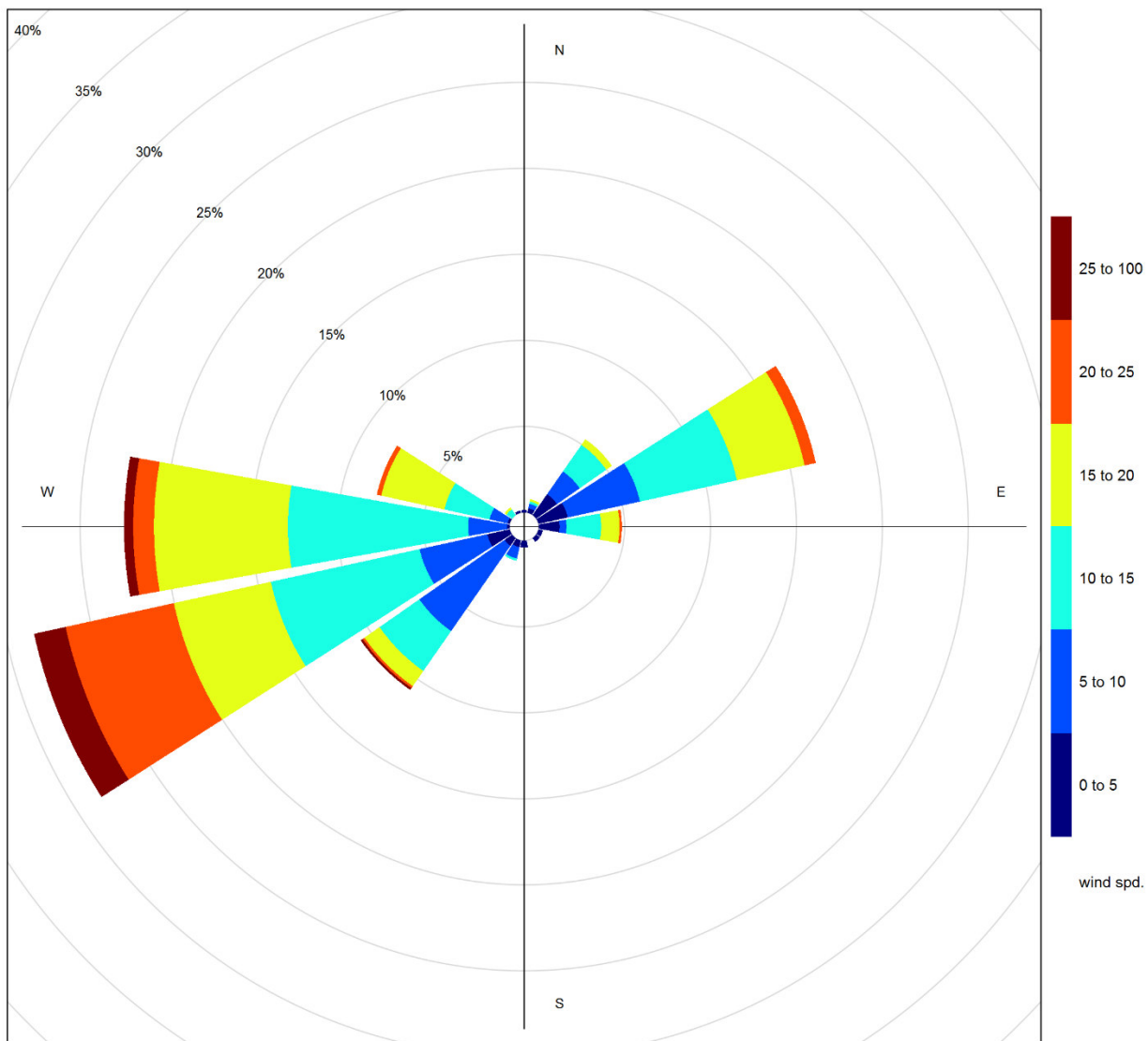


Figure 3-2 August 2018 wind rose from the Lagoon Station

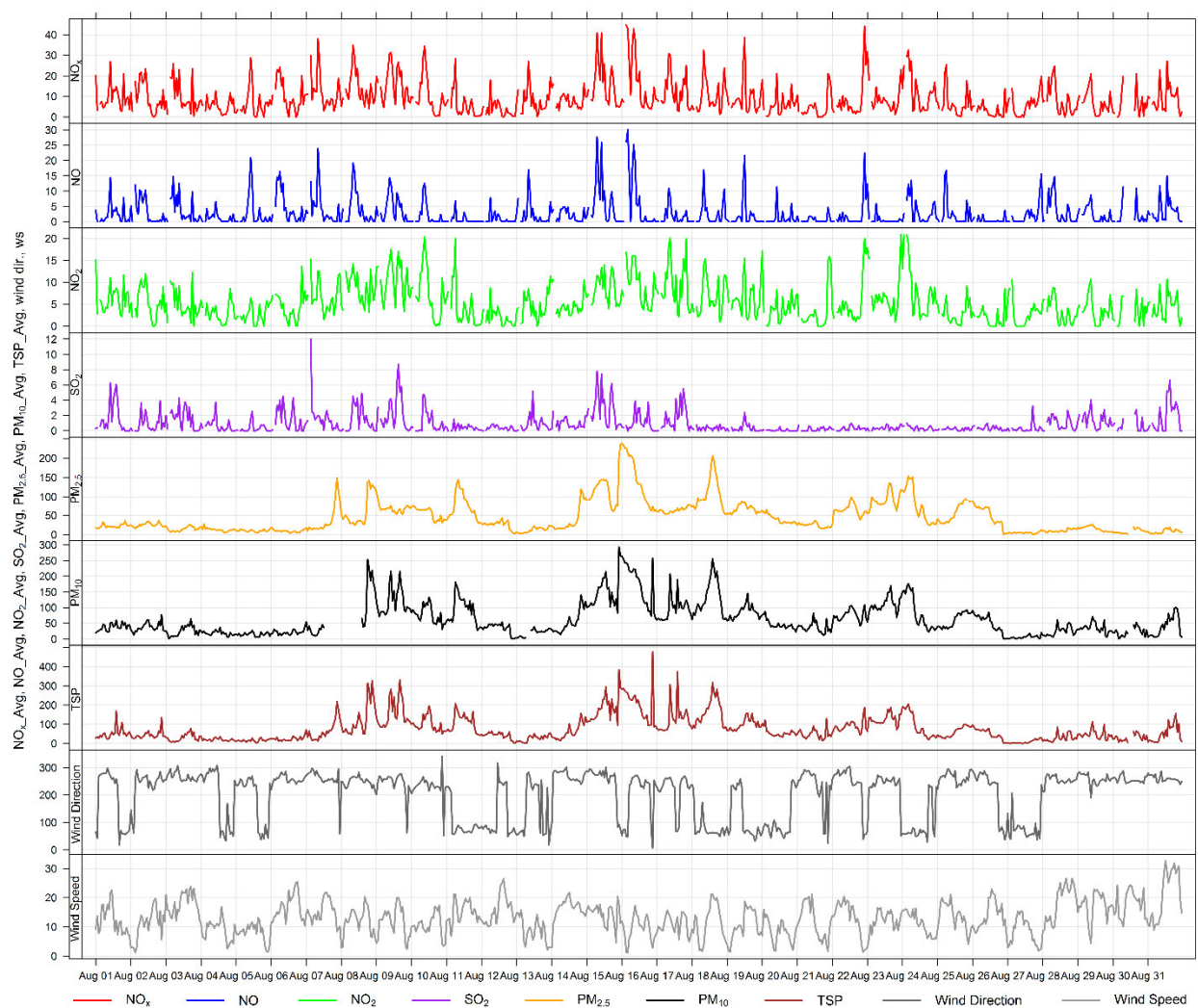


Figure 3-3 1-hour concentrations of NO_x , SO_2 , particulate matter, wind direction and wind speed at the Lagoon station

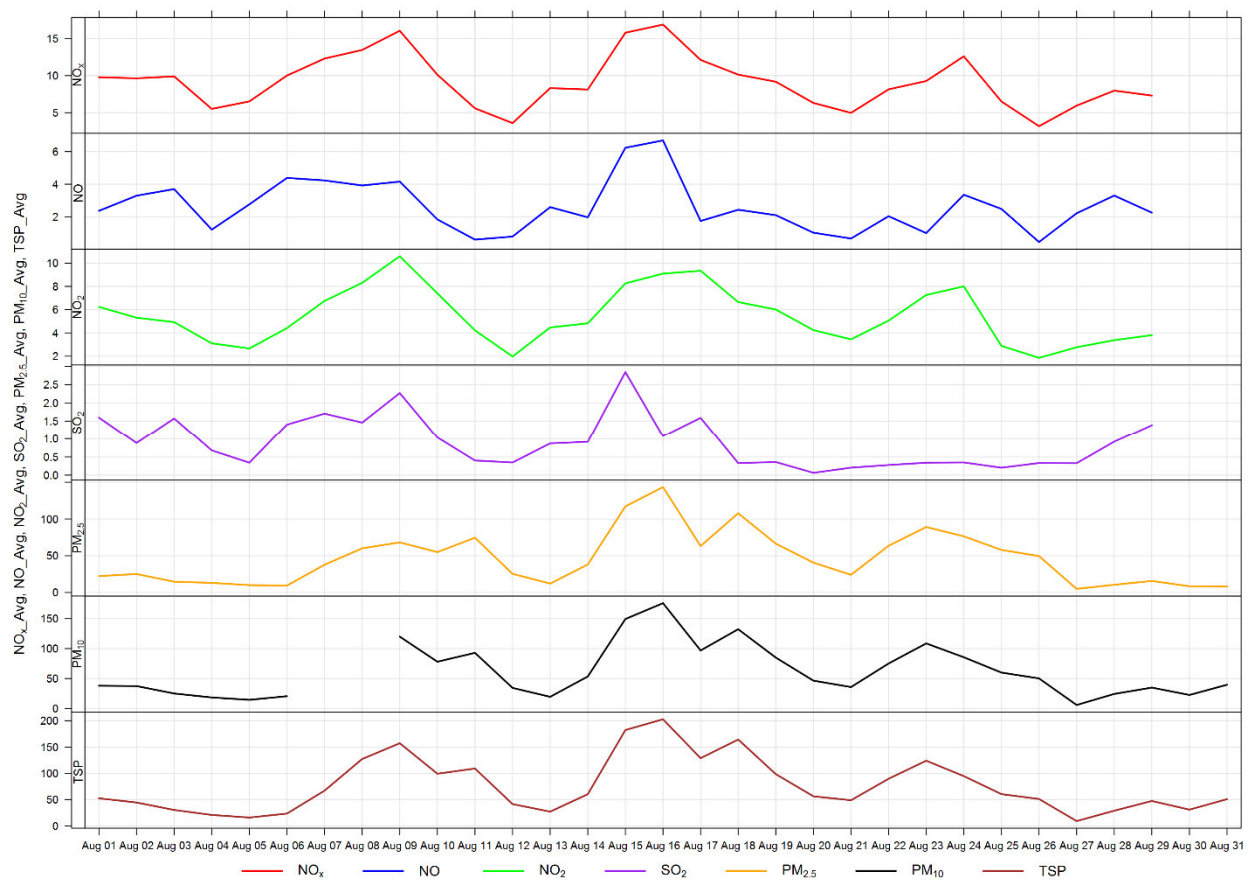


Figure 3-4 24-hour concentrations of NO_x, SO₂, and particulate matter at the Lagoon monitor

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.

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.

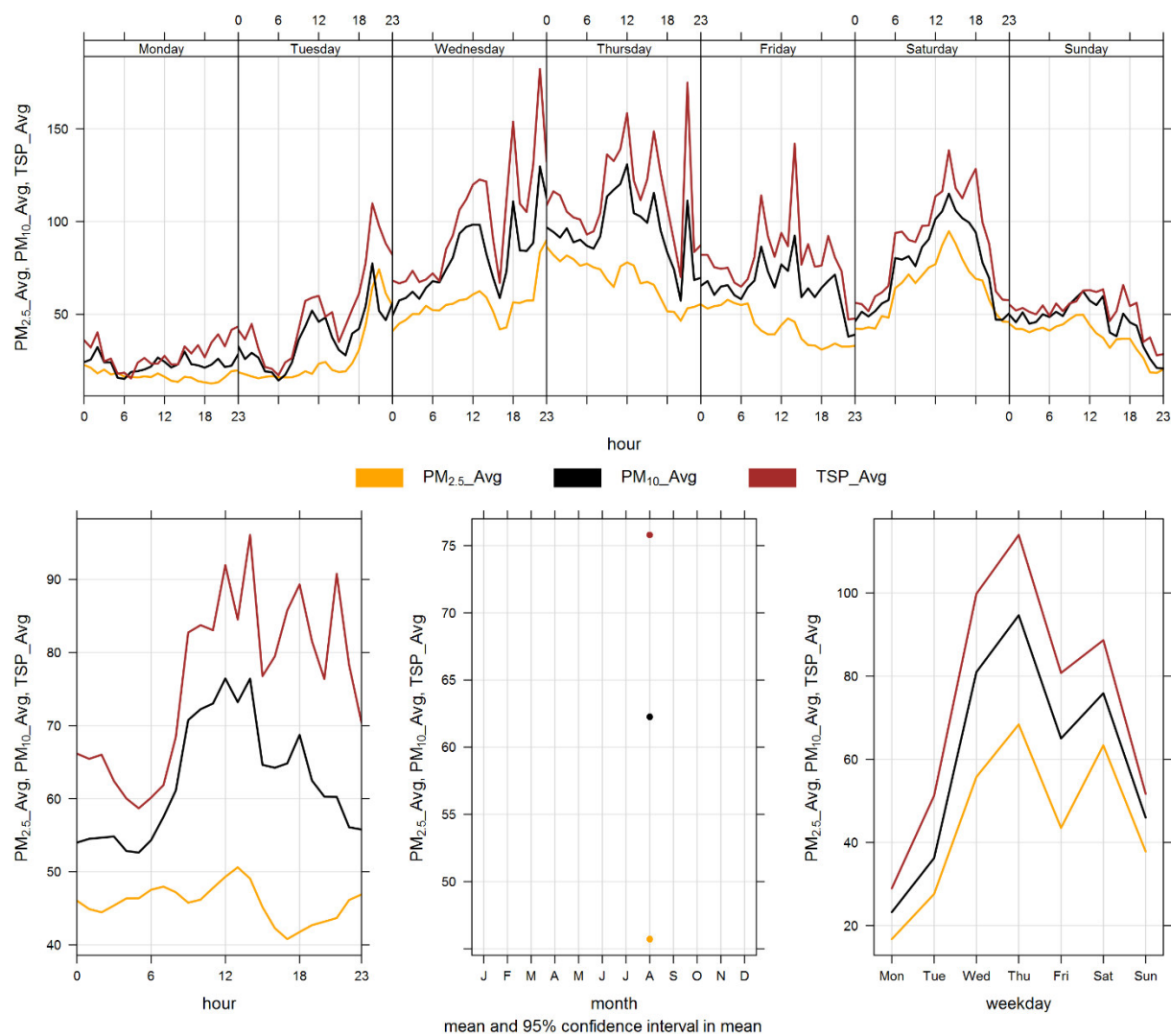


Figure 3-5 Lagoon monitor particulate matter time variation

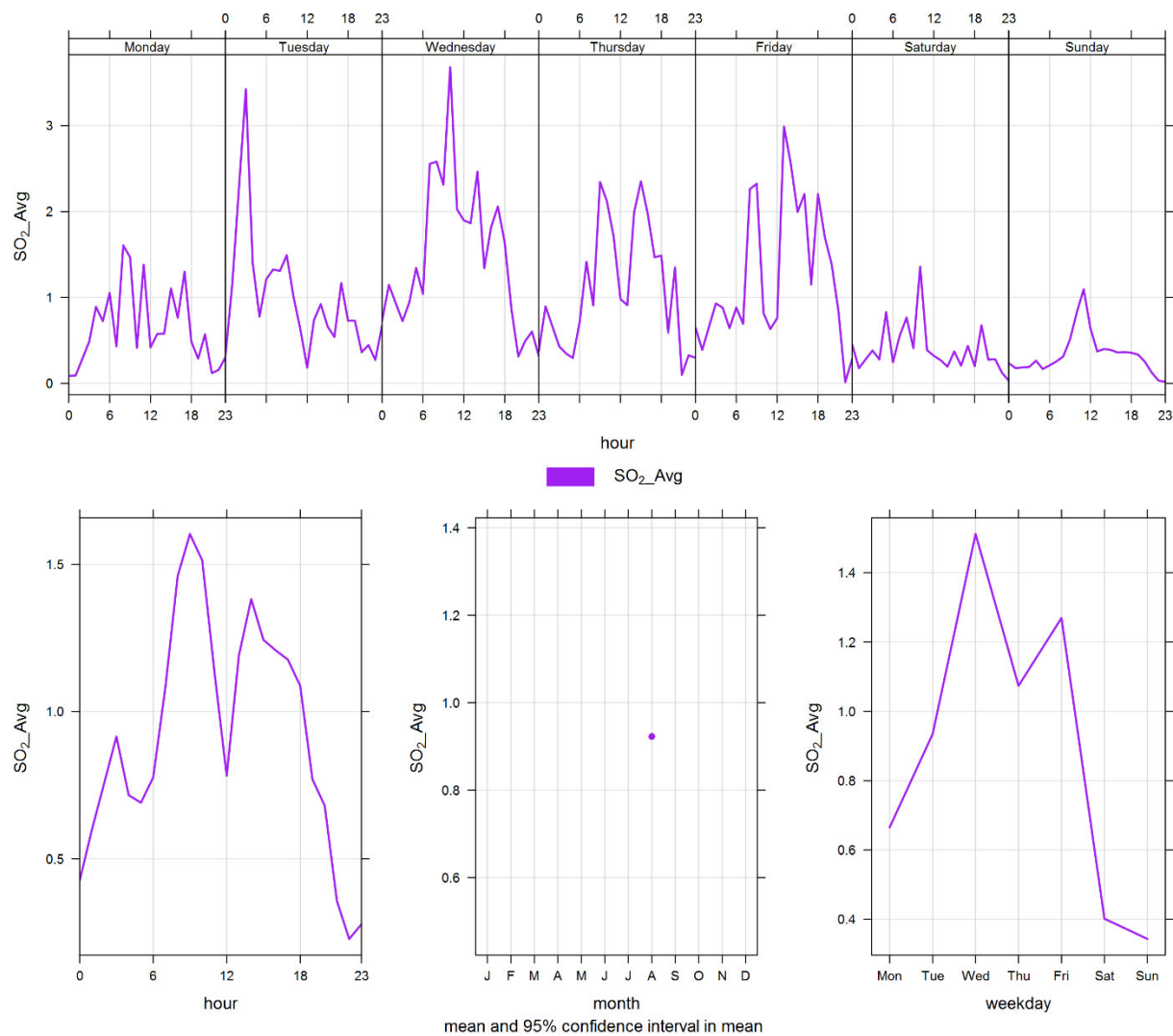


Figure 3-6 Lagoon monitor SO₂ time variation

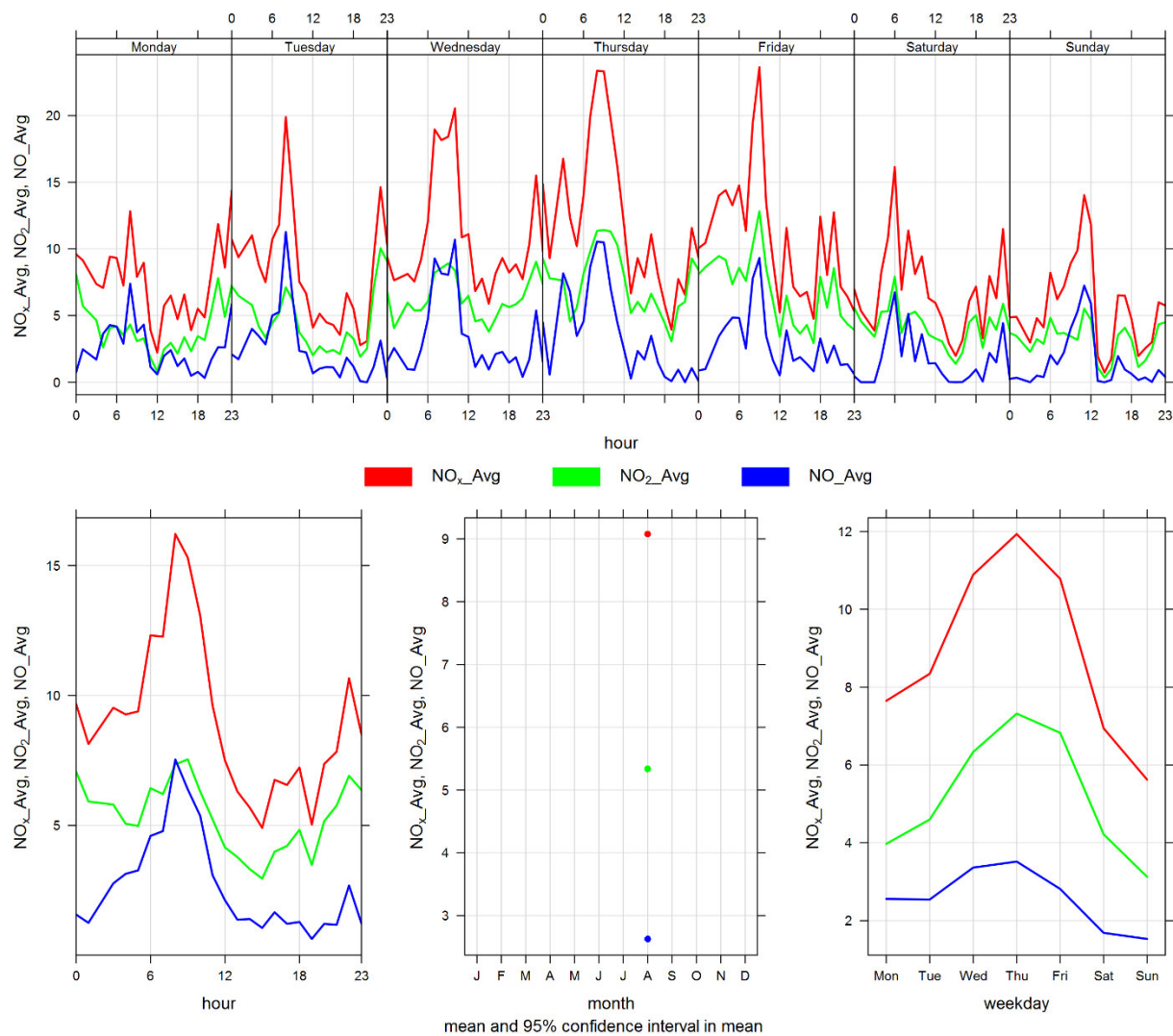


Figure 3-7 Lagoon monitor NO_x time variation

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 August 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 August 1st. The operation time for the PM_{2.5} and PM₁₀ analyzers was 100%. The operation time for the TSP analyzer was 99.9% due to one-hour downtime on August 9th.

4.2 MONITORING RESULTS AND TRENDS

Table 4-2 summarizes the hourly and daily concentrations recorded in August 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 were 17 exceedances of the 24-hour PM_{2.5} AAAQO, 119 exceedances of the 1-hour PM_{2.5} AAAQG, and 10 exceedances of the 24-hour TSP AAAQO. All exceedances were heavily influenced by the smoke from wildfires.

Table 4-2 Summary of August 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	119	17	45.5	239.1	15	23	11.3	75	141.4	16	100
PM₁₀ (µg/m ³)	-	-	Windridge	-	-	72.2	390.4	31	19	28.4	255.9	182.3	16	100
TSP (µg/m ³)	-	100	Windridge	-	10	87.7	503.4	9	16	18.5	275.5	207.2	16	100

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						
07/08/2018	-	35.79	264.79	15.24	35.30	Wildfire smoke
08/08/2018	149.96	59.66	251.34	11.99	39.02	Wildfire smoke
09/08/2018	183.46	68.11	257.53	11.89	35.32	Wildfire smoke
10/08/2018	114.06	55.90	234.76	10.62	33.51	Wildfire smoke
11/08/2018	101.70	73.91	76.26	15.01	48.76	Wildfire smoke
14/08/2018	-	38.35	270.02	16.27	40.45	Wildfire smoke
15/08/2018	185.28	116.38	278.39	14.44	40.89	Wildfire smoke
16/08/2018	207.17	141.41	254.40	9.35	53.42	Wildfire smoke
17/08/2018	137.88	62.47	246.99	10.86	37.45	Wildfire smoke
18/08/2018	144.41	110.59	63.91	11.55	53.62	Wildfire smoke
19/08/2018	-	67.01	62.64	10.61	60.80	Wildfire smoke
20/08/2018	-	39.87	72.94	8.31	65.41	Wildfire smoke
22/08/2018	-	65.29	271.51	13.41	37.95	Wildfire smoke
23/08/2018	127.55	87.80	252.39	11.96	36.98	Wildfire smoke
24/08/2018	-	76.29	62.26	11.21	78.91	Wildfire smoke

25/08/2018	-	55.66	263.84	13.83	64.00	Wildfire smoke
26/08/2018	-	50.65	262.79	13.90	59.86	Wildfire smoke
31/08/2018	139.76	-	257.84	20.75	49.95	Wildfire smoke; high wind event
Total # of Exceedances	10	17				

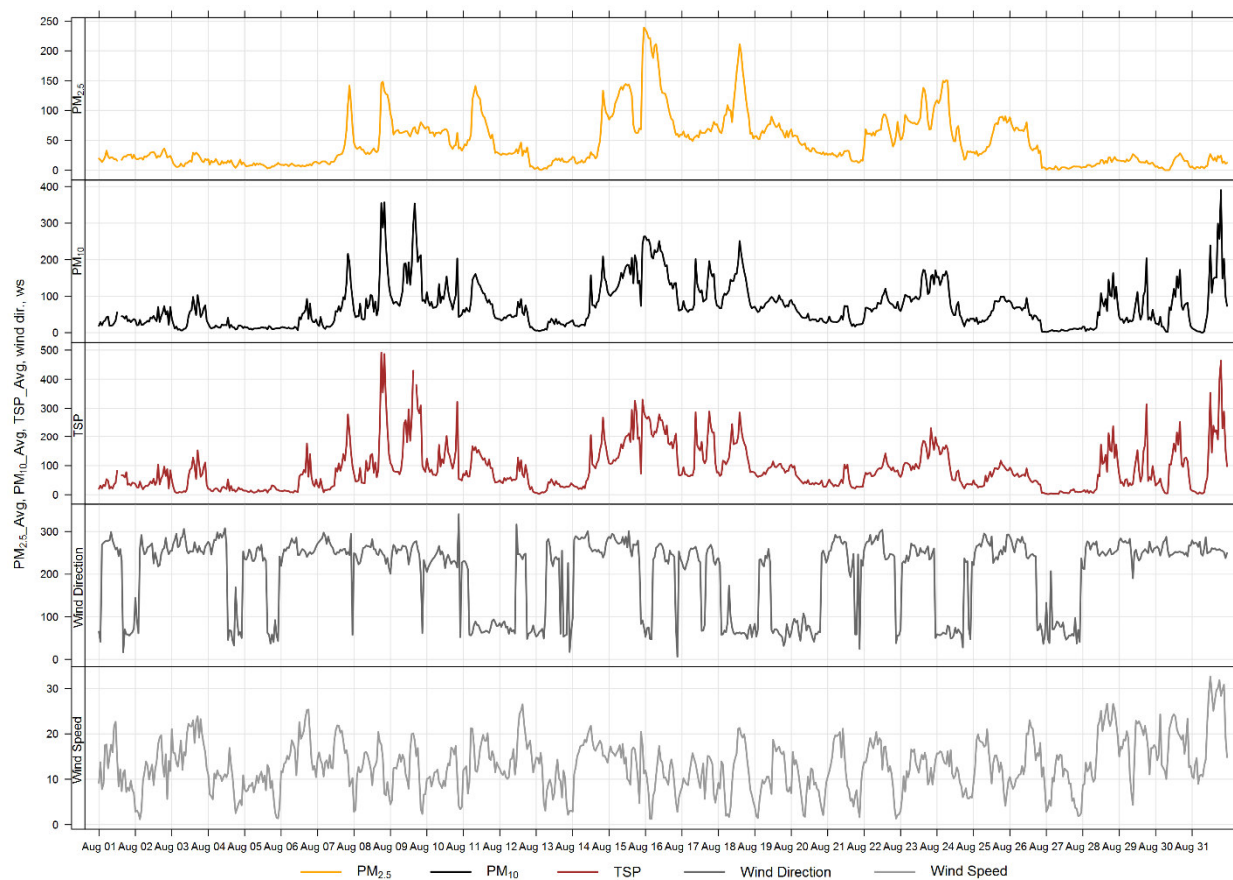


Figure 4-1 1-hour particulate matter concentrations recorded at the Windridge monitor

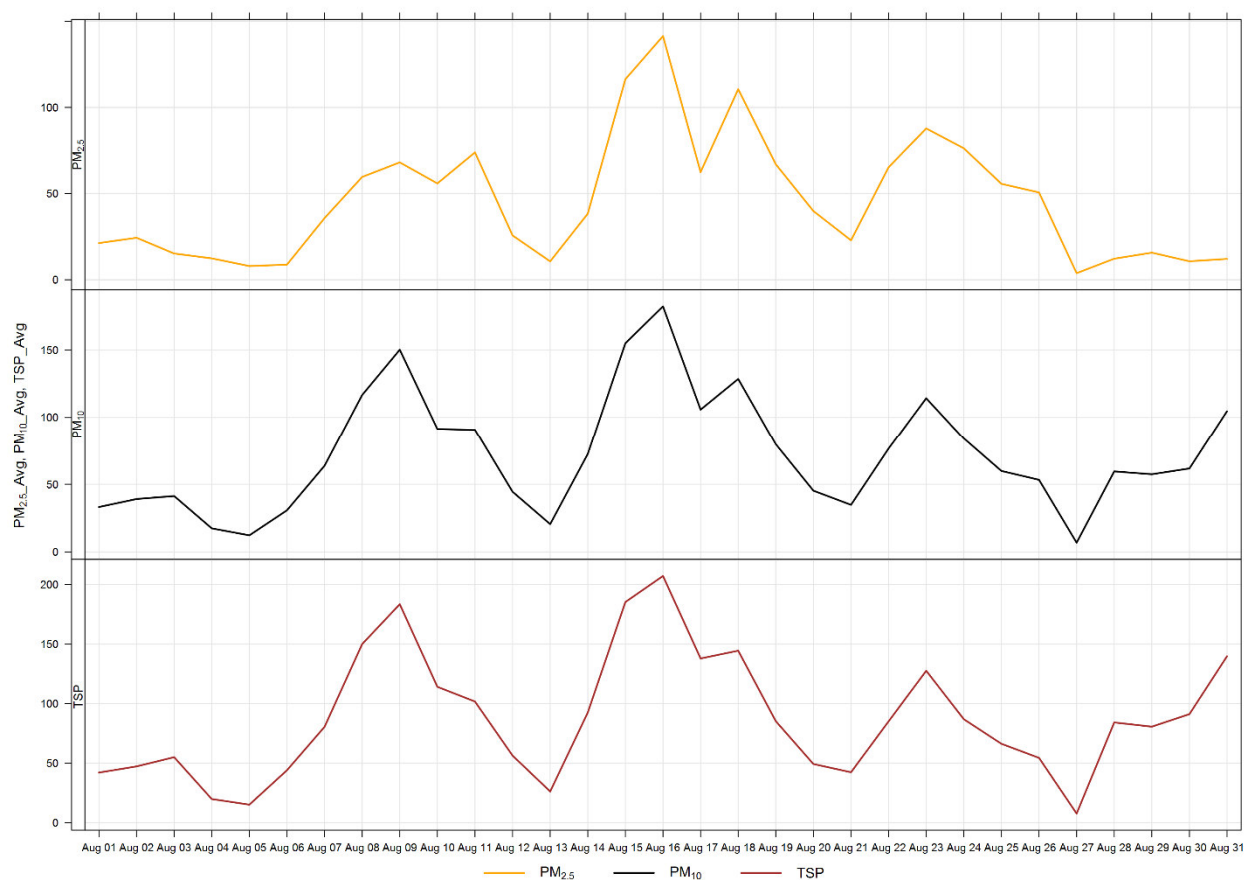


Figure 4-2 24-hour particulate matter concentrations at the Windridge monitor

Figure 4-3 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 4-3 is based on data collected during August 2018 and indicates a diurnal pattern that is similar to the Lagoon station. August 2018 patterns were heavily influenced by smoke from wildfires.

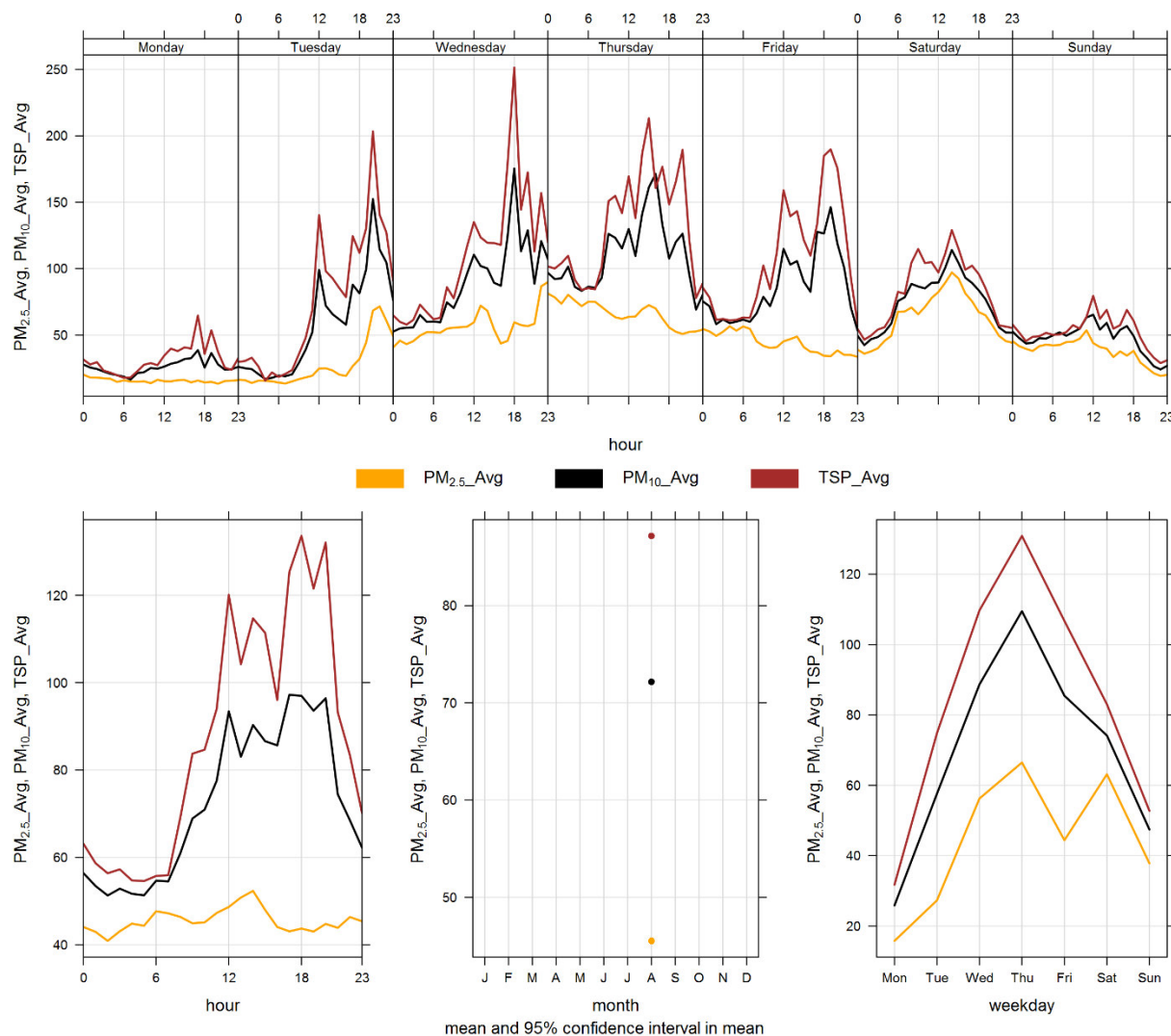


Figure 4-3 Windridge particulate matter time variation

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 August, the West GRIMM had 43.5% uptime due to an extended period of pump failure (August 1st) and a laser error that resulted in removal of the equipment for the period from August 7th – 24th in order to facilitate the factory repair of the monitor.

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 August. 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 (100 $\mu\text{g}/\text{m}^3$), but 3 exceedances of the PM_{2.5} (30 $\mu\text{g}/\text{m}^3$) guidelines. It should be noted, however, that the WEST GRIMM was only operational for 43.5% of the month. Historically in August, the average number of 24-hour TSP AAQO exceedances and 24-hour PM_{2.5} AAAQO exceedances are 0 and 1, respectively. The maximum number of 24-hour TSP AAQO exceedances was 2 in 2015, while the maximum number of 24-hour PM_{2.5} AAQO exceedances was 6 in 2015.

Table 5-2 Summary of August 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	11	3	22.4	91.4	25	18	13.7	256.7	63.8	25	43.5
PM₁₀ (µg/m ³)	-	-	West	-	-	26.5	95.7	25	18	13.7	256.7	67.6	25	43.5
TSP (µg/m³)	-	100	West	-	0	24.1	93.7	4	14	16.9	68.9	46.8	25	43.5

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						
02/08/2018	-	30.40	250.5	10.76	61.36	Wildfire smoke
25/08/2018	-	63.82	263.8	13.83	64.00	Wildfire smoke
26/08/2018	-	49.71	262.8	13.90	59.86	Wildfire smoke
Total # of Exceedances	0	3				

Maximum # of Exceedances (August)	2 (2015)	6 (2015)				
Average # of Exceedances (August)	0	1				
Minimum # of Exceedances (August)	0 (2011, 2012, 2013, 2014, 2016, 2017)	0 (2011, 2012, 2013, 2016)				

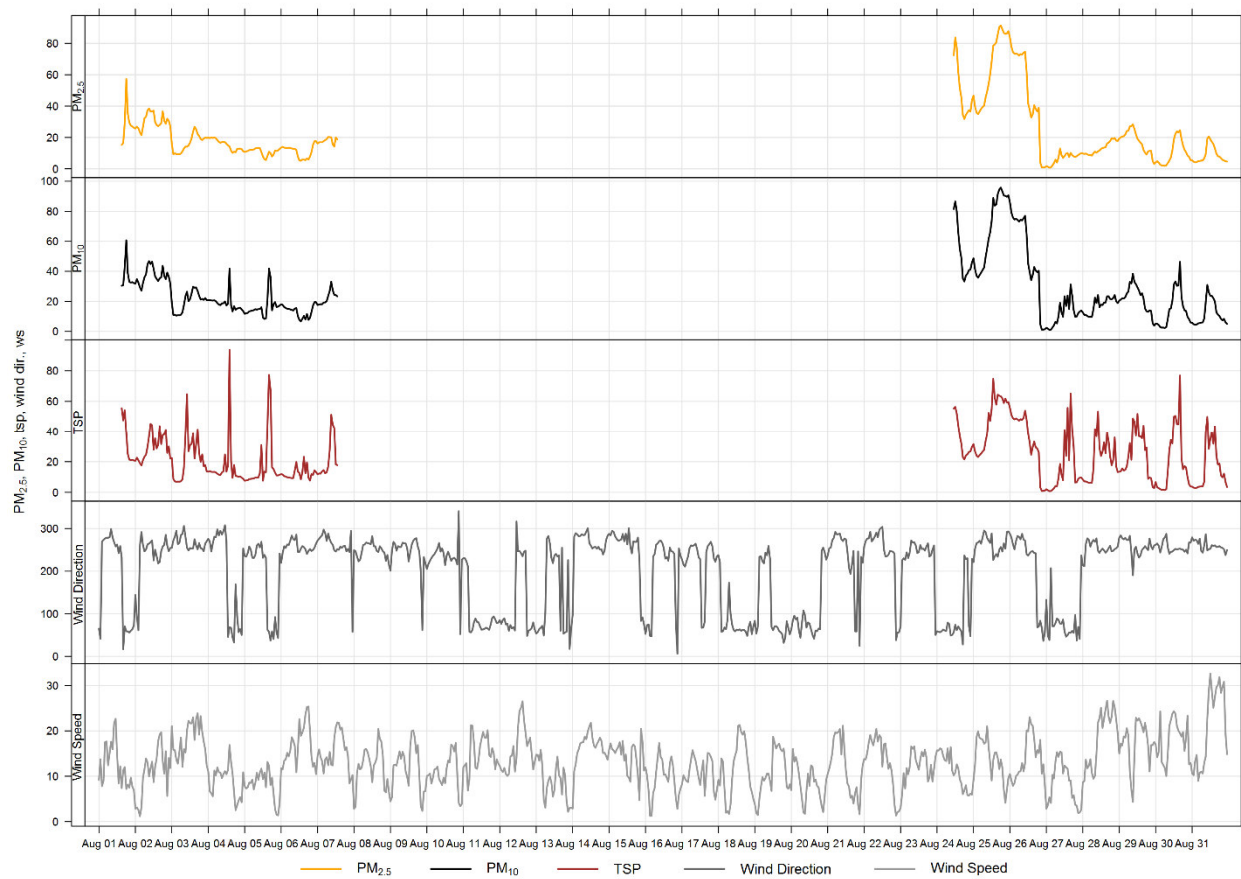


Figure 5-1 1-hour particulate matter concentrations at the West monitor



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

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 August 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.

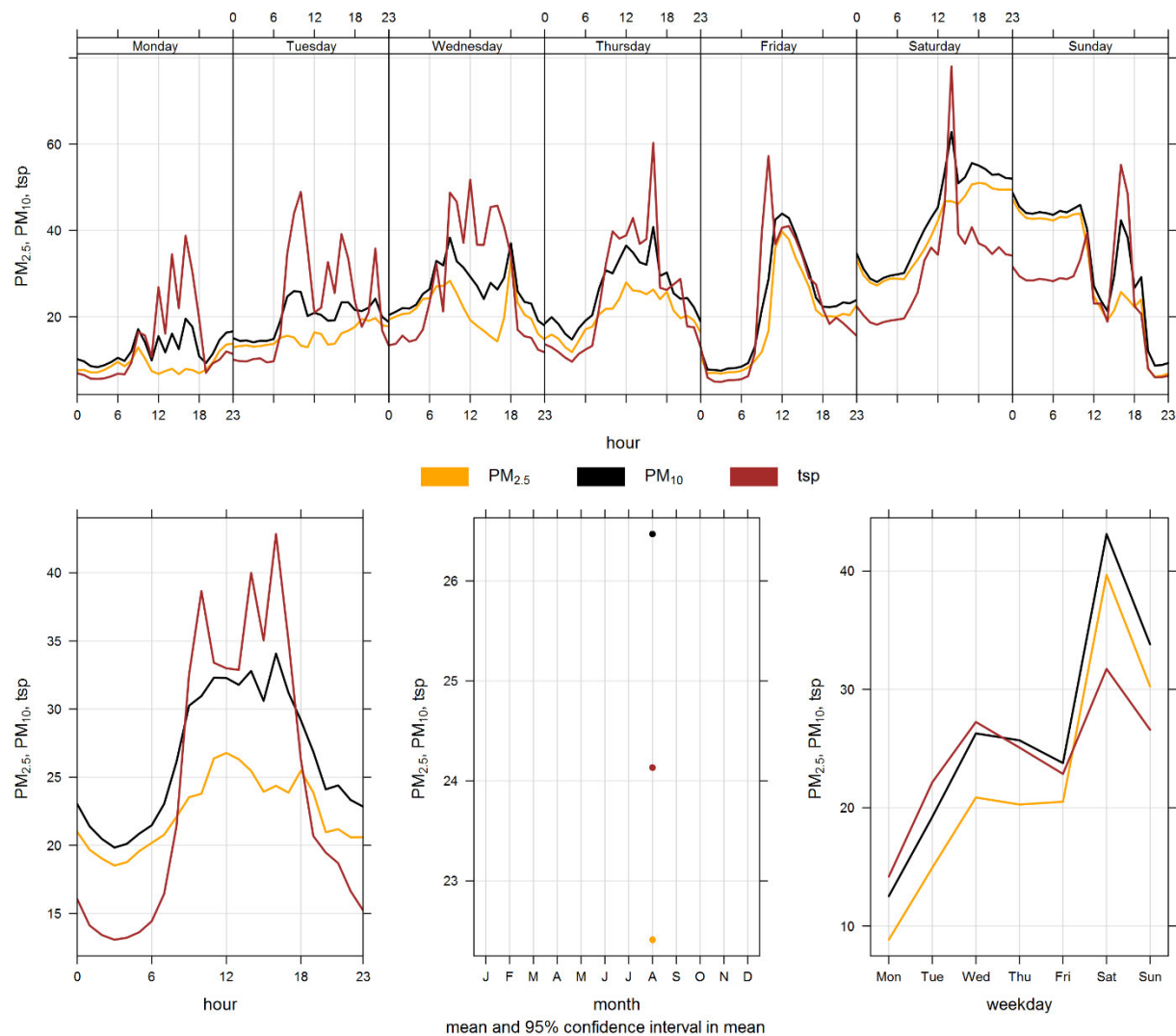


Figure 5-3 West particulate matter time variation

6 BERM INDUSTRIAL GRIMM

6.1 SITE VISIT NOTES

During the month of August, the Berm GRIMM had 69.9% uptime due to extended period of pump failure (August 1st – 8th, 21st – 22nd).

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 August, there were 14 and 16 exceedances of the 24-hour TSP (30 µg/m³) and PM_{2.5} (100 µg/m³) guidelines, respectively, all of which were influenced heavily by the wildfire smoke in the area. It should be noted, however, that the BERM GRIMM was only operational for 69.9% of the month. Historically during the month of August, the Berm monitor records an average of 11 and 1 exceedances of the 24-hour TSP and PM_{2.5} guidelines respectively. The maximum number of TSP exceedances recorded during August occurred in 2017 where there were 18 days that exceeded the guideline. The minimum number of TSP exceedances was recorded during August 2016, which had 6 days that exceeded the guideline. The maximum number of PM_{2.5} exceedances occurred in August 2017 where 8 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 August 2018 data at the Berm GRIMM

Parameter	Guideline		Station	Exceedances		Monthly Average	Maximum 1-hour					Maximum 24-hour		Operational Time (Percent)
	1-hr	24-hr		1-hr	24-hr		Maximum Concentration	Day	Hour	Wind Speed (km/hr)	Wind Direction (degrees)	Maximum Concentration	Day	
PM _{2.5} (µg/m ³)	80	30	Berm	133	16	59.9	217.4	15	23	11.3	75	124.6	16	69.9
PM ₁₀ (µg/m ³)	-	-	Berm	-	-	115.0	652.6	9	15	20.1	271.4	222.3	9	69.9
TSP (µg/m ³)	-	100	Berm	-	14	217.3	2203.3	31	17	30.1	257.2	739.7	31	69.9

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						
09/08/2018	450.7	75.9	257.5	11.9	35.3	Wildfire smoke
10/08/2018	264.4	62.5	234.8	10.6	33.5	Wildfire smoke
11/08/2018	101.3	77.2	76.3	15.0	48.8	Wildfire smoke
12/08/2018	112.1	35.2	69.4	15.8	68.5	Wildfire smoke
14/08/2018	221.9	47.6	270.0	16.3	40.4	Wildfire smoke
15/08/2018	278.7	118.4	278.4	14.4	40.9	Wildfire smoke
16/08/2018	260.3	124.6	254.4	9.4	53.4	Wildfire smoke
17/08/2018	227.2	66.8	247.0	10.9	37.5	Wildfire smoke
18/08/2018	142.9	109.8	63.9	11.6	53.6	Wildfire smoke
19/08/2018	-	77.7	62.6	10.6	60.8	Wildfire smoke
20/08/2018	-	45.2	72.9	8.3	65.4	Wildfire smoke
23/08/2018	141.7	85.4	252.4	12.0	37.0	Wildfire smoke
24/08/2018	-	79.1	62.3	11.2	78.9	Wildfire smoke
25/08/2018	-	65.1	263.8	13.8	64.0	Wildfire smoke
26/08/2018	-	53.3	262.8	13.9	59.9	Wildfire smoke

28/08/2018	391.3	-	252.9	18.3	53.3	Wildfire smoke
29/08/2018	337.9	-	259.1	17.2	48.5	Wildfire smoke
30/08/2018	410.9	-	253.7	17.9	47.4	Wildfire smoke
31/08/2018	739.7	30.4	257.8	20.7	50.0	Wildfire smoke; high wind event
Total # of Exceedances	14	16				
Maximum # of Exceedances (August)	18 (2017)	8 (2017)				
Average # of Exceedances (August)	11	1				
Minimum # of Exceedances (August)	6 (2016)	0 (2011, 2013, 2016)				

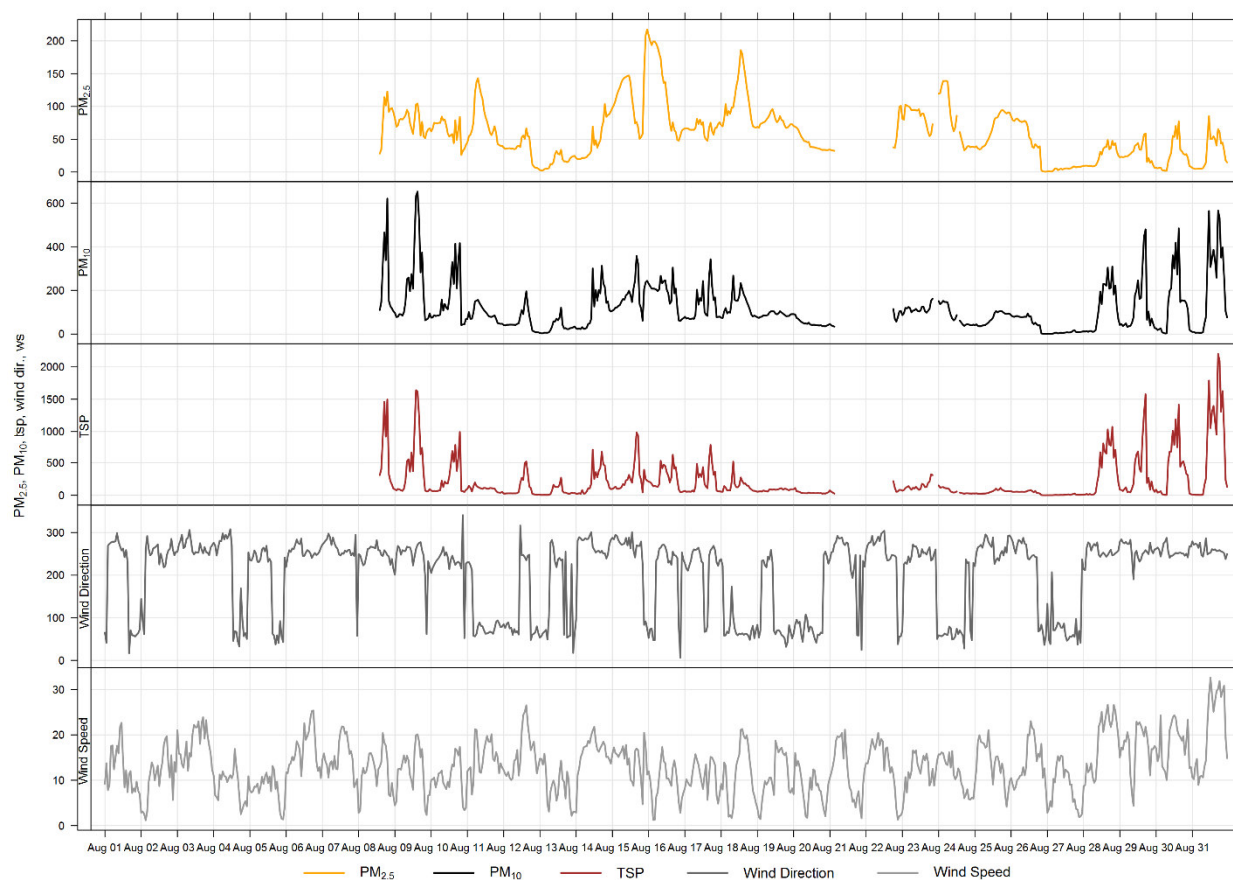


Figure 6-1 1-hour particulate matter concentrations recorded at the Berm monitor

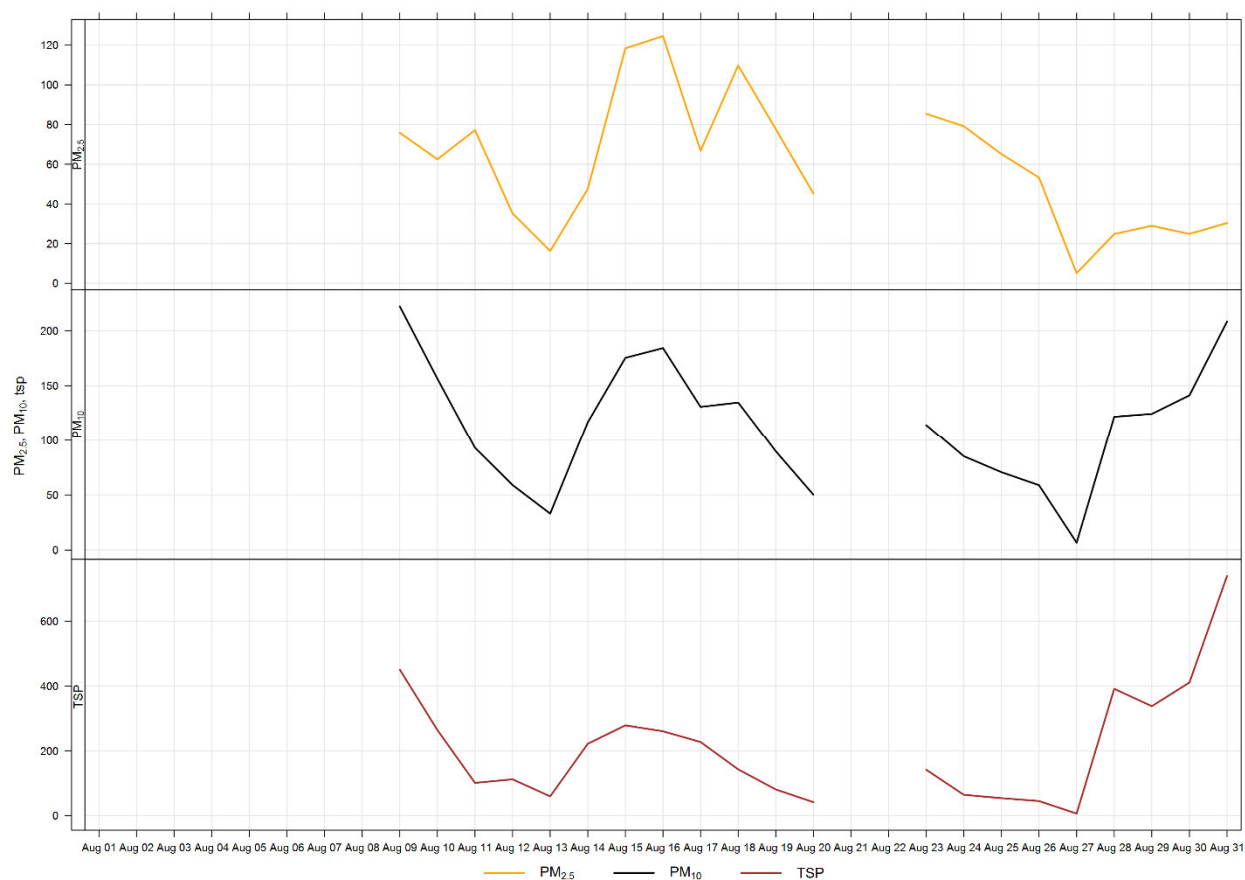


Figure 6-2 24-hour particulate matter concentrations recorded at the Berm monitor

Figure 6-3 shows the wind roses for the 14 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 August 2018, signalling the buildup of particulate over the day due to wildfire activity.

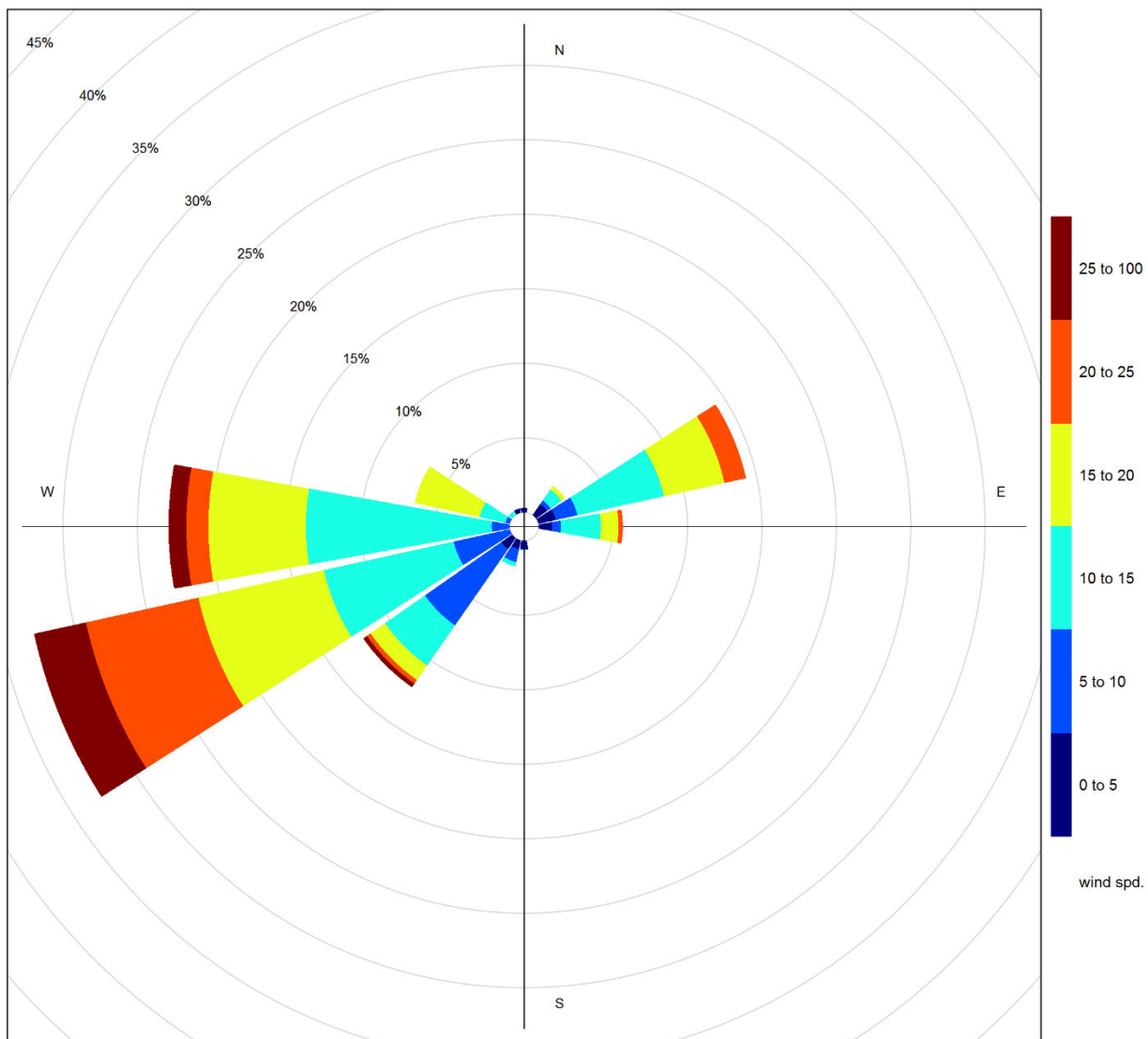


Figure 6-3 Wind rose for TSP exceedance days recorded at the Berm GRIMM

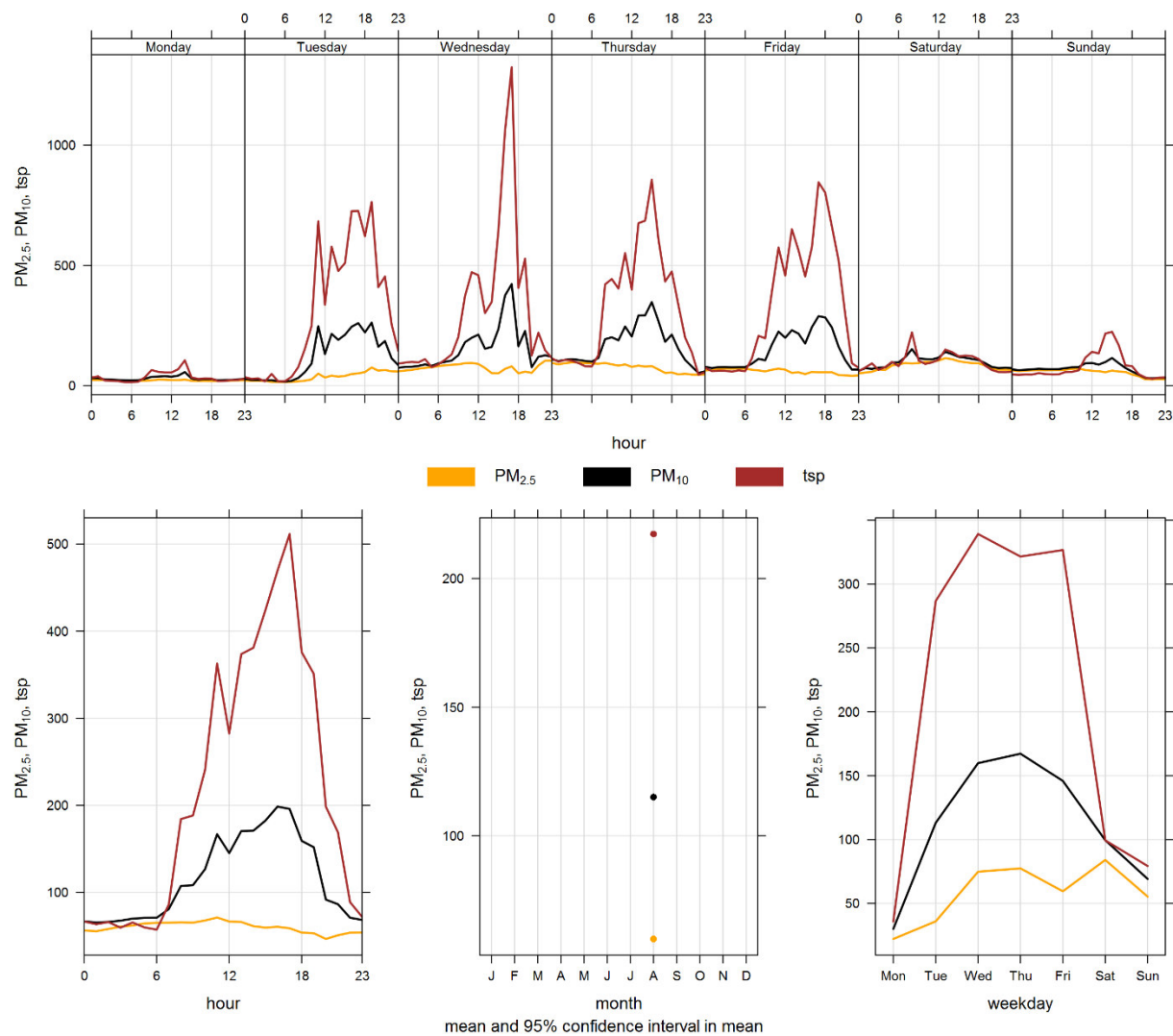


Figure 6-4 Berm particulate matter time variation

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 August, 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 August, there were 22 and 21 exceedances of the 24-hour TSP (100 µg/m³) and PM_{2.5} (30 µg/m³) guidelines, respectively, all of which were influenced heavily by the wildfire smoke in the area. Historically, the Entrance monitor records an average of 15 and 3 exceedances of the 24-hour TSP and PM_{2.5} guidelines respectively, during the month of August. The maximum number of TSP exceedances recorded during August occurred in 2013, which had 23 days that exceeded the guideline. The minimum number of TSP exceedances recorded during August occurred in 2016, which had 7 days that exceeded the guideline. On the other hand, the maximum number of PM_{2.5} exceedances recorded during the month of August was 8 days of exceedance in 2014 and 2017. The fewest number of PM_{2.5} exceedances for August was 0 days of exceedances occurring in 2011 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.

Figure 7-3 shows the wind roses for the 22 days that exceeded the TSP Guideline at the Entrance GRIMM. High wind speeds were not a primary factor in TSP exceedances in August 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 August 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	186	21	54.5	219.7	15	23	11.3	75	129.0	16	100
PM ₁₀ (µg/m ³)	-	-	Entrance	-	-	102.3	435.6	15	11	14.8	287.9	239.4	15	100
TSP (µg/m ³)	-	100	Entrance	-	22	155.9	953.0	15	11	14.8	287.9	422.5	15	100

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						
01/08/2018	131.82	33.62	294.15	12.21	61.31	Wildfire smoke
02/08/2018	-	37.31	250.46	10.76	61.36	Wildfire smoke
03/08/2018	139.59	-	264.32	18.23	50.12	Wildfire smoke
06/08/2018	165.56	-	255.96	16.71	45.32	Wildfire smoke
07/08/2018	184.66	40.70	264.79	15.24	35.30	Wildfire smoke
08/08/2018	230.29	67.40	251.34	11.99	39.02	Wildfire smoke
09/08/2018	234.84	73.93	257.53	11.89	35.32	Wildfire smoke
10/08/2018	235.33	60.40	234.76	10.62	33.51	Wildfire smoke
11/08/2018	158.13	83.04	76.26	15.01	48.76	Wildfire smoke
12/08/2018	-	35.17	69.44	15.79	68.48	Wildfire smoke
14/08/2018	256.78	47.43	270.02	16.27	40.45	Wildfire smoke
15/08/2018	422.46	125.33	278.39	14.44	40.89	Wildfire smoke
16/08/2018	176.51	128.98	254.40	9.35	53.42	Wildfire smoke
17/08/2018	196.31	68.83	246.99	10.86	37.45	Wildfire smoke
18/08/2018	176.67	116.17	63.91	11.55	53.62	Wildfire smoke

19/08/2018	109.52	83.60	62.64	10.61	60.80	Wildfire smoke
20/08/2018	102.60	52.89	72.94	8.31	65.41	Wildfire smoke
21/08/2018	235.87	35.12	267.72	11.80	47.48	Wildfire smoke
22/08/2018	270.41	76.15	271.51	13.41	37.95	Wildfire smoke
23/08/2018	230.28	102.05	252.39	11.96	36.98	Wildfire smoke
24/08/2018	-	87.44	62.26	11.21	78.91	Wildfire smoke
25/08/2018	-	74.70	263.84	13.83	64.00	Wildfire smoke
26/08/2018	100.32	67.68	262.79	13.90	59.86	Wildfire smoke
28/08/2018	161.83	-	252.94	18.35	53.28	Wildfire smoke
29/08/2018	143.53	-	259.07	17.25	48.55	Wildfire smoke
31/08/2018	162.90	-	257.84	20.75	49.95	Wildfire smoke; high wind event
Total # of Exceedances	22	21				
Maximum # of Exceedances (August)	23 (2013)	8 (2014, 2017)				
Average # of Exceedances (August)	15	3				
Minimum # of Exceedances (August)	7 (2016)	0 (2011, 2016)				

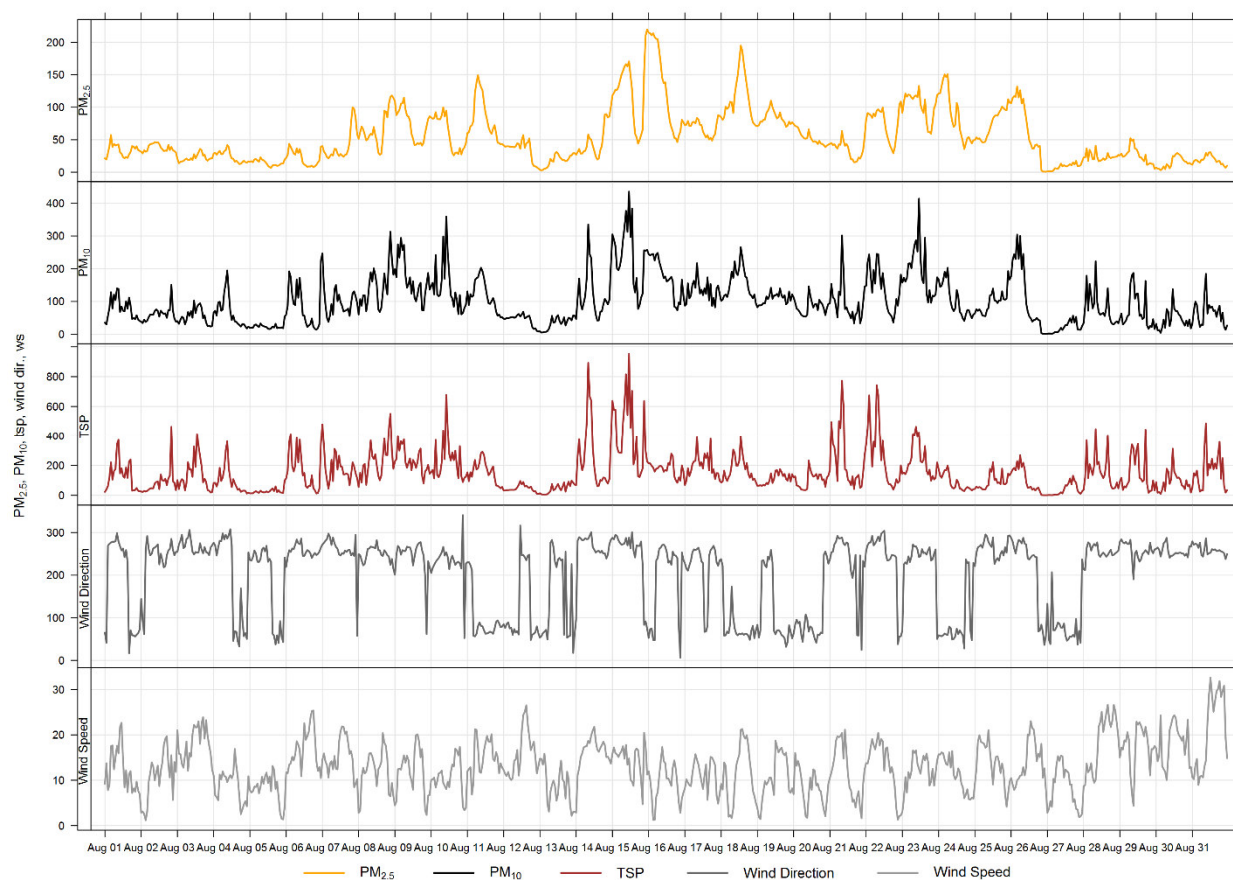


Figure 7-1 1-hour particulate matter concentrations recorded at the Entrance monitor

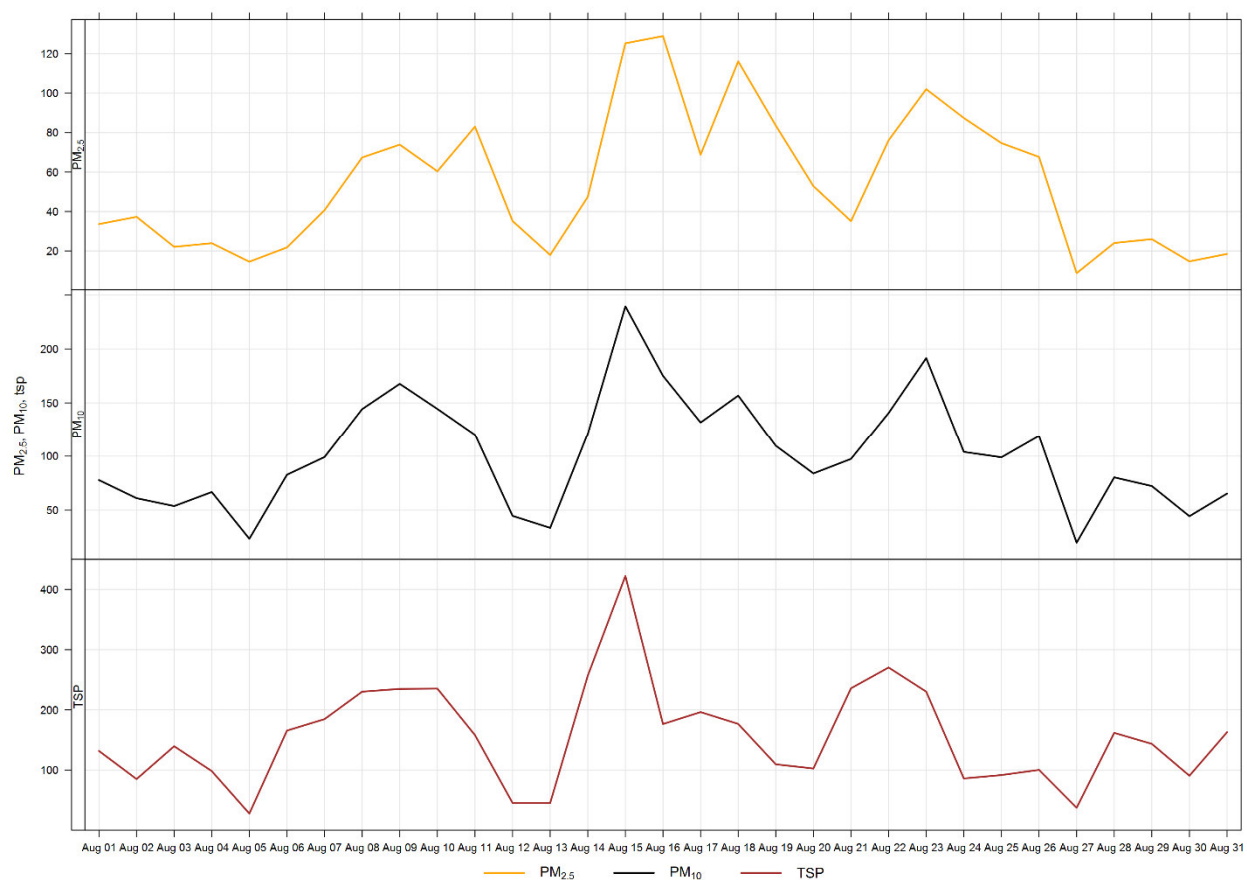


Figure 7-2 24-hour particulate matter concentrations at the Entrance monitor

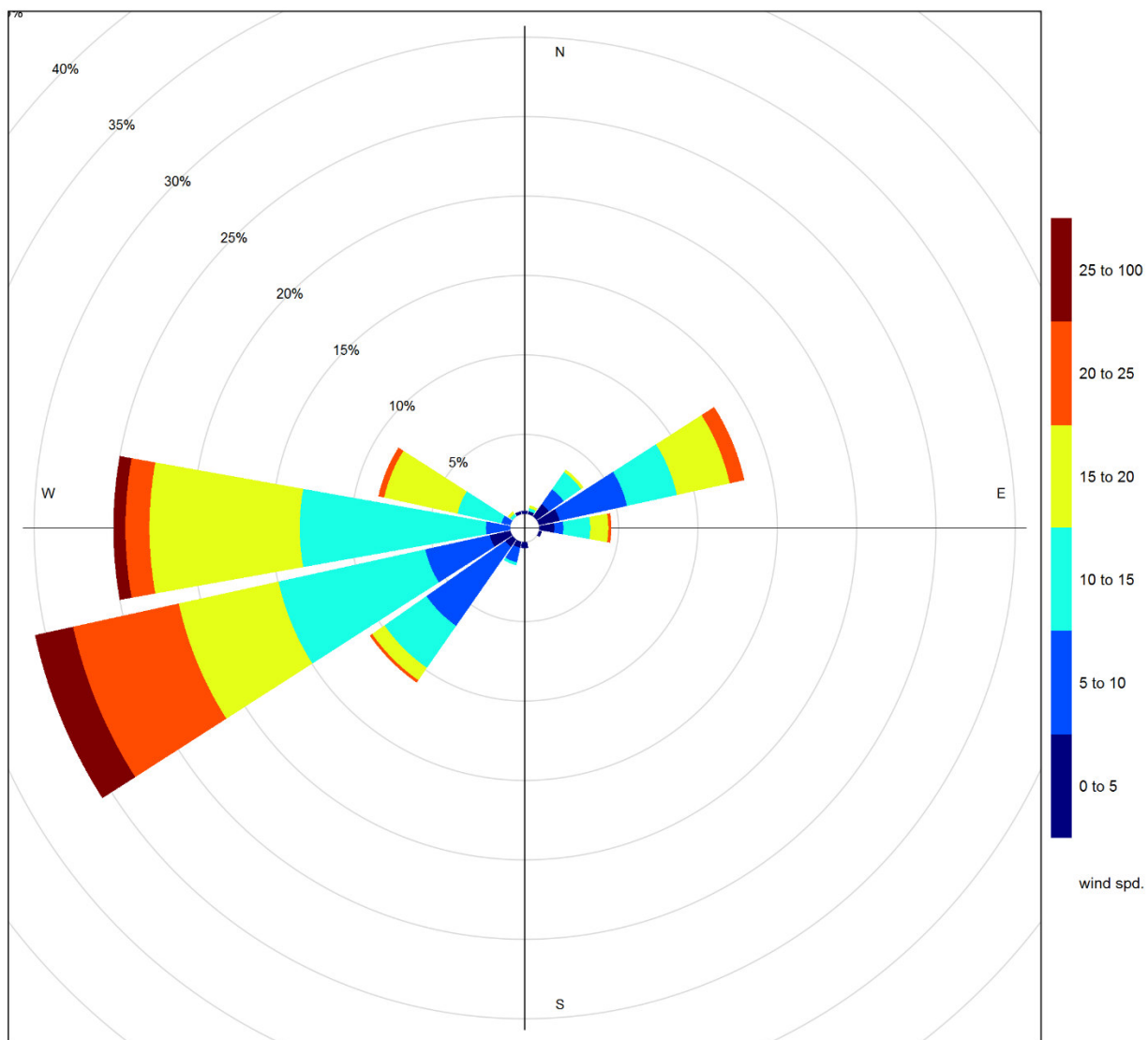


Figure 7-3 Wind rose for TSP exceedance days recorded at the Entrance GRIMM

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 August 2018 and is influenced by smoke from wildfires in the area.

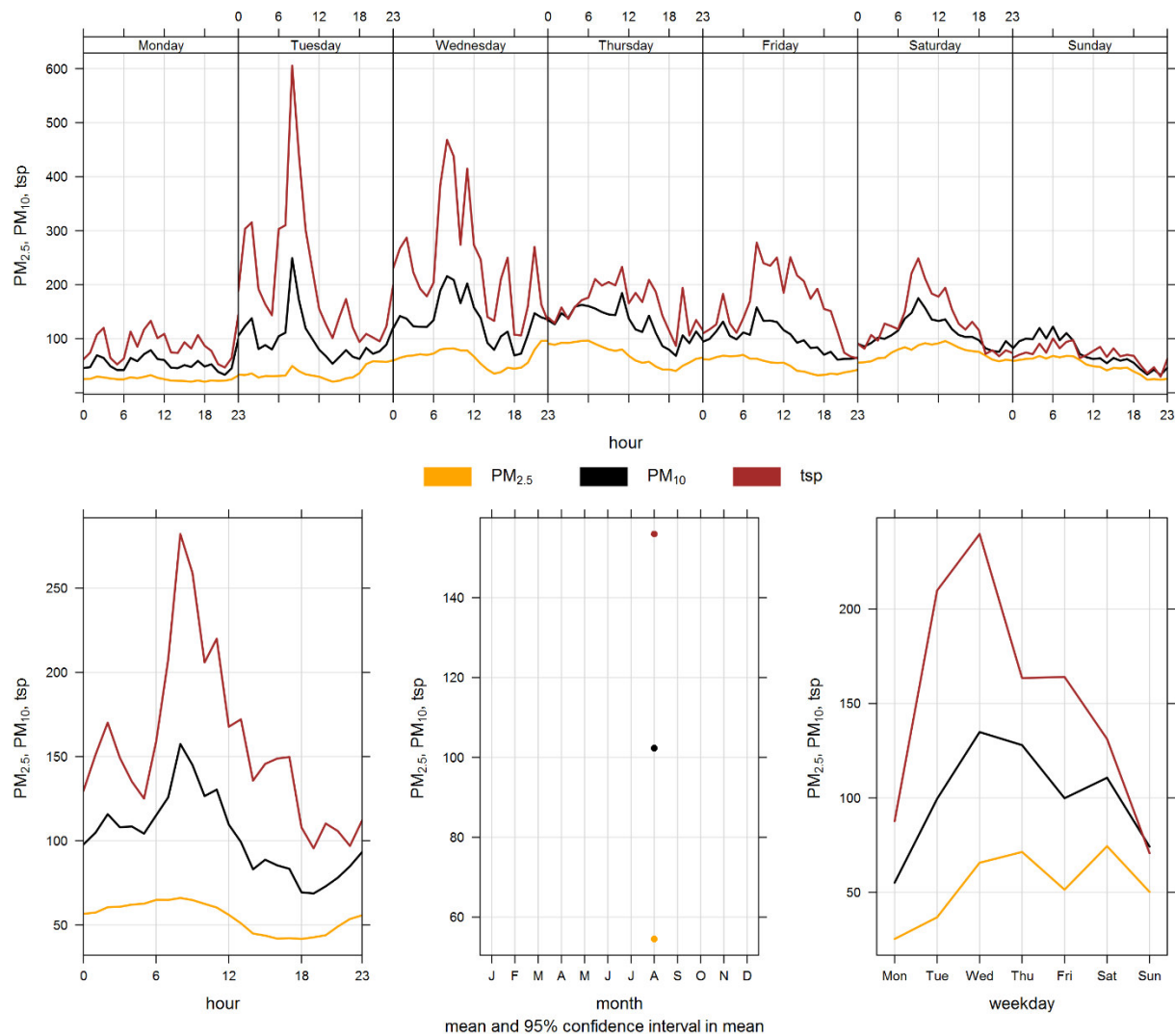


Figure 7-4 Entrance particulate matter time variation

BIBLIOGRAPHY

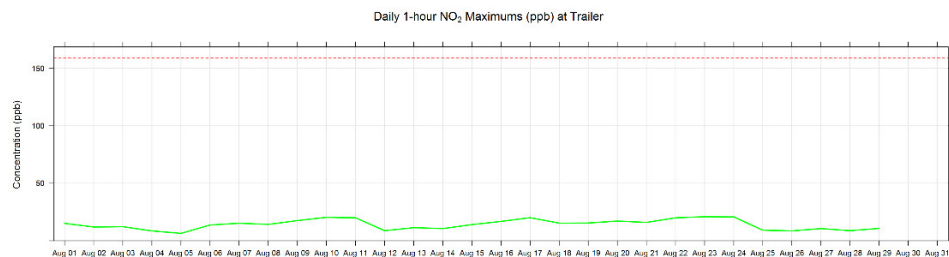
- Alberta Environment and Parks. (2016, June). Alberta Ambient Air Quality Objectives and Guidelines Summary. Alberta, Canada.
- Alberta Environment and Parks. (2016, April). Air Monitoring Directive. Alberta, Canada.
- Carslaw, D.C. and K. Ropkins, (2012). Openair — an R package for air quality data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

APPENDIX

A DATA & CALIBRATION REPORTS

Lagoon NO₂ (ppb) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	15.1	2.8	S	5.9	5.2	3.1	3.2	4.4	4.1	7.6	11.0	4.6	8.0	7.8	8.6	8.0	4.6	2.5	2.2	11.6	4.4	7.6	7.9	3.1	15.1	6.2
2	5.3	2.0	S	4.0	2.1	7.5	9.3	10.7	9.0	8.8	11.9	9.3	4.4	4.4	1.5	0.0	0.0	0.4	4.7	4.6	5.9	4.0	9.0	3.2	11.9	5.3
3	5.4	0.8	S	10.2	9.5	9.8	4.3	8.7	3.6	9.2	4.3	2.3	3.2	2.9	3.7	4.4	3.7	0.7	12.2	0.0	4.8	2.2	3.1	4.2	12.2	4.9
4	5.9	4.2	S	2.4	5.2	2.7	1.4	3.0	4.2	3.2	4.6	2.0	1.4	1.5	0.2	0.0	0.4	0.4	2.0	5.7	8.5	5.5	5.1	1.7	8.5	3.1
5	1.6	2.3	S	2.2	1.4	2.5	0.7	2.3	2.9	3.7	6.4	5.4	0.0	0.0	0.0	1.6	5.0	2.1	1.6	0.0	4.0	5.8	4.3	5.4	6.4	2.7
6	5.6	6.9	S	7.3	7.0	6.8	6.3	4.1	5.2	2.4	2.5	1.0	0.0	3.0	2.8	3.9	1.7	0.0	0.2	3.5	4.4	13.6	5.3	8.1	13.6	4.4
7	5.8	7.0	S	15.2	5.0	5.9	6.1	5.9	12.5	12.4	6.9	5.2	1.5	2.4	4.6	4.0	3.4	6.0	6.5	2.5	4.7	8.2	11.6	12.0	15.2	6.8
8	4.7	3.7	S	12.6	10.2	7.8	10.8	11.6	14.2	11.2	8.9	12.3	6.6	5.2	7.1	4.8	3.6	9.9	7.6	3.2	12.9	9.1	5.8	7.4	14.2	8.3
9	13.4	13.6	S	10.4	6.1	3.8	7.5	10.2	13.2	15.0	17.5	13.6	8.6	4.1	13.2	17.1	13.3	15.0	7.3	3.3	10.2	13.4	7.2	6.5	17.5	10.6
10	8.7	8.8	S	6.8	6.2	5.6	12.1	12.4	17.0	20.4	15.9	13.1	6.0	4.7	5.3	1.2	0.3	0.1	0.5	0.2	1.9	11.0	7.0	5.1	20.4	7.4
11	6.4	7.8	S	4.0	11.5	11.3	20.0	2.3	0.9	1.9	0.8	1.8	5.5	4.5	1.9	0.8	3.7	7.4	3.6	0.4	0.1	0.1	0.3	0.3	20.0	4.2
12	0.8	3.8	S	1.0	3.6	0.7	8.7	1.5	3.5	3.2	2.4	4.5	3.2	2.1	0.0	0.0	0.5	2.2	1.2	1.1	1.0	0.2	0.0	0.2	8.7	2.0
13	3.6	4.2	S	0.6	0.9	8.0	5.9	5.8	8.5	5.9	2.4	5.6	2.3	3.6	0.0	0.6	5.4	2.1	2.8	2.6	4.5	9.0	7.4	11.4	11.4	4.5
14	9.9	10.6	S	2.9	3.9	2.1	3.8	4.6	5.1	3.7	3.6	4.8	2.5	2.4	3.1	5.7	4.5	5.0	3.0	4.1	3.3	4.3	10.5	7.7	10.6	4.8
15	6.6	7.2	S	4.9	5.0	7.2	8.8	11.6	11.2	9.4	13.3	8.5	14.0	6.4	6.4	4.0	10.6	13.5	12.7	9.2	4.5	5.1	4.5	5.4	14.0	8.3
16	8.2	6.9	S	16.8	11.2	9.4	9.8	15.9	16.0	16.0	10.6	10.7	12.3	5.5	4.2	3.8	9.0	5.4	3.7	3.6	3.3	6.4	12.2	8.6	16.8	9.1
17	8.1	7.3	S	7.4	6.5	6.3	12.2	10.8	18.4	20.0	12.7	7.4	5.4	11.6	2.7	2.2	10.6	6.6	15.2	12.5	19.9	4.8	3.0	3.1	20.0	9.3
18	5.1	3.3	S	4.4	2.2	2.4	3.3	7.7	14.0	15.3	11.4	8.6	4.4	5.7	5.7	4.5	4.8	6.9	11.4	1.0	1.7	6.0	11.7	11.5	15.3	6.7
19	9.2	5.5	S	3.8	5.9	5.8	6.5	6.1	5.8	4.1	2.3	11.9	15.4	2.3	1.4	2.3	8.6	8.1	9.6	2.5	1.4	3.9	4.5	11.2	15.4	6.0
20	17.1	3.2	S	0.2	0.0	1.0	4.6	4.2	3.6	4.1	8.3	0.7	0.5	1.4	6.7	2.7	2.5	3.7	5.7	3.0	8.4	5.1	4.0	6.9	17.1	4.2
21	7.3	2.3	S	1.7	0.9	1.0	1.0	1.5	2.2	2.6	2.6	2.1	3.8	2.5	0.0	0.0	0.0	0.0	0.2	0.6	2.0	14.9	15.9	14.3	15.9	3.4
22	3.6	1.9	S	3.2	3.2	4.6	2.6	5.8	3.8	5.6	4.8	2.2	3.8	3.5	1.4	2.1	1.0	2.1	1.7	2.0	6.6	14.6	19.9	16.4	19.9	5.1
23	17.8	15.4	S	6.9	3.5	5.4	7.2	5.4	7.3	5.9	5.3	7.6	6.7	6.7	5.2	4.5	2.4	3.1	6.4	1.0	2.6	6.5	13.4	20.9	20.9	7.3
24	13.1	20.7	S	20.8	18.8	12.5	12.2	2.4	2.8	9.8	8.2	5.8	1.5	2.5	2.9	2.7	2.3	2.3	6.9	9.0	8.0	5.0	8.8	5.3	20.8	8.0
25	5.0	3.0	S	2.7	2.2	4.9	7.0	1.8	1.1	0.7	1.7	1.9	1.8	0.6	0.2	0.2	0.0	3.4	3.1	3.3	9.2	4.2	6.5	1.9	9.2	2.9
26	3.2	2.3	S	2.1	2.0	2.5	3.4	4.7	2.6	2.8	1.7	0.3	0.0	0.0	0.0	0.0	0.0	3.9	0.5	0.9	0.0	0.0	8.5	1.2	8.5	1.9
27	6.1	8.6	S	10.6	2.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	2.3	1.4	4.0	3.5	5.2	3.5	4.0	3.5	2.9	2.7	10.6	2.8
28	5.8	6.1	S	3.4	6.9	4.5	6.8	8.7	8.6	5.9	1.9	0.0	0.3	3.6	1.4	0.0	0.6	4.1	3.3	0.5	0.1	0.9	2.2	2.1	8.7	3.4
29	4.0	4.8	S	3.2	3.4	4.4	4.8	7.7	9.5	10.7	3.8	1.9	0.0	0.0	0.0	0.0	4.1	1.3	3.9	3.3	3.2	1.9	7.1	4.4	10.7	3.8
30	1.6	1.2	S	0.0	0.0	1.9	6.8	6.9	C	C	C	C	C	C	C	1.1	8.4	3.9	0.0	2.9	6.4	0.0	4.6	3.0	-	-
31	5.2	5.5	S	2.1	4.9	2.5	2.2	3.8	9.5	4.7	1.4	1.7	0.9	10.7	6.9	7.7	4.6	5.0	4.7	6.4	8.1	1.9	0.0	1.9	10.7	4.4
Hourly Max	17.8	20.7	-	20.8	18.8	12.5	20.0	15.9	18.4	20.4	17.5	13.6	15.4	11.6	13.2	17.1	13.3	15.0	15.2	12.5	19.9	14.9	19.9	20.9		
Hourly Average	7.1	5.9	-	5.8	5.1	5.0	6.4	6.2	7.3	7.5	6.3	5.2	4.2	3.8	3.3	2.9	4.0	4.2	4.8	3.5	5.2	5.8	6.9	6.4		

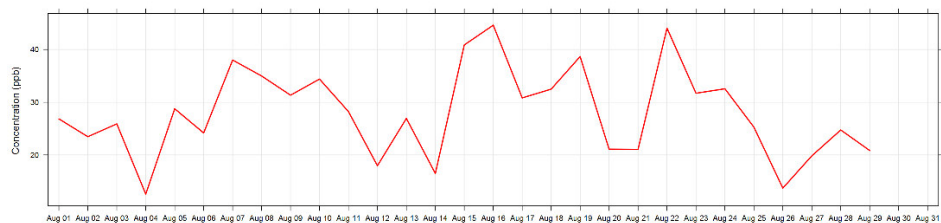


Number of 1HR Exceedances	0	Objective	159	PPB
Number of Non-Zero Readings	665			
Maximum 1-HR Average	20.9	PPB		
Maximum 24-HR Average	10.6	PPB		
IZS Calibration Time	31	HRS	Operational Time	744 HRS
Monthly Calibration Time	7	HRS	Operational Uptime	100.0 %
Standard Deviation	4.3		Monthly Average	5.3 PPB

Lagoon NOx (ppb) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	20.1	3.2	S	6.4	7.4	4.3	5.1	7.1	6.8	15.1	26.8	7.3	13.2	12.6	14.7	11.7	8.1	3.1	2.8	20.9	5.9	8.8	9.7	3.8	26.8	9.8
2	11.8	2.7	S	17.4	7.0	11.2	21.0	21.8	16.4	17.9	23.5	14.9	5.5	6.4	2.2	0.2	0.0	0.9	6.3	5.8	7.8	4.2	13.1	3.7	23.5	9.6
3	7.8	1.4	S	19.1	18.7	25.9	8.8	18.9	10.1	23.1	9.1	4.4	6.6	5.2	6.5	7.4	7.2	1.5	23.3	0.4	7.2	2.8	4.6	7.6	25.9	9.9
4	8.3	5.5	S	3.0	10.9	5.0	3.8	5.9	7.9	6.1	12.6	6.0	3.8	3.7	1.0	0.9	1.5	1.3	3.1	7.2	11.7	6.5	8.9	2.2	12.6	5.5
5	2.1	3.5	S	3.5	2.6	5.5	1.8	5.3	10.1	16.4	28.8	20.2	1.2	0.0	0.0	3.7	10.9	4.3	2.6	0.0	6.9	7.2	5.2	8.3	28.8	6.5
6	6.0	10.6	S	13.7	23.0	21.8	24.2	15.2	19.3	7.4	8.4	2.7	0.0	7.5	6.6	8.8	4.8	0.0	1.2	6.2	6.0	20.0	6.0	10.7	24.2	10.0
7	10.9	11.2	S	29.9	8.2	14.0	12.7	12.2	38.0	27.7	12.7	10.3	3.0	4.8	8.2	7.0	5.6	8.8	8.3	2.8	5.5	9.6	18.7	12.6	38.0	12.3
8	5.1	9.2	S	13.6	10.5	8.7	17.5	22.1	35.0	29.1	19.6	23.5	11.1	8.4	14.0	8.3	5.0	12.9	9.3	4.1	16.2	11.3	6.5	8.2	35.0	13.5
9	19.8	16.9	S	14.6	7.8	4.7	11.1	17.6	23.7	30.8	31.3	23.3	11.4	6.0	24.1	26.5	19.5	22.5	10.5	3.9	13.9	14.6	7.6	6.9	31.3	16.0
10	10.0	9.2	S	7.2	6.7	6.0	16.7	16.1	29.8	34.4	24.3	17.7	7.3	5.9	7.5	1.9	0.7	0.4	0.8	0.5	5.7	11.5	7.2	5.5	34.4	10.1
11	6.9	8.2	S	4.3	14.3	13.7	28.2	3.1	1.3	2.6	1.1	2.7	9.9	7.6	2.8	1.3	5.2	8.6	4.3	0.6	0.3	0.4	0.6	0.6	28.2	5.6
12	1.2	5.0	S	1.3	4.6	1.0	18.0	2.1	6.3	8.0	4.1	8.4	6.6	3.9	0.3	0.0	1.2	4.4	2.0	1.8	1.4	0.5	0.2	0.5	18.0	3.6
13	8.0	13.2	S	1.5	1.6	13.1	7.6	9.1	26.9	17.8	5.3	11.4	4.0	6.6	0.2	1.8	8.3	3.6	3.9	3.9	5.0	10.8	8.3	19.4	26.9	8.3
14	14.2	15.9	S	4.4	6.5	3.0	9.4	10.1	11.4	10.0	7.8	11.0	5.0	4.7	6.0	10.0	6.4	6.7	3.9	4.9	3.7	5.3	16.5	10.0	16.5	8.1
15	9.7	13.2	S	8.4	7.9	15.0	22.8	40.9	26.4	17.9	40.8	16.8	25.7	8.3	7.9	5.8	18.7	24.8	19.3	11.7	5.0	5.4	4.8	5.6	40.9	15.8
16	8.6	7.3	S	44.6	42.8	25.7	10.7	33.5	42.8	37.5	17.6	17.3	22.0	6.6	4.9	4.4	12.2	6.7	4.8	4.0	3.8	6.8	14.5	8.8	44.6	16.9
17	8.5	7.6	S	7.9	6.7	7.1	18.0	13.5	30.8	30.2	16.7	10.0	7.0	16.6	3.3	2.7	12.6	8.0	18.5	15.8	25.0	5.2	3.3	3.5	30.8	12.1
18	5.5	3.6	S	4.9	2.5	2.9	7.3	14.0	32.5	20.4	17.4	11.0	5.1	6.7	7.3	5.2	5.8	9.9	16.5	1.3	2.2	13.5	23.7	13.8	32.5	10.1
19	11.0	5.9	S	4.5	6.5	6.3	8.1	8.9	9.1	7.0	3.7	26.6	38.7	3.2	2.1	3.3	13.4	11.5	13.5	4.7	1.8	4.3	4.8	12.1	38.7	9.2
20	18.1	3.5	S	0.5	0.3	1.6	5.5	4.7	5.1	6.5	21.1	1.6	1.0	2.2	11.5	4.3	3.9	5.5	8.0	4.3	15.8	7.4	5.3	7.5	21.1	6.3
21	10.6	2.7	S	2.1	1.2	2.3	1.7	2.6	5.4	5.9	5.5	4.3	6.8	3.8	0.0	0.1	0.0	0.0	0.7	1.2	2.4	21.1	19.5	14.8	21.1	5.0
22	4.0	2.2	S	5.3	4.7	8.3	3.1	10.3	5.1	9.1	7.7	3.0	5.1	4.4	1.9	2.7	1.6	3.0	2.3	2.4	7.8	23.9	44.1	25.2	44.1	8.1
23	31.7	17.9	S	7.3	3.8	6.0	14.5	7.1	10.5	7.1	6.8	9.3	8.1	7.7	6.1	5.1	2.9	3.6	7.5	1.2	3.4	6.8	15.8	22.9	31.7	9.3
24	13.9	24.9	S	29.4	32.6	22.3	27.2	2.8	3.6	18.4	13.7	9.7	2.6	3.0	5.1	3.2	3.2	3.2	9.8	12.5	11.6	12.3	16.8	7.8	32.6	12.6
25	7.2	4.1	S	3.3	5.2	21.7	25.3	4.7	3.8	3.3	6.6	5.4	5.0	1.1	0.6	0.6	0.1	4.5	4.8	4.1	17.6	4.9	12.8	3.2	25.3	6.5
26	5.2	5.1	S	2.5	5.5	3.7	5.1	8.6	3.2	4.2	2.9	0.9	0.7	0.6	0.5	0.0	0.6	5.7	0.8	1.4	0.0	0.0	13.7	2.1	13.7	3.2
27	6.3	9.2	S	13.8	3.4	1.2	0.0	0.0	0.0	0.0	1.0	0.0	3.9	6.6	7.6	4.0	9.3	6.5	8.9	5.0	6.2	9.3	14.9	19.8	19.8	6.0
28	7.2	7.8	S	7.7	19.4	10.6	19.1	22.4	24.7	12.4	4.1	1.0	1.5	7.2	3.9	0.0	2.2	11.2	9.0	2.3	0.8	1.7	3.9	3.5	24.7	8.0
29	7.9	10.4	S	7.0	7.2	9.7	11.7	14.4	17.5	20.8	7.7	3.7	0.5	0.4	0.4	0.9	7.4	2.7	7.5	5.1	3.8	2.5	12.5	6.2	20.8	7.3
30	2.4	1.8	S	0.0	0.4	3.5	12.6	19.7	C	C	C	C	C	C	C	3.1	20.9	6.6	0.0	4.7	9.7	0.5	6.9	4.4	-	-
31	10.1	9.2	S	6.3	7.4	5.2	3.1	5.5	22.8	12.1	3.4	4.0	2.8	27.2	13.5	17.0	10.1	10.6	9.7	11.1	14.2	4.1	0.2	2.3	27.2	9.2
Hourly Max	31.7	24.9	-	44.6	42.8	25.9	28.2	40.9	42.8	37.5	40.8	26.6	38.7	27.2	24.1	26.5	20.9	24.8	23.3	20.9	25.0	23.9	44.1	25.2		
Hourly Average	9.7	8.1	-	9.5	9.3	9.4	12.3	12.3	16.2	15.3	13.1	9.6	7.5	6.3	5.7	4.9	6.8	6.6	7.2	5.0	7.4	7.8	10.7	8.5		

Daily 1-hour NO_x Maximums (ppb) at Trailer

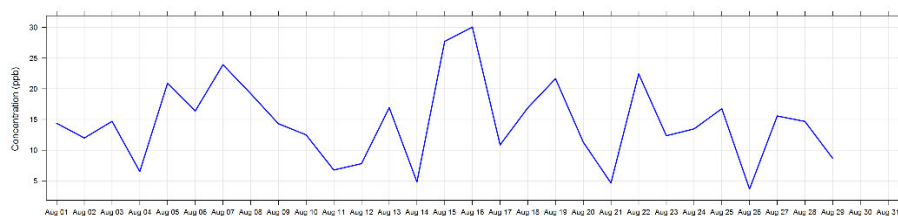


Number of 1HR Exceedances	n/a	Objective	n/a	PPB
Number of Non-Zero Readings	687			
Maximum 1-HR Average	44.6	PPB		
Maximum 24-HR Average	16.9	PPB		
IZS Calibration Time	31	HRS	Operational Time	744 HRS
Monthly Calibration Time	7	HRS	Operational Uptime	100.0 %
Standard Deviation	8.1		Monthly Average	9.1 PPB

Lagoon NO (ppb) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	3.6	0.0	S	0.0	0.9	0.0	0.6	1.3	1.3	6.1	14.4	1.3	3.8	3.5	4.7	2.3	2.2	0.0	0.0	7.9	0.2	0.0	0.6	0.0	14.4	2.4
2	5.1	0.0	S	12.0	3.6	2.4	10.3	9.8	6.1	7.8	10.2	4.2	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	2.7	0.0	12.0	3.3
3	1.0	0.0	S	7.5	7.8	14.7	3.1	8.8	5.0	12.4	3.3	0.7	2.0	0.9	1.4	1.6	2.2	0.0	9.7	0.0	0.9	0.0	0.2	2.0	14.7	3.7
4	1.0	0.0	S	0.0	4.2	0.9	1.0	1.5	2.3	1.5	6.5	2.5	1.0	0.9	0.0	0.0	0.0	0.0	0.0	0.2	1.9	0.0	2.4	0.0	6.5	1.2
5	0.0	0.0	S	0.0	0.0	1.5	0.0	1.6	5.8	11.3	20.9	13.4	0.0	0.0	0.0	0.7	4.5	0.8	0.0	0.0	1.4	0.1	0.0	1.6	20.9	2.8
6	0.0	2.3	S	5.0	14.5	13.5	16.4	9.7	12.6	3.6	4.5	0.3	0.0	3.0	2.4	3.5	1.7	0.0	0.0	1.3	0.2	4.9	0.0	1.3	16.4	4.4
7	3.7	2.7	S	13.1	1.8	6.6	5.2	4.9	23.9	13.8	4.5	3.6	0.1	1.1	2.2	1.6	0.8	1.5	0.5	0.0	0.0	0.0	5.7	0.0	23.9	4.2
8	0.0	4.1	S	0.0	0.0	0.0	5.3	9.1	19.2	16.4	9.3	9.8	3.1	1.8	5.5	2.1	0.0	1.6	0.3	0.0	1.9	0.8	0.0	0.0	19.2	3.9
9	4.9	1.9	S	2.7	0.3	0.0	2.2	5.9	9.0	14.3	12.3	8.2	1.4	0.4	9.4	7.9	4.7	5.9	1.8	0.0	2.2	0.0	0.0	0.0	14.3	4.2
10	0.0	0.0	S	0.0	0.0	0.0	3.3	2.3	11.2	12.5	6.8	3.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	12.5	1.8
11	0.0	0.0	S	0.0	1.4	1.0	6.8	0.0	0.0	0.0	0.0	0.0	3.0	1.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.6
12	0.0	0.0	S	0.0	0.0	0.0	7.8	0.0	1.3	3.4	0.3	2.5	1.9	0.4	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.8
13	2.9	7.6	S	0.0	0.0	3.6	0.3	1.9	16.9	10.4	1.4	4.3	0.3	1.6	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.4	0.0	6.5	16.9	2.6
14	2.9	3.9	S	0.1	1.1	0.0	4.1	4.1	4.8	4.8	2.7	4.7	1.0	0.8	1.4	2.8	0.5	0.3	0.0	0.0	0.0	0.0	4.5	0.9	4.8	2.0
15	1.7	4.6	S	2.0	1.5	6.3	12.5	27.7	13.8	7.1	25.9	6.8	10.1	0.5	0.1	0.3	6.6	9.7	5.0	1.1	0.0	0.0	0.0	0.0	27.7	6.2
16	0.0	0.0	S	26.1	30.1	14.8	0.0	16.1	25.2	19.8	5.6	5.1	8.3	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.9	0.0	30.1	6.7
17	0.0	0.0	S	0.0	0.0	0.0	4.3	1.2	10.9	8.6	2.5	1.2	0.1	3.6	0.0	0.0	0.6	0.0	1.7	1.8	3.6	0.0	0.0	0.0	10.9	1.7
18	0.0	0.0	S	0.0	0.0	0.0	2.4	4.9	16.9	3.6	4.5	1.0	0.0	0.0	0.1	0.0	0.0	1.6	3.6	0.0	0.0	6.0	10.6	0.9	16.9	2.4
19	0.5	0.0	S	0.0	0.0	0.0	0.2	1.3	1.8	1.4	0.0	13.1	21.7	0.0	0.0	0.0	3.3	1.9	2.5	0.6	0.0	0.0	0.0	0.0	21.7	2.1
20	0.0	0.0	S	0.0	0.0	0.0	0.0	0.0	0.0	0.9	11.3	0.0	0.0	0.0	3.3	0.2	0.0	0.4	0.9	0.0	5.9	0.8	0.0	0.0	11.3	1.0
21	1.8	0.0	S	0.0	0.0	0.0	0.0	0.0	1.7	1.8	1.4	0.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	2.0	0.0	4.7	0.7
22	0.0	0.0	S	0.6	0.0	2.2	0.0	3.0	0.0	2.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	22.4	7.3	22.4	2.0
23	12.4	1.0	S	0.0	0.0	0.0	5.9	0.2	1.8	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.5	12.4	1.0
24	0.0	2.6	S	7.0	12.2	8.3	13.5	0.0	0.0	7.1	4.1	2.4	0.0	0.0	0.7	0.0	0.0	0.0	1.4	2.2	2.2	5.8	6.6	1.0	13.5	3.4
25	0.8	0.0	S	0.0	1.5	15.3	16.8	1.4	1.3	1.2	3.4	2.0	1.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	6.9	0.0	4.7	0.0	16.8	2.5
26	0.5	1.4	S	0.0	2.0	0.0	0.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	3.7	0.0	0.0	3.7	0.5
27	0.0	0.0	S	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	3.3	3.9	1.2	3.9	1.6	2.2	0.0	0.8	4.4	10.4	15.6	15.6	2.2
28	0.0	0.3	S	2.8	11.0	4.7	10.8	12.1	14.7	5.1	0.8	0.0	0.0	2.2	1.0	0.0	0.1	5.6	4.2	0.3	0.0	0.0	0.2	0.0	14.7	3.3
29	2.4	4.2	S	2.3	2.3	3.9	5.4	5.2	6.5	8.7	2.5	0.3	0.0	0.0	0.0	0.0	1.8	0.0	2.0	0.3	0.0	0.0	3.8	0.3	8.7	2.3
30	0.0	0.0	S	0.0	0.0	0.1	4.4	11.3	C	C	C	C	C	C	C	0.6	11.0	1.4	0.0	0.4	1.9	0.0	0.8	0.0	-	-
31	3.4	2.3	S	2.7	1.1	1.2	0.0	0.3	11.8	6.0	0.5	0.8	0.5	15.0	5.1	7.8	4.1	4.1	3.5	3.3	4.7	0.7	0.0	0.0	15.0	3.4
Hourly Max	12.4	7.6	-	26.1	30.1	15.3	16.8	27.7	25.2	19.8	25.9	13.4	21.7	15.0	9.4	7.9	11.0	9.7	9.7	7.9	6.9	7.8	22.4	15.6		
Hourly Average	1.6	1.2	-	2.8	3.1	3.3	4.6	4.8	7.5	6.4	5.4	3.1	2.1	1.4	1.4	1.1	1.7	1.2	1.3	0.6	1.2	1.2	2.7	1.2		

Daily 1-hour NO Maximums (ppb) at Trailer

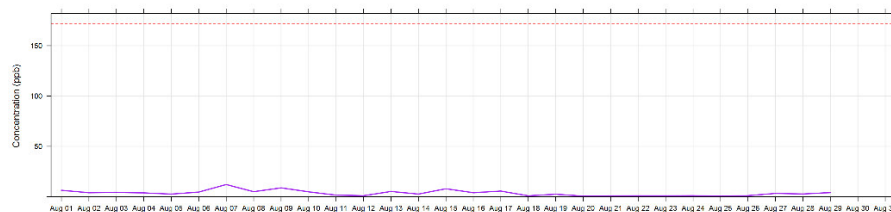


Number of 1HR Exceedances	n/a	Objective	n/a	PPB
Number of Non-Zero Readings	414			
Maximum 1-HR Average	30.1	PPB		
Maximum 24-HR Average	6.7	PPB		
IZS Calibration Time	31	HRS	Operational Time	744
Monthly Calibration Time	7	HRS	Operational Uptime	100.0
Standard Deviation	4.5		Monthly Average	2.6
				PPB

Lagoon SO₂ (ppb) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	0.3	0.4	S	0.6	1.4	1.4	0.3	0.9	0.3	2.5	6.3	1.1	4.2	5.1	6.1	3.6	1.0	0.7	0.1	0.4	0.0	0.0	0.0	0.0	6.3	1.6
2	0.3	0.0	S	0.0	0.0	0.0	1.1	3.6	0.7	1.1	2.8	1.6	0.3	0.3	0.1	0.3	0.0	0.2	1.2	1.0	3.9	0.2	1.0	0.5	3.9	0.9
3	2.0	0.2	S	2.3	2.7	1.8	1.5	2.2	1.8	4.3	0.6	0.0	2.5	3.8	3.2	1.3	3.1	0.5	2.1	0.0	0.0	0.0	0.0	0.1	4.3	1.6
4	1.0	0.3	S	0.6	0.9	1.2	0.7	0.7	1.4	1.3	3.7	0.5	0.0	0.0	0.5	0.2	0.0	0.1	0.4	1.4	0.4	0.0	0.0	0.0	3.7	0.7
5	0.1	0.1	S	0.0	0.2	0.0	0.0	0.0	0.0	0.3	1.6	2.6	0.0	0.0	0.1	0.2	0.3	0.8	0.7	0.7	0.3	0.0	0.0	0.0	2.6	0.3
6	0.0	0.1	S	0.9	3.3	2.6	4.0	1.1	4.5	2.9	0.8	0.3	0.1	0.9	2.1	4.3	1.9	0.0	0.0	0.1	1.5	0.0	0.0	0.7	4.5	1.4
7	1.1	1.3	S	12.0	2.5	2.3	1.4	1.7	2.0	1.9	1.0	1.4	0.1	1.8	2.6	1.7	1.2	1.3	0.1	0.4	0.3	1.0	0.2	0.0	12.0	1.7
8	0.0	0.2	S	0.0	0.0	0.0	0.2	1.8	4.5	3.5	3.2	4.3	0.2	2.3	4.9	2.2	1.1	2.0	1.1	0.6	0.4	1.0	0.1	0.0	4.9	1.5
9	0.0	3.1	S	1.5	1.0	0.4	1.6	1.0	1.6	4.0	4.2	2.1	0.3	1.6	6.3	8.7	5.1	5.8	2.4	0.9	0.3	0.2	0.0	0.1	8.7	2.3
10	0.5	0.4	S	0.0	0.0	0.0	0.1	0.0	4.8	4.6	2.4	2.4	1.0	1.5	2.6	0.2	0.4	0.0	0.2	0.1	0.6	1.2	0.0	0.5	4.8	1.0
11	0.5	0.0	S	0.0	0.0	1.5	0.0	0.6	1.0	0.1	0.8	0.3	0.5	0.5	0.2	0.9	0.5	0.6	0.4	0.0	0.4	0.3	0.1	0.1	1.5	0.4
12	0.1	0.0	S	0.0	0.4	0.2	0.5	0.8	0.9	0.4	0.8	0.7	0.2	0.3	0.3	0.2	0.4	0.4	0.0	0.1	0.7	0.5	0.0	0.0	0.9	0.3
13	0.0	0.1	S	0.7	0.1	0.0	0.2	0.4	1.5	2.5	0.7	5.1	1.1	1.3	0.3	0.0	1.1	1.7	0.8	0.9	0.7	0.5	0.1	0.2	5.1	0.9
14	0.3	2.5	S	0.6	1.4	0.0	1.2	1.4	1.2	1.8	1.9	0.9	0.4	0.6	0.5	0.7	0.2	0.4	0.4	1.3	0.5	0.6	0.4	2.0	2.5	0.9
15	1.9	2.9	S	1.9	1.3	2.9	4.2	7.8	4.9	1.5	7.4	3.7	4.1	1.0	0.5	0.4	4.7	6.2	3.5	2.2	0.1	0.7	0.9	0.9	7.8	2.8
16	0.5	0.4	S	0.7	0.0	0.4	0.3	0.6	1.2	3.9	1.0	2.9	3.0	0.9	0.8	0.5	1.6	1.0	3.7	1.0	0.3	0.0	0.0	0.0	3.9	1.1
17	0.0	0.0	S	0.4	0.6	0.5	2.5	1.0	1.7	0.7	0.5	0.8	0.0	4.2	1.5	1.8	4.9	2.0	5.5	3.9	2.7	0.8	0.0	0.6	5.5	1.6
18	0.3	0.2	S	0.8	0.0	0.4	0.0	0.4	0.4	0.0	0.7	0.5	0.3	0.3	0.0	0.4	0.3	0.7	0.0	0.8	0.2	0.4	0.4	0.0	0.8	0.3
19	0.3	0.0	S	0.5	0.0	0.2	0.1	0.1	0.0	0.6	0.0	1.1	2.4	0.9	0.5	1.0	0.1	0.0	0.6	0.0	0.0	0.0	0.0	0.1	2.4	0.4
20	0.0	0.1	S	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1
21	0.0	0.7	S	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.3	0.5	0.0	0.2	0.1	0.5	0.4	0.7	0.2
22	0.2	0.1	S	0.0	0.0	0.0	0.1	0.4	0.5	0.0	0.2	0.0	0.8	0.9	0.6	0.2	0.2	0.2	0.7	0.1	0.3	0.3	0.4	0.0	0.9	0.3
23	0.4	0.0	S	0.0	0.4	0.2	0.3	0.3	0.2	0.3	0.5	0.2	0.2	0.9	0.8	0.0	0.5	0.4	0.2	0.1	0.5	0.1	0.6	0.9	0.9	0.3
24	0.6	0.6	S	1.0	0.6	0.7	0.3	0.3	0.0	0.5	0.6	0.0	0.3	0.3	0.3	0.0	0.1	0.1	0.4	0.7	0.4	0.0	0.1	0.1	1.0	0.3
25	0.1	0.2	S	0.1	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.3	0.5	0.2	0.0	0.0	0.0	0.3	0.0	0.4	0.1	0.5	0.0	0.1	0.5	0.2
26	0.6	0.7	S	0.3	0.4	0.2	0.3	0.1	0.3	0.8	1.0	0.1	0.0	0.3	0.7	0.2	0.6	0.3	0.1	0.5	0.0	0.0	0.1	0.0	1.0	0.3
27	0.4	0.0	S	0.4	0.0	0.2	0.0	0.2	0.4	0.4	0.0	0.0	0.0	0.1	0.0	0.1	0.0	3.2	1.1	0.1	0.0	0.0	0.6	0.3	3.2	0.3
28	0.0	0.0	S	1.1	1.8	0.8	2.2	2.2	1.4	1.8	1.2	0.2	0.3	0.5	0.3	0.3	0.4	2.7	1.9	1.3	0.5	0.1	0.0	0.3	2.7	0.9
29	1.3	2.1	S	1.1	2.1	2.4	0.4	1.8	2.6	4.0	1.4	1.0	0.2	0.0	0.2	0.2	2.1	1.3	2.8	1.0	0.8	0.5	1.7	0.7	4.0	1.4
30	0.7	1.0	S	0.0	0.3	0.4	0.2	1.6	C	C	C	C	C	C	C	2.2	2.7	0.0	0.0	0.0	1.8	0.0	0.0	0.0	-	-
31	0.2	0.6	S	1.0	0.5	0.2	0.0	0.0	3.1	1.5	0.0	0.0	0.0	5.2	5.1	6.6	2.6	3.1	2.8	3.8	3.2	2.2	0.0	0.0	6.6	1.8
Hourly Max	2.0	3.1	-	12.0	3.3	2.9	4.2	7.8	4.9	4.6	7.4	5.1	4.2	5.2	6.3	8.7	5.1	6.2	5.5	3.9	3.9	2.2	1.7	2.0		
Hourly Average	0.4	0.6	-	0.9	0.7	0.8	1.1	1.5	1.6	1.5	1.1	0.8		1.2	1.4	1.2	1.2	1.2	1.1	0.8	0.7	0.4	0.2	0.3		

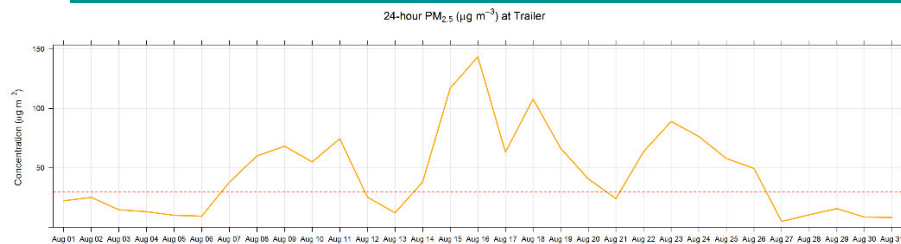
Daily 1-hour SO₂ Maximums (ppb) at Trailer



Number of 1HR Exceedances	0	Objective	172	PPB
Number of 24HR Exceedances	0	Objective	48	PPB
Number of Non-Zero Readings	566			
Maximum 1-HR Average	12.0	PPB		
Maximum 24-HR Average	2.8	PPB		
IZS Calibration Time	31	HRS	Operational Time	744 HRS
Monthly Calibration Time	7	HRS	Operational Uptime	100.0 %
Standard Deviation	1.4		Monthly Average	0.9 PPB

Lagoon PM_{2.5} (µg/m³) – August 2018

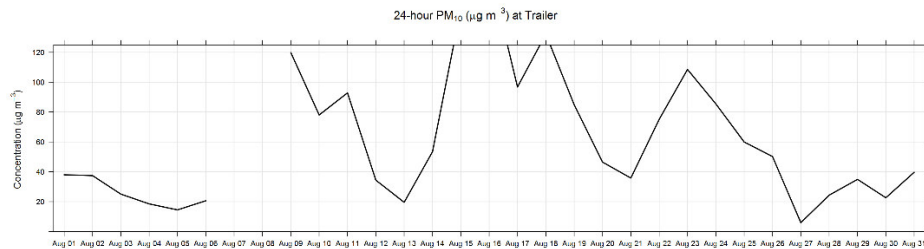
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	17.7	16.2	16.2	19.5	22.3	32.8	25.6	18.4	22.0	20.5	20.6	19.2	20.9	19.8	17.7	19.8	18.0	25.9	27.6	27.0	35.3	25.6	22.3	23.8	35.3	22.3
2	24.1	21.3	18.8	16.0	20.9	19.8	26.3	23.1	27.4	26.6	28.1	33.1	34.5	30.2	26.0	22.7	22.7	25.2	26.6	36.0	28.8	24.8	19.5	20.5	36.0	25.1
3	22.3	15.5	10.1	7.3	8.3	10.1	7.3	8.3	9.8	7.3	9.1	14.1	15.2	16.7	18.4	23.1	25.2	24.5	20.2	20.5	11.2	15.2	13.4	19.1	25.2	14.7
4	19.8	13.4	27.0	14.8	17.7	14.8	15.9	13.0	13.4	14.4	12.3	11.6	13.0	12.6	12.6	8.0	5.8	5.8	8.0	9.4	12.3	12.3	13.7	13.0	27.0	13.1
5	10.5	9.8	9.4	14.1	12.7	12.7	10.5	8.3	6.5	9.4	12.3	12.3	9.1	6.9	4.4	5.5	10.6	9.1	9.1	14.8	9.1	8.0	10.5	14.8	14.8	10.0
6	18.8	15.5	11.3	9.4	9.8	9.8	10.5	8.0	9.1	10.1	8.7	10.1	5.8	3.7	6.2	7.3	9.4	6.5	5.1	5.1	8.0	10.8	12.0	14.4	18.8	9.4
7	18.0	9.8	18.7	15.5	13.4	15.9	15.2	15.5	14.8	15.5	19.2	15.5	18.4	26.6	23.4	26.0	25.6	29.5	45.7	64.7	107.4	148.3	116.7	87.7	148.3	37.8
8	52.1	39.9	45.0	50.7	43.5	37.8	29.2	29.2	31.3	24.1	28.1	35.3	35.3	35.6	33.8	27.0	28.1	56.4	136.8	142.0	120.7	130.7	126.0	122.8	142.0	60.1
9	111.7	94.9	73.0	63.3	65.4	65.4	64.7	67.6	67.9	69.0	74.7	58.6	61.8	55.3	52.8	62.5	66.5	55.7	52.5	66.8	70.1	75.5	72.2	68.6	111.7	68.2
10	71.5	74.0	73.3	67.5	64.0	64.4	63.6	62.9	63.6	63.3	64.3	66.1	69.4	66.1	57.2	35.3	29.9	33.8	37.8	34.9	49.6	30.6	39.2	37.4	74.0	55.0
11	37.8	43.9	50.0	50.7	54.1	61.1	114.6	135.0	144.0	123.2	119.6	120.7	95.2	92.7	85.9	73.3	67.6	59.0	57.2	62.2	45.7	33.8	29.9	31.0	144.0	74.5
12	28.1	25.9	29.9	26.3	25.2	27.6	26.6	29.5	24.1	29.5	30.6	33.5	29.2	36.3	43.2	24.8	29.2	33.8	37.1	14.1	10.9	6.5	3.3	3.7	43.2	25.4
13	6.5	5.1	2.6	3.0	3.7	4.7	4.7	6.1	6.9	11.2	9.8	18.0	22.3	17.3	14.1	17.7	17.7	17.3	16.6	11.9	12.6	14.1	23.1	23.4	23.4	12.1
14	22.0	20.2	14.1	15.5	15.2	17.3	16.0	16.2	15.9	17.3	21.6	19.8	28.1	25.2	21.6	22.7	26.3	31.3	45.0	80.1	119.2	112.4	93.4	97.4	119.2	38.1
15	89.8	89.5	94.1	98.1	106.7	120.0	125.0	129.3	134.4	142.2	143.0	144.7	141.9	143.7	137.9	116.4	78.7	64.6	60.4	64.7	76.2	74.0	201.8	234.8	234.8	117.2
16	237.0	232.7	225.2	225.2	212.6	204.7	206.9	202.8	193.6	167.4	139.6	132.5	133.6	131.1	114.6	104.0	91.3	83.7	78.0	67.6	61.5	72.7	61.1	63.3	237.0	143.4
17	59.7	59.0	64.7	62.9	61.5	54.2	53.2	53.9	54.3	60.4	60.0	56.1	62.5	61.5	67.9	61.5	65.4	70.1	64.3	66.5	69.0	76.2	76.5	75.5	76.5	63.2
18	71.5	74.4	65.4	73.3	96.3	88.0	91.6	89.1	94.1	88.7	109.9	124.6	142.6	181.3	205.4	192.9	164.8	148.3	121.0	106.7	83.7	66.9	55.0	52.5	205.4	107.8
19	54.7	52.9	56.5	51.4	57.2	62.9	60.4	69.7	79.4	78.7	85.5	82.6	84.4	76.2	66.1	69.7	75.1	70.8	69.0	62.5	53.6	59.0	57.5	59.0	85.5	66.4
20	61.8	59.0	54.7	64.3	52.1	52.9	46.8	45.0	42.8	39.9	41.7	42.1	31.0	29.5	29.9	34.2	31.7	30.6	30.6	31.3	28.8	32.4	33.5	29.4	64.3	40.7
21	24.9	30.6	26.7	25.6	27.0	23.2	24.9	25.2	26.7	27.0	28.1	29.9	36.3	34.5	26.3	18.7	16.6	16.2	15.5	17.7	17.3	20.2	19.1	19.1	36.3	24.0
22	27.0	62.9	62.9	63.3	60.1	61.1	59.7	61.5	63.1	66.8	70.1	70.7	87.3	98.8	90.9	81.2	74.0	59.3	48.9	38.1	46.4	50.0	60.0	60.7	98.8	63.5
23	53.9	56.4	69.4	98.5	94.5	86.6	86.2	80.5	78.3	77.5	79.4	79.1	81.9	88.4	119.2	135.0	133.6	109.9	84.1	74.0	61.8	82.6	108.8	117.6	135.0	89.1
24	115.7	112.4	121.1	134.7	153.4	146.2	146.9	150.5	94.2	71.9	57.2	45.3	57.9	76.9	72.6	46.0	37.4	29.2	24.5	24.9	30.2	30.6	26.3	27.4	153.4	76.4
25	39.9	36.4	29.5	30.2	28.1	28.8	34.6	31.0	34.4	41.0	42.1	43.9	57.2	62.5	75.2	78.3	80.8	79.4	90.5	94.5	89.5	88.8	86.0	87.0	94.5	57.9
26	86.6	79.8	72.2	69.4	72.2	67.9	67.2	66.2	67.9	71.6	70.1	70.8	54.3	39.6	35.6	27.4	31.3	33.5	32.0	33.1	32.4	1.2	2.2	3.7	86.6	49.5
27	3.7	5.1	4.0	4.0	4.7	5.8	3.7	6.2	5.1	4.7	4.4	2.2	6.2	6.2	4.0	6.0	4.7	1.5	0.8	2.6	3.8	6.9	8.9	11.6	11.6	4.9
28	10.1	10.1	6.5	5.5	9.4	10.1	8.3	6.9	6.9	8.7	8.3	6.2	10.5	10.8	8.7	8.0	8.3	17.4	17.0	14.1	13.7	16.2	15.9	14.1	17.4	10.5
29	18.0	16.2	16.6	19.1	18.0	21.3	21.6	22.0	24.5	24.5	26.3	20.5	18.0	14.4	15.5	13.7	10.5	8.3	8.3	8.7	8.3	6.9	6.5	8.0	26.3	15.7
30	5.1	4.7	6.6	5.5	5.1	4.0	2.2	2.6	4.0	2.9	1.9	C	C	C	20.5	13.4	15.2	19.3	16.6	12.3	10.5	10.5	8.3	7.3	20.5	8.5
31	7.3	4.4	2.6	2.2	1.9	5.5	3.8	3.7	2.6	3.3	5.5	14.4	15.9	17.7	13.4	18.4	9.1	8.3	8.0	14.8	11.2	10.5	7.6	5.5	18.4	8.2
Hourly Max	237.0	232.7	225.2	225.2	212.6	204.7	206.9	202.8	193.6	167.4	143.0	144.7	142.6	181.3	205.4	192.9	164.8	148.3	136.8	142.0	120.7	148.3	201.8	234.8		
Hourly Average	46.1	44.9	44.4	45.4	46.4	46.4	47.5	48.0	47.2	45.8	46.2	47.8	49.3	50.6	49.1	45.2	42.3	40.8	41.8	42.7	43.2	43.7	46.1	46.9		



Number of 1HR Exceedances	118		Guideline	80	UG/M3
Number of 24HR Exceedances	17		Objective	30	UG/M3
Number of Non-Zero Readings	741				
Maximum 1-HR Average	237.0	UG/M3			
Maximum 24-HR Average	143.4	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	3	HRS	Operational Uptime	100.0	%
Standard Deviation	42.7		Monthly Average	45.7	UG/M3

Lagoon PM₁₀ (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	18.9	23.6	25.5	29.7	30.4	46.0	44.6	25.6	22.9	22.9	51.4	51.4	39.2	43.3	59.5	35.1	34.4	34.4	56.8	43.9	51.4	31.7	43.9	45.3	59.5	38.0	
2	28.5	22.0	12.8	25.0	23.6	34.3	33.2	30.4	37.8	44.6	48.7	59.5	60.9	39.1	42.6	34.4	27.8	31.7	33.8	54.8	42.6	77.1	28.4	25.0	77.1	37.4	
3	25.6	16.8	0.0	6.0	9.4	7.4	9.4	8.7	9.4	19.5	27.8	41.9	27.7	41.2	39.2	46.6	39.9	64.2	36.9	43.9	13.5	26.1	11.4	28.4	64.2	25.0	
4	25.7	20.2	24.3	18.2	17.0	14.1	12.8	12.8	22.0	22.3	30.4	23.6	22.3	37.2	15.5	21.9	15.5	17.5	5.3	6.7	19.5	13.4	10.7	14.8	37.2	18.5	
5	14.8	12.2	17.5	9.4	10.8	12.1	20.2	13.5	12.8	18.8	18.9	27.0	20.2	5.3	6.7	5.1	6.7	22.3	14.8	10.7	16.2	21.6	20.9	8.7	27.0	14.5	
6	16.8	18.2	31.1	25.0	25.0	10.7	18.2	11.4	16.8	19.5	17.5	20.9	13.5	12.1	16.8	31.1	29.7	22.3	14.8	19.5	19.5	21.6	22.9	39.2	39.2	20.6	
7	54.1	27.0	40.5	25.6	13.5	12.4	10.1	10.7	17.5	32.4	30.4	45.3	36.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-	
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.6	38.5	41.2	85.2	253.2	222.7	186.4	218.0	177.3	159.1	-	-
9	118.4	92.7	71.7	85.9	87.3	86.6	77.1	81.9	97.4	184.1	216.0	121.1	153.0	89.3	143.5	161.8	215.3	167.9	147.7	92.7	87.3	102.2	98.8	96.1	216.0	119.8	
10	83.9	92.7	84.6	79.3	77.1	64.3	58.2	79.8	119.1	101.5	115.0	107.6	132.6	120.5	80.5	48.7	50.7	45.3	67.9	54.1	83.4	31.1	48.0	47.3	132.6	78.0	
11	57.5	62.2	58.2	62.9	53.4	80.5	180.7	168.5	155.0	128.6	124.5	124.5	127.2	101.5	106.9	93.4	121.1	77.1	113.0	75.8	56.8	27.6	33.4	37.8	180.7	92.8	
12	35.8	30.5	37.8	35.9	37.8	47.3	44.6	48.0	40.6	46.0	46.0	44.0	46.6	42.6	53.4	29.7	27.7	36.5	39.2	47.3	2.6	1.3	1.3	2.6	53.4	34.4	
13	2.5	4.5	8.2	8.0	4.0	1.9	3.8	NA	NA	NA	27.7	29.0	38.5	26.7	20.2	22.9	22.3	24.5	21.6	21.6	27.0	28.4	34.5	32.4	38.5	19.5	
14	29.7	23.0	25.7	25.0	20.9	19.6	14.1	23.6	28.4	40.5	39.6	51.4	70.3	53.4	43.0	43.3	40.5	56.1	62.9	98.8	139.6	119.1	94.0	119.5	139.6	53.4	
15	100.8	102.2	106.9	115.0	107.6	110.3	123.9	143.6	165.2	164.5	169.2	193.6	194.3	214.6	159.7	163.8	101.5	148.9	123.8	105.6	126.6	82.5	292.5	265.4	292.5	149.3	
16	263.4	255.1	243.1	243.1	237.7	217.4	213.3	214.0	222.8	221.7	197.7	195.6	186.2	168.5	134.7	118.4	112.3	115.7	89.5	88.6	73.1	257.3	81.9	64.9	263.4	175.7	
17	60.9	65.6	60.9	62.2	58.8	60.2	62.9	62.9	89.3	206.5	127.2	98.8	108.3	82.0	188.2	98.8	117.7	98.8	96.1	111.0	123.2	111.5	90.0	81.2	206.5	96.8	
18	61.5	83.2	76.5	96.1	111.7	102.2	90.0	104.9	111.7	115.0	150.9	162.4	186.2	211.2	255.2	227.5	195.6	215.3	171.9	140.1	109.6	66.3	62.2	66.3	255.2	132.2	
19	58.2	60.2	75.1	62.7	57.5	71.0	69.0	74.4	79.8	91.7	100.1	93.6	104.9	118.4	144.8	92.7	92.0	113.0	92.0	87.9	83.9	81.2	62.2	71.7	144.8	84.9	
20	77.1	78.5	87.3	58.8	62.2	49.4	38.5	42.6	37.2	39.2	39.2	50.7	39.8	37.8	42.7	47.3	33.8	35.8	41.2	41.9	46.6	33.1	31.7	23.1	87.3	46.5	
21	36.5	42.7	41.9	40.6	31.5	31.8	23.6	29.0	34.6	44.6	43.3	81.9	51.4	59.5	35.1	22.3	24.3	15.5	12.1	16.2	64.2	25.0	30.4	20.9	81.9	35.8	
22	46.6	74.2	67.6	72.4	58.8	58.2	62.9	68.3	75.9	83.9	83.2	84.6	103.7	106.2	98.7	91.3	81.9	69.7	60.2	41.9	49.3	86.6	108.3	67.6	108.3	75.1	
23	53.4	83.2	100.1	106.9	95.4	108.1	98.8	92.0	96.8	92.7	105.6	104.9	123.2	121.1	148.2	148.2	169.2	118.4	108.4	111.7	69.0	87.9	127.9	133.8	169.2	108.5	
24	150.3	154.3	144.2	166.5	176.0	163.1	153.0	162.5	102.2	66.3	49.4	44.7	60.9	77.1	73.1	44.6	44.6	27.7	22.9	31.1	39.9	36.5	28.4	32.4	176.0	85.5	
25	39.9	39.9	36.5	29.7	41.2	33.8	37.8	31.7	36.5	37.9	39.2	51.4	69.7	72.4	82.5	81.2	75.1	87.9	86.6	89.3	92.0	81.2	81.9	83.2	92.0	59.9	
26	90.6	79.8	73.7	71.7	77.1	69.7	60.2	69.5	62.9	64.9	71.0	85.2	57.7	53.6	34.4	33.1	26.3	29.7	36.5	29.3	27.7	0.0	0.0	0.0	90.6	50.2	
27	0.3	1.3	2.6	4.6	5.3	1.3	0.0	2.6	4.0	1.9	2.9	6.0	6.0	8.7	12.1	18.2	6.7	7.4	7.4	8.3	11.0	3.3	0.0	19.6	19.6	5.9	
28	10.7	10.7	8.7	15.5	10.7	11.4	9.4	6.0	15.5	27.0	60.9	29.4	25.6	31.7	34.4	26.8	18.9	47.3	51.5	48.0	28.4	11.5	16.2	27.7	60.9	24.3	
29	31.1	29.7	35.1	31.5	36.5	42.6	39.9	31.1	32.4	50.7	70.3	58.8	56.1	29.0	29.7	20.9	34.9	27.0	60.2	8.0	6.7	23.6	26.3	25.6	70.3	34.9	
30	20.2	18.9	29.0	20.9	0.0	4.6	12.1	8.7	5.4	24.3	17.5	C	C	C	C	44.6	33.8	52.7	41.9	36.5	22.9	14.8	31.7	5.3	52.7	22.6	
31	6.0	10.1	12.8	10.7	7.1	6.7	7.4	8.7	20.9	38.5	46.3	29.0	54.8	46.0	81.2	57.5	67.0	60.1	97.4	100.1	96.8	69.0	12.1	5.8	100.1	39.7	
Hourly Max	263.4	255.1	243.1	243.1	237.7	217.4	213.3	214.0	222.8	221.7	216.0	195.6	194.3	214.6	255.2	227.5	215.3	215.3	253.2	222.7	186.4	257.3	292.5	265.4			
Hourly Average	54.0	54.5	54.7	54.8	52.8	52.6	54.3	57.5	61.1	70.8	72.2	73.0	76.4	73.2	76.4	64.6	64.2	64.8	68.7	62.5	60.3	60.2	56.1	55.8			

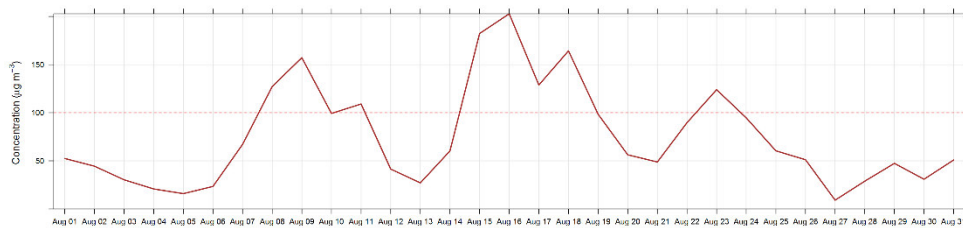


Number of 1HR Exceedances	n/a	Objective	n/a	UG/M3
Number of Non-Zero Readings	706			
Maximum 1-HR Average	292.5	UG/M3		
Maximum 24-HR Average	175.7	UG/M3		
IZS Calibration Time	0	HRS	Operational Time	716 HRS
Monthly Calibration Time	3	HRS	Operational Uptime	96.2 %
Standard Deviation	53.8		Monthly Average	62.3 UG/M3

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

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	29.2	34.8	27.8	41.7	33.4	50.0	54.1	30.6	22.3	27.8	45.8	59.6	45.8	52.7	168.8	55.1	43.4	73.4	109.3	48.6	54.1	38.9	51.3	59.6	168.8	52.4
2	41.7	27.8	26.5	28.4	40.4	40.3	33.0	26.5	34.8	40.3	55.5	52.7	66.5	38.9	45.8	38.9	27.8	34.7	36.1	65.1	54.1	134.2	38.9	37.5	134.2	44.4
3	32.0	29.2	15.4	9.9	8.5	11.3	7.1	12.6	11.4	14.1	22.3	40.7	29.2	49.9	44.4	61.0	61.0	77.6	36.1	59.6	21.2	20.9	12.6	38.9	77.6	30.3
4	37.5	16.8	23.7	19.6	16.8	18.2	22.3	11.3	17.1	29.2	33.4	25.1	22.3	36.1	23.7	14.0	14.3	15.4	14.0	11.3	18.2	25.0	19.6	14.0	37.5	20.8
5	9.9	16.8	14.0	13.9	11.3	19.5	12.6	8.5	14.0	16.8	12.6	27.8	17.2	8.5	3.0	7.1	26.5	32.0	16.8	18.2	11.3	18.2	20.9	23.7	32.0	15.9
6	26.1	25.1	25.1	20.9	32.0	12.6	18.2	12.6	18.2	20.9	14.2	15.4	15.4	14.0	22.3	38.9	32.0	27.8	16.8	22.3	36.1	19.5	27.8	47.2	47.2	23.4
7	70.7	32.0	63.8	33.4	16.8	18.2	22.3	20.9	12.6	40.3	30.6	58.2	49.9	38.3	65.1	54.1	69.3	67.9	81.7	106.6	131.5	217.1	178.4	130.1	217.1	67.1
8	94.2	61.0	61.0	76.2	61.0	49.9	55.5	45.8	99.7	81.7	81.7	113.5	161.9	120.4	99.7	51.3	51.3	119.0	313.8	277.9	207.4	326.3	251.7	190.9	326.3	127.2
9	134.2	109.4	95.5	84.4	85.9	96.9	84.4	99.7	120.4	257.2	282.1	166.0	242.0	134.2	127.3	240.6	330.4	260.2	233.7	113.5	112.1	130.1	120.4	112.1	330.4	157.2
10	101.1	106.6	94.2	87.2	84.5	73.4	79.0	85.9	153.6	123.2	153.6	154.9	195.0	166.0	91.4	69.3	84.5	58.2	69.3	63.8	108.0	49.9	63.8	65.1	195.0	99.2
11	66.5	74.8	63.8	65.1	70.7	103.4	207.4	184.0	160.5	137.0	134.2	136.8	160.7	127.3	137.0	116.3	117.6	105.2	166.0	90.0	55.5	48.6	45.8	43.0	207.4	109.0
12	46.4	40.3	43.0	47.2	50.0	61.0	54.1	63.8	44.4	47.2	46.4	48.6	61.0	48.6	56.9	29.2	33.4	37.5	43.0	59.6	14.0	14.0	3.0	1.6	63.8	41.4
13	14.0	9.9	14.0	9.9	5.7	4.0	4.3	3.0	34.8	41.7	36.1	27.8	51.3	36.1	33.4	26.5	20.9	38.9	22.3	44.4	33.4	30.6	52.7	54.1	54.1	27.1
14	34.8	30.6	29.2	20.9	24.9	19.6	14.0	30.6	27.8	41.7	55.5	54.1	102.4	62.4	44.4	41.7	48.6	66.5	77.6	112.1	156.3	117.6	95.0	138.4	156.3	60.3
15	112.1	114.9	116.0	128.7	124.6	127.3	134.2	146.7	182.6	178.4	182.6	228.2	230.9	294.5	201.9	219.9	121.5	232.3	179.8	159.1	190.4	95.5	383.8	289.0	383.8	182.3
16	281.8	286.2	273.8	266.9	260.0	233.8	226.9	225.5	243.4	250.3	211.6	228.2	199.2	179.8	143.9	130.1	132.8	147.6	94.8	96.9	96.9	476.9	86.9	92.8	476.9	202.8
17	77.6	69.3	74.8	72.1	69.3	69.3	70.7	72.1	94.2	305.6	168.8	124.5	119.0	105.2	373.2	134.2	164.6	130.1	128.9	150.8	177.0	146.7	98.3	94.2	373.2	128.8
18	76.2	94.2	80.3	123.2	131.5	113.5	109.4	146.7	148.1	154.9	182.6	179.8	206.1	228.2	316.6	264.2	240.6	281.7	233.7	197.7	182.6	84.5	79.0	87.3	316.6	164.3
19	67.9	66.5	83.1	72.1	65.1	72.1	63.8	77.6	81.7	95.5	96.9	95.5	124.5	156.3	157.8	117.6	114.9	156.3	113.5	112.1	84.5	114.9	84.5	87.3	157.8	98.4
20	102.5	91.9	121.8	63.8	62.4	51.3	48.6	43.0	38.9	41.7	43.0	48.5	37.9	37.5	33.4	56.9	51.3	51.3	48.6	47.2	69.3	59.8	56.9	43.1	121.8	56.3
21	48.6	63.8	72.1	52.5	33.4	33.4	25.1	36.1	40.3	56.9	58.2	91.4	66.5	70.7	43.5	20.9	43.0	16.9	18.2	29.2	128.9	36.1	48.6	36.1	128.9	48.8
22	56.9	73.4	90.0	87.3	72.1	62.4	69.3	76.2	81.7	96.9	109.3	96.9	95.5	114.9	113.5	106.6	80.3	84.5	67.9	44.4	59.6	146.7	186.7	77.6	186.7	89.6
23	63.8	132.9	135.6	114.9	117.7	112.1	109.4	106.6	108.0	105.2	108.0	109.3	125.9	135.6	178.4	163.2	188.1	128.7	125.9	142.6	72.0	85.9	152.2	152.3	188.1	123.9
24	190.9	186.7	178.4	192.3	204.7	172.9	161.9	167.4	109.4	74.8	56.9	55.5	55.5	76.2	77.6	40.2	41.7	26.5	20.9	32.0	37.5	44.4	36.1	30.6	204.7	94.6
25	44.4	36.1	38.9	30.6	28.2	26.5	36.1	36.1	34.8	34.7	40.3	49.9	65.3	73.4	76.2	77.6	77.6	83.1	99.7	99.7	95.5	91.4	87.3	85.9	99.7	60.4
26	96.9	84.5	73.4	72.1	73.4	66.5	66.5	73.5	66.5	63.8	72.1	79.0	49.3	34.7	36.1	32.0	32.0	37.5	44.4	34.8	30.6	3.0	3.0	1.6	96.9	51.1
27	1.6	1.6	0.2	3.8	4.3	3.8	3.0	3.0	3.8	1.6	0.2	1.5	5.7	4.3	3.0	8.5	11.3	15.4	19.5	25.1	18.2	20.9	29.2	29.2	29.2	9.1
28	12.6	19.6	14.0	19.6	11.3	11.4	7.1	8.5	25.1	27.8	84.5	32.0	20.9	23.7	51.3	23.7	14.3	59.6	66.5	62.7	22.3	19.6	30.6	23.7	84.5	28.8
29	48.6	49.2	44.4	33.4	45.8	54.1	47.2	40.3	38.9	77.4	112.1	61.0	65.1	30.6	23.7	21.4	38.1	47.2	98.4	18.2	14.2	45.8	37.5	44.4	112.1	47.4
30	22.3	25.1	38.9	32.0	7.1	22.3	11.3	15.4	16.8	27.8	5.7	C	C	C	62.4	40.3	63.8	59.6	45.8	27.8	15.4	47.2	19.5	41.7	63.8	30.9
31	8.5	18.2	13.9	11.2	8.5	8.5	5.7	7.1	36.1	52.7	59.6	29.2	70.7	36.1	123.2	79.0	87.2	85.9	125.9	154.9	59.6	103.8	25.1	9.9	154.9	50.9
Hourly Max	281.8	286.2	273.8	266.9	260.0	233.8	226.9	225.5	243.4	305.6	282.1	228.2	242.0	294.5	373.2	264.2	330.4	281.7	313.8	277.9	207.4	476.9	383.8	289.0		
Hourly Average	66.2	65.5	66.0	62.4	60.0	58.7	60.1	61.9	68.4	82.7	83.7	83.1	92.0	84.5	96.1	76.8	79.5	85.8	89.3	81.5	76.4	90.8	78.3	70.4		

24-hour TSP ($\mu\text{g m}^{-3}$) at Trailer

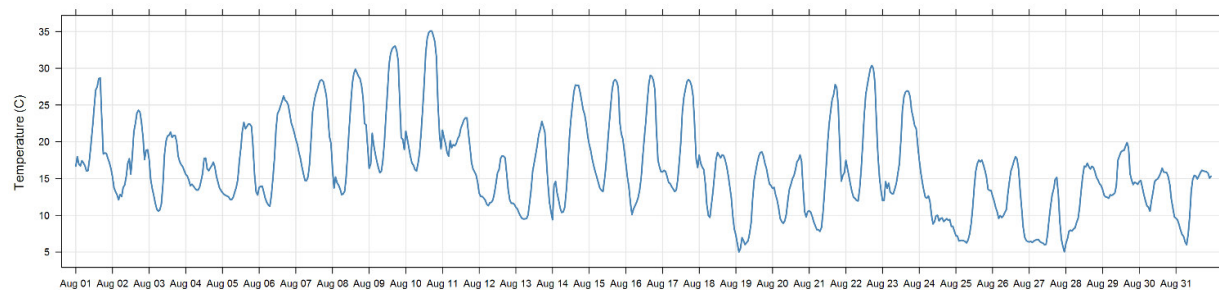


Number of 24HR Exceedances	8	Objective	100	UG/M3
Number of Non-Zero Readings	741			
Maximum 1-HR Average	476.9	UG/M3		
Maximum 24-HR Average	202.8	UG/M3		
IZS Calibration Time	0	HRS	Operational Time	744 HRS
Monthly Calibration Time	3	HRS	Operational Uptime	100.0 %
Standard Deviation	67.0		Monthly Average	75.8 UG/M3

Lagoon Temperature (°C) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	16.7	18.0	17.0	16.7	17.4	17.1	16.7	16.0	16.1	17.7	19.8	22.1	24.6	27.0	27.5	28.6	28.7	23.1	18.3	18.5	18.4	17.7	17.2	16.4	28.7	19.9
2	15.3	13.8	13.2	12.8	12.1	12.8	12.6	13.8	14.1	15.3	17.1	17.7	15.6	18.1	21.4	22.5	23.9	24.3	24.0	22.6	20.6	17.6	18.8	18.9	24.3	17.5
3	17.6	14.9	13.7	12.7	11.7	10.8	10.6	10.7	11.6	14.1	18.1	20.0	20.8	20.9	21.3	20.6	20.8	20.9	20.0	18.1	17.3	16.9	16.6	16.1	21.3	16.5
4	15.6	15.3	14.8	14.0	14.2	14.0	13.7	13.4	13.4	13.8	14.7	15.7	17.7	17.8	16.3	16.1	16.4	16.8	17.2	16.6	15.3	14.5	13.7	13.4	17.8	15.2
5	13.1	12.9	12.7	12.6	12.5	12.2	12.1	12.4	13.1	13.8	14.8	17.3	19.1	21.5	22.6	21.8	22.1	22.4	22.4	22.1	19.3	15.5	13.2	12.8	22.6	16.4
6	13.8	13.9	14.0	13.2	12.3	11.8	11.4	11.2	12.7	15.0	17.7	21.6	23.8	24.2	24.9	25.5	26.2	25.6	25.5	25.0	23.9	22.6	22.0	21.2	26.2	19.1
7	20.3	19.7	18.6	17.7	16.6	15.6	14.7	14.7	15.3	17.0	20.4	24.1	25.4	26.5	27.0	27.8	28.4	28.4	28.2	27.3	26.2	23.7	20.7	19.8	28.4	21.8
8	16.3	13.7	15.2	14.4	14.1	13.6	12.8	12.9	13.3	15.4	18.8	22.1	25.2	28.0	29.3	29.9	29.4	28.9	28.6	27.7	26.0	22.5	22.3	19.3	29.9	20.8
9	16.4	17.0	21.2	19.5	18.4	17.4	16.5	15.8	16.0	17.5	20.0	23.6	26.9	30.5	32.0	32.6	32.9	33.0	32.4	31.0	25.6	20.6	20.3	18.9	33.0	23.2
10	21.4	20.4	19.2	18.0	17.1	16.8	16.2	16.0	17.1	18.6	21.3	24.4	27.9	32.0	34.1	34.8	35.1	35.1	34.4	33.6	31.5	25.3	21.1	19.0	35.1	24.6
11	21.6	20.5	19.7	18.5	18.0	20.1	19.2	19.6	19.5	19.8	20.4	20.8	21.8	22.4	23.0	23.3	23.3	21.1	19.3	17.2	16.3	15.9	15.5	14.5	23.3	19.6
12	13.0	12.6	12.6	12.3	12.0	11.5	11.3	11.7	11.8	12.1	13.0	14.4	15.8	16.2	17.7	18.1	18.0	17.8	15.7	13.5	12.1	11.6	11.6	11.5	18.1	13.7
13	11.1	10.9	10.3	9.9	9.6	9.5	9.5	9.6	10.1	11.7	13.5	16.0	17.1	18.3	19.5	21.0	21.7	22.8	22.1	21.3	17.6	14.3	11.8	10.5	22.8	14.6
14	9.4	14.2	14.6	13.0	12.1	11.0	10.4	10.5	11.1	13.3	16.3	20.4	23.0	25.0	26.8	27.7	27.7	27.7	26.8	25.6	24.4	23.7	22.5	20.8	27.7	19.1
15	19.7	18.8	17.6	16.7	15.9	15.2	14.4	13.7	13.4	13.2	14.8	16.8	19.5	22.2	24.7	27.1	28.2	28.5	28.2	27.4	22.7	21.1	20.4	18.7	28.5	20.0
16	17.0	15.2	13.9	11.7	10.1	10.9	11.3	11.8	12.4	13.4	15.0	17.8	20.4	22.6	25.4	27.8	29.0	28.9	28.4	27.1	21.7	17.5	16.6	15.9	29.0	18.4
17	15.9	16.1	15.9	15.2	14.5	14.3	13.9	13.6	13.2	13.5	14.9	17.4	20.0	24.1	26.1	27.2	28.2	28.4	28.2	27.6	26.2	22.3	17.6	16.5	28.4	19.6
18	18.2	17.1	16.5	16.2	14.3	11.4	10.0	9.7	11.5	13.2	15.4	17.6	18.5	18.2	17.8	18.2	18.1	17.5	16.6	15.4	13.9	12.4	9.9	8.1	18.5	14.8
19	7.3	6.1	5.0	5.5	7.0	6.6	6.0	6.3	6.5	7.6	9.0	12.3	14.8	16.0	17.1	18.1	18.5	18.6	18.1	17.1	16.4	15.2	14.3	14.0	18.6	11.8
20	13.7	13.8	12.8	12.1	11.0	9.6	9.1	8.9	9.2	10.1	12.0	13.5	14.2	15.0	15.4	16.2	17.3	17.6	18.2	17.3	13.7	10.5	9.8	10.5	18.2	13.0
21	10.6	10.4	9.8	9.1	8.6	8.0	8.1	7.8	8.3	10.3	13.2	16.2	19.7	22.4	24.1	25.7	26.4	27.8	27.4	24.9	19.2	14.6	15.4	15.8	27.8	16.0
22	17.5	16.4	15.3	14.2	13.2	12.5	12.3	12.0	12.0	13.6	16.2	19.7	23.6	26.4	27.7	28.9	30.0	30.4	30.0	28.0	22.6	18.0	15.1	13.3	30.4	19.5
23	12.0	12.0	14.6	13.7	14.4	13.2	13.0	12.9	13.6	14.3	15.7	17.0	20.2	24.3	26.1	26.8	26.9	26.8	26.1	24.2	23.3	22.2	21.8	19.6	26.9	19.0
24	17.5	15.9	14.5	13.4	12.5	12.4	12.6	11.9	10.1	8.8	9.1	9.9	10.0	9.2	9.6	9.6	9.2	9.3	9.5	9.3	9.4	8.5	8.5	7.8	17.5	10.8
25	7.2	7.2	6.5	6.6	6.6	6.5	6.5	6.2	6.7	7.5	8.9	11.0	13.9	16.0	17.0	17.5	17.3	17.5	16.9	16.1	15.2	13.6	13.4	13.4	17.5	11.5
26	12.6	12.0	11.1	10.5	9.6	10.0	9.7	9.9	10.4	10.8	12.9	14.6	16.0	16.6	17.4	18.0	17.7	16.3	13.5	11.0	8.5	7.0	6.6	6.4	18.0	12.0
27	6.4	6.5	6.3	6.5	6.6	6.7	6.7	6.4	6.3	6.2	6.0	6.1	7.4	9.5	11.3	12.8	13.6	14.9	15.1	12.9	9.2	6.8	5.8	5.0	15.1	8.4
28	6.2	6.8	7.8	8.0	7.9	8.1	8.3	9.0	9.6	11.2	13.4	15.3	16.7	16.6	17.1	16.6	16.3	16.7	16.5	15.9	15.2	14.8	14.3	14.1	17.1	12.6
29	13.5	12.7	12.5	12.5	12.3	12.8	12.7	12.8	13.0	14.0	17.5	18.1	18.6	18.8	18.8	19.4	19.9	19.2	15.6	14.8	14.2	14.5	14.4	14.2	19.9	15.3
30	14.6	14.7	13.8	12.8	12.0	11.3	11.1	10.6	12.0	13.1	14.5	14.8	14.9	15.3	15.8	16.4	15.9	15.9	15.8	15.2	14.2	12.2	11.0	9.8	16.4	13.7
31	9.6	9.4	8.8	8.0	7.4	7.1	6.4	6.0	7.4	9.9	13.3	14.9	15.4	15.3	14.9	15.4	15.8	16.1	16.0	16.0	15.9	15.7	15.1	15.3	16.1	12.3
Hourly Max	21.6	20.5	21.2	19.5	18.4	20.1	19.2	19.6	19.5	19.8	21.3	24.4	27.9	32.0	34.1	34.8	35.1	35.1	34.4	33.6	31.5	25.3	22.5	21.2		
Hourly Average	14.2	13.8	13.5	12.8	12.3	12.0	11.6	11.6	12.0	13.1	15.1	17.2	19.0	20.5	21.6	22.3	22.7	22.5	21.8	20.7	18.6	16.4	15.4	14.6		

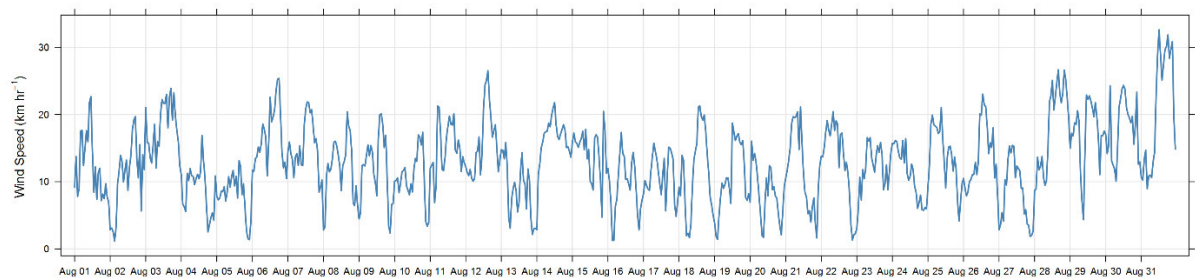
1-hour Temperature (C) at Trailer



Lagoon Wind Speed (km/hr) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	9.2	13.7	7.8	8.9	17.5	17.7	12.4	15.0	17.6	15.9	21.8	22.7	14.5	8.4	12.2	7.4	11.3	12.0	7.2	8.2	7.5	9.7	7.7	6.9	22.7	12.2
2	2.9	3.1	2.6	1.2	3.2	9.7	11.6	13.9	13.0	10.0	11.7	13.2	8.7	12.1	13.9	17.7	19.2	19.7	13.4	10.6	15.5	5.6	14.0	11.8	19.7	10.8
3	21.0	15.8	15.7	13.6	12.8	15.5	18.5	12.0	16.0	15.2	20.1	22.2	21.7	21.6	23.0	18.0	22.6	23.9	19.2	23.2	19.8	17.7	16.0	12.3	23.9	18.2
4	11.0	6.7	6.2	5.6	11.2	10.2	11.9	10.9	10.8	9.6	10.5	11.1	10.4	11.4	16.9	13.2	10.6	6.5	2.5	3.5	4.7	5.4	4.3	10.9	16.9	9.0
5	7.8	7.3	7.6	8.6	8.5	9.2	7.1	8.5	10.7	9.2	10.8	11.7	9.4	10.8	7.6	13.2	12.3	8.1	9.7	6.2	2.7	1.5	1.4	4.1	13.2	8.1
6	11.7	11.5	13.4	13.7	15.2	14.4	15.6	18.6	17.8	16.7	10.9	15.7	22.6	18.9	19.6	20.7	23.6	25.3	25.4	19.9	14.3	12.1	12.9	10.5	25.4	16.7
7	14.5	15.9	14.1	13.3	10.6	13.7	14.2	12.4	15.3	12.5	12.4	18.4	20.8	21.9	21.8	20.3	20.7	18.3	15.8	16.4	14.5	8.4	9.3	10.2	21.9	15.2
8	2.8	3.3	10.8	12.7	11.5	11.9	13.4	15.9	16.0	15.3	13.9	12.3	8.7	12.4	13.0	14.0	20.4	18.2	17.6	14.6	6.8	6.4	9.4	6.5	20.4	12.0
9	4.5	5.3	12.4	12.5	12.3	13.9	15.5	13.9	15.4	14.4	11.1	9.9	7.9	16.5	19.9	20.1	18.5	15.1	16.9	10.3	3.3	2.3	6.6	6.7	20.1	11.9
10	10.1	10.2	10.6	8.4	9.7	11.5	11.7	12.1	9.4	8.7	8.0	9.7	8.5	11.8	13.4	13.0	17.0	16.6	15.5	17.3	10.5	4.1	3.4	3.9	17.3	10.6
11	12.0	12.4	12.9	6.9	9.4	21.2	21.1	17.4	11.9	11.6	13.5	16.6	18.3	19.8	18.5	18.4	20.1	14.7	14.2	16.2	15.1	11.5	13.7	12.8	21.2	15.0
12	12.2	11.4	10.9	11.8	10.5	10.1	10.5	14.3	14.6	16.7	11.0	14.0	20.8	24.4	25.1	26.5	22.3	19.5	16.6	17.6	18.5	15.1	11.5	13.1	26.5	15.8
13	14.7	14.7	13.4	15.8	12.4	4.7	3.1	7.4	9.0	9.9	8.7	5.5	6.9	11.7	14.3	10.2	9.6	6.0	11.9	10.2	4.5	2.2	3.0	3.1	15.8	8.9
14	2.9	11.1	12.6	15.1	15.9	17.2	17.4	17.5	18.7	18.2	19.9	21.0	21.8	18.5	16.7	16.3	17.1	17.7	18.5	17.7	15.1	15.2	14.5	13.6	21.8	16.3
15	15.8	17.2	15.9	15.7	15.1	15.9	16.4	17.5	14.7	17.8	13.4	14.8	10.1	9.7	8.8	16.5	17.0	16.6	13.6	10.1	4.7	20.5	17.6	11.3	20.5	14.4
16	12.0	10.1	6.9	1.3	1.3	6.3	7.4	11.0	14.2	17.3	14.2	13.8	10.4	10.4	9.7	8.7	12.8	14.3	12.5	9.0	5.0	2.8	6.0	7.2	17.3	9.4
17	8.2	10.2	9.5	8.9	8.7	11.6	13.7	15.7	14.5	13.4	11.5	9.6	8.1	11.1	13.5	5.7	10.7	15.1	15.0	14.3	13.3	6.6	4.8	7.0	15.7	10.9
18	9.2	7.9	13.9	13.2	7.2	2.0	2.3	1.7	3.7	9.2	13.2	14.6	15.7	21.1	21.3	19.7	19.2	19.9	17.5	14.1	11.4	7.7	6.6	5.0	21.3	11.6
19	3.9	1.9	1.4	5.1	7.7	9.8	9.0	9.6	10.6	10.6	9.0	6.8	18.7	17.4	16.1	16.8	17.2	15.9	15.5	16.1	12.7	7.6	7.2	8.2	18.7	10.6
20	6.9	16.0	13.2	14.2	12.9	10.6	7.9	5.1	2.0	1.7	6.8	10.6	7.9	12.4	12.1	8.8	9.2	7.9	7.5	5.3	3.4	2.1	5.6	9.3	16.0	8.3
21	10.5	11.7	13.2	15.0	18.7	19.7	19.5	19.8	20.4	14.8	21.1	15.8	11.2	8.4	7.7	5.2	5.7	4.0	6.3	7.6	3.7	1.6	9.2	12.4	21.1	11.8
22	13.8	13.7	15.1	17.4	19.1	17.7	16.8	18.5	20.4	17.6	19.0	18.6	12.1	17.0	17.2	14.2	11.6	12.9	11.3	8.4	3.7	1.3	2.1	2.3	20.4	13.4
23	3.0	6.0	10.7	7.3	11.8	10.4	12.0	16.6	16.0	16.6	13.6	12.5	11.4	13.8	15.4	14.4	15.9	14.1	8.8	9.7	12.5	8.8	11.6	14.4	16.6	12.0
24	15.7	15.7	16.1	15.9	14.5	13.6	13.3	16.1	12.8	16.4	11.2	10.2	10.8	12.6	11.8	9.3	8.4	6.0	6.9	8.0	5.8	5.7	6.2	5.9	16.4	11.2
25	9.2	12.5	18.5	19.9	18.5	18.3	18.1	17.2	17.5	21.0	16.4	13.0	9.1	13.5	15.2	15.3	14.0	11.6	13.7	11.9	7.0	4.1	6.9	9.7	21.0	13.8
26	10.5	9.1	7.9	8.5	10.0	10.3	11.0	11.1	12.9	11.1	12.9	20.1	19.9	23.0	21.5	21.1	18.3	14.2	15.8	15.1	18.0	10.6	12.6	8.1	23.0	13.9
27	2.8	3.6	5.4	4.1	10.3	9.5	13.3	15.3	14.3	15.4	15.3	10.6	12.3	12.0	11.6	9.0	9.1	5.2	5.8	3.7	3.5	1.9	2.0	2.6	15.4	8.3
28	8.7	8.9	13.7	11.8	12.3	13.7	10.7	9.5	10.1	14.9	21.8	22.8	25.1	20.6	22.7	24.7	26.6	23.2	21.7	23.1	26.6	25.2	22.5	19.4	26.6	18.3
29	15.0	17.2	16.8	18.8	18.5	20.6	19.0	11.0	7.0	4.4	14.7	22.9	22.2	22.8	22.0	21.0	19.7	21.8	19.7	16.8	11.1	16.9	16.9	17.5	22.9	17.2
30	17.0	14.2	15.4	24.3	13.1	12.5	11.8	10.1	15.0	21.1	22.3	23.8	24.3	23.8	21.1	20.0	19.5	18.7	19.7	15.6	18.5	23.3	12.6	12.9	24.3	17.9
31	10.6	10.2	13.4	14.7	8.9	10.8	11.0	10.6	13.0	14.4	22.7	28.8	32.6	28.8	25.1	27.4	29.6	30.1	31.8	28.4	29.7	30.8	19.5	14.9	32.6	20.7
Hourly Max	21.0	17.2	18.5	24.3	19.1	21.2	21.1	19.8	20.4	21.1	22.7	28.8	32.6	28.8	25.1	27.4	29.6	30.1	31.8	28.4	29.7	30.8	22.5	19.4		
Hourly Average	10.0	10.6	11.5	11.7	11.9	12.7	12.8	13.1	13.4	13.6	14.3	15.3	14.9	16.1	16.4	15.7	16.4	15.3	14.4	13.2	11.1	9.5	9.6	9.5		

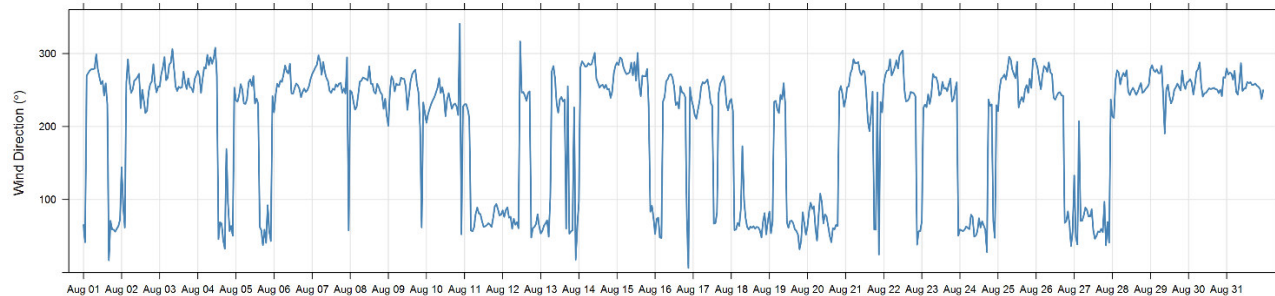
1-hour Wind Speed (km hr⁻¹) at Trailer



Lagoon Wind Direction (°) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	65.1	41.5	269.6	273.5	276.9	278.5	278.5	279.4	298.9	279.1	267.9	258.3	262.6	242.5	259.1	231.1	16.7	70.8	59.1	58.7	56.1	60.2	63.7	72.6	298.9	294.1
2	144.2	92.5	61.6	261.2	291.8	261.2	246.4	250.8	262.8	264.8	268.0	272.2	225.3	250.4	235.8	218.5	221.4	247.1	257.9	261.8	285.2	259.8	246.9	254.6	291.8	250.5
3	254.7	271.9	281.0	295.1	263.5	266.6	284.9	287.5	306.1	280.5	254.9	248.7	254.5	252.8	253.7	275.0	259.9	251.4	266.0	254.1	252.8	247.0	264.8	270.4	306.1	264.3
4	276.1	269.7	246.1	265.1	280.9	279.5	298.1	283.9	294.7	286.1	293.8	307.9	269.0	45.9	68.9	67.0	44.4	32.6	169.1	95.6	56.8	63.7	50.3	253.2	307.9	313.1
5	235.8	234.1	242.6	257.9	250.9	231.7	231.0	237.7	260.4	264.4	255.9	269.0	231.5	238.3	231.1	62.7	57.8	37.4	58.7	40.7	92.2	56.5	43.1	241.6	269.0	252.6
6	219.4	242.7	258.5	254.5	262.7	261.2	271.6	283.6	275.2	272.8	285.9	245.4	245.1	252.9	258.8	256.5	251.5	240.2	247.4	252.0	247.4	249.9	255.3	264.9	285.9	256.0
7	271.7	276.0	280.7	284.5	297.5	289.4	270.9	288.4	274.6	266.4	262.0	248.9	246.1	251.8	250.3	257.7	254.7	258.8	259.6	246.4	252.1	245.2	294.7	57.8	297.5	264.8
8	249.4	246.9	234.4	223.2	226.5	242.8	261.4	262.7	267.2	266.0	265.0	263.1	282.2	258.7	258.4	247.6	245.1	258.5	253.8	246.8	243.7	224.3	238.0	214.9	282.2	251.3
9	201.0	248.2	268.8	263.9	248.1	258.7	256.6	256.7	266.9	265.3	265.2	254.3	222.9	243.0	261.9	271.4	275.5	277.5	258.1	246.3	198.9	61.8	232.9	218.7	277.5	257.5
10	205.1	216.8	224.3	231.1	236.1	240.3	246.6	253.5	266.3	246.0	253.5	242.5	214.3	236.4	245.7	234.9	224.3	229.6	231.4	227.5	215.8	340.9	52.4	227.1	340.9	234.8
11	230.3	230.5	223.6	211.7	57.8	56.4	62.1	80.3	89.0	81.1	80.0	70.4	62.6	63.4	64.9	67.5	65.7	62.4	74.6	90.3	93.9	87.0	78.2	79.3	230.5	76.3
12	85.1	76.3	85.4	89.5	75.1	76.4	60.1	73.5	65.5	68.8	60.7	316.5	246.5	247.3	242.2	235.1	245.8	248.2	48.0	60.4	62.6	66.4	79.8	63.4	316.5	69.4
13	53.5	56.9	64.1	67.4	71.6	49.2	103.2	276.0	282.8	265.7	231.2	218.9	237.0	240.5	234.6	236.8	60.3	255.1	53.2	56.4	58.0	226.1	17.6	62.7	282.8	42.8
14	97.3	281.1	289.2	286.2	282.0	282.6	286.7	284.6	285.2	293.1	300.8	265.8	259.9	253.3	256.3	257.0	252.6	257.1	250.7	251.3	239.3	248.0	272.6	283.1	300.8	270.0
15	287.7	284.3	294.6	292.3	281.8	275.7	271.8	272.6	274.4	287.5	270.1	287.9	263.0	300.8	257.6	241.6	269.7	268.7	268.7	278.9	226.1	83.4	91.5	75.0	300.8	278.4
16	52.7	73.4	75.1	48.0	47.3	234.5	240.2	262.1	265.0	270.7	271.8	266.8	254.4	229.5	233.4	224.6	255.2	246.8	245.7	240.1	75.0	6.4	253.5	236.3	271.8	254.4
17	227.8	215.5	210.7	223.2	234.4	254.2	260.7	258.9	261.3	264.4	251.3	232.2	228.2	67.0	67.8	81.6	244.8	258.8	263.3	269.0	258.3	230.1	222.2	234.7	269.0	247.0
18	237.6	221.6	58.1	59.1	68.0	64.0	86.4	173.0	100.9	74.8	62.4	58.9	62.8	61.4	63.4	60.1	62.5	61.9	57.7	48.2	70.0	81.4	52.4	70.2	237.6	63.9
19	83.6	53.8	70.3	233.8	235.1	223.3	218.5	243.4	237.4	259.3	229.7	68.9	61.3	70.3	71.0	67.7	59.4	56.9	51.9	31.9	43.2	82.5	67.3	51.9	259.3	62.6
20	62.9	84.0	95.7	87.1	90.7	61.2	43.7	78.2	107.9	97.0	67.5	79.6	76.9	63.8	50.3	41.5	60.8	59.2	65.3	63.8	247.8	255.4	244.5	227.1	255.4	72.9
21	236.6	253.7	255.3	272.5	278.2	292.2	286.5	287.0	288.2	274.7	270.6	276.7	274.6	245.4	208.1	193.7	216.6	247.7	59.0	58.7	246.4	24.7	233.6	219.5	292.2	267.7
22	257.7	270.6	276.6	277.1	292.2	270.0	274.8	281.4	290.5	279.6	297.3	301.1	304.1	251.2	234.7	235.1	238.4	247.4	246.6	245.5	241.1	38.2	56.4	56.8	304.1	271.5
23	70.4	225.4	230.1	226.6	244.0	231.0	243.6	272.0	267.3	267.6	260.3	242.6	244.8	261.2	252.1	252.8	248.3	258.0	265.5	234.4	237.4	250.6	260.4	50.4	272.0	252.4
24	58.9	57.7	56.8	59.0	63.1	61.0	59.5	79.3	76.0	49.2	50.5	56.4	74.3	61.7	70.3	64.4	58.6	28.0	236.8	228.5	230.3	70.8	47.5	229.1	236.8	62.3
25	221.2	252.4	265.4	267.5	271.2	264.5	279.0	295.5	291.5	278.0	271.7	266.3	288.6	226.1	234.7	240.2	233.8	250.6	256.7	246.1	265.5	252.9	292.3	293.3	295.5	263.8
26	287.6	279.1	262.9	251.2	270.4	282.8	280.4	274.7	287.7	274.1	271.7	239.7	236.8	242.0	246.0	247.0	242.7	242.1	68.0	70.3	83.7	66.9	36.4	56.1	287.7	262.8
27	132.8	48.4	38.5	207.1	70.8	71.0	78.2	89.0	85.9	77.0	76.8	86.6	58.0	46.3	49.9	56.3	55.3	59.8	55.3	96.9	37.3	69.3	40.8	236.9	236.9	70.1
28	214.0	211.9	263.7	277.0	273.6	257.7	268.0	273.3	269.0	276.9	248.0	243.1	249.2	253.0	248.8	243.4	247.4	254.0	259.5	246.3	248.0	251.6	253.9	257.7	277.0	252.9
29	278.6	284.0	277.1	274.7	278.2	273.1	273.0	283.1	242.9	190.5	251.2	257.2	241.5	231.8	237.2	250.1	253.7	258.7	254.0	249.5	276.4	258.1	251.5	260.5	284.0	259.1
30	261.8	264.9	259.9	243.9	257.2	275.1	279.0	287.6	255.5	241.0	245.6	246.0	249.4	252.3	251.3	252.1	252.9	251.1	250.6	245.7	250.3	241.7	267.5	266.8	287.6	253.7
31	279.4	271.4	274.0	272.5	264.3	276.2	247.5	243.6	260.8	286.7	248.8	251.8	252.5	261.0	259.4	260.7	256.8	257.2	258.8	255.9	254.6	251.4	237.9	249.7	286.7	257.8
Hourly Max	287.7	284.3	294.6	295.1	297.5	292.2	298.1	295.5	306.1	293.1	300.8	316.5	304.1	300.8	261.9	275.0	275.5	277.5	268.7	278.9	285.2	340.9	294.7	293.3		
Hourly Average	188.4	198.0	203.1	220.6	214.3	217.5	220.9	237.2	237.4	230.6	225.5	224.0	215.5	200.1	198.6	191.3	184.9	194.6	182.3	177.3	182.1	159.8	164.5	181.8		

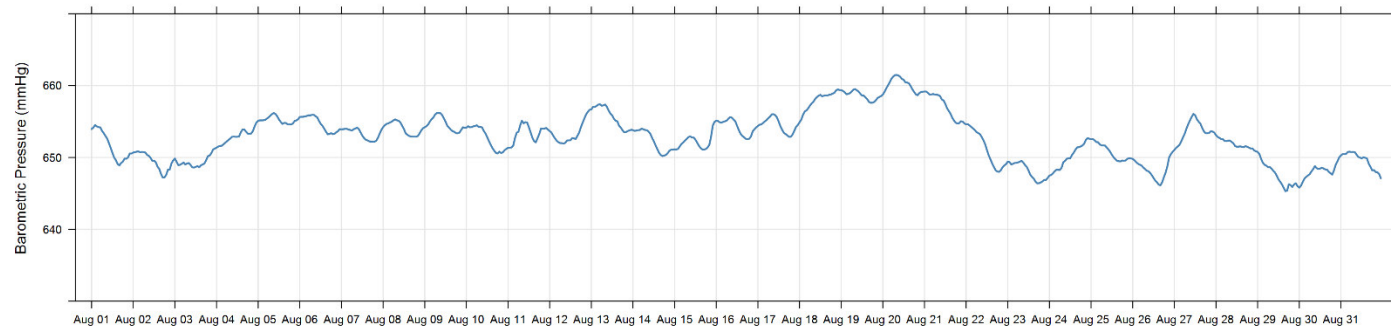
1-hour Wind Direction (°) at Trailer



Lagoon Pressure (mmHg) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	654.0	654.2	654.5	654.3	654.2	654.2	653.7	653.4	653.0	652.6	652.0	651.3	650.6	650.0	649.6	649.1	648.9	649.2	649.4	649.8	649.8	650.0	650.6	650.5	654.5	651.6
2	650.7	650.7	650.8	650.8	650.7	650.8	650.7	650.7	650.3	650.2	649.9	649.5	649.6	649.3	648.7	648.4	647.7	647.2	647.2	647.6	648.3	648.3	649.2	649.6	650.8	649.5
3	649.9	649.4	648.9	649.0	649.1	649.3	649.0	649.2	649.2	649.0	648.6	648.6	648.7	648.8	648.6	648.9	649.0	649.2	649.6	650.2	650.3	650.6	651.1	651.2	651.2	649.4
4	651.4	651.5	651.6	651.6	651.8	652.0	652.2	652.5	652.7	652.9	652.9	652.9	652.9	652.9	653.5	653.9	653.9	653.6	653.3	653.3	653.3	653.3	653.7	654.4	654.9	652.9
5	655.1	655.2	655.2	655.2	655.2	655.4	655.6	655.8	656.0	656.2	656.0	655.7	655.3	654.9	654.7	654.8	654.8	654.6	654.6	654.6	654.7	655.1	655.2	655.3	656.2	655.2
6	655.6	655.7	655.7	655.7	655.8	655.9	655.9	655.9	655.9	655.7	655.6	655.1	654.7	654.4	654.0	653.6	653.2	653.3	653.4	653.3	653.3	653.5	653.7	653.9	655.9	654.7
7	653.9	653.9	654.0	654.0	653.9	653.8	653.7	653.9	654.0	654.2	654.0	653.5	653.0	652.7	652.5	652.4	652.2	652.2	652.2	652.2	652.3	652.7	653.3	653.8	654.2	653.3
8	654.2	654.5	654.7	654.7	654.9	655.0	655.2	655.3	655.2	655.1	654.9	654.4	654.0	653.4	653.2	653.0	652.9	652.9	652.9	652.9	653.0	653.3	653.8	654.1	655.3	654.0
9	654.2	654.4	654.6	655.0	655.3	655.6	656.0	656.2	656.2	656.2	655.9	655.5	655.0	654.4	654.1	653.9	653.7	653.6	653.4	653.4	653.5	653.8	654.2	654.1	656.2	654.7
10	654.1	654.4	654.2	654.2	654.3	654.4	654.5	654.3	654.3	654.2	653.7	653.3	652.8	652.3	651.8	651.3	651.0	650.6	650.6	650.8	650.6	650.7	651.0	651.2	654.5	652.7
11	651.3	651.4	651.4	651.7	652.7	653.4	653.6	654.5	655.1	654.8	654.9	654.9	654.2	653.5	652.8	652.3	652.1	652.7	653.3	654.0	654.0	654.0	654.1	653.9	655.1	653.4
12	653.7	653.5	653.0	652.7	652.3	652.1	652.0	652.0	651.9	652.0	652.4	652.4	652.4	652.7	652.6	652.6	653.0	653.5	654.2	654.8	655.4	656.0	656.4	656.6	656.6	653.3
13	656.7	657.0	657.0	657.2	657.4	657.4	657.2	657.3	657.4	657.0	656.5	656.1	655.9	655.4	655.1	655.0	654.4	654.1	653.8	653.5	653.5	653.7	653.8	653.9	657.4	655.7
14	653.8	653.7	653.8	653.8	653.8	654.0	653.9	653.8	653.8	653.6	653.3	652.7	652.3	651.7	651.2	650.7	650.3	650.2	650.3	650.4	650.6	650.9	651.1	651.1	654.0	652.3
15	651.1	651.1	651.2	651.6	651.9	652.1	652.4	652.6	652.8	652.9	652.8	652.8	652.5	652.1	651.6	651.3	651.1	651.1	651.2	651.4	651.7	652.9	654.4	655.0	655.0	652.1
16	655.1	655.1	654.9	654.9	655.0	655.0	655.1	655.4	655.6	655.5	655.3	655.0	654.4	653.8	653.3	653.0	652.8	652.6	652.6	652.6	652.9	653.6	653.9	654.2	655.6	654.2
17	654.4	654.6	654.6	654.8	655.0	655.2	655.5	655.7	656.0	656.0	655.9	655.6	655.0	654.3	653.8	653.4	653.3	653.1	652.9	652.9	653.2	653.7	654.3	654.5	656.0	654.5
18	654.9	655.3	655.9	656.4	656.6	656.8	657.2	657.5	657.8	658.2	658.4	658.6	658.7	658.5	658.6	658.7	658.6	658.7	658.8	658.9	659.0	659.3	659.5	659.4	659.5	657.9
19	659.4	659.3	659.1	658.8	658.8	658.9	659.2	659.4	659.5	659.4	659.2	658.9	658.6	658.6	658.4	658.1	657.7	657.6	657.6	657.7	658.0	658.3	658.4	658.5	659.5	658.6
20	658.8	659.1	659.6	660.0	660.5	661.0	661.3	661.5	661.5	661.4	661.2	660.9	660.8	660.5	660.4	660.3	660.0	659.5	659.1	658.8	658.7	659.0	659.1	659.1	661.5	660.1
21	659.2	659.2	659.0	658.7	658.8	658.8	658.8	658.7	658.7	658.5	658.1	657.9	657.5	656.9	656.5	656.1	655.5	655.1	654.8	654.7	654.8	655.0	655.0	654.7	659.2	657.1
22	654.6	654.6	654.5	654.2	654.0	653.8	653.5	653.4	653.2	652.8	652.4	651.8	651.0	650.3	649.7	649.2	648.7	648.2	648.0	648.0	648.2	648.6	648.9	649.1	654.6	651.3
23	649.4	649.4	649.0	649.1	649.2	649.2	649.3	649.4	649.5	649.3	648.9	648.7	648.2	647.6	647.3	647.0	646.6	646.4	646.4	646.5	646.5	646.7	646.9	646.9	647.2	648.1
24	647.5	647.6	647.8	648.1	648.3	648.3	648.3	648.5	649.3	649.5	649.8	649.9	649.9	650.3	650.7	651.1	651.4	651.4	651.5	651.7	651.9	652.4	652.7	652.6	652.7	650.0
25	652.5	652.6	652.4	652.1	652.1	651.8	651.7	651.7	651.7	651.4	651.1	650.8	650.4	650.0	649.8	649.5	649.5	649.5	649.6	649.5	649.6	649.8	649.9	649.9	652.6	650.8
26	649.8	649.6	649.4	649.1	649.0	648.9	648.6	648.4	648.2	648.1	647.9	647.5	647.2	646.8	646.5	646.2	646.1	646.6	647.3	647.9	648.8	650.0	650.5	650.8	650.8	648.3
27	651.0	651.3	651.5	651.8	652.2	652.8	653.3	654.0	654.6	655.2	655.7	656.1	655.9	655.3	655.0	654.7	654.1	653.7	653.4	653.4	653.6	653.6	653.5	653.5	656.1	653.7
28	653.1	652.9	652.7	652.6	652.5	652.3	652.3	652.3	652.4	652.2	652.0	651.6	651.5	651.5	651.5	651.5	651.4	651.6	651.5	651.4	651.3	651.3	651.0	650.8	653.1	651.9
29	650.8	650.5	649.8	649.3	649.0	648.9	648.6	648.7	648.5	648.1	647.9	647.5	647.0	646.6	646.3	645.8	645.3	645.4	646.3	646.1	645.9	646.2	646.4	646.0	650.8	647.5
30	645.8	646.1	646.6	647.1	647.3	647.5	647.7	648.1	648.4	648.8	648.5	648.4	648.5	648.6	648.5	648.3	648.3	648.0	647.8	647.6	648.2	649.0	649.5	650.0	650.0	648.0
31	650.3	650.5	650.5	650.5	650.8	650.8	650.8	650.8	650.7	650.4	650.1	650.0	649.9	650.0	650.0	649.9	649.1	648.7	648.2	648.2	648.0	647.9	647.7	647.1	650.8	649.6
Hourly Max	659.4	659.3	659.6	660.0	660.5	661.0	661.3	661.5	661.5	661.4	661.2	660.9	660.8	660.5	660.4	660.3	660.0	659.5	659.1	658.9	659.0	659.3	659.5	659.4		
Hourly Average	653.1	653.2	653.2	653.2	653.3	653.4	653.6	653.7	653.6	653.4	653.2	652.8	652.5	652.3	652.1	651.8	651.7	651.8	651.9	652.0	652.4	652.7	652.8			

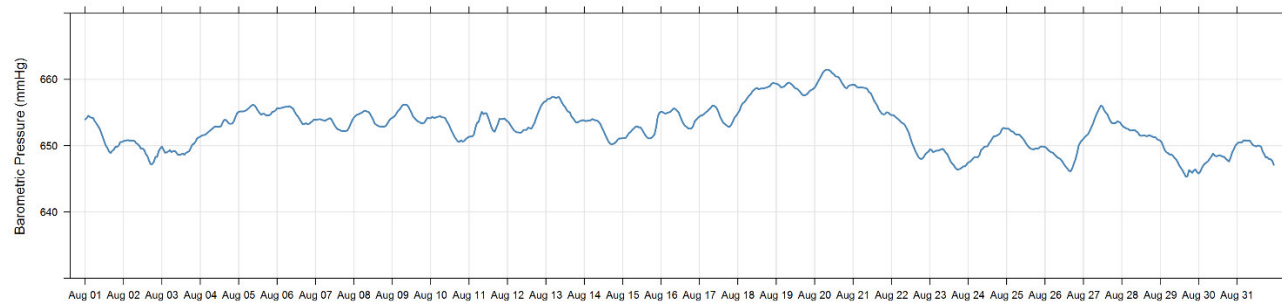
1-hour Barometric Pressures (mmHg) at Trailer



Lagoon Relative Humidity (%) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	69.5	64.9	72.0	69.4	61.4	62.0	61.4	65.1	68.6	63.9	53.2	44.1	39.4	31.3	30.3	26.2	24.6	56.8	83.8	86.1	81.4	83.5	84.9	87.7	87.7	61.3
2	90.0	91.6	92.2	92.6	92.8	91.9	88.0	83.3	81.9	78.6	69.8	66.2	73.4	62.8	40.5	27.8	24.7	25.9	26.4	25.3	28.6	43.3	37.4	37.6	92.8	61.4
3	43.5	54.5	61.6	65.6	71.8	75.0	74.3	73.0	68.4	61.1	45.2	34.7	32.4	31.7	30.5	32.4	32.8	32.2	34.7	45.3	49.1	50.5	50.2	52.2	75.0	50.1
4	53.6	55.1	59.1	61.8	59.7	61.2	62.0	63.3	63.6	63.4	60.6	57.3	46.9	47.5	57.7	62.4	59.9	56.4	57.4	62.6	72.6	74.8	82.9	84.6	84.6	61.9
5	87.2	88.5	88.7	88.8	86.2	86.4	86.4	86.4	82.7	79.7	76.3	62.0	50.6	34.4	29.6	40.3	40.9	39.9	42.9	44.9	59.2	75.9	83.3	83.9	88.8	67.7
6	73.3	68.6	64.2	66.2	68.2	69.2	69.4	69.0	63.9	56.9	49.8	38.9	29.2	28.0	26.8	24.9	23.3	23.7	25.2	25.5	27.4	30.3	31.4	34.3	73.3	45.3
7	37.5	39.2	43.3	46.1	49.9	53.1	56.5	56.5	55.7	51.6	42.9	27.9	23.9	21.7	20.3	19.5	18.4	17.7	18.2	20.2	21.5	26.9	35.5	43.3	56.5	35.3
8	58.7	68.9	57.7	57.7	56.1	56.6	57.2	55.8	55.0	49.5	41.1	33.4	28.5	21.8	17.4	16.5	16.5	16.3	17.8	20.3	24.0	33.7	31.6	44.4	68.9	39.0
9	56.5	51.2	31.8	35.5	39.3	41.8	44.6	47.9	47.6	44.8	41.0	33.7	29.5	19.5	16.0	14.8	14.5	14.3	15.3	19.1	37.7	54.3	46.3	50.7	56.5	35.3
10	36.1	39.5	43.7	47.5	50.1	50.6	51.6	52.2	48.1	46.2	40.7	34.8	30.5	17.7	11.6	11.0	10.8	11.4	12.4	12.7	15.9	31.0	44.8	53.4	53.4	33.5
11	37.5	40.7	41.5	45.0	52.8	58.0	62.7	58.1	51.1	47.0	42.7	38.6	34.7	33.2	33.8	32.8	33.1	42.9	52.4	61.0	62.4	64.7	67.4	76.2	76.2	48.8
12	87.4	88.3	83.6	81.8	81.1	84.8	85.9	82.1	79.6	79.9	75.4	65.4	50.8	48.6	40.0	37.9	39.6	40.9	56.7	66.8	70.6	72.6	72.2	71.6	88.3	68.5
13	71.5	72.0	75.0	76.6	77.0	77.6	79.3	79.0	76.3	70.4	60.8	49.3	45.9	39.0	34.2	30.9	29.5	26.5	31.2	34.2	49.0	65.6	75.3	78.8	79.3	58.5
14	81.9	50.3	45.5	51.0	54.3	58.5	60.8	61.0	59.4	53.4	45.8	34.7	30.2	26.6	22.6	21.0	21.5	20.6	22.5	24.5	27.1	28.7	31.6	36.9	81.9	40.4
15	40.7	42.7	46.1	48.2	50.6	52.1	53.7	55.5	56.0	57.2	53.3	46.7	40.2	33.9	28.6	21.3	17.1	16.6	17.0	18.3	33.9	45.2	50.2	56.3	57.2	40.9
16	63.5	70.5	74.9	82.2	85.9	84.0	83.6	78.0	70.9	65.5	61.2	52.9	46.4	40.1	31.8	23.7	16.4	15.5	16.5	19.3	39.1	55.2	52.1	52.8	85.9	53.4
17	51.2	44.7	43.9	45.3	47.8	47.1	46.7	47.6	48.9	49.6	47.7	44.1	37.1	28.7	25.8	24.6	20.0	16.8	16.6	17.2	19.9	30.4	48.5	48.6	51.2	37.5
18	37.5	40.5	47.5	57.5	64.2	75.2	81.9	83.6	77.2	71.4	62.1	43.3	32.1	37.5	38.6	36.6	36.7	38.6	39.4	42.9	49.6	53.7	65.5	73.7	83.6	53.6
19	77.4	81.3	84.4	85.9	78.6	79.6	80.9	78.1	76.8	71.4	67.5	57.1	50.5	46.2	41.9	39.0	38.0	37.7	40.2	43.0	44.6	50.3	54.9	53.7	85.9	60.8
20	55.2	53.3	59.1	64.1	72.9	83.9	86.7	88.4	89.1	86.7	73.7	62.3	57.7	55.6	53.1	49.7	47.0	45.2	43.1	48.4	66.9	78.9	77.4	71.8	89.1	65.4
21	68.4	66.0	66.6	67.7	68.6	69.8	69.2	69.7	67.9	62.4	53.5	45.2	35.0	26.2	20.1	18.1	16.1	13.7	17.0	22.1	41.0	60.7	49.2	45.7	69.8	47.5
22	35.5	38.0	40.8	44.3	47.6	50.2	50.0	50.9	51.7	47.5	41.4	32.6	26.2	20.6	19.5	18.4	16.8	16.4	17.2	21.2	38.0	53.9	63.1	69.0	69.0	37.9
23	70.7	70.8	51.8	52.7	46.9	51.3	50.6	49.5	47.8	46.4	43.8	42.2	37.1	27.0	19.9	18.0	15.5	13.2	13.4	16.8	18.8	22.1	24.0	37.4	70.8	37.0
24	57.2	63.9	63.0	63.4	70.3	73.1	72.6	73.2	81.1	89.6	89.5	85.1	79.8	83.0	82.8	81.2	83.3	81.1	83.8	86.0	85.7	89.0	87.9	88.0	89.6	78.9
25	90.5	90.0	91.6	92.6	91.0	89.3	87.7	86.8	84.6	81.4	76.5	67.1	57.5	41.6	35.2	32.8	33.3	32.7	35.2	40.1	42.8	52.7	52.0	51.0	92.6	64.0
26	54.5	58.0	62.1	65.1	67.4	67.2	68.7	67.9	65.5	65.1	57.6	46.1	38.5	35.3	32.2	30.4	32.2	39.4	60.6	82.5	82.0	85.3	86.6	86.4	86.6	59.9
27	89.4	90.4	88.2	88.9	86.3	81.2	78.1	76.9	76.3	76.5	77.0	76.1	70.4	63.4	55.6	49.3	46.7	39.1	40.9	55.6	74.5	83.6	87.6	89.1	90.4	72.5
28	82.8	75.7	65.3	63.2	64.5	65.0	64.4	61.9	61.2	57.2	49.2	43.9	39.4	39.2	38.2	39.9	42.0	41.3	42.0	44.5	47.2	48.5	50.9	51.4	82.8	53.3
29	53.0	56.0	57.0	57.1	57.7	56.3	57.3	57.3	57.8	56.6	41.5	37.4	34.6	33.0	32.4	31.2	30.2	32.4	52.2	56.7	58.5	55.0	53.2	50.7	58.5	48.5
30	47.1	45.8	51.8	59.7	62.6	63.9	61.3	63.5	56.8	48.7	38.6	33.6	33.9	32.5	32.2	31.5	32.2	34.1	33.8	36.0	42.8	56.4	63.7	74.0	74.0	47.4
31	72.1	69.3	70.0	71.5	73.0	71.8	75.3	76.3	68.2	58.4	41.6	34.1	33.5	33.8	36.0	35.4	35.3	33.7	32.7	32.6	32.8	34.5	38.9	38.2	76.3	50.0
Hourly Max	90.5	91.6	92.2	92.6	92.8	91.9	88.0	88.4	89.1	89.6	89.5	85.1	79.8	83.0	82.8	81.2	83.3	81.1	83.8	86.1	85.7	89.0	87.9	89.1		
Hourly Average	62.3	62.3	62.1	64.4	65.7	67.3	68.0	67.7	65.8	62.5	55.5	47.4	41.8	36.8	33.4	31.6	30.6	31.4	35.4	39.7	46.6	54.6	57.4	60.4		

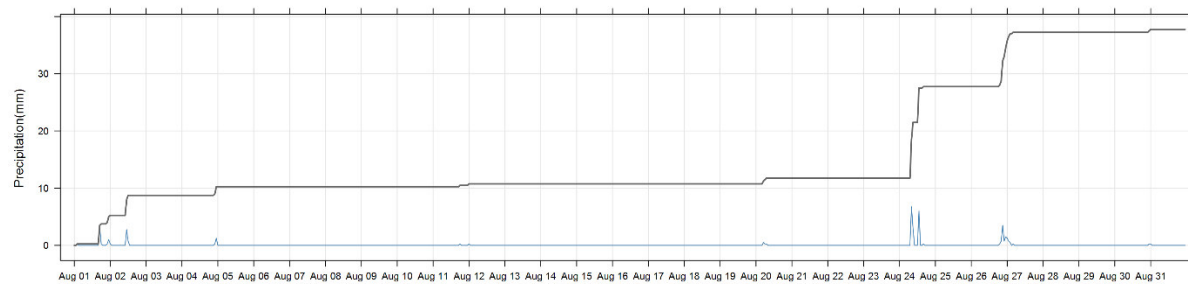
1-hour Barometric Pressures (mmHg) at Trailer



Lagoon Precipitation (mm) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Total
1	0.0	0.0	0.3	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	3.3	0.3	0.0	0.0	0.0	0.3	1.0	3.3	5.0
2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	3.8
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3	1.3	1.5
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.3
12	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	3.0	0.0	0.0	0.0	6.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	16.0
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	0.3	0.8	3.5	0.8	1.5	3.5	6.8
27	1.3	0.8	0.5	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	1.3	2.8
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3
31	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
Hourly Max	1.3	0.8	0.5	0.0	0.3	0.5	0.3	0.3	6.8	3.0	0.0	2.8	0.8	6.0	0.0	0.0	0.3	3.3	0.3	0.3	0.8	3.5	0.8	1.5		
Hourly Average	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1		

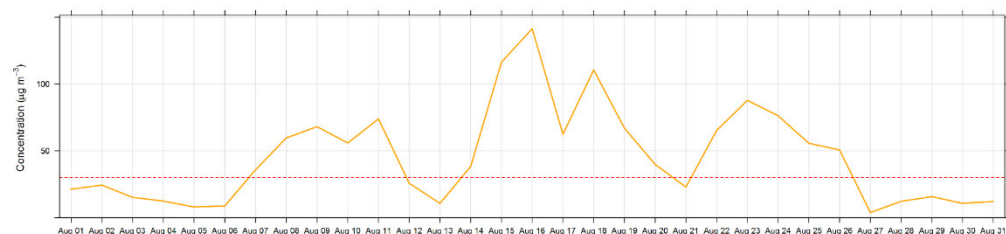
1-hour Precipitation (mm) at Trailer



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

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	19.4	17.2	13.6	16.9	22.0	32.6	23.4	19.8	21.6	20.9	18.3	18.7	15.8	C	C	17.2	21.6	23.1	23.1	25.6	25.6	26.4	19.8	25.7	32.6	21.3
2	19.8	18.3	18.7	20.2	20.5	17.6	23.1	22.0	24.2	25.6	29.3	29.8	30.4	27.1	20.5	23.8	22.3	26.0	32.6	36.3	29.7	21.3	22.3	23.8	36.3	24.4
3	18.3	11.0	8.1	5.5	5.5	6.6	10.9	7.3	6.2	11.7	11.7	13.9	16.1	13.9	29.3	26.0	29.3	27.0	23.8	19.4	14.7	13.2	18.7	16.9	29.3	15.2
4	18.3	9.2	15.8	13.2	13.9	18.7	13.9	9.2	9.5	15.0	11.4	13.2	11.7	16.1	12.8	16.5	10.6	6.6	4.0	7.0	11.4	17.6	9.5	12.8	18.7	12.4
5	9.5	6.2	7.0	7.3	8.0	8.1	11.7	8.1	11.0	9.5	11.0	9.2	8.8	7.3	5.4	2.9	4.0	4.0	6.2	5.9	8.4	9.2	12.1	9.9	12.1	8.0
6	8.8	8.8	8.4	9.5	8.8	6.6	9.2	11.0	9.2	7.3	7.0	7.7	7.7	6.0	7.7	6.6	6.6	8.8	7.7	10.3	7.7	11.7	13.6	13.9	13.9	8.8
7	12.5	11.0	12.5	14.7	14.7	14.7	12.8	10.3	9.9	14.0	13.6	14.7	20.2	24.5	25.6	26.4	27.1	33.0	43.9	66.3	109.8	141.7	112.7	72.9	141.7	35.8
8	45.8	38.5	35.5	37.3	39.2	34.4	34.4	29.7	26.7	28.9	33.0	36.6	31.8	30.0	33.7	64.8	145.7	148.3	132.5	127.8	126.3	114.4			148.3	59.7
9	94.5	84.2	59.7	63.7	66.3	67.4	62.3	62.3	63.0	64.1	65.2	65.2	60.4	56.4	63.4	70.3	72.1	63.0	61.2	71.8	80.2	76.5	72.5	69.2	94.5	68.1
10	72.1	72.1	62.3	63.0	63.4	56.8	62.6	62.6	63.4	61.0	65.9	67.0	68.8	67.7	62.6	43.6	39.2	35.5	41.0	41.8	62.3	36.3	38.1	32.6	72.1	55.9
11	37.2	43.2	41.4	50.2	50.2	59.3	117.9	130.0	141.0	127.8	123.0	119.0	98.5	90.8	88.2	78.7	70.3	60.1	53.5	59.7	46.0	28.9	30.4	28.5	141.0	73.9
12	27.1	25.3	27.8	27.1	26.3	26.4	28.2	27.8	27.5	28.2	30.0	35.2	28.2	38.5	46.1	24.2	32.6	30.0	38.1	22.7	5.9	6.6	4.8	2.2	46.1	25.7
13	2.9	4.8	1.5	0.0	1.1	2.9	3.3	2.6	7.0	7.3	8.4	15.8	16.5	19.4	16.9	19.4	15.4	19.8	14.3	14.3	13.2	13.9	17.2	18.3	19.8	10.7
14	22.4	20.9	12.1	11.0	13.3	13.2	16.5	12.8	13.6	19.1	21.6	20.2	30.0	26.0	24.9	19.6	22.7	38.1	48.3	82.7	133.3	109.5	96.3	92.4	133.3	38.3
15	84.9	89.0	90.4	96.3	111.7	117.9	124.5	134.4	139.5	134.7	142.1	144.3	142.1	143.5	135.5	124.9	76.2	64.8	61.9	62.6	69.9	68.5	194.4	239.1	239.1	116.4
16	235.4	230.3	221.5	221.5	199.2	188.2	208.7	211.3	189.7	166.2	139.9	129.6	129.2	127.8	119.7	105.8	94.1	86.0	83.5	70.7	59.3	60.8	55.7	59.7	235.4	141.4
17	59.3	64.8	56.4	55.3	59.7	52.4	52.4	48.7	54.3	56.4	58.6	54.9	66.3	61.9	62.3	61.9	65.5	69.2	68.5	64.8	71.8	80.9	76.2	76.9	80.9	62.5
18	69.9	64.1	61.8	72.9	91.2	93.0	108.9	100.7	100.2	80.6	110.9	135.5	163.7	185.6	211.3	196.3	167.7	147.2	122.7	103.3	89.7	61.2	62.6	53.1	211.3	110.6
19	56.8	57.1	52.7	51.7	60.8	65.9	61.9	67.8	73.3	76.5	76.9	89.7	82.4	76.5	72.1	73.6	78.3	68.1	66.6	60.1	54.6	65.5	55.3	64.1	89.7	67.0
20	68.1	56.0	58.2	57.5	56.8	47.6	44.3	42.2	43.2	44.7	35.2	37.0	32.2	31.1	37.0	36.3	31.9	29.3	29.2	28.6	26.7	30.0	25.6	28.2	68.1	39.9
21	25.6	27.1	26.0	28.6	25.3	24.9	22.0	24.6	29.3	23.8	26.2	31.9	31.9	32.6	31.9	19.4	15.0	14.7	14.7	15.4	12.8	13.2	16.7	15.8	32.6	22.9
22	37.0	68.5	61.2	61.2	61.5	58.0	63.4	58.0	65.6	65.9	67.4	67.7	86.8	93.4	92.6	85.3	73.6	63.0	51.3	39.6	45.0	58.2	80.9	61.9	93.4	65.3
23	50.9	53.1	64.5	92.6	89.0	83.1	81.7	79.9	78.7	79.5	77.3	76.9	81.7	87.9	120.5	138.0	133.3	112.8	81.9	68.1	69.2	88.2	105.5	113.1	138.0	87.8
24	117.2	112.3	117.9	133.3	149.8	147.5	150.5	149.8	99.2	73.6	58.2	48.7	48.3	69.9	73.8	52.4	38.4	29.7	17.6	20.2	31.5	30.4	31.1	29.7	150.5	76.3
25	30.4	27.5	31.9	23.8	27.1	26.7	29.3	31.1	32.2	39.2	39.2	44.0	55.7	64.4	76.2	78.7	76.9	87.9	89.0	89.7	83.1	90.1	79.4	82.4	90.1	55.7
26	88.6	78.0	71.0	65.9	71.4	70.7	67.0	66.3	67.0	65.6	71.1	80.2	56.4	41.4	35.5	33.1	35.9	35.9	41.4	28.6	32.2	3.7	4.8	4.0	88.6	50.6
27	0.7	2.6	3.7	3.0	1.7	1.8	6.6	4.4	0.0	1.5	4.4	4.8	4.6	4.0	2.6	2.6	3.7	5.1	6.2	5.9	6.0	5.9	5.9	4.0	6.6	3.8
28	4.8	5.1	5.1	8.4	8.7	8.1	5.5	6.6	7.7	10.3	11.0	10.9	17.2	16.9	11.0	15.4	12.1	20.9	20.9	13.6	17.6	22.0	17.6	16.1	22.0	12.2
29	16.1	15.8	15.0	15.4	13.6	18.0	15.0	16.9	20.9	26.7	24.9	22.0	20.2	15.0	13.2	13.2	13.2	12.5	16.1	11.4	10.3	11.7	12.1	8.4	26.7	15.7
30	5.5	6.2	3.7	3.7	4.7	2.6	0.0	0.0	0.0	0.0	5.5	9.5	16.9	20.9	23.1	24.5	28.2	24.5	19.4	15.4	15.8	15.0	7.7	4.4	28.2	10.7
31	6.2	3.3	2.2	5.1	4.8	3.3	5.9	5.1	2.9	6.2	7.0	19.8	26.7	21.2	16.5	20.9	14.7	23.8	20.9	24.2	12.1	14.7	11.0	12.1	26.7	12.1
Hourly Max	235.4	230.3	221.5	221.5	199.2	188.2	208.7	211.3	189.7	166.2	142.1	144.3	163.7	185.6	211.3	196.3	167.7	147.2	145.7	148.3	133.3	141.7	194.4	239.1		
Hourly Average	45.3	44.3	42.2	44.3	46.2	45.7	49.1	48.6	47.8	46.2	46.4	48.2	49.4	51.8	53.6	48.9	45.1	43.7	44.5	43.7	45.9	44.9	47.5	46.5		

24-hour PM_{2.5} (µg m⁻³) at Windridge

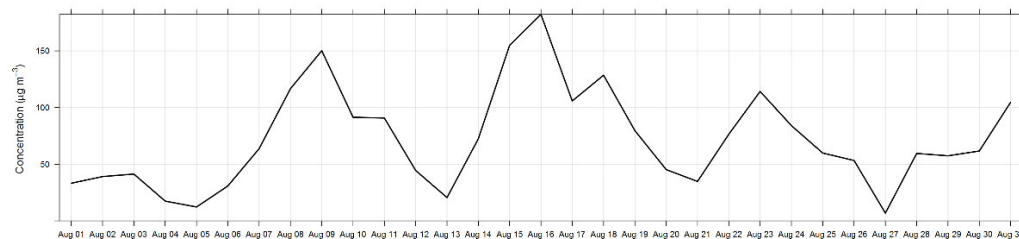


Number of 1HR Exceedances	119	Guideline	80	UG/M3
Number of 24HR Exceedances	17	Objective	30	UG/M3
Number of Non-Zero Readings	737			
Maximum 1-HR Average	239.1	UG/M3		
Maximum 24-HR Average	141.4	UG/M3		
Izs Calibration Time	0	HRS	Operational Time	744 HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0 %
Standard Deviation	42.8		Monthly Average	45.5 UG/M3

Windridge PM₁₀ (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	18.8	28.7	20.3	30.1	33.0	42.1	44.2	18.8	19.6	20.3	25.9	33.7	55.5	C	C	44.9	44.2	38.7	45.6	31.5	35.1	28.7	33.7	37.2	55.5	33.2
2	34.4	20.3	21.0	35.1	21.7	21.7	25.9	28.0	32.3	30.1	41.5	39.3	45.6	37.2	31.5	70.3	29.4	44.9	55.5	72.4	49.9	59.0	21.7	70.3	72.4	39.1
3	38.6	23.8	11.1	16.7	8.2	9.7	6.2	6.2	10.4	11.1	18.8	45.6	58.3	61.9	97.8	71.0	48.5	102.7	76.7	42.8	51.3	66.8	74.6	33.0	102.7	41.3
4	24.5	15.9	11.1	13.4	13.9	19.6	16.0	13.9	13.9	22.4	20.3	21.0	20.3	40.7	13.2	21.3	15.3	14.1	8.7	10.4	19.6	19.6	17.4	12.5	40.7	17.4
5	16.1	13.9	13.9	9.7	11.1	8.3	11.1	11.3	11.1	11.8	12.5	14.4	13.9	13.2	13.6	9.0	18.1	15.3	9.7	9.7	11.1	11.8	12.5	11.8	18.1	12.3
6	14.6	15.3	13.9	13.2	12.1	13.9	11.1	11.0	11.1	16.0	13.2	6.9	42.1	36.5	51.3	54.1	61.9	92.2	37.9	79.5	37.2	29.4	28.7	35.8	92.2	30.8
7	23.1	18.1	42.9	23.8	13.9	10.4	17.4	16.0	16.0	18.8	23.8	33.0	59.0	57.6	72.4	58.6	71.7	97.1	91.5	133.1	215.6	191.6	131.0	92.8	215.6	63.7
8	58.3	42.1	44.9	44.9	79.5	39.3	35.8	37.2	92.9	66.8	76.7	103.5	99.8	57.3	85.1	47.1	66.8	174.0	354.5	287.5	356.6	239.5	180.3	129.5	356.6	116.7
9	102.8	92.2	79.5	83.1	83.7	78.1	73.1	93.6	114.7	188.1	189.5	135.2	192.3	131.0	181.7	293.8	353.8	267.0	193.8	207.1	212.0	87.2	89.4	81.6	353.8	150.2
10	110.5	85.8	73.8	83.7	67.7	68.7	69.6	77.0	133.1	81.6	98.5	92.2	119.0	153.5	114.7	92.2	80.2	63.3	85.1	102.5	202.9	42.8	45.6	49.9	202.9	91.4
11	62.6	56.2	68.2	60.4	57.6	83.0	144.3	153.5	160.6	147.2	133.8	128.8	117.6	108.4	106.3	92.1	82.3	90.1	78.1	78.1	52.0	40.0	39.3	37.2	160.6	90.7
12	37.2	33.0	35.8	42.1	39.3	45.5	47.8	49.2	42.8	42.1	46.3	45.6	84.2	68.9	92.1	54.8	48.5	74.6	58.3	31.5	14.6	15.7	10.4	6.9	92.1	44.5
13	5.5	6.2	4.1	5.4	6.9	7.1	10.4	8.3	30.1	28.0	37.9	33.0	23.1	37.3	24.5	30.1	23.1	22.8	21.7	16.7	25.2	25.9	28.7	31.6	37.9	20.6
14	33.7	21.7	18.1	18.7	16.7	19.6	22.1	21.7	19.6	37.9	40.1	54.8	157.0	75.3	75.3	68.2	82.3	86.5	114.7	144.3	208.6	150.0	139.4	112.6	208.6	72.4
15	103.5	100.6	106.9	111.8	114.0	120.0	128.1	141.8	163.7	149.3	166.9	180.3	185.9	184.5	159.3	205.0	135.2	212.0	194.4	135.2	142.2	73.1	242.4	263.2	263.2	155.0
16	262.8	252.9	255.1	242.4	207.8	202.9	226.2	219.8	224.0	250.8	224.0	219.1	200.1	181.5	184.5	147.9	131.7	135.9	120.4	135.2	135.9	91.1	60.5	61.9	262.8	182.3
17	64.2	86.5	68.2	61.9	56.5	62.6	63.3	63.3	75.9	201.5	135.2	118.3	109.8	116.1	85.1	88.6	92.2	145.8	195.8	165.5	154.2	160.6	94.9	73.8	201.5	105.8
18	72.4	66.6	67.5	96.4	107.0	103.5	108.4	116.2	145.1	140.8	142.2	160.6	161.3	191.6	250.8	217.0	190.2	166.9	149.3	121.8	97.3	76.0	66.8	69.6	250.8	128.6
19	71.0	63.3	56.2	59.1	71.3	66.6	70.3	79.5	83.1	86.5	92.9	97.8	94.3	86.5	82.3	88.6	102.0	90.8	89.4	77.4	70.3	75.3	71.7	86.2	102.0	79.7
20	89.4	78.1	75.8	65.4	57.6	54.1	47.8	42.1	40.7	40.0	41.4	52.0	34.4	34.4	37.0	35.1	36.5	30.5	31.5	38.6	38.6	30.8	28.0	26.6	89.4	45.3
21	31.5	44.2	32.3	30.0	29.4	29.4	28.7	30.8	35.8	45.7	35.6	73.1	72.4	72.4	42.8	28.0	18.1	23.1	16.7	21.7	22.4	22.8	23.1	25.2	73.1	34.8
22	39.3	68.2	68.2	65.6	64.7	56.9	64.7	66.5	66.1	81.7	80.2	79.5	99.9	107.0	120.4	100.6	87.2	80.9	78.7	75.3	68.2	67.5	84.4	63.9	120.4	76.5
23	59.0	71.0	86.5	103.5	101.3	97.8	98.5	84.4	91.9	93.2	99.2	92.9	91.5	100.6	154.2	171.8	169.7	142.9	105.6	110.5	154.2	158.5	132.4	170.4	171.8	114.2
24	151.4	152.8	130.2	142.2	159.2	156.2	168.3	153.5	108.4	72.4	56.9	48.5	48.5	74.5	83.7	48.5	41.4	28.0	17.4	30.1	37.2	31.7	38.5	37.2	168.3	84.0
25	38.6	30.8	40.7	23.8	30.1	28.3	33.7	30.1	34.4	35.8	44.2	47.1	59.0	61.2	85.8	86.5	85.0	85.8	98.5	97.8	99.2	87.9	84.4	87.9	99.2	59.9
26	86.5	80.9	68.9	65.5	68.8	69.0	69.6	68.2	61.1	68.2	67.5	95.0	68.9	47.8	48.5	36.5	47.1	46.3	40.0	33.0	34.4	3.3	1.9	2.6	95.0	53.3
27	1.5	2.6	4.0	6.0	6.7	4.0	5.5	4.7	3.3	4.2	8.3	6.9	5.4	5.4	5.4	8.3	9.0	9.0	11.1	11.0	10.4	9.7	11.8	10.4	11.8	6.9
28	16.0	16.0	4.0	9.7	7.6	11.8	9.7	7.6	10.4	13.9	56.2	47.8	107.7	83.0	72.4	92.2	59.0	145.1	102.7	99.2	163.0	92.9	125.3	75.3	163.0	59.5
29	42.8	35.1	37.2	26.7	34.4	41.4	28.0	33.7	30.8	33.8	58.3	85.1	111.2	59.0	35.8	49.2	102.0	114.0	203.6	35.8	42.1	34.4	62.6	41.4	203.6	57.4
30	25.2	24.5	21.7	43.5	16.7	15.9	8.2	1.9	2.6	68.8	61.9	89.4	119.7	97.8	154.2	122.7	171.8	74.6	62.6	75.3	79.5	81.6	42.1	18.2	171.8	61.7
31	12.5	9.5	7.6	4.3	3.3	3.3	0.5	0.0	4.0	27.3	49.2	123.8	238.8	109.1	147.2	150.7	150.7	298.8	257.2	390.4	148.6	202.2	99.9	73.1	390.4	104.7
Hourly Max	262.8	252.9	255.1	242.4	207.8	202.9	226.2	219.8	224.0	250.8	224.0	219.1	200.1	191.6	250.8	293.8	353.8	267.0	354.5	287.5	356.6	239.5	242.4	263.2		
Hourly Average	57.9	54.9	52.7	54.5	53.3	52.9	56.5	56.3	62.8	70.3	71.7	76.0	88.6	82.1	88.3	84.5	83.5	90.5	91.6	83.7	94.7	70.2	67.4	61.9		

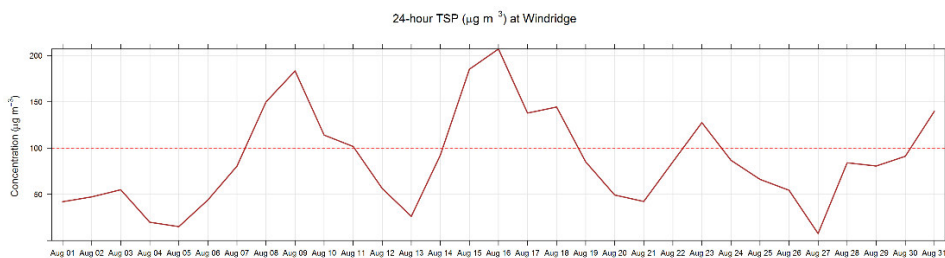
24-hour PM₁₀ (µg m⁻³) at Windridge



Number of 1HR Exceedences	n/a	Guideline	n/a	UG/M3
Number of Non-Zero Readings	741			
Maximum 1-HR Average	390.4	UG/M3		
Maximum 24-HR Average	182.3	UG/M3		
IZS Calibration Time	0	HRS	Operational Time	744 HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0 %
Standard Deviation	61.7		Monthly Average	72.2 UG/M3

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

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	20.3	31.5	22.4	34.4	29.4	53.4	47.9	21.0	27.3	21.7	35.8	41.4	82.3	C	C	66.8	66.3	59.7	77.4	34.4	37.9	31.5	41.4	40.7	82.3	42.0
2	36.5	25.9	24.5	44.9	28.7	18.9	26.6	30.8	29.4	35.8	45.6	38.6	54.8	33.7	43.5	103.5	35.5	55.7	66.1	96.4	64.7	87.9	21.7	83.7	103.5	47.2
3	49.9	26.6	10.4	6.9	6.9	9.7	8.3	8.3	12.5	9.7	19.6	64.7	86.5	90.8	127.4	99.2	54.1	152.1	104.9	62.0	69.6	95.0	110.5	33.7	152.1	55.0
4	20.1	19.6	13.1	11.8	18.9	21.7	20.3	12.5	10.4	24.0	27.3	23.8	19.6	52.7	13.6	30.1	14.6	17.4	10.4	15.3	24.5	18.8	20.3	14.6	52.7	19.8
5	13.9	13.9	10.4	9.0	14.6	9.7	7.6	8.3	10.4	16.7	10.9	12.0	11.8	16.7	16.7	7.6	16.7	18.8	32.2	30.8	25.9	17.4	16.7	13.4	32.2	15.1
6	13.2	11.8	14.6	13.9	12.5	12.5	8.3	9.0	7.6	13.9	11.1	9.0	62.6	69.6	68.9	85.1	76.7	176.1	61.9	139.4	60.4	37.2	28.7	52.0	176.1	44.0
7	32.2	24.5	54.1	27.3	8.3	16.7	16.0	18.1	17.4	25.2	28.7	30.8	91.5	79.5	107.7	82.3	102.0	140.1	117.6	168.9	279.0	218.4	147.1	97.8	279.0	80.5
8	71.7	46.6	46.3	49.2	92.2	41.4	40.7	39.3	116.9	82.3	89.3	135.9	140.1	76.0	110.5	59.7	85.9	241.7	491.3	354.5	486.4	329.1	231.1	140.8	491.3	150.0
9	108.5	99.2	81.6	79.5	78.8	79.5	70.1	86.5	133.8	247.3	259.3	180.3	296.6	185.2	266.3	429.2	503.4	380.6	298.1	283.3	310.0	100.6	86.5	78.8	503.4	196.8
10	123.9	93.6	78.1	86.5	68.2	68.9	66.1	78.8	171.1	97.1	121.8	108.4	153.5	201.5	145.8	133.1	107.7	89.4	114.0	152.1	322.0	54.1	52.7	49.2	322.0	114.1
11	71.7	66.1	81.6	62.6	62.6	102.0	166.2	152.8	164.1	144.3	153.8	140.8	129.5	119.7	125.3	105.6	99.9	120.4	91.5	91.5	59.0	42.1	42.8	44.9	166.2	101.7
12	49.9	42.6	40.0	57.6	49.2	56.9	54.8	59.8	48.5	52.7	50.8	54.8	127.4	80.9	119.0	69.6	60.4	102.0	73.7	36.9	18.8	26.6	10.4	7.6	127.4	56.3
13	6.9	4.7	2.6	6.2	9.0	7.6	10.4	16.0	42.8	40.7	53.4	42.1	32.2	47.1	37.2	37.2	26.6	28.7	25.9	28.7	27.3	29.3	39.3	53.4	28.7	26.2
14	34.4	29.4	27.9	26.2	19.6	23.1	19.6	28.7	22.4	47.1	53.4	77.4	207.8	104.2	98.5	90.8	109.1	119.0	154.2	175.4	268.4	190.9	162.0	129.5	268.4	92.5
15	107.7	106.3	107.7	119.5	116.1	124.6	126.7	146.5	173.3	159.2	183.8	199.3	202.9	213.4	181.0	294.5	190.2	326.0	290.3	191.8	197.2	72.4	330.0	286.4	330.0	185.3
16	270.6	264.2	271.3	258.6	210.6	198.7	221.1	216.3	241.0	279.0	259.3	258.6	231.1	209.9	240.9	176.8	172.6	181.0	158.7	185.2	212.7	120.4	67.5	66.1	279.0	207.2
17	70.3	94.3	70.3	68.9	64.0	63.3	67.5	66.8	88.6	286.8	171.1	158.5	152.1	181.7	119.6	107.7	120.9	208.5	288.9	237.4	217.7	109.8	76.7	288.9	137.9	288.9
18	77.4	64.7	69.6	116.9	114.2	104.2	114.8	127.4	178.2	245.9	173.3	176.1	177.5	197.9	285.4	233.1	195.1	176.8	164.8	131.0	107.4	77.4	78.8	78.1	285.4	144.4
19	75.3	66.1	61.2	64.0	64.7	67.5	77.4	70.3	82.3	91.5	92.9	97.8	114.0	97.0	94.3	99.2	104.9	106.3	92.2	88.6	76.0	81.6	81.6	98.5	114.0	85.2
20	102.8	92.9	98.5	68.2	61.9	55.5	49.2	43.5	37.9	44.2	40.0	50.6	37.2	35.8	40.0	35.1	41.4	38.6	35.8	39.3	48.5	28.7	27.3	28.7	102.8	49.2
21	40.7	52.0	41.4	36.5	28.7	34.4	30.1	29.4	40.0	51.3	40.0	103.5	90.1	103.2	54.1	32.0	24.5	23.8	21.7	28.7	27.3	26.6	28.0	27.3	103.5	42.3
22	55.8	75.3	70.1	73.9	75.3	63.3	64.7	68.2	79.5	87.2	90.8	89.4	97.1	119.7	141.5	111.2	97.0	92.9	83.7	94.3	80.2	80.2	83.7	66.8	141.5	85.1
23	61.2	73.1	100.6	109.8	109.8	106.3	102.0	83.7	98.5	87.9	106.3	96.4	89.4	113.3	165.5	185.2	181.7	160.6	123.5	138.7	231.8	183.9	154.2	197.8	231.8	127.6
24	170.4	164.8	138.0	142.9	162.7	157.0	169.7	156.4	112.6	78.1	52.0	49.9	49.9	78.1	83.4	48.9	41.4	29.4	21.7	33.5	37.9	35.4	36.5	34.4	170.4	86.9
25	49.2	35.8	34.4	25.2	28.0	28.0	28.7	31.5	65.4	44.9	62.6	78.8	61.9	73.8	91.5	90.8	87.1	94.3	116.9	103.5	98.5	90.8	83.7	83.7	116.9	66.2
26	92.9	85.1	70.1	64.0	68.2	72.4	61.2	63.3	67.5	68.9	64.6	90.1	64.7	54.1	45.6	42.8	47.8	48.5	44.9	35.8	35.1	6.2	6.9	4.7	92.9	54.4
27	3.3	1.9	2.6	4.7	3.3	3.3	3.3	4.0	2.6	11.8	11.1	7.6	6.2	6.7	5.4	5.4	14.6	15.3	19.6	9.7	11.0	8.6	9.7	10.4	19.6	7.6
28	11.8	16.0	8.3	15.3	6.0	13.2	8.3	6.9	14.6	18.9	69.0	63.3	171.8	105.6	110.5	136.6	78.8	214.9	154.2	148.6	238.8	126.0	171.8	109.7	238.8	84.1
29	68.9	40.0	42.8	30.1	51.3	53.4	29.4	40.0	33.0	37.9	85.1	119.0	152.8	85.1	44.9	64.0	150.0	171.4	314.3	47.1	60.5	51.3	98.5	64.0	314.3	80.6
30	31.5	37.9	42.5	55.5	30.1	16.7	6.9	4.7	5.4	104.2	103.5	135.2	175.4	148.6	217.0	171.4	253.0	105.6	95.6	123.9	128.1	115.4	59.8	18.9	253.0	91.1
31	13.9	12.2	10.4	5.5	3.3	8.3	4.7	4.7	8.5	40.0	58.1	179.6	353.1	145.1	240.2	219.1	224.7	189.5	395.4	463.8	231.1	288.9	156.4	97.8	463.8	139.8
Hourly Max	270.6	264.2	271.3	258.6	210.6	198.7	221.1	216.3	241.0	286.8	259.3	258.6	296.6	213.4	285.4	429.2	503.4	380.6	491.3	354.5	486.4	329.1	330.0	286.4		
Hourly Average	64.8	60.2	57.9	59.0	56.5	56.1	57.5	57.6	71.2	85.2	85.5	91.1	112.3	102.8	110.4	107.8	105.3	123.2	124.9	110.1	128.8	86.6	81.0	69.3		



Number of 24HR Exceedences	10		Guideline	100	UG/M3
Number of Non-Zero Readings	742				
Maximum 1-HR Average	503.4	UG/M3			
Maximum 24-HR Average	207.2	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	2	HRS	Operational Uptime	100.0	%
Standard Deviation	79.4		Monthly Average	87.7	UG/M3

West PM_{2.5} (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	15.3	16.5	29.3	57.4	35.3	29.5	27.5	27.0	26.2	-	-	
2	25.7	26.9	25.9	23.3	21.5	26.7	32.3	33.2	37.4	38.5	36.5	36.7	37.1	29.8	28.0	27.2	28.0	29.1	36.7	30.7	28.8	32.0	30.7	27.2	38.5	30.4	
3	16.0	9.4	9.9	9.4	9.4	9.3	9.7	11.2	13.0	14.1	14.2	14.9	16.7	19.4	23.7	26.8	25.2	22.2	20.9	19.1	18.3	19.3	19.9	19.7	26.8	16.3	
4	19.9	19.6	19.9	19.7	20.0	19.5	18.3	17.1	16.7	17.1	17.1	17.0	16.0	15.0	14.3	11.6	10.2	10.9	10.6	12.6	12.9	12.9	12.6	11.2	20.0	15.5	
5	10.8	11.1	11.4	12.0	12.2	12.1	12.4	13.0	13.3	13.3	13.2	10.6	7.9	6.2	5.6	8.3	10.9	10.0	7.9	9.1	11.7	11.4	11.8	12.7	13.3	10.8	
6	13.5	14.1	13.5	13.4	13.2	13.4	13.3	13.0	12.7	12.8	12.0	7.9	5.4	5.2	5.9	5.9	5.6	6.7	5.9	7.8	10.7	15.3	17.6	17.6	17.6	10.9	
7	16.2	16.9	17.0	17.0	17.7	18.3	19.0	20.3	20.3	20.1	15.5	14.2	20.0	18.8	R	R	R	R	R	R	R	R	R	R	-	-	
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
11	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
12	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
13	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
15	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
16	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
17	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
18	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
19	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
20	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
21	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
22	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
23	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-	
24	R	R	R	R	R	R	R	R	R	R	R	R	72.4	83.8	77.2	61.5	51.4	45.6	34.4	31.8	34.4	35.9	37.4	36.5	43.9	-	-
25	46.6	39.7	35.9	34.8	36.5	38.2	39.3	40.3	45.5	49.4	54.2	60.3	68.6	78.5	79.3	80.7	85.8	90.4	91.4	89.0	86.7	86.1	86.4	87.8	91.4	63.8	
26	83.7	77.8	74.4	73.4	73.5	73.2	72.2	73.2	72.8	74.1	74.7	62.0	41.7	37.8	32.7	34.7	40.6	38.3	36.6	38.9	4.1	0.9	0.8	1.0	83.7	49.7	
27	1.7	1.3	0.7	0.9	2.2	3.7	5.8	4.0	7.1	13.0	8.7	7.0	8.2	9.7	10.0	7.5	10.2	8.7	8.0	7.6	8.1	8.8	9.5	10.0	13.0	6.8	
28	9.8	9.5	9.8	9.2	8.8	8.8	8.4	10.0	11.0	10.3	11.2	11.7	12.8	13.3	13.6	13.8	16.2	16.8	17.7	19.5	19.1	19.7	18.0	17.8	19.7	13.2	
29	19.4	20.1	20.7	20.8	21.9	24.1	24.3	27.1	27.2	28.3	25.4	22.1	19.2	17.9	16.7	15.6	12.1	10.2	9.1	11.1	11.5	11.5	5.0	3.2	28.3	17.7	
30	4.2	4.9	4.0	2.6	2.2	2.1	1.9	2.3	3.7	5.2	7.2	11.7	18.8	22.4	23.9	23.2	24.7	19.1	14.9	12.2	10.6	8.5	7.6	5.6	24.7	10.1	
31	5.4	4.6	4.1	4.3	4.9	5.0	5.2	5.4	6.7	9.6	19.3	20.6	18.8	17.2	15.8	13.0	9.7	8.0	7.8	6.8	5.8	5.4	4.8	4.6	20.6	8.9	
Hourly Max	83.7	77.8	74.4	73.4	73.5	73.2	72.2	73.2	72.8	74.1	74.7	72.4	83.8	78.5	79.3	80.7	85.8	90.4	91.4	89.0	86.7	86.1	86.4	87.8			
Hourly Average	21.0	19.7	19.0	18.5	18.8	19.6	20.2	20.8	22.1	23.5	23.8	26.4	26.8	26.3	25.5	23.9	24.4	23.9	25.5	23.9	21.0	21.2	20.6	20.6			

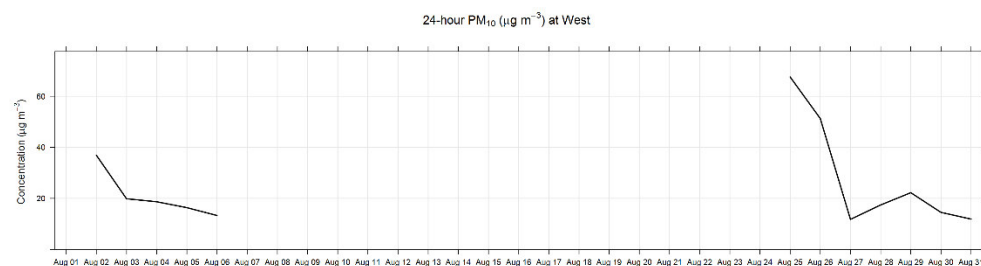
24-hour PM_{2.5} (µg m⁻³) at West



Number of 1HR Exceedances	11	Guideline	80	UG/M3
Number of 24HR Exceedances	3	Objective	30	UG/M3
Number of Non-Zero Readings	324			
Maximum 1-HR Average	91.4	UG/M3		
Maximum 24-HR Average	63.8	UG/M3		
IZS Calibration Time	0	HRS	Operational Time	324
Monthly Calibration Time	0	HRS	Operational Uptime	43.5
Standard Deviation	20.5		Monthly Average	22.4
				UG/M3

West PM₁₀ (µg/m³) – August 2018

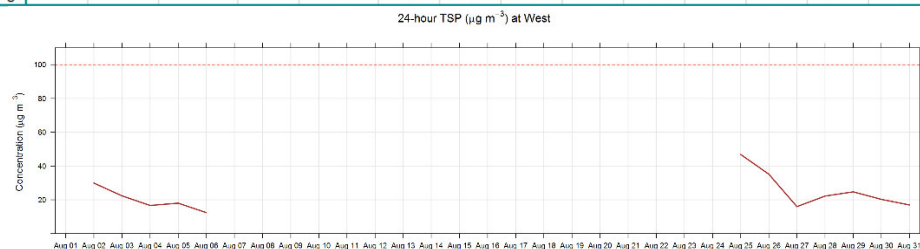
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	30.4	30.8	42.9	60.7	38.8	33.0	32.5	32.8	32.1	-	-	
2	31.8	34.8	32.4	29.3	27.1	32.2	36.0	37.9	44.7	46.8	44.8	46.4	41.7	36.6	35.0	33.5	35.3	36.0	43.7	36.9	34.8	39.1	36.4	31.9	46.8	36.9	
3	19.1	10.9	11.0	10.5	10.8	10.7	11.1	12.7	17.6	23.5	26.4	20.1	21.5	25.2	29.7	29.0	29.2	26.9	23.6	21.2	21.6	20.9	22.1	20.8	29.7	19.8	
4	20.8	20.8	20.6	20.5	20.7	20.0	18.8	17.8	17.5	18.6	18.7	19.9	17.2	18.4	41.9	17.4	13.3	16.7	14.4	15.2	15.4	15.7	14.6	13.4	41.9	18.7	
5	11.7	12.0	12.3	13.3	13.6	13.8	14.1	14.7	14.5	14.8	14.9	16.0	9.2	8.2	8.6	21.4	41.9	36.1	14.0	18.1	19.4	16.2	16.5	17.2	41.9	16.4	
6	18.0	17.6	16.2	15.5	15.1	15.0	14.6	14.3	13.9	15.2	15.5	10.1	7.7	6.6	8.4	10.3	7.9	11.6	7.6	8.9	12.9	17.2	19.5	19.4	19.5	13.3	
7	17.5	17.9	18.1	18.1	19.2	19.2	20.1	23.6	27.0	33.0	27.3	24.3	24.2	23.3	R	R	R	R	R	R	R	R	R	R	R	-	-
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
11	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
12	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
13	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
15	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
16	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
17	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
18	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
19	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
20	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
21	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
22	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
23	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
24	R	R	R	R	R	R	R	R	R	R	R	81.4	86.5	79.9	65.6	54.8	49.0	35.2	33.2	37.2	38.4	40.7	41.2	46.0	-	-	
25	48.6	41.5	37.1	35.6	37.4	39.0	40.8	42.5	49.5	55.4	61.7	66.0	73.5	88.8	83.8	84.5	91.4	94.5	95.7	93.2	90.4	90.3	89.7	90.6	95.7	67.6	
26	85.9	79.1	75.8	74.5	75.0	74.2	73.1	74.3	73.9	75.3	76.9	64.6	45.1	39.5	34.1	37.4	42.8	40.5	39.5	40.3	4.7	1.1	1.2	1.4	85.9	51.3	
27	2.4	1.8	1.0	1.1	2.5	4.0	6.4	5.3	10.1	19.1	12.8	9.6	23.4	16.9	23.8	14.7	31.2	23.8	14.1	9.7	9.9	12.1	13.2	13.8	31.2	11.8	
28	12.6	11.0	11.0	10.1	9.7	9.6	9.6	14.7	22.4	18.9	24.2	16.1	17.7	17.5	19.1	19.2	23.3	23.3	21.6	21.3	22.1	24.2	20.0	18.8	24.2	17.4	
29	20.4	21.2	22.0	21.9	22.8	25.3	26.4	32.9	31.9	38.3	32.9	31.4	29.3	27.2	24.1	25.4	21.9	15.1	13.4	12.9	14.0	13.6	5.4	3.7	38.3	22.2	
30	5.1	5.1	4.3	2.9	2.4	2.5	2.2	2.9	8.4	14.8	15.3	20.2	31.3	33.2	30.3	30.6	46.3	22.9	16.8	14.0	13.6	9.6	8.0	5.9	46.3	14.5	
31	5.7	4.8	4.4	4.5	5.3	5.5	5.8	5.9	8.6	19.6	30.9	26.0	23.7	23.6	22.1	19.9	12.6	11.2	10.2	8.3	7.3	8.3	6.0	4.9	30.9	11.9	
Hourly Max	85.9	79.1	75.8	74.5	75.0	74.2	73.1	74.3	73.9	75.3	76.9	81.4	86.5	88.8	83.8	84.5	91.4	94.5	95.7	93.2	90.4	90.3	89.7	90.6			
Hourly Average	23.0	21.4	20.5	19.8	20.1	20.9	21.5	23.0	26.1	30.2	31.0	32.3	32.3	31.8	32.8	30.6	34.1	31.2	29.2	26.9	24.1	24.4	23.3	22.8			



Number of 1HR Exceedances	n/a		Objective	n/a	UG/M3
Number of Non-Zero Readings	324				
Maximum 1-HR Average	95.7	UG/M3			
Maximum 24-HR Average	67.6	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	324	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	43.5	%
Standard Deviation	21.0		Monthly Average	26.5	UG/M3

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

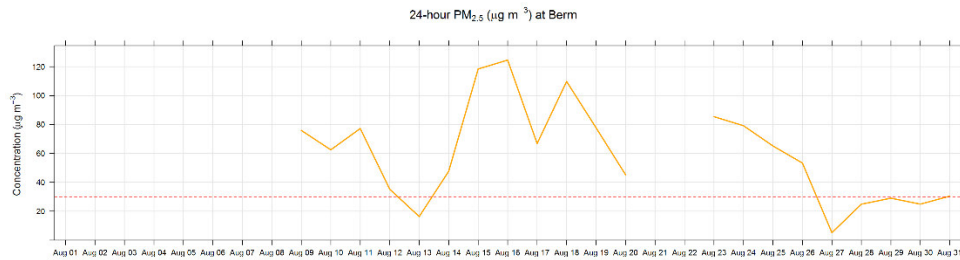
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average		
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	55.5	47.5	54.1	39.2	25.1	21.3	21.0	21.2	20.8	-	-		
2	20.6	22.6	20.9	19.0	17.6	21.0	23.3	24.5	29.7	36.7	45.3	44.2	27.8	35.3	28.7	31.0	43.7	31.5	37.4	37.9	41.3	25.7	30.0	22.0	45.3	29.9		
3	22.3	8.8	7.2	6.9	7.0	6.9	7.2	8.5	16.4	38.8	64.7	26.8	30.8	31.7	38.5	22.1	31.3	41.4	25.6	20.0	24.8	17.1	17.7	13.6	64.7	22.3		
4	13.4	13.9	13.4	13.3	13.4	13.0	12.1	11.5	11.4	13.0	13.7	24.7	13.5	17.4	93.7	20.5	9.4	17.9	10.7	10.5	10.1	10.4	9.6	8.8	93.7	16.6		
5	7.6	7.8	7.9	8.6	8.8	8.9	9.1	9.6	9.5	9.7	12.6	30.9	7.6	13.5	13.2	44.2	77.3	67.5	16.3	15.2	12.8	11.1	11.1	11.5	77.3	18.0		
6	11.8	11.6	10.6	10.3	9.8	9.8	9.5	9.3	9.3	14.4	19.8	13.6	12.5	8.5	13.2	23.2	12.5	19.6	9.6	7.6	11.9	11.4	14.4	13.2	23.2	12.4		
7	11.7	12.3	12.2	13.8	14.5	12.5	13.1	16.8	27.6	51.2	44.6	42.5	18.2	17.7	R	R	R	R	R	R	R	R	R	R	R	-	-	
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
11	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
12	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
13	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
15	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
16	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
17	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
18	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
19	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
20	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
21	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
22	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
23	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	-	-
24	R	R	R	R	R	R	R	R	R	R	R	R	55.3	56.3	51.9	44.0	36.6	31.8	22.9	21.5	24.0	24.8	26.4	26.7	29.7	-	-	
25	31.4	26.8	24.0	23.0	24.2	25.3	26.6	27.7	33.5	38.3	52.4	47.3	55.2	74.7	62.3	57.9	64.4	63.7	63.3	62.0	58.9	61.8	59.4	59.5	74.7	46.8		
26	55.7	51.1	49.0	48.2	48.8	48.2	47.4	48.3	47.9	49.1	53.9	48.0	38.5	32.6	24.5	29.4	33.1	29.3	28.6	26.1	3.2	0.9	1.0	1.1	55.7	35.2		
27	2.0	1.4	0.8	0.9	1.7	2.6	4.2	4.0	9.4	18.6	11.6	7.8	41.2	23.7	55.7	20.8	65.1	41.3	29.6	6.4	6.6	8.7	9.6	9.6	65.1	16.0		
28	8.4	7.1	7.1	6.6	6.3	6.4	6.3	15.2	41.8	36.7	53.3	28.8	23.7	26.5	32.7	25.5	39.2	33.4	23.4	17.7	21.0	35.8	16.8	13.2	53.3	22.2		
29	13.4	13.7	15.6	14.2	14.7	17.0	23.4	32.2	21.2	48.8	46.7	37.1	51.8	36.7	36.6	35.3	44.0	27.6	29.2	8.8	9.7	9.2	3.5	2.7	51.8	24.7		
30	6.7	3.3	2.8	2.1	1.6	1.8	1.5	2.0	14.0	27.6	34.3	32.0	49.9	50.5	45.1	45.1	76.9	21.9	15.1	17.1	16.3	9.8	5.2	3.8	76.9	20.3		
31	3.7	3.1	2.8	2.9	3.6	3.7	3.9	4.0	6.9	39.9	49.9	28.4	34.8	39.5	31.7	43.5	23.7	18.2	18.8	11.0	9.8	12.2	6.9	3.5	49.9	16.9		
Hourly Max	55.7	51.1	49.0	48.2	48.8	48.2	47.4	48.3	47.9	51.2	64.7	55.3	56.3	74.7	93.7	57.9	77.3	67.5	63.3	62.0	58.9	61.8	59.4	59.5				
Hourly Average	16.1	14.1	13.4	13.1	13.2	13.6	14.4	16.4	21.4	32.5	38.7	33.4	33.0	32.9	40.0	35.0	42.8	35.0	26.3	20.7	19.5	18.7	16.6	15.2				



Number of 1HR Exceedances	0		Objective	100	UG/M3
Number of Non-Zero Readings	324				
Maximum 1-HR Average	93.7	UG/M3			
Maximum 24-HR Average	46.8	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	324	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	43.5	%
Standard Deviation	17.7		Monthly Average	24.1	UG/M3

Berm PM_{2.5} (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
2	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
4	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
5	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
6	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
7	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
8	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	28.2	35.0	76.0	114.1	101.6	122.8	91.9	96.3	97.5	91.1	-	-
9	81.9	69.3	71.1	79.9	80.9	80.1	82.6	86.5	94.8	90.0	74.5	66.1	58.0	79.9	103.0	104.4	88.0	55.7	76.4	54.4	51.5	60.5	64.9	66.8	104.4	75.9	
10	61.9	66.3	75.1	74.7	74.0	75.1	74.8	84.5	78.8	80.0	70.9	58.8	54.2	56.3	57.9	44.1	79.0	48.9	65.0	84.0	26.0	32.5	35.1	41.2	84.5	62.5	
11	45.3	54.6	56.9	63.4	75.5	120.5	137.3	143.0	130.5	119.2	111.4	94.1	83.9	77.3	68.3	59.6	56.3	62.1	69.8	60.0	43.0	41.2	39.9	39.8	143.0	77.2	
12	37.4	35.3	35.9	36.2	36.4	35.7	35.9	34.9	35.4	39.2	40.2	38.0	53.0	55.6	50.7	66.7	55.0	53.7	31.0	11.7	8.3	6.5	6.3	5.1	66.7	35.2	
13	2.9	2.3	2.5	4.5	5.0	5.2	6.0	12.3	11.8	15.2	27.1	32.0	27.7	26.8	33.9	19.3	16.3	16.3	15.0	16.3	20.7	22.9	24.2	24.6	33.9	16.3	
14	21.3	19.6	19.8	19.9	21.7	21.3	21.8	22.8	25.9	27.6	32.3	69.3	41.3	48.5	37.2	43.3	48.2	67.8	76.9	103.8	84.1	86.9	88.4	92.8	103.8	47.6	
15	97.8	102.1	108.6	117.6	124.3	129.3	137.0	141.3	143.8	145.1	146.6	147.2	136.2	112.7	95.0	74.4	76.4	68.4	50.7	53.4	58.3	150.4	207.9	217.4	217.4	118.4	
16	208.9	199.6	193.6	199.2	199.0	195.8	190.0	181.1	172.5	147.9	136.0	137.0	115.7	95.3	74.5	62.9	75.7	64.2	60.7	48.9	48.0	55.5	63.2	65.1	208.9	124.6	
17	66.5	66.7	66.5	64.7	64.3	64.4	64.3	67.1	80.9	73.3	79.9	72.3	75.8	53.5	49.7	47.7	67.3	75.2	62.4	56.9	67.1	67.5	73.2	75.8	80.9	66.8	
18	71.6	69.7	80.9	103.5	86.2	92.9	88.9	98.3	98.9	113.2	130.2	140.4	160.3	185.8	179.7	162.7	146.5	128.1	114.0	97.1	79.7	69.8	68.5	67.7	185.8	109.8	
19	68.9	67.6	73.3	74.4	75.7	76.7	79.9	83.0	86.9	93.1	96.0	88.6	80.1	75.8	78.9	85.2	79.3	78.1	71.2	67.2	68.0	70.4	73.0	72.8	96.0	77.7	
20	70.3	69.0	67.7	64.8	59.4	54.3	50.9	47.2	47.1	45.5	45.9	38.7	38.0	37.9	37.6	36.6	36.3	35.6	34.5	33.6	33.9	33.6	33.4	33.7	70.3	45.2	
21	34.3	33.1	32.8	32.3	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	-	-	
22	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	37.8	36.8	49.0	72.3	99.4	101.1	-	-	
23	81.1	79.9	102.6	101.3	100.2	98.4	94.2	94.7	94.8	94.0	93.8	95.8	85.5	89.0	88.9	81.4	71.6	61.1	54.8	57.7	73.0	E	E	E	102.6	85.4	
24	119.4	120.4	131.0	138.9	138.9	139.1	137.8	107.5	84.4	70.4	62.1	68.1	85.8	E	61.0	51.5	42.5	33.2	35.2	39.1	39.6	37.8	38.6	38.3	139.1	79.1	
25	37.8	39.2	36.0	34.8	35.1	38.3	39.3	41.2	46.3	50.2	56.0	61.8	70.0	80.3	82.9	83.2	88.3	92.3	94.6	93.6	91.0	89.3	91.0	90.6	94.6	65.1	
26	84.8	79.4	77.7	80.5	81.6	79.1	77.3	76.3	76.9	78.1	76.2	69.1	52.8	50.1	38.7	36.7	42.5	40.0	37.2	39.2	2.8	0.8	0.7	0.5	84.8	53.3	
27	0.9	1.0	0.8	0.7	2.4	5.4	5.5	2.8	4.2	5.1	4.0	4.9	5.6	5.7	5.4	5.5	6.1	8.2	8.4	7.2	7.9	8.0	8.2	8.7	8.7	5.1	
28	9.4	9.6	9.8	9.1	9.4	9.4	8.6	9.1	10.0	14.0	19.9	30.9	26.7	35.4	37.9	38.2	48.8	34.8	36.4	47.5	40.9	43.8	31.1	25.1	48.8	24.8	
29	22.5	23.3	22.7	23.1	24.2	24.1	25.9	27.6	30.1	31.9	40.2	41.9	44.2	34.5	33.8	44.9	57.3	58.7	15.5	21.2	14.1	16.9	10.7	6.5	58.7	29.0	
30	6.4	5.7	6.3	6.7	2.9	2.3	1.9	2.0	15.8	23.2	29.5	55.0	53.5	70.2	50.9	77.3	34.3	31.8	28.1	26.4	27.4	22.0	9.4	8.0	77.3	24.9	
31	6.2	5.4	4.6	4.8	5.3	5.0	5.2	5.8	9.8	14.5	51.5	85.1	50.4	50.4	54.5	50.0	40.4	65.7	60.9	43.5	44.8	33.1	17.9	14.8	85.1	30.4	
Hourly Max	208.9	199.6	193.6	199.2	199.0	195.8	190.0	181.1	172.5	147.9	146.6	147.2	160.3	185.8	179.7	162.7	146.5	128.1	114.0	122.8	91.9	150.4	207.9	217.4			
Hourly Average	56.2	55.4	58.0	60.7	62.0	64.4	65.0	65.2	65.7	65.3	67.8	71.2	66.6	66.0	61.3	59.6	60.6	58.8	53.8	53.1	46.6	50.8	53.8	54.0			

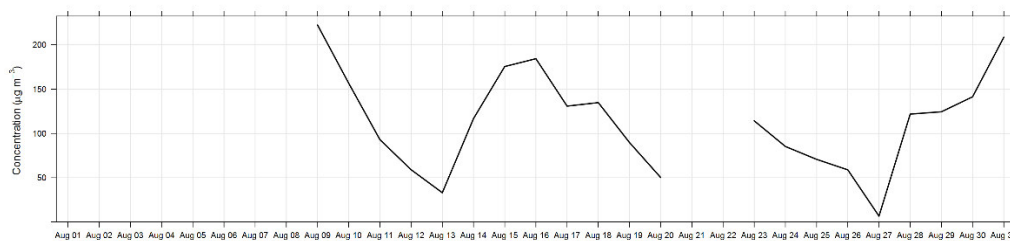


Number of 1HR Exceedances	133		Guideline	80	UG/M3
Number of 24HR Exceedances	16		Objective	30	UG/M3
Number of Non-Zero Readings	520				
Maximum 1-HR Average	217.4	UG/M3			
Maximum 24-HR Average	124.6	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	520	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	69.9	%
Standard Deviation	41.5		Monthly Average	59.9	UG/M3

Berm PM₁₀ (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
2	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
4	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
5	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
6	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
7	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
8	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	109.9	147.9	321.2	464.7	338.7	620.4	152.0	127.3	117.3	104.4	-	-
9	96.7	77.8	79.5	90.9	90.2	83.9	100.5	145.9	251.6	258.6	196.2	274.6	207.7	437.6	633.8	652.6	524.8	282.5	373.7	181.5	63.2	66.8	71.2	94.0	652.6	222.3	
10	74.9	76.1	86.5	82.3	84.3	84.6	89.5	157.7	107.3	138.2	121.5	113.3	160.3	245.5	329.2	229.6	413.6	209.7	339.6	416.5	40.7	43.8	44.1	68.5	416.5	156.6	
11	69.4	100.2	69.9	70.4	98.5	149.2	152.9	156.5	142.3	130.5	119.2	108.9	101.5	92.8	82.7	79.1	78.3	81.3	85.4	69.7	50.3	48.1	46.5	47.2	156.5	92.9	
12	40.9	39.7	42.2	42.2	42.9	42.9	42.6	42.3	41.7	46.3	49.4	82.1	109.6	91.4	148.3	195.7	130.5	84.3	50.1	15.4	12.2	8.5	7.7	7.6	195.7	59.0	
13	4.9	3.4	3.6	6.1	5.9	5.8	7.7	17.8	33.2	58.2	57.2	70.0	63.3	75.7	121.1	42.3	25.9	27.0	22.6	22.4	26.8	27.9	30.5	34.8	121.1	33.1	
14	25.5	23.1	24.5	22.4	31.5	23.8	24.1	29.2	46.4	48.5	69.8	300.3	125.9	201.6	152.9	201.7	186.3	312.5	231.2	215.2	142.8	149.5	109.5	103.4	312.5	116.7	
15	106.8	111.1	120.8	122.1	128.6	133.4	148.8	160.4	158.0	177.8	184.1	198.4	178.4	146.6	208.1	246.6	358.1	322.3	137.4	117.1	61.0	205.6	236.5	243.7	358.1	175.5	
16	230.8	219.2	208.1	207.7	207.1	203.6	197.0	205.2	266.5	232.6	242.7	246.2	203.2	186.2	138.7	149.6	304.3	186.4	208.0	119.6	61.9	59.9	67.5	72.3	304.3	184.4	
17	78.8	70.8	72.9	69.5	68.4	71.5	69.5	87.8	203.2	134.5	165.1	152.8	243.2	100.9	88.1	82.8	258.7	342.7	219.9	155.6	167.4	77.0	78.4	79.5	342.7	130.8	
18	74.6	73.4	102.8	118.9	94.3	100.8	97.9	157.4	267.5	157.0	152.1	152.8	174.4	233.2	205.7	181.2	166.6	146.9	130.7	112.0	89.3	80.3	84.5	80.6	267.5	134.8	
19	76.5	73.8	78.0	79.7	86.0	84.4	85.2	87.7	99.2	103.8	104.4	103.2	93.5	90.3	95.1	104.3	98.8	92.8	88.0	82.0	82.4	82.9	90.4	91.2	104.4	89.7	
20	91.1	89.6	73.5	69.7	62.7	55.9	51.8	47.8	48.1	46.5	51.7	43.3	41.8	42.1	41.9	40.5	39.9	39.0	40.3	36.3	36.1	35.3	38.7	42.1	91.1	50.2	
21	45.6	39.3	36.4	34.0	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	-	-	
22	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	114.7	69.2	56.5	77.1	103.3	105.7	-	-	
23	86.4	95.0	120.0	117.1	124.0	119.2	99.4	107.1	108.8	115.1	106.6	103.4	107.3	125.9	124.3	103.9	97.8	106.0	115.7	153.0	161.9	E	E	E	161.9	114.2	
24	151.1	137.0	143.0	151.9	146.8	147.0	144.4	112.6	87.4	71.0	62.6	69.1	86.8	E	61.9	52.6	43.4	37.0	42.6	45.3	43.2	40.9	40.1	43.0	151.9	85.2	
25	40.1	44.3	36.8	35.7	35.8	38.9	40.0	41.8	47.0	52.6	61.1	66.4	74.5	95.7	105.2	99.3	103.4	105.2	103.8	98.0	93.5	92.0	93.5	92.7	105.2	70.7	
26	86.1	80.2	78.7	81.6	82.8	79.9	78.1	77.0	77.9	79.1	78.7	93.9	79.8	81.3	51.8	45.3	51.5	44.0	39.1	40.1	3.2	0.9	0.8	0.6	93.9	58.9	
27	1.1	1.2	0.9	0.8	2.6	5.8	6.0	3.0	4.6	5.9	4.6	5.7	6.7	7.9	7.0	7.2	9.4	15.0	17.2	9.3	8.7	9.0	9.5	10.8	17.2	6.7	
28	11.8	11.1	13.2	9.9	13.7	13.8	9.6	11.9	18.0	65.2	113.8	194.4	137.2	229.4	228.2	221.6	304.3	207.8	212.2	308.9	180.4	221.8	117.5	67.0	308.9	121.8	
29	41.4	45.4	36.3	42.0	48.4	31.6	36.3	37.4	51.0	76.0	177.6	200.0	246.0	160.9	165.8	310.3	446.1	479.6	65.0	103.0	39.1	70.8	48.0	27.7	479.6	124.4	
30	25.3	18.2	21.5	26.1	7.7	5.0	2.6	3.4	146.4	198.4	209.3	360.0	299.8	418.5	273.3	484.2	146.5	154.8	152.4	152.3	141.0	112.4	19.7	13.1	484.2	141.3	
31	9.5	9.7	5.6	6.2	6.0	5.4	5.6	7.8	48.3	78.7	332.8	563.8	306.9	345.9	386.0	336.1	258.2	566.8	532.3	350.7	396.5	263.5	105.3	76.1	566.8	208.5	
Hourly Max	230.8	219.2	208.1	207.7	207.1	203.6	197.0	205.2	267.5	258.6	332.8	563.8	306.9	437.6	633.8	652.6	524.8	566.8	532.3	620.4	396.5	263.5	236.5	243.7			
Hourly Average	66.8	65.4	66.1	67.6	69.9	70.8	70.9	80.9	107.4	108.3	126.7	166.8	145.1	170.5	170.9	182.5	198.5	195.8	159.2	151.9	91.7	86.4	70.9	68.5			

24-hour PM₁₀ (µg m⁻³) at Berm

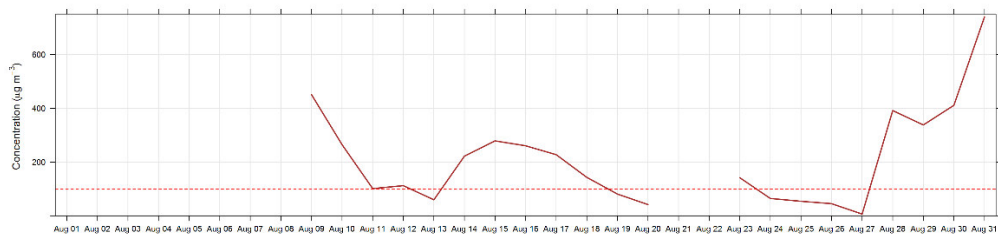


Number of 1HR Exceedances	n/a		Objective	n/a	UG/M3
Number of Non-Zero Readings	520				
Maximum 1-HR Average	652.6	UG/M3			
Maximum 24-HR Average	222.3	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	520	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	69.9	%
Standard Deviation	106.7		Monthly Average	115.0	UG/M3

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

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average	
1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
2	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
4	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
5	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
6	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
7	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	-	-	
8	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	310.6	407.0	911.1	1458.7	906.7	1494.6	323.2	218.6	165.5	102.5	-	-
9	90.0	75.5	96.3	90.1	76.4	67.1	102.3	220.6	527.6	555.2	364.1	661.4	371.6	1036.3	1639.0	1615.5	1240.6	634.4	729.9	337.3	71.8	59.2	60.1	95.1	1639.0	450.7	
10	72.0	63.1	65.4	62.7	64.3	70.5	77.3	223.8	127.2	209.4	183.6	182.3	287.2	470.8	682.0	515.0	777.0	376.3	585.0	993.1	66.3	60.8	49.3	80.3	993.1	264.4	
11	99.9	143.8	113.9	58.2	137.3	196.2	143.5	126.7	113.9	105.1	98.7	113.4	110.6	99.5	99.9	111.8	109.1	105.2	102.5	66.0	43.6	40.4	38.2	52.5	196.2	101.3	
12	26.6	26.2	29.0	29.1	29.2	29.2	28.4	29.6	28.7	32.5	51.3	188.4	268.8	237.4	496.5	520.7	333.1	132.9	111.1	20.1	15.4	9.3	6.5	9.9	520.7	112.1	
13	8.4	3.1	3.9	4.4	4.0	3.9	6.1	16.8	70.7	160.8	128.8	126.8	126.0	162.5	271.1	65.8	39.8	41.0	29.5	24.6	25.4	38.3	31.5	34.9	271.1	59.5	
14	23.4	23.7	31.3	22.0	79.3	25.4	28.4	58.3	107.6	106.5	176.9	703.5	249.6	355.8	278.6	376.2	420.1	670.5	476.0	456.3	241.5	205.9	115.2	93.2	703.5	221.9	
15	98.0	111.0	132.8	99.8	98.5	106.5	123.6	171.3	158.5	230.4	238.7	313.8	243.2	193.8	373.4	610.2	985.9	936.1	312.3	237.3	44.0	393.5	250.7	224.2	985.9	278.7	
16	210.8	201.3	176.8	138.6	144.4	136.4	129.9	170.3	531.1	416.6	471.5	451.0	353.5	299.7	198.8	268.9	624.7	410.4	434.9	236.2	85.6	47.8	49.8	58.5	624.7	260.3	
17	66.1	52.3	55.8	55.4	52.9	73.1	54.4	127.3	485.0	273.5	329.2	282.3	434.7	175.4	131.2	108.0	546.6	777.6	501.9	316.6	364.2	70.7	60.0	59.4	777.6	227.2	
18	54.2	53.0	140.1	117.1	71.6	75.4	74.4	209.0	519.5	173.9	124.3	122.2	149.7	273.5	217.9	176.8	181.6	150.8	146.6	108.5	90.1	69.8	67.6	61.1	519.5	142.9	
19	53.3	57.3	59.6	56.7	72.9	64.8	59.7	58.1	90.4	88.2	83.6	92.9	82.3	86.4	92.0	104.8	107.9	84.4	99.8	97.1	85.0	75.9	93.1	93.1	107.9	80.8	
20	92.9	112.3	60.3	56.7	51.1	36.4	33.5	30.9	31.3	30.2	41.4	33.3	31.8	34.3	31.7	32.0	33.8	30.9	33.9	24.9	28.8	25.7	35.8	45.4	112.3	41.6	
21	74.2	52.3	39.4	25.4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	-	-	
22	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	218.5	116.1	52.0	57.9	83.3	81.5	-	-
23	69.2	80.6	109.4	126.3	139.7	110.5	83.9	114.9	105.6	129.3	103.5	82.4	95.5	177.1	164.7	123.7	127.7	187.3	211.0	322.4	310.4	E	E	E	322.4	141.7	
24	150.5	117.9	122.6	126.1	111.9	107.6	106.4	92.7	57.7	46.1	40.5	45.1	56.9	E	40.7	34.4	28.5	24.9	29.3	30.4	28.1	26.7	26.0	28.6	150.5	64.3	
25	26.1	29.9	23.9	23.1	23.2	25.1	25.9	27.2	30.6	34.8	48.1	53.8	64.3	77.1	102.5	79.2	84.1	113.7	83.9	74.3	61.0	60.3	63.7	60.9	113.7	54.0	
26	60.4	52.4	51.3	53.3	54.4	51.6	52.0	53.7	51.8	52.0	56.6	68.6	71.7	78.9	62.1	46.1	64.7	35.7	32.8	26.1	2.1	0.6	0.6	0.5	78.9	45.0	
27	0.8	0.8	0.6	0.6	1.8	3.8	3.9	2.0	3.1	4.0	3.1	4.6	7.2	9.1	13.3	5.8	11.0	18.8	25.5	8.0	5.7	5.9	6.3	7.5	25.5	6.4	
28	8.4	9.2	20.7	6.5	18.5	10.0	8.6	16.2	47.0	201.0	320.8	663.5	423.0	800.3	675.0	643.1	1031.2	782.1	767.0	1071.1	577.3	702.2	393.5	195.6	1071.1	391.3	
29	84.9	80.5	65.4	93.4	122.6	48.0	53.2	44.9	101.5	174.3	507.8	629.7	675.2	409.5	361.5	911.6	1278.2	1576.6	187.4	264.6	83.4	210.1	90.9	53.2	1576.6	337.9	
30	86.2	40.5	48.2	60.9	15.9	9.8	3.5	5.6	520.6	672.6	676.3	1009.9	777.0	1189.7	740.8	1415.5	441.2	500.3	523.1	439.9	331.8	308.0	28.0	15.8	1415.5	410.9	
31	9.0	9.9	5.1	4.1	4.8	3.5	3.7	8.2	158.9	259.2	1004.2	1788.2	1052.6	1305.3	1396.4	1158.8	952.0	2203.3	2093.8	1306.6	1626.1	1031.7	238.0	129.5	2203.3	739.7	
Hourly Max	210.8	201.3	176.8	138.6	144.4	196.2	143.5	223.8	531.1	672.6	1004.2	1788.2	1052.6	1305.3	1639.0	1615.5	1278.2	2203.3	2093.8	1494.6	1626.1	1031.7	393.5	224.2			
Hourly Average	66.6	63.5	66.0	59.6	65.5	59.8	57.3	86.1	184.2	188.4	240.6	362.7	282.5	373.6	380.9	424.1	469.5	511.4	375.8	351.0	198.4	169.1	88.8	72.0			

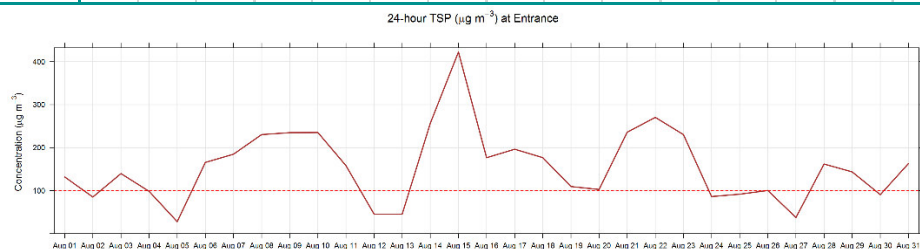
24-hour TSP ($\mu\text{g}/\text{m}^3$) at Berm



Number of 24HR Exceedances	14		Objective	100	UG/M3
Number of Non-Zero Readings	520				
Maximum 1-HR Average	2203.3	UG/M3			
Maximum 24-HR Average	739.7	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	520	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	69.9	%
Standard Deviation	328.0		Monthly Average	217.3	UG/M3

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

Day\Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	21.3	19.7	29.2	40.3	57.3	39.1	43.5	41.1	42.1	42.5	30.8	28.6	23.3	21.5	23.6	22.0	27.3	31.2	40.2	39.3	36.3	39.8	34.2	32.8	57.3	33.6
2	31.5	28.9	33.5	31.5	32.8	40.7	43.3	43.7	44.2	46.3	45.6	46.1	43.4	37.9	35.5	32.5	33.2	32.9	42.1	34.1	38.8	34.1	32.4	30.4	46.3	37.3
3	20.6	13.8	16.0	16.7	17.2	19.5	20.9	18.9	18.6	21.4	18.8	27.8	21.3	25.8	30.7	35.9	33.7	25.4	26.9	19.5	17.9	20.2	21.2	21.3	35.9	22.1
4	28.8	29.9	27.0	30.3	32.9	27.7	28.1	32.5	33.8	41.8	38.6	26.4	21.1	20.7	16.2	17.7	15.2	12.6	13.1	15.4	17.6	15.6	14.8	16.6	41.8	23.9
5	16.1	16.9	15.4	19.7	20.1	18.0	16.1	22.9	19.4	18.5	16.3	13.6	9.9	7.9	6.8	10.5	10.9	11.3	9.8	10.2	12.1	13.5	13.4	19.5	22.9	14.5
6	22.0	26.6	43.6	38.9	34.0	28.8	27.2	36.6	29.7	35.6	26.7	14.3	12.0	10.4	8.3	9.0	8.8	10.2	7.7	9.1	11.2	15.0	18.0	39.3	43.6	21.8
7	40.2	31.9	28.4	23.2	21.2	24.6	27.7	25.7	36.0	35.7	28.7	25.0	28.0	25.7	23.7	26.7	27.6	34.4	45.7	77.3	99.7	97.4	83.7	58.4	99.7	40.7
8	51.4	61.7	70.3	65.9	58.1	49.0	50.8	56.0	59.1	57.3	69.6	57.3	47.9	30.2	26.9	28.5	52.7	94.3	93.3	84.4	105.3	115.7	118.0	114.2	118.0	67.4
9	109.3	87.9	91.9	96.0	105.2	106.3	114.6	96.8	87.3	85.6	79.3	58.9	51.8	41.8	42.4	44.7	43.4	45.2	40.9	45.7	60.3	71.2	81.8	85.9	114.6	73.9
10	84.2	82.4	83.0	92.4	82.2	81.4	81.6	87.4	99.6	85.9	94.8	71.4	56.7	40.9	29.5	26.0	29.9	30.3	27.8	37.2	27.4	35.1	38.0	44.7	99.6	60.4
11	60.2	61.5	70.5	72.4	78.9	122.3	137.6	149.2	137.7	131.0	125.9	106.5	90.9	81.2	69.2	62.8	59.1	67.0	72.3	60.4	45.3	44.9	43.0	43.3	149.2	83.0
12	41.5	39.4	39.8	40.0	39.4	39.1	39.3	38.4	39.8	44.4	43.6	36.0	49.5	57.1	37.5	44.6	45.7	52.0	31.4	13.5	9.6	9.0	7.6	5.8	57.1	35.2
13	3.8	2.9	3.6	5.3	6.0	7.4	11.6	20.5	17.4	16.3	28.7	31.1	28.9	23.9	21.2	18.5	18.9	17.0	17.7	20.7	25.1	26.1	29.2	29.4	31.1	18.0
14	27.0	31.0	35.8	28.7	28.7	32.1	32.9	39.2	58.1	51.7	49.9	41.0	32.9	24.2	19.5	21.2	34.1	40.2	60.7	89.1	89.4	84.2	86.1	100.4	100.4	47.4
15	117.9	121.9	126.9	126.5	131.0	140.6	149.8	155.7	162.5	166.2	162.8	170.5	149.3	127.6	86.1	59.2	53.9	44.0	49.5	57.0	65.2	153.9	210.2	219.7	219.7	125.3
16	214.9	213.6	210.6	213.7	208.0	205.2	204.7	187.0	167.2	144.6	137.0	138.2	117.5	94.6	78.5	69.3	63.0	52.9	52.0	46.5	56.5	62.5	80.7	76.9	214.9	129.0
17	72.4	73.2	78.8	71.2	71.3	76.9	77.4	75.3	83.4	81.0	72.8	72.5	62.4	57.7	53.5	57.0	50.5	52.9	48.6	55.2	58.7	74.9	87.6	86.7	87.6	68.8
18	84.7	80.6	84.3	100.7	97.5	100.3	108.4	107.7	91.2	119.2	135.4	149.1	171.3	194.7	187.0	167.4	150.0	133.1	117.0	100.2	86.2	76.7	73.8	71.5	194.7	116.2
19	70.8	72.3	77.9	77.6	80.6	81.1	91.0	94.8	99.9	110.1	100.2	93.7	88.0	82.8	84.7	92.1	82.4	79.7	76.7	69.8	71.6	77.8	74.2	76.6	110.1	83.6
20	74.2	71.2	70.4	68.4	62.7	57.2	54.6	52.1	51.7	52.4	65.9	54.5	50.1	46.9	47.6	46.6	43.4	48.2	43.9	43.5	41.6	38.6	41.0	42.4	74.2	52.9
21	43.6	45.0	41.6	43.1	39.2	36.5	42.9	42.2	63.3	48.9	40.6	43.5	39.1	28.4	19.7	19.8	15.3	15.7	16.8	22.6	20.9	25.9	33.8	54.3	63.3	35.1
22	81.3	91.0	89.5	87.8	83.7	90.3	86.1	94.8	96.8	93.9	92.5	99.5	83.4	65.9	55.7	47.3	40.0	34.9	29.2	38.5	56.5	75.9	104.5	108.7	108.7	76.1
23	91.4	108.4	121.0	116.3	119.5	118.8	114.8	112.6	116.8	118.2	115.5	132.8	104.1	96.2	91.1	112.0	77.6	61.5	62.0	59.1	77.4	98.7	104.5	118.9	132.8	102.0
24	121.1	121.7	132.6	143.8	150.4	146.6	150.7	115.3	91.0	78.1	69.8	73.2	106.6	98.5	66.2	57.1	47.5	35.6	44.1	52.5	54.0	48.5	44.5	49.2	150.7	87.4
25	49.4	53.6	51.1	52.1	48.8	45.9	46.0	47.5	55.1	59.5	67.0	74.8	82.7	86.5	87.6	87.0	91.9	95.5	100.9	98.5	96.2	95.4	112.3	107.3	112.3	74.7
26	106.2	114.1	117.0	116.0	131.9	115.1	126.0	105.7	113.3	97.3	82.0	64.5	49.0	43.5	36.5	36.5	41.8	42.6	39.3	40.4	3.2	0.8	0.9	0.8	131.9	67.7
27	1.0	1.6	1.5	1.1	2.7	6.2	5.8	5.0	8.7	13.2	9.0	10.7	9.3	9.0	10.7	12.2	10.7	15.1	12.0	17.5	9.5	9.6	10.6	16.5	17.5	8.7
28	22.7	22.8	36.6	17.7	34.4	29.4	20.0	20.0	40.7	23.4	16.9	17.6	18.8	21.3	19.0	20.9	29.5	23.1	21.8	22.8	23.3	23.6	24.1	26.6	40.7	24.0
29	25.7	28.7	23.7	24.6	26.5	30.0	32.0	52.2	48.7	50.5	36.2	35.6	30.8	23.3	22.9	19.7	16.9	26.9	11.3	12.6	14.2	12.9	12.7	5.3	52.2	26.0
30	7.2	5.5	5.2	3.2	5.1	8.9	4.7	12.4	10.0	6.0	10.5	24.9	24.3	27.9	29.5	27.9	25.9	22.9	18.6	16.5	15.9	13.0	14.4	12.7	29.5	14.7
31	11.6	16.9	18.7	18.5	16.0	15.0	19.5	18.8	22.1	29.8	25.4	30.5	30.8	25.3	23.0	20.3	15.6	17.1	17.2	12.2	13.0	9.2	7.0	10.0	30.8	18.5
Hourly Max	214.9	213.6	210.6	213.7	208.0	205.2	204.7	187.0	167.2	166.2	162.8	170.5	171.3	194.7	187.0	167.4	150.0	133.1	117.0	100.2	105.3	153.9	210.2	219.7		
Hourly Average	56.6	57.3	60.5	60.8	62.0	62.6	64.8	64.8	66.0	64.7	62.5	60.3	56.0	50.9	44.8	43.6	41.8	42.1	41.6	42.6	43.9	49.0	53.5	55.7		

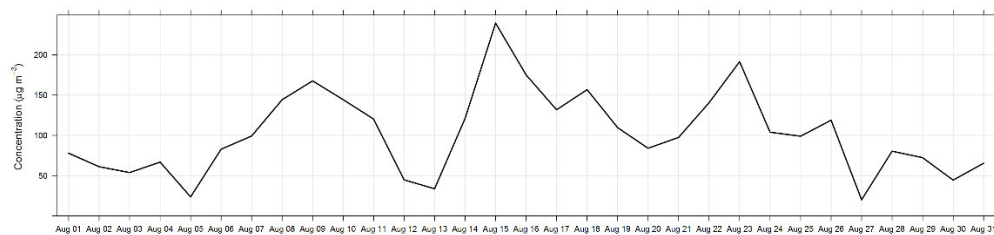


Number of 1HR Exceedances	186	Guideline	80	UG/M3
Number of 24HR Exceedances	21	Objective	30	UG/M3
Number of Non-Zero Readings	744			
Maximum 1-HR Average	219.7	UG/M3		
Maximum 24-HR Average	129.0	UG/M3		
IZS Calibration Time	0	HRS	Operational Time	744 HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0 %
Standard Deviation	41.7		Monthly Average	54.5 UG/M3

Entrance PM₁₀ (µg/m³) – August 2018

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	35.0	30.2	55.8	80.4	128.3	78.8	121.2	104.3	139.9	137.9	67.9	84.3	71.8	70.0	100.8	77.9	111.7	87.8	46.7	49.1	45.9	57.9	44.7	40.4	139.9	77.9
2	38.1	33.9	44.3	37.3	41.2	52.1	59.7	59.8	59.6	70.9	75.5	70.8	53.6	71.6	65.7	61.8	63.5	50.1	73.3	73.7	150.8	72.4	48.0	38.3	150.8	61.1
3	39.9	31.6	44.0	53.1	49.7	30.1	42.2	67.5	55.6	70.5	50.4	102.7	64.0	83.4	90.8	94.0	81.3	48.5	57.7	35.6	24.8	25.7	23.2	25.1	102.7	53.8
4	66.6	71.2	56.9	96.6	99.0	71.6	75.6	128.8	156.0	194.7	129.7	70.1	43.3	56.6	39.2	37.8	32.1	28.2	23.4	30.8	30.7	23.8	17.5	22.9	194.7	66.8
5	19.4	20.0	19.5	27.8	29.6	25.0	21.8	32.6	26.8	24.7	22.9	21.5	16.5	15.6	17.3	23.5	20.5	31.9	18.5	20.2	19.1	20.7	18.3	53.7	53.7	23.6
6	60.2	86.1	191.9	174.6	119.1	92.2	89.2	167.1	111.2	171.7	119.3	57.6	57.0	35.8	22.2	26.4	30.3	47.9	22.7	16.5	13.8	18.5	30.8	225.1	225.1	82.8
7	246.5	144.9	90.1	50.3	37.4	56.7	92.5	59.7	137.4	150.2	100.8	120.5	97.8	86.6	69.2	71.5	73.6	78.1	55.8	94.5	124.8	130.7	115.6	95.4	246.5	99.2
8	60.2	107.1	87.1	118.5	118.9	69.8	101.1	153.1	189.2	160.6	201.1	180.9	150.5	75.9	67.7	80.6	127.3	185.5	148.3	121.6	232.2	313.0	229.5	181.8	313.0	144.2
9	199.0	174.3	274.5	234.0	294.0	256.5	272.7	179.6	141.7	152.9	173.5	124.0	161.5	111.4	100.3	121.7	148.0	156.8	73.3	72.3	124.1	154.3	187.1	136.3	294.0	167.7
10	146.5	156.8	121.6	241.9	121.3	116.0	120.3	166.0	298.5	169.5	359.3	247.9	180.1	117.8	109.4	83.7	127.6	105.3	61.3	119.6	60.8	64.4	79.8	90.0	359.3	144.4
11	130.6	89.4	122.2	114.3	118.2	165.6	170.9	173.7	189.4	202.9	192.3	171.8	144.2	117.2	94.6	92.5	100.9	110.4	96.3	69.0	56.2	60.0	51.6	51.4	202.9	120.2
12	47.3	46.3	49.6	48.8	50.3	51.5	52.6	50.1	51.6	58.4	61.5	53.8	60.1	68.5	48.1	51.3	54.7	56.5	40.6	20.9	15.9	18.1	9.9	8.4	68.5	44.8
13	8.5	4.9	5.5	6.8	7.0	9.6	16.7	30.3	56.1	35.4	36.8	52.4	58.3	40.5	31.1	37.5	51.2	26.6	39.2	50.3	48.4	42.2	56.9	56.5	58.3	33.7
14	46.6	111.4	170.2	93.4	75.4	95.2	116.3	172.0	335.5	244.0	232.5	135.7	90.5	59.8	41.7	42.2	68.6	69.6	90.8	107.9	100.4	90.9	105.1	209.4	335.5	121.0
15	304.7	289.7	269.4	201.2	195.6	208.6	235.6	287.1	325.4	376.8	312.7	435.6	297.1	383.8	152.8	127.4	171.6	77.3	88.0	111.4	123.9	256.2	255.2	257.6	435.6	239.4
16	244.7	240.9	243.7	245.0	225.3	243.5	248.3	222.5	205.4	189.4	171.4	176.1	161.1	164.3	169.7	175.0	162.3	84.4	81.2	73.2	97.2	91.3	166.6	119.1	248.3	175.1
17	87.2	92.2	155.3	109.5	117.8	152.4	163.2	141.6	216.6	161.6	124.3	135.9	119.2	140.3	123.4	173.5	103.3	153.4	86.4	110.8	82.0	140.2	148.4	124.0	216.6	131.8
18	101.7	105.6	117.8	120.7	113.7	130.6	158.1	191.0	171.9	222.3	187.6	180.6	204.5	265.9	235.9	202.4	176.3	172.5	138.9	122.0	117.6	109.9	120.8	94.1	265.9	156.8
19	82.2	88.1	88.1	89.7	95.0	94.3	115.2	107.0	117.8	141.8	108.1	118.0	118.6	122.9	114.6	139.7	118.0	111.1	119.0	91.1	96.4	130.4	102.3	121.7	141.8	109.6
20	112.3	96.9	78.3	74.6	67.7	59.5	55.7	54.0	53.7	59.1	146.2	118.9	98.7	81.7	91.1	92.5	73.5	104.8	97.2	91.3	77.9	58.2	79.4	92.7	146.2	84.0
21	94.0	153.6	112.6	107.8	86.6	51.3	130.1	119.5	301.6	196.3	76.7	82.3	68.5	59.9	48.0	68.9	33.1	59.7	65.4	98.0	33.2	50.2	96.5	144.9	301.6	97.4
22	148.2	219.8	243.6	180.0	126.8	196.6	154.7	245.2	243.9	181.6	138.3	186.8	145.0	106.7	80.3	65.3	59.7	52.9	35.6	63.5	107.6	87.3	122.9	181.7	245.2	140.6
23	157.7	172.2	160.7	171.3	215.6	216.5	201.9	240.6	271.8	287.1	252.7	414.0	232.8	168.2	156.1	294.8	125.6	96.8	134.5	96.0	117.7	115.8	121.3	173.5	414.0	191.5
24	167.3	144.7	148.2	164.3	190.5	173.1	202.8	132.9	97.6	79.0	70.7	79.0	134.9	116.0	68.1	61.7	48.3	40.5	59.4	74.0	73.2	59.7	48.8	59.8	202.8	103.9
25	63.7	76.1	71.5	76.0	68.7	57.4	55.8	55.4	74.4	80.0	118.8	120.1	139.2	103.3	101.5	95.2	103.5	102.4	130.9	107.1	105.7	108.5	192.6	167.1	192.6	98.9
26	177.1	227.0	243.9	229.7	304.2	230.4	300.0	198.9	245.3	162.1	94.0	68.9	54.6	48.5	38.7	42.7	44.3	49.7	43.6	41.8	3.5	1.0	1.1	0.9	304.2	118.8
27	1.3	2.0	1.8	1.3	2.9	6.5	6.2	6.0	12.2	19.3	12.9	20.8	27.9	27.3	37.4	48.4	35.6	56.5	35.2	52.8	14.7	13.4	13.2	24.8	56.5	20.0
28	34.0	83.9	178.7	71.7	153.4	117.2	79.1	93.6	222.6	97.7	66.6	59.5	62.3	65.0	55.4	81.4	140.3	58.6	38.2	31.4	30.0	35.6	38.9	33.5	222.6	80.4
29	47.5	63.0	29.6	34.9	41.0	55.0	58.9	156.0	180.3	187.0	108.5	123.7	123.6	55.9	60.0	46.0	50.7	162.7	26.4	16.3	25.3	21.5	45.8	15.8	187.0	72.3
30	31.9	12.1	12.9	4.3	20.1	44.4	19.4	77.0	68.5	24.7	45.5	137.6	78.3	70.7	70.4	60.1	55.5	43.6	35.0	26.2	41.4	24.8	44.9	17.9	137.6	44.5
31	31.4	72.8	99.4	89.4	47.2	22.4	29.3	28.2	122.4	184.3	63.1	89.2	81.1	84.4	71.1	72.8	53.1	72.6	86.8	39.1	65.8	22.7	13.4	26.5	184.3	65.4
Hourly Max	304.7	289.7	274.5	245.0	304.2	256.5	300.0	287.1	335.5	376.8	359.3	435.6	297.1	383.8	235.9	294.8	176.3	185.5	148.3	122.0	232.2	313.0	255.2	257.6		
Hourly Average	97.8	104.8	115.8	108.0	108.4	104.2	115.1	125.8	157.4	145.0	126.5	130.4	109.6	99.2	83.0	88.7	85.4	83.3	69.3	68.6	72.9	78.0	84.8	93.2		

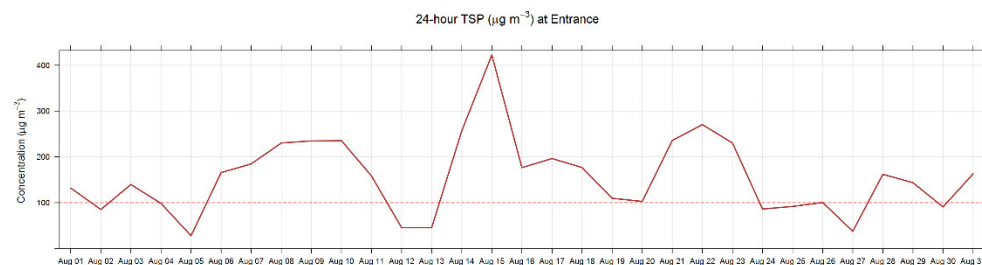
24-hour PM₁₀ (µg m⁻³) at Entrance



Number of 1HR Exceedances	n/a		Objective	n/a	UG/M3
Number of Non-Zero Readings	744				
Maximum 1-HR Average	435.6	UG/M3			
Maximum 24-HR Average	239.4	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0	%
Standard Deviation	72.1		Monthly Average	102.3	UG/M3

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

Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Daily Max	24-hour Average
1	22.7	38.9	61.7	120.9	220.0	104.6	161.7	175.5	342.7	371.0	146.2	180.3	128.5	117.2	186.4	116.2	226.3	239.0	30.7	33.1	34.8	48.4	30.0	26.9	371.0	131.8
2	25.0	22.0	29.0	25.2	29.2	37.8	46.4	47.3	46.7	78.6	88.7	92.1	40.9	137.8	100.6	96.2	110.4	67.7	111.9	131.8	463.7	93.7	83.4	34.3	463.7	85.0
3	101.0	41.5	89.1	107.7	97.5	32.5	81.9	221.6	172.4	173.6	123.5	327.1	188.8	413.4	331.1	260.4	195.7	86.6	110.6	89.3	34.8	30.2	18.5	21.4	413.4	139.6
4	82.3	82.6	58.8	90.6	183.2	95.8	118.9	174.7	299.8	361.8	180.6	108.9	54.4	107.7	80.1	58.5	36.3	42.9	23.0	29.0	31.4	29.2	11.8	17.1	361.8	98.3
5	12.8	13.3	13.2	21.7	27.7	20.3	16.3	30.3	22.6	19.3	19.5	25.4	20.6	25.6	36.9	45.8	28.6	59.3	21.2	33.6	19.3	17.7	15.4	98.9	98.9	27.7
6	113.4	162.4	356.9	412.7	194.6	159.1	196.7	385.5	219.3	372.2	249.1	131.8	149.3	61.6	49.4	63.0	62.3	133.3	48.2	33.6	12.2	15.1	44.2	347.4	412.7	165.6
7	479.7	334.5	173.1	101.4	44.3	106.9	237.2	94.5	310.5	290.1	171.3	264.9	192.8	190.1	139.2	141.5	144.8	138.4	66.6	137.3	220.0	192.4	146.3	114.0	479.7	184.7
8	55.2	150.1	86.1	198.0	209.5	69.7	155.0	250.4	367.7	260.9	242.4	274.1	199.3	130.2	100.2	132.0	254.3	380.6	269.8	268.1	447.3	551.4	297.6	177.1	551.4	230.3
9	227.0	241.5	399.8	298.6	361.7	343.9	374.3	220.5	183.4	217.8	246.6	167.9	235.9	217.5	182.7	223.3	292.9	311.9	130.3	79.7	159.1	171.9	203.2	144.7	399.8	234.8
10	153.8	169.4	113.2	370.6	135.2	120.7	148.0	220.2	438.1	240.9	677.5	440.0	273.6	232.5	285.9	235.0	297.9	196.7	113.1	328.6	127.0	88.3	116.9	124.6	677.5	235.3
11	153.3	94.0	153.6	123.9	183.3	235.8	172.7	180.4	219.1	283.6	290.4	269.6	205.4	175.7	134.4	146.8	172.8	192.9	119.4	65.7	63.5	56.2	46.9	55.8	290.4	158.1
12	31.2	31.7	35.1	34.4	36.0	36.2	36.0	36.1	39.4	52.2	70.2	95.5	72.5	88.7	59.3	64.1	54.0	48.8	58.5	36.3	25.8	27.0	10.3	9.2	95.5	45.4
13	13.4	6.5	5.0	5.2	5.0	7.5	16.5	28.2	75.1	34.2	39.7	58.4	75.6	49.1	33.2	56.7	85.9	24.5	63.1	90.9	60.8	98.0	84.7	71.3	98.0	45.4
14	68.3	265.7	375.0	229.8	167.1	201.3	338.6	488.8	892.3	666.6	638.6	322.5	191.1	110.1	61.0	63.6	101.9	97.8	118.3	116.7	94.3	78.5	108.6	366.4	892.3	256.8
15	637.5	577.9	577.8	327.9	289.0	283.7	283.8	487.7	613.4	815.4	543.1	953.0	457.1	704.8	206.0	250.5	393.5	126.6	121.9	150.3	179.5	636.6	296.4	225.7	953.0	422.5
16	213.6	212.6	197.3	184.6	158.4	176.4	180.8	193.8	196.8	188.0	157.5	169.5	163.8	214.2	204.0	278.2	260.9	126.5	99.1	83.8	118.9	97.9	199.1	160.7	278.2	176.5
17	68.6	97.5	181.0	128.3	157.6	209.4	227.1	230.5	388.6	247.4	197.2	220.3	178.6	278.6	248.9	283.0	166.5	379.4	148.5	172.8	108.2	148.3	147.1	98.2	388.6	196.3
18	85.0	92.3	164.4	117.2	95.1	121.6	139.8	205.9	305.3	281.9	198.8	198.5	230.3	392.1	291.8	223.7	173.3	214.8	143.4	116.9	146.0	102.6	111.3	88.2	392.1	176.7
19	63.2	64.3	67.1	62.7	70.2	65.5	82.4	74.1	97.4	146.4	82.3	106.4	164.6	167.9	131.1	174.4	154.8	128.4	142.3	108.2	97.7	143.5	92.4	141.2	174.4	109.5
20	119.3	126.6	67.0	61.5	56.2	38.8	36.2	35.0	34.9	41.9	231.5	175.4	143.9	124.6	129.4	141.7	107.1	138.8	138.2	100.9	106.7	56.9	117.9	131.8	231.5	102.6
21	167.9	494.7	344.6	321.8	236.7	94.8	501.4	455.3	772.6	602.4	173.1	167.4	101.7	92.3	66.7	126.5	41.7	113.0	124.4	136.2	49.6	57.6	151.6	266.7	772.6	235.9
22	343.1	451.6	674.5	406.9	192.1	358.9	325.2	743.1	675.7	424.3	234.2	365.0	237.7	165.0	99.7	74.9	74.3	60.4	37.8	62.2	107.5	82.8	94.0	198.9	743.1	270.4
23	144.7	150.7	141.4	163.9	207.8	211.8	249.9	413.3	405.9	463.8	393.0	424.7	228.6	219.3	236.5	328.9	165.5	138.9	170.8	97.3	129.3	105.9	115.7	219.2	463.8	230.3
24	175.2	130.6	116.9	143.7	167.8	167.3	198.6	142.8	69.1	51.1	45.8	54.2	103.4	86.4	45.2	42.2	31.3	28.7	45.7	55.1	49.8	41.9	32.4	40.8	198.6	86.1
25	42.4	57.3	50.6	55.1	50.2	39.8	39.6	40.0	60.9	67.7	176.8	157.0	221.4	101.8	111.0	81.9	85.4	74.4	177.9	76.1	73.7	82.2	144.1	133.6	221.4	91.7
26	150.5	172.0	182.6	166.6	228.9	174.6	267.3	188.5	217.4	172.5	85.2	51.4	52.0	57.5	36.9	44.7	31.8	44.2	51.3	27.3	2.3	0.7	0.7	0.6	267.3	100.3
27	0.9	1.7	1.3	0.8	1.9	4.2	4.0	4.3	11.7	20.0	12.3	38.2	67.0	64.5	81.9	112.4	72.5	130.6	98.3	84.4	31.3	17.3	10.0	25.9	130.6	37.4
28	37.1	119.3	368.4	114.8	207.6	170.2	135.1	201.5	447.1	206.0	223.9	157.5	136.4	114.6	137.5	226.3	404.6	134.3	66.6	45.3	45.1	52.3	85.4	46.8	447.1	161.8
29	92.9	117.4	35.5	59.5	52.6	75.0	93.0	265.0	340.9	315.3	204.2	301.8	344.4	116.6	109.6	91.1	102.4	443.7	76.1	16.8	28.9	30.8	99.3	32.2	443.7	143.5
30	87.6	17.1	21.9	9.0	36.7	87.0	29.3	177.2	159.4	76.2	108.1	311.4	158.3	135.4	115.7	118.5	105.6	67.3	60.2	41.3	100.4	60.9	71.0	18.4	311.4	90.6
31	50.5	147.3	132.6	164.2	84.2	24.8	33.2	32.0	321.5	486.5	131.6	209.9	181.5	243.4	174.5	212.6	178.6	271.3	357.4	110.5	248.1	61.5	18.1	33.8	486.5	162.9
Hourly Max	637.5	577.9	674.5	412.7	361.7	358.9	501.4	743.1	892.3	815.4	677.5	953.0	457.1	704.8	331.1	328.9	404.6	443.7	357.4	328.6	463.7	636.6	297.6	366.4		
Hourly Average	129.7	151.1	170.1	149.3	135.1	125.0	158.9	207.9	282.2	259.0	205.9	220.0	167.7	172.1	135.7	145.6	148.8	149.7	107.9	95.5	110.2	105.7	96.9	112.0		



Number of 24HR Exceedances	22		Objective	100	UG/M3
Number of Non-Zero Readings	744				
Maximum 1-HR Average	953.0	UG/M3			
Maximum 24-HR Average	422.5	UG/M3			
IZS Calibration Time	0	HRS	Operational Time	744	HRS
Monthly Calibration Time	0	HRS	Operational Uptime	100.0	%
Standard Deviation	137.5		Monthly Average	155.9	UG/M3

MetOne BAM PM_{2.5} Calibration



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

OPERATOR: Darrin Pike
DATE: August 29, 2018
END TIME (MST): 10:50

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
Configuration PM2.5
Serial Number T19087

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)	14.0	647	0.00	16.7	10:43
	MEASURED (AF)	14.3	650	0.30	16.60	10:44
	AF Difference (AF-I)	0.3	3	0.30	-0.10	0:01
Adjusted Data	MEASURED (M)	14.0	647	0.30	16.67	10:43
	Adj Difference (M-I)	0.0	0	0.30	-0.03	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 installed

Nozzle Inspection / cleanliness: clean

COMMENTS:

Performed self-tests - all passed.

MetOne BAM PM₁₀ Calibration



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

OPERATOR: Darrin Pike
DATE: August 29, 2018
END TIME (MST): 11:25

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
Configuration PM10
Serial Number A3315

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)	14.0	647	0.00	16.7	11:19
	MEASURED (AF)	14.6	647	0.40	16.63	11:18
	AF Difference (AF-I)	1	0	0.40	-0.07	0:01
Adjusted Data	MEASURED (M)	14.0	647	0.40	16.63	11:19
	Adj Difference (M-I)	0.0	0	0.40	-0.07	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: 3/4 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

Performed self-tests - all passed.

MetOne BAM TSP Calibration



STATION: Lafarge
LOCATION: Exshaw - Lagoon
START TIME (MST): 11:20

OPERATOR: Darrin Pike
DATE: August 29, 2018
END TIME (MST): 12:00

MONITOR INFO / PARAMETER VALUES:

Make/Model MetOne BAM
Configuration TSP
Serial Number A3589

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)	14.3	647	0.00	16.7	12:52
	MEASURED (AF)	14.3	647	0.80	16.75	12:51
	AF Difference (AF-I)	0.0	0	0.80	0.05	0:01
Adjusted Data	MEASURED (M)	14.3	647	0.80	16.75	12:52
	Adj Difference (M-I)	0.0	0	0.80	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: About 1/2 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

performed self-tests - all passed.

Calibration Report

Parameter
Air Monitoring Network

NO_x-NO-NO₂
Lafarge - Exshaw



Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason:	Routine	Installation	Removal
Other:			
Start Time (MST)	7:35	End Time (MST)	13:40
Barometric Pressure	649 mmHg	Station Temperature	23.5 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	0.992219	0.995135	0.999077
	Data Offset	0.546812	2.547983	2.023977
After	Data Slope	1.001798	0.995406	0.995290
	Data Offset	0.699425	2.299028	2.569386
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	0.948		0.953	
NO Offset	-0.600	mV	-0.6	mV
NOX Slope	0.954		0.956	
NOX Offset	0.6	mV	0.6	mV
HVPS	771.0	V	771	V
Moly Temp	316.5	degC	316.6	degC
O3 Flow	81.0	ccm	80	ccm
RxCell Press	4.3	inHg	4.4	inHg
Sample press	23.9	inHg	23.7	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: August 30, 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	-1.3	-1.2	-1.6	N/A	N/A
1	5000	39.00	398.6	397.8	0.8	398.6	397.8	-0.3	1.0000	1.0000
2	5000	20.00	205.2	204.8	0.4	203.5	202.6	-0.1	1.0085	1.0109
3	7000	14.00	102.8	102.6	0.2	99.8	99.0	-0.6	1.0297	1.0364
AFZ	5000	0	0.0	0.0	0.0	-1.3	-1.2	-1.6	0.0000	0.0000
AFS	5000	39	398.6	397.8	0.8	396.4	392.8	2.3	1.0056	1.0128
Average Correction Factor									1.0127	1.0158

As Found Concentrations: NO_x= 400.3 NO= 396.0 As Found Percent Change NO_x= 0.4% NO= -0.5%

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	-1.3	-1.2	-1.6	N/A	N/A	N/A	N/A
NO point	396.9	396.9	0.0	397.8	396.9	-0.2	0.9977	1.0000	N/A	N/A
0.78V	396.9	128.9	268.0	396.4	128.9	266.4	1.0010	1.0000	1.0058	99.4%
0.5V	396.9	237.3	159.6	397.2	237.3	158.6	0.9992	1.0000	1.0059	99.4%
0.3V	396.9	322.1	74.7	398.5	322.1	75.1	0.9958	1.0000	0.9954	100.5%
Average Correction Factor							0.9987	1.0000	1.0024	99.8%

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	0.8	-1.0	1.3	ppb
Auto span	391.6	-1.4	391.9	ppb	386.7	0.6	386.0	ppb

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter NO₂

Air Monitoring Network Lafarge - Exshaw



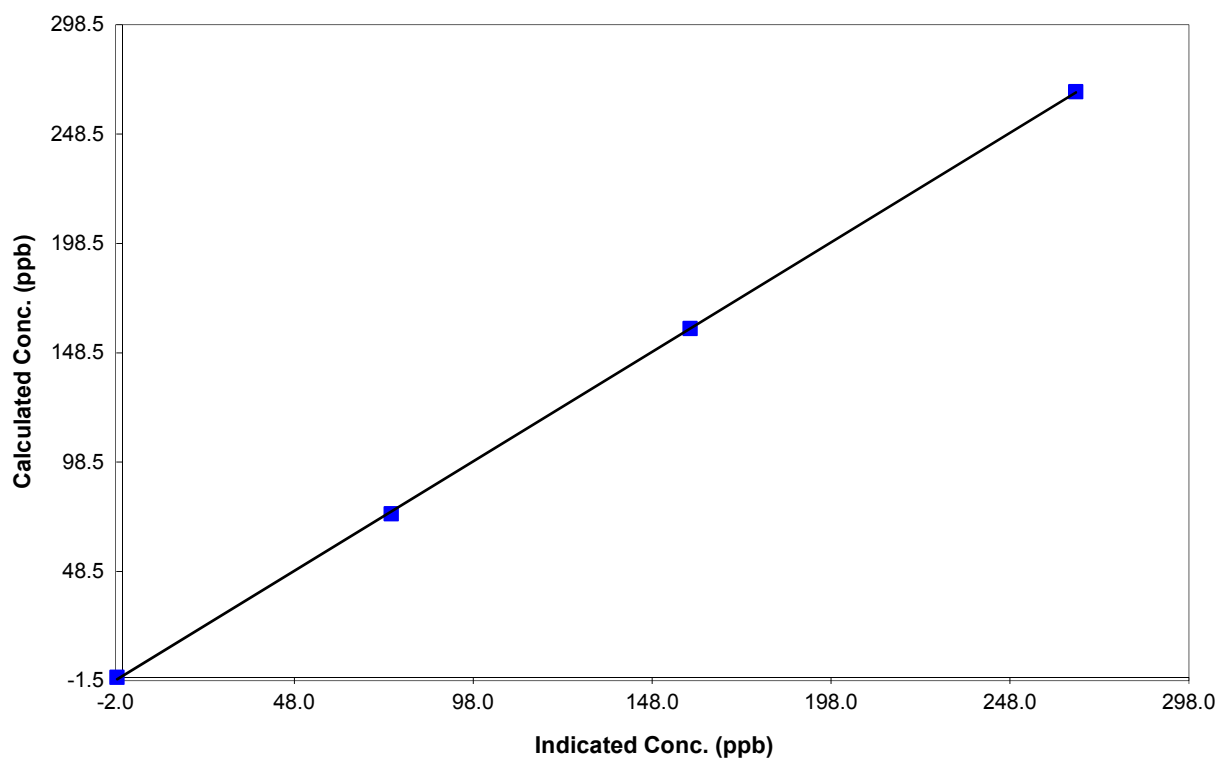
Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	7:35	End Time (MST)	13:40
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.6	N/A	Correlation Coefficient	0.999943
268.0	266.4	1.0058		
159.6	158.6	1.0059		
74.7	75.1	0.9954	Slope	1.001798
			Intercept	0.699425

NO₂ Calibration Curve



Calibration Summary

Parameter NO_x

Air Monitoring Network Lafarge - Exshaw



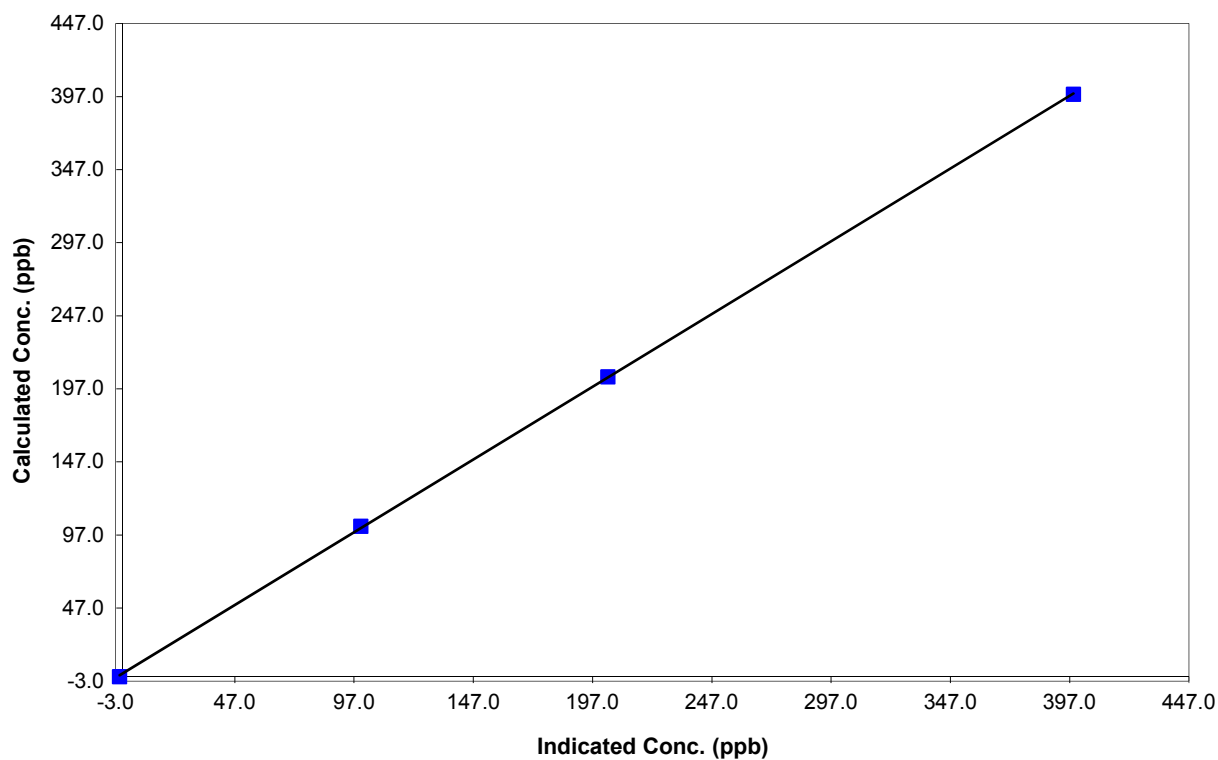
Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	7:35	End Time (MST)	13:40
Analyzer make	T200	Analyzer serial #	642

Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.3	N/A	Correlation Coefficient	0.999969
398.6	398.6	1.0000		
205.2	203.5	1.0085		
102.8	99.8	1.0297	Slope	0.995406
			Intercept	2.299028

NO_x Calibration Curve



Calibration Summary

Parameter NO

Air Monitoring Network Lafarge - Exshaw



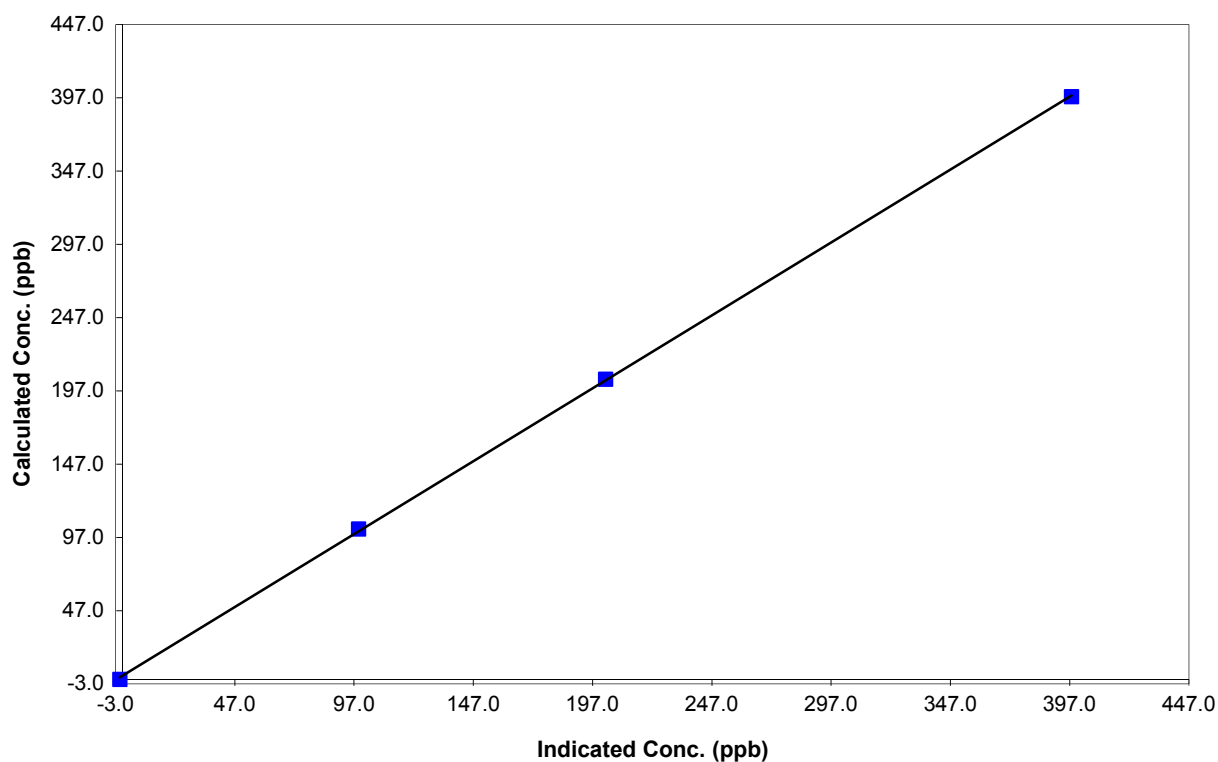
Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	7:35	End Time (MST)	13:40
Analyzer make	T200	Analyzer serial #	642

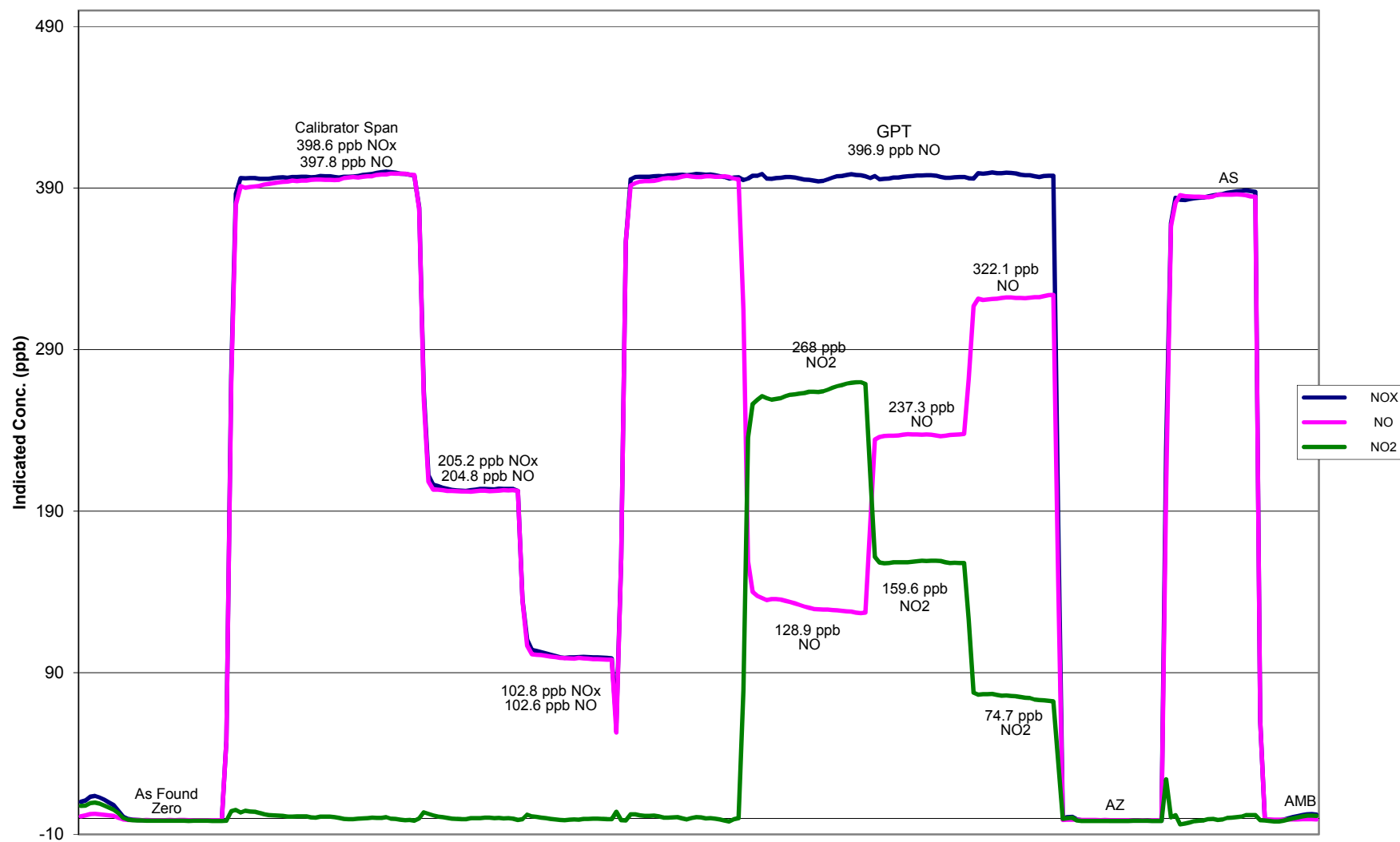
Calibration Data

Calculated conc (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	-1.2	N/A	Correlation Coefficient	0.999942
397.8	397.8	1.0000		
204.8	202.6	1.0109		
102.6	99.0	1.0364	Slope	0.995290
			Intercept	2.569386

NO Calibration Curve



NOX Calibration



August 30, 2018

Calibration Report



AIR QUALITY MONITORING

Parameter SO2

Air Monitoring Network Lafarge - Exshaw

Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason:	☐ Routine	☐ Install	☒ Removal
Other:			
Start Time (MST)	7:40	End Time (MST)	9:32
Barometric Pressure	648 mmHg	Station Temperature	23.5 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
	<u>Before</u>		<u>After</u>
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	0.998967	Calculated slope	0.996346
Calculated intercept	0.780003	Calculated intercept	0.409217
Analyzer make	API Model 102A	Analyzer serial #	393

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Slope	0.927		N/A	
Offset	53.8	mV	N/A	mV
Pressure	23.7	in Hg	N/A	in Hg
Sample Flow	477	ccm	N/A	ccm
UV Lamp	1933	mV	N/A	mV
HVPS	690	V	N/A	V
PMT Temp	7.3	degC	N/A	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	1.6	N/A
5000	39.00	393.2	395.3	0.9945
5000	20.00	202.4	201.3	1.0053
7000	14.00	101.4	99.6	1.0179
5000	0	0.0	1.6	As found zero
5000	39	393.2	395.3	As found span
Average Correction Factor				1.0059

Calculated value of As Found Response: 394.1 ppb Percent Change of As Found: -0.2%

	before calibration		after calibration	
Auto zero	-1.4	ppb	N/A	ppb
Auto span	387.0	ppb	N/A	ppb

Notes: Removal calibration before performing maintenance. No adjustments performed.

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter SO2

Air Monitoring Network Lafarge - Exshaw



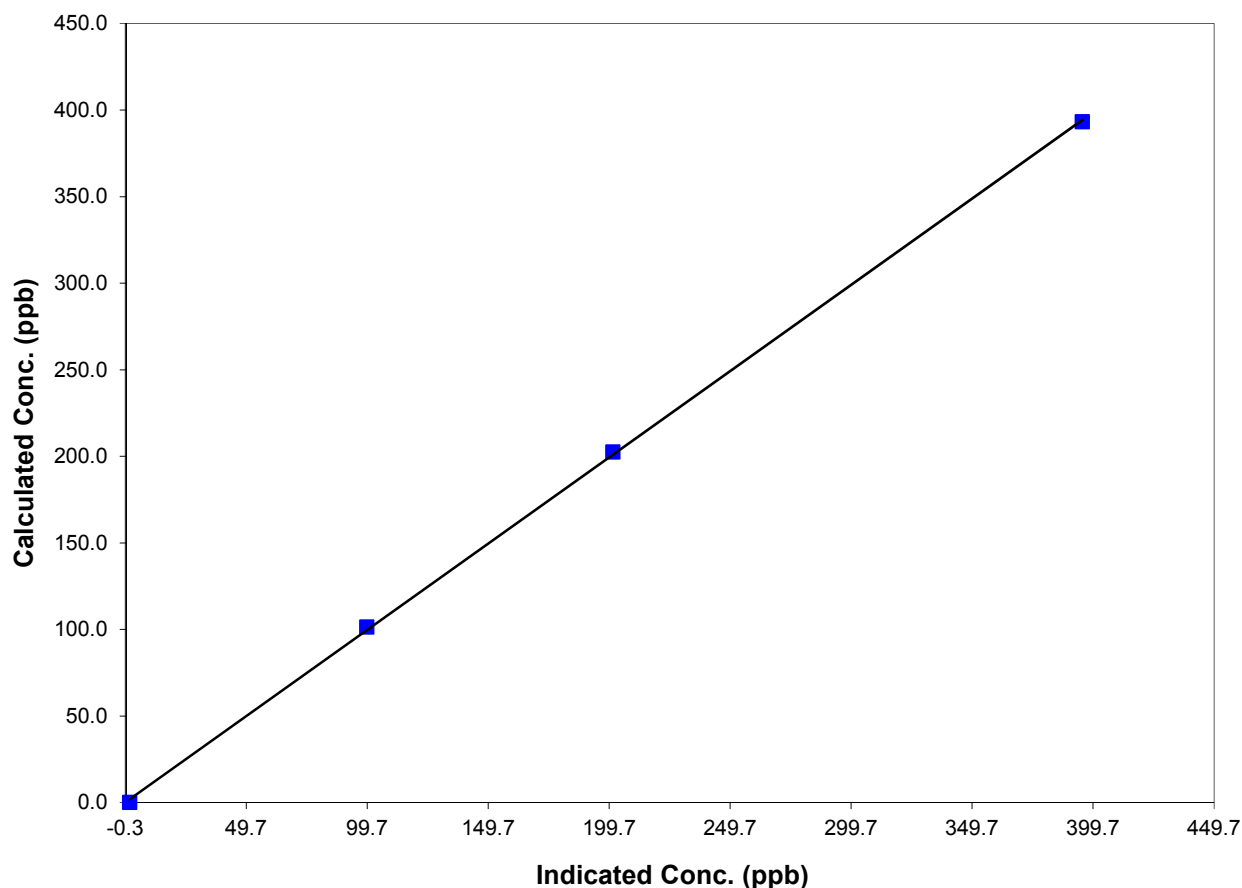
Station Information

Calibration Date	August 30, 2018	Previous Calibration	July 10, 2018
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	7:40	End Time (MST)	9:32
Analyzer make/model	API Model 102A	Analyzer serial #	393

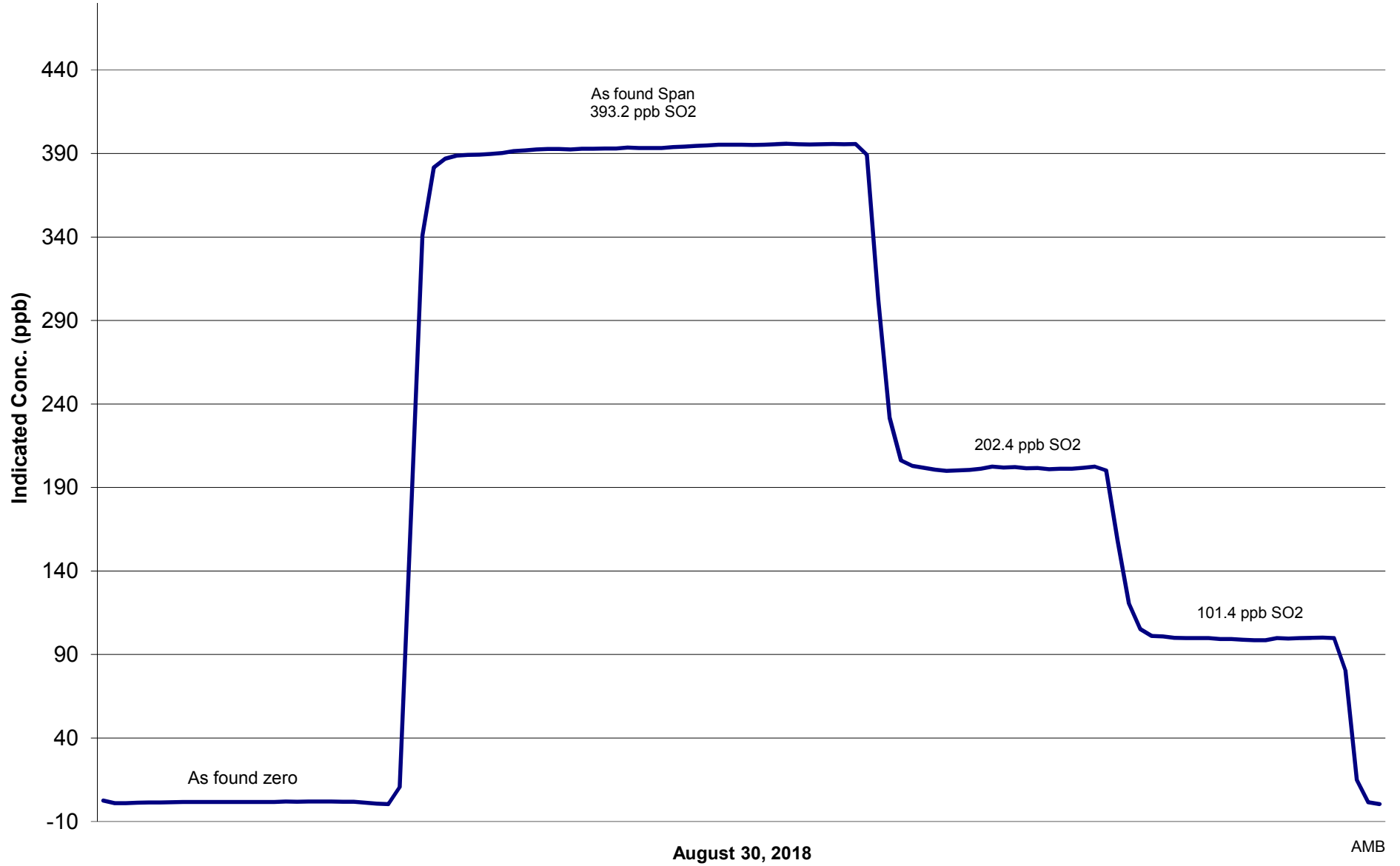
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	1.6	N/A	Correlation Coefficient	0.999879
393.2	395.3	0.9945		
202.4	201.3	1.0053		
101.4	99.6	1.0179	Slope	0.996346
			Intercept	0.409217

SO2 Calibration Curve



SO2 Calibration



Calibration Report



Parameter SO2
Air Monitoring Network Lafarge - Exshaw

Station Information

Calibration Date	August 30, 2018	Previous Calibration	N/A
Station Number	N/A	Station Location	Exshaw - Lagoon
Reason:	☐ Routine	☒ Install	☐ Removal
			Other:
Start Time (MST)	11:19	End Time (MST)	13:35
Barometric Pressure	648 mmHg	Station Temperature	23.5 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
	<u>Before</u>		<u>After</u>
DACS Scale High	500	DACS slope	500
DACS Scale Low	0	DACS intercept	0
Calculated slope	N/A	Calculated slope	0.996958
Calculated intercept	N/A	Calculated intercept	0.757858
Analyzer make	API Model 102A	Analyzer serial #	393

	before		after	
Concentration range	0-500	ppb	0-500	ppb
Slope	N/A		1.18	
Offset	N/A	mV	43.2	mV
Pressure	N/A	in Hg	23.8	in Hg
Sample Flow	N/A	ccm	418	ccm
UV Lamp	N/A	mV	3395	mV
HVPS	N/A	V	690	V
PMT Temp	N/A	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	0.3	N/A
5000	39.00	393.2	394.0	0.9978
5000	20.00	202.4	202.1	1.0015
7000	14.00	101.4	99.6	1.0176
				As found zero
				As found span
Average Correction Factor				1.0056

Calculated value of As Found Response: NA Percent Change of As Found: NA

	before calibration		after calibration	
Auto zero	N/A	ppb	-0.1	ppb
Auto span	N/A	ppb	386.5	ppb

Notes: Rebuilt sample pump, peaked UV lamp, adjusted PMT. Zero/Span adjusted.

Calibration Performed By: Darrin Pike

Calibration Summary

Parameter SO2

Air Monitoring Network Lafarge - Exshaw



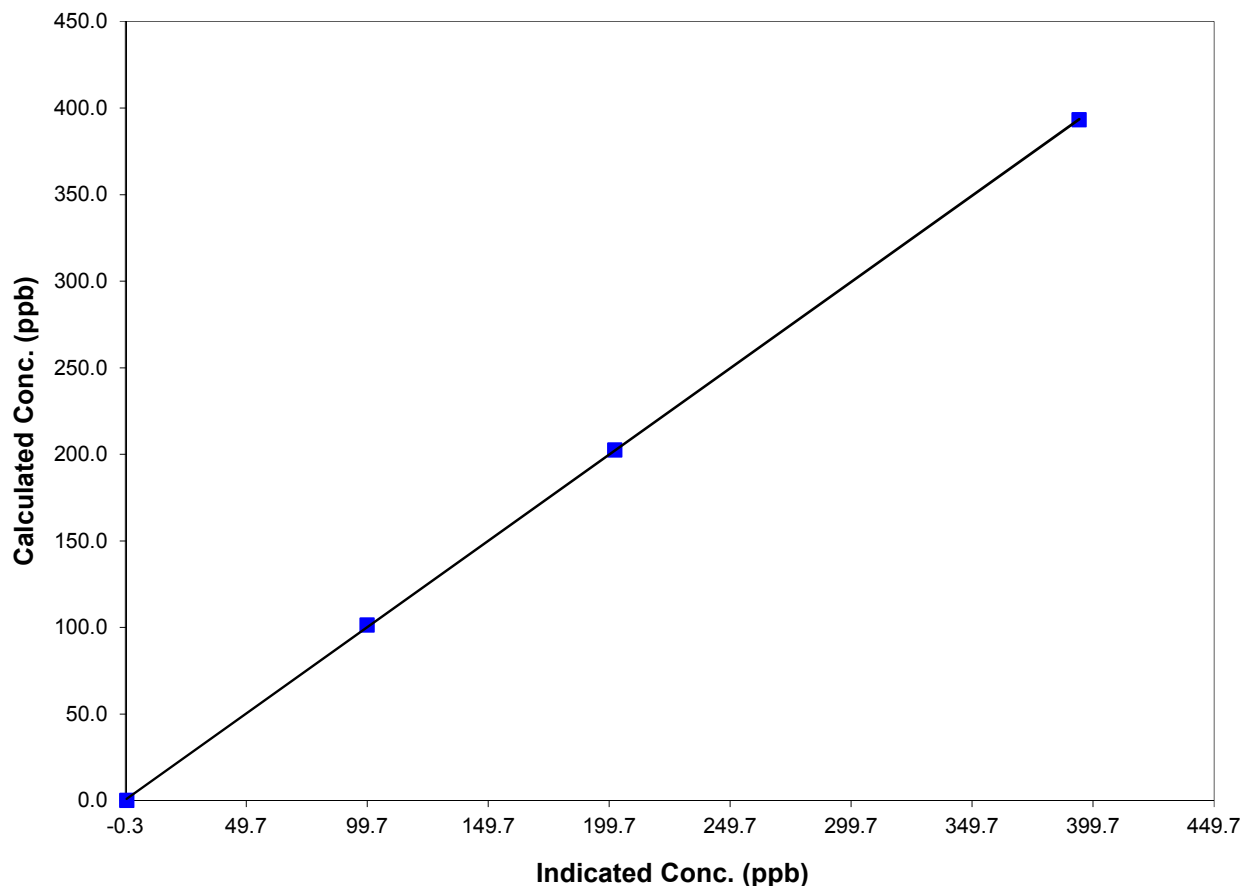
Station Information

Calibration Date	August 30, 2018	Previous Calibration	N/A
Station Number	N/A	Station Location	Exshaw - Lagoon
Start Time (MST)	11:19	End Time (MST)	13:35
Analyzer make/model	API Model 102A	Analyzer serial #	393

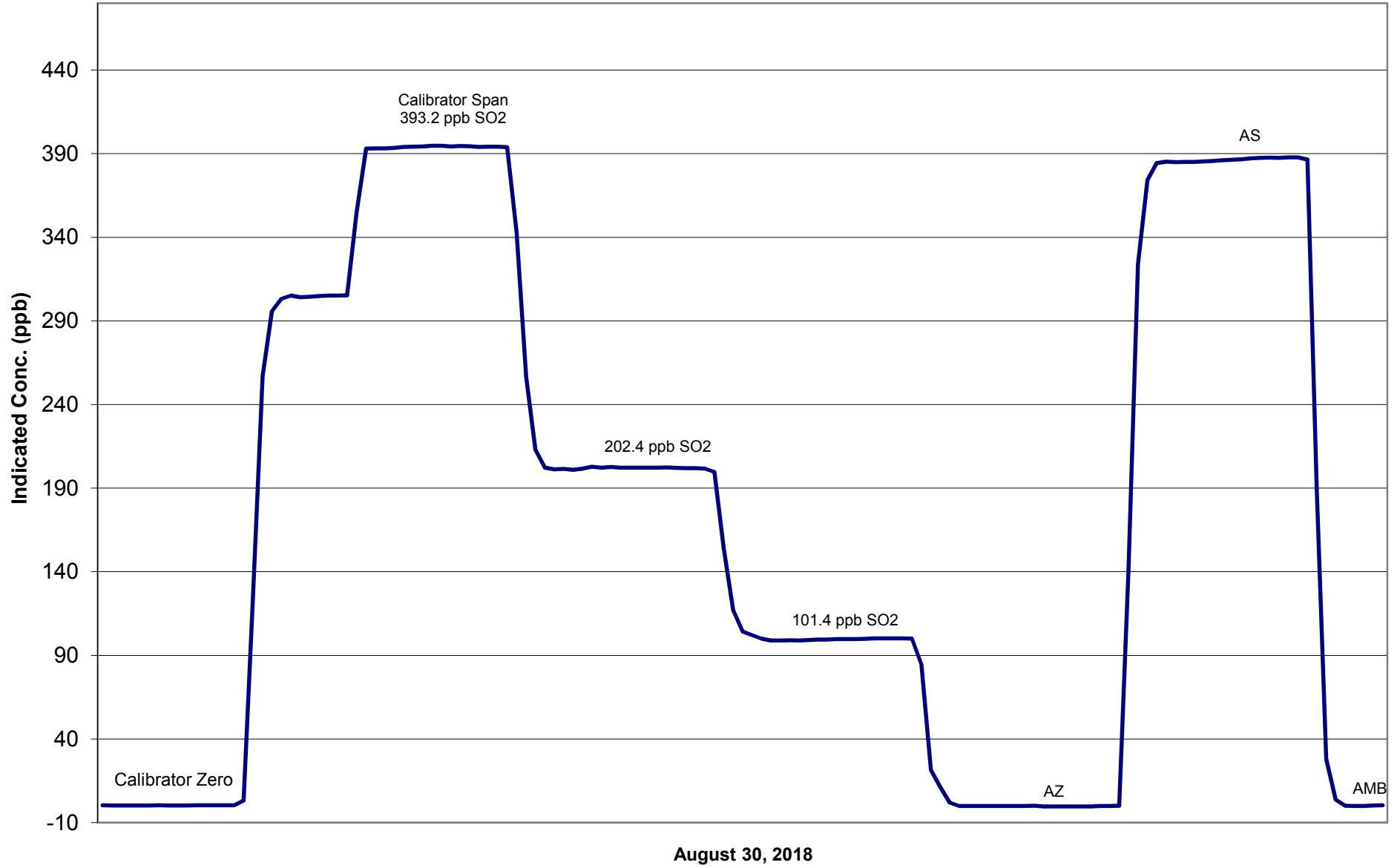
Calibration Data

Calculated concentration (ppb) (Cc)	Indicated concentration (ppb) (Ic)	Correction factor (Cc/Ic)	Statistical Evaluation	
0.0	0.3	N/A	Correlation Coefficient	0.999965
393.2	394.0	0.9978		
202.4	202.1	1.0015		
101.4	99.6	1.0176	Slope	0.996958
			Intercept	0.757858

SO2 Calibration Curve



SO2 Calibration



MetOne BAM PM_{2.5} Calibration



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

OPERATOR: Darrin Pike
DATE: August 1, 2018
END TIME (MST): 12:10

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)	26.0	648	0.00	16.7	12:05
	MEASURED (AF)	25.0	649	0.40	16.67	12:06
	AF Difference (AF-I)	-1.0	1	0.40	-0.03	0:01
Adjusted Data	MEASURED (M)	26.0	648	0.40	16.67	12:05
	Adj Difference (M-I)	0.0	0	0.40	-0.03	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: 3/4 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

Performed self-tests - all passed.

MetOne BAM PM₁₀ Calibration



STATION: Lafarge
LOCATION: Exshaw - Windridge
START TIME (MST): 12:10

OPERATOR: Darrin Pike
DATE: August 1, 2018
END TIME (MST): 12:30

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)	26.0	648	0.00	16.7	12:15
	MEASURED (AF)	26.0	648	0.20	16.36	12:16
	AF Difference (AF-I)	0.0	0	0.20	-0.34	0:01
Adjusted Data	MEASURED (M)	26.0	648	0.20	16.72	12:15
	Adj Difference (M-I)	0.0	0	0.20	0.02	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: 3/4 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

Performed self-tests - all passed.

MetOne BAM TSP Calibration



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

OPERATOR: Darrin Pike
DATE: August 1, 2018
END TIME (MST): 12:45

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)	26.0	648	0.00	16.7	12:29
	MEASURED (AF)	26.0	648	0.40	16.60	12:30
	AF Difference (AF-I)	0.0	0	0.40	-0.10	0:01
Adjusted Data	MEASURED (M)	26.0	648	0.40	16.69	12:29
	Adj Difference (M-I)	0.0	0	0.40	-0.01	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: 3/4 roll

Nozzle Inspection / cleanliness: clean

COMMENTS:

Performed self-tests - all passed.

AIR QUALITY MONITORING
Field Service Report

Air Monitoring Network / Client: Lafarge – Exshaw

Station Information

Visit Date: Aug 1, 2018	Project Number: 151-09626-00
Station Location: Exshaw – Windridge	Station Name: Lafarge – Windridge
Reason for Visit: Routine monthly calibrations	
Arrival Time: 11:00 MST	Departure Time: 15:00 MST
Weather Conditions: clear and 29 degC.	

Record of Hours

Parts Used

Employee	Category	Hours	Qty	Parts Description
DP	CAL	4		
DP	TRV	3		

Station Information

Time (MST) Comments

11:00 – Arrived at LaFarge plant and signed in

11:30 - Flagged all PM channels at windridge site for BAM 1020 calibrations.

12:10 - BAM PM2.5 calibration completed with no issues.

12:30 - BAM PM10 calibration completed with no issues.

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

13:00 – left Windridge site and proceeded to the Grimms. Both west and Berm grimms are down

West Sharp:
found that the sample pump had stopped working. Replaced pump, issue resolved.
Measured Sample flow = 1.1 LPM
Sharp AmbT = 28 degC
Audit AmbT = 28 degC

Berm Sharp:
Found that the sample pump had failed, part was damaged beyond repair. Will need to wait for a new pump.

Entrance Sharp:
Measured Sample flow = 1.11 LPM
Sharp AmbT = 27 degC
Audit AmbT = 26 degC

14:45 – Grimms audit completed

15:00 – Left site

AIR QUALITY MONITORING
Field Service Report

NOTES:

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

Technician: Darrin Pike