



AIR SCIENCES INC.

DENVER • PORTLAND

**Baseline
Meteorological and
Air Quality Data
Report
Resolution Copper
Mining Project
July 1 - September 30, 2014**

PREPARED FOR:
RESOLUTION COPPER
A MEMBER OF RIO TINTO
GROUP

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NOVEMBER 2014

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1.0 INTRODUCTION

This report summarizes the meteorological, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone (O₃), and particulate matter (PM) data collected at the Resolution Copper Project near Superior, Arizona for the third quarter, July 1 – September 30, 2014. Monitoring was performed in accordance with the *Resolution Copper Mining Monitoring Plan, November 2011* (approved by the Pinal County Air Quality Control District [PCAQCD] on November 15, 2011).

Resolution Copper Mining LLC (RCML) has implemented a meteorological and air quality monitoring program to support several efforts during the pre-feasibility and other mine development phases: environmental assessments, impact analyses, and documents required by the National Environmental Policy Act (NEPA); meteorological and air quality data to be processed and used as input for AERMOD (American Meteorological Society/Environmental Protection Agency Regulatory Model) dispersion modeling; and air quality baseline data and AERMOD analyses to be used to support RCML’s application to the PCAQCD for air permit(s).

1.1 Location

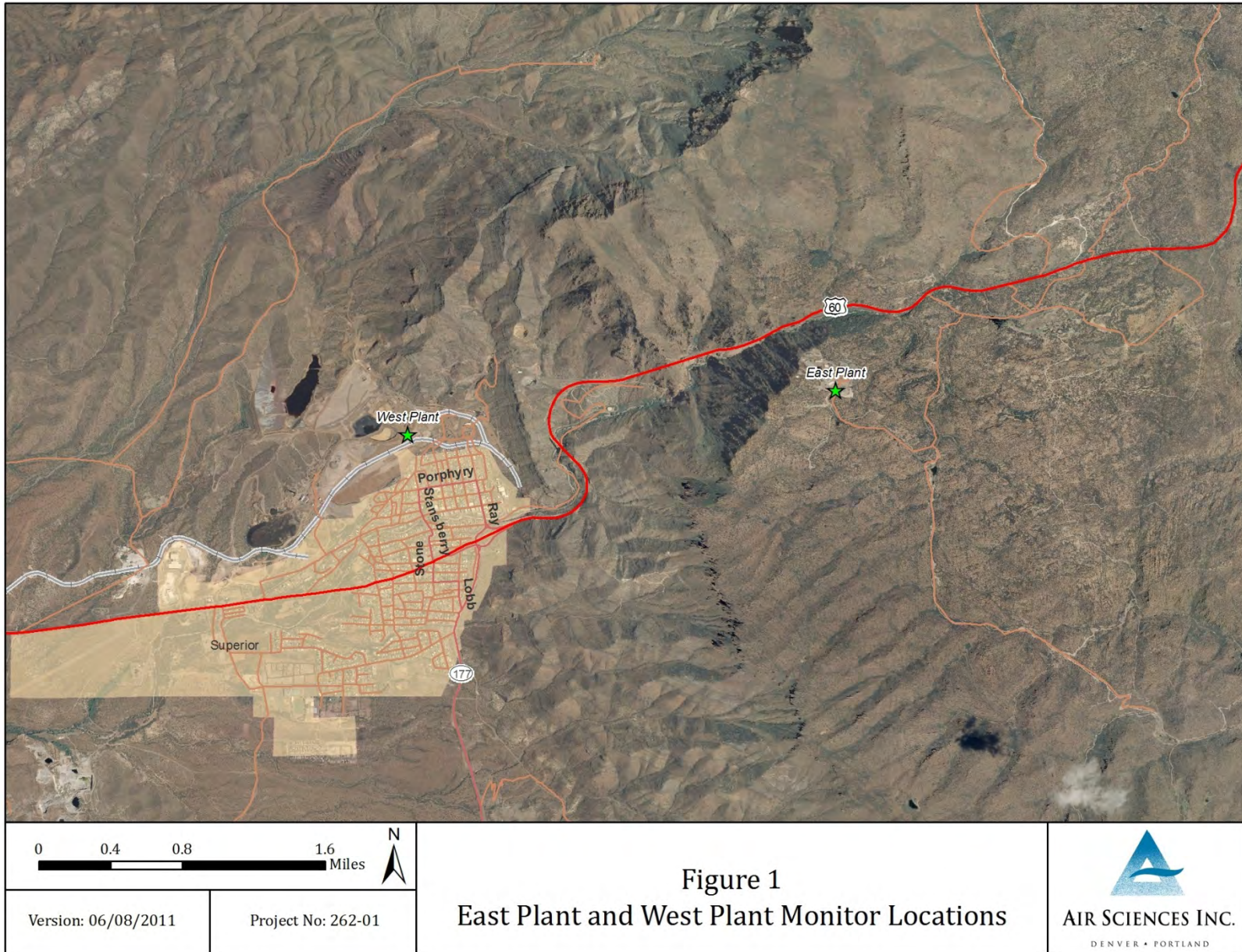
The Resolution Copper Project is located near Superior, Arizona. Currently there are two meteorological and air quality stations. The East Plant station is located at the main project site, east of Superior. The West Plant station is located at RCML’s facilities directly north of Superior, Arizona. The topography ranges from hilly to mountainous.

The monitoring station locations are shown in Figure 1 and listed by coordinates in Table 1.

Table 1. Monitoring Station Locations

Station	Location	Latitude (Deg)	Longitude (Deg)	Elevation (ft)	Method of Determination
West Plant	01S12E35NWSE	33.2994	-111.1021	2,949	GPS
East Plant	01S13E32SWNW	33.3030	-111.0676	4,199	GPS

Figure 1. Resolution Monitoring Stations Locations



1.2 Monitoring Program Description

1.2.1 Meteorological Data

Meteorological sensors and air quality instrumentation at the East Plant and West Plant stations are mounted on 10-meter, open-lattice towers or housed in climate-controlled insulated shelters, and are listed by height, from ground level, in Table 2.

Table 2. Sensors and Heights

		Height (m)	West Plant	East Plant
AERMOD Meteorological Data	Horizontal wind speed (meters per second [m/s])	10	✓	✓
	Horizontal wind direction (degrees [°])	10	✓	✓
	Horizontal wind direction standard deviation (sigma theta)	10	✓	✓
	Air temperature (degrees Celsius [°C])	2	✓	✓
	Vertical temperature difference (ΔT , Delta T, [°C])	2,10	✓	✓
	Relative humidity (percent [%])	2	✓	✓
	Solar radiation (watts per square meter [W/m ²])	2	✓	✓
	Barometric pressure (millimeters of mercury [mmHg])	1	✓	✓
	Precipitation (inches [in])	Ground	✓	✓
Ambient Air Data	FEM* Particulate matter less than 10 microns (PM ₁₀)	2,3	✓	✓
	FEM* Particulate matter less than 2.5 microns (PM _{2.5})	2,3	✓	✓
	Sulfur dioxide (SO ₂)	3		✓
	Ozone (O ₃)	3		✓
	Nitrogen dioxide (NO ₂)	3		✓

*Federal Equivalent Method

The meteorological data are recorded by digital data acquisition systems equipped with broadband modems for data transfer. The meteorological parameters are sampled on-site at one-second intervals and are digitally processed into 15-minute averages. The 15-minute averages are transmitted to Air Sciences Inc. (Air Sciences) for quality assurance checks and are used as input for the calculation of one-hour averages.

Appendix A lists hourly meteorological data from July 1 through September 30, 2014.

Meteorological parameters are collected in support of air quality data. All meteorological sensors are audited and data undergo quality control procedures according to the guidelines outlined in the Quality Assurance Project Plan.

1.2.2 NO₂ Data

NO₂ is measured at the East Plant using the Teledyne T200 Chemiluminescence NO₂ Analyzer, which holds an Environmental Protection Agency (EPA) equivalency designation as a Reference Method (RFNA-1194-099). This instrument is designed to measure oxides of nitrogen (NO_x) (with nitrogen

dioxide, NO₂, as an indicator) at trace levels in ambient air. The instrument is operated continuously to collect hourly NO, NO₂, and NO_x concentrations. Data are transferred via FTP script every hour to the Air Sciences server and made available to authorized persons via a data web-portal. Appendix C lists hourly NO₂ data for the East Plant from July 1 through September 30, 2014.

Level 1 zero and span calibrations and Level 2 zero and span verifications are conducted by the site operator every two weeks or as needed. Second-party audits, adjustments, and general maintenance on the NO₂ monitor are performed according to the guidelines outlined in the Quality Assurance Project Plan.

1.2.3 SO₂ Data

SO₂ is measured at the East Plant using the Teledyne T100 UV Fluorescence SO₂ Analyzer, which holds an EPA designation as an Automated Equivalent Method (EQSA-0495-100). The instrument is operated continuously to collect hourly SO₂ concentrations. Data are transferred via FTP script every hour to the Air Sciences server and made available to authorized persons via a data web-portal. Appendix C lists hourly SO₂ data for the East Plant from July 1 through September 30, 2014.

Level 1 zero and span calibrations and Level 2 zero and span verifications are conducted by the site operator every two weeks or as needed. Second-party audits, adjustments, and general maintenance on the SO₂ monitor are performed according to the guidelines outlined in the Quality Assurance Project Plan.

1.2.4 O₃ Data

O₃ is measured at the East Plant using the Teledyne T400 UV Absorption O₃ Analyzer, which holds an EPA designation as an Automated Equivalent Method (EQOA-0992-087). The instrument is operated continuously to collect hourly O₃ concentrations. Data are transferred via FTP script every hour to the Air Sciences server and made available to authorized persons via a data web-portal. Appendix C lists hourly and rolling 8-hour average O₃ data for the East Plant from July 1 through September 30, 2014.

Level 1 zero and span calibrations and Level 2 zero and span verifications are conducted by the site operator every two weeks or as needed. Second-party audits, adjustments, and general maintenance on the O₃ monitor are performed according to the guidelines outlined in the Quality Assurance Project Plan.

1.2.5 PM Data

PM₁₀ and PM_{2.5} are measured at both the East Plant and West Plant using Met One Instruments' Beta Attenuation Monitors (BAM). At each site, one BAM is configured as a PM_{2.5} Federal Equivalent Method (FEM), which holds the EPA designation (EQPM-0308-170), and the other BAM is configured as a PM₁₀ FEM, which holds the EPA designation (EQPM-0798-122). The instruments are operated continuously to collect hourly PM_{2.5} and PM₁₀ concentrations. Data are transferred via FTP script every hour to the Air Sciences server and made available to authorized persons via a data web-portal. Appendix B lists hourly PM_{2.5} and PM₁₀ data from July 1 through September 30, 2014.

The accuracy of the monitor is assessed through monthly audits of the flow rate by using a certified flow transfer standard.

Second-party audits, adjustments, and general maintenance on the PM monitors are performed according to the guidelines outlined in the Quality Assurance Project Plan.

2.0 DATA RECOVERY RATES

Data recovery rates for all parameters are presented in Table 3. Meteorological data recoveries are calculated by dividing the amount of valid hourly averages by the available hourly periods in the quarter. Air quality and particulate data recoveries are calculated by dividing the amount of valid 24-hour averages (for PM₁₀, PM_{2.5}), valid 24-hour maximum value (for SO₂, NO₂), or valid daily rolling 8-hour maximum (O₃) values by the number of days in the quarter. Particulate and air quality 24-hour averages or maximums are valid if greater than 75 percent of the hourly readings are valid for that day (at least 18 out of 24 hours).

**Table 3. Data Recovery Rates, East Plant and West Plant
July 1 - September 30, 2014
(percent)**

Parameter*	East Plant		West Plant		Minimum Required Recovery Rate
	Recorded Observations	Recovery Rate	Recorded Observations	Recovery Rate	
Meteorological					
Wind speed (10 m)	2,206	99.9	2,205	99.9	90
Wind direction (10 m)	2,206	99.9	2,205	99.9	90
Temperature (2 m)	2,206	99.9	2,205	99.9	90
Delta temperature	2,206	99.9	2,205	99.9	90
Relative humidity	2,206	99.9	1,689	76.5	90
Barometric pressure	2,206	99.9	2,205	99.9	90
Precipitation	2,206	99.9	2,205	99.9	90
Solar radiation	2,206	99.9	2,205	99.9	90
NO ₂	81	88.0	--	--	75
O ₃	89	96.7	--	--	75
SO ₂	66	71.7	--	--	75
PM ₁₀	91	98.9	90	98.9	75
PM _{2.5}	91	98.9	82	90.1	75

*Meteorological parameters are observed hourly (2,208 hours in this period).

NO₂, O₃, SO₂, and PM parameters are observed every 24 hours (92 days in this period).

2.1 Data Loss

2.1.1 Meteorological Data Loss

2.1.1.1 East Plant

Meteorological data invalidated at the East Plant station for this quarter was due to a site audit performed by Air Sciences on July 31, 2014.

2.1.1.2 West Plant

Meteorological data invalidated at the West Plant station for this quarter was due to a site audit performed by Air Sciences on July 29, 2014.

2.1.2 NO₂ Data Loss

NO₂ 24-hour maximum data were invalidated from July 11 through July 15, 2014, due to concentration stability values outside of the acceptable range. Maintenance, and a calibration performed by Air Sciences from July 30 through August 1, 2014 resulted in invalid 24-hour maximum values for those days. 24-hour maximum data were also invalidated on August 25, due to suspect concentrations, and from August 27 through August 28, 2014, due to calibration work.

Additional invalid hourly NO₂ data were due to daily zero/span checks, Level 1 zero/span checks, regularly scheduled maintenance, power outages, and internal instrument errors.

2.1.3 SO₂ Data Loss

SO₂ 24-hour maximum data were invalidated from July 24 through August 7, 2014, and from August 24 through September 3, 2014, as a result of a pump failures.

Additional invalid hourly SO₂ data were due to daily zero/span checks, Level 1 zero/span checks, regularly scheduled maintenance, power outages, and internal instrument errors.

2.1.4 O₃ Data Loss

O₃ rolling 8-hour maximum data were invalidated from July 30 through August 1, 2014, due to maintenance, and a calibration performed by Air Sciences.

Additional invalid hourly O₃ data were due to daily zero/span checks, Level 1 zero/span checks, regularly scheduled maintenance, power outages, and internal instrument errors.

2.1.5 PM Data Loss

2.1.5.1 East Plant

Hourly and 24-hour average data were PM₁₀ data were invalidated on July 30, 2014, due to maintenance and a calibration performed by Air Sciences.

24-hour average PM_{2.5} data were invalidated on July 18, 2014, due to a tape error. Hourly PM_{2.5} data were invalidated on July 30, 2014, as a result of maintenance and calibration performed by Air Sciences.

Additional invalid hourly PM data at the East Plant were due to monthly flow verifications, regularly scheduled maintenance, power outages, and internal instrument errors.

2.1.5.2 West Plant

Hourly PM₁₀ data were invalidated on July 29, 2014, due to maintenance and a calibration performed by Air Sciences.

Hourly PM_{2.5} data were invalidated on July 29, 2014, due to maintenance and a calibration performed by Air Sciences.

Additional invalid hourly PM data at the West Plant were due to monthly flow verifications and regularly scheduled maintenance.

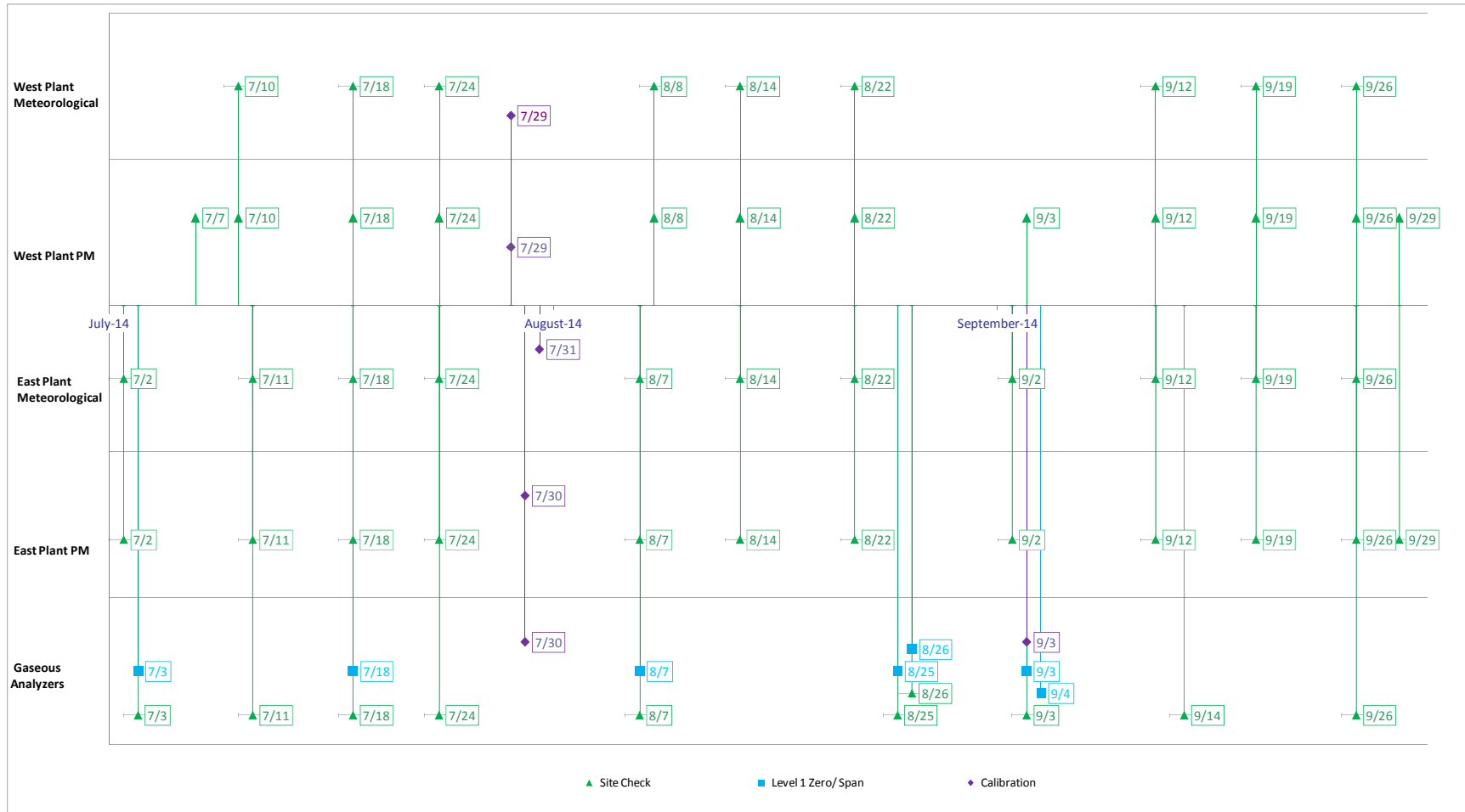
2.2 Quality Control

Quality assurance, equipment calibration, and audit procedures are conducted in accordance with the following documents:

- Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program (EPA-454/B-13-003, May 2013)
- Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements (EPA-454/B-08-002, March 2008)
- Transfer Standards for the Calibration of Ambient Air Monitoring Analyzers for Ozone (EPA-454/B-13-004, October 2013)
- Code of Federal Regulations (40 CFR Parts 50 and 58)
- Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD) (EPA-450/4-87-007, May 1987)
- Meteorological Monitoring Guidance for Regulatory Modeling Applications (EPA-454/R-99-005, February 2000)

Audits and/or calibrations of meteorological instrumentation are required every six months. Audits and/or calibrations of the ambient air quality monitors and analyzers are required every three months. At the East and West Plant, Air Sciences performed audits or calibrations of the meteorological, particulate and air quality analyzers between July 29, and July 31, 2014. The SO₂ analyzer was repaired and calibrated on September 3, 2014 following a pump failure. Site checks on the meteorological sensors, particulate instruments, and gas analyzers continue to be conducted on a weekly basis. Copies of the audit/calibration report, flow verifications, and site check forms can be found in Appendices D-I.

Figure 2. Dates of Site Checks, Audits, and Calibrations
July 1- September 30, 2014



3.0 METEOROLOGICAL DATA SUMMARY AND DISCUSSION

3.1 Meteorological Data Summary

Meteorological data from the third quarter have been compiled and summarized in graphical and tabular form. Meteorological summary sheets (Figure 3 and Figure 4) are comprised of the following:

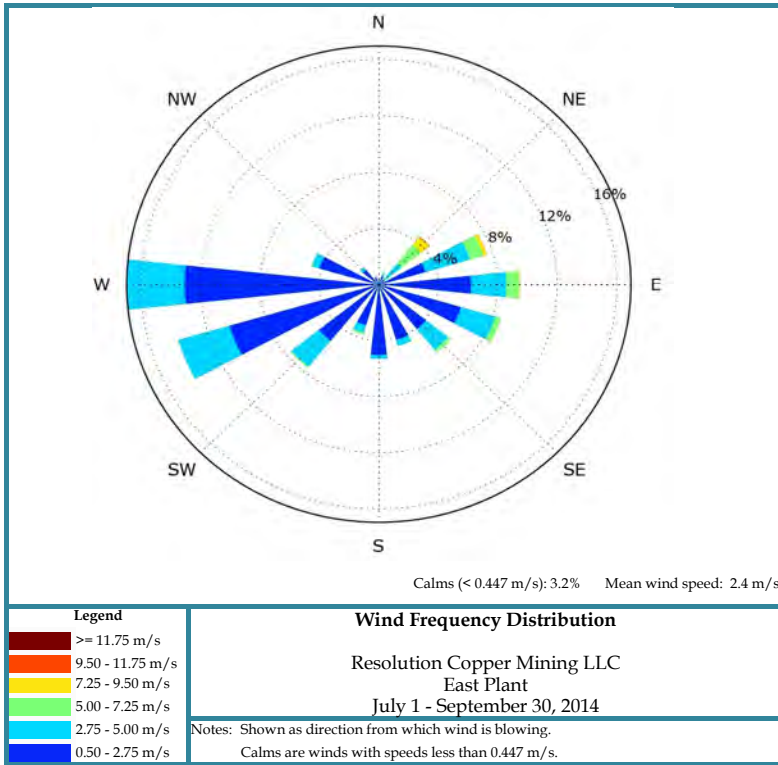
Wind Rose - Graphically depicts the percentage of winds that come from each of the 16 directions for the reported period. Wind speeds are divided into six subcategories ranging from less than 0.5 m/s (the measurement threshold of the instrument) to greater than 11.75 m/ s.

Wind Frequency Table -The Wind Frequency Table shows the percentage of occurrence of winds for each of the 16 directions that occur in each of the six Wind Speed Class Intervals.

Meteorology Charts - Graphically summarize recorded hourly meteorological parameters by month. Chart types include stock-ticker charts (with high, low, and average hourly values for each month) and bar charts.

Figure 3: East Plant Meteorological Data Summary

Meteorological Data: July 1 - September 30, 2014



Direction	Speed Class Intervals (m/s) (percent of occurrence)						All	Mean Speed
	0.5 <1.5	1.5 <3	3 <5	5 <7	7 <10	>=10		
N	0.1	0.2	0.1	0.0	0.0	0.0	0.5	2.5
NNE	0.2	0.5	0.1	0.1	0.0	0.0	0.9	2.4
NE	0.1	0.4	1.5	1.5	0.9	0.0	4.4	5.3
ENE	1.0	2.7	2.7	0.9	0.3	0.0	7.6	3.3
E	1.9	4.8	1.9	0.8	0.1	0.0	9.5	2.6
ESE	3.0	3.2	2.0	0.4	0.0	0.0	8.6	2.3
SE	2.4	2.3	1.3	0.2	0.0	0.0	6.2	2.2
SSE	3.3	0.9	0.4	0.0	0.0	0.0	4.6	1.3
S	3.7	1.4	0.2	0.0	0.0	0.0	5.3	1.3
SSW	1.7	1.4	0.5	0.1	0.0	0.0	3.7	1.9
SW	1.1	4.8	1.7	0.1	0.0	0.0	7.6	2.4
WSW	2.0	9.8	2.2	0.0	0.0	0.0	14.1	2.3
W	2.8	12.1	2.0	0.0	0.0	0.0	17.0	2.2
WNW	1.6	2.9	0.2	0.0	0.0	0.0	4.7	2.0
NW	0.7	0.7	0.2	0.0	0.0	0.0	1.6	2.0
NNW	0.4	0.2	0.0	0.0	0.0	0.0	0.6	1.6
All	26.1	48.2	17.0	4.3	1.3	0.0	96.8	2.4

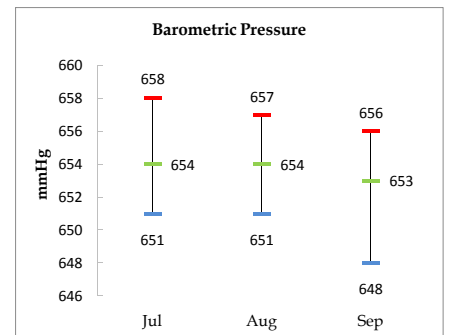
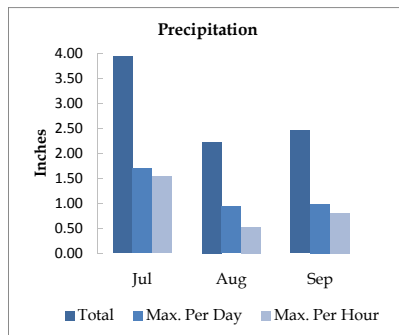
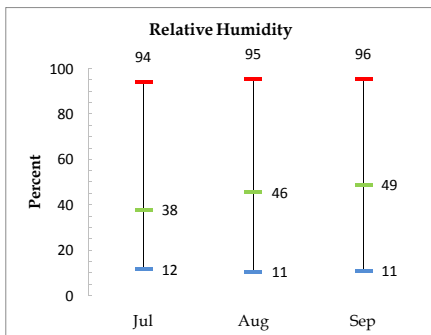
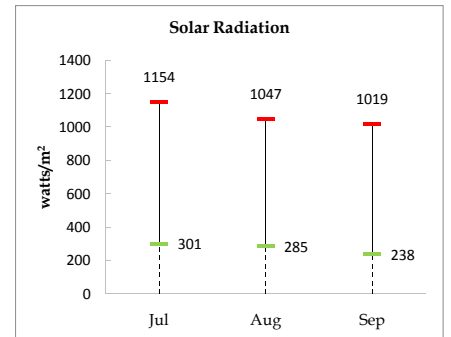
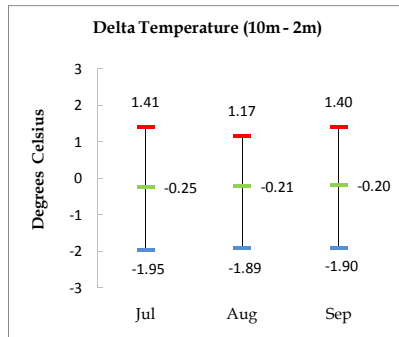
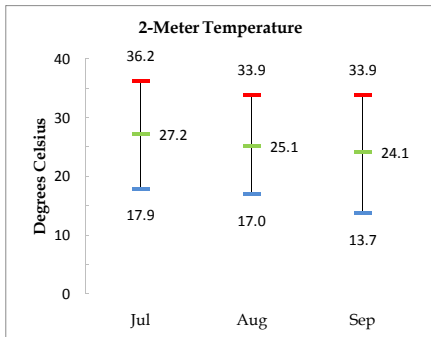
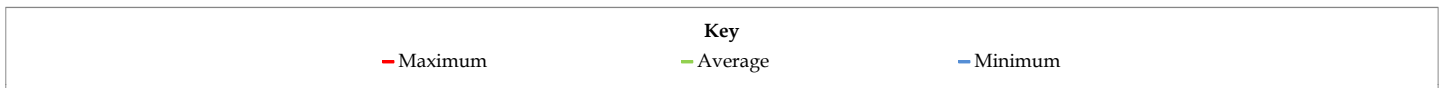
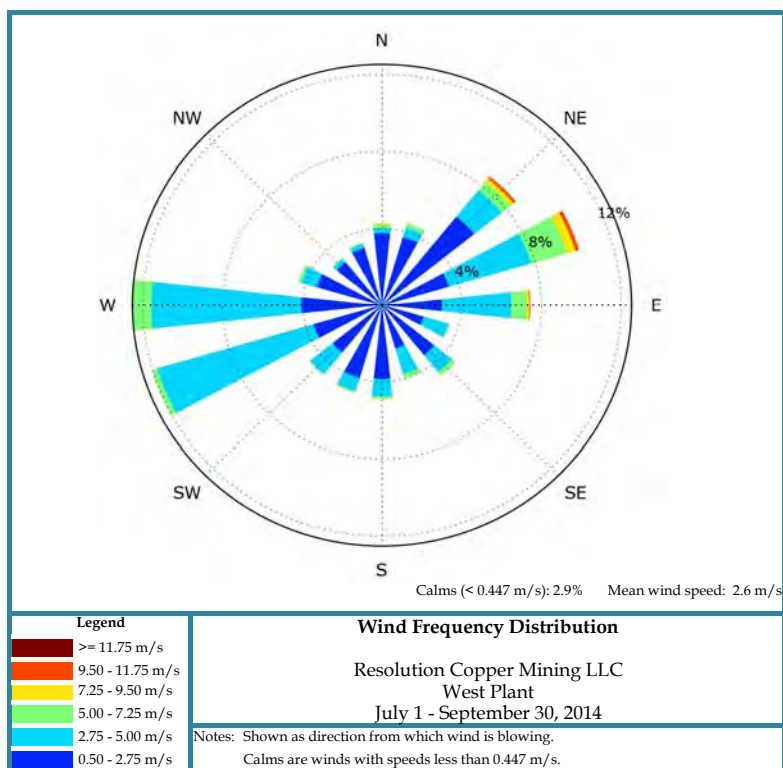
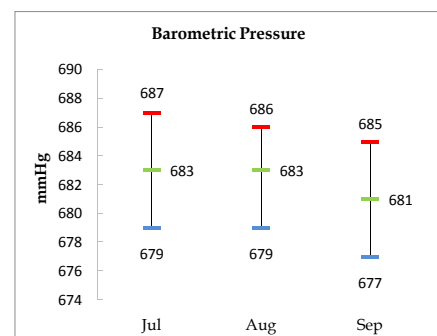
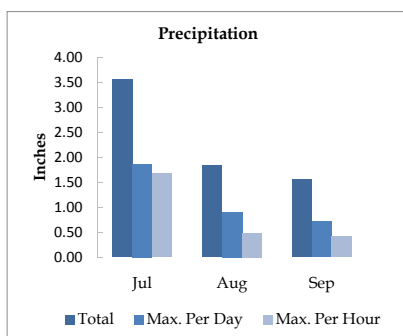
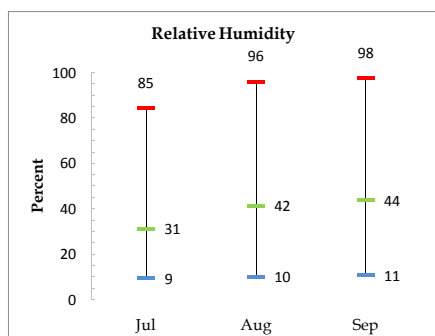
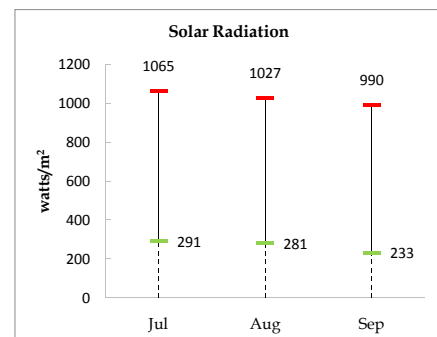
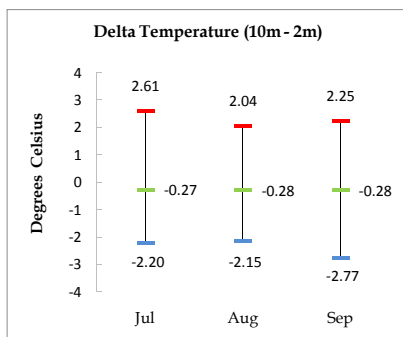
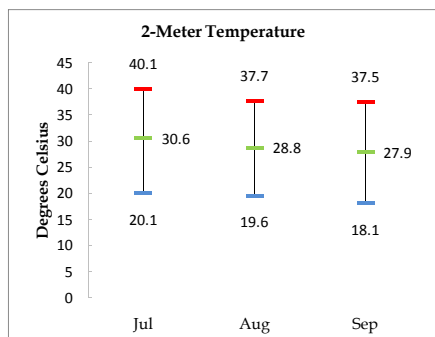
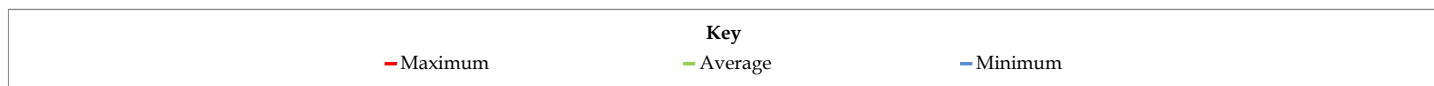


Figure 4: West Plant Meteorological Data Summary

Meteorological Data: July 1 - September 30, 2014



Direction	Speed Class Intervals (m/s) (percent of occurrence)						All	Mean Speed
	0.5 < 1.5	1.5 < 3	3 < 5	5 < 7	7 < 10	>= 10		
N	3.1	0.7	0.2	0.2	0.0	0.0	4.3	1.5
NNE	2.8	1.0	0.4	0.2	0.0	0.0	4.4	1.7
NE	2.8	3.4	1.5	0.5	0.3	0.1	8.6	2.6
ENE	1.8	2.2	3.8	1.8	0.6	0.1	10.3	3.7
E	1.0	2.6	2.9	0.7	0.2	0.0	7.4	3.3
ESE	0.6	1.9	1.0	0.0	0.0	0.0	3.5	2.5
SE	1.6	2.0	0.8	0.2	0.0	0.0	4.7	2.2
SSE	1.2	1.3	1.3	0.2	0.0	0.0	4.0	2.6
S	2.1	2.0	0.6	0.1	0.0	0.0	4.9	2.0
SSW	1.5	2.7	0.4	0.0	0.0	0.0	4.8	2.0
SW	1.5	2.0	1.2	0.0	0.0	0.0	4.7	2.3
WSW	0.9	3.9	7.0	0.3	0.0	0.0	12.0	3.2
W	1.5	3.4	6.8	1.0	0.0	0.0	12.5	3.2
WNW	2.0	1.7	0.6	0.1	0.0	0.0	4.4	1.9
NW	1.9	1.0	0.2	0.0	0.0	0.0	3.2	1.5
NNW	2.6	0.5	0.2	0.0	0.0	0.0	3.4	1.3
All	28.8	32.2	29.0	5.6	1.3	0.2	97.1	2.6



3.2 Meteorological Data Discussion

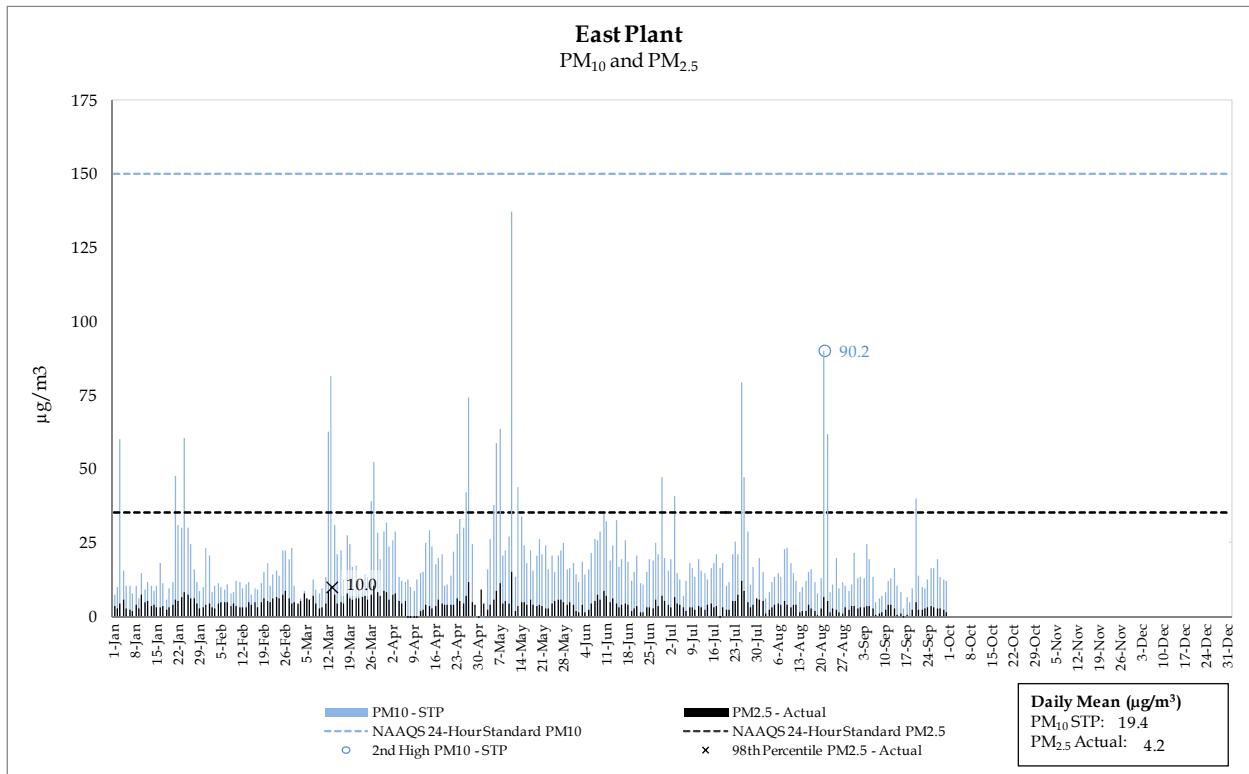
The meteorological data collected at the East and the West Plant sites for the third quarter of 2014 met all data recovery objectives, with the exception of relative humidity at the East Plant station, which fell below the 90% recovery objective due to a sensor malfunction.

4.0 PM DATA SUMMARY AND DISCUSSION

4.1 East Plant PM Data Summary

Figure 5 presents the PM₁₀ and PM_{2.5} data collected at the East Plant site for 2014 year-to-date (YTD), and compares the data to the PM₁₀ and PM_{2.5} NAAQS. The second-high 24-hour average for PM₁₀, and the 98th percentile for PM_{2.5} are labeled. The daily mean value for PM₁₀ and PM_{2.5} are shown in the lower-right corner.

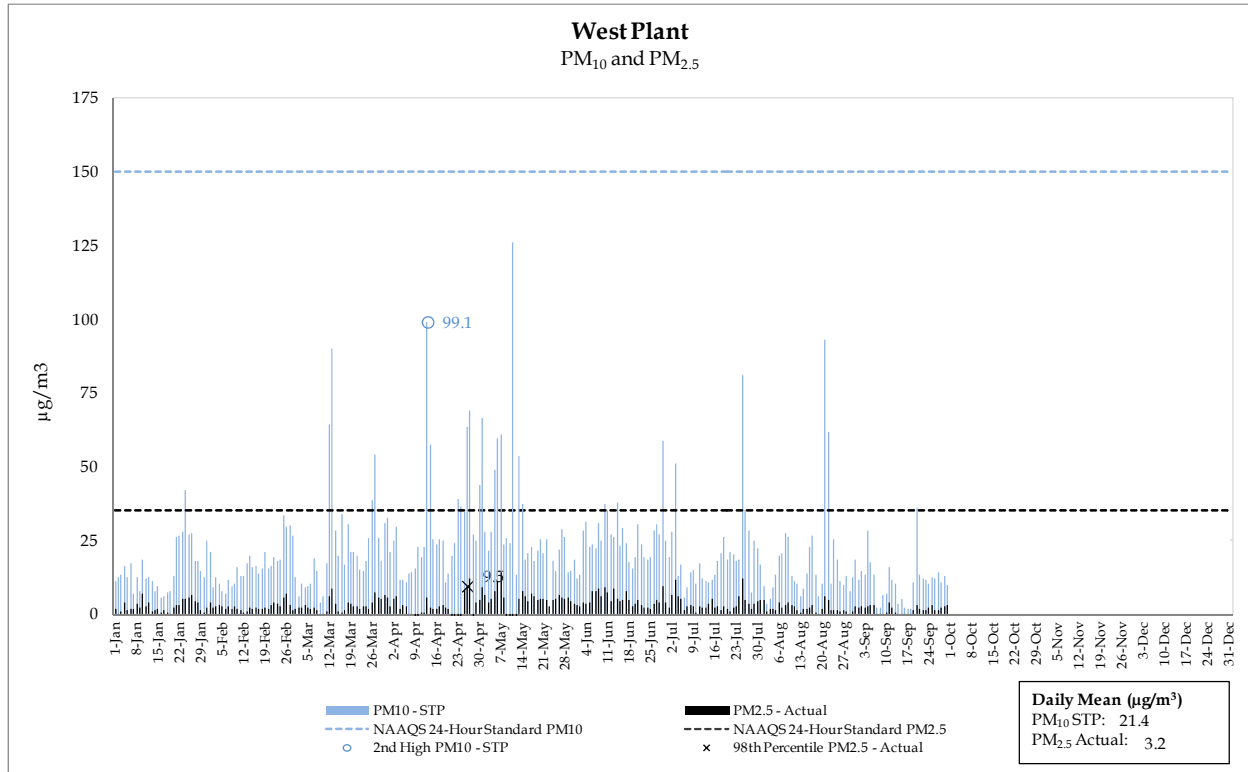
Figure 5. East Plant Particulate Data (YTD)



4.2 West Plant PM Data Summary

Figure 6 presents the PM₁₀ and PM_{2.5} data collected at the West Plant site for 2014 YTD, and compares the data to the PM₁₀ and PM_{2.5} NAAQS. The second-high 24-hour average for PM₁₀, and the 98th percentile for PM_{2.5} are labeled. The daily mean value for PM₁₀ and PM_{2.5} are shown in the lower-right corner.

Figure 6. West Plant Particulate Data (YTD)



4.3 PM Data Discussion

4.3.1 PM₁₀

The National Ambient Air Quality Standard (NAAQS) for PM₁₀ is 150 µg/m³ for a 24-hour average concentration. The standard is met when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one (second-high value).

As shown in Figure 5 and Figure 6, the second-high PM₁₀ concentrations recorded at the East and West Plants are 90.2 µg/m³ and 99.1 µg/m³, respectively. Both the East and West Plants' second-high values are below the NAAQS of 150 µg/m³.

Actual comparison to the NAAQS requires three calendar years of monitoring data, which have not been obtained at this time.

4.3.2 PM_{2.5}

The annual primary and secondary PM_{2.5} standards are met when the annual arithmetic mean concentration is less than or equal to 12.0 µg/m³. The 24-hour primary and secondary PM_{2.5} standards are met when the 98th percentile 24-hour concentration is less than or equal to 35 µg/m³.

As shown in Figure 5 and Figure 6, arithmetic mean concentrations for the East and West Plants are 4.2 and 3.2 µg/m³, respectively. Both the East and West Plants' arithmetic mean values are below the NAAQS of 12 µg/m³.

Figure 5 and Figure 6 also show the 98th percentile concentrations at the East and West Plants, which were 10.0 and 9.5 µg/m³, respectively. The 98th percentiles of both the East and West Plants' 24-hour concentrations are also below 35 µg/m³.

Actual comparison to the NAAQS requires three calendar years of monitoring data, which have not been obtained at this time.

5.0 NO₂ DATA SUMMARY AND DISCUSSION

5.1 NO₂ Data Summary

Figure 7 and Figure 8 present the NO₂ maximum hourly concentrations for each calendar day, and hourly data collected at the East Plant site for 2014 YTD. Figure 7 shows the 98th percentile compared to the one-hour NO₂ standard. Figure 8 shows the mean hourly NO₂ concentration compared with the annual NO₂ standard.

Figure 7. NO₂ Maximum Hourly Concentration for Each Calendar Day (YTD)

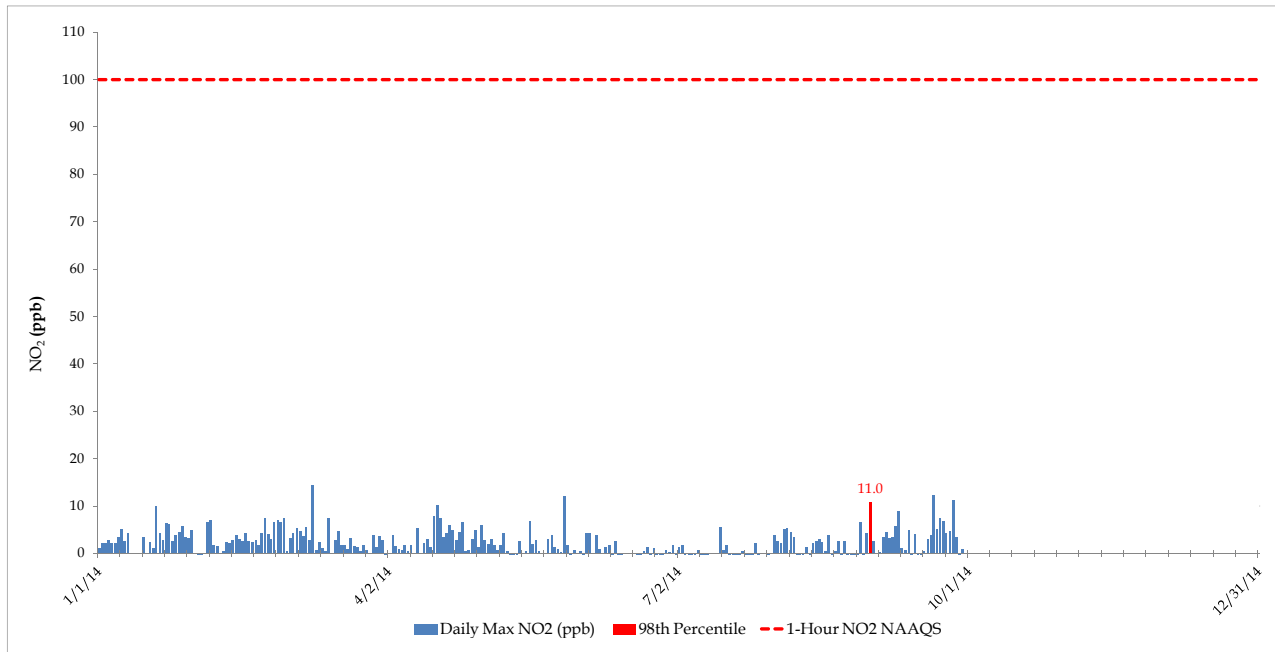
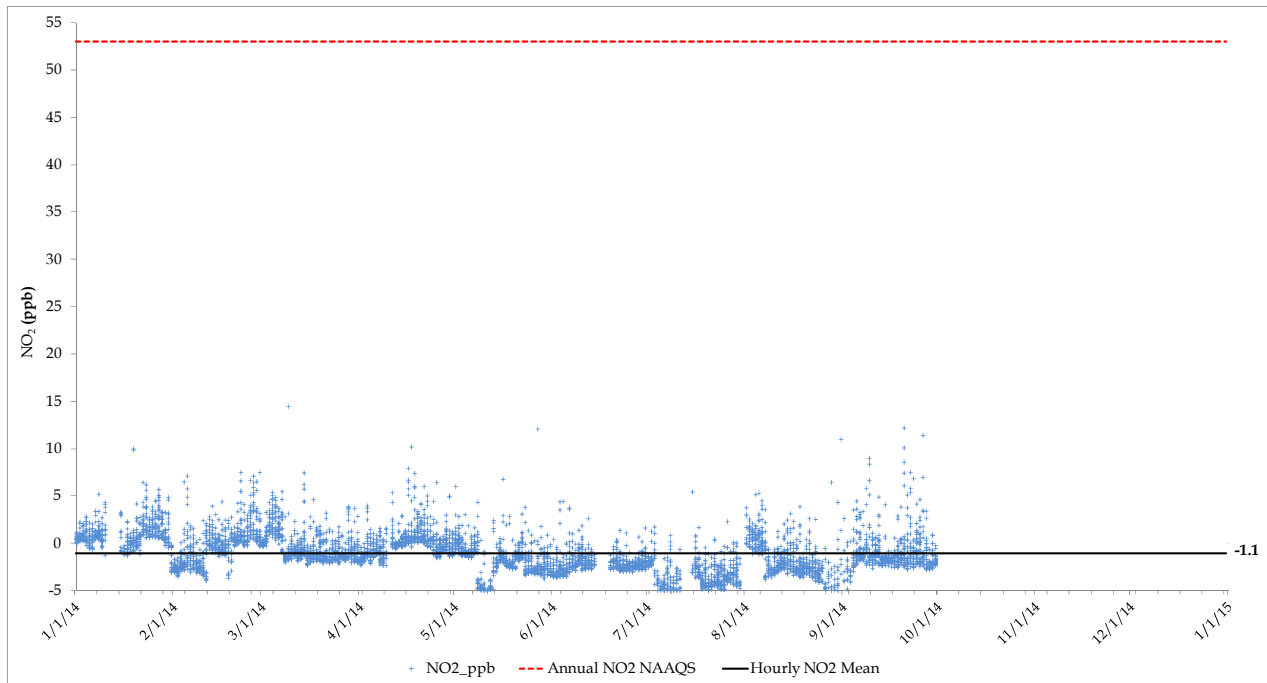


Figure 8. NO₂ Mean Hourly Concentrations (YTD)



5.2 NO₂ Data Discussion

The level of the annual NAAQS for oxides of nitrogen is 53 parts per billion (ppb), measured in the ambient air as NO₂. The annual NAAQS is met when the annual average concentration in a calendar year is less than or equal to 53 ppb.

The level of the 1-hour NAAQS for oxides of nitrogen is 100 ppb, measured in the ambient air as NO₂. The 1-hour NAAQS is met when the three-year average of the annual 98th percentile of the daily maximum 1-hour average concentration is less than or equal to 100 ppb.

As shown in Figure 7, the 98th percentile of the daily maximum 1-hour average NO₂ concentration for 2014, YTD is 11.0 ppb, which is less than the NAAQS 1-hour primary standard of 100. As shown in Figure 8, the 2014 hourly NO₂ average is -1.1 ppb, which is below the annual NO₂ NAAQS of 53 ppb. Slight, negative concentrations are normal when the analyzer is operating near the zero calibration set point.

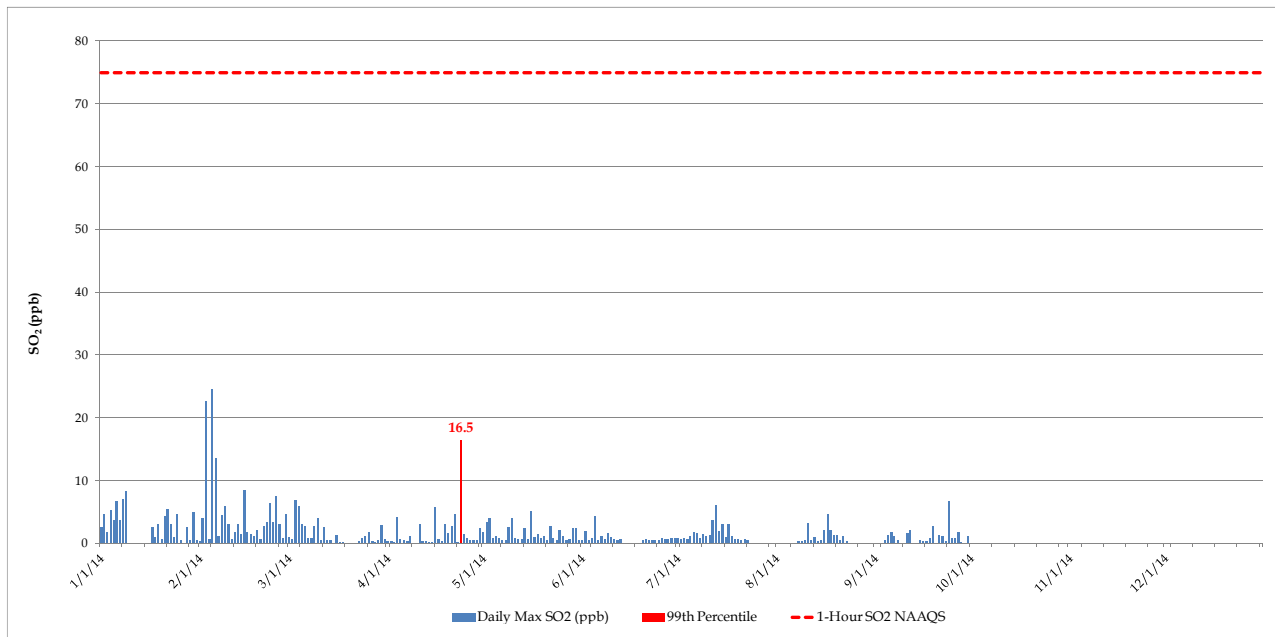
Actual comparison to the NAAQS requires three calendar years of monitoring data, which have not been obtained at this time.

6.0 SO₂ DATA SUMMARY AND DISCUSSION

6.1 SO₂ Data Summary

Figure 9 presents the maximum hourly SO₂ concentrations for each calendar day collected at the East Plant site for 2014 YTD, and it shows the 99th percentile (labeled) compared to the one-hour SO₂ standard.

Figure 9. SO₂ Maximum Hourly Concentration for Each Calendar Day (YTD)



6.2 SO₂ Data Discussion

The level of the primary 1-hour NAAQS for oxides of sulfur is 75 ppb measured in the ambient air as sulfur dioxide (SO₂). The 1-hour primary standard is met at an ambient air quality monitoring site when the three-year average of the annual (99th percentile) daily maximum 1-hour average concentrations is less than or equal to 75 ppb.

As shown in Figure 9, the 99th percentile 1-hour maximum concentration for 2014 is 16.5 ppb, which is below the annual SO₂ NAAQS of 75 ppb.

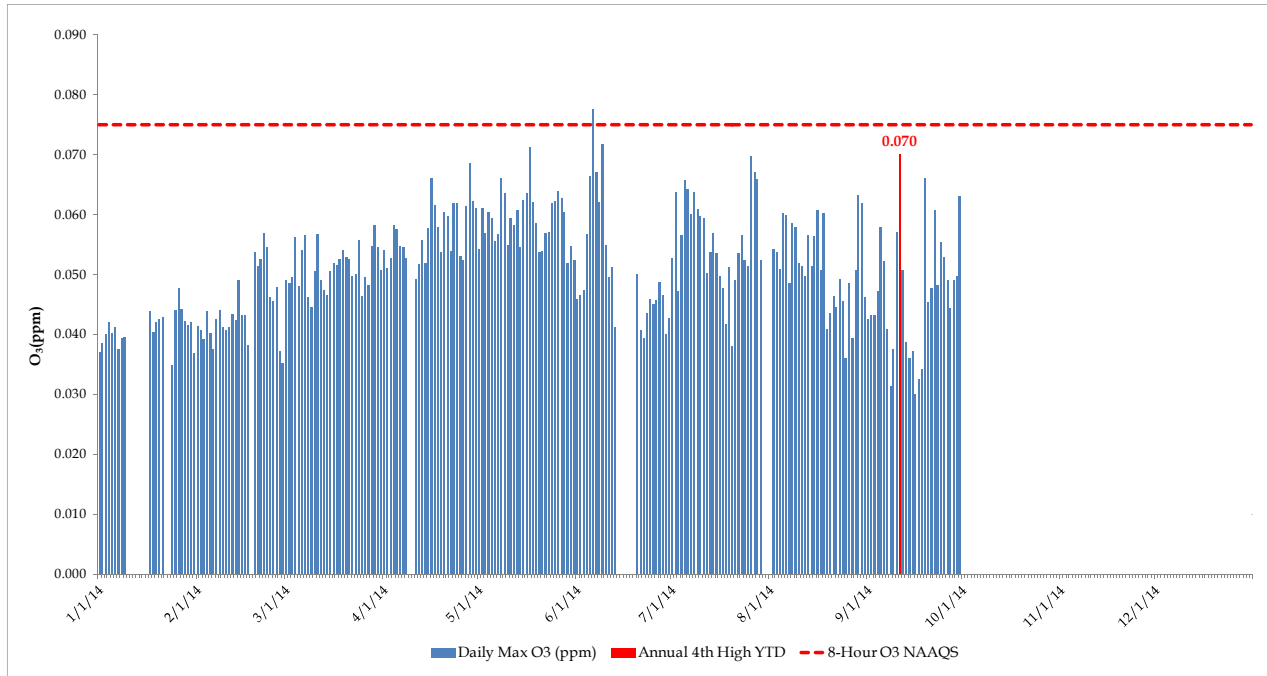
Actual comparison to the NAAQS requires three calendar years of monitoring data, which have not been obtained at this time.

7.0 O₃ DATA SUMMARY AND DISCUSSION

7.1 O₃ Data Summary

Figure 10 presents the daily rolling 8-hour maximum O₃ data collected at the East Plant site for 2014 YTD, and it shows the fourth-highest rolling 8-hour average compared to the eight-hour O₃ standard.

Figure 10. O₃ Daily Rolling 8-Hour Maximum, 2014 (YTD)



7.2 O₃ Data Discussion

The level of the primary and secondary 8-hour NAAQS for ozone is 0.075 parts per million, daily maximum average. The 8-hour primary and secondary standard is met at an ambient air quality monitoring site when the three-year average of the annual fourth-highest daily maximum 8-hour average O₃ concentration is less than or equal to 0.075 ppm.

Figure 10 shows that the averaged fourth-high maximum recorded at the East Plant is 0.070 ppm. This concentration is below the NAAQS 8-hour O₃ standard of 0.075 ppm.

Parts of Pinal County and adjacent Maricopa County have been designated as non-attainment areas for 8-hour ozone by the Arizona Department of Environmental Quality (ADEQ).

Actual comparison to the NAAQS requires three calendar years of monitoring data, which have not been obtained at this time.

Appendix A: Meteorological Data - Hourly

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Jul 2014

Day	Hour of day																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	1.8	2.5	2.4	2.2	1.7	1.8	2.0	2.1	2.2	2.4	2.3	2.7	3.2	3.4	3.3	3.4	3.4	2.6	2.4	2.4	3.0	2.8	1.2	1.4	2.4	3.4	1.2
2	1.7	1.5	2.5	3.6	3.4	1.8	1.6	1.8	2.1	2.3	2.8	3.6	3.3	3.2	3.1	3.1	3.4	2.7	2.8	2.4	2.1	0.8	1.2	0.9	2.4	3.6	0.8
3	1.7	1.2	2.6	2.8	1.8	1.7	0.8	1.0	2.0	2.4	3.1	2.8	2.6	3.1	3.4	3.4	5.3	9.1	7.1	5.8	2.4	3.7	3.1	1.6	3.1	9.1	0.8
4	1.2	0.4	1.2	2.6	1.2	0.6	1.1	2.6	1.9	3.0	2.3	3.0	3.1	2.9	3.6	2.9	3.4	2.8	2.8	1.4	5.7	8.3	6.4	5.5	2.9	8.3	0.4
5	4.4	5.4	4.2	3.4	2.8	2.5	2.2	1.9	2.1	1.0	1.6	1.9	2.9	2.5	3.0	2.1	2.7	2.9	2.4	2.7	4.8	7.9	2.1	1.6	3.0	7.9	1.0
6	4.0	3.8	3.9	8.8	6.2	3.4	1.6	2.7	2.7	2.4	1.1	1.2	1.6	1.4	2.3	2.0	2.4	2.1	3.4	2.5	3.2	2.7	2.5	2.7	2.9	8.8	1.1
7	1.5	1.8	3.4	3.7	2.3	1.9	2.0	1.5	1.9	2.8	2.0	2.6	2.5	2.8	3.3	2.2	1.7	2.3	2.0	1.6	2.0	1.4	1.4	1.1	2.2	3.7	1.1
8	1.0	0.5	1.4	1.4	0.6	0.8	1.3	0.7	1.7	2.0	2.8	2.7	3.2	2.7	3.3	2.4	2.4	2.3	2.3	2.0	2.8	3.3	2.7	1.8	2.0	3.3	0.5
9	2.4	1.4	2.5	2.1	4.2	2.0	1.2	1.2	1.7	1.5	1.8	2.0	3.2	3.0	2.9	2.5	2.7	2.4	2.3	1.7	2.2	1.7	1.6	0.9	2.1	4.2	0.9
10	1.7	1.5	0.8	0.5	0.8	1.3	0.8	2.1	1.3	1.8	2.7	3.1	2.7	2.8	3.1	3.3	2.6	2.2	2.1	1.9	1.6	1.2	1.0	1.6	1.9	3.3	0.5
11	1.2	1.8	0.9	1.4	3.1	1.9	0.5	1.7	2.0	2.5	2.8	2.9	2.6	2.9	3.2	2.9	2.7	2.4	2.3	1.7	1.4	1.6	1.9	1.6	2.1	3.2	0.5
12	2.7	2.1	1.1	1.4	0.8	0.8	0.9	1.8	2.0	1.7	3.0	3.8	3.2	3.0	3.0	4.7	2.1	2.2	1.7	2.3	4.0	7.9	7.2	3.6	2.8	7.9	0.8
13	4.4	1.0	1.1	1.6	1.9	2.3	3.2	5.6	5.9	5.0	3.8	3.6	3.9	3.2	4.0	3.4	2.0	1.3	1.9	2.4	1.6	6.4	4.5	3.5	3.2	6.4	1.0
14	2.0	3.1	2.3	2.5	2.6	0.9	1.2	1.9	1.2	2.3	2.1	2.7	2.7	3.2	2.6	2.3	4.0	7.3	5.9	2.2	2.3	2.1	1.4	1.6	2.6	7.3	0.9
15	1.9	2.1	1.6	1.6	2.8	2.5	2.2	2.5	2.5	2.6	4.1	2.1	2.8	3.1	1.0	1.9	2.9	2.4	1.5	2.2	1.9	1.1	0.9	0.5	2.1	4.1	0.5
16	1.3	1.7	1.6	0.7	0.4	0.5	0.4	0.6	1.7	2.3	2.6	2.9	2.4	2.7	4.4	4.6	4.8	3.4	3.4	2.1	0.9	1.0	1.0	0.8	2.0	4.8	0.4
17	0.3	1.5	2.1	1.9	0.9	1.3	1.4	1.8	1.6	1.5	1.9	2.5	2.5	3.0	3.1	3.0	3.0	2.2	2.3	1.6	1.1	1.3	1.2	1.7	1.9	3.1	0.3
18	2.1	1.6	1.8	1.2	0.9	1.2	0.9	1.1	1.4	1.5	1.9	2.2	2.2	2.4	3.0	2.4	2.7	2.2	2.1	1.5	2.1	1.4	1.4	1.9	1.8	3.0	0.9
19	2.4	2.5	2.4	2.2	1.7	1.6	1.0	1.1	2.0	3.5	2.7	2.5	2.2	2.5	2.6	2.3	2.7	2.8	2.3	1.4	0.9	0.5	0.4	0.4	1.9	3.5	0.4
20	1.2	1.7	1.2	1.5	2.1	2.3	0.5	0.7	2.3	3.0	3.1	2.8	2.8	2.4	3.0	2.6	2.8	2.3	1.9	1.6	1.2	1.0	1.2	0.5	1.9	3.1	0.5
21	0.3	2.3	2.5	2.5	1.8	1.1	1.2	0.9	1.5	1.9	2.7	2.8	3.1	3.2	3.1	2.8	2.7	2.7	3.2	3.2	2.9	2.6	2.7	2.7	2.3	3.2	0.3
22	1.4	1.3	0.7	0.4	0.5	0.9	1.0	0.9	0.5	2.0	2.6	2.8	3.5	2.6	2.9	2.3	2.4	2.4	1.8	1.3	1.0	0.7	1.1	1.7	1.6	3.5	0.4
23	3.5	6.3	5.0	4.6	3.8	3.6	5.2	5.9	5.5	4.6	3.5	3.0	2.8	2.7	2.2	2.8	2.8	2.4	2.6	3.8	3.3	3.8	2.8	3.1	3.7	6.3	2.2
24	2.0	1.1	3.0	3.4	4.4	4.4	3.7	3.4	4.7	5.3	4.7	4.2	3.3	3.1	3.3	3.3	3.0	2.4	2.2	1.6	0.9	0.8	3.3	4.5	3.2	5.3	0.8
25	3.7	2.8	2.4	1.3	0.5	0.6	0.4	0.8	1.8	2.3	2.4	2.3	2.5	3.2	1.9	2.7	2.2	5.0	3.9	2.3	1.3	1.2	0.9	1.1	2.1	5.0	0.4
26	0.9	1.1	0.9	0.6	1.1	1.9	2.6	2.3	2.2	2.3	3.0	2.8	3.5	3.4	3.4	3.9	2.8	2.9	3.0	3.1	3.0	7.8	5.5	4.0	2.8	7.8	0.6
27	3.4	1.2	0.8	2.9	3.7	1.5	0.9	1.5	1.5	1.3	3.9	4.1	1.7	3.3	3.0	3.1	3.0	2.7	2.2	2.4	1.6	6.5	4.9	4.3	2.7	6.5	0.8
28	3.0	4.4	2.9	2.5	2.5	2.5	2.4	2.2	3.8	4.3	4.0	3.7	2.8	2.3	1.4	2.0	2.1	1.0	1.1	0.9	0.6	0.5	0.7	0.7	2.3	4.4	0.5
29	1.1	0.8	0.5	0.5	0.9	0.7	0.8	0.7	0.7	2.3	2.5	2.4	2.5	2.6	3.1	2.5	2.8	1.7	1.8	1.5	0.9	1.0	0.6	0.8	1.5	3.1	0.5
30	0.8	1.4	0.9	0.6	0.8	0.8	0.5	1.1	1.4	2.1	2.2	2.2	2.5	3.2	3.5	2.5	2.8	2.1	1.9	1.3	0.8	0.6	1.9	1.5	1.6	3.5	0.5
31	1.3	1.2	1.1	1.5	1.3	0.7	1.3	--	--	3.0	4.5	3.5	2.5	1.9	2.0	2.9	3.0	2.1	1.8	1.3	1.3	5.2	5.4	7.9	2.6	7.9	0.7
Avg	2.0	2.0	2.0	2.2	2.0	1.7	1.5	1.9	2.2	2.5	2.8	2.8	2.8	2.8	2.9	2.8	2.9	2.8	2.6	2.1	2.1	2.9	2.4	2.2	2.4	--	--
Max	4.4	6.3	5.0	8.8	6.2	4.4	5.2	5.9	5.9	5.3	4.7	4.2	3.9	3.4	4.4	4.7	5.3	9.1	7.1	5.8	5.7	8.3	7.2	7.9	--	9.1	--
Min	0.3	0.4	0.5	0.4	0.4	0.5	0.4	0.6	0.5	1.0	1.1	1.2	1.6	1.4	1.0	1.9	1.7	1.0	1.1	0.9	0.6	0.5	0.4	0.4	--	--	0.3

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	3.7	1.9	0.3	0.8	1.2	1.5	1.7	1.6	1.5	1.8	2.8	2.2	1.8	2.8	2.9	3.0	2.8	3.4	4.8	2.4	2.0	2.4	2.8	2.5	2.3	4.8	0.3
2	5.4	3.2	2.6	2.2	2.2	2.4	2.5	3.2	3.5	2.4	2.1	2.4	2.8	3.5	3.8	2.7	2.2	1.3	4.2	1.5	1.2	1.7	3.7	3.5	2.8	5.4	1.2
3	4.9	3.6	3.6	3.0	2.4	2.3	2.1	3.2	3.5	3.2	2.6	2.4	2.4	1.8	1.6	2.0	1.6	2.1	1.5	2.1	2.9	3.3	2.7	1.3	2.6	4.9	1.3
4	1.1	1.3	1.8	1.7	2.2	3.7	2.2	1.9	2.6	2.1	2.5	2.3	3.5	2.4	2.6	2.7	3.0	2.3	2.0	2.3	1.5	1.9	1.6	0.7	2.2	3.7	0.7
5	0.4	0.6	0.6	0.9	1.0	1.1	0.8	1.7	1.6	1.1	1.4	2.3	2.2	2.0	2.5	2.5	1.9	2.3	2.6	1.6	2.1	0.8	0.6	0.5	1.5	2.6	0.4
6	0.5	0.8	0.8	1.4	1.6	0.7	0.6	0.9	1.5	1.4	1.8	2.5	2.1	2.7	2.5	2.5	2.7	1.9	2.4	1.3	1.4	0.3	0.6	0.4	1.5	2.7	0.3
7	1.0	0.9	1.0	1.3	0.4	0.6	0.4	1.8	1.8	1.7	2.0	2.4	2.7	2.6	2.5	2.7	2.1	2.4	2.0	1.6	1.5	1.0	0.9	0.7	1.6	2.7	0.4
8	0.9	1.3	2.0	1.4	1.4	0.8	2.2	1.8	2.3	3.0	3.5	3.3	2.8	3.4	2.8	3.2	2.7	2.8	2.9	3.3	3.0	2.9	2.6	2.9	2.5	3.5	0.8
9	2.4	2.7	2.9	1.9	0.7	0.6	0.6	2.0	3.6	3.9	2.6	3.0	3.6	3.3	3.5	3.2	3.3	3.0	2.9	2.2	1.9	3.7	2.2	3.4	2.6	3.9	0.6
10	3.8	2.3	1.2	0.9	1.7	1.1	0.9	1.0	1.7	2.5	2.3	2.2	2.5	2.0	2.7	3.1	2.8	2.6	5.2	5.3	4.1	1.7	2.5	2.9	2.5	5.3	0.9
11	2.8	3.2	2.7	2.7	2.3	2.6	4.9	4.8	5.5	6.4	5.8	5.8	4.7	4.4	4.0	3.1	1.9	1.2	5.2	6.0	3.1	1.9	2.2	4.2	3.8	6.4	1.2
12	4.8	5.0	3.6	3.4	3.3	3.3	3.6	3.5	5.2	5.5	5.1	3.6	3.8	3.1	2.8	2.6	5.0	1.3	1.5	1.3	1.1	3.0	2.0	2.6	3.3	5.5	1.1
13	2.9	2.9	2.5	2.2	1.5	2.1	1.3	1.9	2.1	2.4	2.2	2.3	2.6	2.3	2.6	2.5	2.1	2.1	2.0	1.8	1.7	1.1	0.7	0.4	2.0	2.9	0.4
14	0.5	0.3	0.4	0.8	0.9	1.0	0.9	1.3	1.9	1.9	1.7	2.0	2.4	2.4	2.3	2.8	2.4	1.8	2.7	2.1	0.7	1.5	1.6	0.9	1.6	2.8	0.3
15	0.3	0.5	2.3	0.9	0.5	0.7	0.7	1.2	2.3	3.3	3.3	3.1	3.2	2.8	3.1	3.0	2.5	2.4	1.7	1.4	0.8	0.6	0.2	0.2	1.7	3.3	0.2
16	0.9	1.6	0.9	1.0	0.6	0.5	0.5	1.6	2.4	2.7	2.6	2.9	2.6	3.3	2.7	2.7	3.0	2.6	2.6	2.2	1.5	1.8	1.8	1.7	1.9	3.3	0.5
17	1.4	1.6	0.8	0.7	1.2	1.1	0.5	1.7	1.7	2.2	2.6	2.8	3.2	3.0	2.5	2.8	2.8	7.9	5.5	2.0	2.1	2.4	2.3	0.7	2.3	7.9	0.5
18	0.6	1.1	1.1	1.0	0.4	1.7	1.0	1.6	1.8	3.3	3.2	2.7	2.9	3.1	3.2	3.2	3.1	2.9	2.3	1.8	1.3	2.8	3.1	2.7	2.2	3.3	0.4
19	3.0	2.5	2.5	2.9	3.2	2.4	1.0	1.1	3.4	2.4	1.3	1.4	2.4	1.6	4.3	3.9	3.0	3.2	3.4	2.9	2.3	3.2	2.4	1.4	2.5	4.3	1.0
20	1.4	1.1	1.2	0.6	0.4	0.3	0.2	0.5	1.4	1.7	1.6	1.6	2.0	2.0	2.1	2.2	2.1	1.9	1.5	1.2	0.9	0.4	1.7	2.5	1.4	2.5	0.2
21	2.3	1.4	0.9	0.6	0.7	0.7	0.6	0.6	0.9	2.0	2.0	2.0	2.5	2.4	1.9	2.0	1.7	2.2	1.4	1.2	0.6	2.4	3.7	1.1	1.6	3.7	0.6
22	0.9	0.7	1.3	0.9	1.0	1.0	0.9	0.7	1.2	2.3	2.2	2.3	2.3	2.5	2.2	2.2	2.5	2.7	2.2	1.4	1.3	1.1	0.8	0.2	1.5	2.7	0.2
23	0.1	0.8	0.5	0.1	0.4	0.4	0.2	0.9	1.8	2.2	2.3	2.1	2.3	2.4	2.3	2.3	2.4	1.9	1.8	1.5	0.5	0.8	0.9	1.0	1.3	2.4	0.1
24	1.0	0.9	0.7	0.4	0.4	1.1	0.7	1.1	1.9	2.2	2.7	2.5	2.4	2.4	2.3	1.9	1.5	1.9	1.7	2.4	0.9	0.1	0.4	0.7	1.4	2.7	0.1
25	0.9	0.8	1.3	1.2	2.2	1.7	0.5	0.4	1.5	1.4	1.9	2.2	2.2	2.3	2.2	2.3	2.4	2.1	1.6	2.3	2.2	3.6	2.1	2.0	1.8	3.6	0.4
26	1.3	0.9	1.7	1.1	0.5	1.2	0.4	0.9	2.1	1.8	1.8	1.8	2.2	2.4	2.6	2.8	2.5	2.2	1.7	4.7	3.6	4.4	4.2	2.3	2.1	4.7	0.4
27	2.7	2.5	1.9	1.6	1.2	1.0	1.4	3.1	3.8	5.4	4.1	1.9	4.3	1.8	2.1	2.0	2.7	2.4	2.3	2.7	1.4	1.5	1.0	0.9	2.3	5.4	0.9
28	1.5	1.4	1.5	1.5	1.5	1.2	1.5	1.3	1.5	2.4	2.5	1.7	1.8	1.6	1.4	2.5	2.5	1.7	1.2	1.9	2.0	1.3	1.1	1.3	1.7	2.5	1.1
29	1.2	1.2	1.1	1.8	1.7	2.0	1.8	2.3	3.9	4.3	3.2	4.2	2.4	2.4	1.6	2.5	1.8	1.0	1.0	2.1	1.2	2.0	1.7	0.8	2.0	4.3	0.8
30	0.8	0.2	0.9	1.1	1.4	0.8	1.2	1.5	1.7	2.1	1.5	2.0	2.6	3.1	2.3	2.2	2.7	2.5	1.7	0.6	0.3	0.3	0.6	0.5	1.5	3.1	0.2
31	0.9	1.2	0.7	0.8	0.6	0.5	0.5	0.7	1.4	2.5	3.1	2.7	3.6	3.0	3.3	3.7	3.9	2.8	2.0	1.4	3.5	2.4	1.6	0.8	2.0	3.9	0.5
Avg	1.8	1.6	1.5	1.4	1.3	1.4	1.2	1.7	2.4	2.7	2.6	2.5	2.7	2.6	2.6	2.7	2.6	2.4	2.5	2.2	1.8	1.9	1.8	1.5	2.1	--	--
Max	5.4	5.0	3.6	3.4	3.3	3.7	4.9	4.8	5.5	6.4	5.8	5.8	4.7	4.4	4.3	3.9	5.0	7.9	5.5	6.0	4.1	4.4	4.2	4.2	--	7.9	--
Min	0.1	0.2	0.3	0.1	0.4	0.3	0.2	0.4	0.9	1.1	1.3	1.4	1.8	1.6	1.4	1.9	1.5	1.0	1.0	0.6	0.3	0.1	0.2	0.2	--	--	0.1

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.2	0.4	1.1	1.7	0.5	0.4	0.3	0.5	1.3	1.8	1.8	2.0	1.9	2.4	2.5	2.7	2.7	1.8	1.3	0.4	0.7	1.0	1.3	0.7	1.3	2.7	0.2
2	0.7	0.7	0.6	0.9	0.7	1.1	1.5	0.9	1.3	1.7	1.6	2.5	2.3	2.9	2.7	2.6	2.2	2.1	1.8	0.7	0.5	1.1	0.9	0.7	1.5	2.9	0.5
3	1.9	1.7	0.5	0.4	0.5	0.8	0.0	0.4	1.0	0.9	1.9	2.3	2.4	2.5	2.2	2.7	3.0	2.3	1.6	1.4	1.8	1.0	1.7	3.1	1.6	3.1	0.0
4	2.5	0.6	0.5	1.0	1.6	0.4	0.7	0.5	0.5	1.2	0.5	1.6	2.1	2.2	2.5	2.8	2.3	2.2	2.1	2.6	5.1	4.7	3.8	2.6	1.9	5.1	0.4
5	1.4	2.1	2.9	1.9	2.1	1.6	1.0	1.5	1.3	2.9	2.5	2.7	2.9	2.9	3.0	2.3	2.5	2.3	2.3	2.5	0.7	0.5	0.6	0.8	2.0	3.0	0.5
6	1.1	1.2	0.9	1.4	1.3	1.9	1.4	2.0	2.1	1.8	2.5	2.0	2.3	3.6	2.8	2.1	4.7	2.2	3.0	4.2	4.1	1.4	2.2	3.4	2.3	4.7	0.9
7	5.7	4.4	3.9	4.4	3.8	3.7	3.4	4.4	6.8	5.1	4.3	4.8	4.9	3.8	3.6	2.8	2.2	1.9	1.6	1.6	0.6	1.4	1.2	1.9	3.4	6.8	0.6
8	2.5	1.4	2.1	3.7	0.4	1.8	3.1	2.1	3.2	3.9	5.7	2.8	1.7	2.2	2.2	2.9	3.0	2.4	2.0	1.3	1.2	1.3	1.3	1.4	2.3	5.7	0.4
9	1.2	0.6	0.6	0.3	0.3	0.7	2.9	3.8	1.8	1.4	1.9	1.6	2.3	2.3	2.5	2.4	2.4	2.0	2.0	0.5	0.7	0.9	1.1	0.1	1.5	3.8	0.1
10	0.6	1.3	0.7	1.0	1.0	0.5	0.5	0.8	1.5	2.3	2.3	2.3	2.6	2.5	2.6	2.2	2.4	2.5	2.9	2.7	1.8	0.4	0.2	0.6	1.6	2.9	0.2
11	0.5	0.8	0.7	1.4	1.3	1.6	2.0	2.2	3.2	2.1	1.9	2.2	2.9	2.7	2.6	2.6	3.0	2.4	2.6	2.6	1.4	0.7	0.8	1.1	1.9	3.2	0.5
12	1.5	1.7	1.2	1.2	2.0	1.6	3.2	3.7	5.0	7.2	6.3	4.9	3.4	2.6	2.4	2.3	1.7	2.1	2.4	1.1	1.9	5.6	4.9	6.4	3.2	7.2	1.1
13	5.2	5.8	5.3	5.9	6.9	7.4	8.0	8.2	9.2	10.1	7.3	7.2	9.3	5.2	5.5	5.4	4.5	4.9	3.6	4.0	4.6	6.6	7.1	5.5	6.4	10.1	3.6
14	4.9	4.3	4.8	5.6	6.5	6.4	6.9	8.3	9.3	9.2	6.3	5.5	4.9	4.0	2.9	2.8	2.7	2.7	1.6	1.9	2.8	2.8	2.9	4.7	9.3	1.6	
15	2.1	3.7	4.5	4.6	4.6	4.8	4.3	4.4	6.0	6.8	5.4	2.8	2.2	2.4	2.3	3.3	2.8	2.8	5.0	2.6	4.2	4.1	2.8	3.8	6.8	2.1	
16	4.5	5.6	5.4	4.2	3.6	3.2	2.8	3.6	4.1	4.0	4.0	4.2	5.3	5.9	7.0	6.9	6.8	7.2	7.8	8.1	6.7	6.7	6.0	4.0	5.3	8.1	2.8
17	3.1	5.5	5.4	4.9	5.3	5.5	5.8	6.1	6.5	5.6	4.4	5.9	4.6	4.4	4.1	4.3	4.9	4.8	4.9	5.4	7.7	7.4	6.0	6.1	5.4	7.7	3.1
18	4.0	4.3	4.5	4.9	5.1	4.3	3.2	4.2	5.0	6.4	6.2	3.6	2.0	2.3	1.6	1.5	1.6	1.4	0.8	1.5	1.1	0.3	0.7	1.4	3.0	6.4	0.3
19	1.5	0.8	0.8	1.4	1.8	0.8	0.6	0.8	0.8	2.4	2.6	2.6	2.7	3.1	2.5	1.5	2.4	2.2	2.3	2.8	1.9	2.0	1.7	1.1	1.8	3.1	0.6
20	1.3	0.8	1.3	1.2	0.2	0.5	0.4	0.5	0.8	1.4	2.0	2.5	2.9	2.8	2.8	2.8	2.4	2.3	2.4	1.1	1.0	0.5	0.6	0.7	1.5	2.9	0.2
21	1.7	1.2	0.4	0.3	0.7	0.3	0.8	0.9	0.9	1.8	1.4	1.5	1.6	1.6	2.5	2.5	2.6	2.4	2.1	2.6	2.0	1.1	1.2	1.2	1.5	2.6	0.3
22	2.4	2.1	1.2	1.6	1.7	2.3	2.7	2.6	2.6	2.9	2.3	2.0	1.6	1.7	2.7	2.8	2.9	2.4	2.4	2.9	2.4	2.1	0.6	0.6	2.1	2.9	0.6
23	0.7	0.9	1.6	2.2	1.8	2.0	2.6	4.6	4.3	4.4	2.3	1.5	1.9	2.7	2.5	2.5	3.0	2.8	3.0	2.7	1.7	1.0	0.3	0.3	2.2	4.6	0.3
24	1.0	1.4	1.8	1.6	2.0	2.4	3.5	5.0	5.2	5.1	3.2	1.9	2.2	2.7	1.9	1.9	1.8	1.8	3.1	2.7	1.3	0.3	0.6	1.2	2.3	5.2	0.3
25	1.2	1.4	1.7	2.0	2.7	2.1	2.5	2.9	3.6	3.9	2.5	2.3	2.4	2.1	2.9	2.6	2.7	2.4	2.3	3.0	2.7	1.9	1.3	1.5	2.4	3.9	1.2
26	1.3	0.6	0.3	0.6	1.0	2.0	3.5	3.4	4.4	4.1	3.5	3.0	2.5	1.6	3.4	2.6	2.2	2.8	2.2	2.3	1.2	0.9	2.2	1.0	2.2	4.4	0.3
27	0.6	2.3	2.1	1.4	1.5	1.0	0.7	1.5	3.2	3.0	3.4	3.0	2.9	3.6	4.1	6.7	4.6	2.9	1.3	2.1	3.5	6.1	5.1	4.1	3.0	6.7	0.6
28	4.5	4.3	2.8	4.2	4.1	3.8	4.5	4.6	4.5	2.7	4.6	4.8	4.5	3.9	3.1	2.1	1.7	1.5	2.0	1.5	0.7	2.1	2.4	1.5	3.2	4.8	0.7
29	0.4	0.5	1.7	2.4	3.6	3.0	1.3	0.6	1.7	1.8	2.1	2.0	2.7	2.0	2.1	2.0	2.0	1.9	2.5	1.7	0.7	0.6	0.3	0.6	1.7	3.6	0.3
30	0.8	0.8	0.7	0.8	0.5	0.7	1.2	0.9	0.9	1.9	2.5	2.6	2.1	2.8	2.8	2.2	2.7	2.2	2.2	1.3	0.5	0.5	0.3	0.4	1.4	2.8	0.3
Avg	2.0	2.1	2.1	2.3	2.3	2.3	2.5	2.9	3.4	3.7	3.3	3.0	3.0	2.9	2.9	2.9	2.9	2.6	2.5	2.5	2.2	2.2	2.1	2.0	2.6	--	--
Max	5.7	5.8	5.4	5.9	6.9	7.4	8.0	8.3	9.3	10.1	7.3	7.2	9.3	5.9	7.0	6.9	6.8	7.2	7.8	8.1	7.7	7.4	7.1	6.4	--	10.1	--
Min	0.2	0.4	0.3	0.3	0.2	0.3	0.0	0.4	0.5	0.9	0.5	1.5	1.6	1.6	1.6	1.5	1.6	1.4	0.8	0.4	0.5	0.3	0.2	0.1	--	--	0.0

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WD_10m"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	306	270	258	263	265	260	240	247	247	254	256	259	255	251	249	235	241	252	231	253	267	296	59	285	259	306	59
2	278	278	267	266	264	257	242	263	282	261	250	263	245	242	260	253	242	259	273	269	289	191	261	132	257	289	132
3	110	85	224	221	216	241	139	249	266	268	248	229	261	248	231	252	325	64	99	98	224	276	293	283	239	325	64
4	290	134	265	267	246	127	141	95	56	271	261	262	267	274	272	268	255	239	231	271	34	36	57	52	265	290	34
5	53	51	65	94	110	102	72	99	107	69	275	219	224	257	245	228	225	268	239	243	136	71	138	124	141	275	51
6	71	103	93	48	73	90	110	71	70	77	127	161	55	299	251	274	239	224	282	284	341	50	84	88	77	341	48
7	117	85	94	89	73	102	88	124	101	128	255	261	242	230	222	346	242	253	227	266	212	215	266	268	196	346	73
8	232	83	163	311	227	266	251	248	269	249	242	252	260	252	277	234	238	250	280	325	137	152	53	98	246	325	53
9	117	101	78	96	265	215	58	79	257	257	241	248	245	269	271	236	251	235	242	227	227	184	198	248	227	271	58
10	276	254	190	91	185	281	290	264	255	254	262	258	265	242	248	263	264	223	191	183	149	229	143	270	239	290	91
11	254	246	142	105	98	75	163	247	251	250	260	246	231	216	218	264	230	222	226	238	272	16	95	82	223	272	16
12	132	119	80	104	126	137	130	70	82	267	261	251	245	229	235	309	77	95	98	107	63	45	38	112	109	309	38
13	85	69	142	111	110	77	79	48	50	49	109	133	138	136	128	99	93	244	270	241	120	145	119	32	105	270	32
14	123	67	101	99	114	197	122	91	108	266	296	265	248	258	256	276	32	40	44	83	132	113	121	105	110	296	32
15	88	92	84	106	77	65	86	97	72	56	46	87	264	358	175	268	277	301	298	267	267	310	322	293	26	358	46
16	287	270	260	199	178	174	123	63	255	272	267	262	242	279	284	286	324	352	305	328	160	150	183	171	250	352	63
17	117	211	223	223	236	237	232	229	235	267	283	281	251	267	246	216	224	103	178	339	331	292	291	274	247	339	103
18	245	254	245	268	259	241	228	235	233	235	251	244	247	261	248	240	265	162	260	160	289	301	265	253	247	301	160
19	269	278	247	231	280	49	185	242	269	267	260	266	270	257	295	278	224	268	282	240	299	150	170	269	257	299	49
20	329	279	271	296	274	263	95	213	251	264	269	273	252	288	256	240	249	294	225	300	301	259	275	301	270	329	95
21	144	275	287	288	273	259	263	272	261	247	269	259	243	266	255	264	259	253	265	271	271	264	284	280	264	288	144
22	267	255	272	142	206	175	186	190	132	262	260	264	265	272	280	263	238	230	243	234	56	92	90	107	227	280	56
23	69	102	97	83	64	62	54	52	48	58	115	116	123	100	125	86	66	124	151	118	76	83	82	52	87	151	48
24	67	94	60	67	55	54	58	65	82	102	118	158	134	135	125	168	170	180	178	167	86	96	214	237	115	237	54
25	235	219	211	170	207	297	156	110	258	270	274	268	243	275	309	219	80	197	209	246	95	97	104	176	216	309	80
26	161	171	162	72	137	240	278	264	265	266	270	257	253	260	253	253	244	273	268	263	275	89	293	32	251	293	32
27	105	147	139	259	233	157	170	11	296	283	40	49	323	241	278	219	245	249	296	295	14	92	100	106	246	323	11
28	93	91	97	81	84	109	79	92	105	102	108	113	122	123	72	196	245	235	196	209	74	202	179	161	124	245	72
29	173	172	175	143	182	144	144	110	22	244	261	240	255	211	241	263	279	184	152	178	30	293	321	249	208	321	22
30	313	297	298	285	283	259	131	115	98	247	266	239	264	219	230	312	283	287	219	163	331	306	281	249	266	331	98
31	235	235	240	228	238	210	212	--	--	146	123	124	120	191	284	285	280	234	264	223	342	31	49	46	227	342	31
Avg	157	166	182	148	197	186	145	130	251	257	255	240	243	247	249	254	252	239	238	241	334	117	127	206	232	--	--
Max	329	297	298	311	283	297	290	272	296	283	296	281	323	358	309	346	325	352	305	339	342	310	322	301	--	358	--
Min	53	51	60	48	55	49	54	11	22	49	40	49	55	100	72	86	32	40	44	83	14	16	38	32	--	--	11

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WD_10m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	110	117	130	138	98	88	105	98	85	100	125	139	271	269	249	269	254	323	57	94	125	103	83	76	110	323	57
2	60	115	88	97	90	71	73	65	61	70	98	145	101	131	141	159	185	147	218	313	14	93	75	66	97	313	14
3	53	60	58	63	73	73	74	84	115	118	133	147	175	251	272	85	76	189	68	289	83	34	13	170	89	289	13
4	161	123	96	95	79	57	81	102	67	81	131	159	211	223	253	228	227	254	185	228	174	218	253	127	159	254	57
5	151	184	172	177	164	156	127	90	117	208	229	244	256	283	272	264	259	272	289	261	270	252	232	127	218	289	90
6	177	224	164	197	202	180	144	113	97	92	290	237	263	272	305	261	282	242	316	316	337	209	157	155	221	337	92
7	252	236	280	269	120	178	59	188	232	271	265	256	244	250	269	280	266	267	217	313	311	10	302	268	261	313	10
8	296	275	272	271	280	275	265	269	260	267	247	244	258	263	259	244	256	278	282	290	281	284	276	272	269	296	244
9	262	271	270	269	269	259	198	268	273	276	259	252	261	256	270	257	253	271	267	230	261	278	206	207	257	278	198
10	220	242	239	276	107	65	95	237	246	268	261	271	271	282	252	234	253	272	31	91	135	78	87	75	243	282	31
11	79	84	81	90	84	72	57	58	91	108	101	124	111	131	136	154	135	156	9	39	90	73	81	108	94	156	9
12	96	81	71	78	88	79	79	77	106	104	95	111	114	134	159	274	134	107	115	100	95	101	91	77	99	274	71
13	73	67	80	93	95	89	87	147	122	122	184	223	265	241	262	229	274	277	233	267	274	90	121	179	164	277	67
14	169	135	147	164	149	156	139	114	118	120	199	271	250	260	260	244	223	210	195	141	66	238	250	261	188	271	66
15	61	210	259	319	204	218	197	259	270	275	267	256	236	235	255	232	223	97	132	105	113	155	116	181	215	319	61
16	288	258	147	312	119	181	186	258	276	272	269	239	268	243	262	249	260	257	265	272	265	268	266	269	255	312	119
17	229	96	62	36	257	140	185	223	232	257	246	247	252	226	264	243	237	73	88	77	232	111	80	144	201	264	36
18	97	162	130	64	235	267	297	324	263	271	263	259	263	263	240	244	252	253	246	191	61	212	215	214	242	324	61
19	219	220	208	143	122	127	98	98	201	221	193	200	357	70	10	64	70	78	84	106	121	146	210	113	132	357	10
20	167	123	130	122	160	192	141	123	248	249	270	253	247	249	267	258	247	354	64	119	179	217	228	275	207	354	64
21	272	268	148	162	177	171	165	156	86	250	250	214	269	258	250	248	232	268	314	289	201	247	268	285	234	314	86
22	184	172	186	159	172	180	169	109	100	257	272	245	272	229	285	256	278	266	260	269	292	277	250	79	230	292	79
23	20	72	111	194	132	98	88	81	247	263	279	212	284	259	288	248	288	246	288	290	343	131	143	174	235	343	20
24	180	184	194	171	159	179	153	120	120	129	143	160	181	229	267	268	244	197	181	206	277	322	185	241	190	322	120
25	208	277	245	256	233	238	167	139	241	261	281	299	298	238	260	242	236	223	237	219	222	241	216	269	241	299	139
26	271	79	134	122	97	108	231	117	99	150	135	79	266	268	254	297	251	247	189	135	89	50	67	103	136	297	50
27	115	100	113	115	121	119	118	88	69	56	57	67	40	67	287	272	306	301	298	299	318	170	208	141	85	318	40
28	188	173	190	195	182	177	175	158	79	62	82	290	274	41	130	32	18	6	14	272	250	253	143	120	155	290	6
29	145	96	168	173	129	133	124	82	55	60	58	38	59	258	220	168	139	103	189	262	260	269	267	282	143	282	38
30	206	179	192	176	143	110	133	120	95	106	99	314	175	191	329	278	237	291	351	258	222	100	167	137	171	351	95
31	188	305	276	208	214	167	103	136	145	221	203	233	222	145	222	218	225	213	113	119	215	230	206	41	197	305	41
Avg	173	159	156	155	145	143	130	121	130	193	212	227	251	240	258	247	244	250	248	248	238	197	189	160	198	--	--
Max	296	305	280	319	280	275	297	324	276	276	290	314	357	283	329	297	306	354	351	316	343	322	302	285	--	357	--
Min	20	60	58	36	73	57	57	58	55	56	57	38	40	41	10	32	18	6	9	39	14	10	13	41	--	--	6

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, WD_10m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	359	185	188	228	156	173	177	139	74	117	221	247	278	282	230	244	275	279	225	228	160	183	183	175	206	359	74
2	165	162	173	154	156	149	143	121	104	99	239	242	272	305	268	294	226	277	234	301	123	181	166	181	191	305	99
3	230	295	138	121	148	178	81	131	117	35	279	274	289	300	277	245	243	294	276	234	238	274	238	177	238	300	35
4	146	254	181	323	266	137	167	159	94	189	70	289	269	256	309	264	236	234	230	303	215	115	99	100	213	323	70
5	101	132	126	150	134	143	173	113	199	272	264	251	245	260	236	287	274	253	264	30	163	257	19	200	210	287	19
6	191	172	177	141	131	112	109	82	87	122	107	141	180	179	333	306	166	96	102	106	106	108	88	77	123	333	77
7	98	110	77	59	86	85	74	72	58	92	124	122	130	130	141	127	133	145	150	141	158	237	264	253	117	264	58
8	247	267	255	281	360	70	58	56	38	54	55	60	96	124	111	127	129	111	120	107	130	135	108	99	94	360	38
9	103	136	146	129	168	105	152	218	242	276	254	266	215	260	274	237	304	253	315	129	178	176	162	110	199	315	103
10	192	279	257	265	295	72	153	160	239	258	249	259	277	260	241	249	246	272	274	284	271	126	119	153	243	295	72
11	170	197	175	176	167	135	132	85	84	77	227	261	255	267	268	260	242	264	272	273	266	179	196	164	209	273	77
12	122	125	110	135	117	136	82	69	55	44	48	47	67	62	12	288	274	251	260	291	111	101	89	111	85	291	12
13	85	97	93	61	56	56	56	57	53	54	62	63	51	87	127	125	127	126	86	81	81	88	89	85	81	127	51
14	73	70	68	59	57	57	56	55	56	53	72	128	130	139	122	135	135	118	77	71	83	125	121	112	90	139	53
15	72	61	55	54	54	61	61	53	52	42	127	143	138	169	180	98	17	58	51	74	117	131	111	81	180	17	
16	118	118	111	104	114	93	88	91	104	107	121	100	55	57	56	56	55	58	54	50	55	55	58	84	82	121	50
17	75	56	54	60	58	55	54	55	60	76	75	79	96	114	120	115	78	99	107	77	54	56	58	58	74	120	54
18	69	53	57	57	57	54	57	53	56	52	47	43	57	243	220	230	228	187	216	257	268	113	108	96	75	268	43
19	109	163	124	211	283	192	110	114	248	260	262	275	266	256	236	186	255	228	254	267	282	282	272	298	240	298	109
20	279	350	266	268	280	164	185	160	109	210	242	251	255	243	242	241	248	228	257	274	269	116	132	245	237	350	109
21	275	249	222	34	187	134	174	150	95	267	282	153	214	232	224	273	244	259	260	269	278	95	81	117	220	282	34
22	101	81	117	107	90	77	89	89	97	101	156	181	132	209	225	247	253	245	284	271	266	269	267	279	171	284	77
23	177	153	72	71	79	80	81	54	53	41	23	195	200	255	243	242	239	258	269	274	272	280	63	192	194	280	23
24	150	108	98	104	76	71	62	50	49	45	49	182	110	97	356	293	215	213	261	261	251	150	168	138	111	356	45
25	102	77	98	100	90	76	80	83	62	53	124	157	184	224	273	253	256	261	268	271	275	271	338	101	122	338	53
26	107	64	125	105	102	74	66	76	111	121	131	142	191	179	255	263	237	252	264	239	260	213	271	161	162	271	64
27	57	82	101	99	119	165	346	90	107	127	125	151	169	168	178	202	215	271	261	244	210	210	214	224	164	346	57
28	226	230	230	219	216	219	220	205	204	200	221	219	219	209	212	255	82	211	229	250	185	212	211	207	216	255	82
29	100	116	196	194	200	230	257	92	196	246	249	257	229	277	272	262	250	251	271	295	111	175	192	160	221	295	92
30	182	176	182	148	157	164	162	155	102	250	248	266	262	235	228	226	230	237	262	279	242	165	183	188	207	279	102
Avg	127	127	135	117	118	113	106	99	89	87	147	195	200	219	236	239	226	237	252	272	205	162	141	147	158	--	--
Max	359	350	266	323	360	230	346	218	248	276	282	289	289	305	356	306	304	294	315	303	282	282	338	298	--	360	--
Min	57	53	54	34	54	54	54	50	38	35	23	43	51	57	12	56	55	17	54	30	54	55	19	58	--	--	12

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, DeltaTemp_C"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.75	0.92	0.71	0.75	0.78	0.75	0.52	-0.31	-1.06	-0.99	-1.08	-1.22	-1.26	-1.25	-1.21	-0.98	-0.89	-0.52	0.06	0.51	0.61	0.67	0.87	0.77	-0.09	0.92	-1.26
2	0.88	0.81	0.96	0.89	1.15	1.20	0.61	-0.33	-0.77	-1.16	-0.90	-1.19	-1.27	-1.15	-1.06	-1.08	-0.83	-0.47	0.04	0.30	0.50	0.85	0.85	1.23	0.00	1.23	-1.27
3	0.86	0.45	0.93	0.71	0.67	0.99	0.75	-0.25	-0.74	-1.09	-0.90	-0.89	-1.19	-1.18	-1.16	-1.23	-0.83	-0.25	-0.03	0.11	0.12	0.22	0.22	0.20	-0.15	0.99	-1.23
4	0.19	0.45	0.44	0.38	0.17	0.37	0.63	0.39	-0.15	-0.07	-0.39	-0.53	-1.05	-1.19	-1.33	-1.12	-0.92	-0.31	-0.09	-0.08	-0.19	-0.28	-0.18	-0.09	-0.21	0.63	-1.33
5	0.09	0.04	-0.07	0.10	0.08	0.15	0.11	-0.59	-0.60	-0.53	-0.79	-1.18	-1.25	-1.20	-1.18	-0.88	-0.79	-0.51	-0.11	0.00	0.18	0.38	0.61	0.49	-0.31	0.61	-1.25
6	0.31	0.12	0.17	0.12	0.26	0.19	-0.06	-0.57	-0.92	-1.37	-1.42	-1.52	-1.81	-1.47	-0.45	-1.08	-0.18	0.15	0.03	0.01	0.13	0.33	0.18	0.11	-0.36	0.33	-1.81
7	0.36	0.65	0.22	0.21	0.21	0.18	0.09	-0.35	-0.64	-0.81	-1.06	-1.19	-1.34	-1.50	-1.34	-1.20	-1.00	-0.46	0.07	0.23	0.19	0.14	0.16	0.05	-0.34	0.65	-1.50
8	-0.03	-0.02	-0.07	-0.09	0.05	0.03	0.22	0.20	0.14	0.07	-0.04	-0.06	-0.20	-0.29	-0.35	-0.61	-0.45	-0.33	-0.01	0.14	0.25	0.30	0.30	0.30	-0.02	0.30	-0.61
9	0.30	0.32	0.31	0.15	0.11	0.01	-0.01	0.07	-0.32	-0.47	-0.58	-0.63	-0.84	-0.78	-1.06	-0.67	-0.36	-0.12	-0.02	-0.03	0.12	0.20	0.22	0.19	-0.16	0.32	-1.06
10	0.48	0.16	0.23	0.11	0.18	0.30	0.09	-0.15	-0.32	-0.52	-0.82	-0.94	-1.07	-1.20	-1.07	-0.83	-0.70	-0.37	-0.03	0.01	0.08	0.26	0.76	0.43	-0.21	0.76	-1.20
11	0.58	0.70	0.67	1.27	0.93	0.47	0.13	-0.44	-0.69	-1.04	-1.01	-0.87	-1.21	-0.94	-0.88	-0.95	-0.73	-0.37	0.00	0.04	0.23	0.53	0.70	0.94	-0.08	1.27	-1.21
12	0.71	0.57	0.64	0.86	0.40	0.50	0.33	-0.30	-0.74	-0.99	-1.33	-1.69	-1.62	-1.90	-1.21	-0.37	-0.50	-0.30	0.11	0.57	0.70	0.13	0.11	0.07	-0.22	0.86	-1.90
13	0.08	0.04	0.03	0.04	0.06	0.04	-0.02	-0.15	-0.55	-0.88	-1.17	-1.43	-1.55	-1.33	-1.17	-0.87	-0.64	-0.23	0.05	0.07	0.08	0.12	0.07	0.07	-0.39	0.12	-1.55
14	0.09	0.11	0.12	0.14	0.15	0.15	0.00	-0.42	-0.74	-1.03	-1.30	-1.26	-1.39	-1.44	-1.48	-1.02	-0.72	-0.26	0.15	0.26	0.35	0.29	0.24	0.21	-0.37	0.35	-1.48
15	0.23	0.25	0.21	0.24	0.23	0.22	0.02	-0.50	-0.86	-1.17	-1.58	-1.64	-1.57	-1.55	-1.40	-1.39	-0.60	-0.14	0.12	0.13	0.17	0.06	0.06	0.11	-0.43	0.25	-1.64
16	0.04	-0.01	-0.06	-0.07	-0.04	-0.01	-0.01	-0.14	-0.28	-0.52	-0.55	-0.29	-0.57	-0.67	-0.52	-0.41	-0.29	-0.15	-0.07	-0.05	-0.04	-0.02	0.00	0.12	-0.19	0.12	-0.67
17	0.12	0.11	0.10	0.12	0.11	0.13	0.07	-0.05	-0.39	-0.28	-0.56	-0.65	-0.67	-0.61	-0.55	-0.40	-0.29	-0.18	-0.07	-0.05	-0.12	-0.07	0.01	0.00	-0.17	0.13	-0.67
18	0.07	0.15	0.14	0.08	-0.04	-0.05	-0.02	-0.34	-0.92	-1.29	-1.49	-1.47	-1.11	-0.49	-0.67	-0.59	-0.79	-0.41	0.01	0.06	0.22	0.15	0.07	0.06	-0.36	0.22	-1.49
19	0.02	0.10	0.14	0.07	-0.04	0.15	0.01	-0.43	-0.46	-0.44	-0.48	-0.66	-0.74	-0.92	-0.29	0.20	0.03	-0.05	0.11	0.12	0.20	0.23	0.23	0.36	-0.11	0.36	-0.92
20	0.44	0.68	0.56	0.47	0.87	0.58	0.75	0.08	-0.45	-0.57	-0.81	-0.93	-1.06	-0.99	-0.97	-0.79	-0.47	-0.23	-0.06	0.03	0.19	0.34	0.44	0.51	-0.06	0.87	-1.06
21	0.10	0.25	0.58	0.76	0.53	0.79	0.73	0.06	-0.69	-0.61	-0.74	-1.02	-0.60	-0.57	-1.18	-0.87	-0.67	-0.27	0.00	0.03	0.08	0.31	0.33	0.34	-0.10	0.79	-1.18
22	0.12	0.15	0.38	0.40	0.28	0.31	0.05	-0.57	-0.78	-1.19	-1.31	-1.50	-1.36	-0.71	-1.19	-0.92	-0.66	-0.27	-0.01	0.02	0.14	0.23	0.77	0.79	-0.29	0.79	-1.50
23	0.72	0.61	0.28	0.25	0.18	0.21	0.05	-0.48	-0.98	-1.36	-1.50	-1.28	-1.15	-1.33	-1.20	-1.03	-0.67	-0.21	0.04	0.13	0.36	0.53	0.63	0.72	-0.27	0.72	-1.50
24	0.84	0.49	0.52	0.52	0.45	0.28	0.15	-0.37	-0.82	-1.31	-1.77	-1.36	-1.57	-1.45	-0.91	-0.99	-0.71	-0.33	0.00	0.10	0.32	0.56	0.57	0.65	-0.26	0.84	-1.77
25	0.72	0.49	0.57	0.26	0.35	0.33	0.16	-0.38	-0.91	-1.41	-1.45	-1.66	-1.57	-1.01	-1.05	-1.15	-0.73	-0.25	-0.03	0.00	0.06	0.10	0.28	0.17	-0.34	0.72	-1.66
26	0.38	0.52	0.57	0.49	0.33	0.09	-0.03	-0.59	-0.79	-0.91	-1.38	-1.46	-1.38	-0.96	-0.34	-0.28	-0.23	-0.19	-0.02	-0.01	0.05	0.20	0.02	0.19	-0.24	0.57	-1.46
27	0.18	0.08	0.17	0.08	0.03	0.01	-0.05	-0.26	-0.27	-0.93	-1.28	-1.52	-1.55	-1.59	-1.13	-0.39	-0.20	-0.10	-0.49	-0.20	0.19	0.14	0.10	0.18	-0.37	0.19	-1.59
28	0.20	0.14	0.07	0.14	0.03	-0.06	0.09	-0.06	-0.40	-0.30	-0.01	-0.51	-0.66	-0.64	-0.74	-0.64	-0.52	-0.08	0.21	0.60	0.82	1.14	0.66	0.89	0.02	1.14	-0.74
29	0.85	0.68	0.98	0.86	0.62	0.56	0.84	-0.20	-0.46	-0.53	-0.70	-0.85	-0.96	-0.92	-1.01	-0.87	-0.57	-0.12	0.07	0.14	0.63	0.75	0.90	0.81	0.06	0.98	-1.01
30	0.92	0.79	1.29	0.93	0.76	0.93	1.40	-0.15	-0.62	-0.65	-0.76	-0.78	-0.94	-0.98	-1.10	-0.84	-0.64	-0.13	0.09	0.25	0.96	0.63	0.74	0.85	0.12	1.40	-1.10
Avg	0.39	0.36	0.39	0.37	0.33	0.33	0.25	-0.25	-0.61	-0.81	-0.97	-1.07	-1.15	-1.07	-0.97	-0.81	-0.59	-0.25	0.00	0.12	0.25	0.31	0.36	0.39	-0.20	--	--
Max	0.92	0.92	1.29	1.27	1.15	1.20	1.40	0.39	0.14	0.07	-0.01	-0.06	-0.20	-0.29	0.20	0.03	0.15	0.21	0.60	0.96	1.14	0.90	1.23	--	1.40	--	
Min	-0.03	-0.02	-0.07	-0.09	-0.04	-0.06	-0.06	-0.59	-1.06	-1.41	-1.77	-1.69	-1.81	-1.90	-1.48	-1.39	-1.00	-0.52	-0.49	-0.20	-0.19	-0.28	-0.18	-0.09	--	--	-1.90

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	24	188	411	628	810	937	1016	1033	989	891	738	548	239	116	6	0	0	0	0	357	1033	0
2	0	0	0	0	0	6	130	359	609	823	780	1021	1031	985	891	739	550	321	117	5	0	0	0	0	349	1031	0
3	0	0	0	0	0	27	76	378	616	788	917	980	980	1002	921	587	568	199	17	5	0	0	0	0	336	1002	0
4	0	0	0	0	0	7	85	171	193	343	752	696	995	989	729	722	616	313	112	9	0	0	0	0	281	995	0
5	0	0	0	0	0	8	81	373	270	322	443	842	532	805	549	277	563	310	96	11	0	0	0	1	228	842	0
6	0	1	1	0	0	9	122	374	291	349	484	552	570	637	880	724	539	279	54	8	0	0	0	0	245	880	0
7	0	0	0	0	0	14	101	177	558	1016	1120	1154	795	607	500	284	395	281	62	5	0	0	0	0	295	1154	0
8	0	0	0	0	0	19	94	194	416	791	722	982	1052	860	563	389	324	206	81	4	0	0	0	0	279	1052	0
9	0	0	0	0	0	34	195	381	376	536	770	878	854	956	893	741	559	344	124	6	0	0	0	0	319	956	0
10	0	0	0	0	0	5	68	146	336	505	935	997	1017	972	877	728	520	264	84	9	0	0	0	0	311	1017	0
11	0	0	0	0	0	8	127	386	601	785	874	977	814	948	821	724	563	409	110	15	0	0	0	0	340	977	0
12	0	0	0	0	0	5	90	420	601	781	918	955	1070	872	749	46	28	104	87	9	0	0	0	0	281	1070	0
13	0	0	0	0	0	18	175	403	603	815	897	1007	1054	1046	609	366	168	117	63	6	0	0	0	3	306	1054	0
14	1	0	0	0	0	4	131	352	571	775	893	977	1001	971	747	363	47	24	15	2	0	0	0	0	286	1001	0
15	0	0	0	0	0	3	45	86	230	419	909	912	531	18	46	158	225	173	59	6	0	0	0	0	159	912	0
16	0	0	0	0	0	7	169	357	591	758	905	909	1013	966	746	667	302	329	119	6	0	0	0	0	327	1013	0
17	0	0	0	0	0	5	39	189	616	596	994	955	1019	952	870	698	529	306	73	6	0	0	0	0	327	1019	0
18	0	0	0	0	0	10	66	99	463	479	758	778	1126	867	873	720	529	314	104	5	0	0	0	0	300	1126	0
19	0	0	0	0	0	5	39	87	291	711	868	980	1011	968	868	719	537	323	106	3	0	0	0	0	313	1011	0
20	0	0	0	0	0	11	160	416	669	800	931	1021	1043	930	888	737	552	331	107	3	0	0	0	0	358	1043	0
21	0	0	0	0	0	6	120	243	522	752	930	1010	1011	979	876	725	536	317	104	4	0	0	0	0	339	1011	0
22	0	0	0	0	0	7	76	125	443	344	608	530	1057	822	862	710	521	303	92	4	0	0	0	0	271	1057	0
23	0	0	0	0	0	9	156	374	589	771	843	800	642	573	859	549	157	72	31	3	0	0	0	0	268	859	0
24	0	0	0	0	0	8	148	347	563	750	910	985	1008	988	847	722	546	302	93	1	0	0	0	0	342	1008	0
25	0	0	0	0	0	5	132	360	578	760	896	980	1013	977	286	296	157	60	33	3	0	0	0	0	272	1013	0
26	0	0	0	0	0	7	138	358	576	761	897	973	989	945	843	695	505	300	81	13	0	1	3	0	337	989	0
27	0	0	0	0	0	8	32	191	289	694	838	967	999	953	848	704	557	214	132	13	0	0	0	0	310	999	0
28	1	0	0	0	0	2	141	436	417	622	606	855	633	880	616	655	352	210	90	6	0	0	0	0	272	880	0
29	0	0	0	0	0	6	144	365	576	762	906	991	1004	974	817	719	456	253	85	6	0	0	0	0	336	1004	0
30	0	0	0	0	0	5	145	362	579	758	910	981	1016	973	870	722	528	308	90	1	0	0	0	0	344	1016	0
31	0	0	0	0	0	2	33	--	--	414	556	725	627	867	675	704	380	214	45	2	0	0	0	0	238	867	0
Avg	0	0	0	0	0	10	111	297	489	664	829	916	921	880	752	591	431	250	83	6	0	0	0	0	301	--	--
Max	1	1	1	0	0	34	195	436	669	1016	1120	1154	1126	1046	921	741	616	409	132	15	0	1	3	3	--	1154	--
Min	0	0	0	0	0	2	32	86	193	322	443	530	531	18	46	46	28	24	15	1	0	0	0	0	--	--	0

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	2	35	125	212	217	354	533	866	961	862	708	547	186	67	5	0	0	0	0	237	961	0
2	0	0	0	0	0	1	33	212	473	477	640	626	514	640	644	392	219	95	34	0	0	0	0	0	208	644	0
3	0	0	0	0	0	2	138	353	556	695	763	881	746	511	741	579	519	327	125	2	0	0	0	0	289	881	0
4	0	0	0	0	0	3	99	204	403	768	898	881	940	745	872	729	521	292	75	1	0	0	0	0	310	940	0
5	0	0	0	0	0	3	143	369	590	776	910	992	1009	969	867	725	518	294	75	1	0	0	0	0	343	1009	0
6	0	0	0	0	0	3	138	358	581	770	907	983	1044	979	867	721	517	285	71	1	0	0	0	0	343	1044	0
7	0	0	0	0	0	2	139	368	592	781	918	998	1012	975	866	716	506	285	70	1	0	0	0	0	343	1012	0
8	0	0	0	0	0	2	126	350	569	759	897	976	991	915	851	701	495	278	68	1	0	0	0	0	332	991	0
9	0	0	0	0	0	2	97	337	501	737	727	988	966	938	840	693	491	272	68	1	0	0	0	0	319	988	0
10	0	0	0	0	0	2	119	337	549	745	884	966	986	795	842	702	505	280	73	0	0	0	0	0	324	986	0
11	0	0	0	0	0	3	144	347	564	749	882	674	1008	976	623	582	213	112	25	1	0	0	0	0	288	1008	0
12	0	0	0	0	0	0	55	184	421	506	379	515	634	754	294	131	2	3	11	2	1	0	1	0	162	754	0
13	0	0	0	0	0	0	36	139	348	749	690	919	745	818	756	436	187	213	62	1	0	0	0	0	254	919	0
14	0	0	0	0	0	1	117	335	554	745	487	1047	960	988	784	444	272	91	27	1	0	0	0	0	286	1047	0
15	0	0	0	0	0	1	112	329	552	747	896	1005	1010	1004	883	661	519	291	44	1	0	0	0	0	336	1010	0
16	0	0	0	0	0	1	113	332	554	743	877	956	972	928	821	683	478	258	60	1	0	0	0	0	324	972	0
17	0	0	0	0	0	1	101	325	546	738	878	957	966	926	818	670	493	26	2	0	0	0	0	0	310	966	0
18	0	0	0	0	0	0	102	283	583	715	875	981	982	934	821	647	338	216	43	0	0	0	0	0	313	982	0
19	0	0	0	0	0	0	26	146	196	143	424	558	112	295	262	358	201	267	47	0	0	0	0	0	126	558	0
20	0	0	0	0	0	0	78	353	488	582	948	750	889	945	817	563	435	268	57	0	0	0	0	0	299	948	0
21	0	0	0	0	0	1	27	150	398	405	436	387	476	234	428	252	137	61	9	0	0	0	0	0	142	476	0
22	0	0	0	0	0	0	92	317	556	572	830	976	681	747	693	504	428	170	38	0	0	0	0	0	275	976	0
23	0	0	0	0	0	0	119	333	551	753	918	847	908	944	824	665	445	196	34	0	0	0	0	0	314	944	0
24	0	0	0	0	0	0	106	331	553	745	867	894	1021	842	657	624	353	188	42	0	0	0	0	0	301	1021	0
25	0	0	0	0	0	1	94	177	461	726	810	956	974	887	765	599	442	190	31	0	0	0	0	0	296	974	0
26	0	0	0	0	0	0	40	145	293	617	799	715	676	853	714	626	405	210	18	0	0	0	0	0	255	853	0
27	0	0	0	0	0	0	94	317	542	691	881	1003	496	938	760	470	320	214	29	0	0	0	0	0	281	1003	0
28	0	0	0	0	0	0	88	323	545	739	885	758	773	444	716	650	337	199	26	0	0	0	0	0	270	885	0
29	0	0	0	0	0	0	102	336	566	757	896	980	987	937	814	650	436	207	22	0	0	0	0	0	320	987	0
30	0	0	0	0	0	0	94	322	548	742	879	953	970	920	801	640	428	203	22	0	0	0	0	0	313	970	0
31	0	0	0	0	0	0	90	317	548	744	881	957	968	909	785	640	433	203	22	0	0	0	0	0	312	968	0
Avg	0	0	0	0	0	1	93	286	497	666	784	858	848	827	745	586	392	206	45	1	0	0	0	0	285	--	--
Max	0	0	0	0	0	3	144	369	592	781	948	1047	1044	1004	883	729	547	327	125	5	1	0	1	0	--	1047	--
Min	0	0	0	0	0	0	26	125	196	143	354	387	112	234	262	131	2	3	2	0	0	0	0	0	--	--	0

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	0	94	324	552	748	888	967	979	927	807	641	427	197	19	0	0	0	0	0	315	979	0
2	0	0	0	0	0	0	89	316	543	737	872	956	964	910	793	629	418	193	19	0	0	0	0	0	310	964	0
3	0	0	0	0	0	0	84	308	536	728	869	948	956	905	777	626	373	116	11	0	0	0	0	0	302	956	0
4	0	0	0	0	0	0	17	80	222	197	312	528	955	902	761	622	393	116	14	0	0	0	0	0	213	955	0
5	0	0	0	0	0	0	73	297	518	713	847	925	956	894	651	469	469	181	18	0	0	0	0	0	292	956	0
6	0	0	0	0	0	0	68	291	513	701	844	913	1019	487	433	646	272	79	3	0	0	0	0	0	261	1019	0
7	1	2	0	0	0	0	46	298	522	711	848	928	943	904	768	603	393	164	12	0	0	0	0	0	298	943	0
8	0	0	0	0	0	0	1	8	14	91	186	101	174	248	269	434	288	200	19	0	0	0	0	0	85	434	0
9	0	0	0	0	0	0	22	91	447	411	662	574	792	673	754	454	227	38	2	0	0	0	0	0	214	792	0
10	0	0	0	0	0	0	19	147	512	711	869	963	959	898	757	575	356	159	10	0	0	0	0	0	289	963	0
11	0	0	0	0	0	0	71	294	520	708	842	915	924	871	748	580	372	153	7	0	0	0	0	0	292	924	0
12	0	0	0	0	0	0	69	291	515	708	846	920	948	954	522	339	277	145	5	0	0	0	0	0	272	954	0
13	0	0	0	0	0	0	18	87	357	604	849	927	925	863	742	575	362	145	5	0	0	0	0	0	269	927	0
14	0	0	0	0	0	0	66	286	509	699	835	910	917	857	733	565	354	137	4	0	0	0	0	0	286	917	0
15	0	0	0	0	0	0	63	279	502	692	827	898	908	850	729	582	198	61	5	0	0	0	0	0	275	908	0
16	0	0	0	0	0	0	16	93	186	301	314	203	276	289	249	193	106	51	3	0	0	0	0	0	95	314	0
17	0	0	0	0	0	0	21	99	326	235	370	482	465	402	280	194	141	78	19	0	0	0	0	0	130	482	0
18	0	0	0	0	0	0	23	171	507	691	721	604	325	186	379	279	341	119	6	0	0	0	0	0	181	721	0
19	0	0	0	0	0	0	34	246	442	497	449	624	692	653	212	155	186	116	4	0	0	0	0	0	180	692	0
20	0	0	0	0	0	0	22	179	384	629	802	877	897	732	708	431	276	97	2	0	0	0	0	0	251	897	0
21	0	0	0	0	0	0	22	189	483	571	582	531	295	363	737	531	318	98	5	0	0	0	0	0	197	737	0
22	0	0	0	0	0	0	55	288	480	671	822	881	652	347	731	545	281	98	2	0	0	0	0	0	244	881	0
23	0	0	0	0	0	0	47	261	482	671	703	691	705	849	712	610	343	99	2	0	0	0	0	0	257	849	0
24	0	0	0	0	0	0	47	258	479	666	797	787	968	497	401	539	268	103	2	0	0	0	0	0	242	968	0
25	0	0	0	0	0	0	43	246	466	655	788	859	876	574	792	551	320	96	4	0	0	0	0	0	261	876	0
26	0	0	0	0	0	0	45	297	485	481	785	848	778	362	133	155	99	71	0	0	0	0	0	0	189	848	0
27	0	0	0	0	0	0	28	81	138	528	765	857	886	767	370	124	9	19	1	1	1	1	0	1	191	886	0
28	0	0	0	0	0	1	20	248	353	163	432	669	845	828	705	484	295	73	1	0	0	0	0	0	213	845	0
29	0	0	0	0	0	0	21	230	486	683	826	894	894	826	698	519	297	71	0	0	0	0	0	0	269	894	0
30	0	0	0	0	0	0	41	260	489	684	824	891	891	829	694	511	292	67	0	0	0	0	0	0	270	891	0
Avg	0	0	0	0	0	0	43	218	432	576	712	769	792	688	601	472	292	111	7	0	0	0	0	0	238	--	--
Max	1	2	0	0	0	1	94	324	552	748	888	967	1019	954	807	646	469	200	19	1	1	0	1	1	--	1019	--
Min	0	0	0	0	0	0	1	8	14	91	186	101	174	186	133	124	9	19	0	0	0	0	0	0	--	--	0

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, RH_Percent"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	17	17	18	21	22	22	19	16	16	14	12	13	14	12	13	13	12	12	12	13	13	13	14	14	15	22	12
2	14	14	15	17	18	20	22	21	19	18	17	16	15	14	13	13	13	13	13	15	15	17	18	19	16	22	13
3	20	24	28	32	34	35	36	33	31	28	26	23	21	20	19	20	21	29	53	52	55	55	57	53	34	57	19
4	50	51	50	57	62	63	56	46	44	50	42	39	34	31	32	30	30	31	32	34	44	50	52	55	44	63	30
5	57	58	58	59	61	62	59	51	49	47	43	38	38	36	36	36	32	31	34	35	43	92	89	87	51	92	31
6	83	80	77	74	75	74	60	58	57	53	41	38	39	38	33	31	32	32	34	36	40	45	46	50	51	83	31
7	54	53	56	57	69	73	74	67	58	47	38	38	37	35	35	36	33	33	39	49	52	51	53	55	50	74	33
8	59	63	64	63	62	64	62	61	57	49	49	44	41	39	40	38	36	36	36	39	42	63	71	64	52	71	36
9	78	71	66	61	62	71	64	56	51	48	44	40	40	38	35	34	33	34	33	37	43	47	48	48	49	78	33
10	48	50	55	55	56	55	54	54	51	48	44	42	37	33	31	30	29	31	34	36	38	42	43	44	43	56	29
11	46	50	54	58	61	65	61	50	45	43	40	38	37	34	33	29	27	28	29	28	27	33	40	43	42	65	27
12	45	52	56	57	58	57	55	42	35	32	31	30	28	28	27	43	71	60	58	61	48	45	44	51	46	71	27
13	52	58	63	67	63	60	55	47	43	38	34	32	28	26	27	30	49	41	37	39	46	57	64	71	47	71	26
14	74	71	69	67	71	70	67	57	53	56	50	45	45	41	40	40	48	51	50	50	57	53	54	55	56	74	40
15	58	60	63	63	67	67	65	64	61	53	46	43	42	82	94	70	63	58	57	59	59	63	62	58	62	94	42
16	57	60	65	71	72	78	69	60	51	47	44	41	38	35	33	30	33	37	32	34	46	46	47	48	49	78	30
17	49	42	36	35	38	33	35	36	33	32	29	25	22	21	21	21	19	20	18	18	19	19	20	19	28	49	18
18	22	24	21	23	24	23	23	25	24	24	24	22	19	19	18	17	17	18	19	19	19	21	23	24	21	25	17
19	24	23	24	28	43	48	49	37	26	25	23	21	20	19	19	19	20	21	23	24	25	30	31	33	27	49	19
20	30	30	32	23	20	27	27	21	19	18	16	13	14	14	15	16	16	16	17	17	17	17	18	21	20	32	13
21	21	20	19	18	20	21	21	19	17	17	16	16	16	14	14	14	14	14	16	17	19	19	19	19	18	21	14
22	21	22	25	28	26	29	31	32	29	25	23	22	18	16	14	14	14	14	15	16	20	23	25	27	22	32	14
23	28	31	34	38	45	47	44	39	36	31	29	26	25	24	21	21	22	24	27	29	34	33	33	34	31	47	21
24	35	37	38	40	40	40	40	37	27	21	18	15	14	14	13	14	14	14	14	14	17	18	22	37	25	40	13
25	42	43	45	48	51	53	53	45	41	38	35	31	29	29	28	30	30	37	60	64	63	63	63	60	45	64	28
26	49	52	55	58	65	60	53	47	41	39	36	34	34	33	32	31	29	28	30	30	30	67	46	38	42	67	28
27	45	46	46	36	69	73	71	63	52	47	43	36	31	31	32	31	32	33	33	34	35	65	88	84	48	88	31
28	74	76	77	65	64	66	59	51	57	49	45	40	40	39	37	35	33	32	33	36	42	44	50	48	50	77	32
29	51	50	52	52	55	58	54	47	38	39	36	31	28	26	25	25	24	26	26	28	31	32	33	38	38	58	24
30	34	31	32	33	33	35	39	38	33	30	27	25	22	20	19	17	18	19	20	22	24	25	27	32	27	39	17
31	33	34	35	36	36	42	43	--	--	38	39	37	31	29	27	25	26	27	27	27	28	31	36	39	33	43	25
Avg	44	45	46	46	50	51	49	44	40	37	34	31	29	29	28	27	29	29	31	33	35	41	43	44	38	--	--
Max	83	80	77	74	75	78	74	67	61	56	50	45	45	82	94	70	71	60	60	64	63	92	89	87	--	94	--
Min	14	14	15	17	18	20	19	16	16	14	12	13	14	12	13	13	12	12	12	13	13	13	14	14	--	--	12

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, RH_Percent"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	55	81	77	81	78	79	79	74	70	62	62	58	48	44	39	36	39	40	53	50	55	61	61	56	60	81	36
2	67	83	85	82	80	75	75	73	65	60	53	51	50	52	46	46	47	52	67	84	83	88	87	86	68	88	46
3	84	83	83	83	85	87	82	73	68	64	55	48	42	44	39	38	34	31	33	38	49	62	69	77	60	87	31
4	76	72	66	71	70	72	69	67	62	51	44	40	34	34	28	20	18	24	27	27	29	34	41	45	47	76	18
5	49	51	55	53	55	58	55	49	43	37	34	29	26	24	22	19	17	16	20	21	21	25	28	31	35	58	16
6	33	34	35	37	37	38	38	34	29	25	22	21	19	17	15	14	14	14	16	17	18	20	21	22	25	38	14
7	22	21	19	21	26	28	27	26	23	18	16	16	17	17	16	16	16	16	17	18	20	22	23	23	20	28	16
8	23	24	25	33	36	38	35	31	31	29	28	27	24	23	21	20	19	19	20	22	24	25	26	32	27	38	19
9	52	55	58	60	61	62	60	55	53	48	44	41	38	35	33	30	27	27	29	31	32	31	31	34	43	62	27
10	50	54	54	55	54	54	52	48	46	42	37	32	29	28	27	26	26	26	32	71	64	64	57	52	45	71	26
11	48	51	50	52	55	52	47	45	41	39	37	35	31	28	27	27	25	28	35	41	40	40	39	38	40	55	25
12	40	43	48	50	51	51	50	49	44	44	44	40	38	34	38	48	81	95	94	87	88	91	91	89	59	95	34
13	91	87	87	86	87	86	84	77	74	66	60	55	52	52	50	50	54	55	53	57	58	64	70	67	68	91	50
14	70	73	73	75	74	75	71	61	55	50	49	43	42	37	35	35	37	45	51	53	55	55	59	65	56	75	35
15	69	70	67	69	71	70	65	56	53	54	50	47	44	39	35	35	34	39	43	46	51	50	55	53	53	71	34
16	44	43	56	59	65	66	63	56	55	54	49	47	44	41	38	35	32	30	30	32	36	37	36	36	45	66	30
17	37	46	50	51	52	56	54	53	50	47	43	38	36	34	32	31	29	56	61	54	49	56	61	58	47	61	29
18	59	58	72	77	72	63	66	54	49	52	48	44	43	42	40	39	42	42	45	45	47	49	51	54	52	77	39
19	55	61	74	72	79	83	83	76	71	77	79	68	82	93	80	79	71	63	67	66	71	73	90	94	75	94	55
20	88	91	91	89	85	85	85	72	58	57	51	51	45	41	35	34	35	36	41	44	48	51	52	50	59	91	34
21	50	53	62	63	67	68	64	65	53	50	51	52	51	54	53	52	54	55	57	64	67	63	91	89	60	91	50
22	89	80	82	80	79	79	76	64	57	58	50	43	44	44	40	38	38	40	43	47	50	52	57	60	58	89	38
23	60	61	59	56	57	58	55	50	45	42	40	39	34	31	29	28	27	29	31	33	38	44	43	43	43	61	27
24	42	42	43	43	45	50	49	43	37	34	33	31	28	27	26	25	27	30	32	26	25	28	30	29	34	50	25
25	34	34	40	48	52	54	54	55	55	52	44	35	33	33	32	31	29	33	34	38	41	55	62	68	44	68	29
26	60	59	58	56	58	73	75	74	66	55	47	46	46	42	40	37	36	40	41	60	68	63	62	64	55	75	36
27	65	69	70	72	72	72	68	59	53	51	46	41	47	56	36	36	34	33	32	33	42	46	47	49	51	72	32
28	50	49	52	51	50	52	51	45	37	33	28	26	25	24	21	18	19	19	23	23	22	28	28	29	33	52	18
29	29	28	31	32	32	33	32	30	24	22	18	16	14	13	12	12	12	12	14	16	17	17	18	22	21	33	12
30	23	22	22	25	27	28	28	27	22	17	15	14	13	12	12	12	12	12	14	16	19	20	21	21	19	28	12
31	21	21	24	25	27	29	31	26	23	21	19	19	21	20	18	15	11	11	13	14	16	18	21	23	20	31	11
Avg	53	55	57	58	59	61	59	54	49	46	42	38	37	36	33	32	32	35	38	41	43	46	49	50	46	--	--
Max	91	91	91	89	87	87	85	77	74	77	79	68	82	93	80	79	81	95	94	87	88	91	91	94	--	95	--
Min	21	21	19	21	26	28	27	26	22	17	15	14	13	12	12	12	11	11	13	14	16	17	18	21	--	--	11

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, RH_Percent"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	26	26	24	21	27	27	26	25	22	18	16	15	14	13	11	12	12	13	15	17	21	21	22	21	19	27	11
2	21	22	24	25	28	30	29	25	21	17	15	15	15	15	15	14	14	15	16	18	21	22	23	22	20	30	14
3	20	20	23	26	27	27	28	26	23	21	20	19	15	13	12	12	13	14	15	15	17	21	21	24	20	28	12
4	29	32	32	32	31	33	35	39	38	37	33	27	25	24	23	22	22	24	27	31	49	73	71	65	36	73	22
5	56	56	66	70	68	69	68	58	43	43	40	38	37	35	34	34	32	33	36	42	43	44	45	48	47	70	32
6	50	52	51	51	53	54	53	46	40	34	31	28	26	31	44	31	51	74	70	68	69	68	60	60	50	74	26
7	62	54	67	67	65	70	70	62	56	47	42	41	40	38	37	36	34	33	37	42	45	49	52	54	50	70	33
8	63	67	74	88	92	92	90	88	91	91	89	90	93	92	89	86	81	78	83	89	90	92	93	93	86	93	63
9	93	93	93	92	92	92	94	90	82	74	69	66	60	57	54	55	58	64	88	89	84	81	76	75	78	94	54
10	72	56	60	64	70	77	78	75	55	56	56	50	49	47	47	47	47	50	53	55	57	63	67	67	59	78	47
11	64	58	54	59	61	63	61	53	46	35	34	37	37	38	37	36	35	35	36	39	41	46	45	44	46	64	34
12	45	45	43	45	50	54	46	41	40	38	35	31	28	25	24	26	24	26	30	34	36	37	41	42	37	54	24
13	44	46	50	54	54	56	55	54	52	48	41	38	38	34	33	33	33	34	37	41	43	42	43	47	44	56	33
14	51	53	54	55	55	56	56	52	49	45	41	36	34	33	32	31	31	32	35	38	40	41	41	42	43	56	31
15	48	49	51	52	54	55	55	51	48	45	41	35	33	30	28	27	28	32	31	33	36	39	40	42	41	55	27
16	45	48	54	58	60	62	64	63	62	61	66	76	79	73	74	72	69	63	65	68	71	71	71	79	66	79	45
17	87	87	88	90	90	88	86	83	76	70	70	65	60	61	63	59	55	59	62	69	81	82	78	75	74	90	55
18	73	74	74	76	80	81	82	77	67	64	61	56	55	58	55	54	49	52	56	60	62	65	66	67	65	82	49
19	69	69	72	73	76	76	78	67	57	59	60	59	58	56	60	72	58	56	58	58	60	60	61	63	64	78	56
20	62	64	60	62	65	71	68	65	58	54	49	45	42	41	38	39	40	47	58	61	59	63	64	64	56	71	38
21	59	62	66	63	68	68	60	50	39	35	35	43	40	38	33	31	32	36	38	38	39	46	57	61	47	68	31
22	65	70	70	71	75	76	71	64	60	53	43	39	38	41	38	37	39	41	46	43	43	42	47	48	53	76	37
23	50	49	60	68	71	73	71	66	60	56	48	43	39	36	32	29	27	26	25	27	29	31	33	32	45	73	25
24	34	37	37	41	50	55	56	52	48	44	39	35	31	31	30	27	27	29	32	33	35	39	41	44	39	56	27
25	45	44	47	47	46	50	53	47	42	39	33	28	24	24	24	26	27	28	30	35	36	37	40	41	37	53	24
26	42	45	47	50	49	51	52	45	41	41	39	36	36	35	45	49	50	56	62	66	68	69	70	72	51	72	35
27	74	74	71	71	71	73	75	73	68	61	54	46	38	36	36	41	68	96	93	84	82	86	90	87	69	96	36
28	83	81	84	90	94	94	88	81	81	83	78	64	49	35	39	45	45	45	47	49	51	40	39	43	64	94	35
29	52	56	51	43	39	44	55	51	35	30	25	27	28	28	25	22	22	23	25	31	38	37	30	31	35	56	22
30	34	35	37	43	40	39	44	41	34	26	26	24	23	21	21	20	22	23	26	28	33	35	37	38	31	44	20
Avg	54	54	56	58	60	62	62	57	51	48	44	42	39	38	38	38	38	41	44	47	49	51	52	53	49	--	--
Max	93	93	93	92	94	94	94	90	91	91	89	90	93	92	89	86	81	96	93	89	90	92	93	93	--	96	--
Min	20	20	23	21	27	27	26	25	21	17	15	15	14	13	11	12	12	13	15	15	17	21	21	21	--	--	11

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.059	0	0	0	0	0	0	0.059	0.059	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	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.016	1.53	0.103	0.036	1.69	1.53	0	
6	0.02	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.024	0.02	0	
7	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	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	0.036	0.036	0.036	0	
9	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	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	
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	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.036	0.016	0	0	0	0	0	0	0	0	0.052	0.036	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0.004	0.008	0.209	0.241	0.209	0
14	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0.907	0.028	0	0.004	0	0	0	0	0	0	0	0.939	0.907	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	
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	
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	
19	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.685	0.028	0	0.713	0.685	0	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.11	0.024	0.04	0.174	0.11	0	
28	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	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	
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	
31	0	0	0	0	0	0	0	--	--	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0.032	0.004	0	0	0.008	0	0	0	0	0	0	0	0	0.907	0.028	0.036	0.04	0	0.059	0	0.016	2.33	0.163	0.321	3.94	--	--	
Max	0.02	0.004	0	0	0.004	0	0	0	0	0	0	0	0	0.907	0.028	0.036	0.02	0	0.059	0	0.016	1.53	0.103	0.209	--	1.53	--	
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min	
1	0.107	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.111	0.107	0	
2	0.051	0.008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.032	0.012	0	0	0	0.103	0.051	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.075	0	0.075	0.075	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
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
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
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
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
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
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.048	0.004	0	0	0	0	0.052	0.048	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
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.524	0.177	0.004	0	0	0	0	0	0.004	0.709	0.524	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.134	0.028	0.008	0	0	0	0	0	0.17	0.134	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
19	0	0	0	0	0	0	0	0	0	0.032	0.004	0	0.308	0.414	0	0	0	0	0	0	0	0	0.008	0.157	0.008	0.931	0.414	0
20	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.008	0	0	0	0	0.008	0.008	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
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
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
26	0	0	0	0	0.004	0.016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.016	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0.043	0	0	0	0	0	0	0	0	0	0	0	0	0.043	0.043	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.158	0.012	0	0.004	0.004	0.016	0	0	0	0.032	0.004	0	0.351	0.414	0	0	0.524	0.311	0.032	0.096	0.016	0.008	0.232	0.012	2.23	--	--	
Max	0.107	0.008	0	0.004	0.004	0.016	0	0	0	0.032	0.004	0	0.308	0.414	0	0	0.524	0.177	0.028	0.048	0.012	0.008	0.157	0.008	--	0.524	--	
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
4	0	0	0	0	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0	0.115	0	0	0	0	0	0	0	0	0.127	0.115	0
7	0.079	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.079	0.079	0
8	0	0	0	0.016	0.072	0.096	0.064	0.036	0.169	0.036	0.004	0.079	0.084	0.016	0.004	0	0	0	0	0	0	0	0	0	0	0.676	0.169	0
9	0	0	0	0	0	0	0.032	0.004	0	0	0	0	0	0	0	0	0	0.004	0.008	0	0	0	0	0.004	0.052	0.032	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
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
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
16	0	0	0	0	0	0	0	0	0	0	0	0.008	0	0	0	0	0	0	0	0	0	0	0	0.008	0.016	0.008	0	
17	0.012	0.004	0.004	0.016	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.04	0.016	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
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.071	0.035	0	0	0	0	0	0	0.004	0	0	0.11	0.071	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.162	0.012	0.004	0	0	0.804	0.004	0	0.986	0.804	0	
28	0	0	0.035	0.201	0.004	0	0	0	0	0	0.122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.362	0.201	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
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
Total	0.091	0.004	0.039	0.233	0.08	0.096	0.096	0.04	0.169	0.04	0.126	0.087	0.084	0.016	0.087	0.035	0.277	0.016	0.012	0	0	0.808	0.004	0.012	2.45	--	--	
Max	0.079	0.004	0.035	0.201	0.072	0.096	0.064	0.036	0.169	0.036	0.122	0.079	0.084	0.016	0.071	0.035	0.162	0.012	0.008	0	0	0.804	0.004	0.008	--	0.804	--	
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	

**SAROAD for Resolution, East_Plant
"Component, Channel: Table100, BP_mmHg"
Month: Aug 2014**

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	655	655	655	655	655	656	656	656	656	656	656	655	655	654	654	654	653	653	654	654	654	655	655	655	655	655	656	653
2	655	655	655	655	655	655	655	655	655	655	656	656	655	655	654	654	654	653	654	654	655	655	655	655	655	655	656	653
3	654	654	654	654	654	655	655	655	655	656	656	655	655	655	654	654	653	653	653	654	654	655	655	655	655	655	656	653
4	655	655	654	654	655	655	655	655	655	656	656	655	655	655	654	654	653	653	653	654	654	654	654	654	654	654	656	653
5	654	654	654	654	654	655	655	656	656	656	656	656	656	655	655	655	654	654	654	654	655	655	655	655	655	655	656	654
6	655	654	654	654	654	655	655	655	655	655	655	655	655	655	654	654	653	653	653	653	653	653	654	654	654	654	655	653
7	654	653	654	654	654	654	654	655	655	655	655	655	655	654	654	653	653	653	653	653	653	653	653	653	653	653	655	653
8	653	653	654	654	654	654	654	655	655	655	655	655	655	654	653	653	652	652	652	653	653	653	653	653	653	654	655	652
9	654	654	654	654	654	654	655	655	655	655	655	655	655	654	654	653	653	653	653	654	654	654	655	655	655	655	655	653
10	655	655	655	655	654	655	655	655	655	656	656	655	655	655	654	653	653	653	654	655	655	655	655	655	655	655	656	653
11	655	655	655	655	655	655	655	655	655	656	656	656	655	655	654	654	654	654	654	654	655	655	655	655	655	655	656	654
12	655	655	655	655	655	655	655	655	656	656	656	655	655	654	654	653	655	654	654	654	655	655	655	655	655	655	656	653
13	655	655	655	655	655	655	655	656	656	656	656	656	655	655	655	655	654	654	654	654	655	655	655	655	655	655	656	654
14	655	655	655	655	655	655	655	655	656	656	656	655	655	655	654	654	654	654	654	654	655	655	655	655	655	655	656	654
15	655	654	654	655	655	655	655	656	656	656	656	656	655	655	654	654	654	654	654	654	655	655	655	655	655	655	656	654
16	655	655	655	655	655	655	655	656	656	656	656	656	656	655	655	655	654	654	654	654	654	654	654	654	654	655	656	654
17	655	655	655	655	655	655	655	656	656	655	655	655	655	654	653	653	653	653	653	653	653	653	653	653	653	654	656	653
18	654	654	654	654	654	654	654	654	654	654	654	654	653	653	653	652	652	652	652	653	653	653	653	653	653	654	656	652
19	653	653	653	652	652	653	653	653	653	653	653	653	653	652	652	652	652	652	652	652	652	652	652	652	653	653	654	652
20	652	652	653	653	653	653	654	654	654	655	655	654	654	654	653	653	653	652	652	653	653	653	653	653	653	654	656	652
21	653	653	653	653	653	653	654	654	655	655	655	655	655	655	654	654	654	654	654	654	655	655	655	655	655	655	656	652
22	654	654	654	654	654	654	655	655	655	655	655	655	654	654	654	654	653	653	653	653	653	653	654	654	654	654	656	652
23	654	654	654	654	654	654	654	654	654	655	655	654	654	654	653	653	653	652	652	652	653	653	653	653	653	654	656	652
24	652	652	652	652	652	652	653	653	653	654	654	654	653	653	652	652	652	652	652	652	652	652	653	653	653	654	656	652
25	653	653	653	653	653	654	654	654	655	655	655	655	654	654	653	653	653	653	653	653	653	653	654	655	655	655	656	652
26	654	654	654	654	655	655	655	655	656	656	656	656	655	655	654	654	654	654	654	655	655	655	656	656	656	656	657	652
27	656	655	655	655	656	656	656	657	657	657	657	657	657	656	656	655	655	655	655	655	655	656	656	655	655	656	657	652
28	655	655	655	655	655	655	655	655	655	656	655	655	655	654	653	653	653	653	653	653	653	653	653	653	653	654	656	652
29	653	653	653	652	652	653	653	653	653	654	654	653	653	652	652	652	651	651	651	652	652	652	652	652	652	653	656	652
30	652	652	652	652	652	652	653	653	653	654	654	653	653	652	652	652	652	651	651	651	652	652	652	652	652	653	656	652
31	652	652	652	652	652	653	653	653	654	654	654	653	653	653	652	652	652	651	651	651	652	652	652	652	652	653	656	652
Avg	654	654	654	654	654	654	655	655	655	655	655	655	655	654	654	653	653	653	653	653	654	654	654	654	654	654	--	--
Max	656	655	655	655	656	656	656	657	657	657	657	657	657	656	656	655	655	655	655	655	655	656	656	656	656	657	657	--
Min	652	652	652	652	652	652	653	653	653	653	653	653	653	652	652	652	651	651	651	651	652	652	652	652	652	653	653	651

SAROAD for Resolution, East_Plant
"Component, Channel: Table100, BP_mmHg"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	653	653	652	652	652	653	653	653	654	654	654	654	653	653	652	652	652	652	652	652	652	652	652	652	653	654	652	
2	652	652	652	652	652	652	653	653	654	654	654	654	653	653	652	652	651	651	651	651	651	651	651	651	651	652	654	651
3	651	651	651	651	651	651	652	652	652	652	652	652	651	651	650	650	650	649	649	649	650	650	650	650	651	652	649	
4	650	650	650	649	650	650	650	651	651	652	652	651	651	651	650	650	649	649	650	651	652	653	653	653	651	653	649	
5	652	653	653	653	653	653	654	654	654	654	655	654	654	654	653	653	653	653	653	653	653	654	654	654	653	655	652	
6	654	654	654	654	654	654	654	655	655	655	655	655	654	654	653	653	653	653	654	654	654	654	654	654	654	654	655	653
7	654	654	654	654	654	654	654	654	654	655	655	654	654	653	653	652	652	652	652	652	653	653	653	653	653	653	655	652
8	653	653	652	653	653	653	653	653	654	654	654	654	654	653	653	653	653	653	653	653	653	654	654	654	653	654	652	
9	654	654	653	653	653	653	654	654	654	655	654	654	654	653	653	653	653	653	653	653	653	653	653	653	653	655	653	
10	653	653	653	653	653	653	653	654	654	654	654	654	654	653	653	653	652	652	652	652	652	653	653	653	653	654	652	
11	653	653	653	653	653	653	653	653	653	653	653	653	653	653	652	652	652	652	652	652	652	652	652	652	652	653	653	652
12	652	652	652	652	652	652	653	653	653	653	653	653	653	652	652	651	651	651	651	651	652	652	652	653	653	652	653	651
13	653	653	653	653	653	653	653	654	654	654	654	654	653	653	652	652	652	652	652	652	652	652	652	652	653	654	652	
14	653	653	653	652	652	653	653	653	653	653	653	653	653	652	652	652	652	652	652	652	652	653	653	653	653	653	653	652
15	653	653	653	653	653	653	654	654	654	654	654	654	654	653	653	652	652	652	653	653	653	654	654	654	654	653	654	652
16	654	654	655	654	654	654	655	655	655	655	655	655	654	654	653	653	653	652	652	652	652	653	653	653	653	653	654	652
17	652	652	652	652	652	652	652	652	652	652	652	652	652	651	651	651	650	650	650	650	651	651	650	650	650	651	652	650
18	650	650	650	650	650	650	651	651	651	651	651	651	651	650	650	650	650	650	650	650	651	651	651	651	651	651	651	650
19	651	651	651	651	651	651	652	652	652	653	653	652	652	652	651	651	651	651	651	651	652	652	652	652	652	652	653	651
20	652	653	652	652	652	653	653	653	654	654	654	654	653	653	653	652	652	652	653	653	653	654	654	654	653	654	652	
21	654	654	654	654	654	654	654	655	655	655	655	655	654	654	654	654	653	653	654	654	654	655	655	655	654	655	653	
22	655	655	655	655	655	655	655	655	656	656	656	656	655	655	654	654	654	654	654	654	654	655	655	655	655	655	656	654
23	655	655	654	654	654	655	655	655	655	656	656	655	655	654	654	653	653	653	653	653	654	654	654	654	654	654	656	653
24	654	654	654	654	654	654	654	655	655	655	655	655	654	654	653	653	653	653	653	653	653	654	654	654	654	654	655	653
25	654	654	654	654	655	655	655	655	655	655	656	655	655	654	654	653	653	653	653	653	653	653	653	653	653	654	656	653
26	653	654	653	653	654	654	654	654	654	655	655	654	654	653	652	652	652	652	652	652	652	653	653	653	653	655	652	
27	652	652	652	651	651	651	652	652	652	652	652	652	651	650	649	648	648	649	649	650	650	650	650	651	651	652	648	
28	651	650	650	650	650	651	651	651	652	652	652	652	652	652	652	651	651	651	651	651	651	652	652	652	652	651	652	650
29	652	652	651	651	651	651	652	652	652	653	653	652	652	652	651	651	651	651	651	651	651	651	652	652	651	652	653	651
30	651	651	651	651	651	651	651	652	652	652	652	652	651	651	651	650	650	650	650	650	650	650	650	650	650	651	652	650
Avg	653	653	653	652	653	653	653	653	654	654	654	654	653	653	652	652	652	652	652	652	652	653	653	653	653	653	--	--
Max	655	655	655	655	655	655	655	655	656	656	656	656	655	655	654	654	654	654	654	654	654	655	655	655	--	656	--	
Min	650	650	650	649	650	650	650	651	651	651	651	651	651	650	649	648	648	649	649	649	650	650	650	650	--	--	648	

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.7	0.4	1.0	1.0	0.6	0.8	0.7	1.1	2.5	3.0	2.9	3.4	3.9	4.3	5.1	4.8	4.7	4.2	3.8	3.1	1.1	1.1	1.5	0.9	2.4	5.1	0.4
2	0.6	0.6	0.9	0.9	1.0	0.7	0.8	1.3	1.4	2.0	2.3	2.7	3.4	3.8	4.1	4.9	4.8	4.4	4.2	2.9	0.9	1.4	1.4	2.8	2.3	4.9	0.6
3	3.6	1.5	0.8	1.0	1.1	1.6	0.8	0.7	1.2	1.9	2.7	2.4	3.5	4.1	3.8	4.9	5.5	9.0	9.6	6.0	1.8	2.5	2.8	1.7	3.1	9.6	0.7
4	0.4	0.9	0.8	1.9	0.6	1.0	1.1	1.1	1.2	1.6	1.9	1.6	3.5	4.8	5.1	3.8	5.4	4.7	4.0	2.6	4.5	8.6	8.7	8.5	3.3	8.7	0.4
5	4.5	1.9	1.8	2.9	2.3	2.4	2.3	3.4	2.6	2.2	1.5	1.7	2.1	2.9	3.8	3.8	4.3	5.8	5.5	5.4	4.6	11.4	2.2	4.0	3.6	11.4	1.5
6	4.2	4.5	5.9	3.2	3.2	4.1	1.3	0.9	1.1	1.1	1.1	1.8	1.7	1.2	2.0	2.0	2.7	3.2	3.7	1.8	2.2	3.7	1.8	5.4	2.7	5.9	0.9
7	5.3	2.6	5.5	3.2	5.1	4.3	3.5	1.0	1.7	1.8	3.3	1.8	2.1	2.2	2.7	2.7	2.3	2.9	3.2	2.2	1.6	1.7	1.5	0.9	2.7	5.5	0.9
8	0.8	0.6	1.0	0.7	0.9	0.4	0.7	0.9	0.9	1.4	2.2	2.2	2.5	3.5	3.3	3.6	4.5	4.1	2.5	2.7	3.3	4.8	2.8	3.1	2.2	4.8	0.4
9	3.3	3.3	3.2	2.8	2.1	1.9	0.4	1.3	1.0	1.6	1.5	2.4	2.9	2.8	4.3	4.1	3.6	3.8	3.3	2.3	0.5	1.6	1.4	0.6	2.3	4.3	0.4
10	1.0	0.4	0.5	0.8	1.0	1.0	0.9	0.7	1.0	1.5	1.6	2.9	3.3	3.7	3.7	4.6	4.2	4.9	4.3	2.9	2.1	0.7	1.1	0.4	2.1	4.9	0.4
11	0.9	0.6	1.5	2.8	3.4	3.7	2.5	1.1	1.0	1.9	2.1	2.6	3.8	3.4	4.0	4.2	4.6	4.0	4.0	3.2	1.6	0.6	2.2	3.6	2.6	4.6	0.6
12	3.6	2.1	0.8	3.1	2.6	0.8	1.1	1.1	0.9	1.6	2.4	3.1	4.2	4.1	4.5	5.6	5.4	3.7	5.6	4.8	3.4	4.9	7.3	3.2	3.3	7.3	0.8
13	4.4	3.7	3.7	5.1	3.9	4.4	2.3	2.2	5.1	2.7	3.5	3.6	5.5	4.8	4.9	4.2	3.7	2.0	2.0	2.3	2.1	6.5	4.8	4.8	3.8	6.5	2.0
14	1.4	5.9	1.2	0.7	0.5	0.8	0.7	1.0	0.8	1.4	1.8	2.2	3.1	3.5	3.9	3.2	2.7	5.9	4.3	2.3	4.5	5.3	2.3	4.0	2.6	5.9	0.5
15	3.7	5.3	4.7	2.0	4.2	2.4	2.2	1.6	2.9	2.5	1.8	2.9	3.9	6.2	3.1	1.3	1.2	0.5	0.6	0.8	1.1	1.2	0.6	0.4	2.4	6.2	0.4
16	0.9	0.6	1.0	1.9	1.0	1.5	0.6	0.6	0.9	1.6	1.6	2.5	3.8	4.9	5.4	6.2	6.1	4.0	3.9	2.2	1.6	0.6	0.7	0.8	2.3	6.2	0.6
17	1.5	1.0	1.2	1.4	1.1	1.0	0.4	0.4	1.0	1.8	2.1	2.8	3.0	3.6	4.4	4.7	5.2	5.1	4.0	2.2	0.5	0.5	0.6	0.3	2.1	5.2	0.3
18	1.3	1.2	1.7	1.7	1.5	1.3	0.5	0.8	1.6	1.5	2.0	2.1	2.3	3.3	3.1	3.7	3.7	4.3	3.4	2.3	0.4	1.0	1.5	1.0	2.0	4.3	0.4
19	0.7	1.2	1.7	1.5	3.2	2.2	1.6	1.1	0.6	1.6	2.9	2.8	2.9	3.1	3.9	3.9	4.1	4.3	3.0	2.0	0.5	0.2	0.3	0.8	2.1	4.3	0.2
20	0.7	1.5	1.6	0.8	0.3	0.8	0.4	0.6	0.7	1.5	2.3	3.4	3.9	3.6	4.0	4.0	4.0	3.8	3.3	1.9	0.8	0.5	0.8	0.7	1.9	4.0	0.3
21	1.1	0.9	0.8	1.0	0.7	0.9	0.8	0.5	1.0	1.5	1.7	3.1	3.5	3.3	4.1	4.7	4.9	5.4	5.2	3.2	0.8	0.4	1.3	1.4	2.2	5.4	0.4
22	1.3	0.6	0.5	1.7	1.8	1.3	0.5	0.3	0.7	0.9	1.2	1.0	1.5	2.6	3.3	3.1	4.0	3.4	3.2	1.7	1.8	3.8	3.5	2.8	1.9	4.0	0.3
23	3.9	5.2	3.9	5.7	3.7	2.5	4.7	4.6	5.5	3.9	2.8	3.1	2.3	2.7	2.9	2.3	2.6	3.1	2.2	3.9	3.8	3.8	4.9	3.4	3.6	5.7	2.2
24	1.9	0.6	1.1	1.8	3.5	4.4	5.0	6.9	7.8	6.9	4.0	4.5	3.2	2.9	3.5	3.5	3.5	2.6	3.0	2.1	3.4	4.5	2.9	2.4	3.6	7.8	0.6
25	1.6	1.7	2.0	1.6	0.4	0.9	0.4	0.7	1.1	1.3	1.8	2.4	3.0	3.4	3.3	2.1	1.9	5.3	4.9	2.2	1.6	1.4	1.3	0.9	2.0	5.3	0.4
26	1.5	1.4	1.4	1.2	1.3	1.2	0.6	0.7	0.8	1.4	2.2	3.5	3.8	4.9	5.1	5.5	5.9	5.6	4.3	3.4	1.4	10.0	7.5	4.6	3.3	10.0	0.6
27	5.1	2.7	1.0	1.4	4.2	2.3	1.1	1.9	1.9	0.9	1.2	1.2	2.4	4.2	5.0	5.4	4.9	4.3	3.3	1.9	0.8	7.0	9.8	5.8	3.3	9.8	0.8
28	2.1	3.8	6.6	2.5	2.1	2.8	2.4	1.3	2.0	4.3	4.0	2.8	2.7	2.0	1.5	2.0	1.6	2.4	1.8	1.6	1.3	2.2	2.2	2.7	2.5	6.6	1.3
29	2.6	2.4	1.4	0.4	2.1	2.6	2.9	1.5	1.3	1.3	1.6	2.4	2.7	--	--	--	4.3	3.9	3.6	1.5	0.8	0.6	0.5	0.4	1.9	4.3	0.4
30	0.4	0.2	0.4	0.6	0.5	0.6	0.5	0.8	1.1	1.3	1.6	2.1	3.3	4.1	4.6	4.4	4.0	3.3	3.9	2.2	0.6	0.6	1.3	1.0	1.8	4.6	0.2
31	1.3	0.9	0.6	1.3	0.9	1.8	1.9	1.7	2.2	3.6	4.2	3.2	1.8	1.5	1.5	3.4	4.0	3.6	2.7	1.5	2.1	4.3	5.3	8.9	2.7	8.9	0.6
Avg	2.1	1.9	1.9	1.9	2.0	1.9	1.5	1.4	1.8	2.1	2.3	2.6	3.1	3.5	3.8	3.9	4.0	4.1	3.8	2.6	1.9	3.2	2.8	2.7	2.6	--	--
Max	5.3	5.9	6.6	5.7	5.1	4.4	5.0	6.9	7.8	6.9	4.2	4.5	5.5	6.2	5.4	6.2	6.1	9.0	9.6	6.0	4.6	11.4	9.8	8.9	--	11.4	--
Min	0.4	0.2	0.4	0.4	0.3	0.4	0.4	0.3	0.6	0.9	1.1	1.0	1.5	1.2	1.5	1.3	1.2	0.5	0.6	0.8	0.4	0.2	0.3	0.3	--	--	0.2

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	5.2	4.3	3.0	0.8	1.2	2.9	2.6	2.2	3.1	2.0	1.6	1.9	1.9	1.9	2.9	4.7	5.0	4.7	7.7	3.0	2.9	4.1	2.8	3.3	3.1	7.7	0.8
2	7.1	4.2	2.6	2.5	2.5	1.6	1.4	1.8	2.4	2.4	1.3	3.0	4.1	5.0	5.8	3.8	2.1	1.9	4.0	2.5	1.2	0.8	5.4	3.7	3.0	7.1	0.8
3	1.6	1.1	1.4	0.9	1.7	2.6	3.0	3.0	2.3	1.9	2.3	2.7	1.8	2.1	1.7	1.8	2.6	2.4	3.1	2.7	1.9	4.2	3.4	2.4	2.3	4.2	0.9
4	0.9	1.1	1.8	4.0	3.8	3.3	2.3	2.9	1.2	1.1	1.8	2.3	2.9	4.5	3.8	4.5	3.4	3.6	2.9	1.3	1.5	1.8	1.0	1.6	2.5	4.5	0.9
5	1.8	2.0	2.4	1.9	1.6	2.7	4.0	2.7	1.4	1.4	1.3	2.1	3.0	3.3	3.9	3.0	3.0	2.7	3.4	2.1	0.2	0.7	0.5	0.7	2.2	4.0	0.2
6	0.6	1.0	1.6	0.9	2.5	0.6	0.6	2.2	1.6	1.3	1.4	2.7	4.1	4.1	3.9	3.8	3.4	3.2	3.5	2.3	1.0	0.7	1.0	0.5	2.0	4.1	0.5
7	1.4	1.2	1.0	1.1	2.6	2.0	1.6	1.2	1.2	1.8	2.3	2.3	2.3	2.8	3.2	3.5	3.5	3.8	3.4	2.2	1.2	0.9	0.5	0.6	2.0	3.8	0.5
8	0.6	1.2	1.2	1.0	1.9	2.0	0.7	0.6	1.2	2.0	2.3	3.1	3.7	3.7	4.2	4.6	4.4	4.6	3.8	2.9	1.1	0.3	0.3	1.3	2.2	4.6	0.3
9	0.9	0.8	0.4	0.4	0.3	0.4	0.2	1.0	1.3	2.6	3.2	3.7	3.7	4.5	4.5	5.0	5.8	5.8	3.9	1.4	0.8	1.7	1.3	2.8	2.3	5.8	0.2
10	4.4	1.1	0.8	1.3	1.2	0.7	0.5	0.6	1.2	1.2	1.8	1.9	2.0	2.7	4.1	4.5	3.9	3.9	5.8	8.3	3.8	2.8	3.2	2.1	2.7	8.3	0.5
11	2.6	3.6	2.2	2.7	2.2	1.2	2.9	3.5	5.6	6.5	6.1	5.2	4.8	5.1	3.8	4.2	3.7	2.8	5.1	7.4	2.8	2.0	3.8	3.5	3.9	7.4	1.2
12	2.3	4.0	4.0	2.4	3.6	4.9	3.6	2.6	2.5	5.2	5.2	4.0	3.6	3.2	4.9	2.7	5.2	1.6	1.1	1.1	0.9	1.7	2.4	3.1	3.2	5.2	0.9
13	2.5	2.0	2.9	2.9	2.5	3.7	2.6	1.7	0.9	1.5	2.6	2.0	2.9	3.7	3.3	3.4	3.4	3.5	3.4	1.1	0.4	0.8	3.5	1.3	2.4	3.7	0.4
14	1.3	0.6	0.7	1.6	3.7	3.4	2.5	3.3	1.7	1.5	2.1	2.2	3.1	3.2	3.2	4.0	4.3	2.8	3.7	2.2	1.0	0.5	0.7	1.3	2.3	4.3	0.5
15	0.8	0.7	0.7	0.4	0.7	0.2	0.8	0.8	0.6	1.5	2.0	2.4	3.1	3.8	3.8	4.5	5.1	4.0	3.9	3.4	2.3	1.2	1.8	0.8	2.1	5.1	0.2
16	0.7	0.7	0.4	0.9	1.0	1.2	0.4	0.5	1.0	1.6	1.9	2.7	3.1	3.6	3.7	4.0	4.8	5.1	4.5	2.5	0.4	0.4	0.7	0.8	1.9	5.1	0.4
17	1.0	1.3	2.2	1.9	0.7	0.9	0.6	0.8	1.2	1.3	1.9	3.0	3.1	3.1	3.7	3.5	3.8	8.3	7.3	3.5	2.7	4.7	4.4	2.4	2.8	8.3	0.6
18	0.7	1.0	1.2	1.2	0.6	1.3	1.4	0.8	1.8	2.2	2.6	1.9	4.1	4.6	4.7	4.7	4.8	5.0	4.2	3.0	2.0	0.8	0.8	2.3	2.4	5.0	0.6
19	1.8	2.5	1.8	3.0	3.3	4.9	1.4	1.7	3.2	2.8	1.4	2.2	3.3	3.4	5.4	4.6	3.8	3.4	4.3	6.0	4.0	5.3	2.6	5.6	3.4	6.0	1.4
20	2.0	2.8	3.5	1.3	0.6	0.6	1.5	1.6	1.1	1.2	1.3	1.9	2.1	2.6	2.3	2.3	3.1	2.1	1.8	2.4	1.6	2.0	1.2	1.2	1.8	3.5	0.6
21	0.6	0.5	1.7	1.4	2.0	1.6	1.2	2.1	0.9	2.2	2.9	4.0	3.3	3.2	2.6	3.0	2.0	1.5	1.1	1.7	1.7	2.9	0.7	0.4	1.9	4.0	0.4
22	0.5	0.4	0.4	2.7	1.5	0.9	0.6	0.8	0.7	1.8	1.8	2.3	3.0	4.2	3.6	3.5	4.0	3.7	4.0	2.6	0.7	0.7	0.7	1.3	1.9	4.2	0.4
23	1.1	0.1	1.1	1.5	1.4	0.9	0.1	0.4	0.8	1.2	2.1	2.6	2.9	3.4	3.7	3.3	3.1	3.0	2.6	1.3	1.4	2.9	4.4	1.8	2.0	4.4	0.1
24	1.2	0.7	1.0	0.3	0.5	1.7	4.3	3.5	2.0	1.6	2.1	3.1	2.3	2.2	3.2	2.1	2.3	3.3	3.2	2.0	0.9	0.6	1.3	1.0	1.9	4.3	0.3
25	1.1	1.8	1.1	0.6	0.7	0.3	0.9	0.6	0.7	1.4	1.7	1.9	2.8	2.7	3.3	3.2	3.3	3.1	2.8	1.7	2.4	4.0	3.5	2.1	2.0	4.0	0.3
26	1.1	0.9	3.1	1.2	0.9	3.4	1.3	0.7	0.7	1.4	1.5	2.2	2.2	2.9	3.4	4.8	4.6	4.2	3.5	5.2	5.7	6.9	4.5	4.7	3.0	6.9	0.7
27	2.7	4.5	5.2	4.9	4.3	4.0	5.1	3.0	1.5	2.0	2.4	2.3	4.3	2.5	2.4	3.4	2.9	4.4	4.3	2.1	3.0	1.7	1.2	0.6	3.1	5.2	0.6
28	1.1	0.9	1.3	2.1	1.0	1.1	1.5	1.4	1.0	1.2	2.0	2.7	2.3	2.4	2.4	3.1	2.0	1.9	1.8	0.9	0.7	2.0	3.2	3.7	1.8	3.7	0.7
29	0.6	0.6	0.8	0.8	0.8	1.1	0.9	0.7	0.8	1.4	2.8	3.3	3.0	3.0	2.8	2.8	2.7	2.1	2.8	0.9	1.2	1.0	0.6	0.6	1.6	3.3	0.6
30	0.7	0.5	1.3	2.0	3.9	6.6	5.5	4.8	3.2	2.1	1.6	2.2	2.8	3.5	4.1	3.7	3.2	3.2	2.3	0.9	0.6	1.7	0.8	1.4	2.6	6.6	0.5
31	1.4	1.5	1.2	1.2	0.9	1.4	1.7	4.3	2.6	2.6	3.1	4.4	5.3	6.1	6.3	5.0	4.8	4.6	3.4	1.0	1.1	1.4	1.6	1.4	2.8	6.3	0.9
Avg	1.7	1.6	1.7	1.7	1.8	2.1	1.9	1.9	1.7	2.0	2.3	2.7	3.1	3.4	3.7	3.7	3.7	3.6	3.6	2.6	1.7	2.0	2.1	1.9	2.4	--	--
Max	7.1	4.5	5.2	4.9	4.3	6.6	5.5	4.8	5.6	6.5	6.1	5.2	5.3	6.1	6.3	5.0	5.8	8.3	7.7	8.3	5.7	6.9	5.4	5.6	--	8.3	--
Min	0.5	0.1	0.4	0.3	0.3	0.2	0.1	0.4	0.6	1.1	1.3	1.9	1.8	1.9	1.7	1.8	2.0	1.5	1.1	0.9	0.2	0.3	0.3	0.4	--	--	0.1

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WS_ms_10m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	1.6	1.1	1.6	1.5	0.9	2.0	3.0	3.1	2.1	2.0	2.2	1.8	2.8	2.4	3.3	3.7	3.4	2.8	1.9	0.7	2.1	1.7	1.5	1.6	2.1	3.7	0.7
2	2.2	1.2	0.8	4.0	2.8	2.9	4.4	4.0	2.9	1.4	2.0	2.6	3.6	4.6	3.7	3.3	3.7	3.0	2.5	1.0	2.0	1.7	1.7	2.5	2.7	4.6	0.8
3	2.0	1.7	1.0	1.0	2.1	2.6	1.7	1.4	1.9	1.2	1.3	1.6	2.8	2.9	3.6	3.4	3.6	3.6	3.0	0.6	0.6	1.0	1.2	2.4	2.0	3.6	0.6
4	4.5	1.7	0.3	1.1	1.0	0.8	0.4	0.4	0.7	1.5	0.9	1.0	2.0	2.8	3.4	3.1	3.3	3.5	4.8	3.7	5.7	4.8	4.5	3.1	2.5	5.7	0.3
5	1.4	1.1	2.9	1.1	1.5	1.7	1.1	1.1	1.1	1.4	1.7	2.6	3.6	3.3	3.7	3.3	3.6	4.0	3.7	2.2	0.7	1.1	0.7	0.7	2.1	4.0	0.7
6	0.5	1.0	0.5	1.4	1.1	2.9	2.1	0.9	1.4	1.8	1.8	2.3	2.7	3.8	5.3	3.2	5.3	4.6	3.6	1.8	5.7	5.3	2.6	1.5	2.6	5.7	0.5
7	7.6	5.8	3.8	3.5	5.0	4.0	2.6	3.9	3.1	3.2	3.5	5.0	5.0	5.0	4.3	3.0	3.0	2.5	2.7	2.7	2.5	1.1	1.2	1.5	3.6	7.6	1.1
8	2.4	1.7	3.7	2.1	0.7	1.3	1.3	2.6	1.8	1.0	2.2	1.4	1.4	1.7	2.4	3.0	3.9	3.1	2.2	2.9	3.8	4.4	5.3	5.7	2.6	5.7	0.7
9	6.1	3.4	1.1	0.8	0.4	0.7	2.4	1.1	0.6	1.5	2.3	3.2	3.9	4.0	3.4	3.8	3.8	4.6	1.5	1.5	0.7	0.7	1.1	0.8	2.2	6.1	0.4
10	0.3	0.4	0.4	0.8	1.0	0.4	0.4	0.6	1.1	1.3	2.0	2.5	3.5	2.8	3.2	3.1	3.6	3.7	2.7	1.1	0.8	0.5	0.3	0.6	1.6	3.7	0.3
11	0.6	1.2	0.5	1.0	1.2	3.2	2.0	1.5	1.8	2.0	1.8	2.0	3.2	3.2	3.2	3.4	3.3	3.3	2.5	0.3	0.7	1.2	0.5	0.5	1.8	3.4	0.3
12	0.9	1.5	1.7	0.8	1.5	2.6	1.9	1.8	2.1	3.1	2.5	2.3	1.7	1.5	2.3	3.0	1.9	3.1	2.0	1.6	2.9	5.2	5.1	6.4	2.5	6.4	0.8
13	5.1	3.7	5.3	3.8	7.4	5.9	8.1	5.6	4.4	5.1	4.0	5.0	7.3	4.2	5.3	4.4	4.6	4.2	3.7	4.1	4.4	4.8	5.5	4.4	5.0	8.1	3.7
14	2.6	2.6	2.8	2.9	4.6	8.5	7.7	9.8	10.1	4.0	2.6	3.6	4.2	4.0	3.0	4.1	3.8	2.9	4.1	3.8	5.0	5.6	4.9	3.2	4.6	10.1	2.6
15	5.5	4.5	5.8	6.6	5.6	4.8	5.2	5.6	3.5	4.3	3.1	2.9	2.8	2.7	2.8	2.2	2.5	4.8	3.6	4.8	4.2	6.1	5.7	1.6	4.2	6.6	1.6
16	2.7	3.6	3.3	2.7	1.5	1.3	2.0	1.5	2.5	2.9	2.6	3.7	3.0	2.7	4.5	4.3	4.0	7.9	10.4	10.4	6.0	4.5	3.9	4.5	4.0	10.4	1.3
17	5.4	2.8	2.3	2.3	2.8	4.6	5.5	6.8	5.7	4.3	3.2	3.2	4.7	6.0	2.8	2.8	3.9	3.7	3.7	4.4	3.3	3.3	3.9	3.0	3.9	6.8	2.3
18	3.3	4.4	5.5	2.5	2.5	2.8	2.3	1.6	2.7	4.6	5.3	2.5	2.7	2.5	2.2	1.8	1.9	1.5	1.9	0.5	0.3	0.6	1.0	2.8	2.5	5.5	0.3
19	4.1	1.9	0.6	1.7	0.4	0.5	2.3	2.4	1.1	2.1	3.1	2.7	2.5	3.1	3.5	3.4	3.3	3.8	3.4	1.6	1.0	0.6	0.8	0.5	2.1	4.1	0.4
20	0.3	0.4	0.7	0.9	0.9	1.5	1.0	1.1	0.8	0.9	2.3	2.7	3.4	3.8	4.1	4.6	3.9	4.8	2.8	1.0	0.9	0.5	1.0	0.3	1.9	4.8	0.3
21	0.4	0.9	1.4	1.0	0.8	1.1	2.1	0.8	1.2	1.3	1.9	1.9	2.3	3.2	3.6	3.7	4.3	3.1	2.9	0.7	0.7	2.2	4.9	4.4	2.1	4.9	0.4
22	2.6	5.3	2.6	2.5	2.6	2.7	2.7	2.7	2.3	2.3	2.2	2.9	2.7	4.0	3.7	4.6	4.3	4.2	3.4	1.4	0.5	1.0	1.3	0.6	2.7	5.3	0.5
23	0.8	0.8	0.9	3.1	2.6	3.4	2.0	1.5	1.4	2.4	1.8	2.1	3.0	3.8	3.7	5.0	5.3	4.8	2.6	0.9	1.1	0.7	0.9	0.5	2.3	5.3	0.5
24	1.7	4.2	3.2	3.7	3.5	1.6	2.7	2.0	2.3	2.4	1.6	2.2	1.6	2.5	2.0	3.3	2.9	4.6	2.8	0.7	0.8	1.0	1.9	3.9	2.5	4.6	0.7
25	3.4	2.5	4.4	3.3	7.1	4.4	3.6	2.3	2.7	3.4	2.5	3.0	2.3	3.5	3.6	4.5	4.3	4.1	2.9	1.4	0.7	0.6	2.0	3.9	3.2	7.1	0.6
26	1.7	1.2	1.1	2.4	1.9	2.5	2.9	2.1	1.8	2.6	4.1	3.4	2.8	2.4	4.0	1.5	1.3	1.2	1.9	2.0	0.8	1.2	0.7	0.8	2.0	4.1	0.7
27	0.8	2.3	1.2	2.7	1.2	0.8	0.3	0.7	1.7	3.3	4.3	4.6	3.4	4.3	5.0	7.0	5.9	1.9	1.2	1.2	1.4	4.3	1.7	1.3	2.6	7.0	0.3
28	1.5	0.8	0.9	1.7	1.3	1.0	1.6	2.2	3.2	3.8	3.0	4.6	5.3	4.9	4.6	3.8	3.7	2.1	1.4	0.7	1.6	0.6	1.3	1.2	2.4	5.3	0.6
29	1.4	1.4	1.2	1.1	1.1	0.8	1.6	2.1	1.1	1.1	1.2	3.0	3.6	2.9	2.7	2.7	3.0	3.3	1.9	0.9	1.3	0.5	0.6	1.3	1.7	3.6	0.5
30	1.3	1.7	1.7	1.1	2.3	2.4	3.4	1.4	1.1	1.1	1.9	2.5	3.2	2.8	3.1	2.9	3.1	2.8	1.8	0.6	0.2	1.6	0.9	1.2	1.9	3.4	0.2
Avg	2.5	2.2	2.1	2.2	2.3	2.5	2.7	2.5	2.3	2.4	2.5	2.8	3.2	3.4	3.5	3.5	3.6	3.6	3.0	2.0	2.1	2.3	2.3	2.2	2.7	--	--
Max	7.6	5.8	5.8	6.6	7.4	8.5	8.1	9.8	10.1	5.1	5.3	5.0	7.3	6.0	5.3	7.0	5.9	7.9	10.4	10.4	6.0	6.1	5.7	6.4	--	10.4	--
Min	0.3	0.4	0.3	0.8	0.4	0.4	0.3	0.4	0.6	0.9	0.9	1.0	1.4	1.5	2.0	1.5	1.3	1.2	1.2	0.3	0.2	0.5	0.3	0.3	--	--	0.2

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WD_10m"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	2	351	17	352	309	299	53	160	277	257	252	255	259	249	260	246	235	255	246	259	301	349	15	277	287	352	2
2	314	320	318	340	352	335	34	229	230	248	255	276	258	268	262	263	262	271	265	272	339	31	45	56	296	352	31
3	71	147	131	284	288	314	11	146	219	206	218	241	277	253	244	256	292	77	69	96	97	260	309	248	245	314	11
4	70	173	270	301	258	346	146	177	232	279	254	193	260	259	263	266	259	261	263	264	108	71	72	65	249	346	65
5	52	188	266	102	91	83	85	55	159	199	178	123	203	267	243	258	255	264	268	265	274	64	124	56	184	274	52
6	76	84	73	124	313	38	93	167	211	174	193	195	193	162	192	228	253	263	283	285	6	16	171	82	173	313	6
7	78	149	70	40	71	121	93	87	108	158	206	209	222	186	253	320	305	227	287	316	215	222	307	266	198	320	40
8	319	320	97	342	356	299	100	99	225	186	250	263	265	254	250	250	256	265	271	274	121	168	71	112	258	356	71
9	67	76	90	133	306	350	56	157	199	219	141	208	247	256	255	251	259	249	250	245	177	299	309	47	234	350	47
10	29	291	262	67	296	302	270	142	203	216	245	231	254	224	239	264	268	258	263	252	260	292	322	291	263	322	29
11	318	229	65	92	71	60	71	106	172	204	201	257	242	220	240	264	250	263	255	267	270	20	71	77	230	318	20
12	143	177	135	79	115	256	292	180	182	204	240	245	261	251	254	294	72	138	74	78	49	16	42	112	163	294	16
13	70	64	76	71	97	81	356	279	60	23	84	123	158	161	160	144	63	240	299	196	116	154	117	36	98	356	23
14	137	57	240	342	350	31	231	187	134	227	212	275	252	239	271	252	130	74	80	87	81	82	87	80	137	350	31
15	58	52	69	86	81	86	98	131	99	134	215	127	201	30	64	115	292	131	186	60	27	5	47	314	85	314	5
16	360	304	8	37	17	51	10	89	150	293	279	267	265	261	275	284	304	0	322	14	325	306	23	56	335	360	0
17	56	55	58	54	57	50	22	112	158	273	307	258	249	253	234	250	265	267	273	266	331	360	351	319	316	360	22
18	75	59	45	53	53	41	19	41	59	124	185	201	280	263	254	252	277	261	273	292	351	25	2	303	348	351	2
19	0	48	314	329	40	42	90	34	177	241	246	263	247	269	248	252	263	270	279	283	343	337	274	321	298	343	0
20	352	19	45	352	299	2	315	145	181	3	273	267	245	271	252	259	260	267	260	298	340	349	331	335	305	352	2
21	276	25	356	342	347	359	11	33	183	186	260	275	260	269	260	260	260	263	259	265	7	14	349	352	306	359	7
22	358	301	17	40	44	48	342	282	206	171	178	213	271	272	256	233	256	248	248	285	19	72	76	111	289	358	17
23	95	81	74	88	149	117	47	42	59	62	108	112	171	100	102	62	76	217	142	107	63	75	68	110	93	217	42
24	282	51	357	273	89	80	83	64	73	60	119	114	131	181	175	158	136	161	167	130	79	70	172	200	117	357	51
25	236	246	262	319	31	23	312	164	199	211	187	251	257	254	272	218	164	213	295	341	91	199	358	261	250	358	23
26	42	19	310	68	33	311	30	162	116	238	282	246	253	248	264	256	256	266	266	261	261	84	3	49	293	311	3
27	86	53	306	188	207	314	268	9	259	146	225	192	239	267	270	260	256	251	268	308	52	77	63	50	266	314	9
28	262	116	62	47	338	44	43	164	133	100	81	82	161	120	174	152	193	225	178	65	39	48	45	49	97	338	39
29	53	49	28	323	51	57	58	80	128	186	205	229	229	--	--	--	278	264	251	225	36	31	328	318	357	328	28
30	323	299	335	335	305	326	9	93	125	197	207	243	232	235	245	276	283	279	253	246	2	336	271	345	286	345	2
31	313	332	359	50	63	43	67	94	142	143	104	76	37	159	280	299	268	254	264	271	344	23	68	67	29	359	23
Avg	29	39	22	29	21	22	37	119	165	197	215	224	239	240	246	252	259	250	260	277	17	25	26	26	284	--	--
Max	360	351	359	352	356	359	356	282	277	293	307	276	280	272	280	320	305	279	322	341	351	360	358	352	--	360	--
Min	0	19	8	37	17	2	9	9	59	3	81	76	37	30	64	62	63	0	69	14	2	5	2	36	--	--	0

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WD_10m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	155	80	89	128	152	70	78	283	64	115	132	129	209	283	243	263	245	296	69	199	75	86	76	86	118	296	64
2	75	136	174	88	114	359	196	20	178	119	89	127	181	175	175	167	164	134	234	4	192	132	81	49	134	359	4
3	313	232	313	236	246	69	59	53	63	137	164	177	211	290	128	194	225	268	284	288	311	1	43	193	247	313	1
4	339	24	2	78	82	84	85	101	164	232	209	171	254	247	262	250	235	254	240	150	52	37	16	49	131	339	2
5	48	52	50	54	51	55	81	97	207	161	211	270	254	271	248	262	256	279	281	283	340	4	317	322	313	340	4
6	329	344	45	90	49	360	332	78	169	183	246	215	274	248	251	264	271	262	275	298	346	281	30	22	303	360	22
7	30	322	56	69	50	50	18	82	221	215	236	221	230	242	257	274	258	266	255	291	341	330	311	152	288	341	18
8	358	327	40	88	46	36	304	93	193	262	262	264	269	260	249	257	276	272	293	281	293	2	323	196	294	358	2
9	340	276	77	63	189	77	31	190	175	251	256	260	247	278	263	259	255	262	263	194	19	301	127	169	248	340	19
10	174	205	304	353	315	291	289	180	180	208	200	228	175	222	235	259	250	266	264	75	26	32	65	6	249	353	6
11	344	38	238	71	186	293	36	89	67	71	61	131	155	148	130	168	179	282	17	72	100	55	67	70	87	344	17
12	25	49	66	111	68	65	76	80	65	48	52	145	164	192	225	276	139	320	151	266	237	175	41	18	87	320	18
13	20	2	90	83	123	70	84	277	235	126	199	198	241	264	258	261	276	268	252	264	311	18	74	91	262	311	2
14	68	2	43	56	72	85	69	84	176	182	195	243	247	260	259	230	241	186	172	155	161	253	283	331	191	331	2
15	3	220	50	6	265	325	41	138	258	261	248	248	251	237	255	260	259	248	324	74	92	56	55	292	286	325	3
16	30	231	70	264	57	62	237	105	271	118	188	244	256	241	249	255	253	261	258	255	327	359	5	308	270	359	5
17	238	178	112	82	43	121	76	155	154	162	221	239	215	244	255	270	244	82	90	34	36	85	64	105	137	270	34
18	28	103	196	304	341	331	1	175	196	189	243	248	258	269	247	259	269	270	274	278	252	190	132	237	252	341	1
19	202	199	199	153	113	62	350	139	160	209	292	273	343	103	357	88	86	87	88	80	85	4	88	74	99	357	4
20	170	26	63	277	317	31	56	84	185	259	237	190	223	266	266	241	243	231	270	54	68	42	125	356	265	356	26
21	315	346	48	58	62	40	47	113	181	252	249	256	260	258	250	228	225	250	41	27	1	350	131	189	306	350	1
22	141	257	265	74	79	281	260	210	176	194	162	201	220	248	264	253	269	276	270	281	329	71	75	54	238	329	54
23	51	53	54	56	57	53	310	120	131	227	194	224	239	254	258	255	265	246	269	321	6	43	78	53	342	321	6
24	4	344	23	351	297	29	72	84	140	160	138	185	195	169	259	215	217	253	241	264	33	358	326	16	304	358	4
25	75	59	55	336	63	69	77	91	208	194	105	136	202	204	208	236	265	188	248	196	213	218	278	316	183	336	55
26	178	148	77	278	280	50	122	248	224	222	231	175	184	247	254	273	260	256	254	126	58	71	96	78	205	280	50
27	97	80	79	84	83	81	79	76	179	312	118	302	269	0	303	241	292	268	268	297	23	341	294	67	8	341	0
28	258	283	286	48	3	27	21	114	157	250	309	323	299	253	248	248	322	349	343	1	67	39	62	56	337	349	1
29	11	316	309	339	300	319	302	106	134	227	347	360	136	137	201	193	235	184	286	54	45	331	9	334	323	360	9
30	304	20	7	28	68	60	79	88	74	103	206	150	176	266	291	252	233	283	275	347	11	20	334	27	6	347	7
31	346	3	2	357	47	63	68	70	116	184	195	224	241	255	251	242	236	244	261	316	70	56	287	1	313	357	1
Avg	16	5	46	50	54	42	44	107	169	193	207	216	228	244	248	244	247	258	270	311	21	22	42	37	268	--	--
Max	358	346	313	357	341	360	350	283	271	312	347	360	343	290	357	276	322	349	343	347	346	359	334	356	--	360	--
Min	3	2	2	6	3	27	1	20	63	48	52	127	136	0	128	88	86	82	17	1	1	1	5	1	--	--	0

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, WD_10m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	33	56	67	46	7	50	51	67	86	143	168	145	128	166	250	235	265	253	261	331	29	56	36	31	60	331	7
2	47	74	43	73	58	59	72	74	104	177	218	203	263	289	246	268	241	275	287	341	33	164	35	49	38	341	33
3	17	31	304	37	57	59	64	76	86	235	233	215	222	257	280	255	273	275	275	232	127	346	322	131	299	346	17
4	94	1	99	327	283	318	30	267	279	133	235	203	202	199	244	244	247	241	264	312	170	96	77	45	251	327	1
5	317	293	90	128	334	1	135	155	180	186	273	240	245	236	244	270	272	264	265	74	13	11	33	298	273	334	1
6	298	218	353	65	29	97	98	338	173	211	238	148	221	227	11	327	30	104	174	248	76	74	257	62	97	353	11
7	89	112	70	82	90	101	121	64	355	115	149	150	152	157	147	132	110	136	167	126	179	237	270	180	128	355	64
8	230	237	303	337	178	225	124	258	178	202	251	175	227	208	189	159	170	181	202	72	76	67	69	67	188	337	67
9	68	95	282	286	265	187	217	270	101	250	265	276	248	249	257	248	277	274	23	116	198	263	226	359	255	359	23
10	288	32	91	298	42	230	246	290	207	193	238	250	263	255	257	250	259	270	258	293	360	13	27	3	279	360	3
11	290	49	337	49	10	55	99	31	106	125	229	184	247	252	241	234	243	258	262	337	12	28	331	327	321	337	10
12	310	100	118	36	92	59	4	299	293	66	70	33	57	313	332	304	299	257	287	44	61	77	73	77	25	332	4
13	82	83	89	52	42	47	44	327	293	4	78	67	57	94	138	142	152	155	98	96	98	77	73	86	79	327	4
14	134	209	238	266	331	51	52	53	54	38	54	147	163	148	149	166	170	159	79	83	90	78	88	80	106	331	38
15	68	68	58	56	54	42	42	30	46	50	141	138	91	193	95	144	334	332	70	76	83	96	247	69	334	30	
16	108	135	76	114	95	126	89	97	53	61	143	107	74	54	40	44	69	56	56	58	30	17	9	104	75	143	9
17	61	101	319	122	292	66	40	43	56	90	76	69	91	143	94	54	59	58	51	67	126	100	124	113	77	319	40
18	92	85	20	96	175	115	96	136	56	55	67	77	162	199	188	166	173	185	219	173	103	94	244	62	124	244	20
19	60	86	184	118	105	62	69	137	134	245	273	278	255	237	248	270	271	259	262	276	60	4	33	297	259	297	4
20	356	317	334	345	50	48	56	89	119	292	240	262	255	258	256	264	265	256	277	7	19	298	33	250	311	356	7
21	323	0	46	12	33	41	51	136	206	238	220	165	196	238	241	263	264	281	269	241	74	61	69	75	291	323	0
22	127	72	98	188	73	59	175	101	144	140	207	187	237	241	245	252	252	259	269	258	78	53	31	17	166	269	17
23	0	357	348	74	95	89	105	185	176	137	228	240	275	268	259	265	261	265	256	95	56	27	22	341	310	357	0
24	26	85	95	85	84	63	81	37	57	107	128	210	38	247	276	242	259	258	253	42	48	46	51	59	63	276	26
25	77	141	48	71	91	92	53	286	49	44	126	141	135	247	233	249	261	273	260	274	55	50	56	67	78	286	44
26	102	295	11	70	91	83	39	181	165	108	162	162	201	252	197	116	213	234	280	271	290	224	307	94	178	307	11
27	2	115	324	96	197	203	160	185	193	169	179	191	190	165	153	201	277	255	139	275	117	145	107	125	172	324	2
28	128	128	140	155	192	113	114	136	163	235	162	207	217	216	239	272	271	266	283	67	44	64	59	57	163	283	44
29	60	60	89	356	10	41	40	84	169	302	145	226	235	270	247	259	265	260	301	344	348	294	10	25	333	356	10
30	54	47	29	31	50	40	62	164	173	184	193	278	259	271	254	266	249	246	288	351	4	37	32	35	345	351	4
Avg	48	72	43	58	57	70	77	92	126	149	189	186	208	228	233	241	247	250	266	8	62	52	39	53	91	--	--
Max	356	357	353	356	334	318	246	338	355	302	273	278	275	313	332	327	299	334	332	351	360	346	331	359	--	360	--
Min	0	0	11	12	7	1	4	31	30	4	50	33	38	54	11	44	30	56	23	7	4	4	9	3	--	--	0

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, DeltaTemp_C"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0.99	1.70	1.17	1.72	1.28	1.30	0.54	-0.64	-0.56	-0.80	-0.94	-1.14	-1.18	-1.38	-1.14	-1.25	-1.30	-0.54	-0.41	0.17	0.39	0.70	1.09	1.00	0.03	1.72	-1.38
2	1.94	0.93	1.78	1.77	1.72	1.10	0.54	-0.54	-0.81	-1.07	-0.93	-1.21	-1.39	-1.18	-1.05	-1.00	-0.91	-0.69	-0.33	0.13	0.55	1.09	1.19	0.79	0.10	1.94	-1.39
3	0.13	0.34	0.47	0.31	0.36	0.19	-0.16	-0.70	-1.00	-1.27	-1.48	-1.44	-1.36	-1.33	-1.52	-1.15	-1.17	-1.07	0.12	0.03	-0.17	-0.20	-0.23	-0.29	-0.53	0.47	-1.52
4	-0.31	-0.33	-0.18	-0.12	-0.14	-0.11	-0.46	-0.78	-0.58	-0.66	-0.93	-1.45	-1.41	-1.22	-1.17	-1.12	-1.07	-0.96	-0.64	-0.29	-0.31	-0.23	-0.18	-0.08	-0.61	-0.08	-1.45
5	-0.07	-0.13	-0.11	-0.10	-0.12	-0.15	-0.26	-0.80	-1.25	-1.09	-1.27	-1.69	-1.43	-1.16	-1.37	-1.31	-1.12	-0.75	-0.50	-0.22	-0.05	0.16	0.12	0.52	-0.59	0.52	-1.69
6	0.65	0.44	0.41	0.36	0.29	0.31	0.01	-0.57	-0.51	-0.59	-0.80	-1.04	-1.02	-1.06	-1.29	-1.19	-0.91	-0.57	-0.21	0.02	0.16	0.19	0.20	0.23	-0.27	0.65	-1.29
7	0.31	0.11	0.12	0.04	0.33	0.31	0.07	-0.22	-0.91	-1.12	-1.68	-1.42	-1.34	-1.49	-1.48	-0.97	-1.03	-0.80	-0.43	-0.34	-0.19	-0.14	-0.11	-0.13	-0.52	0.33	-1.68
8	0.02	0.05	0.09	0.26	0.19	0.29	-0.37	-0.71	-0.68	-1.38	-1.02	-1.21	-1.32	-1.12	-0.98	-0.79	-0.62	-0.40	-0.26	-0.03	-0.03	-0.23	0.28	0.35	-0.40	0.35	-1.38
9	0.22	0.10	0.20	0.19	0.03	-0.02	-0.41	-0.94	-0.82	-0.96	-1.39	-1.68	-1.21	-1.26	-1.28	-1.11	-0.97	-0.97	-0.62	-0.27	-0.23	-0.07	0.04	0.17	-0.55	0.22	-1.68
10	0.48	0.17	0.14	0.08	0.07	-0.01	-0.01	-0.63	-0.72	-0.96	-0.93	-1.45	-1.23	-1.86	-1.39	-1.19	-1.01	-0.75	-0.42	-0.17	-0.03	-0.04	0.01	0.12	-0.49	0.48	-1.86
11	0.28	0.02	0.38	0.06	-0.08	-0.04	-0.21	-0.96	-1.08	-1.50	-1.65	-1.07	-1.38	-1.88	-1.37	-1.10	-1.12	-0.98	-0.62	-0.19	-0.07	0.13	0.08	-0.05	-0.60	0.38	-1.88
12	-0.12	-0.08	-0.13	-0.09	-0.13	-0.18	-0.09	-1.01	-1.06	-1.31	-1.40	-1.38	-1.62	-1.32	-1.44	-0.55	-0.10	-0.49	-0.33	-0.15	0.04	-0.02	-0.05	-0.05	-0.54	0.04	-1.62
13	-0.08	0.03	0.11	0.03	0.07	0.08	-0.12	-0.58	-1.10	-1.17	-1.68	-1.92	-2.09	-2.20	-1.86	-1.38	-0.62	-0.63	-0.36	-0.23	-0.13	0.01	-0.08	0.20	-0.65	0.20	-2.20
14	-0.04	0.38	0.03	-0.06	0.00	0.05	-0.27	-0.81	-0.97	-0.97	-1.17	-0.91	-1.04	-1.37	-1.00	-0.88	-0.60	-0.34	-0.22	-0.20	-0.14	-0.05	0.10	0.04	-0.44	0.38	-1.37
15	-0.03	-0.01	-0.03	-0.03	0.00	0.01	-0.12	-0.30	-0.40	-0.84	-0.95	-1.97	-1.64	-0.13	0.17	-0.39	-0.41	-0.42	-0.30	0.14	0.77	0.72	0.92	0.75	-0.19	0.92	-1.97
16	1.07	0.88	1.20	1.26	0.79	1.00	0.04	-0.62	-0.89	-0.67	-0.74	-0.82	-0.83	-0.86	-0.97	-0.94	-0.62	-0.65	-0.32	0.15	0.32	0.42	1.11	0.94	0.01	1.26	-0.97
17	1.05	1.29	1.52	1.53	1.57	1.47	0.81	-0.38	-0.85	-0.59	-0.71	-0.79	-0.84	-1.23	-1.53	-1.04	-0.86	-0.65	-0.24	0.12	0.73	1.70	1.83	1.57	0.23	1.83	-1.53
18	0.87	1.58	1.57	1.72	2.61	2.13	0.99	0.29	-0.62	-1.02	-1.36	-1.32	-0.79	-1.07	-1.07	-1.26	-0.93	-0.71	-0.34	0.02	1.00	1.57	0.78	0.26	0.20	2.61	-1.36
19	0.58	0.59	0.23	0.25	0.34	0.58	0.05	0.05	-0.44	-0.78	-1.11	-1.02	-1.26	-1.41	-1.34	-1.37	-1.03	-0.84	-0.50	-0.09	0.39	0.77	0.63	0.45	-0.26	0.77	-1.41
20	1.28	0.87	1.48	1.30	0.87	0.82	0.11	-0.82	-0.92	-1.13	-0.90	-1.08	-1.44	-1.27	-1.36	-1.19	-1.07	-0.80	-0.53	-0.10	0.43	0.89	1.03	1.03	-0.11	1.48	-1.44
21	0.77	0.79	1.00	0.98	1.63	1.43	1.05	-0.21	-0.93	-1.35	-1.00	-0.99	-1.28	-1.17	-1.20	-1.12	-0.94	-0.71	-0.41	-0.04	0.31	0.98	0.65	0.45	-0.06	1.63	-1.35
22	0.91	0.79	1.41	1.85	1.68	1.16	0.58	-0.02	-0.54	-0.95	-1.10	-0.89	-1.00	-0.86	-0.98	-1.21	-1.00	-0.75	-0.38	0.10	0.85	0.41	0.28	0.33	0.03	1.85	-1.21
23	0.12	0.05	0.09	0.06	0.07	0.11	-0.07	-0.43	-0.95	-1.35	-1.77	-1.72	-1.48	-1.78	-1.15	-1.06	-0.76	-0.53	-0.34	-0.11	-0.06	-0.04	-0.01	-0.02	-0.55	0.12	-1.78
24	0.15	0.19	0.29	0.27	0.24	0.21	0.07	-0.38	-0.77	-1.13	-1.52	-1.82	-1.73	-1.48	-1.73	-1.52	-1.13	-0.82	-0.28	0.42	0.54	0.26	0.07	0.02	-0.48	0.54	-1.82
25	0.03	0.06	0.15	0.13	0.34	0.41	-0.04	-0.80	-1.06	-1.02	-1.63	-1.31	-1.15	-1.23	-0.56	-0.78	-0.81	-0.50	-0.01	-0.12	0.03	0.06	0.23	0.49	-0.38	0.49	-1.63
26	0.38	1.04	0.64	0.43	1.02	0.39	0.45	-0.67	-0.89	-0.77	-0.71	-1.07	-0.95	-1.38	-1.20	-1.11	-0.90	-0.68	-0.29	-0.05	0.01	0.35	1.15	0.82	-0.17	1.15	-1.38
27	0.68	1.08	1.32	0.68	0.10	0.01	-0.12	-0.20	-0.45	-0.78	-0.87	-1.06	-0.98	-1.03	-1.02	-0.98	-0.87	-0.66	-0.43	-0.15	0.30	0.57	0.08	0.23	-0.19	1.32	-1.06
28	0.31	0.20	0.13	0.21	0.45	0.43	0.16	-0.74	-0.68	-0.91	-0.88	-1.30	-1.44	-1.60	-1.34	-1.50	-1.11	-0.60	-0.46	0.39	1.00	0.92	0.81	0.87	-0.28	1.00	-1.60
29	0.75	1.17	1.36	1.03	0.93	0.77	0.30	-0.75	-1.15	-1.23	-1.41	-1.25	-1.37	--	--	--	-0.91	-0.68	-0.36	-0.07	0.84	1.45	1.11	1.08	0.08	1.45	-1.41
30	1.46	1.74	1.72	1.72	1.78	0.89	0.64	-0.74	-1.11	-1.03	-1.24	-1.10	-1.34	-1.45	-1.49	-0.87	-0.87	-0.67	-0.33	0.11	0.69	1.43	1.01	0.39	0.06	1.78	-1.49
31	0.56	0.94	1.09	1.43	1.01	0.77	0.34	0.05	-0.47	-0.76	-1.20	-1.17	-1.22	-1.06	-0.87	-1.11	-1.10	-0.63	-0.22	0.03	0.06	0.01	0.04	-0.04	-0.15	1.43	-1.22
Avg	0.49	0.55	0.64	0.62	0.62	0.51	0.13	-0.53	-0.81	-1.01	-1.17	-1.28	-1.28	-1.29	-1.20	-1.08	-0.90	-0.69	-0.35	-0.03	0.26	0.44	0.46	0.40	-0.27	--	--
Max	1.94	1.74	1.78	1.85	2.61	2.13	1.05	0.29	-0.40	-0.59	-0.71	-0.79	-0.79	-0.13	0.17	-0.39	-0.10	-0.34	0.12	0.42	1.00	1.70	1.83	1.57	--	2.61	--
Min	-0.31	-0.33	-0.18	-0.12	-0.14	-0.18	-0.46	-1.01	-1.25	-1.50	-1.77	-1.97	-2.09	-2.20	-1.86	-1.52	-1.30	-1.07	-0.64	-0.34	-0.31	-0.23	-0.23	-0.29	--	--	-2.20

-- Indicates Invalid Data

**SAROAD for Resolution, West_Plant
"Component, Channel: Table100, DeltaTemp_C"
Month: Aug 2014**

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-0.16	0.01	-0.02	-0.25	-0.16	-0.06	-0.13	-0.33	-0.43	-0.54	-0.83	-1.11	-1.45	-1.25	-1.60	-1.19	-1.27	-0.74	-0.45	-0.33	-0.22	-0.16	-0.07	-0.11	-0.54	0.01	-1.60
2	0.22	0.22	0.05	0.04	0.10	0.11	0.04	-0.35	-0.79	-1.10	-1.18	-1.78	-1.73	-2.03	-2.15	-1.42	-0.82	-0.66	-0.34	-0.07	-0.20	-0.24	0.25	0.10	-0.57	0.25	-2.15
3	-0.04	-0.08	-0.01	-0.03	0.03	0.04	-0.05	-0.37	-0.81	-1.29	-1.68	-2.02	-1.00	-0.90	-1.18	-1.15	-1.53	-0.66	-0.50	-0.22	-0.15	-0.28	0.24	0.29	-0.56	0.29	-2.02
4	0.31	0.37	0.53	0.48	0.44	0.34	0.13	-0.11	-0.55	-0.71	-1.14	-1.40	-0.79	-0.98	-0.85	-0.97	-0.96	-0.63	-0.31	0.33	1.30	0.78	1.17	1.29	-0.08	1.30	-1.40
5	1.20	0.92	1.05	1.07	0.95	0.66	0.28	-0.63	-0.89	-1.22	-1.07	-1.06	-1.10	-1.00	-1.35	-0.87	-0.88	-0.68	-0.34	0.06	0.61	1.49	1.01	0.87	-0.04	1.49	-1.35
6	1.37	1.15	1.51	0.87	1.49	1.20	0.84	-0.59	-1.10	-1.14	-1.03	-1.35	-1.23	-1.36	-1.25	-1.08	-0.87	-0.74	-0.35	0.04	0.39	0.66	1.17	1.59	0.01	1.59	-1.36
7	2.04	1.18	1.41	1.11	1.13	1.01	1.10	-0.65	-0.74	-0.96	-1.14	-1.56	-1.28	-1.49	-1.21	-0.96	-0.91	-0.75	-0.44	-0.01	0.19	0.60	0.89	0.63	-0.03	2.04	-1.56
8	1.36	1.32	0.68	0.70	1.06	1.37	0.65	-0.83	-0.97	-0.92	-0.97	-1.11	-1.11	-1.11	-1.20	-0.98	-0.89	-0.62	-0.34	-0.01	0.08	0.38	0.47	0.24	-0.12	1.37	-1.20
9	0.03	0.12	0.07	0.15	0.04	0.10	-0.22	-0.69	-1.07	-1.00	-1.11	-1.26	-1.45	-1.33	-1.14	-1.21	-1.02	-0.75	-0.41	-0.12	0.11	0.06	0.16	0.08	-0.49	0.16	-1.45
10	-0.14	-0.03	0.07	0.21	0.11	0.07	0.06	-0.58	-0.95	-1.12	-1.39	-1.43	-1.84	-1.77	-1.82	-1.20	-1.20	-0.85	-0.57	0.46	0.34	0.27	0.24	0.20	-0.54	0.46	-1.84
11	0.31	0.17	0.11	0.23	0.22	0.23	-0.02	-0.48	-0.76	-0.99	-1.54	-2.11	-1.95	-1.89	-1.24	-1.45	-1.08	-0.54	-0.29	-0.08	-0.01	-0.03	0.04	0.08	-0.55	0.31	-2.11
12	0.04	-0.02	0.00	-0.01	0.00	-0.02	-0.04	-0.30	-0.64	-0.64	-0.77	-1.41	-1.21	-1.67	-1.02	-0.53	-0.04	-0.20	-0.40	-0.12	-0.08	-0.04	0.00	0.05	-0.38	0.05	-1.67
13	0.03	0.05	0.03	0.06	0.01	0.05	0.00	-0.13	-0.54	-0.96	-1.37	-1.36	-0.93	-0.93	-0.87	-0.79	-0.49	-0.43	-0.28	-0.04	0.19	0.74	0.21	0.21	-0.31	0.74	-1.37
14	0.52	0.53	0.64	0.52	0.29	0.29	0.23	-0.68	-1.14	-1.15	-1.63	-1.24	-1.06	-0.99	-1.01	-1.10	-0.71	-0.74	-0.45	-0.22	-0.11	0.19	-0.05	0.00	-0.38	0.64	-1.63
15	0.10	0.03	0.08	0.49	0.27	0.48	0.82	-0.75	-0.66	-0.92	-1.09	-1.04	-1.39	-1.59	-1.22	-1.16	-1.04	-0.97	-0.43	-0.14	0.05	0.48	0.50	0.30	-0.37	0.82	-1.59
16	0.76	0.42	0.27	0.25	0.43	0.40	0.02	-0.79	-0.87	-1.33	-1.64	-1.15	-1.19	-1.48	-1.37	-1.28	-1.05	-0.71	-0.38	-0.11	0.05	0.17	0.28	0.52	-0.41	0.76	-1.64
17	0.45	0.23	0.26	0.31	0.42	0.26	0.22	-0.78	-0.95	-1.25	-1.47	-1.46	-1.92	-1.57	-1.25	-1.09	-1.14	0.03	0.69	0.50	0.54	0.27	0.08	0.11	-0.36	0.69	-1.92
18	0.21	0.13	0.00	0.06	0.16	0.30	-0.18	-0.69	-1.34	-1.57	-1.16	-1.20	-1.29	-1.12	-1.49	-1.36	-0.82	-0.66	-0.36	-0.21	-0.14	-0.20	-0.16	-0.19	-0.55	0.30	-1.57
19	-0.22	-0.29	-0.36	-0.25	-0.25	-0.24	-0.25	-0.65	-0.68	-0.41	-0.43	-0.70	-0.19	-0.17	-0.28	-0.49	-0.38	-0.28	0.00	0.29	0.36	0.24	0.23	0.46	-0.20	0.46	-0.70
20	0.30	0.41	0.43	0.51	0.75	0.63	0.56	-0.74	-0.87	-0.54	-0.86	-1.50	-1.08	-0.96	-0.95	-0.86	-0.85	-0.63	-0.24	0.28	0.43	0.86	0.44	0.60	-0.16	0.86	-1.50
21	0.58	1.09	0.84	0.60	0.58	0.41	0.39	0.14	-0.72	-0.60	-0.73	-0.56	-0.62	-0.50	-0.64	-0.69	-0.46	-0.25	-0.19	0.44	0.33	0.35	-0.32	-0.20	-0.03	1.09	-0.73
22	-0.24	0.05	0.27	0.36	0.46	0.47	0.41	-0.39	-0.80	-1.36	-1.57	-1.45	-1.30	-1.37	-1.12	-1.03	-0.84	-0.63	-0.29	-0.06	0.05	0.36	0.57	0.81	-0.36	0.81	-1.57
23	0.89	1.12	1.26	0.96	0.95	1.21	0.72	-0.65	-0.95	-0.96	-1.35	-1.28	-1.40	-1.32	-1.31	-1.24	-0.98	-0.76	-0.35	-0.06	0.34	0.33	0.31	0.66	-0.16	1.26	-1.40
24	0.58	0.73	1.11	1.25	1.06	1.24	0.44	-0.52	-0.98	-1.33	-1.40	-1.67	-1.48	-1.57	-1.18	-0.86	-0.92	-0.65	-0.42	-0.04	0.58	1.45	1.04	0.99	-0.11	1.45	-1.67
25	1.28	1.20	1.13	0.91	0.71	0.10	-0.02	-0.37	-0.64	-1.17	-1.51	-1.91	-1.93	-1.85	-1.56	-1.41	-0.95	-1.06	-0.37	-0.22	-0.23	-0.40	-0.33	-0.34	-0.46	1.28	-1.93
26	-0.38	-0.37	0.01	-0.02	-0.10	0.56	0.18	-0.25	-0.43	-0.84	-1.17	-1.63	-1.67	-1.04	-1.21	-1.09	-0.93	-0.71	-0.33	-0.34	-0.20	-0.07	-0.02	0.02	-0.50	0.56	-1.67
27	0.10	0.09	0.08	0.14	0.24	0.14	0.10	-0.51	-0.82	-0.92	-1.55	-1.08	-1.22	-1.37	-1.26	-1.31	-0.87	-0.56	-0.21	0.01	0.14	0.21	0.26	0.62	-0.40	0.62	-1.55
28	0.45	0.44	0.54	0.90	0.90	0.85	0.72	-0.68	-1.04	-0.78	-1.05	-1.31	-0.90	-1.29	-0.93	-1.31	-0.89	-0.62	-0.17	0.25	0.72	0.99	0.64	0.42	-0.13	0.99	-1.31
29	0.73	1.39	1.34	1.25	1.03	1.36	0.85	-0.50	-1.03	-1.03	-1.22	-1.32	-2.00	-1.80	-1.98	-1.47	-1.09	-0.65	-0.16	0.65	1.98	1.51	1.81	2.04	0.07	2.04	-2.00
30	1.52	1.76	1.69	1.72	0.73	0.43	0.32	-0.43	-0.99	-1.24	-1.21	-1.66	-1.58	-1.23	-1.20	-1.31	-1.11	-0.63	-0.19	0.63	1.26	1.28	0.88	1.36	0.03	1.76	-1.66
31	0.97	1.48	1.86	1.14	1.63	1.67	1.07	-0.41	-1.12	-1.56	-1.68	-1.86	-1.50	-1.18	-1.26	-1.25	-1.13	-0.61	-0.09	0.39	0.85	0.94	0.54	0.85	-0.01	1.86	-1.86
Avg	0.49	0.51	0.55	0.51	0.51	0.51	0.30	-0.51	-0.85	-1.02	-1.22	-1.39	-1.32	-1.29	-1.23	-1.10	-0.91	-0.62	-0.29	0.06	0.31	0.43	0.40	0.47	-0.28	--	--
Max	2.04	1.76	1.86	1.72	1.63	1.67	1.10	0.14	-0.43	-0.41	-0.43	-0.56	-0.19	-0.17	-0.28	-0.49	-0.04	0.03	0.69	0.65	1.98	1.51	1.81	2.04	--	2.04	--
Min	-0.38	-0.37	-0.36	-0.25	-0.25	-0.24	-0.25	-0.83	-1.34	-1.57	-1.68	-2.11	-2.00	-2.03	-2.15	-1.47	-1.53	-1.06	-0.57	-0.34	-0.23	-0.40	-0.33	-0.34	--	--	-2.15

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, DeltaTemp_C"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	1.66	1.15	1.30	1.82	1.45	1.55	0.67	-0.53	-1.38	-1.47	-1.75	-1.67	-2.17	-2.09	-1.16	-1.50	-0.91	-0.78	-0.23	0.72	0.88	0.67	0.78	1.43	-0.07	1.82	-2.17
2	1.24	0.98	1.32	0.58	0.66	0.70	0.44	-0.50	-1.31	-1.17	-1.33	-1.48	-1.11	-1.11	-1.13	-0.95	-1.03	-0.52	-0.16	0.50	0.79	0.49	0.71	0.63	-0.12	1.32	-1.48
3	0.94	0.92	0.87	1.28	1.26	0.69	0.83	-0.67	-1.39	-0.66	-1.10	-1.23	-1.65	-1.26	-1.02	-0.99	-0.92	-0.35	-0.08	-0.09	0.09	0.34	0.23	0.25	-0.16	1.28	-1.65
4	0.12	0.28	0.43	0.73	0.22	0.37	0.63	-0.02	-0.24	-0.66	-0.55	-0.94	-1.43	-1.39	-1.13	-1.18	-0.87	-0.58	-0.12	-0.19	-0.41	-0.36	-0.22	-0.11	-0.32	0.73	-1.43
5	0.06	-0.08	0.06	0.12	0.08	0.15	-0.12	-0.81	-1.03	-1.24	-1.04	-1.45	-1.51	-1.58	-1.30	-0.92	-0.89	-0.64	-0.28	-0.14	0.00	0.27	0.21	0.39	-0.49	0.39	-1.58
6	0.23	0.15	0.14	0.13	0.30	0.23	0.12	-0.39	-1.22	-1.29	-1.20	-1.81	-1.80	-1.48	-0.85	-1.13	-0.50	-0.07	-0.20	-0.24	0.27	0.31	0.03	0.13	-0.42	0.31	-1.81
7	0.01	0.00	-0.05	-0.02	-0.02	0.03	0.03	-0.44	-0.58	-1.32	-1.63	-1.95	-2.17	-2.05	-1.76	-1.65	-1.13	-0.66	-0.32	-0.02	-0.16	-0.16	-0.16	-0.28	-0.69	0.03	-2.17
8	-0.30	-0.24	-0.33	-0.22	-0.34	-0.22	-0.24	-0.24	-0.27	-0.37	-0.28	-0.27	-0.32	-0.54	-0.68	-1.25	-1.23	-0.82	-0.22	0.10	0.18	0.15	0.18	0.17	-0.32	0.18	-1.25
9	0.20	0.29	0.20	0.21	-0.08	0.14	-0.06	-0.19	-0.59	-0.48	-0.50	-0.60	-0.98	-0.89	-0.69	-0.79	-0.49	-0.30	-0.19	-0.05	-0.21	-0.09	0.05	0.24	-0.24	0.29	-0.98
10	-0.02	0.30	0.11	0.32	0.28	0.17	-0.02	-0.14	-0.75	-1.02	-0.80	-0.86	-0.84	-0.93	-1.17	-0.91	-0.79	-0.48	-0.18	-0.01	0.21	0.50	0.59	0.75	-0.24	0.75	-1.17
11	0.48	1.17	1.05	0.95	1.11	0.49	0.45	-0.29	-0.99	-1.36	-1.04	-1.48	-1.14	-0.93	-1.08	-1.33	-0.90	-0.45	-0.04	0.18	0.79	0.64	0.77	0.98	-0.08	1.17	-1.48
12	1.11	0.72	0.69	2.25	1.09	0.75	0.73	0.05	-0.41	-1.40	-1.51	-1.42	-1.08	-0.78	-0.68	-0.46	-0.56	-0.27	0.18	1.11	0.54	0.15	0.10	0.07	0.04	2.25	-1.51
13	0.07	0.02	0.02	0.00	0.01	0.01	-0.04	-0.11	-0.32	-0.64	-1.05	-1.60	-1.74	-1.66	-1.47	-1.31	-0.79	-0.46	-0.09	-0.02	0.00	0.04	0.03	0.02	-0.46	0.07	-1.74
14	0.00	0.00	0.05	0.05	0.08	0.08	0.08	-0.32	-0.76	-1.00	-1.17	-1.77	-1.82	-1.86	-1.59	-1.48	-1.28	-0.59	-0.11	0.05	0.08	0.12	0.14	0.16	-0.54	0.16	-1.86
15	0.16	0.10	0.08	0.09	0.11	0.07	0.04	-0.29	-0.66	-1.23	-1.47	-1.83	-1.82	-1.73	-1.62	-1.28	-0.84	-0.47	-0.14	0.07	0.05	0.04	0.01	0.03	-0.52	0.16	-1.83
16	0.12	-0.02	-0.06	-0.13	-0.15	-0.10	-0.09	-0.29	-0.45	-0.71	-0.83	-0.60	-0.64	-0.62	-0.54	-0.39	-0.30	-0.20	-0.06	-0.05	-0.05	-0.05	-0.07	0.12	-0.26	0.12	-0.83
17	0.13	0.12	0.09	0.24	0.21	0.16	0.11	-0.03	-0.30	-0.48	-0.90	-0.99	-1.19	-1.18	-0.79	-0.59	-0.49	-0.35	-0.19	-0.11	-0.13	-0.09	-0.09	-0.08	-0.29	0.24	-1.19
18	-0.04	0.05	0.02	0.12	-0.10	-0.13	-0.11	-0.37	-1.14	-1.48	-1.92	-1.65	-1.45	-1.23	-1.21	-1.22	-1.04	-0.76	-0.35	-0.23	0.02	-0.12	-0.13	-0.06	-0.61	0.12	-1.92
19	-0.06	-0.13	-0.10	-0.20	-0.33	0.01	-0.01	-0.49	-1.10	-0.83	-0.66	-0.64	-0.53	-0.90	-0.63	-0.51	-0.47	-0.35	-0.09	0.07	0.44	0.70	0.92	0.56	-0.22	0.92	-1.10
20	1.03	0.75	0.70	0.79	0.64	0.67	0.53	-0.20	-0.77	-0.66	-1.00	-1.08	-1.30	-1.29	-1.29	-0.88	-0.66	-0.50	-0.27	-0.09	0.09	0.06	0.33	0.11	-0.18	1.03	-1.30
21	0.20	0.39	0.67	0.33	0.52	0.64	0.41	-0.39	-0.73	-0.75	-1.25	-1.65	-1.46	-1.45	-1.28	-1.06	-0.81	-0.49	-0.24	-0.09	0.18	0.23	0.04	0.00	-0.33	0.67	-1.65
22	-0.07	-0.05	0.02	0.07	0.00	-0.02	-0.07	-0.63	-1.04	-1.41	-1.43	-1.98	-1.54	-1.24	-1.14	-0.97	-0.78	-0.45	-0.09	0.04	0.18	0.39	0.64	0.77	-0.45	0.77	-1.98
23	0.64	0.68	0.60	0.16	0.24	0.24	0.10	-0.35	-0.84	-1.42	-1.24	-1.22	-1.12	-1.22	-1.21	-0.92	-0.72	-0.35	-0.06	0.28	0.74	1.04	1.14	0.67	-0.17	1.14	-1.42
24	0.96	0.38	0.48	0.51	0.40	0.41	0.27	-0.17	-0.84	-1.47	-1.28	-1.44	-1.30	-0.64	-0.62	-0.98	-0.71	-0.36	-0.05	0.31	1.20	0.97	1.03	0.44	-0.10	1.20	-1.47
25	0.08	0.07	0.07	0.06	0.11	0.07	0.05	-0.16	-0.64	-1.23	-1.53	-2.19	-1.94	-1.16	-1.11	-1.12	-0.67	-0.36	-0.08	0.01	0.42	0.30	0.34	0.04	-0.44	0.42	-2.19
26	0.16	0.27	0.42	0.18	0.08	0.00	-0.02	-0.40	-0.78	-1.56	-2.36	-2.19	-2.05	-0.87	-0.80	-0.74	-0.44	-0.48	-0.19	-0.12	-0.13	-0.10	-0.04	0.05	-0.51	0.42	-2.36
27	-0.02	-0.04	0.09	0.07	-0.16	-0.28	-0.44	-0.51	-0.72	-1.53	-2.28	-2.77	-2.18	-1.94	-1.11	-0.98	-0.46	-0.33	-0.25	-0.23	-0.01	0.13	0.18	0.13	-0.65	0.18	-2.77
28	0.17	-0.04	-0.11	0.03	-0.05	0.04	0.23	-0.25	-0.46	-0.25	-0.63	-1.16	-1.42	-1.42	-1.01	-0.58	-0.46	-0.22	0.19	1.16	1.19	0.81	1.81	1.97	-0.02	1.97	-1.42
29	1.41	1.10	0.93	0.92	0.78	0.78	1.26	-0.10	-0.69	-0.62	-1.36	-1.07	-1.35	-0.68	-0.70	-0.77	-0.60	-0.23	0.08	0.48	0.56	1.00	1.55	1.73	0.18	1.73	-1.36
30	1.23	1.67	1.44	1.94	1.43	1.15	0.63	0.05	-0.91	-0.99	-1.28	-0.75	-0.91	-0.71	-0.85	-0.79	-0.67	-0.38	0.06	0.92	1.11	0.92	1.00	1.09	0.27	1.94	-1.28
Avg	0.40	0.37	0.37	0.45	0.33	0.30	0.21	-0.31	-0.78	-1.02	-1.21	-1.39	-1.40	-1.23	-1.05	-0.99	-0.75	-0.44	-0.13	0.14	0.30	0.31	0.40	0.41	-0.28	--	--
Max	1.66	1.67	1.44	2.25	1.45	1.55	1.26	0.05	-0.24	-0.25	-0.28	-0.27	-0.32	-0.54	-0.54	-0.39	-0.30	-0.07	0.19	1.16	1.20	1.04	1.81	1.97	--	2.25	--
Min	-0.30	-0.24	-0.33	-0.22	-0.34	-0.28	-0.44	-0.81	-1.39	-1.56	-2.36	-2.77	-2.18	-2.09	-1.76	-1.65	-1.28	-0.82	-0.35	-0.24	-0.41	-0.36	-0.22	-0.28	--	--	-2.77

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Temp_2m_C"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	30.1	29.1	28.8	28.2	27.4	27.1	27.5	29.8	30.4	31.7	32.6	34.0	34.7	36.1	36.5	37.2	37.4	36.4	36.3	34.9	33.6	33.3	32.7	31.0	32.4	37.4	27.1
2	30.8	29.4	29.1	28.9	28.0	27.5	27.8	29.3	30.2	31.6	32.3	33.9	35.5	36.1	36.6	36.9	37.0	36.6	36.0	34.8	33.4	32.4	31.8	31.7	32.4	37.0	27.5
3	32.5	31.2	30.5	29.5	28.6	28.1	28.6	30.1	31.1	32.8	34.1	35.3	36.2	36.5	37.4	37.1	37.1	34.1	29.1	28.2	27.0	26.2	25.9	26.1	31.4	37.4	25.9
4	26.0	25.8	25.6	25.1	24.7	24.6	25.1	26.0	26.6	27.6	28.9	30.8	32.5	32.9	32.4	33.0	33.1	33.0	32.1	31.3	30.4	28.6	27.4	27.6	28.8	33.1	24.6
5	27.4	26.8	26.8	26.5	26.0	25.9	25.9	27.4	29.1	28.9	30.0	32.0	32.7	33.2	34.3	34.8	35.0	34.5	33.7	32.8	31.5	21.2	20.1	21.8	29.1	35.0	20.1
6	23.8	24.2	24.6	25.0	23.5	24.1	24.0	26.0	26.3	27.8	29.4	31.0	31.2	32.1	33.5	34.1	34.4	34.1	32.9	31.9	31.3	30.8	29.8	28.5	28.9	34.4	23.5
7	28.7	28.6	28.5	28.2	26.6	25.9	26.3	25.1	28.8	30.5	31.5	32.2	33.0	34.0	34.9	34.2	34.9	34.3	32.2	30.0	29.6	29.0	28.4	27.4	30.1	34.9	25.1
8	26.8	26.8	26.2	25.8	25.0	25.4	24.9	26.4	27.1	29.2	29.7	31.1	32.7	33.2	33.1	33.8	34.0	33.6	33.6	32.7	30.9	25.0	25.6	25.9	29.1	34.0	24.9
9	23.8	25.6	26.7	26.2	24.3	23.9	25.0	27.0	27.4	28.2	29.6	31.0	31.3	32.0	32.9	32.4	32.4	32.4	31.7	30.8	29.8	29.2	28.5	27.8	28.7	32.9	23.8
10	27.3	26.9	27.0	26.8	26.4	26.1	26.3	26.9	27.6	28.6	29.6	31.8	32.6	34.1	34.1	34.5	34.4	34.0	33.0	32.4	31.4	30.7	30.0	29.3	30.1	34.5	26.1
11	28.6	27.8	27.4	27.6	27.4	26.2	26.6	28.1	29.9	31.2	32.7	33.0	34.1	35.2	35.2	35.5	35.9	35.6	35.1	34.2	33.3	32.6	31.8	31.1	31.5	35.9	26.2
12	30.4	29.3	28.7	28.0	27.5	26.5	26.7	28.8	30.7	32.4	33.8	34.9	35.9	36.0	36.4	34.0	28.5	29.1	28.9	29.3	30.9	31.1	30.4	29.3	30.7	36.4	26.5
13	28.0	27.4	27.3	26.8	26.9	27.4	27.7	29.1	31.3	32.7	34.4	35.6	36.8	37.5	37.6	37.0	34.1	34.2	33.3	32.0	31.0	27.7	26.4	24.4	31.1	37.6	24.4
14	23.4	25.7	23.3	23.1	23.0	23.5	24.8	26.5	28.1	29.9	30.6	31.7	32.8	32.8	32.8	32.8	31.8	30.2	30.0	29.5	28.6	28.1	28.1	27.8	27.9	32.8	23.0
15	27.6	27.4	26.7	26.6	25.8	25.9	26.0	26.2	26.9	28.4	30.3	32.2	32.8	24.2	23.5	23.6	25.9	26.6	26.6	26.0	25.2	25.0	24.9	24.8	26.6	32.8	23.5
16	25.0	24.2	24.6	24.3	23.5	23.7	23.8	26.3	27.6	28.4	29.7	31.2	32.2	33.2	34.1	34.6	33.9	33.1	32.5	31.3	30.4	29.9	28.9	28.7	29.0	34.6	23.5
17	28.4	27.9	27.0	26.1	26.0	25.7	26.0	27.2	28.6	28.8	29.6	30.7	31.7	33.3	34.4	34.5	34.4	33.9	33.0	31.9	30.4	29.1	28.4	27.6	29.8	34.5	25.7
18	27.1	26.1	25.7	25.3	24.3	24.1	24.3	25.0	27.2	28.7	30.0	30.6	31.6	32.8	33.7	34.7	34.6	34.2	33.5	32.5	30.6	29.6	29.2	28.9	29.3	34.7	24.1
19	28.2	27.8	27.9	27.1	26.8	26.3	25.8	26.7	27.7	29.9	31.4	32.2	33.5	34.5	34.9	35.2	35.1	34.5	33.9	32.7	31.5	30.6	29.6	28.6	30.5	35.2	25.8
20	28.2	27.5	27.1	27.0	27.0	26.6	26.6	29.0	30.3	31.8	32.9	34.2	35.3	35.6	35.8	35.9	35.6	35.3	34.6	33.4	32.2	31.1	29.4	29.6	31.3	35.9	26.6
21	28.7	28.3	27.8	27.7	26.7	26.4	26.6	27.8	29.8	31.3	32.3	33.6	34.5	35.4	36.2	36.7	36.6	36.3	35.3	33.7	32.3	31.2	31.5	31.6	31.6	36.7	26.4
22	30.8	28.9	28.4	28.1	28.2	28.0	28.7	29.6	30.8	32.4	33.5	34.4	36.6	37.6	38.6	39.3	39.2	38.8	38.1	36.6	35.0	34.8	35.0	34.1	33.6	39.3	28.0
23	34.3	33.3	32.5	31.8	30.6	30.2	30.9	32.2	33.7	35.1	36.5	37.1	37.6	38.7	38.3	38.9	38.4	36.2	35.4	35.2	34.5	34.3	34.0	33.9	34.7	38.9	30.2
24	33.1	32.0	31.7	30.9	32.0	32.2	32.0	32.7	33.9	35.7	37.6	38.4	38.9	39.4	39.9	40.1	39.7	39.4	38.7	37.2	36.0	35.7	34.0	32.0	35.6	40.1	30.9
25	31.1	30.4	29.6	28.9	28.2	27.8	27.7	29.9	31.6	32.4	34.4	35.4	36.2	36.9	36.2	36.2	36.6	33.6	26.7	25.6	26.1	25.9	25.9	25.5	30.8	36.9	25.5
26	25.7	25.7	25.1	25.0	24.7	24.0	24.7	26.7	28.5	29.8	30.9	32.6	33.5	34.7	35.3	35.9	36.1	35.8	35.1	34.5	33.9	26.5	27.0	29.4	30.1	36.1	24.0
27	28.8	27.4	26.9	26.4	24.8	23.4	23.5	24.6	25.9	27.0	29.0	31.8	33.9	34.7	34.5	34.6	34.2	33.8	33.5	32.6	31.5	26.5	23.4	23.1	29.0	34.7	23.1
28	24.2	24.4	24.5	25.9	24.7	25.3	25.1	26.7	27.4	28.7	29.7	31.2	31.9	32.8	33.3	34.2	34.3	33.8	33.7	32.1	30.9	30.2	29.4	29.2	29.3	34.3	24.2
29	28.9	28.6	28.0	27.1	27.2	27.2	27.5	29.6	31.1	32.3	33.7	34.9	35.8	--	--	--	36.4	36.0	35.3	34.2	32.4	31.4	31.3	30.4	31.4	36.4	27.1
30	29.4	29.1	28.8	28.5	28.5	27.7	27.9	30.6	32.4	33.4	34.8	35.6	36.7	37.6	38.1	37.6	37.6	37.4	36.5	35.2	33.9	32.7	31.8	31.4	33.0	38.1	27.7
31	30.9	30.1	29.2	28.7	28.9	28.7	29.1	29.7	30.7	31.5	32.1	32.3	33.4	33.8	34.4	35.5	35.9	34.8	34.2	33.6	33.1	32.2	31.5	30.5	31.9	35.9	28.7
Avg	28.3	27.9	27.5	27.1	26.6	26.3	26.5	27.9	29.3	30.5	31.8	33.1	34.1	34.6	35.0	35.2	35.0	34.4	33.4	32.3	31.4	29.8	29.1	28.7	30.6	--	--
Max	34.3	33.3	32.5	31.8	32.0	32.2	32.0	32.7	33.9	35.7	37.6	38.4	38.9	39.4	39.9	40.1	39.7	39.4	38.7	37.2	36.0	35.7	35.0	34.1	--	40.1	--
Min	23.4	24.2	23.3	23.1	23.0	23.5	24.6	25.9	27.0	28.9	30.6	31.2	24.2	23.5	23.6	25.9	26.6	26.6	25.6	25.2	21.2	20.1	21.8	--	--	20.1	--

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Temp_2m_C"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	26.8	24.6	24.5	24.2	24.4	24.7	24.5	24.5	25.8	26.6	27.7	28.7	30.5	31.9	33.4	33.5	33.3	32.7	29.0	28.2	27.8	27.4	27.7	27.5	27.9	33.5	24.2
2	26.1	23.2	23.5	23.8	24.1	24.2	24.2	25.1	26.7	28.2	29.5	30.8	31.0	31.3	31.6	30.7	30.7	30.2	25.4	23.5	22.6	22.3	23.5	23.7	26.5	31.6	22.3
3	23.2	23.1	23.2	23.3	23.7	23.5	23.7	24.7	26.3	27.8	29.2	30.7	30.3	31.0	31.5	32.7	33.9	33.0	32.6	31.2	30.0	26.6	24.1	23.2	27.6	33.9	23.1
4	23.5	23.7	23.9	25.1	25.0	25.0	25.2	25.8	26.5	28.7	30.4	32.0	32.0	32.8	33.2	33.9	34.0	33.2	32.8	31.2	29.7	28.8	27.9	26.9	28.8	34.0	23.5
5	26.5	26.3	25.6	25.2	24.8	24.9	25.3	27.2	28.7	30.1	31.1	32.6	33.7	34.0	34.9	34.7	35.0	34.7	34.0	32.5	31.2	29.8	28.9	28.2	30.0	35.0	24.8
6	27.5	26.9	26.8	26.3	26.6	25.6	25.6	29.0	31.2	32.6	33.6	34.9	35.3	35.8	36.0	36.2	35.9	35.6	34.7	33.3	32.2	30.2	29.3	28.3	31.2	36.2	25.6
7	28.0	27.2	26.9	26.3	25.5	25.0	24.9	27.7	29.3	30.2	31.5	32.7	33.3	34.3	34.6	34.6	34.6	34.4	33.7	32.3	31.6	30.6	29.7	28.1	30.3	34.6	24.9
8	27.8	27.1	26.6	26.1	25.3	25.0	24.7	27.4	28.9	29.9	31.0	32.3	33.4	34.0	34.9	35.1	35.4	35.1	34.4	32.9	31.6	30.8	30.3	28.6	30.4	35.4	24.7
9	26.5	25.9	25.2	25.0	24.6	24.0	24.5	26.0	27.2	28.7	30.1	31.0	32.2	32.9	33.4	34.2	34.6	34.3	33.5	32.4	31.8	31.0	29.9	29.6	29.5	34.6	24.0
10	27.8	27.0	26.5	26.5	25.9	24.7	25.2	27.2	28.5	29.9	31.6	32.7	34.6	35.6	35.9	35.6	35.5	35.1	33.5	24.8	26.4	27.6	27.8	28.3	29.8	35.9	24.7
11	28.8	28.5	28.1	28.0	27.4	27.1	28.7	29.8	31.1	31.8	33.3	35.1	35.7	36.2	35.8	36.0	35.6	33.6	32.5	31.8	31.4	31.1	31.3	31.4	31.7	36.2	27.1
12	31.0	30.4	29.8	29.4	29.1	29.0	29.0	29.4	30.4	30.3	31.1	32.7	33.0	34.2	32.6	30.6	25.1	21.5	21.6	22.1	23.1	23.3	24.1	24.1	28.2	34.2	21.5
13	24.0	24.2	24.0	24.0	23.9	23.9	24.1	23.4	24.4	26.9	28.4	29.3	29.6	29.8	30.4	30.5	29.7	29.4	29.3	28.2	27.6	26.7	26.8	25.9	26.9	30.5	23.4
14	25.4	25.1	24.7	24.7	25.5	25.3	25.4	27.1	28.6	30.0	31.5	31.6	32.1	32.8	33.3	33.6	32.8	31.2	30.1	29.2	28.7	28.1	27.1	26.3	28.8	33.6	24.7
15	25.8	25.1	24.7	24.8	24.0	24.2	24.5	26.3	27.4	29.1	30.3	31.4	32.9	33.8	33.9	34.4	34.7	34.8	33.4	31.8	31.2	30.4	29.6	28.8	29.5	34.8	24.0
16	28.5	27.8	27.2	26.1	25.2	25.1	24.7	26.7	27.9	29.3	31.1	31.7	32.7	33.9	34.7	35.3	35.7	35.3	34.7	33.5	32.6	32.1	31.8	30.9	30.6	35.7	24.7
17	30.3	29.4	28.6	28.3	27.6	27.2	26.9	28.5	29.5	30.9	32.3	33.4	35.2	35.7	36.2	36.5	36.7	30.4	28.7	28.1	28.3	28.2	27.7	26.8	30.5	36.7	26.8
18	26.2	25.8	24.8	24.4	24.0	23.4	23.5	25.0	27.3	28.6	29.2	30.3	31.1	31.1	32.1	32.4	31.6	31.0	30.0	29.6	29.3	28.5	28.0	27.9	28.1	32.4	23.4
19	27.4	26.6	26.1	25.7	24.9	23.8	24.2	25.0	25.9	25.1	24.7	26.3	22.9	22.3	23.4	24.6	24.7	25.2	24.5	23.9	23.6	23.1	20.5	21.4	24.4	27.4	20.5
20	21.5	22.4	22.4	21.5	21.3	21.3	21.6	24.0	25.6	26.0	27.1	28.7	28.9	29.6	30.5	30.7	31.0	30.8	30.1	28.4	27.2	26.4	25.5	25.3	26.2	31.0	21.3
21	24.5	23.8	23.9	23.6	23.4	23.1	22.9	24.1	26.0	26.7	27.2	26.9	27.2	26.7	27.0	27.4	26.7	26.2	26.1	24.4	24.1	22.6	20.4	20.1	24.8	27.4	20.1
22	19.9	19.6	20.1	21.7	21.4	20.9	20.7	22.2	24.5	26.6	27.7	28.4	28.8	29.6	29.6	29.9	29.9	29.3	28.2	27.1	26.3	25.2	24.6	23.8	25.3	29.9	19.6
23	23.7	23.5	23.2	23.8	23.6	22.9	22.8	25.0	26.5	27.3	28.8	29.4	30.3	30.9	31.3	31.6	31.6	30.9	30.2	29.1	28.2	27.7	27.1	26.4	27.3	31.6	22.8
24	25.6	24.9	24.7	24.5	24.0	24.1	25.7	27.2	28.8	30.5	31.4	32.2	32.7	33.6	33.6	33.1	33.7	33.1	32.7	31.7	30.2	29.0	27.9	27.3	29.3	33.7	24.0
25	26.3	25.8	25.8	25.5	25.0	25.4	25.4	26.0	27.0	28.4	29.7	31.2	32.5	33.2	33.4	33.6	33.4	32.8	31.9	30.6	29.9	27.3	25.5	24.4	28.7	33.6	24.4
26	24.6	24.5	25.1	24.3	24.2	22.7	23.0	23.4	24.9	27.0	28.7	30.3	31.3	31.3	32.2	32.2	32.0	31.4	30.5	27.8	25.9	26.2	25.9	25.5	27.3	32.2	22.7
27	25.3	24.7	24.4	24.1	24.3	24.0	24.1	25.7	27.2	28.5	29.8	30.5	30.6	31.6	32.8	33.7	33.3	32.9	32.0	30.7	29.7	29.4	27.9	27.3	28.5	33.7	24.0
28	26.6	26.2	25.8	25.7	25.4	25.5	25.5	27.8	30.1	31.2	32.3	33.2	33.1	34.0	34.2	35.7	35.5	34.9	34.0	32.2	30.9	29.8	29.8	29.1	30.4	35.7	25.4
29	28.0	27.2	26.7	26.3	26.1	25.9	25.0	27.0	29.9	32.3	33.8	34.7	35.9	36.4	37.4	37.3	37.0	36.4	35.1	32.8	31.0	30.2	29.6	28.9	31.3	37.4	25.0
30	28.1	28.1	27.9	28.1	28.6	29.4	29.2	30.2	32.0	33.9	35.1	36.5	37.0	37.2	37.7	37.7	37.4	36.6	35.5	33.8	32.0	31.4	29.9	29.6	32.6	37.7	27.9
31	28.8	28.7	28.4	27.2	27.1	26.7	27.3	29.5	31.6	33.2	34.2	35.5	35.5	35.6	36.2	36.8	36.8	35.9	34.6	33.0	31.5	30.9	30.6	29.5	31.9	36.8	26.7
Avg	26.3	25.7	25.5	25.3	25.0	24.8	24.9	26.4	27.9	29.2	30.4	31.5	32.1	32.7	33.2	33.4	33.2	32.3	31.3	29.7	28.9	28.2	27.4	26.9	28.8	--	--
Max	31.0	30.4	29.8	29.4	29.1	29.4	29.2	30.2	32.0	33.9	35.1	36.5	37.0	37.2	37.7	37.7	37.4	36.6	35.5	33.8	32.6	32.1	31.8	31.4	--	37.7	--
Min	19.9	19.6	20.1	21.5	21.3	20.9	20.7	22.2	24.4	25.1	24.7	26.3	22.9	22.3	23.4	24.6	24.7	21.5	21.6	22.1	22.6	22.3	20.4	20.1	--	--	19.6

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Temp_2m_C"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	28.4	27.8	27.3	26.9	25.8	25.9	26.1	28.1	30.8	32.3	33.5	34.3	35.7	36.9	36.6	37.1	36.3	35.9	34.6	32.8	32.1	30.8	30.2	29.5	31.5	37.1	25.8
2	29.4	28.9	27.8	28.4	27.7	27.5	28.2	30.1	32.5	33.7	35.0	35.8	36.1	36.5	36.8	36.9	36.9	36.1	35.0	33.6	32.5	31.3	30.7	30.4	32.4	36.9	27.5
3	29.1	29.5	27.5	27.8	27.5	27.4	27.2	29.5	31.6	32.1	33.8	35.2	36.7	37.0	37.4	37.5	37.2	35.9	35.2	34.7	33.8	33.1	32.7	31.6	32.5	37.5	27.2
4	31.4	30.0	29.4	29.1	29.1	28.1	28.2	28.5	29.5	30.3	31.1	32.4	34.1	35.2	35.5	35.9	35.5	34.9	33.4	31.6	27.7	24.5	24.9	25.6	30.7	35.9	24.5
5	26.0	25.1	25.4	24.2	23.7	22.9	22.5	24.4	26.4	28.6	29.4	31.2	31.9	32.7	32.9	32.8	33.2	32.6	31.5	30.7	30.2	29.5	28.7	28.2	28.5	33.2	22.5
6	27.5	27.8	27.7	27.2	27.2	26.0	25.9	27.3	29.7	31.1	32.4	34.3	35.3	35.1	32.0	34.1	31.0	28.2	26.8	26.1	25.6	26.7	25.9	26.8	29.1	35.3	25.6
7	27.3	27.6	26.5	26.2	26.2	25.7	25.5	26.6	28.1	30.0	31.3	31.9	33.0	33.5	33.7	34.1	33.8	33.4	32.5	31.6	30.9	29.6	28.9	28.5	29.8	34.1	25.5
8	27.6	27.0	24.6	23.0	22.0	22.0	22.0	21.6	21.1	21.4	22.4	23.0	22.5	23.0	23.8	25.9	26.4	26.3	25.0	24.3	24.0	24.0	23.8	23.6	23.8	27.6	21.1
9	23.5	23.6	22.3	22.3	22.2	22.2	21.9	22.1	23.9	24.7	25.5	26.2	27.6	28.1	28.1	28.4	27.8	26.0	23.0	23.3	23.2	23.4	23.5	24.0	24.5	28.4	21.9
10	24.0	24.1	23.9	23.7	23.1	23.1	22.8	23.6	25.5	26.9	27.2	28.0	28.5	29.3	30.0	30.0	29.9	29.2	28.2	27.3	26.6	25.6	24.9	24.3	26.2	30.0	22.8
11	23.6	23.6	23.3	23.7	23.4	23.9	23.3	25.1	27.8	30.0	30.2	31.4	31.5	31.9	32.4	32.7	32.3	31.6	30.5	29.5	28.3	27.4	26.4	26.1	27.9	32.7	23.3
12	25.7	26.7	27.1	25.1	25.2	25.5	25.3	26.3	28.7	31.5	32.5	33.8	34.1	34.7	34.7	33.7	34.6	34.2	32.5	30.6	30.5	30.3	29.3	28.5	30.1	34.7	25.1
13	28.3	27.7	26.9	26.4	26.0	25.7	25.6	25.5	25.7	26.5	28.7	30.4	30.9	32.0	32.5	32.5	32.1	31.2	29.9	28.8	28.3	27.9	27.3	26.8	28.5	32.5	25.5
14	26.1	25.6	25.2	24.9	25.0	25.4	25.4	26.1	27.2	28.6	29.7	31.5	32.5	33.3	33.6	34.0	33.9	33.1	31.7	30.6	30.1	29.8	29.4	29.1	29.2	34.0	24.9
15	28.4	28.1	28.0	27.9	27.6	27.3	26.9	27.4	28.8	30.2	31.6	33.3	34.0	34.8	35.7	35.7	35.4	32.1	31.6	31.8	31.2	30.8	30.1	28.7	30.7	35.7	26.9
16	28.9	28.5	27.8	27.2	26.6	25.9	25.5	25.6	26.0	26.7	26.8	25.4	25.4	26.0	26.2	26.2	26.4	26.9	26.7	26.5	26.4	26.1	26.1	24.7	26.4	28.9	24.7
17	23.9	24.2	24.1	23.8	23.4	24.4	24.7	25.2	25.9	26.3	27.0	27.8	28.7	28.7	28.1	27.7	27.2	26.7	26.4	25.8	24.8	24.2	23.8	23.9	25.7	28.7	23.4
18	23.9	23.8	23.5	22.9	23.2	22.7	22.6	23.5	25.4	26.5	27.6	28.6	28.3	27.9	27.9	28.5	28.7	28.7	27.8	26.9	26.4	26.5	25.5	25.8	26.0	28.7	22.6
19	25.6	25.1	25.0	24.4	24.4	24.0	24.3	25.0	26.9	27.8	27.9	28.3	28.5	29.7	29.9	30.1	30.3	30.2	29.3	28.3	27.4	26.7	26.2	25.6	27.1	30.3	24.0
20	25.5	25.1	24.6	24.2	23.8	23.8	23.6	24.5	26.5	27.6	29.4	30.4	31.6	32.0	32.4	31.9	31.4	30.1	28.1	27.7	27.5	26.8	26.6	26.1	27.5	32.4	23.6
21	25.6	25.5	25.1	24.1	24.1	23.9	24.5	25.7	27.2	29.1	30.8	32.0	32.2	33.1	33.2	33.0	32.2	31.5	30.5	29.6	28.8	28.4	27.6	27.3	28.5	33.2	23.9
22	26.9	26.2	26.2	25.2	25.6	25.5	25.3	26.3	27.9	29.7	31.0	32.7	32.9	33.0	33.2	33.2	32.8	31.7	30.5	29.5	28.6	27.8	27.4	27.0	29.0	33.2	25.2
23	26.5	26.3	26.4	26.9	26.3	25.8	25.9	26.7	28.5	30.3	31.2	32.4	33.1	33.9	34.2	34.2	33.8	32.9	31.5	29.9	28.9	28.2	27.7	27.3	29.5	34.2	25.8
24	27.1	28.3	27.8	27.4	27.6	27.3	27.3	28.3	30.1	32.0	33.0	34.1	34.5	34.2	34.7	35.7	35.5	34.4	32.8	31.5	30.3	29.7	29.3	29.9	30.9	35.7	27.1
25	30.1	29.6	29.4	29.3	29.0	28.5	27.8	28.3	29.9	31.7	33.2	34.8	35.3	35.3	35.5	35.5	34.8	33.8	32.7	31.5	30.5	30.1	30.0	30.1	31.5	35.5	27.8
26	29.3	27.9	27.2	27.2	27.1	27.1	26.9	27.3	28.6	30.2	31.9	32.5	33.0	32.0	29.1	28.9	28.7	28.5	27.7	26.6	26.2	25.5	24.7	24.7	28.3	33.0	24.7
27	24.4	25.2	23.8	24.6	23.6	23.3	23.3	23.8	24.3	27.0	28.6	30.3	30.6	31.2	30.6	30.4	23.0	19.9	20.5	20.7	21.2	20.7	20.6	21.5	24.7	31.2	19.9
28	21.6	21.8	21.8	20.4	20.6	20.8	20.6	21.7	22.5	22.4	22.7	25.4	27.1	27.9	27.3	26.2	26.1	25.6	24.1	22.5	22.0	21.4	21.3	20.9	23.1	27.9	20.4
29	20.8	20.9	20.6	19.7	19.2	18.7	18.1	19.6	22.4	23.0	24.9	25.7	26.3	25.8	26.2	26.7	26.4	25.5	23.9	22.8	21.5	20.7	20.3	19.8	22.5	26.7	18.1
30	19.4	18.7	19.0	18.3	18.3	18.3	18.9	19.7	22.1	23.6	25.0	24.9	25.8	26.0	26.7	26.8	26.5	25.6	24.0	22.5	21.5	20.5	20.2	19.8	22.2	26.8	18.3
Avg	26.2	26.0	25.5	25.1	24.8	24.6	24.5	25.4	27.1	28.4	29.5	30.6	31.3	31.7	31.7	31.9	31.3	30.4	29.3	28.3	27.6	26.9	26.5	26.2	27.9	--	--
Max	31.4	30.0	29.4	29.3	29.1	28.5	28.2	30.1	32.5	33.7	35.0	35.8	36.7	37.0	37.4	37.5	37.2	36.1	35.2	34.7	33.8	33.1	32.7	31.6	--	37.5	--
Min	19.4	18.7	19.0	18.3	18.3	18.3	18.1	19.6	21.1	21.4	22.4	23.0	22.5	23.0	23.8	25.9	23.0	19.9	20.5	20.7	21.2	20.5	20.2	19.8	--	--	18.1

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	8	140	367	580	768	901	982	1007	968	878	736	529	199	141	8	0	0	0	0	342	1007	0
2	0	0	0	0	0	5	91	319	488	759	703	995	1002	965	879	737	553	340	139	8	0	0	0	0	333	1002	0
3	0	0	0	0	0	11	61	356	558	744	841	954	933	969	789	568	654	304	24	4	0	0	0	0	324	969	0
4	0	0	0	0	0	7	72	154	182	337	714	759	981	846	704	732	595	403	113	9	0	0	0	0	275	981	0
5	0	0	0	0	0	7	89	352	305	365	523	857	603	680	661	661	565	359	151	14	0	0	0	1	258	857	0
6	0	0	0	0	0	7	95	329	222	351	701	578	549	826	871	725	545	319	61	8	0	0	0	0	258	871	0
7	0	0	0	0	0	9	81	151	663	561	613	1045	931	752	570	426	410	182	67	8	0	0	0	0	270	1045	0
8	0	0	0	0	0	12	83	168	396	759	707	972	1036	774	581	399	326	199	90	5	0	0	0	0	271	1036	0
9	0	0	0	0	0	20	146	358	348	490	739	869	806	982	899	741	557	351	145	8	0	0	0	0	311	982	0
10	0	0	0	0	0	5	62	134	313	515	897	974	996	959	871	716	582	306	91	10	0	0	0	0	310	996	0
11	0	0	0	0	0	6	97	349	529	750	905	990	1028	901	867	724	561	443	164	17	0	0	0	0	347	1028	0
12	0	0	0	0	0	4	85	379	564	744	889	989	1065	759	718	128	20	94	87	9	0	0	0	0	272	1065	0
13	0	0	0	0	0	5	123	361	565	667	875	998	1046	1041	613	446	181	137	57	5	0	0	0	5	297	1046	0
14	0	0	0	0	0	4	100	321	555	730	868	957	986	955	724	427	53	26	14	2	0	0	0	0	280	986	0
15	0	0	0	0	0	2	41	84	223	375	866	961	575	24	41	129	210	174	59	6	0	0	0	0	157	961	0
16	0	0	0	0	0	6	120	305	552	711	892	963	1001	961	823	666	333	308	115	7	0	0	0	0	323	1001	0
17	0	0	0	0	0	4	38	179	490	385	625	829	913	959	864	683	538	307	96	8	0	0	0	0	288	959	0
18	0	0	0	0	0	4	54	109	436	346	835	541	908	908	903	723	535	327	122	7	0	0	0	0	282	908	0
19	0	0	0	0	0	3	37	90	263	653	871	974	1002	963	871	725	542	336	134	5	0	0	0	0	311	1002	0
20	0	0	0	0	0	5	110	400	581	758	904	1001	1003	968	811	741	555	344	135	5	0	0	0	0	347	1003	0
21	0	0	0	0	0	5	103	222	468	720	905	958	1014	965	879	731	542	333	131	5	0	0	0	0	333	1014	0
22	0	0	0	0	0	5	67	125	334	434	518	602	893	914	878	713	529	318	119	5	0	0	0	0	269	914	0
23	0	0	0	0	0	4	100	337	538	743	884	818	715	920	268	694	166	64	29	3	0	0	0	0	262	920	0
24	0	0	0	0	0	4	97	313	519	724	882	968	989	919	889	675	441	312	110	2	0	0	0	0	327	989	0
25	0	0	0	0	0	3	91	320	533	720	862	950	986	945	257	250	195	39	31	3	0	0	0	0	258	986	0
26	0	0	0	0	0	4	92	317	534	722	870	955	977	937	849	700	514	321	92	14	0	0	1	0	329	977	0
27	0	0	0	0	0	8	32	173	287	640	812	944	976	941	848	695	542	313	163	14	0	0	0	0	308	976	0
28	0	0	0	0	0	1	96	357	339	600	483	814	687	875	710	637	359	201	126	7	0	0	0	0	262	875	0
29	0	0	0	0	0	3	88	328	540	724	872	956	1010	--	--	--	433	278	102	7	0	0	0	0	254	1010	0
30	0	0	0	0	0	2	88	327	545	721	877	962	1000	968	870	727	529	329	100	2	0	0	0	0	335	1000	0
31	0	0	0	0	0	2	42	104	230	408	592	737	584	573	541	813	544	189	57	2	0	0	0	0	226	813	0
Avg	0	0	0	0	0	6	85	264	441	610	788	898	910	871	731	616	440	263	99	7	0	0	0	0	291	--	--
Max	0	0	0	0	0	20	146	400	663	768	905	1045	1065	1041	903	813	654	443	164	17	0	0	1	5	--	1065	--
Min	0	0	0	0	0	1	32	84	182	337	483	541	549	24	41	128	20	26	14	2	0	0	0	0	--	--	0

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	1	31	124	193	213	313	500	833	945	859	710	550	214	79	8	0	0	0	0	232	945	0
2	0	0	0	0	0	1	26	269	440	497	654	692	494	776	718	369	214	88	19	1	0	0	1	0	219	776	0
3	0	0	0	0	0	1	90	327	509	718	825	1027	552	831	500	620	552	330	119	2	0	0	1	2	292	1027	0
4	0	0	0	0	0	2	65	172	322	729	809	942	579	988	871	728	526	306	97	2	0	0	0	0	297	988	0
5	0	0	0	0	0	2	81	334	550	741	887	974	998	961	869	720	528	309	101	1	0	0	0	0	336	998	0
6	0	0	0	0	0	2	77	325	543	735	882	986	1018	964	872	719	522	298	97	1	0	0	0	0	335	1018	0
7	0	0	0	0	0	1	76	330	552	750	893	979	999	960	865	713	516	301	94	1	0	0	0	0	335	999	0
8	0	0	0	0	0	1	72	310	527	721	867	954	979	954	852	697	504	292	90	1	0	0	0	0	326	979	0
9	0	0	0	0	0	2	77	275	484	670	836	969	976	933	837	688	498	286	82	1	0	0	0	0	317	976	0
10	0	0	0	0	0	1	67	300	507	701	852	940	965	943	844	699	511	288	99	0	0	0	0	0	321	965	0
11	0	0	0	0	0	2	89	322	527	715	878	994	1015	889	576	510	185	108	28	1	0	0	0	0	285	1015	0
12	0	0	0	0	0	0	46	171	333	268	389	610	585	647	355	144	2	3	9	0	1	2	3	0	149	647	0
13	0	0	0	0	0	0	28	118	445	686	780	847	720	960	814	459	176	225	79	1	0	0	0	0	264	960	0
14	0	0	0	0	0	1	59	302	516	703	878	669	764	758	786	384	230	85	29	1	0	0	0	0	257	878	0
15	0	0	0	0	0	1	58	294	510	706	863	982	973	971	859	688	543	359	65	1	0	0	0	0	328	982	0
16	0	0	0	0	0	1	55	295	511	703	846	933	957	915	818	677	483	267	73	1	0	0	0	0	314	957	0
17	0	0	0	0	0	0	53	289	508	700	847	936	957	913	817	665	491	77	1	0	0	0	0	0	302	957	0
18	0	0	0	0	0	0	68	267	532	695	845	945	969	925	821	611	359	236	45	0	0	0	0	0	305	969	0
19	0	0	0	0	0	0	27	157	155	142	342	530	101	309	276	318	210	262	63	0	0	0	0	0	120	530	0
20	0	0	0	0	0	0	53	312	539	750	766	943	931	931	827	508	457	279	69	0	0	0	0	0	307	943	0
21	0	0	0	0	0	1	21	145	418	375	523	376	482	230	486	232	118	56	16	0	0	0	0	0	145	523	0
22	0	0	0	0	0	0	43	281	515	714	850	887	676	861	851	560	438	226	55	0	0	0	0	0	290	887	0
23	0	0	0	0	0	0	57	291	513	709	839	873	1000	926	823	666	463	225	54	0	0	0	0	0	310	1000	0
24	0	0	0	0	0	0	47	298	515	705	864	761	935	755	689	284	429	184	65	0	0	0	0	0	272	935	0
25	0	0	0	0	0	1	51	158	433	688	789	943	959	848	811	671	471	245	36	0	0	0	0	0	296	959	0
26	0	0	0	0	0	1	40	141	306	623	825	896	903	695	758	667	408	232	21	0	0	0	0	0	271	903	0
27	0	0	0	0	0	0	45	280	501	684	852	841	584	855	850	663	377	228	42	0	0	0	0	0	283	855	0
28	0	0	0	0	0	0	41	286	506	699	856	704	593	744	703	690	438	203	38	0	0	0	0	0	271	856	0
29	0	0	0	0	0	0	40	295	522	716	865	955	974	924	814	652	448	225	37	0	0	0	0	0	311	974	0
30	0	0	0	0	0	0	38	289	513	706	849	936	956	908	804	642	437	218	34	0	0	0	0	0	305	956	0
31	0	0	0	0	0	0	37	286	513	708	851	935	953	899	792	640	441	218	32	0	0	0	0	0	304	953	0
Avg	0	0	0	0	0	1	53	259	466	641	781	853	819	842	755	580	404	222	57	1	0	0	0	0	281	--	--
Max	0	0	0	0	0	2	90	334	552	750	893	1027	1018	988	872	728	552	359	119	8	1	2	3	2	--	1027	--
Min	0	0	0	0	0	0	21	118	155	142	313	376	101	230	276	144	2	3	1	0	0	0	0	0	--	--	0

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, SR_Wm2_2m"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	0	0	0	0	0	0	35	291	517	713	860	943	963	912	809	641	437	213	29	0	0	0	0	0	307	963	0
2	0	0	0	0	0	0	35	282	507	698	843	933	949	901	792	629	426	203	27	0	0	0	0	0	301	949	0
3	0	0	0	0	0	0	33	274	502	696	838	922	942	888	787	621	386	107	14	0	0	0	0	0	292	942	0
4	0	0	0	0	0	0	17	86	158	188	328	566	930	890	753	606	399	114	14	0	0	0	0	0	210	930	0
5	0	0	0	0	0	0	28	260	473	673	813	899	932	894	606	538	471	200	24	0	0	0	0	0	284	932	0
6	0	0	0	0	0	0	25	255	474	666	809	905	810	528	353	604	364	91	1	0	1	0	0	0	245	905	0
7	0	0	0	0	0	0	19	286	487	675	816	903	907	874	770	602	406	162	18	0	0	0	0	0	288	907	0
8	0	0	0	0	0	0	1	5	12	80	175	105	139	277	297	681	438	198	17	0	0	0	0	0	101	681	0
9	0	0	0	0	0	0	12	94	237	373	602	645	990	915	646	499	206	30	2	0	0	0	0	0	219	990	0
10	0	0	0	0	0	0	19	143	475	668	747	887	836	853	728	592	381	166	12	0	0	0	0	0	271	887	0
11	0	0	0	0	0	0	13	257	480	674	811	890	904	853	744	578	380	163	10	0	0	0	0	0	281	904	0
12	0	0	0	0	0	0	12	254	476	670	810	890	439	708	260	272	326	156	9	0	0	0	0	0	220	890	0
13	0	0	0	0	0	0	17	78	295	502	842	925	916	850	739	572	368	152	8	0	0	0	0	0	261	925	0
14	0	0	0	0	0	0	12	252	476	664	801	883	898	842	730	565	361	148	7	0	0	0	0	0	277	898	0
15	0	0	0	0	0	0	11	244	468	659	796	874	891	836	726	577	202	57	6	0	0	0	0	0	264	891	0
16	0	0	0	0	0	0	16	92	177	297	327	187	272	267	254	203	103	54	3	0	0	0	0	0	94	327	0
17	0	0	0	0	0	0	19	104	252	258	432	527	546	539	239	153	123	74	18	0	0	0	0	0	137	546	0
18	0	0	0	0	0	0	26	211	533	678	799	780	253	232	313	377	273	125	7	0	0	0	0	0	192	799	0
19	0	0	0	0	0	0	24	179	441	673	446	422	302	459	193	270	245	121	7	0	0	0	0	0	158	673	0
20	0	0	0	0	0	0	12	127	379	555	771	854	880	832	671	429	220	89	2	0	0	0	0	0	242	880	0
21	0	0	0	0	0	0	16	193	429	603	838	885	437	870	719	530	323	120	7	0	0	0	0	0	249	885	0
22	0	0	0	0	0	0	19	218	445	632	725	850	882	705	726	562	314	106	4	0	0	0	0	0	258	882	0
23	0	0	0	0	0	0	10	207	441	632	785	945	857	874	739	564	379	110	3	0	0	0	0	0	273	945	0
24	0	0	0	0	0	0	11	211	439	627	762	754	625	357	407	574	338	110	3	0	0	0	0	0	217	762	0
25	0	0	0	0	0	0	10	196	433	622	756	833	850	848	646	555	328	105	4	0	0	0	0	0	258	850	0
26	0	0	0	0	0	0	16	240	393	665	752	826	863	328	118	147	91	68	0	0	0	0	0	0	188	863	0
27	0	0	0	0	0	0	19	63	132	516	747	855	894	591	262	133	6	24	1	0	1	2	2	2	177	894	0
28	2	1	0	0	0	0	10	171	225	148	329	681	869	814	662	498	301	89	0	0	0	0	0	0	200	869	0
29	0	0	0	0	0	0	8	195	445	642	791	870	877	815	697	521	305	90	0	0	0	0	0	0	261	877	0
30	0	0	0	0	0	0	8	195	450	644	785	862	874	812	690	512	297	83	0	0	0	0	0	0	259	874	0
Avg	0	0	0	0	0	0	17	189	388	560	698	777	757	712	569	487	307	118	9	0	0	0	0	0	233	--	--
Max	2	1	0	0	0	0	35	291	533	713	860	945	990	915	809	681	471	213	29	0	1	2	2	2	--	990	--
Min	0	0	0	0	0	0	1	5	12	80	175	105	139	232	118	133	6	24	0	0	0	0	0	0	--	--	0

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, RH_Percent"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	16	18	18	20	23	23	21	14	15	12	11	12	12	11	12	11	10	10	9	11	12	12	12	14	14	23	9	
2	15	15	16	17	20	21	20	19	17	16	15	14	13	12	12	11	11	11	11	13	14	15	15	15	15	15	21	11
3	15	18	21	27	30	31	31	28	27	24	22	20	19	18	17	17	17	21	31	37	42	46	47	45	27	47	15	
4	46	46	47	51	53	54	52	49	46	43	38	32	29	27	27	25	26	25	26	27	31	36	40	39	38	54	25	
5	41	43	43	43	44	45	46	42	39	39	36	32	32	31	29	28	27	27	28	30	34	81	85	75	42	85	27	
6	59	57	56	52	64	57	61	48	51	45	36	34	36	33	29	28	27	27	30	33	35	34	38	38	42	64	27	
7	37	40	42	45	53	57	55	67	46	42	40	34	32	29	28	29	27	28	35	44	45	45	47	51	42	67	27	
8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	--	--	--	--	--	--	--	--	--	--	--	--	76	--	--	--	23	24	24	27	33	35	35	37	35	76	23	
30	39	39	39	39	39	41	42	35	30	28	26	24	22	19	18	18	18	18	19	22	25	30	30	31	29	42	18	
31	33	35	38	39	40	41	39	37	35	33	33	32	29	28	26	25	23	25	25	26	27	29	31	32	32	41	23	
Avg	34	35	36	37	41	41	41	38	34	31	28	26	30	23	22	21	21	22	24	27	30	36	38	38	31	--	--	
Max	59	57	56	52	64	57	61	67	51	45	40	34	76	33	29	29	27	28	35	44	45	81	85	75	--	85	--	
Min	15	15	16	17	20	21	20	14	15	12	11	12	12	11	12	11	10	10	9	11	12	12	12	14	--	--	9	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, RH_Percent"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	51	60	62	67	66	61	63	65	55	52	49	48	44	38	34	34	35	33	39	41	42	47	44	44	49	67	33
2	51	67	65	64	64	63	64	60	55	51	43	41	43	44	41	39	37	40	71	80	91	90	72	72	59	91	37
3	77	79	78	77	71	71	71	66	60	55	48	42	40	39	38	32	28	29	31	36	40	54	68	75	54	79	28
4	76	71	68	56	57	58	58	56	56	49	44	37	35	32	26	19	19	24	25	30	33	35	43	47	44	76	19
5	47	45	46	47	49	47	48	45	40	37	32	28	26	24	21	19	17	17	20	22	24	28	31	33	33	49	17
6	35	36	34	36	34	39	40	32	28	24	23	20	18	17	15	14	14	15	15	17	18	22	23	25	25	40	14
7	23	24	24	24	24	25	30	27	21	18	16	16	16	16	16	16	16	15	16	18	20	22	24	27	21	30	15
8	28	29	28	32	36	38	41	33	29	27	26	26	24	23	21	19	19	19	19	22	24	26	27	36	27	41	19
9	50	52	54	56	58	60	58	53	48	43	39	37	35	33	31	27	25	26	27	29	30	31	32	32	40	60	25
10	47	49	50	49	50	55	52	46	42	39	33	29	27	26	25	25	24	24	27	59	51	45	43	40	40	59	24
11	38	38	40	41	44	45	39	37	35	35	33	29	27	26	25	25	25	31	32	32	32	33	32	33	34	45	25
12	35	36	38	40	41	42	41	40	39	40	39	36	34	32	38	44	70	94	96	92	86	85	74	74	54	96	32
13	73	68	67	67	68	68	67	75	69	57	54	50	49	49	46	45	49	50	47	52	55	60	56	62	58	75	45
14	64	64	67	66	62	62	62	54	52	47	42	40	39	36	33	32	34	42	45	47	49	53	58	62	51	67	32
15	64	68	69	68	71	70	69	60	53	48	46	43	40	36	33	32	30	29	32	36	37	38	39	42	48	71	29
16	43	46	51	56	60	61	63	54	50	49	44	42	40	37	34	31	29	28	28	30	34	36	35	37	42	63	28
17	38	40	42	43	47	50	52	47	42	41	37	35	32	31	29	28	26	34	37	42	42	40	43	48	39	52	26
18	52	55	60	61	64	66	66	59	49	44	41	39	40	39	36	35	37	38	39	41	42	45	47	48	48	66	35
19	50	57	66	64	65	69	68	65	62	70	68	62	84	85	72	65	61	55	56	53	56	62	88	79	66	88	50
20	78	71	69	75	76	77	76	64	54	50	49	45	42	37	33	33	32	33	34	40	44	49	54	51	53	78	32
21	56	60	57	57	58	60	63	57	49	46	46	48	47	48	47	46	48	49	50	67	63	68	83	85	57	85	46
22	87	86	83	68	70	72	75	68	57	49	44	42	41	39	37	35	35	36	39	43	46	52	54	56	55	87	35
23	56	57	55	51	52	56	58	47	40	38	37	35	31	28	27	26	25	27	28	31	33	34	35	37	39	58	25
24	40	42	43	43	45	45	39	36	34	31	29	28	26	25	24	25	25	28	27	24	26	27	29	30	32	45	24
25	34	36	37	43	49	51	53	53	48	46	41	35	31	30	30	29	26	31	31	36	39	50	58	64	41	64	26
26	61	59	51	55	58	73	73	74	66	54	45	43	39	39	36	33	34	36	36	48	58	52	50	51	51	74	33
27	51	54	56	57	56	57	56	51	46	44	41	40	39	36	33	31	30	30	29	31	35	36	41	43	42	57	29
28	44	45	46	45	47	47	47	39	33	31	27	26	25	24	21	17	16	17	19	22	24	25	24	24	31	47	16
29	26	28	28	29	28	30	31	27	22	19	17	15	13	12	11	11	11	11	13	17	19	21	21	23	20	31	11
30	25	24	24	23	22	20	20	20	19	17	15	13	13	12	12	12	12	12	14	16	18	18	22	21	18	25	12
31	23	23	24	27	27	27	27	23	21	19	18	17	20	18	16	14	10	11	13	15	16	18	21	22	20	27	10
Avg	49	51	51	51	52	54	54	49	44	41	38	35	34	33	30	29	29	31	33	38	40	42	44	46	42	--	--
Max	87	86	83	77	76	77	76	75	69	70	68	62	84	85	72	65	70	94	96	92	91	90	88	85	--	96	--
Min	23	23	24	23	22	20	20	20	19	17	15	13	13	12	11	11	10	11	13	15	16	18	21	21	--	--	10

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, RH_Percent"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	23	23	23	22	25	25	25	24	20	18	16	15	15	12	11	12	12	13	15	17	17	19	19	20	18	25	11
2	20	21	23	22	23	23	22	20	18	16	15	15	16	15	15	14	14	14	15	17	18	19	20	20	18	23	14
3	22	21	24	24	24	24	27	27	23	22	20	18	17	14	12	13	13	14	15	15	17	20	21	24	20	27	12
4	26	29	30	30	30	33	35	34	31	32	29	26	24	23	22	21	21	22	27	28	44	62	60	53	32	62	21
5	48	54	50	56	58	62	66	58	50	38	37	35	34	32	32	32	30	30	33	35	36	38	40	41	43	66	30
6	43	43	44	44	43	47	46	41	37	33	31	27	25	27	37	29	42	49	56	59	55	45	52	46	42	59	25
7	43	38	45	47	50	53	54	48	44	39	35	35	34	33	32	31	30	28	32	35	39	44	47	49	40	54	28
8	56	60	72	84	93	96	97	97	98	97	91	88	91	91	87	74	65	66	74	76	75	75	75	75	81	98	56
9	75	74	83	84	86	86	90	90	76	68	64	62	55	52	51	50	52	63	86	83	87	84	82	76	73	90	50
10	77	73	76	75	79	77	79	70	58	51	53	51	48	44	43	43	43	45	48	51	54	61	65	65	60	79	43
11	68	65	64	57	58	53	56	50	40	32	33	34	37	36	35	34	32	32	34	38	43	44	48	48	45	68	32
12	47	41	38	45	43	43	43	41	35	30	29	27	27	23	25	27	23	26	30	34	31	32	35	36	34	47	23
13	37	40	43	44	43	43	41	41	41	39	35	33	32	30	29	29	29	30	32	34	35	35	37	39	36	44	29
14	41	42	43	44	43	42	42	41	39	37	35	31	30	29	28	28	27	28	30	32	34	35	36	36	36	44	27
15	38	39	39	40	41	42	44	43	39	37	35	31	30	28	25	25	25	34	34	30	31	34	35	43	35	44	25
16	40	42	46	50	52	52	54	54	53	52	54	61	60	56	57	56	54	48	48	50	52	55	55	64	53	64	40
17	68	66	66	67	70	62	60	58	57	58	56	53	48	49	51	49	47	50	52	55	60	60	60	59	58	70	47
18	58	57	58	61	62	66	67	62	54	52	48	45	48	49	48	46	46	45	49	53	55	55	59	57	54	67	45
19	58	60	62	65	67	68	66	63	55	51	55	54	54	50	49	49	46	47	50	52	55	56	59	61	56	68	46
20	61	61	63	60	62	61	63	57	53	50	45	41	37	36	33	35	36	44	52	53	53	55	54	56	51	63	33
21	58	58	59	62	58	53	47	44	37	29	28	31	33	30	28	28	30	32	33	35	37	37	48	51	41	62	28
22	53	58	58	61	60	60	61	56	52	46	40	36	36	36	35	35	35	37	40	39	41	40	40	41	46	61	35
23	42	42	43	52	55	58	58	54	49	45	41	38	36	33	30	27	25	23	23	26	28	30	31	31	38	58	23
24	31	31	31	33	39	42	44	41	37	35	32	30	29	29	28	26	26	27	30	31	34	35	35	35	33	44	26
25	34	35	35	35	35	36	39	38	35	33	29	25	23	23	25	25	25	25	28	33	35	36	36	35	31	39	23
26	36	40	42	42	42	41	41	39	36	34	33	34	32	35	44	45	47	50	55	60	60	62	67	65	45	67	32
27	65	60	67	62	68	69	70	68	65	50	42	38	35	32	33	35	76	98	95	95	91	85	89	85	65	98	32
28	81	79	78	88	89	88	87	78	75	75	71	53	41	32	37	45	41	40	46	56	53	55	52	52	62	89	32
29	52	51	51	54	55	56	62	51	34	27	23	26	27	26	23	21	21	21	26	33	38	40	37	38	37	62	21
30	38	41	38	42	41	40	36	35	32	27	23	24	21	19	19	20	20	21	26	31	34	36	37	36	31	42	19
Avg	48	48	50	52	53	53	54	51	46	42	39	37	36	34	34	33	34	37	40	43	45	46	48	48	44	--	--
Max	81	79	83	88	93	96	97	97	98	97	91	88	91	91	87	74	76	98	95	95	91	85	89	85	--	98	--
Min	20	21	23	22	23	23	22	20	18	16	15	15	15	12	11	12	12	13	15	15	17	19	19	20	--	--	11

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.016	0	0	0	0	0	0	0.016	0.016	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	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.035	1.68	0.127	0.02	1.86	1.68	0
6	0.012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.012	0
7	0	0	0	0	0.012	0	0	0.008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.012	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0.004	0.004	0.028	0.02	0
9	0.008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.008	0.008	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
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
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0.004	0.004	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.173	0.161	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
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0.583	0.02	0	0	0	0	0	0	0	0	0	0	0.603	0.583	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
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
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
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
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
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
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.087	0.102	0	0	0	0	0	0	0.189	0.102	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.563	0.051	0	0.614	0.563	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.004	0.02	0.036	0.02	0	
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.02	0	0	0	0.012	0	0	0.008	0	0	0	0	0	0.583	0.02	0.004	0	0.087	0.118	0	0.035	2.29	0.186	0.205	3.56	--	--	
Max	0.012	0	0	0	0.012	0	0	0.008	0	0	0	0	0	0.583	0.02	0.004	0	0.087	0.102	0	0.035	1.68	0.127	0.161	--	1.68	--	
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min	
1	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0.004	0	
2	0.028	0.008	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0.13	0.028	0.016	0	0	0	0.214	0.13	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.201	0	0.201	0.201	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	
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	
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	
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	
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	
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	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.067	0	0	0	0	0.067	0.067	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	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.225	0.115	0.008	0	0	0	0	0	0	0.348	0.225	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.032	0.008	0	0	0	0	0	0	0.04	0.032	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	
19	0	0	0	0	0	0	0	0	0	0.004	0.004	0.043	0.485	0.245	0	0	0	0	0	0	0	0	0.039	0.079	0	0.899	0.485	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0	0	0	0	0.004	0.004	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	
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	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
26	0	0	0	0	0.043	0.024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.067	0.043	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0.032	0.008	0	0	0.043	0.024	0	0.004	0	0.004	0.004	0.043	0.485	0.245	0	0	0.225	0.147	0.146	0.099	0.016	0.039	0.28	0	1.84	--	--	
Max	0.028	0.008	0	0	0.043	0.024	0	0.004	0	0.004	0.004	0.043	0.485	0.245	0	0	0.225	0.115	0.13	0.067	0.016	0.039	0.201	0	--	0.485	--	
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, Precip_Inches"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Total	Max	Min		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.004	0	0.016	0	0	0	0	0.016	0	0	0	0	0.036	0.016	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	
8	0	0	0	0.02	0.084	0.096	0.048	0.067	0.157	0.048	0.008	0.056	0.08	0.012	0.004	0	0	0	0	0	0	0	0	0	0	0.68	0.157	0	
9	0	0	0	0	0	0	0.004	0.004	0	0	0	0	0	0	0	0	0	0.004	0.008	0.004	0	0	0	0	0	0.024	0.008	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	
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	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
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	0.008	0.008	0.008	0	
17	0.004	0	0	0.004	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.004	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	
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	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
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	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	
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	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.279	0.032	0	0	0	0.406	0	0	0	0.717	0.406	0	
28	0	0	0.004	0.067	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.071	0.067	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	
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	
Total	0.004	0	0.004	0.091	0.084	0.1	0.052	0.071	0.157	0.048	0.008	0.056	0.08	0.012	0.008	0	0.295	0.036	0.008	0.004	0.016	0.406	0	0.008	1.55	--	--		
Max	0.004	0	0.004	0.067	0.084	0.096	0.048	0.067	0.157	0.048	0.008	0.056	0.08	0.012	0.004	0	0.279	0.032	0.008	0.004	0.016	0.406	0	0.008	--	0.406	--		
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	0		

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, BP_mmHg"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	680	680	680	680	680	681	681	682	682	682	682	682	681	680	680	680	679	679	679	679	679	680	680	680	680	680	682	679
2	680	680	680	680	681	682	682	683	683	683	683	683	682	682	681	681	680	680	680	680	681	681	682	682	682	681	683	680
3	682	682	683	683	683	684	684	684	684	684	684	683	683	682	681	681	681	682	682	683	684	685	685	685	685	683	685	681
4	685	685	685	685	685	685	685	685	685	685	685	685	685	685	684	684	683	683	683	684	684	685	685	685	685	685	685	683
5	685	685	685	685	685	686	686	686	686	686	686	686	686	685	684	684	683	683	683	683	683	684	686	686	685	685	686	683
6	685	684	684	683	684	684	684	684	685	684	684	684	683	683	682	681	681	681	681	681	681	681	682	681	681	683	685	681
7	681	681	681	681	682	682	682	683	683	683	683	682	682	681	681	680	680	680	680	681	682	682	682	682	682	682	683	680
8	682	682	682	682	682	683	683	684	684	684	684	683	683	682	682	681	681	681	681	682	683	684	684	684	684	683	684	681
9	684	684	683	683	683	684	684	684	684	684	684	684	683	683	682	682	681	681	681	682	682	683	683	683	683	683	684	681
10	682	682	682	682	682	682	683	683	683	683	683	683	682	681	681	680	680	680	680	681	681	682	682	682	682	682	683	680
11	682	682	682	682	683	683	683	683	683	683	683	683	682	682	682	681	681	681	681	681	682	682	682	682	683	682	683	681
12	683	683	683	683	683	683	683	683	683	683	683	683	683	682	682	682	683	682	681	682	682	682	682	682	683	683	683	681
13	683	683	683	682	682	683	683	683	683	683	683	683	683	682	682	681	681	681	681	682	683	684	685	684	683	685	685	681
14	684	684	684	684	684	684	684	685	685	685	685	685	685	684	684	684	684	684	683	683	684	684	684	684	685	684	685	683
15	684	684	684	684	684	685	685	685	686	686	685	685	685	685	685	684	684	683	682	683	683	684	683	683	683	684	686	682
16	683	683	683	683	683	683	683	684	684	684	683	683	682	682	682	681	681	681	681	681	680	681	681	681	681	681	682	680
17	681	681	681	681	681	682	683	683	683	683	683	683	683	683	682	682	681	681	681	681	681	681	681	681	682	682	682	681
18	682	682	682	683	683	683	683	684	684	684	684	684	683	683	683	682	682	681	681	681	682	682	682	682	682	683	684	681
19	682	682	682	682	683	683	683	684	684	684	684	684	683	683	683	682	682	682	682	682	682	682	682	682	682	683	684	682
20	682	683	683	683	683	683	684	684	684	684	684	684	684	684	684	683	682	682	682	682	682	683	683	683	683	683	684	682
21	683	683	683	684	684	684	685	685	685	685	685	685	684	684	684	683	683	683	683	683	683	683	684	683	683	684	685	683
22	683	683	683	683	683	684	684	684	685	685	684	684	684	683	683	682	682	682	682	682	682	683	683	683	684	683	685	682
23	684	684	684	683	684	684	684	684	684	684	684	684	684	683	682	682	681	682	682	682	683	683	683	683	683	683	684	681
24	683	683	683	683	682	683	683	683	683	683	683	683	682	682	681	680	680	680	680	680	681	681	682	683	682	683	682	680
25	683	683	683	683	683	683	683	684	684	684	683	683	683	682	681	681	681	682	683	683	683	683	683	683	683	683	684	681
26	683	683	683	683	683	684	684	684	685	685	684	684	683	683	682	682	681	681	681	681	682	684	683	682	683	685	685	681
27	683	683	683	684	686	686	687	686	686	686	685	684	684	683	683	682	683	683	683	683	684	685	686	686	684	687	682	682
28	685	685	685	685	685	685	686	686	687	687	687	687	686	686	685	685	684	684	684	684	684	685	685	684	685	687	682	682
29	684	684	684	684	684	684	685	685	685	685	685	685	684	--	--	--	682	682	682	682	682	683	683	683	684	685	682	
30	683	682	682	682	682	683	683	683	684	684	684	683	683	683	682	682	681	681	681	681	681	682	682	682	683	682	684	681
31	682	682	683	683	683	683	683	684	684	685	685	684	684	683	683	682	682	681	681	681	682	682	683	683	682	683	685	681
Avg	683	683	683	683	683	683	684	684	684	684	684	684	683	683	682	682	682	681	682	682	682	683	683	683	683	683	683	--
Max	685	685	685	685	686	686	687	686	687	687	687	687	686	686	685	685	684	684	684	684	685	686	686	686	686	687	--	
Min	680	680	680	680	680	681	681	682	682	682	682	682	681	680	680	680	680	679	679	679	679	680	680	680	680	680	--	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table100, BP_mmHg"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min		
1	684	684	684	684	684	684	685	685	685	685	684	684	684	683	682	682	682	682	682	682	683	683	683	683	683	683	685	682	
2	684	684	684	684	684	684	684	684	684	684	684	684	684	683	683	682	682	682	683	683	684	684	684	684	683	684	684	682	
3	683	683	683	683	683	684	684	684	684	685	684	684	684	683	683	682	682	681	681	682	683	684	684	684	684	683	685	681	
4	683	683	683	683	683	684	684	684	684	684	684	684	683	683	683	682	682	681	682	682	682	683	683	683	683	683	684	681	
5	683	683	683	683	683	684	684	684	685	685	685	684	684	684	683	683	683	682	682	682	683	683	683	683	683	683	685	682	
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7	682	682	682	683	683	683	683	683	684	684	684	683	683	683	682	682	681	681	681	681	681	682	682	682	682	682	684	681	
8	682	682	682	682	683	683	683	683	684	684	684	683	683	682	682	681	681	680	680	681	682	682	682	682	682	682	684	680	
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10	684	684	684	683	683	684	684	684	684	684	684	684	683	683	682	682	681	681	682	683	683	683	683	683	683	683	684	681	
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12	683	683	683	683	684	684	684	684	684	684	684	684	683	682	682	682	683	683	682	683	684	684	684	684	684	683	684	682	
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16	683	683	683	683	683	684	684	684	685	685	685	685	685	684	684	683	682	682	682	682	682	683	683	683	683	683	683	685	682
17	683	683	683	683	683	684	684	684	684	684	684	683	683	682	681	681	680	682	681	682	682	682	682	682	682	682	684	680	
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19	682	682	681	681	681	681	682	682	682	682	682	682	682	681	681	681	681	681	680	680	681	681	682	682	682	681	682	680	
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22	684	683	683	683	683	683	684	684	684	684	684	684	683	683	683	682	682	682	682	682	682	682	683	683	683	683	684	682	
23	683	682	682	682	683	683	683	683	683	684	683	683	683	682	682	681	681	681	681	681	681	681	681	681	681	681	684	681	
24	681	681	681	681	681	681	681	682	682	682	682	682	682	681	681	680	680	680	680	680	681	681	681	681	681	681	682	680	
25	682	682	682	682	682	683	683	683	683	684	683	683	683	682	682	681	681	681	681	682	682	683	684	684	684	682	684	681	
26	683	683	683	683	684	684	684	685	685	685	685	684	684	683	683	682	682	682	683	683	684	684	684	684	684	684	685	682	
27	684	684	684	684	684	685	685	686	686	686	686	686	685	685	684	684	683	683	683	683	684	684	684	684	684	684	686	683	
28	684	684	683	683	683	684	684	684	684	684	684	683	683	682	682	681	681	681	681	681	681	682	681	681	681	683	684	681	
29	681	681	681	681	681	681	681	681	682	682	682	681	681	680	680	679	679	679	679	679	680	680	680	680	680	681	682	679	
30	680	680	680	680	680	681	681	681	682	682	682	681	681	680	680	680	679	679	679	679	679	680	680	680	680	680	682	679	
31	680	681	681	681	681	681	682	682	682	682	682	682	681	681	680	680	680	680	679	680	680	681	681	681	681	681	682	679	
Avg	683	683	683	683	683	683	683	684	684	684	684	683	683	683	682	682	681	681	681	682	682	682	683	683	683	683	683	--	--
Max	684	684	684	684	684	685	685	686	686	686	686	686	685	685	684	684	683	683	683	684	684	684	684	684	684	684	686	--	
Min	680	680	680	680	680	681	681	681	682	682	682	681	681	680	680	679	679	679	679	679	679	680	680	680	680	680	--	679	

Appendix B: PM₁₀ and PM_{2.5} Data - Hourly

SAROAD for Resolution, East_Plant
"Component, Channel: Table126, conc_PM_{2.5}_μg/m³ Actual"
Month: Aug 2014

Day	Hour of day																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	6.0	4.0	3.0	3.0	4.0	6.0	6.0	5.0	7.0	16.0	3.0	3.0	3.0	4.0	6.0	8.0	8.0	5.0	5.0	5.0	3.0	1.0	1.0	5.0	16.0	1.0	
2	3.0	4.0	3.0	2.0	2.0	0.0	-1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	2.0	0.0	0.0	1.0	-1.0	2.0	1.0	-2.0	-1.0	0.0	1.0	4.0	-2.0
3	1.0	3.0	4.0	4.0	2.0	2.0	4.0	2.0	1.0	1.0	2.0	4.0	3.0	1.0	1.0	2.0	2.0	2.0	1.0	2.0	3.0	2.0	0.0	-1.0	2.0	4.0	-1.0
4	0.0	1.0	0.0	-1.0	1.0	2.0	4.0	2.0	1.0	2.0	2.0	5.0	5.0	3.0	3.0	2.0	4.0	6.0	6.0	6.0	5.0	3.0	1.0	5.0	2.8	6.0	-1.0
5	7.0	4.0	3.0	5.0	6.0	3.0	4.0	5.0	1.0	2.0	4.0	6.0	7.0	3.0	3.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0	5.0	6.0	4.1	7.0	1.0
6	4.0	2.0	4.0	3.0	2.0	3.0	5.0	6.0	6.0	6.0	6.0	6.0	4.0	3.0	4.0	3.0	2.0	5.0	6.0	6.0	6.0	4.0	5.0	6.0	4.5	6.0	2.0
7	4.0	4.0	6.0	5.0	4.0	3.0	4.0	4.0	2.0	4.0	4.0	3.0	4.0	3.0	1.0	3.0	4.0	4.0	6.0	6.0	5.0	3.0	2.0	3.0	3.8	6.0	1.0
8	5.0	3.0	4.0	4.0	4.0	6.0	6.0	5.0	5.0	6.0	7.0	4.0	2.0	4.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0	4.0	3.0	5.0	7.0	2.0
9	6.0	6.0	6.0	5.0	3.0	2.0	2.0	1.0	4.0	5.0	1.0	1.0	2.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	3.0	4.0	3.0	1.0	3.7	6.0	1.0
10	3.0	3.0	0.0	0.0	2.0	3.0	6.0	5.0	1.0	3.0	3.0	2.0	3.0	5.0	4.0	4.0	5.0	4.0	4.0	3.0	3.0	4.0	3.0	1.0	3.1	6.0	0.0
11	2.0	4.0	3.0	2.0	3.0	5.0	4.0	3.0	3.0	3.0	4.0	4.0	6.0	7.0	5.0	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.8	7.0	2.0
12	5.0	3.0	3.0	4.0	6.0	6.0	4.0	3.0	5.0	6.0	8.0	9.0	5.0	4.0	4.0	5.0	5.0	0.0	0.0	2.0	2.0	4.0	3.0	2.0	4.1	9.0	0.0
13	-1.0	-2.0	-3.0	0.0	3.0	2.0	-2.0	-1.0	1.0	2.0	1.0	0.0	3.0	4.0	2.0	0.0	4.0	6.0	2.0	1.0	1.0	2.0	2.0	3.0	1.3	6.0	-3.0
14	4.0	4.0	3.0	2.0	0.0	0.0	2.0	2.0	4.0	3.0	-2.0	1.0	3.0	0.0	2.0	2.0	1.0	-2.0	-1.0	3.0	3.0	3.0	2.0	0.0	1.6	4.0	-2.0
15	-2.0	0.0	2.0	2.0	0.0	-1.0	1.0	2.0	5.0	3.0	1.0	0.0	2.0	2.0	0.0	2.0	5.0	3.0	4.0	6.0	3.0	2.0	2.0	2.0	1.9	6.0	-2.0
16	3.0	3.0	2.0	2.0	2.0	1.0	5.0	6.0	6.0	5.0	1.0	3.0	4.0	3.0	3.0	5.0	6.0	5.0	5.0	5.0	5.0	4.0	5.0	4.0	3.9	6.0	1.0
17	3.0	5.0	5.0	4.0	2.0	0.0	2.0	4.0	0.0	0.0	2.0	3.0	2.0	2.0	4.0	5.0	5.0	3.0	4.0	4.0	1.0	0.0	1.0	2.0	2.6	5.0	0.0
18	3.0	4.0	2.0	1.0	4.0	4.0	4.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0	1.0	0.0	2.0	0.0	-1.0	2.0	0.0	1.7	4.0	-1.0
19	-2.0	-1.0	2.0	1.0	-1.0	0.0	-1.0	1.0	2.0	3.0	2.0	1.0	-1.0	-1.0	0.0	-2.0	1.0	4.0	1.0	1.0	0.0	-1.0	-2.0	-1.0	0.3	4.0	-2.0
20	3.0	2.0	2.0	1.0	0.0	0.0	0.0	3.0	4.0	2.0	3.0	4.0	1.0	1.0	4.0	4.0	6.0	5.0	1.0	1.0	2.0	3.0	5.0	6.0	2.5	6.0	0.0
21	7.0	6.0	4.0	4.0	5.0	4.0	3.0	3.0	3.0	2.0	3.0	4.0	2.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0	5.0	7.0	48.0	30.0	6.3	48.0	1.0
22	34.0	15.0	8.0	5.0	3.0	5.0	3.0	1.0	5.0	6.0	6.0	6.0	4.0	5.0	6.0	3.0	3.0	2.0	3.0	1.0	1.0	2.0	2.0	-1.0	5.3	34.0	-1.0
23	-1.0	0.0	2.0	4.0	2.0	0.0	2.0	3.0	2.0	-1.0	-1.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	1.0	1.0	0.0	3.0	5.0	1.4	5.0	-1.0
24	3.0	4.0	1.0	1.0	3.0	3.0	2.0	4.0	6.0	2.0	3.0	4.0	2.0	3.0	3.0	3.0	2.0	3.0	5.0	4.0	1.0	1.0	1.0	1.0	2.7	6.0	1.0
25	4.0	4.0	4.0	5.0	1.0	-2.0	1.0	0.0	0.0	1.0	-1.0	0.0	-1.0	0.0	5.0	4.0	2.0	3.0	6.0	3.0	-1.0	2.0	4.0	3.0	2.0	6.0	-2.0
26	5.0	5.0	4.0	1.0	0.0	1.0	1.0	-2.0	-1.0	1.0	3.0	3.0	3.0	4.0	3.0	3.0	0.0	-1.0	-1.0	0.0	0.0	1.0	1.0	0.0	1.4	5.0	-2.0
27	-1.0	-2.0	0.0	2.0	1.0	0.0	-1.0	-1.0	1.0	2.0	1.0	1.0	0.0	-1.0	2.0	2.0	1.0	4.0	2.0	1.0	2.0	3.0	4.0	3.0	1.1	4.0	-2.0
28	2.0	4.0	4.0	3.0	2.0	2.0	5.0	6.0	4.0	2.0	3.0	2.0	2.0	4.0	4.0	2.0	3.0	5.0	5.0	4.0	2.0	2.0	2.0	2.0	3.2	6.0	2.0
29	2.0	1.0	3.0	3.0	1.0	2.0	4.0	3.0	2.0	2.0	2.0	0.0	1.0	3.0	0.0	-1.0	1.0	4.0	5.0	3.0	3.0	3.0	2.0	1.0	2.1	5.0	-1.0
30	1.0	2.0	4.0	5.0	5.0	4.0	6.0	6.0	3.0	3.0	4.0	6.0	5.0	2.0	2.0	3.0	3.0	3.0	2.0	4.0	4.0	4.0	2.0	2.0	3.5	6.0	1.0
31	4.0	4.0	3.0	3.0	6.0	9.0	6.0	3.0	3.0	1.0	0.0	1.0	1.0	2.0	4.0	4.0	6.0	3.0	2.0	3.0	2.0	5.0	6.0	6.0	3.6	9.0	0.0
Avg	3.8	3.2	2.9	2.7	2.5	2.4	2.9	2.8	2.9	3.1	2.5	2.9	2.7	2.6	2.9	2.8	3.3	3.2	3.0	3.3	2.6	2.5	3.9	3.2	2.9	--	--
Max	34.0	15.0	8.0	5.0	6.0	9.0	6.0	6.0	7.0	16.0	8.0	9.0	7.0	7.0	6.0	8.0	8.0	6.0	6.0	6.0	6.0	7.0	48.0	30.0	--	48.0	--
Min	-2.0	-2.0	-3.0	-1.0	-1.0	-2.0	-2.0	-2.0	-1.0	-1.0	-2.0	0.0	-1.0	-1.0	0.0	-2.0	0.0	-2.0	-1.0	0.0	-1.0	-2.0	-2.0	-1.0	--	--	-3.0

SAROAD for Resolution, East_Plant
"Component, Channel: Table126, conc_PM_{2.5}_µg/m³ Actual"
Month: Sep 2014

Day	Hour of day																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	5.0	2.0	3.0	4.0	2.0	4.0	5.0	5.0	5.0	3.0	2.0	4.0	4.0	1.0	0.0	1.0	0.0	1.0	3.0	1.0	2.0	3.0	4.0	2.0	2.8	5.0	0.0	
2	2.0	2.0	2.0	3.0	2.0	1.0	4.0	3.0	3.0	4.0	2.0	2.0	5.0	--	6.0	1.0	1.0	3.0	3.0	5.0	5.0	4.0	2.0	1.0	2.9	6.0	1.0	
3	3.0	2.0	2.0	2.0	2.0	5.0	6.0	3.0	2.0	5.0	5.0	3.0	1.0	2.0	2.0	3.0	4.0	1.0	0.0	3.0	2.0	3.0	5.0	2.8	6.0	0.0		
4	4.0	3.0	4.0	4.0	2.0	2.0	3.0	3.0	4.0	2.0	1.0	2.0	3.0	3.0	2.0	4.0	3.0	2.0	4.0	7.0	9.0	6.0	2.0	4.0	3.5	9.0	1.0	
5	4.0	4.0	4.0	3.0	2.0	2.0	2.0	4.0	5.0	3.0	4.0	4.0	4.0	3.0	2.0	5.0	6.0	4.0	2.0	3.0	2.0	3.0	6.0	6.0	3.6	6.0	2.0	
6	6.0	5.0	2.0	2.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	2.0	2.0	-1.0	1.0	4.0	3.0	1.0	2.0	3.0	1.0	0.0	2.0	3.0	2.5	6.0	-1.0	
7	1.0	-1.0	2.0	1.0	-1.0	-1.0	-1.0	0.0	0.0	2.0	2.0	-2.0	-1.0	2.0	0.0	0.0	0.0	2.0	1.0	-3.0	0.0	1.0	0.0	1.0	0.2	2.0	-3.0	
8	-2.0	-1.0	0.0	-2.0	-1.0	1.0	-1.0	-1.0	1.0	2.0	1.0	2.0	3.0	4.0	5.0	3.0	0.0	0.0	2.0	1.0	2.0	3.0	3.0	1.0	1.1	5.0	-2.0	
9	0.0	3.0	4.0	3.0	1.0	1.0	0.0	1.0	3.0	2.0	0.0	0.0	4.0	5.0	2.0	0.0	2.0	2.0	1.0	0.0	-1.0	1.0	2.0	0.0	1.5	5.0	-1.0	
10	0.0	3.0	1.0	1.0	2.0	2.0	3.0	4.0	4.0	3.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	3.0	5.0	2.0	3.0	3.0	4.0	6.0	2.2	6.0	0.0	
11	6.0	3.0	1.0	1.0	2.0	3.0	3.0	3.0	6.0	5.0	4.0	2.0	3.0	5.0	7.0	8.0	7.0	4.0	4.0	5.0	4.0	3.0	4.0	4.0	4.0	4.0	8.0	1.0
12	4.0	4.0	3.0	4.0	3.0	4.0	6.0	6.0	6.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	5.0	2.0	2.0	4.0	4.0	6.0	7.0	6.0	4.0	7.0	2.0	
13	5.0	3.0	3.0	3.0	4.0	5.0	3.0	2.0	4.0	4.0	3.0	3.0	2.0	1.0	-1.0	1.0	3.0	1.0	3.0	4.0	2.0	4.0	3.0	2.0	2.8	5.0	-1.0	
14	3.0	2.0	0.0	1.0	1.0	-1.0	0.0	-2.0	-1.0	0.0	-2.0	0.0	-1.0	-1.0	1.0	0.0	2.0	3.0	1.0	2.0	2.0	-1.0	-1.0	1.0	0.4	3.0	-2.0	
15	1.0	-1.0	-3.0	-3.0	0.0	2.0	2.0	2.0	3.0	3.0	2.0	-1.0	-1.0	0.0	2.0	4.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	1.0	0.8	4.0	-3.0	
16	1.0	2.0	0.0	-1.0	0.0	-1.0	0.0	3.0	1.0	-1.0	-3.0	-3.0	0.0	1.0	-1.0	0.0	1.0	1.0	0.0	-2.0	-1.0	-2.0	-2.0	-1.0	-0.3	3.0	-3.0	
17	-1.0	-1.0	-2.0	-1.0	0.0	-1.0	-3.0	0.0	3.0	0.0	0.0	1.0	0.0	1.0	0.0	-1.0	0.0	2.0	2.0	0.0	2.0	2.0	1.0	-1.0	0.1	3.0	-3.0	
18	-1.0	1.0	2.0	0.0	1.0	1.0	0.0	0.0	2.0	0.0	0.0	0.0	-1.0	1.0	-1.0	-3.0	0.0	-1.0	-2.0	0.0	3.0	1.0	-2.0	-1.0	0.0	3.0	-3.0	
19	-1.0	-2.0	-3.0	-1.0	2.0	2.0	0.0	1.0	2.0	0.0	-1.0	0.0	4.0	4.0	3.0	4.0	5.0	3.0	4.0	6.0	5.0	6.0	4.0	4.0	2.1	6.0	-3.0	
20	6.0	6.0	7.0	6.0	4.0	3.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0	2.0	2.0	2.0	1.0	3.0	7.0	8.0	5.0	5.0	6.0	6.0	4.5	8.0	1.0	
21	4.0	2.0	1.0	-1.0	0.0	2.0	1.0	4.0	3.0	-1.0	0.0	1.0	2.0	3.0	5.0	5.0	5.0	4.0	2.0	3.0	3.0	2.0	3.0	2.0	2.3	5.0	-1.0	
22	4.0	3.0	1.0	2.0	2.0	0.0	-1.0	0.0	2.0	1.0	1.0	0.0	-2.0	0.0	3.0	2.0	0.0	2.0	5.0	4.0	5.0	5.0	6.0	6.0	2.1	6.0	-2.0	
23	3.0	3.0	0.0	0.0	1.0	3.0	4.0	1.0	0.0	1.0	2.0	2.0	5.0	5.0	5.0	5.0	4.0	5.0	2.0	1.0	2.0	2.0	4.0	3.0	2.6	5.0	0.0	
24	2.0	-1.0	2.0	4.0	1.0	2.0	3.0	4.0	4.0	4.0	5.0	6.0	5.0	2.0	3.0	3.0	1.0	3.0	4.0	2.0	3.0	4.0	4.0	5.0	3.1	6.0	-1.0	
25	5.0	4.0	3.0	2.0	2.0	1.0	2.0	5.0	6.0	5.0	4.0	4.0	3.0	2.0	1.0	0.0	3.0	5.0	4.0	5.0	4.0	4.0	6.0	5.0	3.5	6.0	0.0	
26	4.0	3.0	2.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	5.0	4.0	5.0	4.0	0.0	0.0	3.0	5.0	3.0	2.0	2.0	1.0	2.0	1.0	2.9	5.0	0.0	
27	2.0	3.0	3.0	3.0	4.0	5.0	4.0	5.0	3.0	5.0	7.0	2.0	0.0	2.0	1.0	-3.0	2.0	4.0	2.0	2.0	0.0	1.0	1.0	1.0	2.5	7.0	-3.0	
28	2.0	2.0	2.0	0.0	0.0	1.0	0.0	-1.0	0.0	2.0	2.0	4.0	5.0	1.0	1.0	4.0	5.0	5.0	3.0	3.0	4.0	6.0	4.0	2.0	2.4	6.0	-1.0	
29	3.0	4.0	7.0	6.0	2.0	3.0	3.0	4.0	5.0	3.0	1.0	-1.0	--	--	0.0	-1.0	-2.0	0.0	2.0	3.0	2.0	3.0	0.0	0.0	2.1	7.0	-2.0	
30	2.0	2.0	1.0	-2.0	0.0	1.0	0.0	3.0	3.0	1.0	2.0	2.0	1.0	0.0	-1.0	1.0	2.0	2.0	3.0	4.0	3.0	1.0	1.0	1.0	1.4	4.0	-2.0	
Avg	2.6	2.1	1.8	1.6	1.5	1.9	1.9	2.4	3.0	2.5	2.0	1.7	2.1	2.0	1.8	1.9	2.3	2.5	2.5	2.6	2.7	2.6	2.6	2.5	2.2	--	--	
Max	6.0	6.0	7.0	6.0	4.0	5.0	6.0	6.0	6.0	5.0	7.0	6.0	5.0	5.0	7.0	8.0	7.0	5.0	7.0	8.0	9.0	6.0	7.0	6.0	--	9.0	--	
Min	-2.0	-2.0	-3.0	-3.0	-1.0	-1.0	-3.0	-2.0	-1.0	-1.0	-3.0	-3.0	-2.0	-1.0	-1.0	-3.0	-2.0	-1.0	-2.0	-3.0	-1.0	-2.0	-2.0	-1.0	--	--	-3.0	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table126, conc_PM2.5_µg/m³ Actual"
Month: Jul 2014

Day	Hour of day																								Avg	Max	Min	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	3.0	2.0	3.0	3.0	5.0	6.0	4.0	1.0	0.0	-1.0	-3.0	0.0	2.0	0.0	3.0	3.0	0.0	1.0	1.0	1.0	3.0	4.0	3.0	3.0	2.0	6.0	-3.0	
2	5.0	3.0	0.0	17.0	9.0	7.0	4.0	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	3.0	22.0	15.0	9.0	8.0	20.0	6.0	5.0	5.0	6.6	22.0	0.0	
3	7.0	6.0	6.0	5.0	1.0	4.0	6.0	1.0	3.0	3.0	6.0	17.0	11.0	9.0	8.0	8.0	6.0	17.0	38.0	35.0	32.0	32.0	8.0	8.0	11.5	38.0	1.0	
4	6.0	6.0	6.0	17.0	-3.0	3.0	7.0	5.0	3.0	4.0	3.0	6.0	7.0	5.0	7.0	6.0	5.0	4.0	4.0	6.0	7.0	15.0	6.0	7.0	5.9	17.0	-3.0	
5	5.0	4.0	10.0	9.0	5.0	6.0	7.0	5.0	1.0	1.0	0.0	-1.0	1.0	6.0	4.0	0.0	4.0	8.0	10.0	6.0	6.0	27.0	-2.0	-2.0	5.0	27.0	-2.0	
6	-2.0	0.0	3.0	6.0	3.0	1.0	0.0	0.0	-1.0	2.0	4.0	1.0	2.0	1.0	-4.0	-3.0	1.0	0.0	3.0	4.0	2.0	2.0	1.0	1.0	1.1	6.0	-4.0	
7	0.0	0.0	3.0	4.0	4.0	5.0	5.0	3.0	3.0	4.0	3.0	1.0	2.0	0.0	--	5.0	6.0	3.0	4.0	4.0	3.0	0.0	0.0	2.0	2.8	6.0	0.0	
8	3.0	1.0	-1.0	2.0	5.0	4.0	2.0	1.0	-1.0	1.0	6.0	4.0	2.0	2.0	2.0	6.0	8.0	4.0	2.0	5.0	5.0	4.0	5.0	5.0	3.2	8.0	-1.0	
9	3.0	2.0	0.0	3.0	3.0	0.0	4.0	7.0	8.0	5.0	1.0	2.0	3.0	3.0	2.0	0.0	1.0	1.0	0.0	4.0	4.0	2.0	3.0	0.0	2.5	8.0	0.0	
10	-1.0	-1.0	-1.0	1.0	1.0	0.0	3.0	4.0	3.0	-2.0	-3.0	0.0	-2.0	-2.0	0.0	3.0	3.0	1.0	1.0	3.0	3.0	1.0	0.0	0.0	0.6	4.0	-3.0	
11	-1.0	2.0	5.0	5.0	3.0	1.0	0.0	0.0	1.0	1.0	1.0	2.0	1.0	0.0	1.0	3.0	3.0	3.0	7.0	8.0	4.0	1.0	3.0	4.0	2.4	8.0	-1.0	
12	3.0	2.0	2.0	3.0	1.0	3.0	5.0	4.0	1.0	0.0	1.0	0.0	-2.0	-2.0	0.0	5.0	7.0	5.0	5.0	2.0	2.0	4.0	0.0	4.0	2.3	7.0	-2.0	
13	5.0	2.0	3.0	4.0	3.0	2.0	1.0	-1.0	-1.0	1.0	4.0	1.0	-2.0	0.0	3.0	3.0	4.0	2.0	1.0	4.0	5.0	3.0	5.0	4.0	2.3	5.0	-2.0	
14	0.0	0.0	2.0	2.0	3.0	2.0	1.0	1.0	0.0	2.0	5.0	5.0	4.0	6.0	5.0	4.0	6.0	5.0	4.0	4.0	5.0	4.0	3.0	7.0	3.3	7.0	0.0	
15	8.0	6.0	5.0	5.0	6.0	7.0	7.0	5.0	3.0	2.0	5.0	5.0	5.0	9.0	6.0	2.0	3.0	5.0	5.0	4.0	6.0	4.0	4.0	4.0	5.0	9.0	2.0	
16	5.0	2.0	0.0	3.0	3.0	3.0	4.0	1.0	-1.0	-1.0	1.0	1.0	-1.0	0.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	1.0	2.0	2.0	5.0	-1.0
17	5.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	1.0	1.0	2.0	2.0	1.0	2.0	3.0	4.0	5.0	4.0	2.0	3.0	4.0	2.0	-1.0	0.0	2.4	5.0	-1.0	
18	0.0	0.0	2.0	2.0	1.0	1.0	3.0	5.0	2.0	1.0	-1.0	-4.0	0.0	2.0	0.0	-1.0	-1.0	-1.0	1.0	2.0	4.0	3.0	3.0	3.0	1.1	5.0	-4.0	
19	1.0	1.0	3.0	4.0	4.0	3.0	3.0	2.0	0.0	0.0	-1.0	-1.0	2.0	0.0	-1.0	-1.0	0.0	3.0	5.0	5.0	4.0	3.0	21.0	5.0	2.7	21.0	-1.0	
20	4.0	4.0	4.0	5.0	3.0	2.0	5.0	3.0	0.0	-2.0	-1.0	-1.0	-2.0	-1.0	1.0	2.0	2.0	2.0	0.0	0.0	1.0	2.0	4.0	3.0	1.7	5.0	-2.0	
21	1.0	2.0	1.0	-1.0	-1.0	1.0	4.0	3.0	1.0	-3.0	-5.0	-2.0	0.0	2.0	1.0	0.0	2.0	0.0	2.0	3.0	3.0	4.0	3.0	4.0	1.0	4.0	-5.0	
22	3.0	0.0	-1.0	1.0	0.0	0.0	1.0	1.0	4.0	2.0	1.0	4.0	2.0	0.0	2.0	1.0	0.0	2.0	5.0	7.0	7.0	6.0	3.0	3.0	2.3	7.0	-1.0	
23	4.0	4.0	3.0	1.0	2.0	3.0	3.0	1.0	-1.0	-1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	2.0	3.0	5.0	8.0	9.0	7.0	5.0	2.5	9.0	-1.0	
24	5.0	5.0	5.0	6.0	8.0	6.0	7.0	7.0	5.0	7.0	5.0	5.0	6.0	6.0	7.0	8.0	7.0	7.0	5.0	4.0	5.0	6.0	9.0	8.0	6.2	9.0	4.0	
25	5.0	8.0	9.0	7.0	17.0	12.0	12.0	10.0	8.0	7.0	6.0	7.0	7.0	11.0	13.0	16.0	16.0	16.0	29.0	27.0	20.0	8.0	10.0	9.0	12.1	29.0	5.0	
26	6.0	4.0	6.0	8.0	8.0	7.0	5.0	6.0	5.0	0.0	0.0	-1.0	-1.0	2.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	9.0	6.0	3.0	4.8	9.0	-1.0	
27	3.0	4.0	5.0	3.0	3.0	7.0	9.0	5.0	1.0	0.0	0.0	-2.0	0.0	3.0	3.0	5.0	8.0	6.0	1.0	1.0	4.0	5.0	2.0	2.0	3.3	9.0	-2.0	
28	4.0	3.0	1.0	2.0	4.0	3.0	0.0	1.0	1.0	--	1.0	2.0	2.0	2.0	-1.0	-2.0	-1.0	0.0	1.0	2.0	3.0	2.0	2.0	3.0	1.5	4.0	-2.0	
29	1.0	1.0	5.0	6.0	3.0	1.0	0.0	-1.0	-1.0	1.0	0.0	-1.0	-1.0	0.0	2.0	--	--	6.0	4.0	5.0	28.0	6.0	5.0	4.0	3.4	28.0	-1.0	
30	5.0	5.0	3.0	2.0	4.0	2.0	1.0	4.0	1.0	0.0	2.0	3.0	5.0	5.0	3.0	3.0	3.0	3.0	5.0	8.0	10.0	9.0	8.0	5.0	4.1	10.0	0.0	
31	4.0	5.0	7.0	7.0	6.0	4.0	2.0	3.0	1.0	2.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	6.0	8.0	6.0	8.0	8.0	5.0	4.0	4.5	8.0	1.0	
Avg	3.2	2.8	3.3	4.7	3.8	3.5	3.8	2.9	1.7	1.3	1.6	2.0	2.0	2.6	2.9	3.2	4.4	4.5	5.6	6.0	7.3	6.3	4.3	3.7	3.6	--	--	
Max	8.0	8.0	10.0	17.0	17.0	12.0	12.0	10.0	8.0	7.0	6.0	17.0	11.0	11.0	13.0	16.0	22.0	17.0	38.0	35.0	32.0	32.0	21.0	9.0	--	38.0	--	
Min	-2.0	-1.0	-1.0	-1.0	-3.0	0.0	0.0	-1.0	-1.0	-3.0	-5.0	-4.0	-2.0	-2.0	-4.0	-3.0	-1.0	-1.0	0.0	0.0	1.0	0.0	-2.0	-2.0	--	--	-5.0	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table126, conc_PM2.5_µg/m³ Actual"
Month: Aug 2014

		Hour of day																								Avg	Max	Min
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1	4.0	7.0	7.0	7.0	8.0	6.0	5.0	2.0	4.0	6.0	5.0	2.0	3.0	3.0	2.0	4.0	6.0	9.0	8.0	3.0	2.0	2.0	3.0	2.0	4.6	9.0	2.0	
2	5.0	2.0	0.0	4.0	2.0	2.0	1.0	-1.0	-1.0	0.0	1.0	0.0	0.0	1.0	2.0	1.0	-4.0	-1.0	0.0	-1.0	1.0	1.0	2.0	2.0	0.8	5.0	-4.0	
3	2.0	3.0	2.0	0.0	1.0	2.0	1.0	-4.0	-4.0	0.0	2.0	1.0	2.0	2.0	4.0	3.0	1.0	2.0	2.0	4.0	3.0	2.0	4.0	2.0	1.5	4.0	-4.0	
4	1.0	4.0	3.0	4.0	5.0	0.0	0.0	0.0	0.0	2.0	-1.0	-1.0	3.0	5.0	2.0	2.0	2.0	1.0	4.0	3.0	2.0	2.0	0.0	1.0	1.8	5.0	-1.0	
5	3.0	2.0	2.0	3.0	0.0	-1.0	-3.0	-3.0	0.0	1.0	-2.0	-3.0	1.0	2.0	2.0	3.0	1.0	1.0	4.0	4.0	5.0	4.0	3.0	3.0	1.3	5.0	-3.0	
6	4.0	3.0	1.0	2.0	2.0	4.0	8.0	6.0	1.0	1.0	1.0	0.0	3.0	4.0	6.0	6.0	5.0	2.0	1.0	4.0	16.0	7.0	5.0	3.0	4.0	16.0	0.0	
7	2.0	3.0	5.0	4.0	3.0	6.0	6.0	3.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	5.0	7.0	3.0	1.0	2.0	2.3	7.0	0.0	
8	2.0	1.0	-2.0	1.0	3.0	2.0	5.0	6.0	4.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0	1.0	1.0	2.0	5.0	6.0	6.0	6.0	7.0	3.2	7.0	-2.0	
9	9.0	5.0	7.0	7.0	6.0	4.0	3.0	3.0	2.0	1.0	0.0	-1.0	2.0	3.0	2.0	3.0	4.0	6.0	6.0	5.0	6.0	5.0	4.0	5.0	4.0	9.0	-1.0	
10	2.0	2.0	2.0	0.0	2.0	5.0	5.0	5.0	2.0	1.0	-1.0	-2.0	0.0	3.0	3.0	2.0	3.0	6.0	8.0	9.0	10.0	6.0	-1.0	1.0	3.0	10.0	-2.0	
11	1.0	1.0	1.0	1.0	2.0	2.0	3.0	4.0	2.0	1.0	3.0	3.0	1.0	3.0	3.0	4.0	2.0	4.0	6.0	6.0	4.0	4.0	4.0	2.0	2.8	6.0	1.0	
12	3.0	4.0	4.0	3.0	2.0	2.0	0.0	0.0	1.0	2.0	2.0	0.0	0.0	2.0	3.0	3.0	4.0	1.0	-1.0	1.0	0.0	-1.0	-1.0	-1.0	1.4	4.0	-1.0	
13	-1.0	-2.0	-2.0	0.0	0.0	-2.0	-4.0	-3.0	-1.0	1.0	0.0	-1.0	2.0	3.0	3.0	3.0	3.0	1.0	2.0	3.0	1.0	2.0	3.0	3.0	0.6	3.0	-4.0	
14	1.0	-1.0	0.0	3.0	3.0	2.0	1.0	0.0	0.0	1.0	3.0	3.0	3.0	2.0	1.0	0.0	0.0	2.0	4.0	4.0	3.0	2.0	1.0	0.0	1.6	4.0	-1.0	
15	-1.0	1.0	2.0	3.0	2.0	3.0	3.0	--	-1.0	0.0	1.0	1.0	1.0	0.0	3.0	1.0	1.0	1.0	3.0	4.0	1.0	2.0	4.0	5.0	1.7	5.0	-1.0	
16	2.0	1.0	3.0	2.0	3.0	1.0	1.0	0.0	0.0	1.0	0.0	-1.0	1.0	0.0	2.0	3.0	3.0	4.0	2.0	4.0	7.0	3.0	2.0	3.0	2.0	7.0	-1.0	
17	0.0	2.0	2.0	2.0	6.0	6.0	5.0	2.0	1.0	3.0	2.0	-1.0	0.0	2.0	4.0	5.0	3.0	6.0	9.0	6.0	2.0	1.0	3.0	2.0	3.0	9.0	-1.0	
18	2.0	4.0	2.0	3.0	3.0	0.0	-1.0	-1.0	1.0	1.0	-2.0	-3.0	-3.0	-1.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	2.0	0.0	-2.0	0.4	4.0	-3.0	
19	-2.0	-1.0	-1.0	-1.0	-1.0	-2.0	-3.0	-2.0	-1.0	-1.0	-1.0	-1.0	0.0	-1.0	-2.0	-3.0	-2.0	-2.0	0.0	2.0	1.0	1.0	0.0	0.0	-1.0	2.0	-3.0	
20	0.0	-2.0	0.0	3.0	3.0	4.0	5.0	3.0	1.0	2.0	1.0	-2.0	1.0	3.0	3.0	2.0	0.0	0.0	2.0	5.0	5.0	2.0	0.0	4.0	1.9	5.0	-2.0	
21	6.0	3.0	3.0	1.0	0.0	2.0	3.0	2.0	4.0	4.0	-1.0	0.0	3.0	2.0	3.0	3.0	3.0	1.0	2.0	2.0	0.0	16.0	51.0	29.0	5.9	51.0	-1.0	
22	24.0	14.0	17.0	6.0	7.0	4.0	3.0	5.0	6.0	2.0	-1.0	2.0	3.0	2.0	2.0	1.0	2.0	3.0	0.0	1.0	4.0	5.0	3.0	2.0	4.9	24.0	-1.0	
23	5.0	5.0	2.0	0.0	-2.0	-1.0	0.0	1.0	0.0	-1.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	1.0	3.0	5.0	1.0	1.0	2.0	2.0	1.2	5.0	-2.0	
24	0.0	3.0	3.0	1.0	2.0	2.0	-1.0	-1.0	0.0	0.0	-3.0	-4.0	-3.0	-2.0	3.0	3.0	2.0	3.0	3.0	5.0	4.0	0.0	3.0	4.0	1.1	5.0	-4.0	
25	2.0	3.0	4.0	2.0	-2.0	-3.0	-1.0	-2.0	0.0	1.0	0.0	-1.0	0.0	2.0	1.0	1.0	1.0	3.0	4.0	3.0	1.0	1.0	4.0	3.0	1.1	4.0	-3.0	
26	2.0	3.0	3.0	0.0	-2.0	1.0	-2.0	-5.0	-3.0	-2.0	1.0	2.0	4.0	5.0	4.0	-1.0	-1.0	3.0	3.0	4.0	0.0	-1.0	3.0	1.0	0.9	5.0	-5.0	
27	0.0	2.0	0.0	1.0	2.0	2.0	5.0	3.0	1.0	2.0	-1.0	-2.0	-1.0	2.0	1.0	-1.0	0.0	4.0	4.0	1.0	3.0	3.0	2.0	1.0	1.4	5.0	-2.0	
28	-1.0	-1.0	2.0	3.0	3.0	2.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	0.0	0.0	-1.0	-3.0	-1.0	1.0	-1.0	4.0	7.0	5.0	4.0	2.0	0.9	7.0	-3.0	
29	1.0	0.0	-2.0	-2.0	1.0	2.0	2.0	2.0	-2.0	-4.0	-3.0	0.0	0.0	-2.0	-3.0	-2.0	-2.0	-1.0	2.0	2.0	3.0	2.0	0.0	0.0	-0.3	3.0	-4.0	
30	0.0	0.0	0.0	2.0	0.0	0.0	4.0	4.0	3.0	1.0	-2.0	-2.0	-1.0	-3.0	-3.0	-1.0	2.0	4.0	4.0	5.0	4.0	3.0	2.0	0.0	1.1	5.0	-3.0	
31	2.0	2.0	2.0	2.0	3.0	3.0	0.0	0.0	4.0	4.0	-1.0	0.0	2.0	2.0	5.0	5.0	3.0	1.0	0.0	0.0	1.0	4.0	7.0	6.0	2.4	7.0	-1.0	
Avg	2.6	2.4	2.3	2.2	2.2	1.9	1.7	0.9	0.8	1.1	0.2	-0.3	1.0	1.6	1.9	1.7	1.5	2.2	2.8	3.5	3.6	3.1	4.0	3.0	2.0	--	--	
Max	24.0	14.0	17.0	7.0	8.0	6.0	8.0	6.0	6.0	6.0	5.0	3.0	4.0	5.0	6.0	6.0	6.0	9.0	9.0	9.0	16.0	16.0	51.0	29.0	--	51.0	--	
Min	-2.0	-2.0	-2.0	-2.0	-2.0	-3.0	-4.0	-5.0	-4.0	-4.0	-3.0	-4.0	-3.0	-3.0	-3.0	-3.0	-4.0	-2.0	-1.0	-1.0	0.0	-1.0	-1.0	-2.0	--	--	-5.0	

-- Indicates Invalid Data

SAROAD for Resolution, West_Plant
"Component, Channel: Table126, conc_PM2.5_µg/m³ Actual"
Month: Sep 2014

Day	Hour of day																								Avg	Max	Min
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	5.0	6.0	3.0	2.0	4.0	2.0	2.0	2.0	2.0	3.0	-1.0	-2.0	0.0	0.0	2.0	0.0	0.0	2.0	5.0	4.0	4.0	4.0	2.0	3.0	2.3	6.0	-2.0
2	4.0	4.0	5.0	3.0	4.0	4.0	4.0	3.0	1.0	0.0	0.0	1.0	-1.0	-1.0	3.0	3.0	1.0	2.0	5.0	7.0	5.0	2.0	2.0	0.0	2.5	7.0	-1.0
3	1.0	1.0	1.0	5.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	1.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	1.0	2.0	2.0	3.0	2.1	5.0	0.0
4	3.0	3.0	3.0	1.0	-2.0	-2.0	2.0	3.0	3.0	4.0	2.0	0.0	-3.0	-2.0	2.0	0.0	2.0	3.0	4.0	9.0	17.0	4.0	6.0	5.0	2.8	17.0	-3.0
5	1.0	1.0	3.0	3.0	2.0	3.0	3.0	1.0	1.0	0.0	0.0	1.0	0.0	3.0	4.0	2.0	4.0	6.0	6.0	6.0	5.0	4.0	6.0	5.0	2.9	6.0	0.0
6	5.0	6.0	6.0	4.0	3.0	4.0	6.0	6.0	2.0	-1.0	1.0	2.0	-1.0	1.0	8.0	7.0	2.0	4.0	5.0	1.0	2.0	1.0	0.0	2.0	3.2	8.0	-1.0
7	-1.0	-5.0	-2.0	0.0	-1.0	-1.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-2.0	-3.0	-3.0	-1.0	1.0	-1.0	-1.0	1.0	1.0	-1.0	-2.0	-1.0	-1.7	1.0	-5.0
8	-2.0	-4.0	-2.0	-1.0	-2.0	-3.0	0.0	1.0	2.0	2.0	0.0	0.0	2.0	4.0	1.0	0.0	-1.0	-4.0	-1.0	3.0	3.0	1.0	-2.0	-5.0	-0.3	4.0	-5.0
9	-3.0	-3.0	-4.0	-1.0	2.0	0.0	1.0	0.0	-1.0	1.0	-3.0	-2.0	0.0	-1.0	3.0	6.0	3.0	1.0	3.0	1.0	-2.0	-2.0	-2.0	0.0	-0.1	6.0	-4.0
10	1.0	1.0	-1.0	-3.0	-4.0	-3.0	0.0	2.0	2.0	0.0	-3.0	-2.0	0.0	0.0	-1.0	0.0	0.0	0.0	1.0	3.0	4.0	2.0	2.0	1.0	0.1	4.0	-4.0
11	0.0	3.0	4.0	3.0	3.0	2.0	2.0	4.0	1.0	-1.0	0.0	1.0	4.0	7.0	9.0	11.0	9.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.7	11.0	-1.0
12	4.0	5.0	6.0	4.0	2.0	4.0	5.0	4.0	1.0	-1.0	-1.0	-1.0	-2.0	-3.0	0.0	3.0	1.0	2.0	5.0	6.0	5.0	3.0	2.0	-2.0	2.2	6.0	-3.0
13	1.0	2.0	0.0	3.0	1.0	-2.0	-1.0	0.0	-1.0	-2.0	-4.0	-4.0	-2.0	-1.0	-2.0	0.0	1.0	2.0	1.0	1.0	5.0	5.0	2.0	2.0	0.3	5.0	-4.0
14	-1.0	-1.0	2.0	2.0	-1.0	1.0	0.0	-2.0	-1.0	-3.0	-3.0	-4.0	-4.0	-4.0	-5.0	-2.0	1.0	-1.0	-1.0	1.0	1.0	0.0	-2.0	0.0	-1.1	2.0	-5.0
15	1.0	0.0	1.0	1.0	0.0	-2.0	-1.0	1.0	0.0	-1.0	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	1.0	4.0	1.0	-2.0	-1.0	-1.0	-3.0	-0.5	4.0	-3.0
16	-1.0	0.0	-3.0	-4.0	-2.0	1.0	0.0	-4.0	-5.0	-4.0	-4.0	-6.0	-7.0	-6.0	-6.0	-5.0	-4.0	1.0	-1.0	-2.0	-4.0	-5.0	-3.0	-4.0	-3.3	1.0	-7.0
17	-6.0	-4.0	-3.0	-2.0	-2.0	-1.0	-3.0	-3.0	0.0	-4.0	-3.0	-1.0	-1.0	-2.0	-3.0	-1.0	2.0	0.0	-3.0	0.0	1.0	2.0	1.0	1.0	-1.5	2.0	-6.0
18	-2.0	-6.0	-4.0	-1.0	0.0	2.0	3.0	1.0	-1.0	-4.0	-4.0	-1.0	1.0	2.0	2.0	-2.0	-4.0	-1.0	-2.0	-1.0	2.0	1.0	0.0	-1.0	-0.8	3.0	-6.0
19	-1.0	-1.0	-2.0	-2.0	0.0	0.0	1.0	-2.0	-3.0	-1.0	0.0	2.0	2.0	-1.0	1.0	5.0	3.0	3.0	6.0	3.0	4.0	7.0	3.0	3.0	1.3	7.0	-3.0
20	5.0	3.0	1.0	3.0	5.0	4.0	2.0	0.0	-2.0	-1.0	2.0	1.0	1.0	2.0	3.0	1.0	1.0	4.0	8.0	6.0	5.0	8.0	6.0	4.0	3.0	8.0	-2.0
21	5.0	4.0	2.0	-1.0	-1.0	0.0	2.0	1.0	0.0	-2.0	-2.0	0.0	3.0	2.0	2.0	4.0	4.0	3.0	3.0	5.0	4.0	3.0	4.0	1.0	1.9	5.0	-2.0
22	1.0	1.0	0.0	2.0	1.0	0.0	1.0	2.0	0.0	0.0	0.0	-2.0	-2.0	0.0	0.0	1.0	2.0	2.0	4.0	3.0	3.0	5.0	5.0	3.0	1.3	5.0	-2.0
23	2.0	4.0	4.0	0.0	-1.0	0.0	0.0	3.0	5.0	1.0	1.0	-2.0	-2.0	0.0	0.0	2.0	4.0	2.0	2.0	0.0	0.0	2.0	1.0	3.0	1.3	5.0	-2.0
24	2.0	2.0	3.0	3.0	1.0	1.0	4.0	3.0	0.0	0.0	1.0	-1.0	-2.0	3.0	4.0	1.0	-1.0	1.0	3.0	5.0	6.0	5.0	5.0	6.0	2.3	6.0	-2.0
25	5.0	1.0	-1.0	4.0	4.0	4.0	5.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	3.0	4.0	6.0	6.0	7.0	6.0	4.0	3.0	4.0	5.0	3.2	7.0	-1.0
26	1.0	3.0	5.0	3.0	0.0	1.0	4.0	5.0	3.0	--	-1.0	-1.0	0.0	-1.0	0.0	1.0	1.0	0.0	0.0	1.0	-1.0	-1.0	1.0	2.0	1.1	5.0	-1.0
27	0.0	-1.0	0.0	2.0	3.0	3.0	4.0	2.0	0.0	0.0	1.0	0.0	0.0	0.0	-3.0	-1.0	16.0	0.0	0.0	-1.0	-4.0	2.0	6.0	3.0	1.3	16.0	-4.0
28	1.0	2.0	5.0	4.0	3.0	0.0	2.0	2.0	1.0	0.0	1.0	4.0	1.0	0.0	1.0	3.0	4.0	4.0	3.0	3.0	5.0	3.0	2.0	1.0	2.3	5.0	0.0
29	2.0	3.0	3.0	5.0	6.0	3.0	4.0	5.0	3.0	3.0	3.0	0.0	0.0	--	1.0	-2.0	0.0	1.0	2.0	4.0	4.0	4.0	2.0	3.0	2.6	6.0	-2.0
30	6.0	3.0	0.0	1.0	-1.0	0.0	1.0	2.0	4.0	3.0	3.0	0.0	0.0	3.0	6.0	4.0	2.0	3.0	5.0	6.0	5.0	6.0	6.0	4.0	3.0	6.0	-1.0
Avg	1.3	1.1	1.2	1.4	1.0	0.9	1.8	1.5	0.6	-0.2	-0.5	-0.6	-0.5	0.1	1.0	1.4	2.0	1.7	2.6	2.9	2.9	2.4	2.1	1.6	1.2	--	--
Max	6.0	6.0	6.0	5.0	6.0	4.0	6.0	6.0	5.0	4.0	4.0	4.0	4.0	7.0	9.0	11.0	16.0	6.0	8.0	9.0	17.0	8.0	6.0	6.0	--	17.0	--
Min	-6.0	-6.0	-4.0	-4.0	-4.0	-3.0	-3.0	-4.0	-5.0	-4.0	-4.0	-6.0	-7.0	-6.0	-6.0	-5.0	-4.0	-4.0	-3.0	-2.0	-4.0	-5.0	-3.0	-5.0	--	--	-7.0

-- Indicates Invalid Data

Appendix C: NO₂, SO₂, O₃ Data - East Plant - Hourly

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, NO2_ppb"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-2.1	-1.9	-1.5	-1.8	-2.2	-1.6	-2.0	-2.5	-2.1	-1.4	-1.9	-2.3	-2.3	-2.3	-2.0	-2.3	-2.3	-2.5	-2.4	-1.9	-1.4	-1.8	-1.8	-2.1	-2.0	-1.4	-2.5
2	-1.7	-1.8	-1.8	-1.9	-2.1	-1.9	-1.8	-1.6	-1.5	-1.9	-2.4	-2.2	-2.3	-2.0	-2.3	-2.2	-2.2	-2.1	-2.0	-1.7	-1.5	1.3	-1.4	0.2	-1.7	1.3	-2.4
3	1.8	1.1	-1.3	-1.6	-1.6	-1.0	-0.7	0.0	--	--	-5.5	-5.3	-5.7	-5.9	-6.1	-6.3	-5.9	-5.4	-3.1	-3.4	-2.9	-4.3	-5.4	-5.2	-3.4	1.8	-6.3
4	-5.0	-3.6	-4.0	-4.2	-5.4	-3.3	-2.9	-4.1	-4.3	-3.8	-3.9	-4.5	-5.0	-5.1	-5.6	-5.6	-5.7	-6.0	-6.3	-6.5	-5.9	-6.2	-6.0	-5.5	-4.9	-2.9	-6.5
5	-4.9	-5.2	-5.6	-5.5	-5.2	-4.7	-4.5	-4.2	-4.9	-4.5	-4.7	-4.9	-5.3	-5.1	-5.7	-6.1	-5.8	-5.9	-6.1	-6.1	-5.9	-6.0	-5.3	-4.0	-5.2	-4.0	-6.1
6	-3.4	-4.2	-4.0	-4.9	-5.1	-4.7	-4.7	-3.7	-4.4	-1.6	-4.4	-4.3	-4.4	-4.1	-4.4	-4.3	-4.8	-4.9	-5.4	-5.1	-5.4	-5.4	-5.1	-4.9	-4.5	-1.6	-5.4
7	-3.7	-2.8	-2.5	-2.9	-3.1	-1.8	-3.1	-1.5	-2.6	-3.3	-3.0	-4.3	-4.9	-5.2	-5.3	-5.4	-5.2	-5.6	-5.6	-4.9	-4.4	-4.7	-4.8	-4.5	-4.0	-1.5	-5.6
8	-3.5	-1.7	0.8	-2.3	-4.7	-3.9	-1.9	-0.2	-0.6	0.2	-2.0	-4.1	-3.6	-4.5	-5.0	-5.5	-5.4	-5.6	-5.4	-5.5	-5.4	-5.3	-4.8	-5.9	-3.6	0.8	-5.9
9	-4.7	-4.9	-5.1	-5.3	-5.0	-4.1	-3.5	-3.9	-4.2	-4.2	-4.7	-4.6	-5.1	-4.8	-4.9	-5.1	-5.3	-5.7	-6.0	-5.5	-5.3	-5.0	-5.4	-5.5	-4.9	-3.5	-6.0
10	-5.5	-4.9	-3.8	-3.2	-2.9	-2.7	-3.1	-2.6	-3.5	-3.9	-4.2	-4.9	-5.0	-5.0	-5.2	-5.3	-5.4	-5.8	-6.1	-6.3	-5.9	-5.8	-5.3	-6.0	-4.7	-2.6	-6.3
11	-5.6	-5.6	-4.8	-0.6	-3.7	-5.4	-3.8	-2.9	-4.7	-5.0	-3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-2.7	-3.0	-2.9	-3.1	-3.1	-3.0	-2.3	5.5	--	--	--
16	-2.1	-3.6	-3.4	-1.9	-1.9	0.8	0.7	-0.6	-2.3	-1.9	-1.7	-2.2	-2.6	-2.7	-2.6	-2.6	-2.4	-2.3	-3.6	-3.0	-1.7	-1.5	0.2	-0.4	-1.9	0.8	-3.6
17	1.7	-1.0	-3.0	-3.1	-2.7	-3.6	-3.5	-3.5	-3.0	-1.5	-2.3	-2.3	-2.5	-2.4	-2.7	-3.3	-3.0	-3.3	-3.5	-1.6	-1.7	-3.6	-3.5	-3.3	-2.6	1.7	-3.6
18	-3.4	-3.7	-4.5	-4.2	-4.2	-4.6	-4.3	-3.9	-3.9	--	--	-3.8	-3.8	-3.1	-4.3	-4.2	-4.0	-4.5	-4.9	-4.4	-4.7	-4.2	-2.3	-4.0	-4.0	-2.3	-4.9
19	-4.7	-4.6	-4.4	-4.3	-3.0	-2.1	-0.4	-2.9	-3.4	-4.0	-2.5	-3.7	-1.8	-1.1	-1.8	-4.3	-4.2	-4.2	-4.5	-4.7	-4.5	-3.1	-2.6	-2.7	-3.3	-0.4	-4.7
20	-3.8	-3.8	-3.5	-4.5	-5.1	-4.1	-1.1	-2.6	-4.2	-4.2	-4.5	-4.6	-4.6	-4.5	-4.5	-4.6	-4.7	-4.9	-4.9	-5.1	-5.0	-4.9	-4.9	-4.5	-4.3	-1.1	-5.1
21	-4.5	-4.6	-4.6	-5.1	-4.8	-4.5	-4.1	-2.2	-4.0	-3.9	-2.4	-3.8	-4.0	-1.5	-2.4	-4.3	-4.5	-4.5	-4.6	-4.4	-3.3	-4.3	-4.4	-4.4	-4.0	-1.5	-5.1
22	-2.7	-4.2	-4.1	-2.7	-4.1	-4.5	-3.6	-1.9	-1.6	0.5	0.3	-2.3	-2.2	-1.2	-3.5	-4.2	-4.3	-4.4	-4.4	-4.0	-2.4	-3.6	-4.0	-2.2	-3.0	0.5	-4.5
23	-2.8	-4.2	-4.5	-4.2	-3.9	-3.9	-3.6	-3.2	-3.0	-3.0	-3.3	-3.8	-2.5	-2.3	-3.6	-4.2	-4.5	-4.7	-4.3	-2.4	-3.2	-3.9	-4.1	-3.3	-3.6	-2.3	-4.7
24	-1.8	-2.3	-2.5	-3.5	-2.7	-2.5	-2.1	-0.8	-2.9	-4.0	-4.1	--	--	-4.2	-4.3	-4.3	-4.5	-4.5	-4.8	-4.9	-3.0	-3.2	-4.4	-4.7	-3.5	-0.8	-4.9
25	-4.8	-4.9	-4.8	-4.5	-4.4	-3.5	-0.3	-2.7	-3.8	-2.9	-3.3	-3.4	-3.4	-1.0	-3.6	-4.6	-4.1	-4.5	-3.9	-4.3	-3.8	-2.3	-1.7	-2.7	-3.5	-0.3	-4.9
26	-3.6	-3.6	-3.6	-0.4	2.3	-0.4	-3.2	-3.5	-3.4	-3.3	-3.5	-3.7	-3.8	-3.8	-3.7	-3.8	-3.8	-3.9	-4.1	-4.2	-4.0	-3.7	-3.7	-3.0	-3.1	2.3	-4.2
27	-2.3	-0.9	-0.9	-3.6	-3.7	-3.3	-1.8	-2.5	-3.2	-3.1	-3.2	-3.1	-3.2	-3.1	-3.3	-3.7	-3.7	-4.1	-4.1	-3.9	-3.1	-3.2	-3.8	-4.0	-3.1	-0.9	-4.1
28	-2.5	-3.6	-3.1	-3.0	-1.8	0.1	-0.8	-0.6	-2.6	-3.4	-3.3	-3.2	-3.3	-2.2	-3.0	-3.4	-3.9	-4.2	-4.3	-4.4	-0.9	-1.8	0.0	-2.6	-2.6	0.1	-4.4
29	-2.8	-2.5	-2.9	-3.5	-3.3	0.1	-2.1	-1.1	-0.3	-2.8	-2.9	-2.2	-1.5	-3.2	-3.5	-4.1	-4.4	-4.6	-4.5	-4.2	-4.0	-3.8	-2.2	-1.6	-2.8	0.1	-4.6
30	-1.6	-4.0	-4.1	-4.4	-4.7	-4.3	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Avg	-3.1	-3.4	-3.4	-3.4	-3.4	-2.9	-2.5	-2.4	-3.1	-2.9	-3.2	-3.6	-3.6	-3.4	-3.9	-4.3	-4.3	-4.4	-4.5	-4.2	-3.7	-3.7	-3.6	-3.3	-3.5	--	--
Max	1.8	1.1	0.8	-0.4	2.3	0.8	0.7	0.0	-0.3	0.5	0.3	-2.2	-1.5	-1.0	-1.8	-2.2	-2.2	-2.1	-2.0	-1.6	-0.9	1.3	0.2	5.5	--	2.3	--
Min	-5.6	-5.6	-5.6	-5.5	-5.4	-5.4	-4.7	-4.2	-4.9	-5.0	-5.5	-5.3	-5.7	-5.9	-6.1	-6.3	-5.9	-6.0	-6.3	-6.5	-5.9	-6.2	-6.0	-6.0	--	--	-6.5

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, NO2_ppb"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.9	3.8	0.7	0.0	0.0	-0.1	0.1	1.7	3.0	0.4	--	--	--	
2	0.5	-0.3	-0.3	-0.4	0.9	2.6	1.6	1.8	1.8	1.9	1.5	1.3	0.9	1.6	0.9	0.2	-0.2	0.9	-0.3	2.4	0.2	-0.1	0.2	1.5	0.9	2.6	-0.4	
3	0.7	0.4	0.6	1.1	1.0	1.5	2.1	1.5	1.1	1.3	1.3	1.3	0.4	0.5	0.6	0.4	0.3	-0.4	-0.6	-0.6	-0.4	-0.6	-1.1	-0.4	0.5	2.1	-1.1	
4	0.5	-0.3	-0.4	0.3	0.4	1.0	1.2	1.8	1.6	1.9	0.8	0.7	0.6	0.5	0.5	-0.1	-0.6	-0.5	-0.7	-0.9	-0.9	-0.1	1.0	5.2	0.6	5.2	-0.9	
5	5.3	3.1	2.5	0.9	0.8	1.1	2.4	3.0	1.4	1.4	0.9	1.0	0.5	0.2	-0.1	-0.5	-0.4	1.2	-1.2	-0.9	-0.7	-0.5	-0.3	0.7	0.9	5.3	-1.2	
6	0.2	0.0	0.1	-0.3	-0.5	0.3	2.5	4.5	1.1	0.6	3.6	1.3	0.1	-0.2	-0.7	-0.5	-0.9	-1.1	-1.1	-0.3	4.1	0.0	1.7	1.1	0.7	4.5	-1.1	
7	-0.3	-0.7	-0.7	0.1	2.2	0.3	3.6	1.3	-0.5	-0.3	-0.5	-0.7	-0.6	0.1	-1.6	-3.5	-3.5	-3.6	-3.8	-3.6	-3.4	-3.5	-3.6	-3.5	-1.3	3.6	-3.8	
8	-3.2	-2.9	-2.7	-1.7	-1.5	-0.7	-2.1	-2.3	-2.3	-2.4	-3.0	-2.9	-2.2	-0.6	-1.4	-2.4	-3.1	-3.2	-3.5	-3.4	-2.8	-2.6	-1.9	-1.8	-2.3	-0.6	-3.5	
9	-3.2	-3.3	-3.2	-3.4	-3.3	-3.1	-2.6	-2.8	-2.6	-2.7	-2.8	-2.8	-2.8	-2.8	-2.9	-2.5	-2.9	-3.1	-3.1	-3.1	-3.0	-2.8	-3.3	-3.6	-3.0	-2.5	-3.6	
10	-3.0	-3.1	-2.7	-2.9	-2.6	-3.2	-0.6	-0.9	-2.8	-3.0	-2.9	-2.9	-3.0	-2.9	-3.0	-3.1	-3.2	-3.3	-3.2	-2.5	-1.5	-1.5	-1.4	-1.9	-2.5	-0.6	-3.3	
11	-1.8	-1.1	-1.0	1.3	0.7	-0.5	-0.9	-0.6	-2.0	-2.4	-2.3	-2.4	-1.1	-2.6	-2.8	-2.8	-3.0	-3.0	-2.8	-2.9	-2.4	-2.2	-2.3	-2.6	-1.8	1.3	-3.0	
12	-2.8	-2.1	-1.7	-2.0	-2.5	-1.8	-1.3	-0.9	-1.6	-2.2	-2.5	-1.4	-2.6	-2.6	-2.4	-2.7	-2.4	-2.4	-1.8	-1.1	-1.1	-0.3	-2.1	-2.2	-1.9	-0.3	-2.8	
13	-2.0	-2.5	-2.5	-2.1	-1.8	-1.6	--	-1.5	-1.1	-1.8	-2.3	-2.1	0.8	-0.8	-2.2	-2.2	0.6	-1.9	-2.8	-2.6	-2.5	0.4	2.1	-0.7	-1.4	2.1	-2.8	
14	-0.6	1.4	1.1	2.5	-0.7	-1.7	1.6	0.0	-0.6	-1.2	-2.0	-1.5	-2.0	-2.2	-2.6	-2.7	-3.1	-3.2	-3.1	-3.2	-2.7	-1.2	-2.4	-2.3	-0.9	-1.3	2.5	-3.2
15	0.1	-0.5	-1.9	-1.7	-1.7	-2.4	-1.2	-1.1	3.2	-1.7	-2.2	-1.9	-2.4	-2.6	-2.7	-2.9	-2.6	-2.8	-2.3	-1.8	0.0	-0.2	1.6	1.2	-1.3	3.2	-2.9	
16	-0.5	-2.6	-0.1	-0.8	1.6	0.1	2.4	-1.4	-1.9	-1.9	-2.2	-2.4	-2.6	-2.8	-2.9	-3.0	-2.9	-3.0	-3.3	-3.4	-2.7	-2.4	-2.4	-3.0	-1.8	2.4	-3.4	
17	-3.2	-0.5	-0.5	-0.5	-1.8	-0.2	0.4	-2.6	-2.7	-2.8	-2.7	-2.8	-2.9	-2.9	-3.0	-2.8	-2.9	-3.2	-2.7	-2.8	-3.1	-2.5	-1.9	-2.6	-2.2	0.4	-3.2	
18	-2.1	-1.5	2.0	3.9	1.8	-1.6	1.0	0.2	-1.9	-1.7	-2.3	-1.9	-2.3	-2.4	-2.8	-2.9	-3.1	-3.3	-3.5	-3.5	-3.4	-3.4	-3.5	-2.7	-1.7	3.9	-3.5	
19	-1.6	-3.1	-3.6	-1.1	-2.0	-3.1	-2.5	-2.2	-3.1	-3.2	-2.8	-2.0	-3.4	-3.0	-2.9	-3.2	-2.2	-3.1	-2.6	-2.8	-2.6	-1.6	-2.7	-2.4	-2.6	-1.1	-3.6	
20	-2.9	-1.7	-0.3	-1.5	-2.3	-2.0	0.4	-0.6	-2.1	-2.6	-2.3	-2.6	-2.5	-2.6	-2.7	-2.7	-3.2	-3.2	-3.0	-2.5	-2.1	-2.3	-2.4	-3.2	-2.2	0.4	-3.2	
21	-3.4	-3.0	0.0	0.0	0.3	1.1	2.6	1.3	-1.0	-1.8	-2.5	-2.8	-2.9	-2.7	-0.6	-2.0	-2.7	-2.5	-2.5	-2.7	-2.2	-3.2	-3.0	-2.6	-1.6	2.6	-3.4	
22	-2.6	-2.6	-1.2	-2.1	-1.3	-1.9	-1.5	-1.8	-1.9	-2.5	-2.4	-2.6	-2.8	-2.5	-2.5	-3.3	-3.4	-3.6	-3.6	-3.5	-2.7	-3.0	-2.2	-1.2	-2.4	-1.2	-3.6	
23	-0.3	2.5	-2.0	-2.5	-1.9	-1.7	-1.1	-0.5	-3.1	-3.1	-2.9	-3.1	-3.1	-3.2	-3.2	-3.4	-3.5	-3.7	-3.9	-4.0	-2.2	-0.8	-2.9	-3.0	-2.3	2.5	-4.0	
24	-3.3	-3.4	-3.6	-3.7	-3.7	-2.8	-2.8	-1.8	-2.3	-2.7	-2.8	-2.6	-2.8	-3.2	-3.3	-3.3	-3.6	-3.5	-3.8	-4.0	-4.1	-2.1	-2.6	-3.3	-3.1	-1.8	-4.1	
25	-2.6	-3.0	-2.9	-3.8	-4.0	-4.0	-2.3	-1.9	-2.6	-2.6	-2.6	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
26	--	--	--	--	--	-0.5	-4.6	-1.7	-4.6	-4.8	-4.3	-4.2	-4.7	-4.8	-5.3	-5.6	-5.7	-5.9	-6.2	-5.6	-5.9	-6.0	-5.7	-4.8	-4.8	-0.5	-6.2	
27	-4.7	-3.7	-3.5	-3.2	-4.1	-3.0	-2.0	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
28	--	--	--	--	--	--	--	--	--	-4.6	-4.7	-5.3	-5.0	-5.1	-5.6	-5.7	-6.0	-6.0	-6.3	-6.1	-5.9	-3.4	-2.7	6.5	--	--	--	
29	-3.8	-5.9	-5.4	-4.9	-4.6	-5.1	-3.0	-4.4	-5.2	-5.3	-5.5	-5.2	-5.3	-5.6	-5.3	-5.9	-5.7	-5.9	-5.8	-5.8	-5.6	-5.8	-5.6	-2.4	-5.1	-2.4	-5.9	
30	-0.6	-5.1	-5.1	-5.0	-4.4	-4.4	-2.8	4.4	-4.3	-5.6	-5.2	-5.0	-5.7	-6.0	-5.9	-6.2	-6.4	-6.5	-6.6	-6.6	0.4	-2.5	-3.7	-5.7	-4.4	4.4	-6.6	
31	-6.0	-5.8	-6.0	-5.4	-2.2	-3.2	11.0	1.4	-1.7	-5.4	-5.6	-5.9	-5.8	-5.8	-5.9	-6.3	-6.5	-6.7	-6.6	-6.5	-6.7	-6.7	-5.8	-6.2	-4.6	11.0	-6.7	
Avg	-1.7	-1.8	-1.6	-1.4	-1.3	-1.4	0.1	-0.3	-1.5	-2.1	-2.2	-2.2	-2.3	-2.4	-2.4	-2.7	-2.8	-3.0	-3.1	-2.9	-2.2	-2.1	-1.9	-1.5	-1.9	--	--	
Max	5.3	3.1	2.5	3.9	2.2	2.6	11.0	4.5	3.2	1.9	3.6	1.3	0.9	1.6	2.9	3.8	0.7	1.2	0.0	2.4	4.1	1.7	3.0	6.5	--	11.0	--	
Min	-6.0	-5.9	-6.0	-5.4	-4.6	-5.1	-4.6	-4.4	-5.2	-5.6	-5.6	-5.9	-5.8	-6.0	-5.9	-6.3	-6.5	-6.7	-6.6	-6.6	-6.7	-6.7	-5.8	-6.2	--	--	-6.7	

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, NO2_ppb"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	-5.8	-0.8	-4.0	-6.6	-5.1	-5.1	-5.2	2.6	-5.3	-5.2	-6.0	-6.1	-6.1	-6.3	-6.4	-6.5	-6.7	-6.6	-6.6	-6.6	-3.0	-3.9	-6.2	-6.6	-5.2	2.6	-6.7
2	-6.5	-5.9	-3.0	-5.8	-1.8	-0.2	-2.4	0.1	-1.6	-3.8	-4.8	-5.6	-5.6	-5.9	-6.2	-6.3	-6.5	-6.6	-6.7	-6.6	-2.8	-2.7	-3.9	-6.2	-4.5	0.1	-6.7
3	-6.4	-6.7	-6.0	-5.8	-5.7	-5.7	-3.4	0.2	-4.1	-4.0	-5.1	-5.8	-5.8	-5.6	-6.2	-5.7	-5.1	--	-3.4	-3.5	-3.5	-2.8	-2.9	-3.0	-4.6	0.2	-6.7
4	-3.0	-2.4	-2.1	-1.5	-2.5	-2.0	0.5	--	3.5	0.3	1.5	-1.2	-0.9	-1.3	-1.5	-2.2	-2.3	-2.5	-2.5	-2.4	-2.3	-1.5	-1.8	-1.4	-1.4	3.5	-3.0
5	-1.1	-1.0	1.3	1.2	1.2	2.5	2.9	0.0	-1.2	-1.2	-1.3	-1.4	-1.4	-1.0	-1.7	-1.9	-2.2	-2.2	-2.1	-1.8	-0.7	-0.8	3.6	4.5	-0.2	4.5	-2.2
6	3.1	2.7	-1.1	-0.6	-1.0	-0.5	-1.2	-0.4	-1.0	-1.3	-1.7	-1.6	-1.5	-1.6	3.3	-0.6	-1.8	0.4	1.2	0.7	-1.4	1.0	2.7	-1.1	-0.1	3.3	-1.8
7	-1.3	-1.6	-1.1	-1.8	-1.3	-0.6	-0.6	-1.0	-1.1	-1.4	-1.3	-1.4	-1.4	-1.4	-1.5	-1.5	-1.3	-1.7	-0.6	3.4	1.9	-1.3	-1.0	-1.6	-0.9	3.4	-1.8
8	-2.1	-2.2	-1.9	-2.3	-2.0	-0.9	-0.5	-0.7	0.4	0.1	-0.1	-0.8	-0.2	-0.4	-0.5	-0.6	-0.5	-1.0	1.0	0.4	-0.1	4.1	5.8	-0.4	-0.2	5.8	-2.3
9	2.0	1.7	8.4	6.7	9.0	5.1	0.7	-2.0	-1.7	-1.4	-1.4	-1.5	-1.4	-1.5	-1.3	-1.8	-2.0	-2.2	-1.8	-1.3	-1.0	-0.9	-0.6	1.7	0.5	9.0	-2.2
10	-0.1	-2.6	-2.2	-2.3	-2.0	0.5	0.4	0.7	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5	-1.5	-1.7	-1.7	-1.7	-1.7	-1.2	-1.2	-0.2	0.3	1.1	-1.0	1.1	-2.6
11	-0.7	-1.4	-2.0	-1.8	-1.3	-0.1	0.6	-0.2	-0.1	-0.2	-1.0	-0.7	-0.6	-0.9	-1.3	-1.4	-1.8	-2.1	-2.1	-1.4	-1.2	0.5	-0.1	-0.8	-0.9	0.6	-2.1
12	4.9	2.8	1.9	0.9	-0.2	0.2	0.2	0.4	0.4	-0.6	-1.5	-1.1	-0.9	-1.2	-0.4	-2.0	-2.1	-2.3	-2.1	-1.1	3.0	-1.3	-0.8	-2.2	-0.2	4.9	-2.3
13	-2.3	-2.3	-2.0	-1.6	-1.5	-1.6	-1.4	-1.7	-1.6	-1.5	-1.6	-1.6	-1.8	-1.8	-1.5	-1.9	-1.5	-1.5	-2.3	-1.8	-1.6	-2.3	-2.4	-2.1	-1.8	-1.4	-2.4
14	-2.0	-1.9	-1.7	-1.6	-1.8	-1.7	-1.3	-1.6	-1.6	--	-1.3	-1.4	-1.7	-1.7	-1.9	-1.9	-2.1	-2.1	-2.3	-2.0	-1.7	0.6	4.1	0.8	-1.3	4.1	-2.3
15	-0.8	-1.5	-1.9	-1.5	-1.5	-1.5	-1.6	-1.4	-1.4	-1.3	-1.3	-1.5	-1.7	-1.7	-1.6	-2.1	-2.4	-2.0	-2.0	-2.2	-1.6	-1.9	-1.8	-2.1	-1.7	-0.8	-2.4
16	-1.9	-1.6	-1.8	-1.8	-1.9	-2.1	-1.6	-2.0	-2.0	-1.4	-1.0	-1.5	-1.8	-1.7	-1.5	-1.7	-1.9	-1.9	-2.1	-2.5	-2.0	-1.6	-1.8	-1.7	-1.8	-1.0	-2.5
17	-1.2	-0.9	-1.2	-1.1	-1.3	-1.3	-1.3	-1.0	-0.7	-1.1	-1.2	-1.1	0.6	-1.2	-1.5	-1.8	-2.5	-1.8	-2.5	-1.4	-2.2	-2.2	-1.9	-1.9	-1.4	0.6	-2.5
18	-1.9	-2.0	-1.4	-0.3	-0.2	-0.7	-1.0	-1.0	-1.0	-1.2	-1.5	-1.4	-1.7	-2.3	-2.0	-2.0	-2.0	-2.4	-2.5	-2.5	-2.2	2.9	2.6	0.2	-1.2	2.9	-2.5
19	-2.0	-1.1	0.0	0.1	0.4	0.4	3.9	0.5	-0.9	-1.6	-1.5	-1.5	-1.6	-1.7	-2.2	-1.8	-2.2	-2.0	-1.5	-1.1	-0.9	-1.0	-1.2	-1.3	-0.9	3.9	-2.2
20	-1.5	8.6	0.7	-0.6	-0.3	12.2	7.4	6.1	10.1	0.4	-1.1	-1.5	-1.3	-1.8	-2.0	-2.3	-2.3	-2.5	-2.2	-2.2	-2.2	-0.5	0.0	-1.1	0.8	12.2	-2.5
21	-2.7	-2.6	-2.2	-1.5	-0.8	5.1	0.4	3.8	-0.3	-1.7	-1.8	-1.6	-1.6	-1.9	-2.0	-2.1	-2.4	-2.4	-2.7	-2.2	-2.2	1.0	0.4	3.0	-0.9	5.1	-2.7
22	5.8	-0.3	-0.4	7.5	2.8	2.1	1.0	1.8	-0.7	-1.2	-1.5	-1.5	-1.4	-1.4	-1.8	-2.1	-2.4	-2.1	-2.0	-0.5	-1.1	-1.2	0.0	5.4	0.2	7.5	-2.4
23	6.9	-0.9	-0.5	0.3	0.4	-0.9	-0.5	-0.9	-0.8	-0.7	-0.9	-1.6	-1.4	-1.0	-1.9	-2.1	-2.2	-2.4	-2.6	-2.6	-2.5	-1.7	-0.4	-2.2	-1.0	6.9	-2.6
24	2.1	1.2	1.0	1.4	0.5	-0.8	-0.8	-0.9	0.0	0.5	0.2	-0.7	-1.1	-1.6	-1.5	-1.9	-2.0	-2.2	-2.1	-1.6	-1.2	0.1	1.2	4.2	-0.2	4.2	-2.2
25	2.5	1.8	4.6	2.8	-0.1	0.9	0.6	0.3	1.1	-0.6	-0.8	0.1	-1.0	-2.0	-2.0	-2.2	-2.4	-2.1	-1.9	-2.0	-1.7	-1.5	0.1	0.2	-0.2	4.6	-2.4
26	3.5	1.8	3.4	11.4	7.0	0.6	-1.0	-0.9	-1.7	-1.3	--	-1.3	-1.5	-1.8	-2.3	-2.4	-2.1	-1.9	-2.0	-0.9	-1.5	1.3	-1.4	-1.1	0.2	11.4	-2.4
27	0.6	3.4	-1.3	-0.4	-0.6	2.7	0.0	0.3	-0.7	0.0	-0.4	-0.7	-1.7	-1.7	-2.2	-2.6	-2.5	-2.3	-2.2	-2.5	-2.7	-2.8	-2.7	-2.6	-1.1	3.4	-2.8
28	-2.7	-2.7	-2.5	-2.7	-2.4	-2.5	-2.7	-2.6	-2.5	-2.4	-2.4	-2.0	-1.9	-2.0	-2.0	-1.9	-2.0	-2.1	-2.1	-1.8	-0.6	-2.4	-2.5	-2.3	-2.2	-0.6	-2.7
29	-0.7	0.8	-1.3	-2.2	-2.7	-2.2	-1.1	0.9	-1.1	-1.9	-2.1	-2.0	-2.2	-2.2	-2.1	-2.2	-2.5	-2.6	-2.5	-0.8	0.0	0.0	-2.1	-2.3	-1.5	0.9	-2.7
30	-2.3	-2.2	-2.1	-1.8	-2.1	-2.2	-1.7	-0.5	-0.2	-1.6	-1.8	-1.7	-2.0	-2.1	-2.2	-2.0	-2.3	-2.2	-2.0	-1.9	-1.3	-1.4	-1.6	-1.2	-1.8	-0.2	-2.3
Avg	-0.6	-0.6	-0.7	-0.4	-0.6	0.0	-0.4	0.0	-0.6	-1.3	-1.6	-1.8	-1.8	-2.0	-2.0	-2.3	-2.5	-2.3	-2.2	-1.8	-1.4	-0.8	-0.5	-0.8	-1.2	--	--
Max	6.9	8.6	8.4	11.4	9.0	12.2	7.4	6.1	10.1	0.5	1.5	0.1	0.6	-0.4	3.3	-0.6	-0.5	0.4	1.2	3.4	3.0	4.1	5.8	5.4	--	12.2	--
Min	-6.5	-6.7	-6.0	-6.6	-5.7	-5.7	-5.2	-2.6	-5.3	-5.2	-6.0	-6.1	-6.1	-6.3	-6.4	-6.5	-6.7	-6.6	-6.7	-6.6	-3.5	-3.9	-6.2	-6.6	--	--	-6.7

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, SO2_ppb"
Month: Jul 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.8	0.5
2	0.7	0.6	0.2	0.7	0.6	0.6	0.5	0.5	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.6	0.6	0.3	0.6	0.7	0.2	
3	0.6	1.0	1.0	0.3	0.3	0.5	0.5	0.5	0.3	--	--	0.5	0.7	0.7	0.8	0.8	0.7	0.7	0.6	0.6	0.7	0.7	0.6	0.5	0.6	1.0	0.3	
4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.5	
5	0.8	1.2	1.0	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.8	0.9	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.6	0.7	1.2	0.5	
6	0.7	0.9	0.8	1.0	0.9	1.5	1.0	1.0	1.0	1.9	1.1	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.9	1.9	0.6
7	0.7	0.7	0.8	1.1	0.9	0.7	0.7	0.9	0.8	0.9	0.8	0.8	0.8	0.7	0.9	1.1	1.0	0.8	0.7	0.7	0.8	1.4	1.7	0.8	0.9	1.7	0.7	
8	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.8	0.6	0.7	0.7	0.8	0.6	
9	0.6	0.7	0.8	1.1	1.4	1.6	1.4	1.5	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.9	1.6	0.6	
10	0.6	0.8	0.7	0.6	0.6	0.8	0.9	1.2	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.7	1.2	0.6
11	0.7	0.7	0.7	0.7	0.8	0.8	1.0	1.3	0.8	0.8	0.8	--	0.9	0.8	0.9	0.9	0.8	0.8	0.7	0.8	0.9	0.7	0.7	0.8	0.8	1.3	0.7	
12	2.4	3.7	1.6	1.8	1.6	1.8	1.5	1.2	1.1	1.4	1.4	1.3	1.5	1.5	1.1	0.8	0.7	0.7	0.7	0.7	1.4	1.7	0.8	0.7	1.4	3.7	0.7	
13	1.0	0.8	0.7	0.7	0.7	2.8	6.1	1.3	0.9	1.6	0.9	0.8	0.7	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.7	1.4	1.7	0.9	1.2	6.1	0.7	
14	0.7	1.8	1.7	1.2	1.1	1.0	1.0	0.9	1.0	1.0	1.5	2.0	1.8	1.5	1.0	0.8	1.1	1.0	1.3	1.1	0.9	0.8	0.9	1.0	1.2	2.0	0.7	
15	0.8	1.2	1.2	0.9	0.9	0.8	0.7	0.8	0.9	1.4	2.7	3.1	1.6	0.9	0.8	1.4	0.9	0.9	0.8	0.9	0.8	0.9	0.8	0.9	0.8	1.1	3.1	0.7
16	0.8	0.9	0.7	0.8	0.8	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.7	0.7	0.8	0.7	1.1	0.8	1.1	0.7
17	3.2	2.1	1.0	1.0	1.1	0.9	0.8	0.7	0.8	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.9	1.0	3.2	0.7	
18	0.8	0.7	0.9	1.1	1.3	1.1	1.0	0.9	0.8	0.8	0.5	0.9	--	--	0.6	0.8	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.8	1.3	0.5	
19	0.8	0.7	0.7	0.6	0.5	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.8	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.7	0.8	0.5	
20	0.6	0.6	0.3	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.8	0.3
21	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.7	0.4	
22	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.6	0.7	0.4	
23	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.4	
24	0.6	0.7	0.9	1.0	1.2	0.7	0.6	0.7	0.7	0.6	0.6	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Avg	0.9	1.0	0.8	0.8	0.8	0.9	1.0	0.8	0.7	0.8	0.8	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.7	0.8	--	--	--
Max	3.2	3.7	1.7	1.8	1.6	2.8	6.1	1.5	1.1	1.9	2.7	3.1	1.8	1.5	1.1	1.4	1.1	1.0	1.3	1.1	1.4	1.7	1.7	1.1	--	6.1	--	
Min	0.5	0.5	0.2	0.3	0.3	0.4	0.4	0.5	0.3	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.3	--	--	0.2	

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, SO2_ppb"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7	--	--	--	--	--	--	--	--	--	--	7.2	8.4	5.9	5.8	--	0.0	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	--	--	--
8	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2
9	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.2
10	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.3	0.2	0.4	0.4	0.4	0.6	0.2
11	0.7	1.2	1.4	1.4	3.3	2.6	3.3	1.6	0.7	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	1.1	0.7	0.5	0.3	1.0	3.3	0.3
12	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.5	0.2
13	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.6	1.1	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.4	1.1	0.2
14	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	--	--	--	--	--	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	-0.1	-0.2	0.1	0.3	-0.2
15	-0.1	0.0	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	--	--	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.3	0.6	-0.3
16	0.5	1.1	2.2	1.7	1.4	1.2	1.1	1.1	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.8	2.2	0.5
17	0.5	2.4	4.7	4.1	1.5	1.2	1.1	0.9	1.0	0.9	1.1	1.0	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.5	0.6	1.1	1.1	4.7	0.4
18	1.0	0.8	0.9	1.6	1.8	2.2	2.2	1.2	0.6	0.6	0.5	0.4	0.2	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.3	-0.1	0.8	2.2	-0.1	
19	0.5	0.4	0.5	1.3	1.3	0.5	0.5	0.5	0.9	1.2	0.6	0.5	0.5	--	--	0.3	0.7	0.8	0.7	0.6	0.6	1.3	0.6	0.5	0.7	1.3	0.3	
20	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.7	1.0	1.1	1.3	1.4	0.9	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.6	1.4	0.4	
21	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.4	0.4	-1.0	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.5	-1.0
22	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	--	0.7	0.9	1.2	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.5	1.2	0.3
23	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.4	0.1	0.1
24	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Avg	0.4	0.6	0.8	0.8	0.7	0.6	0.7	0.5	0.5	0.4	0.9	1.0	0.9	0.9	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.5	--	--	
Max	1.0	2.4	4.7	4.1	3.3	2.6	3.3	1.6	1.0	1.2	7.2	8.4	5.9	5.8	0.9	0.6	0.7	0.8	0.7	0.6	1.1	1.3	0.6	1.1	--	4.7	--	
Min	-0.1	0.0	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.2	-1.0	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	-0.1	-0.2	--	--	-1.0

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, SO2_ppb"
Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-4.0	-3.8	-3.8	-3.7	-3.5	--	--	--
4	-3.2	-2.8	-2.2	-2.9	-3.3	-3.3	-3.3	-3.4	--	--	--	--	--	--	0.6	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.4	-1.2	0.6	-3.4
5	0.8	0.6	1.2	0.9	0.8	0.7	0.6	0.4	0.2	0.3	0.4	0.4	1.2	1.4	0.7	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.6	1.4	0.2
6	0.4	-0.1	0.0	0.3	0.3	0.3	0.2	0.2	1.2	1.9	0.5	0.4	0.4	0.5	0.5	0.8	0.4	0.2	0.2	0.4	0.2	0.1	1.5	0.6	0.5	1.9	-0.1
7	-0.1	0.1	1.2	0.6	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	1.2	-0.1
8	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.5	0.0
9	0.1	0.1	0.0	0.0	0.1	-0.2	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1	-0.1	0.0	0.0	-0.2
10	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.2	0.0	-0.1	-0.1	0.1	-1.2
11	0.0	-0.1	-0.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.1	1.6	1.7	1.1	0.6	0.2	0.0	0.1	0.0	0.0	0.0	0.3	1.7	-0.2
12	-0.1	0.0	0.0	0.2	0.2	0.1	1.5	2.1	0.8	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.0	-0.1	0.3	2.1	-0.1
13	0.0	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.3	-0.2	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	-0.1	-0.1	-0.1	0.1	-0.3
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	--	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1
15	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.6	0.1	-0.1	-0.1	-0.1	0.0	0.6	-0.2
16	-0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.3	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.3	-0.2
17	-0.1	0.0	-0.1	0.0	-0.1	0.1	0.1	-0.2	0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.3	0.1	0.0	-0.1	-0.1	0.0	0.3	-0.2
18	-0.2	0.0	0.1	0.1	0.4	0.8	0.4	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.6	0.9	0.5	0.5	0.9	0.2	0.9	-0.2
19	0.6	0.2	0.1	0.3	2.1	2.1	1.4	2.8	1.6	0.6	0.9	1.7	1.2	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.7	2.8	0.0
20	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-0.1
21	-0.1	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.6	0.5	0.2	0.0	0.0	0.0	-0.1	-0.1	-0.1	1.3	1.3	0.2	1.3	-0.1
22	1.2	1.0	0.2	0.0	0.2	0.1	0.2	0.1	0.0	0.0	-0.1	0.0	0.1	0.6	0.5	0.4	0.4	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.3	1.2	-0.1
23	0.0	0.0	0.4	0.1	0.1	0.1	0.1	0.0	-0.1	0.0	0.1	0.0	0.1	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.4	-0.1
24	0.0	1.7	6.8	6.3	0.9	0.2	0.3	0.9	1.3	1.0	0.7	0.3	0.3	0.1	0.3	0.6	0.6	0.5	0.3	0.3	0.2	0.2	0.1	0.0	1.0	6.8	0.0
25	0.2	0.7	0.7	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.8	0.9	0.8	0.5	0.2	0.2	0.2	0.1	0.2	0.4	0.3	0.9	0.0
26	0.4	0.3	0.4	0.6	1.0	0.4	0.3	0.2	0.2	0.2	--	0.9	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.1	-0.1	0.4	1.0	-0.1
27	0.2	0.1	0.4	0.9	0.8	0.7	1.8	1.2	0.5	0.8	1.6	0.9	0.6	0.4	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.5	1.8	0.0
28	0.0	0.1	0.1	0.1	0.2	0.1	0.1	-0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	-0.1
29	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	-0.1
30	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	1.3	0.9	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	1.3	0.0
Avg	0.0	0.1	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.0	0.0	-0.1	0.0	0.0	0.2	--	--
Max	1.2	1.7	6.8	6.3	2.1	2.1	1.8	2.8	1.6	1.9	1.6	1.7	1.3	1.4	1.6	1.7	1.1	0.6	0.4	0.6	0.9	0.5	1.5	1.3	--	6.8	--
Min	-3.2	-2.8	-2.2	-2.9	-3.3	-3.3	-3.3	-3.4	-0.1	-0.1	-1.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-4.0	-3.8	-3.8	-3.7	-3.5	--	--	-3.4

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
"Component, Channel: TableAmbient_Hourly, O3_ppm"
Month: Aug 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min
1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.060	0.063	0.067	0.064	0.055	0.054	0.053	0.043	0.043	0.050	--	--	--
2	0.050	0.050	0.046	0.046	0.039	0.042	0.043	0.041	0.044	0.045	0.049	0.052	0.055	0.055	0.053	0.053	0.055	0.052	0.058	0.053	0.050	0.045	0.047	0.045	0.049	0.058	0.039
3	0.047	0.047	0.046	0.044	0.040	0.038	0.035	0.041	0.047	0.050	0.055	0.057	0.054	0.054	0.054	0.053	0.052	0.051	0.052	0.053	0.051	0.049	0.044	0.037	0.048	0.057	0.035
4	0.031	0.036	0.045	0.040	0.042	0.045	0.043	0.038	0.041	0.043	0.043	0.045	0.046	0.049	0.049	0.049	0.049	0.055	0.055	0.051	0.047	0.049	0.053	0.043	0.045	0.055	0.031
5	0.038	0.038	0.037	0.040	0.038	0.035	0.034	0.039	0.044	0.049	0.051	0.054	0.056	0.056	0.055	0.054	0.053	0.051	0.057	0.059	0.059	0.058	0.064	0.061	0.049	0.064	0.034
6	0.063	0.061	0.056	0.052	0.051	0.049	0.043	0.044	0.055	0.058	0.054	0.057	0.059	0.056	0.057	0.059	0.063	0.064	0.063	0.059	0.053	0.052	0.049	0.050	0.055	0.064	0.043
7	0.053	0.055	0.055	0.046	0.040	0.040	0.035	0.037	0.041	0.042	0.044	0.045	0.046	0.046	0.043	--	0.050	0.051	0.051	0.051	0.047	0.045	0.045	0.046	0.046	0.055	0.035
8	0.051	0.049	0.045	0.039	0.035	0.033	0.037	0.038	0.040	0.043	0.043	0.044	0.045	0.045	0.050	0.056	0.062	0.064	0.063	0.065	0.056	0.053	0.048	0.042	0.048	0.065	0.033
9	0.038	0.038	0.037	0.038	0.039	0.039	0.036	0.039	0.040	0.042	0.043	0.044	0.046	0.048	0.054	0.066	0.062	0.061	0.060	0.056	0.055	0.051	0.043	0.042	0.046	0.066	0.036
10	0.043	0.044	0.043	0.043	0.042	0.044	0.037	0.037	0.038	0.037	0.041	0.043	0.045	0.047	0.048	0.048	0.052	0.057	0.061	0.053	0.049	0.045	0.043	0.046	0.045	0.061	0.037
11	0.046	0.044	0.043	0.040	0.037	0.039	0.041	0.041	0.046	0.048	0.049	0.050	0.050	0.051	0.052	0.052	0.052	0.054	0.051	0.051	0.048	0.046	0.044	0.048	0.047	0.054	0.037
12	0.048	0.043	0.040	0.040	0.040	0.038	0.038	0.037	0.042	0.045	0.047	0.048	0.049	0.048	0.049	0.057	0.052	0.049	0.043	0.040	0.035	0.036	0.038	0.036	0.043	0.057	0.035
13	0.036	0.041	0.038	0.035	0.031	0.032	0.035	0.038	0.039	0.044	0.050	0.052	0.050	0.053	0.058	0.059	0.057	0.062	0.058	0.054	0.051	0.040	0.034	0.042	0.045	0.062	0.031
14	0.039	0.031	0.032	0.028	0.033	0.037	0.029	0.037	--	--	0.052	0.052	0.054	0.050	0.050	0.050	0.051	0.053	0.052	0.049	0.046	0.050	0.046	0.039	0.044	0.054	0.028
15	0.033	0.034	0.041	0.038	0.037	0.039	0.033	0.037	0.039	0.045	0.049	0.050	0.052	0.052	0.053	0.060	0.070	0.060	0.053	0.051	0.042	0.042	0.036	0.038	0.045	0.070	0.033
16	0.048	0.049	0.038	0.038	0.030	0.031	0.026	0.036	0.041	0.044	0.048	0.050	0.050	0.051	0.056	0.067	0.072	0.068	0.061	0.058	0.053	0.050	0.048	0.048	0.048	0.072	0.026
17	0.046	0.039	0.037	0.036	0.037	0.034	0.031	0.040	0.042	0.042	0.046	0.048	0.049	0.050	0.051	0.058	0.051	0.050	0.050	0.049	0.042	0.039	0.042	0.042	0.044	0.058	0.031
18	0.039	0.038	0.026	0.024	0.030	0.040	0.034	0.042	0.047	0.048	0.053	0.055	0.058	0.058	0.060	0.061	0.063	0.062	0.060	0.060	0.058	0.053	0.048	0.046	0.048	0.063	0.024
19	0.044	0.043	0.041	0.038	0.041	0.043	0.039	0.037	0.041	0.039	0.034	0.036	0.038	0.039	0.039	0.040	0.041	0.042	0.040	0.040	0.037	0.036	0.036	0.033	0.039	0.044	0.033
20	0.035	0.027	0.022	0.026	0.029	0.029	0.022	0.026	0.029	0.030	0.033	0.036	0.039	0.042	0.044	0.045	0.047	0.047	0.044	0.041	0.039	0.037	0.037	0.038	0.035	0.047	0.022
21	0.037	0.036	0.027	0.026	0.023	0.022	0.022	0.022	0.030	0.037	0.039	0.034	0.036	0.040	0.047	0.051	0.049	0.050	0.049	0.045	0.040	0.040	0.035	0.032	0.036	0.051	0.022
22	0.028	0.030	0.025	0.030	0.029	0.028	0.025	0.028	0.036	0.038	0.042	0.046	0.046	0.044	0.042	0.039	0.043	0.048	0.048	0.045	0.045	0.045	0.040	0.036	0.038	0.048	0.025
23	0.035	0.029	0.033	0.034	0.032	0.031	0.030	0.029	0.041	0.042	0.043	0.044	0.047	0.046	0.044	0.044	0.048	0.050	0.051	0.053	0.046	0.040	0.050	0.052	0.041	0.053	0.029
24	0.051	0.050	0.049	0.048	0.046	0.041	0.039	0.041	0.043	0.042	0.041	0.038	0.042	0.043	0.041	0.039	0.040	0.038	0.036	0.040	0.042	0.039	0.038	0.042	0.042	0.051	0.036
25	0.039	0.041	0.032	0.023	0.021	0.021	0.018	0.017	0.023	0.025	0.026	0.032	0.032	--	--	0.034	0.034	0.036	0.036	0.037	0.036	0.033	0.033	0.034	0.030	0.041	0.017
26	0.040	0.038	0.036	0.039	0.034	0.027	0.028	0.023	0.030	0.037	0.040	0.043	0.047	0.048	0.047	0.046	0.047	0.053	0.053	0.047	0.045	0.041	0.042	0.039	0.041	0.053	0.023
27	0.038	0.035	0.033	0.031	0.030	0.029	0.028	0.031	0.031	0.033	0.040	0.041	0.034	0.030	0.031	0.034	0.036	0.044	0.046	0.048	0.040	0.033	0.035	0.027	0.035	0.048	0.027
28	0.032	0.031	0.028	0.034	0.027	0.024	0.027	0.029	0.034	0.039	0.042	0.044	0.044	0.046	0.048	0.049	0.049	0.049	0.048	0.056	0.060	0.048	0.046	0.031	0.040	0.060	0.024
29	0.042	0.045	0.043	0.042	0.042	0.042	0.040	0.041	0.045	0.048	0.051	0.052	0.053	0.055	0.055	0.056	0.056	0.057	0.057	0.066	0.067	0.068	0.067	0.059	0.052	0.068	0.040
30	0.055	0.064	0.061	0.056	0.052	0.053	0.049	0.041	0.052	0.058	0.060	0.062	0.061	0.060	0.061	0.062	0.063	0.064	0.064	0.062	0.051	0.050	0.052	0.055	0.057	0.064	0.041
31	0.057	0.056	0.052	0.050	0.043	0.044	0.029	0.036	0.043	0.049	0.049	0.047	0.045	0.045	0.045	0.045	0.045	0.046	0.046	0.045	0.043	0.041	0.038	0.036	0.045	0.057	0.029
Avg	0.043	0.042	0.040	0.038	0.036	0.036	0.033	0.036	0.040	0.043	0.045	0.047	0.048	0.048	0.049	0.051	0.053	0.053	0.053	0.051	0.048	0.045	0.044	0.042	0.044	--	--
Max	0.063	0.064	0.061	0.056	0.052	0.053	0.049	0.044	0.055	0.058	0.060	0.062	0.061	0.060	0.061	0.066	0.070	0.072	0.068	0.066	0.067	0.068	0.067	0.061	--	0.072	--
Min	0.028	0.027	0.022	0.023	0.021	0.021	0.018	0.017	0.023	0.025	0.026	0.032	0.032	0.030	0.031	0.034	0.034	0.036	0.036	0.037	0.035	0.033	0.033	0.027	--	--	0.017

-- Indicates Invalid Data

SAROAD for Resolution, East_Plant
 "Component, Channel: TableAmbient_Hourly, O3_ppm"
 Month: Sep 2014

Hour of day

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Avg	Max	Min	
1	0.033	0.027	0.032	0.039	0.033	0.033	0.033	0.023	0.035	0.035	0.039	0.042	0.042	0.041	0.041	0.042	0.043	0.044	0.045	0.043	0.034	0.036	0.038	0.040	0.037	0.045	0.023	
2	0.040	0.038	0.034	0.036	0.028	0.026	0.029	0.028	0.033	0.040	0.045	0.046	0.044	0.041	0.041	0.042	0.043	0.044	0.045	0.044	0.036	0.036	0.036	0.040	0.038	0.046	0.026	
3	0.041	0.043	0.043	0.040	0.040	0.038	0.031	0.026	0.034	0.036	0.039	0.041	0.042	0.041	0.040	0.041	0.043	0.042	0.043	0.043	0.044	0.043	0.045	0.043	0.040	0.045	0.026	
4	0.042	0.039	0.037	0.037	0.040	0.037	0.034	0.022	0.023	--	0.039	0.044	0.042	0.047	0.047	0.047	0.048	0.050	0.051	0.045	0.045	0.043	0.042	0.043	0.041	0.051	0.022	
5	0.041	0.041	0.035	0.033	0.035	0.032	0.030	0.035	0.044	0.047	0.050	0.052	0.053	0.055	0.055	0.056	0.057	0.063	0.070	0.055	0.048	0.048	0.057	0.044	0.047	0.070	0.030	
6	0.047	0.040	0.041	0.040	0.039	0.038	0.036	0.036	0.046	0.050	0.051	0.053	0.054	0.054	0.050	0.054	0.052	0.040	0.039	0.039	0.043	0.037	0.034	0.038	0.044	0.054	0.034	
7	0.037	0.042	0.035	0.038	0.036	0.033	0.030	0.030	0.032	0.036	0.038	0.039	0.040	0.041	0.041	0.042	0.042	0.042	0.041	0.036	0.034	0.041	0.040	0.041	0.038	0.042	0.030	
8	0.034	0.032	0.032	0.037	0.032	0.026	0.027	0.028	0.026	0.026	0.027	0.029	0.028	0.031	0.033	0.034	0.035	0.034	0.028	0.025	0.024	0.017	0.015	0.020	0.028	0.037	0.015	
9	0.019	0.018	0.013	0.015	0.011	0.012	0.018	0.026	0.026	0.027	0.030	0.031	0.033	0.036	0.037	0.039	0.042	0.042	0.039	0.033	0.029	0.026	0.028	0.022	0.027	0.042	0.011	
10	0.023	0.033	0.031	0.032	0.030	0.020	0.020	0.021	0.032	0.034	0.036	0.038	0.039	0.041	0.045	0.050	0.054	0.062	0.065	0.061	0.059	0.053	0.048	0.051	0.041	0.065	0.020	
11	0.057	0.057	0.051	0.050	0.053	0.049	0.046	0.045	0.046	0.050	0.055	0.061	0.065	0.068	0.067	0.068	0.068	0.067	0.071	0.075	0.076	0.064	0.061	0.055	0.059	0.076	0.045	
12	0.049	0.052	0.053	0.050	0.053	0.049	0.045	0.041	0.038	0.040	0.042	0.044	0.045	0.045	0.045	0.050	0.052	0.056	0.062	0.053	0.040	0.043	0.042	0.045	0.047	0.062	0.038	
13	0.044	0.043	0.042	0.036	0.032	0.030	0.029	0.031	0.031	0.031	0.034	0.036	0.037	0.039	0.040	0.040	0.039	0.039	0.038	0.036	0.035	0.037	0.036	0.034	0.036	0.044	0.029	
14	0.034	0.038	0.039	0.038	0.036	0.034	0.032	0.032	0.033	--	0.035	0.035	0.036	0.036	0.036	0.036	0.037	0.037	0.035	0.034	0.033	0.030	0.027	0.028	0.034	0.039	0.027	
15	0.028	0.028	0.028	0.030	0.030	0.029	0.027	0.026	0.028	0.030	0.032	0.032	0.034	0.035	0.036	0.036	0.037	0.038	0.037	0.042	0.038	0.035	0.034	0.034	0.033	0.042	0.026	
16	0.033	0.032	0.030	0.028	0.030	0.030	0.028	0.030	0.028	0.027	0.026	0.027	0.027	0.027	0.027	0.027	0.029	0.030	0.033	0.035	0.032	0.033	0.031	0.032	0.033	0.033	0.032	
17	0.021	0.022	0.022	0.021	0.022	0.023	0.023	0.023	0.024	0.026	0.026	0.027	0.027	0.027	0.029	0.030	0.033	0.035	0.032	0.033	0.031	0.032	0.033	0.033	0.032	0.027	0.035	0.021
18	0.031	0.031	0.029	0.027	0.026	0.027	0.027	0.026	0.027	0.029	0.031	0.033	0.034	0.034	0.034	0.035	0.035	0.035	0.035	0.034	0.033	0.022	0.020	0.023	0.030	0.035	0.020	
19	0.027	0.028	0.023	0.021	0.023	0.021	0.014	0.023	0.032	0.036	0.039	0.040	0.041	0.042	0.043	0.042	0.047	0.059	0.071	0.074	0.070	0.067	0.065	0.062	0.042	0.074	0.014	
20	0.062	0.044	0.050	0.049	0.045	0.025	0.032	0.027	0.028	0.041	0.044	0.045	0.046	0.046	0.045	0.046	0.047	0.046	0.044	0.043	0.044	0.036	0.036	0.037	0.042	0.062	0.025	
21	0.043	0.041	0.036	0.033	0.031	0.023	0.029	0.025	0.035	0.038	0.043	0.047	0.050	0.050	0.045	0.044	0.044	0.044	0.049	0.053	0.054	0.041	0.033	0.028	0.040	0.054	0.023	
22	0.023	0.031	0.031	0.021	0.023	0.024	0.025	0.024	0.030	0.035	0.038	0.041	0.040	0.042	0.042	0.043	0.044	0.049	0.062	0.078	0.071	0.069	0.059	0.049	0.041	0.078	0.021	
23	0.045	0.054	0.040	0.031	0.029	0.030	0.029	0.029	0.031	0.035	0.040	0.043	0.045	0.050	0.049	0.050	0.055	0.050	0.044	0.044	0.045	0.045	0.037	0.044	0.041	0.055	0.029	
24	0.033	0.033	0.034	0.031	0.031	0.032	0.031	0.032	0.033	0.036	0.043	0.048	0.048	0.046	0.050	0.053	0.052	0.059	0.063	0.063	0.056	0.049	0.043	0.037	0.043	0.063	0.031	
25	0.037	0.037	0.031	0.032	0.035	0.032	0.034	0.036	0.038	0.043	0.045	0.049	0.050	0.052	0.051	0.051	0.051	0.052	0.052	0.056	0.056	0.055	0.047	0.043	0.044	0.056	0.031	
26	0.036	0.037	0.034	0.021	0.028	0.035	0.038	0.039	0.043	0.044	--	0.051	0.051	0.052	0.050	0.049	0.047	0.045	0.041	0.037	0.037	0.032	0.036	0.034	0.040	0.052	0.021	
27	0.029	0.026	0.036	0.036	0.033	0.028	0.029	0.029	0.035	0.036	0.042	0.047	0.048	0.049	0.050	0.046	0.038	0.035	0.032	0.032	0.031	0.031	0.028	0.026	0.035	0.050	0.026	
28	0.025	0.024	0.023	0.024	0.023	0.023	0.024	0.024	0.024	0.023	0.029	0.032	0.038	0.044	0.044	0.046	0.050	0.051	0.051	0.049	0.045	0.048	0.050	0.049	0.036	0.051	0.023	
29	0.041	0.036	0.042	0.046	0.048	0.045	0.041	0.034	0.042	0.046	0.047	0.042	0.041	0.043	0.046	0.048	0.048	0.050	0.054	0.053	0.048	0.048	0.049	0.048	0.045	0.054	0.034	
30	0.047	0.048	0.048	0.045	0.049	0.050	0.046	0.040	0.043	0.055	0.058	0.058	0.058	0.059	0.060	0.060	0.062	0.064	0.066	0.067	0.063	0.062	0.061	0.060	0.055	0.067	0.040	
Avg	0.037	0.036	0.035	0.034	0.033	0.031	0.031	0.030	0.033	0.037	0.039	0.042	0.043	0.044	0.044	0.045	0.046	0.047	0.048	0.047	0.044	0.042	0.040	0.039	0.039	--	--	
Max	0.062	0.057	0.053	0.050	0.053	0.050	0.046	0.045	0.046	0.055	0.058	0.061	0.065	0.068	0.067	0.068	0.068	0.067	0.071	0.078	0.076	0.069	0.065	0.062	--	0.078	--	
Min	0.019	0.018	0.013	0.015	0.011	0.012	0.014	0.021	0.023	0.023	0.026	0.027	0.027	0.027	0.029	0.027	0.028	0.029	0.028	0.025	0.024	0.017	0.015	0.020	--	--	0.011	

-- Indicates Invalid Data

**Appendix D: West Plant Meteorological Site Check
Forms**

**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/7/2014

Time: 2:28

Operator: J. Ballard

YES NO **

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |

	
AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>7/14/14</u>
AUDITED BY <u>ES</u>	DATE <u>7/8/14</u>

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	<u>1 m/s</u>	<u>1.84</u>	<u>2.79</u>
Direction* 10m (deg)	<u>SE</u>	<u>173.57</u>	<u>210</u>
Ambient Temperature (°C)	<u>36°</u>	<u>35.65</u>	<u>35.7</u>
Relative Humidity (%)	<u>30%</u>	<u>26.41</u>	<u>26.9</u>
Aspirated Temp 2m	<u>36°</u>	<u>35.29</u>	<u>35.4</u>
Aspirated Temp 10m	<u>35°</u>	<u>33.82</u>	<u>33.6</u>
Delta Temperature (°C)	<u>N/A</u>	<u>-1.97</u>	<u>-1.85</u>
Solar Radiation (w/m ²)	<u>Sunny Partly cloudy Cloudy</u>	<u>600.12</u>	<u>571</u>
Barometric Pressure (mmHg)	<u>N/A</u>	<u>680.52</u>	<u>681</u>
Battery Voltage (V)	<u>N/A</u>	<u>12.67</u>	<u>12.7</u>
Time (MST)	<u>N/A</u>	<u>2:30</u>	<u>14:30-LT.</u>
Date	<u>N/A</u>	<u>7/7/2014</u>	<u>7/7/2014</u>

209 - 14:00
+ 169 - 14:15
* 300 - 14:45
+ 320 - 15:00
+
+
+
+
+
+
+
+
+
+
+

*Direction wind is from

Comments/Unusual Occurrences or Weather: Jepped precip gauge. * ES.
* 0.024" of precip imputed @ 14:45 hrs! ES.

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Jane Ballard



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/10/2014 Time: 10:57 Operator: K. Balla

YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |

(RH sensor malfunctioning) ✓
EG

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY RPA DATE 7/2/14

BY EG DATE 7/14/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	2 m/s	1.53	1.89
Direction* 10m (deg)	SE	239 09	268
Ambient Temperature (°C)	30°	31.19	30.5
Relative Humidity (%)	35%	30.49	-37
Aspirated Temp 2m	30°	-30.69	(malfunctioning)
Aspirated Temp 10m	29°	29.87	29
Delta Temperature (°C)	N/A	-0.60	-0.899
Solar Radiation (w/m²)	Sunny Partly cloudy Cloudy	938.69	929
Barometric Pressure (mmHg)	N/A	18277	685
Battery Voltage (V)	N/A	12.71	12.7
Time (MST)	N/A	10:59	11:00-L.T.
Date	N/A	07/10/2014	07/10/2014

EG -
205 - 10:30
+ 240 - 10:45
* 226 - 11:15
+ 246 - 11:30
*
29.9 +
+
+
+
+
+
+
+
+

*Direction wind is from

Comments/Unusual Occurrences or Weather: Filled over pan ✓ EG
New RH/Temp sensor ordered! EG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K. Balla



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/18/2014

Time: 9:05

Operator: A. Ballard & V. Rosey

YES NO**

✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	

1. The tower is intact and upright.
2. The anemometer propeller and the wind direction vane are turning freely.
3. All temperature shields are intact, and the probes are inside their shields.
4. The aspirator fans are operating.
5. The solar radiation sensor is level and has been cleaned.
6. The solar panel is facing south and is clean.
7. The precipitation gauge is clean and free of bugs and dust.
8. The data logger is reading the correct time and day.
9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.).
10. Estimate and document the parameters below.

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 8-2-14

AUDITED BY: GG DATE: 7/21/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	1 m/s	0.2	1.62
Direction* 10m (deg)	NE	6.9	83.6
Ambient Temperature (°C)	29°	28.82	29.3
Relative Humidity (%)	20%	68.81	(Not correct)
Aspirated Temp 2m	29°	28.53	28.7
Aspirated Temp 10m	28°	27.63	27.4
Delta Temperature (°C)	N/A	-0.90	-1.3
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	231.38	543
Barometric Pressure (mmHg)	N/A	683.80	684
Battery Voltage (V)	N/A	12.75	12.8
Time (MST)	N/A	9:07	9:00-L.T.
Date	N/A	7/18/2014	7/18/2014

GG.
 1.73 - 8:30
 1.49 - 8:45
 1.52 - 9:15
 1.48 - 9:30
 * 43.3 - 8:30
 * 49.3 - 8:45
 + 102 - 9:15
 * 99.1 - 9:30
 + GG.
 + 427 - 8:30
 * 624 - 8:45
 + 318 - 9:15
 + 335 - 9:30
 +

* new temp/RH sensor ordered! GG.

*Direction wind is from

Comments/Unusual Occurrences or Weather: Checked precip. gauge ✓ GG - 0.008" of precip indicated at 9:15 hrs! GG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kami Ballard



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/24/2014 Time: 1:45 Operator: K. Ballard

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 8-4-14

AUDITED BY: EG DATE: 7/25/14

- | | |
|-------------------------------------|--|
| YES NO ** | |
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	0.5 m/s	0.71	1.89
Direction* 10m (deg)	N	17.23	235
Ambient Temperature (°C)	37°	39.2	39.8
Relative Humidity (%)	15%	80% → Not working	
Aspirated Temp 2m	37°	38.59	39.1
Aspirated Temp 10m	36°	37.74	38
Delta Temperature (°C)	N/A	-0.85	-1.13
Solar Radiation (w/m²)	Sunny Partly cloudy Cloudy	983.07	873
Barometric Pressure (mmHg)	N/A	1081.50	682
Battery Voltage (V)	N/A	12.64	12.6
Time (MST)	N/A	1:48	13:45 - L.T.
Date	N/A	7/24/2014	7/24/2014

EG

3.09 - 13:15
3.06 - 13:30
3.71 - 14:00
5 - 14:15
189 - 13:15
170 - 13:30
131 - 14:00
186 - 14:15
980 - 13:15
972 - 13:30
852 - 14:00
947 - 14:15

*0.012" of precip. invalidated @ 14:00 hrs! EG

Comments/Unusual Occurrences or Weather: found wrap on & tipped precip. gauge EG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kenneth Ballard



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 08/08/2014

Time: 3:32

Operator: K. Ballard

YES NO **

- | | | |
|---|--|--|
| ✓ | | 1. The tower is intact and upright. |
| ✓ | | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | | 4. The aspirator fans are operating. |
| ✓ | | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | | 6. The solar panel is facing south and is clean. |
| ✓ | | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | | 8. The data logger is reading the correct time and day. |
| ✓ | | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | | 10. Estimate and document the parameters below. |

AIR SCIENCES INC.
DENVER • PORTLAND

RPA

REVIEWED BY _____ DATE 8-20-14

AUDITED BY EB DATE 8/11/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	6m/s	247.27	4.62
Direction* 10m (deg)	NW	7.27	249
Ambient Temperature (°C)	34°	35.61	35.6
Relative Humidity (%)	16%	19.4	19.1
Aspirated Temp 2m	34°	35.18	35.2
Aspirated Temp 10m	33°	34.34	34.2
Delta Temperature (°C)	N/A	-0.84	-0.951
Solar Radiation (w/m²)	Sunny Partly cloudy Cloudy	679.15	677
Barometric Pressure (mmHg)	N/A	681.00	681
Battery Voltage (V)	N/A	12.67	12.7
Time (MST)	N/A	3:38	15:45 LT.
Date	N/A	08/08/2014	08/08/2014

EB

4.89 - 15:15
 * 4.79 - 15:30
 + 4.2 - 16:00
 + 4.19 - 16:15
 +
 +
 +
 +
 +
 +
 +
 +
 +

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kenn Ballard



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 08/14/2014 Time: 7:57 Operator: Kami Balla

- | YES | NO** | |
|-----|------|--|
| ✓ | | 1. The tower is intact and upright. |
| ✓ | | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | | 4. The aspirator fans are operating. |
| ✓ | | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | | 6. The solar panel is facing south and is clean. |
| ✓ | | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | | 8. The data logger is reading the correct time and day. |
| ✓ | | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | | 10. Estimate and document the parameters below. |

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	1 m/s	1.5	2.4
Direction* 10m (deg)	E	85	98.7
Ambient Temperature (°C)	27°	28.76	28.38
Relative Humidity (%)	22%	51.8	52.25
Aspirated Temp 2m	27°	28.1	27.73
Aspirated Temp 10m	26°	27.0	26.83
Delta Temperature (°C)	N/A	- .96	- .898
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	393.95	384.4
Barometric Pressure (mmHg)	N/A	684.30	684.3
Battery Voltage (V)	N/A	12.74	12.76
Time (MST)	N/A	8:01	0800 HRS L.T.
Date	N/A	8/14/2014	0814 2014

*Direction wind is from

Comments/Unusual Occurrences or Weather: Filled vap. pan & tipped precip gauge ✓ GG
INVALIDATED 0.008" OF REQUIRED PRECIP @ 0800 HRS - RPA ✓ GG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kami Balla

**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 8/22/2014

Time: 4:23

Operator: K. Ball

YES NO **

✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The tower is intact and upright.
- The anemometer propeller and the wind direction vane are turning freely.
- All temperature shields are intact, and the probes are inside their shields.
- The aspirator fans are operating.
- The solar radiation sensor is level and has been cleaned.
- The solar panel is facing south and is clean.
- The precipitation gauge is clean and free of bugs and dust.
- The data logger is reading the correct time and day.
- The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.).
- Estimate and document the parameters below.

	
AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>ASJ</u>	DATE <u>8-25-14</u>
AUDITED BY <u>GB-</u>	DATE <u>8/25/14</u>

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	<u>4 m/s</u>	<u>2.96</u>	<u>4.49</u>
Direction* 10m (deg)	<u>N</u>	<u>331.61</u>	<u>271</u>
Ambient Temperature (°C)	<u>29°</u>	<u>30.67</u>	<u>30.5</u>
Relative Humidity (%)	<u>35%</u>	<u>33.92</u>	<u>34.6</u>
Aspirated Temp 2m	<u>29°</u>	<u>30.15</u>	<u>29.9</u>
Aspirated Temp 10m	<u>28°</u>	<u>29.30</u>	<u>28.9</u>
Delta Temperature (°C)	N/A	<u>-0.86</u>	<u>-0.949</u>
Solar Radiation (w/m ²)	Sunny <u>Partly cloudy</u> Cloudy	<u>523.78</u>	<u>415</u>
Barometric Pressure (mmHg)	N/A	<u>681.99</u>	<u>682</u>
Battery Voltage (V)	N/A	<u>12.72</u>	<u>12.7</u>
Time (MST)	N/A	<u>4:23</u>	<u>16:30 - L.T.</u>
Date	N/A	<u>08/22/2014</u>	<u>08/22/2014</u>

66-
275-16:00
+ 285-16:15
* 261-16:45
+ 259-17:00
+
+
66-
423-16:00
+ 579-16:15
* 490-16:45
+ 267-17:00
+
+

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K. Ball



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9-12-14 Time: 12:59 Operator: K Beak

YES NO **

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The tower is intact and upright.
- The anemometer propeller and the wind direction vane are turning freely.
- All temperature shields are intact, and the probes are inside their shields.
- The aspirator fans are operating.
- The solar radiation sensor is level and has been cleaned.
- The solar panel is facing south and is clean.
- The precipitation gauge is clean and free of bugs and dust.
- The data logger is reading the correct time and day.
- The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.).
- Estimate and document the parameters below.

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY RPA DATE 9-16-14

AUDITED BY EG DATE 9/15/14

Parameter	Estimated	Logger	Audit	
Speed 10m (m/s)	<u>5mph</u>	<u>?</u>	<u>1.29</u>	<u>+</u>
Direction* 10m (deg)	<u>SE</u>	<u>285°</u>	<u>289</u>	<u>+</u>
Ambient Temperature (°C)	<u>98°F</u>	<u>33.4°C</u>	<u>33.6</u>	<u>+</u>
Relative Humidity (%)	<u>30%</u>	<u>27.04%</u>	<u>27.5</u>	<u>+</u>
Aspirated Temp 2m	<u>98°F</u>	<u>33.11°C</u>	<u>33.4</u>	<u>+</u>
Aspirated Temp 10m	<u>95°F</u>	<u>32.84</u>	<u>33</u>	<u>+</u>
Delta Temperature (°C)	N/A	<u>-0.245</u>	<u>-0.414</u>	<u>+</u>
Solar Radiation (w/m ²)	<u>Sunny</u> Partly cloudy Cloudy	<u>130.99</u>	<u>123</u>	<u>+</u>
Barometric Pressure (mmHg)	N/A	<u>280.64</u>	<u>681</u>	<u>+</u>
Battery Voltage (V)	N/A	<u>12.68</u>	<u>12.7</u>	<u>+</u>
Time (MST)	N/A	<u>1:01</u>	<u>13:00_L.T.</u>	<u>+</u>
Date	N/A	<u>9-12-14</u>	<u>9-12-14</u>	<u>+</u>

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K Beak



**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 09/19/2014 Time: 9:43 Operator: K. Ball

YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY RPA DATE 9/24/14

AUDITED BY GG DATE 9/22/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	3 m/s	3.8	2.69 +
Direction* 10m (deg)	w	221.79	227 +
Ambient Temperature (°C)	30°	29.83	29.6 +
Relative Humidity (%)	50%	49.85	49.8 +
Aspirated Temp 2m	30°	28.89	28.6 +
Aspirated Temp 10m	29°	27.37	27.3 +
Delta Temperature (°C)	N/A	-1.53	-1.27 +
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	735.55	744 +
Barometric Pressure (mmHg)	N/A	681.36	681 +
Battery Voltage (V)	N/A	12.72	12.7 +
Time (MST)	N/A	9:44	09:45 L.T. +
Date	N/A	9/19/2014	9/19/2014 +

*0.032" of precip. invalidated @ 09:45 hrs! GG.

Comments/Unusual Occurrences or Weather: ipped precip. gauge & refilled w/veg. pan

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K. Ball

**WEST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9/26/2014

Time: 8:54

Operator: K. Ballard

YES	NO **
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The tower is intact and upright.
- The anemometer propeller and the wind direction vane are turning freely.
- All temperature shields are intact, and the probes are inside their shields.
- The aspirator fans are operating.
- The solar radiation sensor is level and has been cleaned.
- The solar panel is facing south and is clean.
- The precipitation gauge is clean and free of bugs and dust.
- The data logger is reading the correct time and day.
- The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.).
- Estimate and document the parameters below.



AIR SCIENCES INC.
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REVIEWED BY RPA DATE 10-4-14

AUDITED BY EG DATE 9/29/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	0 m/s	2.25	1.34
Direction* 10m (deg)	W	374 179.18	193
Ambient Temperature (°C)	31°	29.88	30
Relative Humidity (%)	25%	35.25%	35.1
Aspirated Temp 2m	31°	28.50	28.8
Aspirated Temp 10m	30°	28.03	28.1
Delta Temperature (°C)	N/A	-0.42	-0.759
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	389.49	400
Barometric Pressure (mmHg)	N/A	683.26	683
Battery Voltage (V)	N/A	12.72	12.7
Time (MST)	N/A	8:54	9:00_L.T.
Date	N/A	9/26/2014	9/26/2014

* 0.012" of precip. uncollected @ 9:15 hrs! EG.

*Direction wind is from

Comments/Unusual Occurrences or Weather: ipped precip gauge.

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K. Ballard

**Appendix E: West Plant PM₁₀ and PM_{2.5} Site Check
Forms and Flow Audits**

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/7/2014 Time: 2:30

Operator: K. BaO d

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 6/30-7/7 Bam Cal membrane 5%
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>7/14/14</u>
AUDITED BY <u>66</u>	DATE <u>7/8/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kan BaO d

**Fax completed form to Air Sciences at 303-279-3796

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/10/2014 Time: 11:04 Operator: K. Bell

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 6/30 → 7/10 - BAM Cal Membrane
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) EG

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>7/21/14</u>
AUDITED BY <u>EG</u>	DATE <u>7/14/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: _____

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/24/2014 Time: 1:53 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>7/5-7/24 → BAM Cid . . . ✓ 66</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC.
DENVER - PORTLAND

REVIEWED BY: RPA DATE: 8-4-14

AUDITED BY: 66 - DATE: 7/25/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences:

Signature: Kami Ballard

**Fax completed form to Air Sciences at 303-279-3796

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 08/08/2014 Time: 3:40

Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 07/28-08/08 → BAM Cal Mem. 5%
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
RPA REVIEWED BY	8-20-14 DATE
<u>66-</u> AUDITED BY	8/11/14 DATE

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kami Ballard

WEST PLANT

BAM PM10 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1

REVIEWED BY: RPA DATE: 8-20-14
 AUDITED BY: _____ DATE: _____

Date: 8/14/2014 Time: 8:04

Operator: Kam Ball

I. BAM SAMPLER – Weekly Checks.

YES	NO
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 08/08 - 8/14 → BAM Cal ✓ 66.
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RPA ✓ 66-

YES	NO

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RPA ✓ 66-

YES	NO

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RPA ✓ 66-

YES	NO

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RPA ✓ 66-

YES	NO

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: K. Ball

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 8/22/14 Time: 4:25 Operator: K. Ballard

I. BAM SAMPLER -- Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 8/14 → 8/22 → BAM Cal Mem-56
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 66-

II. BAM SAMPLER -- Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RAA</u>	DATE <u>9-15-14</u>
AUDITED BY <u>66-</u>	DATE <u>8/25/14</u>

III. BAM SAMPLER -- Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER -- Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER -- Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kenn Ball

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/3/2014

Time: 2:53

Operator: Kami Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 8/30 → 9/03 BAM cal Membrane 50%
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 50%

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Inlet Flow check Performed
- Visual Inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	<u>9-15-14</u>
AUDITED BY <u>GB</u>	<u>9/4/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kami Ballard



Monthly Flow Verification PM₁₀

West Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

AIR SCIENCES INC
DENVER • FORTIAH

9-15-14

REVIEWED BY: RPA

AUDITED BY: GG- 9/4/14

Met One BAM 1020 PM₁₀: S/N: 148172
 Firmware: Delta Cal S/N: _____
 Calibrator: _____

Date of Flow Audit: 9/3/2014 ✓
 Time of Flow Audit: 3:00 ✓

	BAM	STD
Ambient Temperature (AT) °C	<u>38.7</u>	<u>38.7</u> ✓
Berometric Pressure mmHg	<u>678</u>	<u>678</u> ✓

	Set Point (ppm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	<u>15.0</u> 14.700 - 15.300	<u>0</u> ✓ +/- 2%	<u>15.14</u> 14.250 - 15.750	<u>0.92</u> ✓ +/- 5%
(2) Actual Flow Acceptable Differential	18.4	<u>18.4</u> 18.032 - 18.768	<u>0</u> ✓ +/- 2%	<u>18.58</u> 17.480 - 19.320	<u>0.97</u> ✓ +/- 5%
(3) Actual Flow Acceptable Differential	16.7	<u>16.7</u> 16.336 - 17.034	<u>0</u> ✓ +/- 2%	<u>16.90</u> 15.865 - 17.535	<u>1.18</u> ✓ +/- 5%

Calculations:
 (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
 (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test BAM 0.2 Should be < 1.0 LPM ✓

** PM10 conc. + flow invalidated @ 16:00 hrs! GG-*

Comments/Abnormalities: Monthly Flow Verifications ✓
Set Point Passed ✓
 Signature: Jane Ball

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9-12-14 Time: 13:01 Operator: K Baak

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
RPA REVIEWED BY	9-16-14 DATE
66- AUDITED BY	9/15/14 DATE

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

66-

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: *K Baak*

WEST PLANT

BAM PM10 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 9/19/2014 Time: 9:44

Operator: K. Ballad

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 9/15 → 9/19 Bam Cal membrane 5/8
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 66

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

RPA	9/24/14
REVIEWED BY	DATE
AUDITED BY <u>66-</u>	DATE <u>9/22/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: K. Ballad

WEST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/26/2014 Time: 9:04 Operator: K. Ballard

I. BAM SAMPLER -- Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 9/22 → 9/26 → Bam Cal ✓
Membrane 5% ✓
- Climate control appears operational (if it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 66

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66 -

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>10-3-14</u>
AUDITED BY <u>66 -</u>	DATE <u>9/29/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66 -

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66 -

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66 -

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kami Ballard



Monthly Flow Verification PM₁₀

West Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

Met One BAM 1020 PM_{2.5}: S/N: M8712
Firmware: S/N:
Calibrator: Delta Cal

RPA	10-3-14
REVIEWED BY	DATE
AUDITED BY <u>GG-</u>	DATE <u>9/30/14</u>

Date of Flow Audit: 9/29/2014 ✓
Time of Flow Audit: 1:30 pm ✓

	BAM	STD
Ambient Temperature (AT) °C	27.8	27 ✓
Berometric Pressure mmHg	1081	1081 ✓

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	15.0	0 ✓	15.02	0.13 ✓
		14.700 - 15.300	+/- 2%	14.250 - 15.750	+/- 5%
(2) Actual Flow Acceptable Differential	18.4	18.4	0 ✓	18.54	0.76 ✓
		18.032 - 18.768	+/- 2%	17.480 - 19.320	+/- 5%
(3) Actual Flow Acceptable Differential	16.7	16.7	0 ✓	16.77	0.42 ✓
		16.336 - 17.034	+/- 2%	15.865 - 17.535	+/- 5%

Calculations:

- (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
- (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test

BAM	0.3
-----	-----

 Should be < 1.0 LPM ✓

** PM10 conc. + flow invalidated @ 14:00 hrs! GG-*

Comments/Abnormalities: Self-Test "Passed"

Signature: Karen Paillard

Upon completion of this form, fax to Air Sciences at 303-279-3796

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/7/2014 Time: 2:24

Operator: [Signature]

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <i>07/03 → Count Failed</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool). <i>07/07 → Maintained</i>

*EG -
No
invalid date
EG*

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG -

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 and 2.5 cyclone particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • FORT LAUDERDALE	
REVIEWED BY <u>RPA</u>	DATE <u>7/14/14</u>
AUDITED BY <u>EG</u>	DATE <u>7/8/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG -

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG -

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG -

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: BAM went into maintenance mode after checking errors. Ran self test to correct issue.

** PM 2.5 conc + flow invalidated @ 15:00hrs due to maintenance! EG*

Signature: [Signature]

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/10/2014 Time: 10:59 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/07 → Maintenance ✓ GG
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC. DENVER • PORTLAND	
<u>RPA</u>	<u>7/21/14</u>
REVIEWED BY	DATE
<u>GG-</u>	<u>7/14/14</u>
AUDITED BY	DATE

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG-

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kanu Ballard

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9:05 ← Time: 7/18/2014

Operator: K. Ballard & V. Peasey

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/07 → Maintenance ✓ CB
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>8-4-14</u>
AUDITED BY <u>CB</u>	DATE <u>7/21/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kenneth Ballard

WEST PLANT

BAM PM 2.5 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 7/24/2014 Time: 1:45 Operator: H. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

✓		1. The sampler is intact and the inlet head is unobstructed.
✓		2. The vacuum pump is running and sounds normal.
✓		3. The temperature shield is intact, and the sensor is inside of it.
✓		4. The BAM is reading the correct time and day.
✓		5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
✓		6. Error log was checked (F3), and errors followed up on (see manual). <u>7/7 → Maintenance</u> ✓66
✓		7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

✓		1. Inlet Flow check Performed
✓		2. Visual inspection and dust removal
✓		3. Leak check performed
✓		4. PM10 and 2.5 cyclone particle trap cleaned
✓		5. Inlet nozzle and nozzle are cleaned

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REVIEWED BY: RPA DATE: 8-4-14

AUDITED BY: 66 DATE: 7/25/14

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

✓		1. Filter tape replaced
✓		2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66 -

✓		1. Replaced muffler on the pump (*Work performed by Air Sciences)
✓		2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

✓		1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
✓		2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Hans Ballard

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 08/08/2014 Time: 3:42

Operator: Kari Bell

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/29 → Maintenance ✓ 66
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>8-20-14</u>
AUDITED BY <u>66</u>	DATE <u>8/11/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kari Bell



WEST PLANT

BAM PM 2.5 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



REVIEWED BY: RPA DATE: 8/20/14
AUDITED BY: _____ DATE: _____

Date: 8/14/2014 Time: 8:03

Operator: K. BALLARD

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 08/07 -> Maintenance ✓ 66-
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kami Ballard

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 8/22/2014 Time: #1 4:26 Operator: H. Ball

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 8/15 → Flow AT disconnected ✓ EG
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned



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REVIEWED BY: RPA DATE: 9-15-14

AUDITED BY: EG DATE: 8/25/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: H. Ball

WEST PLANT

BAM PM 2.5 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 9/03/2014 Time: 2:58 Operator: H. Bellec

I. BAM SAMPLER – Weekly Checks.

YES	NO
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 8/15 → FlowRT disconnect u ✓ 66-
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
✓	
✓	
✓	
✓	✓
✓	

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned



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REVIEWED BY: RPA DATE: 9-15-14

AUDITED BY: 66- ID: 9/4/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
✓	

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
	✓

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
	✓

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: H. Bellec



Monthly Flow Verification PM_{2.5}

West Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

REVIEWED BY: *RMA*
AUDITED BY: *EG* 9/4/14

Met One BAM 1020 PM_{2.5}: S/N: *M*
 Firmware: _____
 Calibrator: *Delta Cal* S/N: _____

Date of Flow Audit: *9-3-2014* ✓
 Time of Flow Audit: *3:03* ✓

	BAM	STD
Ambient Temperature (AT) °C	<i>38.7</i>	<i>38.4</i> ✓
Berometric Pressure mmHg	<i>678</i>	<i>678</i> ✓

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	<i>15.0</i> 14.700 - 15.300	<i>0</i> ✓ +/- 2%	<i>15.13</i> 14.250 - 15.750	<i>0.86</i> ✓ +/- 5%
(2) Actual Flow Acceptable Differential	18.4	<i>18.4</i> 18.032 - 18.768	<i>0</i> ✓ +/- 2%	<i>18.60</i> 17.480 - 19.320	<i>1.08</i> ✓ +/- 5%
(3) Actual Flow Acceptable Differential	16.7	<i>16.7</i> 16.336 - 17.034	<i>0</i> ✓ +/- 2%	<i>16.87</i> 15.865 - 17.535	<i>1.01</i> ✓ +/- 5%

Calculations:
 (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
 (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test BAM
0.3 **Should be < 1.0 LPM** ✓

PM_{2.5} date doesn't reflect flow audit & maintenance? No inclusions made! EG

Comments/Abnormalities: *Self Just Passed. Monthly Flow for August* ✓

Signature: *Jane Beaud*

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9-12-14 Time: 12:55 Operator: K Baak

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

1. The sampler is intact and the inlet head is unobstructed.
2. The vacuum pump is running and sounds normal.
3. The temperature shield is intact, and the sensor is inside of it.
4. The BAM is reading the correct time and day.
5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
6. Error log was checked (F3), and errors followed up on (see manual). *9/12 - 9/18 BAM Cal Membrane 5/6*
7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO *66-*

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Inlet Flow check Performed
2. Visual inspection and dust removal
3. Leak check performed
4. PM10 and 2.5 cyclone particle trap cleaned
5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
<i>RPA</i> REVIEWED BY	DATE <i>9-16-14</i>
AUDITED BY <i>66-</i>	DATE <i>9/15/14</i>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO *66-*

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Filter tape replaced
2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO *66-*

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Replaced muffler on the pump (*Work performed by Air Sciences)
2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO *66-*

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: *K Baak*

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/19/2014 Time: 9:45 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 9/03 → maintenance ✓ EB
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
<u>RPA</u> REVIEWED BY	<u>9/24/14</u> DATE
<u>EB</u> AUDITED BY	<u>9/22/14</u> DATE

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

IV. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

V. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EB

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: K. Ballard

WEST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/26/2014

Time: 9:04

Operator: K. BeClod

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 9/26 → Maintenance (My fault)
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

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RPA 10-3-14

REVIEWED BY DATE

AUDITED BY EG DATE 9/29/14

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

* PM2.5 conc. & flow invalidated @ 10:00 hrs! EG

Signature: K. BeClod



Monthly Flow Verification PM^{2.5}

West Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

Met One BAM 1020 PM₁₀: S/N: M8193
Firmware:
Calibrator: Delta Cal S/N:

REVIEWED BY: <u>RPA</u>	DATE: <u>10-3-14</u>
AUDITED BY: <u>GG</u>	DATE: <u>9/30/14</u>

Date of Flow Audit: 9/29/2014 ✓
Time of Flow Audit: 1:35 ✓

	BAM	STD
Ambient Temperature (AT) °c	<u>27.7</u>	<u>26.8</u> ✓
Berometric Pressure mmHg	<u>682</u>	<u>681.0</u> ✓

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	<u>15.0</u> 14.700 - 15.300	<u>0</u> ✓ +/- 2%	<u>15.01</u> 14.250 - 15.750	<u>0.07</u> ✓ +/- 5%
(2) Actual Flow Acceptable Differential	18.4	<u>18.4</u> 18.032 - 18.768	<u>0</u> ✓ +/- 2%	<u>18.53</u> 17.480 - 19.320	<u>0.70</u> ✓ +/- 5%
(3) Actual Flow Acceptable Differential	16.7	<u>16.7</u> 16.336 - 17.034	<u>0</u> ✓ +/- 2%	<u>16.76</u> 15.865 - 17.535	<u>0.36</u> ✓ +/- 5%

Calculations:
(1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
(2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test BAM 0.4 Should be < 1.0 LPM ✓

** PM2.5 conc. + flow invalidated @ 14:00 hrs! GG*

Comments/Abnormalities: Self Test - "Passed"

Signature: [Handwritten Signature]

Upon completion of this form, fax to Air Sciences at 303-279-3796

**Appendix F: East Plant Meteorological Site Check
Forms**



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/02/2014 Time: 2:49 Operator: James Ballard

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 7-14-14

AUDITED BY: EG DATE: 7/8/14

YES NO **

- | | | |
|---|--|--|
| ✓ | | 1. The tower is intact and upright. |
| ✓ | | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | | 4. The aspirator fans are operating. |
| ✓ | | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | | 6. The solar panel is facing south and is clean. |
| ✓ | | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | | 8. The data logger is reading the correct time and day. |
| ✓ | | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | | 10. Estimate and document the parameters below. |

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	3 m/s	1.0	3.61
Direction* 10m (deg)	WNW	301.48	292
Ambient Temperature (°C)	34°	33.55	34
Relative Humidity (%)	15%	13.28	12.9
Aspirated Temp 2m	34°	32.55	33.1
Aspirated Temp 10m	33°	31.66	32
Delta Temperature (°C)	N/A	-0.88	-1.15
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	861.93	877
Barometric Pressure (mmHg)	N/A	652.84	653
Battery Voltage (V)	N/A	12.60	12.6
Time (MST)	N/A	2.52	14:45 - L.T.
Date	N/A	07/02/2014	07/02/2014

EG -
305 - 14:15
*301 - 14:30
+ 276 - 15:00
+ 302 - 15:15
+
+
+
+
+
+
+
+
+
+
+

*Direction wind is from

Comments/Unusual Occurrences or Weather: Dipped precip gauge. * EG.
* 0.004" of precip invalidated @ 15:00 hrs! EG.

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: James Ballard

**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/11/2014

Time: 10:25

Operator: Karen Ballard

YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |



AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 7/21/14

AUDITED BY: EG DATE: 7/14/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	<u>2 m/s</u>	<u>3.58</u>	<u>2.74</u>
Direction* 10m (deg)	<u>SE</u>	<u>258.37</u>	<u>263</u>
Ambient Temperature (°C)	<u>30°</u>	<u>29.87</u>	<u>29.4</u>
Relative Humidity (%)	<u>35%</u>	<u>39.36</u>	<u>40.5</u>
Aspirated Temp 2m	<u>30°</u>	<u>27.94</u>	<u>27.9</u>
Aspirated Temp 10m	<u>29°</u>	<u>27.51</u>	<u>27.1</u>
Delta Temperature (°C)	<u>N/A</u>	<u>-0.43</u>	<u>-0.738</u>
Solar Radiation (w/m ²)	<u>Sunny Partly cloudy Cloudy</u>	<u>920.51</u>	<u>918</u>
Barometric Pressure (mmHg)	<u>N/A</u>	<u>654.54"</u>	<u>655</u>
Battery Voltage (V)	<u>N/A</u>	<u>12.64</u>	<u>12.6</u>
Time (MST)	<u>N/A</u>	<u>?</u>	<u>10:30 L.T.</u>
Date	<u>N/A</u>	<u>07/11/2014</u>	<u>07/11/2014</u>

EG-
+ 265-10:00
+ 276-10:05
+ 272 10:45
+ 228 11:00

*Direction wind is from

Comments/Unusual Occurrences or Weather: Checked precip. gauge ✓ EG-
to 0.016" of precip undisturbed @ 10:30 hrs!

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Karen Ballard



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/18/2014 Time: 9:49 Operator: Hani Balland

YES NO**

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |

 AIR SCIENCES INC. DENVER • PORTLAND	
RPA REVIEWED BY	8-414 DATE
G.G. AUDITED BY	7/21/14 DATE

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	2 m/s	2.41	1.44
Direction* 10m (deg)	W/NW	222.04	245
Ambient Temperature (°C)	26°	25.96	25.6
Relative Humidity (%)	20%	25.05	24.1
Aspirated Temp 2m	26°	24.89	24.5
Aspirated Temp 10m	25°	24.41	24.2
Delta Temperature (°C)	N/A	-0.47	-0.354
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	460.75	477
Barometric Pressure (mmHg)	N/A	635.12	655
Battery Voltage (V)	N/A	12.68	12.7
Time (MST)	N/A	9:01	9:45 - L.T.
Date	N/A	7/18/2014	7/18/2014

238 - 9:15
 + 232 - 9:30
 * 227 - 10:00
 + 273 - 10:15

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Hani Balland



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 7/24/2014 Time: 11:40 Operator: K. Balla CI

YES NO **

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 8-4-14

AUDITED BY: EG DATE: 7/25/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	4 m/s	4.7	4.67
Direction* 10m (deg)	SE	142.96	166
Ambient Temperature (°C)	34°	35.15	35
Relative Humidity (%)	15%	14.17	14.8
Aspirated Temp 2m	34°	34.97	34.8
Aspirated Temp 10m	33°	33.18	33.2
Delta Temperature (°C)	N/A	-1.79	-1.65
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	1002.17	993
Barometric Pressure (mmHg)	N/A	654.58	655
Battery Voltage (V)	N/A	12.58	12.6
Time (MST)	N/A	11:44	11:45 - L.T.
Date	N/A	7/24/2014	7/24/2014

EG -
+ 156 - 11:15
+ 150 - 11:30
* 159 - 12:00
+ 141 - 12:15
+
+
+
+
+
+
+
+
+
+

* 0.012" of precip. invalidated @ 11:45 hrs! EG.

*Direction wind is from

Comments/Unusual Occurrences or Weather: Refilled map. pan & tipped precip. gauge. ✓ EG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kenneth Balla CI



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 8.07.2014 Time: 9:58 Operator: K. Ballard

YES	NO	**
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		
✓		

- The tower is intact and upright.
- The anemometer propeller and the wind direction vane are turning freely.
- All temperature shields are intact, and the probes are inside their shields.
- The aspirator fans are operating.
- The solar radiation sensor is level and has been cleaned.
- The solar panel is facing south and is clean.
- The precipitation gauge is clean and free of bugs and dust.
- The data logger is reading the correct time and day.
- The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.).
- Estimate and document the parameters below.

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY KPA DATE 8-20-14

AUDITED BY 66- DATE 8/11/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	2 m/s	2.87	1.89
Direction* 10m (deg)	W	241.92	268
Ambient Temperature (°C)	30°	28.92	28.6
Relative Humidity (%)	15%	16.7	17.2
Aspirated Temp 2m	30°	26.96	27
Aspirated Temp 10m	29°	26.21	26.1
Delta Temperature (°C)	N/A	-0.75	-0.865
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	856.84	843
Barometric Pressure (mmHg)	N/A	655.06	655
Battery Voltage (V)	N/A	12.65	12.7
Time (MST)	N/A	10:00	10:00 - L.T.
Date	N/A	08.07.2014	08/07/2014

66-
277- 9:30
+ 267- 9:45
* 267- 10:15
+ 275- 10:30
+
+
+
+
+
+
+
+
+
+

*Direction wind is from _____

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kami Ballard



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 8/14/2014 Time: 8:27 Operator: K. Ballard

- | YES | NO** | |
|-----|------|--|
| ✓ | | 1. The tower is intact and upright. |
| ✓ | | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | | 4. The aspirator fans are operating. |
| ✓ | | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | | 6. The solar panel is facing south and is clean. |
| ✓ | | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | | 8. The data logger is reading the correct time and day. |
| ✓ | | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | | 10. Estimate and document the parameters below. |

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	1 m/s	1.4	1.6
Direction* 10m (deg)	SE	98.59	137.7
Ambient Temperature (°C)	26°	26.74	26.1
Relative Humidity (%)	50%	54.99	55.9
Aspirated Temp 2m	26°	25.41	24.91
Aspirated Temp 10m	25°	24.50	24.13
Delta Temperature (°C)	N/A	-0.65	-0.77
Solar Radiation (w/m²)	Sunny Partly cloudy Cloudy	556.32	528.4
Barometric Pressure (mmHg)	N/A	655.57	655.6
Battery Voltage (V)	N/A	12.69	12.69
Time (MST)	N/A	8:27	0800 hrs L.T.
Date	N/A	08/14/2014	08/14/2014

0800 - 0900
 + 102.7
 + 115.0
 + 114.7
 + 104.8

*Direction wind is from

Comments/Unusual Occurrences or Weather: Filled vap pan & topped precip gauge ✓ GG
INVALIDATED 0.028" PRECIP RECORDED @ 0830hrs - RPA ✓ GG

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K. Ballard



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 08/22/2014 Time: 3:53 Operator: H. Ballard



YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	1 m/s	0.61	2.13
Direction* 10m (deg)	NW	295.42	4.29
Ambient Temperature (°C)	25°	26.79	26.9
Relative Humidity (%)	40%	37.35	38
Aspirated Temp 2m	25°	25.89	26.3
Aspirated Temp 10m	24°	25.21	25.3
Delta Temperature (°C)	N/A	-0.68	-1.03
Solar Radiation (w/m ²)	Sunny <u>Partly cloudy</u> Cloudy	106.322	460
Barometric Pressure (mmHg)	N/A	653.42	653
Battery Voltage (V)	N/A	12.67	12.7
Time (MST)	N/A	3:55	16:00_L.T.
Date	N/A	08/22/2014	08/22/2014

66.
 209 - 15:30
 + 241 - 15:45
 * 277 - 16:15
 + 296 - 16:30
 +
 +
 +
 +
 66.
 + 584 - 15:30
 * 508 - 15:45
 + 562 - 16:15
 + 589 - 16:30
 +
 +

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Hann Ballard

**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9/2/2014

Time: 14:03

Operator: K. Balla

YES NO **

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |



AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 9-15-14

AUDITED BY: SG DATE: 9/4/14

Parameter	Estimated	Logger	Audit	
Speed 10m (m/s)	<u>2 m/s</u>	<u>2.15</u>	<u>3.55</u>	<u>+</u>
Direction* 10m (deg)	<u>W</u>	<u>299.29</u>	<u>285</u>	<u>+</u>
Ambient Temperature (°C)	<u>35°</u>	<u>33.42</u>	<u>33.1</u>	<u>+</u>
Relative Humidity (%)	<u>15%</u>	<u>14.86</u>	<u>14.7</u>	<u>+</u>
Aspirated Temp 2m	<u>35°</u>	<u>32.62</u>	<u>32.5</u>	<u>+</u>
Aspirated Temp 10m	<u>34°</u>	<u>31.74</u>	<u>31.6</u>	<u>+</u>
Delta Temperature (°C)	N/A	<u>-0.86</u>	<u>-0.889</u>	<u>+</u>
Solar Radiation (w/m ²)	<u>Sunny</u> Partly cloudy Cloudy	<u>859.93</u>	<u>878</u>	<u>+</u>
Barometric Pressure (mmHg)	N/A	<u>652.36</u>	<u>652</u>	<u>+</u>
Battery Voltage (V)	N/A	<u>12.60</u>	<u>12.6</u>	<u>+</u>
Time (MST)	N/A	<u>14:05</u>	<u>14:00 - L.T.</u>	<u>+</u>
Date	N/A	<u>09/02</u>	<u>09/02/2014</u>	<u>+</u>

A 0.008" of precip. invalidated @ 14:00 hrs! SG.

*Direction wind is from

Comments/Unusual Occurrences or Weather: Filled swap pan & slipped gauge @ SG.

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kami Balla

**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9-12-14 Time: 13:32 Operator: K Brack

YES NO **

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 1. The tower is intact and upright. |
| <input checked="" type="checkbox"/> | 2. The anemometer propeller and the wind direction vane are turning freely. |
| <input checked="" type="checkbox"/> | 3. All temperature shields are intact, and the probes are inside their shields. |
| <input checked="" type="checkbox"/> | 4. The aspirator fans are operating. |
| <input checked="" type="checkbox"/> | 5. The solar radiation sensor is level and has been cleaned. |
| <input checked="" type="checkbox"/> | 6. The solar panel is facing south and is clean. |
| <input checked="" type="checkbox"/> | 7. The precipitation gauge is clean and free of bugs and dust. |
| <input checked="" type="checkbox"/> | 8. The data logger is reading the correct time and day. |
| <input checked="" type="checkbox"/> | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| <input checked="" type="checkbox"/> | 10. Estimate and document the parameters below. |

	
AIR SCIENCES INC. DENVER • PORTLAND	
RPA	9-16-14
REVIEWED BY	DATE
AUDITED BY <u>ES</u>	DATE <u>9/15/14</u>

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	5 mph	3 m/s	2.54
Direction* 10m (deg)	E	49.59	77.2
Ambient Temperature (°C)	95°F	32.60	52.8
Relative Humidity (%)	30%	25.25	25.2
Aspirated Temp 2m	95°F	32.62	32.2
Aspirated Temp 10m	93°F	29.79	50.4
Delta Temperature (°C)	N/A	-2.64	-1.77
Solar Radiation (w/m²)	Sunny Partly cloudy Cloudy	967.28	964
Barometric Pressure (mmHg)	N/A	652.28	652
Battery Voltage (V)	N/A	12.61	12.6
Time (MST)	N/A	13:31	13:00-L.T.
Date	N/A	9-12-14	9-12-14

ES
140 - 13:00
+ 200 - 13:15
* 43.9 - 13:45
+ 25.9 - 14:00
+
+
+
+
+
+
+
+
+
+
+
+

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: K Brack



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9/19/2014 Time: 10:18 Operator: H. Ballouch

YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RPA DATE: 9/23/14

AUDITED BY: 66- DATE: 9/22/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)	3 m/s	2.56	2.8
Direction* 10m (deg)	W	270.53	249
Ambient Temperature (°C)	26°	24.54	24.9
Relative Humidity (%)	55%	61.45	59.2
Aspirated Temp 2m	26°	23.68	24.2
Aspirated Temp 10m	25°	23.98	23.7
Delta Temperature (°C)	N/A	-0.28	-0.515
Solar Radiation (w/m²)	Sunny Partly cloudy <u>Cloudy</u>	201.32	576
Barometric Pressure (mmHg)	N/A	652.61	653
Battery Voltage (V)	N/A	12.69	12.7
Time (MST)	N/A	10:20	10:15 - L.T.
Date	N/A	9/19/2014	9/19/2014

66-

+ 273 - 9:45
 + 256 - 10:00
 + 263 - 10:30
 + 259 - 10:45

66-

+ 757 - 9:45
 + 423 - 10:00
 + 204 - 10:30
 + 450 - 10:45

*Direction wind is from

Comments/Unusual Occurrences or Weather: _____

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: H. Ballouch



**EAST PLANT
MET SITE CHECK FORM
Resolution
PROJECT NO. 262-1**

Date: 9/24/2014 Time: 9:39 Operator: K. Ballard

YES NO **

- | | |
|---|--|
| ✓ | 1. The tower is intact and upright. |
| ✓ | 2. The anemometer propeller and the wind direction vane are turning freely. |
| ✓ | 3. All temperature shields are intact, and the probes are inside their shields. |
| ✓ | 4. The aspirator fans are operating. |
| ✓ | 5. The solar radiation sensor is level and has been cleaned. |
| ✓ | 6. The solar panel is facing south and is clean. |
| ✓ | 7. The precipitation gauge is clean and free of bugs and dust. |
| ✓ | 8. The data logger is reading the correct time and day. |
| ✓ | 9. The site has been visually inspected for unusual wildlife occurrences (dead birds, etc.). |
| ✓ | 10. Estimate and document the parameters below. |

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REVIEWED BY RPA DATE 10-3-14

AUDITED BY EG DATE 9/26/14

Parameter	Estimated	Logger	Audit
Speed 10m (m/s)		3.79	3.89
Direction* 10m (deg)		151.01	113
Ambient Temperature (°C)		27.24	26
Relative Humidity (%)		38.71	41.3
Aspirated Temp 2m		26.85	25.6
Aspirated Temp 10m		25.64	24.7
Delta Temperature (°C)	N/A	-1.21	-0.919
Solar Radiation (w/m ²)	Sunny Partly cloudy Cloudy	753.038	634
Barometric Pressure (mmHg)	N/A	654.59	655
Battery Voltage (V)	N/A	12.69	12.7
Time (MST)	N/A	9:41	9:45 - L.T.
Date	N/A	9/26/2014	9/26/2014

Handwritten notes:
 129 - 9:15
 + 113 - 9:30
 * 130 - 10:00
 + 97.6 - 10:15
 +
 +
 + 353 - 9:15
 + 401 - 9:30
 * 536 - 10:00
 + 762 - 10:15
 +

* 0.008" of precip. invalidated @ 10:00 hrs! EG.

*Direction wind is from

Comments/Unusual Occurrences or Weather: Refilled evap pan & topped precip gauge.

When form is completed, please fax to Air Sciences Inc. @ 303-279-3796 (no cover sheet is necessary).

Site Operator Signature: Kanu Ballard

**Appendix G: East Plant PM₁₀ and PM_{2.5} Site Check
Forms and Flow Audits**

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/02/2014 Time: 1447

Operator: Kami Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 6/27 → Pressure - Delta Pressure ✓
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 66

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>7-14-14</u>
AUDITED BY <u>66</u>	DATE <u>7/8/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

IV. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

V. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: BP NEEDS TO BE CHECKED WHEN DELTA PRESSURE ERRORS ARE OBSERVED IN THE ERROR LOG TO ALLOW CALIBRATION OR CORRECTIVE ACTION - RPA

Signature: Kami Ballard

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/11/2014 Time: 10:32

Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months). ✓ 66
- Error log was checked (F3), and errors followed up on (see manual). 6/27 → Pressure - Delta Pressure
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

REVIEWED BY <u>RPA</u>	DATE <u>7/21/14</u>
AUDITED BY <u>66</u>	DATE <u>7/14/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kane Ballard

EAST PLANT
BAM PM10 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 7/18/2014 Time: 10:02

Operator: Kami Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/12 → Power Fail ✓ GG
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
	✓
	✓
	✓
✓	

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
RPA REVIEWED BY	8-4-04 DATE
GG AUDITED BY	7/21/14 DATE

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
✓	
✓	

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
	✓

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES	NO
	✓
	✓

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: Self Test Passed

* PM10 conc. + flow indicated @ 11:00 hrs due to tape change! GG

Signature: Kami Ballard

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/24/2014 Time: 11:49 Operator: Kami

I. BAM SAMPLER – Weekly Checks.
 YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>7/18 → Tape Break</u> ✓ <u>EG</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
<u>RPA</u> REVIEWED BY	<u>8-4-14</u> DATE
<u>EG</u> AUDITED BY	<u>7/25/14</u> DATE

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kami Ballard

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 8-07-2014 Time: 10:01

Operator: R. Balla

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/30 → Flow-AT Failure ✓ G.B.
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

G.B.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

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REVIEWED BY: RPA DATE: 8-20-14

AUDITED BY: G.B. DATE: 8/11/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

G.B.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

G.B.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

G.B.

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Ryan Balla

EAST PLANT

BAM PM10 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1

REVIEWED BY: RA DATE: 8/25/14
AUDITED BY: _____ DATE: 08/14/2014

Time: 8:31

Operator: K. Palled

I. BAM SAMPLER – Weekly Checks.

YES	NO
✓	/
✓	/
✓	/
✓	/
✓	/
✓	/
✓	/

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/30 → Flow AT Failure
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 6.6 -

YES	NO
/	/
/	/
/	/
/	/
/	/

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 6.6 -

YES	NO
/	/
/	/

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 6.6 -

YES	NO
/	/
/	/

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 6.6 -

YES	NO
/	/
/	/

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kanu Palled

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 8/22/2014 Time: 8:57 Operator: H. Bell

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>7/30 Flow AT Failure</u> ✓ <u>GG</u> .
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

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REVIEWED BY <u>RPA</u>	DATE <u>9-1-15</u>
AUDITED BY <u>GG</u>	DATE <u>8/25/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: H. Bell

EAST PLANT

BAM PM10 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 9/2/2014 Time: 14:07 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO	
✓		1. The sampler is intact and the inlet head is unobstructed.
✓		2. The vacuum pump is running and sounds normal.
✓		3. The temperature shield is intact, and the sensor is inside of it.
✓		4. The BAM is reading the correct time and day.
✓		5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
✓		6. Error log was checked (F3), and errors followed up on (see manual). <i>9/02 → Delta Pressure [Leak Test] ✓ 66-</i>
✓		7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
	✓	1. Inlet Flow check Performed
	✓	2. Visual inspection and dust removal
	✓	3. Leak check performed
	✓	4. PM10 particle trap cleaned
	✓	5. Inlet nozzle and nozzle are cleaned

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REVIEWED BY RPA DATE 9-15-14

AUDITED BY 66- DATE 9/4/14

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
	✓	1. Filter tape replaced
	✓	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
	✓	1. Replaced muffler on the pump (*Work performed by Air Sciences)
	✓	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
	✓	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
	✓	2. Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kan Blee

Monthly Flow Verification PM₁₀

East Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

Met One PM₁₀: S/N: M8714
Firmware: Delta Cal S/N: _____
Calibrator: _____



AIR SCIENCES INC
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REVIEWED BY: RPA DATE: 9-15-14

AUDITED BY: EE DATE: 9/4/14

Date of Flow Audit: 09/02/2014 ✓
Time of Flow Audit: 13:40

	BAM	STD	
Ambient Temperature (AT) °C	31.6	32.4	✓
Berometric Pressure mmHg	658	652.5	✓

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow <i>Acceptable Differential</i>	15	15.0	0 ✓	15.69	4.4 ✓
		14.700 - 15.300	+/- 2%	14.250 - 15.750	+/- 5%
(2) Actual Flow <i>Acceptable Differential</i>	18.4	18.4	0 ✓	19.14	4 ✓
		18.032 - 18.768	+/- 2%	17.480 - 19.320	+/- 5%
(3) Actual Flow <i>Acceptable Differential</i>	16.7	16.7	0 ✓	17.43	4.19 ✓
		16.336 - 17.034	+/- 2%	15.865 - 17.535	+/- 5%

Calculations:

- (1) % Diff = ((BAM - Set Point)/Set Point)*100 (+/- 2%)
- (2) % Diff = ((BAM - Calibrator)/Calibrator)*100 (+/- 5%)

(2) Leak Test BAM 0.4 **Should be < 1.0 LPM** ✓

**PM10 conc. & flow invalidated @ 14:00 hrs! S.G.*

Comments/Abnormalities: Self Test Passed ✓

Signature: Kami Patel

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9-12-14 Time: 13:30 Operator: K Baak

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

1. The sampler is intact and the inlet head is unobstructed.
2. The vacuum pump is running and sounds normal.
3. The temperature shield is intact, and the sensor is inside of it.
4. The BAM is reading the correct time and day.
5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
6. Error log was checked (F3), and errors followed up on (see manual).
7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Inlet Flow check Performed
2. Visual inspection and dust removal
3. Leak check performed
4. PM10 particle trap cleaned
5. Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>9-16-14</u>
AUDITED BY <u>GG-</u>	DATE <u>9/15/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Filter tape replaced
2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Replaced muffler on the pump (*Work performed by Air Sciences)
2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
2. Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: K Baak

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/19/2014 Time: 10:18 Operator: H. Ballard

I. BAM SAMPLER – Weekly Checks.
 YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>9/02 → Delta Pressure</u> ✓ <u>GG</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC.
DENVER • PORTLAND

RPA 9/23/14

REVIEWED BY DATE

AUDITED BY GG - DATE 9/22/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO GG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Karin Ballard

EAST PLANT
 BAM PM10 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/26/2014 Time: 9:50 Operator: K. Ballal

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 9/25 → Bam Cal Membrane 5% ✓
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) 66 ✓

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 particle trap cleaned
- Inlet nozzle and nozzle are cleaned



AIR SCIENCES INC.
DENVER • PORTLAND

RPA 10-3-14

REVIEWED BY DATE

AUDITED BY 66 DATE 9/29/14

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO 66

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kanu Ballal

**Fax completed form to Air Sciences at 303-279-3796

Monthly Flow Verification PM₁₀

East Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1

	
AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY	RPA DATE 10-3-14
AUDITED BY	GG DATE 9/30/14

Met One PM₁₀: S/N: M8714
Firmware: _____
Calibrator: Delta Cal S/N: _____

Date of Flow Audit: 09/29/2014 ✓
Time of Flow Audit: 12:50 ✓

	BAM	STD
Ambient Temperature (AT) °c	22.9	23.5 ✓
Berometric Pressure mmHg	659	652 * -

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	15.0	0 ✓	15.73	4.64 ✓
		14.700 - 15.300	+/- 2%	14.250 - 15.750	+/- 5%
(2) Actual Flow Acceptable Differential	18.4	18.4	0 ✓	19.24	4.37 ✓
		18.032 - 18.768	+/- 2%	17.480 - 19.320	+/- 5%
(3) Actual Flow Acceptable Differential	16.7	16.7	0 ✓	17.45	4.30 ✓
		16.336 - 17.034	+/- 2%	15.865 - 17.535	+/- 5%

TOO CLOSE...
CALIBRATION
REQUIRED
R. ATTENBEE

Calculations:

- (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
- (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test 0.6 **Should be < 1.0 LPM** ✓ GG

* PM10 conc. + flow invalidated @ 13:00 hrs! GG

Comments/Abnormalities: Changed tape, cleaned nozzle & ran self test ✓

* BEROMETRIC PRESSURE DRIFT - CALIBRATION REQUIRED TO CORRECT FLOW R. ATTENBEE

Signature: Hanni Ballard

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/02/2014 Time: 14:51

Operator: Kane Ball G

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 6/27 → Maintenance ✓ EG
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RPA</u>	DATE <u>7-14-14</u>
AUDITED BY <u>EG</u>	DATE <u>7/8/14</u>

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

IV. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kane Ball G

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/11/2014 Time: 10:35 Operator: R. Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>6/27 - Maintenance</u> ✓ <u>EG</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 and 2.5 cyclone particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. <small>DENVER • PORTLAND</small>	
REVIEWED BY <u>RPA</u>	DATE <u>7/21/14</u>
AUDITED BY <u>EG</u>	DATE <u>7/14/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG -

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Rami Ballard

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/18/2014 Time: 9:56 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/7 → Tape Break ✓ GG
7/18 → Tape Sensor ✓ GG
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

<u>RAA</u> REVIEWED BY	<u>8-4-14</u> DATE
<u>GG</u> AUDITED BY	<u>7/21/14</u> DATE

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

IV. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

V. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: Self-Test Passed

* PM2.5 conc. + flow invalidated from 23:00 hrs on 7/17/2014 through 10:00 hrs on 7/18/2014 due to tape break.
PM2.5 conc. + flow invalidated for 11:00 hrs on 7/18/2014 for maintenance.
 Signature: Kane Ballard GG

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 7/24/2014 Time: 11:52 Operator: Kanu

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>7/18 → Tape Sensor</u> ✓ <u>EG</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 and 2.5 cyclone particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY <u>RAA</u>	DATE <u>8-4-14</u>
AUDITED BY <u>EG</u>	DATE <u>7/25/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO EG

<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: _____

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 08-07-2014 Time: 10:04 Operator: H. Ballant

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>7/30 → Maintenance</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 and 2.5 cyclone particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC.
DENVER • PORTLAND

REVIEWED BY: RBA DATE: 8-20-14

AUDITED BY: EG- DATE: 8/11/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

EG-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences:

Signature: H. Ballant

EAST PLANT

BAM PM 2.5 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1

REVIEWED BY
AUDITED BY

DATE: 8/25/14
DATE: 8/20/14
Time: 8:32

Operator: K. Bellard

I. BAM SAMPLER - Weekly Checks.

YES	NO	
✓		1. The sampler is intact and the inlet head is unobstructed.
✓		2. The vacuum pump is running and sounds normal.
✓		3. The temperature shield is intact, and the sensor is inside of it.
✓		4. The BAM is reading the correct time and day.
✓		5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
✓		6. Error log was checked (F3), and errors followed up on (see manual). 7/30 → Maintenance ✓ 66-
✓		7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER - Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 66-

YES	NO	
		1. Inlet Flow check Performed
		2. Visual inspection and dust removal
		3. Leak check performed
		4. PM10 and 2.5 cyclone particle trap cleaned
		5. Inlet nozzle and nozzle are cleaned

II. BAM SAMPLER - Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 66-

YES	NO	
		1. Filter tape replaced
		2. Ran the Self-Test function

III. BAM SAMPLER - Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 66-

YES	NO	
		1. Replaced muffler on the pump (*Work performed by Air Sciences)
		2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER - Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

RA ✓ 66-

YES	NO	
		1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
		2. Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Kane Bellard

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 8/27/2014

Time: 3:58

Operator: K. Ballal

I. BAM SAMPLER – Weekly Checks.

YES	NO
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). 7/30 → Maintenance ✓ GG-
- Climate control appears operational (if it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG-

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

 AIR SCIENCES INC. DENVER • PORTLAND	
<u>RPA</u> REVIEWED BY	<u>9-14-15</u> DATE
<u>GG-</u> AUDITED BY	<u>8/25/14</u> DATE

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG-

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG-

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG-

YES	NO
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: K. Ballal

EAST PLANT

BAM PM 2.5 WEEKLY SITE CHECK FORM
RESOLUTION MONITORING PROJECT
PROJECT NO. 262-1



Date: 9/02/2014

Time: 14:09

Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

1. The sampler is intact and the inlet head is unobstructed.
2. The vacuum pump is running and sounds normal.
3. The temperature shield is intact, and the sensor is inside of it.
4. The BAM is reading the correct time and day.
5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
6. Error log was checked (F3), and errors followed up on (see manual). 9/02 → Dofte Pressure (Did leak test) ✓ 66-
7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Inlet Flow check Performed
2. Visual inspection and dust removal
3. Leak check performed
4. PM10 and 2.5 cyclone particle trap cleaned
5. Inlet nozzle and nozzle are cleaned

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REVIEWED BY: RPA DATE: 9-15-14

AUDITED BY: 66- DATE: 9/4/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Filter tape replaced
2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Replaced muffler on the pump (*Work performed by Air Sciences)
2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
2. Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: Karen Ballard



Monthly Flow Verification PM_{2.5}

East Plant
PARTICULATE MONITORING PROJECT
PROJECT NO. 262-1



REVIEWED BY: RPA 9/5/14

AUDITED BY: GG 9/4/14

Met One: PM_{2.5}: S/N: M6466

Firmware: Delta Cal S/N: _____

Calibrator: _____

Date of Flow Audit: 09/02/14 GG

Time of Flow Audit: 13:42

	BAM	STD
Ambient Temperature (AT) °c	32.2	32.4 ✓
Berometric Pressure mmHg	650	652.5 ✓

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow <i>Acceptable Differential</i>	15	<u>15.0</u>	<u>0</u> ✓	<u>15.58</u>	<u>3.72</u> ✓
		14.700 - 15.300	+/- 2%	14.250 - 15.750	+/- 5%
(2) Actual Flow <i>Acceptable Differential</i>	18.4	<u>18.3</u>	<u>0.54</u> ✓	<u>18.61</u>	<u>1.67</u> ✓
		18.032 - 18.768	+/- 2%	17.480 - 19.320	+/- 5%
(3) Actual Flow <i>Acceptable Differential</i>	16.7	<u>16.6</u>	<u>0.6</u> ✓	<u>17.10</u>	<u>2.92</u> ✓
		16.336 - 17.034	+/- 2%	15.865 - 17.535	+/- 5%

Calculations:
 (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
 (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test: 0.4 **Should be < 1.0 LPM** ✓

** PM2.5 conc. + flow invalidated @ 14:00 hrs! GG*

Comments/Abnormalities: _____

Signature: _____

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9-12-14 Time: 13:30

Operator: K. Baak

I. BAM SAMPLER – Weekly Checks.

YES NO

<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual).
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC. <small>DENVER • PORTLAND</small>	
<i>RPA</i> REVIEWED BY	<u>9-16-14</u> DATE
AUDITED BY <i>GG-</i>	DATE <u>9/5/14</u>

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

YES NO

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: *K. Baak*

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/19/2014 Time: 10:20 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The sampler is intact and the inlet head is unobstructed.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The vacuum pump is running and sounds normal.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. The temperature shield is intact, and the sensor is inside of it.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. The BAM is reading the correct time and day.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Error log was checked (F3), and errors followed up on (see manual). <u>9/02 → Delta Pressure</u> 466-
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool)

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Inlet Flow check Performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Visual inspection and dust removal
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Leak check performed
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. PM10 and 2.5 cyclone particle trap cleaned
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Inlet nozzle and nozzle are cleaned

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REVIEWED BY: LPA DATE: 9/24/14

AUDITED BY: 66- DATE: 9/22/14

III. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Filter tape replaced
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Replaced muffler on the pump (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

66-

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Inlet system cleaned (*Work performed by Air Sciences)

**Comments/Unusual Occurrences: _____

Signature: Kami Ballard

EAST PLANT
 BAM PM 2.5 WEEKLY SITE CHECK FORM
 RESOLUTION MONITORING PROJECT
 PROJECT NO. 262-1



Date: 9/24/2014 Time: 9:52 Operator: K. Ballard

I. BAM SAMPLER – Weekly Checks.

YES	NO
✓	
✓	
✓	
✓	
✓	
✓	
✓	

- The sampler is intact and the inlet head is unobstructed.
- The vacuum pump is running and sounds normal.
- The temperature shield is intact, and the sensor is inside of it.
- The BAM is reading the correct time and day.
- The tape is in the proper position and does not need to be changed (tape should be changed every 2 months).
- Error log was checked (F3), and errors followed up on (see manual). *9/02 → Pressure - Delta Pressure*
- Climate control appears operational (If it's cold out the shelter should feel warm, if it's hot out the shelter should feel cool) *GG*

II. BAM SAMPLER – Routine Maintenance (monthly). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG -

YES	NO
	✓
	✓
	✓
	✓
	✓

- Inlet Flow check Performed
- Visual inspection and dust removal
- Leak check performed
- PM10 and 2.5 cyclone particle trap cleaned
- Inlet nozzle and nozzle are cleaned

AIR SCIENCES INC.
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REVIEWED BY RPA DATE 10-3-14

AUDITED BY GG - DATE 9/29/14

II. BAM SAMPLER – Routine Maintenance (every 2 months). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG -

YES	NO
	✓
	✓

- Filter tape replaced
- Ran the Self-Test function

III. BAM SAMPLER – Routine Maintenance (semiannual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG -

YES	NO
	✓
	✓

- Replaced muffler on the pump (*Work performed by Air Sciences)
- Complete calibration of flow system (*Work performed by Air Sciences)

IV. BAM SAMPLER – Routine Maintenance (annual). Check yes if maintenance was performed during this visit. See page 56 of BAM manual.

GG -

YES	NO
	✓
	✓

- Carbon vanes in pump checked/replaced (*Work performed by Air Sciences)
- Inlet system cleaned (*Work performed by Air Sciences)

Comments/Unusual Occurrences: _____

Signature: K. Ballard

Monthly Flow Verification PM_{2.5}

East Plant
 PARTICULATE MONITORING PROJECT
 PROJECT NO. 262-1

Met One PM_{2.5}: S/N: M 6466
 Firmware: _____
 Calibrator: Delta Cal S/N: _____

Date of Flow Audit: 9/29/2014 ✓
 Time of Flow Audit: 12:55 ✓

 AIR SCIENCES INC. RPA - PORTLAND	
REVIEWED BY	DATE <u>10-2-14</u>
AUDITED BY <u>GG</u>	DATE <u>9/30/14</u>

	BAM	STD
Ambient Temperature (AT) °C	<u>22.5</u>	<u>22.6</u> ✓
Barometric Pressure mmHg	<u>646</u>	<u>652</u>

	Set Point (lpm)	BAM	% Diff (1)	STD Flow Meter	% Diff (2)
(1) Actual Flow Acceptable Differential	15	<u>14.9</u>	<u>0.67</u> ✓	<u>15.46</u>	<u>3.62</u> ✓
		14.700 - 15.300	+/- 2%	14.250 - 15.750	+/- 5%
(2) Actual Flow Acceptable Differential	18.4	<u>18.3</u>	<u>0.54</u> ✓	<u>18.57</u>	<u>1.08</u> ✓
		18.032 - 18.768	+/- 2%	17.480 - 19.320	+/- 5%
(3) Actual Flow Acceptable Differential	16.7	<u>16.4</u>	<u>0.60</u> ✓	<u>16.96</u>	<u>2.12</u> ✓
		16.336 - 17.034	+/- 2%	15.865 - 17.535	+/- 5%

Calculations:
 (1) % Diff = [(BAM - Set Point)/Set Point]*100 (+/- 2%)
 (2) % Diff = [(BAM - Calibrator)/Calibrator]*100 (+/- 5%)

(2) Leak Test 0.6 **Should be < 1.0 LPM** ✓

** PM2.5 conc. + flow invalidated @ 13:00 and 14:00 hrs! GG.*

Comments/Abnormalities: Changed tape, cleaned nozzle & ran self test ✓

Signature: Kame Ballard

**Appendix H: East Plant SO₂, NO_x, and O₃ Site Check
and Audit Forms**

Resolution Copper Mining
East Plant Monitoring Station
SO₂ Level 1 Zero and Span Calibration

APPROVED BY: WR DATE: 7-7-14
 REVIEWED BY: EG DATE: 7/3/14

Operator: <u>6.67LPS</u>	Teledyne API T100 SO ₂ Analyzer S/N	193 ✓	Calibration Start Time	<u>9:16</u>
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191 ✓	Calibration Stop Time	<u>10:25</u>
Date: <u>7/3/2014</u>	NIST Traceable Gas Conc.	40.4 ✓	T100 Analyzer Range	<u>500</u>
			Shelter Temperature (5-40 ° C)	<u>19.86</u>

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	SO ₂ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	<u>0.00</u>	<u>-0.091</u>	<u>0.028</u>	Zero Drift ≤ ± 1.5 %	<u>0.027</u>
400 ppb	<u>400</u>	<u>398.541</u>	<u>0.130</u>	Span Drift ≤ ± 10 %	<u>402.804</u>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<u>0.021</u>	<u>0.35</u>	± 2 ppb	<u>NO</u>
400 ppb	<u>402.804</u>	<u>403.37</u>	± 2 ppb	<u>NO</u>

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	<u>452</u> ✓	Sample Press. (Ambient ± 2 in-Hg)	<u>25.8</u> ✓
UV Lamp (1000 - 4800 mV)	<u>2267</u> ✓	Lamp Ratio (30 - 120%)	<u>95.9</u> ✓
Slope (1 ± 0.3)	<u>1.87</u> ✓	BOX Temp. (Ambient ± 5°C)	<u>32</u> ✓
Offset (< 250 mV)	<u>12.7</u> ✓	HVPS (400 - 900 V)	<u>571</u> ✓

Operator Comments:

Operator Signature:

Slopes too high! EG



Invalidated the 1000 and 1100 hours for the calibration - WR



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RESOLUTION COPPER MINING
EAST PLANT MONITORING STATION
SO₂ Level 2 Zero and Span Verification

REVIEWED BY: *APA* DATE: *9-5-14*
AUDITED BY: *WR* DATE: *8-26-14*



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Operator:	Teledyne API T100 SO ₂ Analyzer S/N	193	Verification Start Time	7:04
Date:	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	11:13
	NIST Traceable Gas Conc.	40.1%	T100 Analyzer Range	500
			Shelter Temperature (5-40 °C)	19.68
<i>Jami Ballard</i>				
<i>07-12-2014</i>				

Biweekly Manual Level 2 Zero and Span Verification

SO₂

Target Dilution (ppb)	Actual Target Dilution Generated	NO₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0	.070	0.219	Zero Drift ≤ ±1.5%	No
400 ppb	400	.328	389.429	Span Drift ≤ ±10%	No

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	.070	0.149	± 2 ppb	No
400 ppb	389.429	390.303	± 2 ppb	No

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	455	Sample Press. (Ambient ± 2 in-Hg)	26.2
UV Lamp (1000 - 4800 mV)	2261.0	Lamp Ratio (30 - 120%)	95.7
Slope (1 ± 0.3)	1.872	BOX Temp. (Ambient ± 5°C)	31.1
Offset (< 250 mV)	12.7	HVPS (400 - 900 V)	571

Operator Comments:

Slope above manufacturer recommendations - WR

Operator Signature:

Jami Ballard



Resolution Copper Mining
East Plant Monitoring Station
SO₂ Level 1 Zero and Span Calibration



REVIEWED BY: *APA* DATE: *7-22-14*
 AUDITED BY: *WR* DATE: *7-18-14*

Operator: W.Rucker	Teledyne API T100 SO ₂ Analyzer S/N	193	Calibration Start Time	12:30
Date: 07/18/2014	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	13:25
	NIST Traceable Gas Conc.	40.4	T100 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	22.61

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	SO ₂ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0.00	0.313	0.017	Zero Drift ≤ ± 1.5 %	0.117
400 ppb	400	398.917	0.232	Span Drift ≤ ± 10 %	400.36

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	0.114	0.215	± 2 ppb	No
400 ppb	400.346	401.142	± 2 ppb	No

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	450	Sample Press. (Ambient ± 2 in-Hg)	26.3
UV Lamp (1000 - 4800 mV)	2240.8	Lamp Ratio (30 - 120%)	94.9
Slope (1 ± 0.3)	1.864	BOX Temp. (Ambient ± 5°C)	32.3
Offset (< 250 mV)	13.0	HVPS (400 - 900 V)	571

Operator Comments:

Operator Signature:

Slope is slightly higher than the manufacturer recommendation.


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Resolution Copper Mining
 East Plant Monitoring Station
 SO₂ Level 2 Zero and Span Verification

REVIEWED BY: RPA DATE: 8-4-14
 APPROVED BY: WR DATE: 7-25-14



Operator:	Teledyne API T100 SO ₂ Analyzer S/N	<u>193</u> <u>T100</u>	Verification Start Time	<u>12:11</u>
<u>Kami Ballard</u>	Teledyne API T700 Primary Standard Dilution Calibrator S/N	<u>191</u>	Verification Stop Time	<u>12:25</u>
Date:	NIST Traceable Gas Conc.	<u>40.1</u>	T100 Analyzer Range	<u>500</u>
<u>7/24/2014</u>			Shelter Temperature (5-40 °C)	<u>20.62</u>

Biweekly Manual Level 2 Zero and Span Verification

SO₂

Target Dilution (ppb)	Actual Target Dilution Generated	NO₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<u>0</u>	<u>0.61</u>	<u>0.213</u>	Zero Drift $\leq \pm 1.5\%$	<u>No</u>
400 ppb	<u>400</u>	<u>395.34</u>	<u>0.85</u>	Span Drift $\leq \pm 10\%$	<u>No</u>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<u>0.61</u>	<u>0.39</u>	± 2 ppb	<u>No</u>
400 ppb	<u>395.34</u>	<u>396.30</u>	± 2 ppb	<u>No</u>

Analyzer Parameters

Sample Flow (450 \pm 45 cc/min)	<u>449</u>	Sample Press. (Ambient \pm 2 in-Hg)	<u>26.2</u>
UV Lamp (1000 - 4800 mV)	<u>2239.0</u>	Lamp Ratio (30 - 120%)	<u>94.8</u>
Slope (1 \pm 0.3)	<u>1.864</u>	BOX Temp. (Ambient \pm 5°C)	<u>31.7</u>
Offset (< 250 mV)	<u>13.0</u>	HVPS (400 - 900 V)	<u>571</u>

Operator Comments:

Operator Signature:

Kami Ballard

Invalidated the 1300 hour for the verification - WR
Slope slightly higher than the manufacturer recommendations - WR

Resolution Copper Mining
East Plant Monitoring Station
SO₂ Level 1 Zero and Span Calibration

REVIEWED BY: RPA
AUDITED BY: WR
DATE: 9-15-14
DATE: 8-26-14

Operator:	Teledyne API T100 SO ₂ Analyzer S/N	193 -	Calibration Start Time	14:25
K. Ballard	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191 -	Calibration Stop Time	14:54
	NIST Traceable Gas Conc.	40.1% -	T100 Analyzer Range	500
Date:			Shelter Temperature (5-40 °C)	20.11
08.07.2014				

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	SO ₂ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0	5.29	0.517	Zero Drift ≤ ± 1.5 %	-0.200
400 ppb	400	467.090	0.833	Span Drift ≤ ± 10 %	402.147

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.200	0.11	± 2 ppb	No
400 ppb	402.147	403.02	± 2 ppb	No

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	436	Sample Press. (Ambient ± 2 in-Hg)	25.9
UV Lamp (1000 - 4800 mV)	2200.2	Lamp Ratio (30 - 120%)	93.1
Slope (1 ± 0.3)	1.026	BOX Temp. (Ambient ± 5°C)	30.8
Offset (< 250 mV)	28.9	HVPS (400 - 900 V)	630

Operator Comments:

Operator Signature: James Ballard

Sample flow is low. Pump needs replacement or refurbishment. WR

 AIR SCIENCES INC. <small>DENVER • PORTLAND</small>		Resolution Copper Mining East Plant Monitoring Station SO₂ Level 1 Zero and Span Calibration	
REVIEWED BY	DATE	9-15-14	
AUDITED BY	DATE	9-3-14	



Operator: W.Rucker	Teledyne API T100 SO ₂ Analyzer S/N	193	Calibration Start Time	17:31
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	18:23
Date: 9/03/2014			T100 Analyzer Range	500
	NIST Traceable Gas Conc.	40.4	Shelter Temperature (5-40 ° C)	24.87

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	SO ₂ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0.00	1.400	0.078	Zero Drift ≤ ± 1.5 %	-0.233
400 ppb	400	368.450	0.6	Span Drift ≤ ± 10 %	400.358

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.226	-0.116	± 2 ppb	No
400 ppb	400.300	401.210	± 2 ppb	No

Analyzer Parameters

Sample Flow (650 ± 65 cc/min)	616	Sample Press. (Ambient ± 2 in-Hg)	25.6
UV Lamp (1000 - 4800 mV)	2180.1	Lamp Ratio (30 - 120%)	92.3
Slope (1 ± 0.3)	1.054	BOX Temp. (Ambient ± 5°C)	31.8
Offset (< 250 mV)	31.6	HVPS (400 - 900 V)	614

Operator Comments:

Operator Signature:



Replaced the sample pump and contaminated tubing from the sample pump exhaust prior to performing the calibration.

		Resolution Copper Mining East Plant Monitoring Station SO₂ Level 2 Zero and Span Verification	
RPA REVIEWED BY	WR	9-16-14 DATE	9-14-14 DATE
AUDITED BY			



Operator: W.Rucker	Teledyne API T100 SO ₂ Analyzer S/N	193	Verification Start Time	9:25 (MST)
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	9:39 (MST)
Date: 9/14/2014			T100 Analyzer Range	500
	NIST Traceable Gas Conc.	40.4	Shelter Temperature (5-40 ° C)	21.3

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO ₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0.00	0.241	0.3	Zero Drift $\leq \pm 1.5\%$	No
400 ppb	400	390.87	0.763	Span Drift $\leq \pm 10\%$	No

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	0.349	0.447	± 2 ppb	No
400 ppb	391.414	392.391	± 2 ppb	No

Analyzer Parameters

Sample Flow (650 \pm 65 cc/min)	620	Sample Press. (Ambient \pm 2 in-Hg)	25.8
UV Lamp (1000 - 4800 mV)	2185.4	Lamp Ratio (30 - 120%)	92.5
Slope (1 \pm 0.3)	1.048	BOX Temp. (Ambient \pm 5°C)	32.4
Offset (< 250 mV)	24.9	HVPS (400 - 900 V)	614

Operator Comments:

None

Operator Signature



Resolution Copper Mining
 East Plant Monitoring Station
 Level 2 Zero and Span Verification



AIR SCIENCES INC.

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REVIEWED BY: BR DATE: 9-29-14
 AUDITED BY: _____ DATE: _____

PPA 10-3-14

Operator: <i>Kami Ballard</i>	Teledyne API T100 SO ₂ Analyzer S/N <i>193</i>	Verification Start Time <i>10:10</i>
Date: <i>9/26/2014</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N <i>191</i>	Verification Stop Time <i>10:29</i>
	NIST Traceable Gas Conc. <i>40.4</i>	T100 Analyzer Range <i>500</i>
		Shelter Temperature (5-40 °C) <i>22.33</i>

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	SO ₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>0.014</i>	<i>0.179</i>	Zero Drift ≤ ±1.5 %	<i>No</i> ✓
400 ppb	<i>400</i>	<i>395.56</i>	<i>0.273</i>	Span Drift ≤ ±10 %	<i>No</i> ✓

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0.014</i>	<i>0.049</i>	± 2 ppb	<i>No</i> ✓
400 ppb	<i>395.56</i>	<i>396.43</i>	± 2 ppb	<i>No</i> ✓

Analyzer Parameters

Sample Flow (450 ± 45 cc/min) <i>650 ± 65 BR</i>	<i>628</i> ✓	Sample Press. (Ambient ± 2 in-Hg)	<i>26.1</i>
UV Lamp (1000 - 4800 mV)	<i>2178.4</i> ✓	Lamp Ratio (30 - 120%)	<i>92.2</i>
Slope (1 ± 0.3)	<i>1.048</i> ✓	BOX Temp. (Ambient ± 5°C)	<i>32.2</i>
Offset (< 250 mV)	<i>24.9</i> ✓	HVPS (400 - 900 V)	<i>414</i>

Operator Comments:

As per the T-100 manual the sample flow shall be 650 ± 65 cc/min BR

Operator Signature: *Kami Ballard*

Resolution Copper Mining

East Plant Monitoring Station

NOx Level 1 Zero and Span Calibration

REVIEWED BY WR DATE 7-7-14
 AUDITED BY EG DATE 7/3/14

Operator: <u>G. BYLIS</u>	Teledyne API T200 NOx Analyzer S/N	197 ✓	Calibration Start Time	<u>8:01</u>
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191 ✓	Calibration Stop Time	<u>9:14</u>
Date: <u>7/3/2014</u>	NIST Traceable Gas Conc.	40.1 ✓	T200 Analyzer Range	<u>500</u>
			Shelter Temperature (5-40 °C)	<u>23.85</u>

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Final NO _x /Zero Response
Zero Air	<u>0.00</u>	<u>0.3</u>	<u>5.2</u>	<u>5.31</u>	<u>0.2</u>	Zero Drift ≤ ±1.5 %	<u>-0.1</u>
400 ppb	<u>400</u>	<u>385.5</u>	<u>-1.3</u>	<u>384.0</u>	<u>0.2</u>	Span Drift ≤ ±10 %	<u>402.5</u>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	<u>0.0</u>	NO	<u>-0.26</u>	± 2 ppb	<u>No</u>
	NO ₂	<u>-0.3</u>	NO ₂	<u>-0.65</u>		
	NO _x	<u>-0.4</u>	NO _x	<u>-0.39</u>		
400 ppb	NO	<u>402.6</u>	NO	<u>402.67</u>	± 2 ppb	<u>No</u>
	NO ₂	<u>0.6</u>	NO ₂	<u>0.4</u>		
	NO _x	<u>402.2</u>	NO _x	<u>401.7</u>		

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	<u>487</u> ✓	Moly Temp. (315 ± 5°C)	<u>316.6</u> ✓
Ozone Flow (80 ± 15 cc/min)	<u>76</u> ✓	HVPS (400 - 900 V)	<u>601</u> ✓
NO _x Slope (1 ± 0.3)	<u>1.75</u> ✓	NO Slope (1 ± 0.3)	<u>1.72</u> ✓
NO _x Offset (0 ± 100)	<u>8.3</u> ✓	NO Offset (0 ± 100)	<u>0.3</u> ✓

Operator Comments:

Operator Signature:



NO + NO_x slopes too high!
Invalidated the 0900 thru 1000 hours for the calibration - WR


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Resolution Copper Mining
East Plant Monitoring Station
NOx Level 2 Zero and Span Verification

REVIEWED BY: *RPA* *WR* DATE: *8-26-14*
AUDITED BY: _____ DATE: _____



Operator: <i>Hami Ballard</i>	Teledyne API T200 NOx Analyzer S/N <i>197</i>	Verification Start Time <i>11:33</i>	<i>> 2nd Attempt</i>
Date: <i>7/11/2014</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N <i>191</i>	Verification Stop Time <i>12:00</i>	
	NIST Traceable Gas Conc. <i>40.3%</i>	T200 Analyzer Range <i>500</i>	
		Shelter Temperature (5-40 °C) <i>20.04</i>	

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>-0.0</i>	<i>-12.9</i>	<i>-12.9</i>	<i>0.3</i>	Zero Drift ≤ ±1.5%	<i>calibrated - should stabilize</i>
400 ppb	<i>400</i>	<i>388.3</i>	<i>-3.8</i>	<i>384.8</i>	<i>1.7</i>	Span Drift ≤ ±10%	<i>would not stabilize</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	<i>-0.0</i>	NO	<i>-0.24</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>-12.9</i>	NO ₂	<i>-13.36</i>		
	NO _x	<i>-12.9</i>	NO _x	<i>-13.23</i>		
400 ppb	NO	<i>388.3</i>	NO	<i>388.75</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>-3.8</i>	NO ₂	<i>-3.96</i>		
	NO _x	<i>384.8</i>	NO _x	<i>385.02</i>		

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	<i>494</i>	Moly Temp. (315 ± 5°C)	<i>316.1</i>
Ozone Flow (80 ± 15 cc/min)	<i>76</i>	HVPS (400 - 900 V)	<i>1001</i>
NO _x Slope (1 ± 0.3)	<i>1.798</i>	NO Slope (1 ± 0.3)	<i>1.722</i>
NO _x Offset (0 ± 100)	<i>21.6</i>	NO Offset (0 ± 100)	<i>0.1</i>

Operator Comments:

Operator Signature: *H. Ballard*

Could not get zero to calibrate within range of 400 ppb would not stabilize

Partical filters replaced and concentrations stabilized WR

**T-700 → Photo Lamp Stab. Warning*

Resolution Copper Mining
East Plant Monitoring Station
SO₂ Level 2 Zero and Span Verification



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Operator: <i>Kami Ballard</i>	Teledyne API T100 SO ₂ Analyzer S/N	193	Verification Start Time	7:04
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	11:15
Date: 07-12-2014	NIST Traceable Gas Conc.	40.1%	T100 Analyzer Range	500
			Shelter Temperature (5-40 °C)	19.68

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	^{SO₂} NO₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0	.070	0.219	Zero Drift ≤ ±1.5%	No
400 ppb	400	.328	389.429	Span Drift ≤ ±10%	No

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	.070	0.149	± 2 ppb	No
400 ppb	389.429	390.303	± 2 ppb	No

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	455	Sample Press. (Ambient ± 2 in-Hg)	26.2
UV Lamp (1000 - 4800 mV)	2261.0	Lamp Ratio (30 - 120%)	95.7
Slope (1 ± 0.3)	1.872	BOX Temp. (Ambient ± 5°C)	31.1
Offset (< 250 mV)	12.7	HVPS (400 - 900 V)	571

Operator Comments:

Operator Signature: *Kami Ballard*

Resolution Copper Mining
 East Plant Monitoring Station
 NOx Level 1 Zero and Span Calibration



 AIR SCIENCES INC. DENVER • PORTLAND	
REVIEWED BY	RPA 7-21-14
AUDITED BY	WR 7-18-14

Operator: W.Rucker	Teledyne API T200 NOx Analyzer S/N	197	Calibration Start Time	10:06
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	10:45
Date: 07/1/2014 WR 7/18/2014	NIST Traceable Gas Conc.	40.1	T200 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	23.2

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NOx Response	Analyzer Stability	Acceptance Criteria	Final NOx/ Zero Response
Zero Air	0.00	-0.5	-1.5	-1.9	0.4	Zero Drift ≤ ± 1.5 %	-0.1
400 ppb	400	394.4	-2.6	391.5	0.3	Span Drift ≤ ± 10 %	396.4

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	0.000	NO	0.235	± 2 ppb	No
	NO ₂	-0.100	NO ₂	-0.263		
	NO _x	-0.100	NO _x	-0.189		
400 ppb	NO	395.400	NO	395.6	± 2 ppb	No
	NO ₂	0.400	NO ₂	0.6		
	NO _x	396.100	NO _x	396.6		

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	498	Moly Temp. (315 ± 5°C)	316.2
Ozone Flow (80 ± 15 cc/min)	76	HVPS (400 - 900 V)	601
NOx Slope (1 ± 0.3)	1.806	NO Slope (1 ± 0.3)	1.793
NOx Offset (0 ± 100)	5.9	NO Offset (0 ± 100)	0.2

Operator Comments:

Operator Signature:

Slopes slightly above manufacture specifications.

Resolution Copper Mining
East Plant Monitoring Station
NOx Level 2 Zero and Span Verification

AIR SCIENCES INC.
DENVER • FORTLAND

REVIEWED BY: RPA DATE: 8-4-14
AUDITED BY: WR DATE: 7-25-14



Operator: <i>Kami Ballard</i>	Teledyne API T200 NOx Analyzer S/N	<i>197</i>	Verification Start Time	<i>11:55</i>
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	<i>191</i>	Verification Stop Time	<i>12:11</i>
Date: <i>7/24/2014</i>	NIST Traceable Gas Conc.	<i>40.4</i>	T200 Analyzer Range	<i>500</i>
			Shelter Temperature (5-40 °C)	<i>20.19</i>

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>0.4</i>	<i>0.5</i>	<i>0.9</i>	<i>0.4</i>	Zero Drift $\leq \pm 1.5\%$	<i>No</i>
400 ppb	<i>400</i>	<i>389.2</i>	<i>-4.3</i>	<i>385.1</i>	<i>0.3</i>	Span Drift $\leq \pm 10\%$	<i>No</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	<i>0.4</i>	NO	<i>0.21</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>0.5</i>	NO ₂	<i>0.66</i>		
	NO _x	<i>0.9</i>	NO _x	<i>1.11</i>		
400 ppb	NO	<i>389.21</i>	NO	<i>389.51</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>-4.3</i>	NO ₂	<i>-4.67</i>		
	NO _x	<i>385.1</i>	NO _x	<i>385.28</i>		

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	<i>505</i>	Moly Temp. (315 ± 5°C)	<i>314.1</i>
Ozone Flow (80 ± 15 cc/min)	<i>74</i>	HVPS (400 - 900 V)	<i>601</i>
NO _x Slope (1 ± 0.3)	<i>1.806</i>	NO Slope (1 ± 0.3)	<i>1.793</i>
NO _x Offset (0 ± 100)	<i>5.9</i>	NO Offset (0 ± 100)	<i>0.2</i>

Operator Comments:

Operator Signature: *Kami Ballard*

*Invaliated the 1200+1300 hours for the verification - WR
Slopes are slightly higher than the manufacturer recomendations - WR*



Resolution Copper Mining East Plant Monitoring Station NOx Level 1 Zero and Span Calibration



REVIEWED BY: *RPA* DATE: *9-15-14*
 AUDITED BY: *WR* DATE: *8-26-14*

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Operator: <i>Kami Ballard</i>	Teledyne API T200 NOx Analyzer S/N <i>197</i>	Calibration Start Time <i>14:00</i>
Date: <i>08-07-2014</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N <i>191</i>	Calibration Stop Time <i>14:25</i>
	NIST Traceable Gas Conc. <i>48.4%</i>	T200 Analyzer Range <i>500</i>
		Shelter Temperature (5-40 °C) <i>23.48</i>

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NOx Response	Analyzer Stability	Acceptance Criteria	Final NOx/Zero Response
Zero Air	<i>0</i>	<i>0.9</i>	<i>0.0</i>	<i>1.9</i>	<i>0.5</i>	Zero Drift ≤ ±1.5%	<i>0.1</i>
400 ppb	<i>400</i>	<i>417.8</i>	<i>-0.7</i>	<i>417.2</i>	<i>0.2</i>	Span Drift ≤ ±10%	<i>398.5</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?	
Zero Air	NO	<i>0.4</i>	NO	<i>-0.01</i>	± 2 ppb <i>No</i>
	NO ₂	<i>0.0</i>	NO ₂	<i>-0.33</i>	
	NO _x	<i>0.5</i>	NO _x	<i>0.06</i>	
400 ppb	NO	<i>398.6</i>	NO	<i>398.48</i>	± 2 ppb <i>No</i>
	NO ₂	<i>-0.1</i>	NO ₂	<i>-0.36</i>	
	NO _x	<i>398.5</i>	NO _x	<i>399.32</i>	

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	<i>497</i>	Moly Temp. (315 ± 5°C)	<i>314.3</i>
Ozone Flow (80 ± 15 cc/min)	<i>63</i>	HVPS (400 - 900 V)	<i>643</i>
NOx Slope (1 ± 0.3)	<i>0.935</i>	NO Slope (1 ± 0.3)	<i>0.930</i>
NOx Offset (0 ± 100)	<i>8.6</i>	NO Offset (0 ± 100)	<i>0.4</i>

Operator Comments:

Operator Signature: *Kami Ballard*

Ozone flow slightly below manufacturer recommendations - WR

 AIR SCIENCES INC. DENVER • PORTLAND		Resolution Copper Mining East Plant Monitoring Station NOx Level 1 Zero and Span Calibration	
REVIEWED BY	RPA	DATE	8-25-14
AUDITED BY	WR	DATE	8-25-14

Operator: W.Rucker	Teledyne API T200 NOx Analyzer S/N	197	Calibration Start Time	12:16 (MST)
Date: 8/25/2014	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	13:19 (MST)
	NIST Traceable Gas Conc.	40.1	T200 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	21.92

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Final NO _x / Zero Response
Zero Air	0.00	0.4	3.6	3.9	0.1	Zero Drift $\leq \pm 1.5\%$	-1.4
400 ppb	400	368.4	6.5	374.9	0.4	Span Drift $\leq \pm 10\%$	397.3

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	-0.200	NO	-0.54	± 2 ppb	No
	NO ₂	-1.600	NO ₂	-1.98		
	NO _x	-2.000	NO _x	-2.12		
400 ppb	NO	397.700	NO	397.825	± 2 ppb	No
	NO ₂	-0.400	NO ₂	-0.69		
	NO _x	397.300	NO _x	398.905		

Analyzer Parameters

Sample Flow (500 \pm 50 cc/min)	493	Moly Temp. (315 \pm 5°C)	316.2
Ozone Flow (80 \pm 15 cc/min)	70	HVPS (400 - 900 V)	643
NO _x Slope (1 \pm 0.3)	1.026	NO Slope (1 \pm 0.3)	1.010
NO _x Offset (0 \pm 100)	16.7	NO Offset (0 \pm 100)	0.2

Operator Comments:

Operator Signature:





Resolution Copper Mining East Plant Monitoring Station NOx Level 1 Zero and Span Calibration



Operator: W.Rucker	Teledyne API T200 NOx Analyzer S/N	197	Calibration Start Time	03:15 (MST)
Date: 8/26/14	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	04:16 (MST)
			T200 Analyzer Range	500
	NIST Traceable Gas Conc.	40.1	Shelter Temperature (5-40 ° C)	25.23

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Final NO _x / Zero Response
Zero Air	0.00	-0.2	0.7	0.6	0.3	Zero Drift $\leq \pm 1.5\%$	-0.7
400 ppb	400	405.2	1.4	405.8	0.6	Span Drift $\leq \pm 10\%$	399.9

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	0.000	NO	-1.05	± 2 ppb	No
	NO ₂	-0.700	NO ₂	-1.69		
	NO _x	-0.700	NO _x	1.71		
400 ppb	NO	400.100	NO	399.53	± 2 ppb	No
	NO ₂	-0.500	NO ₂	-1.59		
	NO _x	399.900	NO _x	399.48		

Analyzer Parameters

Sample Flow (500 \pm 50 cc/min)		Moly Temp. (315 \pm 5°C)	
Ozone Flow (80 \pm 15 cc/min)		HVPS (400 - 900 V)	
NO _x Slope (1 \pm 0.3)	1.007	NO Slope (1 \pm 0.3)	0.999
NO _x Offset (0 \pm 100)	12.2	NO Offset (0 \pm 100)	0.0

Operator Comments:

Operator Signature:

Had to zero the T-200 several times before acceptable zero response could be obtained. Lost internet connectivity at the site prior to recording all the analyzer parameters.

 AIR SCIENCES INC. <small>DENVER • PORTLAND</small>		Resolution Copper Mining East Plant Monitoring Station NOx Level 1 Zero and Span Calibration	 AIR SCIENCES INC. <small>DENVER • PORTLAND</small>
REVIEWED BY	<i>W.R.</i>	DATE	<i>9-3-14</i>
AUDITED BY		DATE	

Operator: W.Rucker	Teledyne API T200 NOx Analyzer S/N	197	Calibration Start Time	16:53
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	17:30
Date: 9/3/14			T200 Analyzer Range	500
	NIST Traceable Gas Conc.	40.1	Shelter Temperature (5-40 ° C)	24.3

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Final NO _x / Zero Response
Zero Air	0.00	0.0	-3.5	-3.5	0.3	Zero Drift $\leq \pm 1.5\%$	-0.2
400 ppb	400	402.7	0.4	402.4	0.7	Span Drift $\leq \pm 10\%$	398.3

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	0.100	NO	-0.19	± 2 ppb	NO
	NO ₂	-0.400	NO ₂	-0.646		
	NO _x	-0.300	NO _x	-0.348		
400 ppb	NO	399.000	NO	399.357	± 2 ppb	No
	NO ₂	-0.800	NO ₂	-0.928		
	NO _x	398.600	NO _x	398.478		

Analyzer Parameters

Sample Flow (500 \pm 50 cc/min)	470	Moly Temp. (315 \pm 5°C)	314.4
Ozone Flow (80 \pm 15 cc/min)	70	HVPS (400 - 900 V)	643
NO _x Slope (1 \pm 0.3)	1.007	NO Slope (1 \pm 0.3)	1.004
NO _x Offset (0 \pm 100)	7.4	NO Offset (0 \pm 100)	0.3

Operator Comments: Found loose connections in the flow tubing and corrected prior to performing the calibration

Operator Signature:





Resolution Copper Mining
East Plant Monitoring Station
NOx Level 2 Zero and Span Verification

RPA
REVIEWED BY
WR
AUDITED BY

DENVER • PORTLAND
DATE
9-16-14
DATE
9-14-14



Operator: W.Rucker	Teledyne API T200 NOx Analyzer S/N	197	Verification Start Time	09:05 (MST)
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	09:24 (MST)
Date: 09/14/14			T200 Analyzer Range	500
	NIST Traceable Gas Conc.	40.1	Shelter Temperature (5-40 ° C)	23.7

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NO _x Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0.00	0.4	0.2	0.8	0.3	Zero Drift $\leq \pm 1.5\%$	No
400 ppb	400	403.9	-0.6	403.2	0.5	Span Drift $\leq \pm 10\%$	No

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	0.400	NO	0.18	± 2 ppb	No
	NO ₂	0.500	NO ₂	0.25		
	NO _x	0.800	NO _x	1.23		
400 ppb	NO	403.300	NO	403.19	± 2 ppb	No
	NO ₂	-0.200	NO ₂	-0.46		
	NO _x	402.200	NO _x	401.85		

Analyzer Parameters

Sample Flow (500 \pm 50 cc/min)	474	Moly Temp. (315 \pm 5°C)	315.1
Ozone Flow (80 \pm 15 cc/min)	70	HVPS (400 - 900 V)	643
NO _x Slope (1 \pm 0.3)	1.052	NO Slope (1 \pm 0.3)	1.046
NO _x Offset (0 \pm 100)	5.5	NO Offset (0 \pm 100)	0.4

Operator Comments:

None

Operator Signature:





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DENVER • PORTLAND

REVIEWED BY: *RAN* DATE: *10-3-14*

AUDITED BY: *BR* DATE: *9-29-14*

Resolution Copper Mining
East Plant Monitoring Station
NOx Level 2 Zero and Span Verification



AIR SCIENCES INC.
DENVER • PORTLAND

Operator:	Teledyne API T200 NOx Analyzer S/N	<i>197</i>	Verification Start Time	<i>9:55</i>
<i>Kami Ballard</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N	<i>191</i>	Verification Stop Time	<i>10:09</i>
	NIST Traceable Gas Conc.	<i>40.04</i>	T200 Analyzer Range	<i>500PPB</i>
Date:			Shelter Temperature (5-40 °C)	<i>23.33</i>
<i>9/24/2014</i>				

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO Response	NO ₂ Response	NOx Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>0.2</i>	<i>-0.7</i>	<i>-0.5</i>	<i>0.3</i>	Zero Drift $\leq \pm 1.5\%$	<i>No</i>
400 ppb	<i>400</i>	<i>369.6</i>	<i>0.7</i>	<i>370.2</i>	<i>0.6</i>	Span Drift $\leq \pm 10\%$	<i>No</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)		Logger Response (ppb)		Acceptance Criteria	Adjustment Required?
Zero Air	NO	<i>0.2</i>	NO	<i>-0.13</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>-0.7</i>	NO ₂	<i>-2.71</i>		
	NO _x	<i>-0.5</i>	NO _x	<i>-0.55</i>		
400 ppb	NO	<i>369.6</i>	NO	<i>369.72</i>	± 2 ppb	<i>No</i>
	NO ₂	<i>0.7</i>	NO ₂	<i>0.27</i>		
	NO _x	<i>370.2</i>	NO _x	<i>370.53</i>		

Analyzer Parameters

500 7-50 BR

Sample Flow (500 ± 50 cc/min)	<i>475</i>	Moly Temp. ($315 \pm 5^\circ\text{C}$)	<i>314.8</i>
Ozone Flow (80 ± 15 cc/min)	<i>72</i>	HVPS (400 - 900 V)	<i>643</i>
NOx Slope (1 ± 0.3)	<i>1.052</i>	NO Slope (1 ± 0.3)	<i>1.046</i>
NOx Offset (0 ± 100)	<i>5.5</i>	NO Offset (0 ± 100)	<i>0.4</i>

Operator Comments:

Sample flow 71-50 of 500 cc/min
BR

Operator Signature:

Kami Ballard

REVIEWED BY: WR DATE: 7-7-14
AUDITED BY: EG DATE: 7/3/14

Operator: <u>G. GYLIS</u>	Teledyne API T400 O ₃ Analyzer S/N	224	Calibration Start Time	<u>10:30</u>
Date: <u>7/3/2014</u>	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	<u>11:40</u>
			T400 Analyzer Range	<u>500</u>
			Shelter Temperature (5-40 ° C)	<u>19.63</u>

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	<u>0.00</u>	<u>1.6</u>	<u>0.3</u>	Zero Drift ≤ ± 1.5 %	<u>0.0</u>
400 ppb	<u>400</u>	<u>398.0</u>	<u>0.5</u>	Span Drift ≤ ± 7 %	<u>399.1</u>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<u>0.0</u>	<u>0.46</u>	± 2 ppb	<u>NO</u>
400 ppb	<u>399.1</u>	<u>399.6</u>	± 2 ppb	<u>NO</u>

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	<u>569</u>	Sample Temp. (10 - 50 °C)	<u>38.1</u>
Photo Lamp (58 ± 1 °C)	<u>58</u>	BOX Temp. (30 ± 20 °C)	<u>26.2</u>
Slope (1 ± 0.15)	<u>1.014</u>	O ₃ Measure (2500 - 4800 mV)	<u>2966</u>
Offset (0.0 ± 5 PPB)	<u>-3.5</u>	O ₃ Reference (2500 - 4800 mV)	<u>2976</u>

Operator Comments:

Operator Signature:

Invalidated the 11:00 and 12:00 hours for the calibration WR





Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 2 Zero and Span Verification



REVIEWED BY: RPA DATE: 9-15-14
 AUDITED BY: WR DATE: 8-26-14

DENVER • FORTLAUD

Operator:	Teledyne API T400 O ₃ Analyzer S/N	224	Verification Start Time	11:13
Date:	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	11:33
			T400 Analyzer Range	500
			Shelter Temperature (5-40 °C)	22.45

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0	-0.2	0.4	Zero Drift ≤ ±1.5%	No
400 ppb	400	396.2	0.44	Span Drift ≤ ±7%	No

Real time Analyzer vs. Logger Data Comparison


Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.2	0.281	± 2 ppb	No
400 ppb	396.2	396.93	± 2 ppb	No

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	570	Sample Temp. (10 - 50 °C)	38.2
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	26.4
Slope (1 ± 0.15)	1.014	O ₃ Measure (2500 - 4800 mV)	2965.1
Offset (0.0 ± 5 PPB)	3.5	O ₃ Reference (2500 - 4800 mV)	2967.5

Operator Comments:

Operator Signature: *James Ballard*



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Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 1 Zero and Span Calibration

REVIEWED BY: *RPA* DATE: *7-21-14*
AUDITED BY: *WR* DATE: *7-18-14*



Operator: W.Rucker	Teledyne API T400 O ₃ Analyzer S/N	224	Calibration Start Time	13:26
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	14:34
Date: 7/18/2014			T400 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	22.67

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0.00	-0.9	0.3	Zero Drift ≤ ± 1.5 %	-0.0
400 ppb	400	395.4	0.4	Span Drift ≤ ± 7 %	

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.100	0.380	± 2 ppb	No
400 ppb	400.500	401.120	± 2 ppb	No

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	568	Sample Temp. (10 - 50 °C)	38.6
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	27.1
Slope (1 ± 0.15)	1.023	O ₃ Measure (2500 - 4800 mV)	2961.5
Offset (0.0 ± 5 PPB)	2.7	O ₃ Reference (2500 - 4800 mV)	2951.1

Operator Comments:

Operator Signature:



AIR SCIENCES INC.
DENVER • PORTLAND

RPA
DATE *8-4-14*

WR
DATE *7-25-14*

Resolution Copper Mining
East Plant Monitoring Station
Level 2 Zero and Span Verification



AIR SCIENCES INC.
DENVER • PORTLAND

Operator: <i>Hami Ballard</i>	Teledyne API T400 O ₃ Analyzer S/N <i>224</i>	Verification Start Time <i>12:26</i>
Date: <i>7/24/2014</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N <i>191</i>	Verification Stop Time <i>12:44</i>
		T400 Analyzer Range <i>500</i>
		Shelter Temperature (5-40 °C) <i>19.54</i>

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>-1.2</i>	<i>0.2</i>	Zero Drift $\leq \pm 1.5\%$	<i>No</i>
400 ppb	<i>400</i>	<i>398.7</i>	<i>0.7</i>	Span Drift $\leq \pm 7\%$	<i>No</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<i>-1.2</i>	<i>-0.56</i>	± 2 ppb	<i>No</i>
400 ppb	<i>398.7</i>	<i>398.90</i>	± 2 ppb	<i>No</i>

Analyzer Parameters

Sample Flow (550 \pm 55 cc/min)	<i>573</i>	Sample Temp. (10 - 50 °C)	<i>37.8</i>
Photo Lamp (58 \pm 1 °C)	<i>58.0</i>	BOX Temp. (30 \pm 20 °C)	<i>25.7</i>
Slope (1 \pm 0.15)	<i>1.023</i>	O ₃ Measure (2500 - 4800 mV)	<i>2956.0</i>
Offset (0.0 \pm 5 PPB)	<i>2.7</i>	O ₃ Reference (2500 - 4800 mV)	<i>2958.8</i>

Operator Comments:

Operator Signature:

Invalidated the 1300 hour for the verification - WR

Hami Ballard

Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 1 Zero and Span Calibration

RPA
REVIEWED BY

WR

9-8-14
DATE

8-26-14
DATE

AUDITED BY

Operator:	Teledyne API T400 O ₃ Analyzer S/N	224 ✓	Calibration Start Time	14:54 ✓
Kami Ballard	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191 ✓	Calibration Stop Time	-
	Date:		T400 Analyzer Range	500 ✓
08/07/2014			Shelter Temperature (5-40 °C)	20.51 ✓

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0 0	0.3	0.9	Zero Drift ≤ ±1.5%	-0.8 ✓
400 ppb	400	397.9	0.4	Span Drift ≤ ±7%	401.7 ✓

Real time Analyzer vs. Logger Data Comparison


Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.8	-0.13	± 2 ppb	No ✓
400 ppb	401.7	402.3	± 2 ppb	No ✓

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	557 ✓	Sample Temp. (10 - 50 °C)	38.3 ✓
Photo Lamp (58 ± 1 °C)	58.0 ✓	BOX Temp. (30 ± 20 °C)	26.1 ✓
Slope (1 ± 0.15)	1.033 ✓	O ₃ Measure (2500 - 4800 mV)	2936.5 ✓
Offset (0.0 ± 5 PPB)	3.4 ✓	O ₃ Reference (2500 - 4800 mV)	2939.1 ✓

Operator Comments:

Operator Signature: Kami Ballard


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Resolution Copper Mining
 East Plant Monitoring Station
 O₃ Level 1 Zero and Span Calibration

RPA
 REVIEWED BY: **WR**
 AUDITED BY:

8-25-14
 DATE: **8-25-14**
 DATE:



Operator: W.Rucker	Teledyne API T400 O ₃ Analyzer S/N	224	Calibration Start Time	13:23 (MST)
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	14:15 (MST)
Date: 8/25/2014			T400 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	20.44

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0.00	-0.1	0.4	Zero Drift ≤ ± 1.5 %	0.3
400 ppb	401	402.0	0.5	Span Drift ≤ ± 7 %	400.1

Real time Analyzer vs. Logger Data Comparison

Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
0.600	1.090	± 2 ppb	No
400.100	400.895	± 2 ppb	NO

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	552	Sample Temp. (10 - 50 °C)	39.3
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	27.8
Slope (1 ± 0.15)	1.031	O ₃ Measure (2500 - 4800 mV)	2921.4
Offset (0.0 ± 5 PPB)	4.0	O ₃ Reference (2500 - 4800 mV)	2922.1

Operator Comments:

Operator Signature:



Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 1 Zero and Span Calibration



RPA
 REVIEWED BY WR DATE 9-4-14
 AUDITED BY _____ DATE _____

Operator: W.Rucker	Teledyne API T400 O ₃ Analyzer S/N	224	Calibration Start Time	9:07
Date: 9/04/2014	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Calibration Stop Time	
			T400 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	24.58

Biweekly Manual Level 1 Zero and Span Calibration

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Final Response
Zero Air	0.00	-0.0	0.3	Zero Drift ≤ ± 1.5 %	0.6
400 ppb	400	392.9	0.6	Span Drift ≤ ± 7 %	400.9

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	0.700	1.200	± 2 ppb	No
400 ppb	400.900	401.490	± 2 ppb	No

Analyzer Parameters

Sample Flow (800 ± 80 cc/min)	751	Sample Temp. (10 - 50 °C)	38.8
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	27.3
Slope (1 ± 0.15)	1.051	O ₃ Measure (2500 - 4800 mV)	2910.4
Offset (0.0 ± 5 PPB)	3.8	O ₃ Reference (2500 - 4800 mV)	2911.5

Operator Comments:

Operator Signature:



Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 2 Zero and Span Verification



REVIEWED BY	RPA	DATE	9-16-14
AUDITED BY	WR	DATE	9-14-14

Operator: W.Rucker	Teledyne API T400 O ₃ Analyzer S/N	224	Verification Start Time	9:40 (MST)
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	9:56 (MST)
Date: 9/14/14			T400 Analyzer Range	500
			Shelter Temperature (5-40 ° C)	23.7

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0.00	-0.3	0.6	Zero Drift ≤ ± 1.5 %	No
400 ppb	400	403.5	0.7	Span Drift ≤ ± 7 %	No

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	-0.300	0.130	± 2 ppb	No
400 ppb	403.500	404.450	± 2 ppb	No

Analyzer Parameters

Sample Flow (800± 80 cc/min)	751	Sample Temp. (10 - 50 °C)	40.2
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	27.7
Slope (1 ± 0.15)	1.051	O ₃ Measure (2500 - 4800 mV)	2898.7
Offset (0.0 ± 5 PPB)	3.8	O ₃ Reference (2500 - 4800 mV)	2899.5

Operator Comments:

None

Operator Signature:



Resolution Copper Mining
East Plant Monitoring Station
O₃ Level 2 Zero and Span Verification



REVIEWED BY: *RPA* DATE: *10-3-14*
 AUDITED BY: *BR* DATE: *9-29-14*

Operator:	Teledyne API T400 O ₃ Analyzer S/N	<i>224</i>	Verification Start Time	<i>10:29</i>
<i>Kami Ballard</i>	Teledyne API T700 Primary Standard Dilution Calibrator S/N	<i>191</i>	Verification Stop Time	<i>?</i>
	Date:		<i>9/26/2014</i>	T400 Analyzer Range
			Shelter Temperature (5-40 °C)	<i>21.73</i>

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	O ₃ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>0</i>	<i>0.9</i>	Zero Drift ≤ ±1.5 %	<i>No -</i>
400 ppb	<i>400</i>	<i>395</i>	<i>0.9</i>	Span Drift ≤ ±7 %	<i>No -</i>

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	<i>0</i>	<i>0.6</i>	± 2 ppb	<i>No -</i>
400 ppb	<i>395</i>	<i>395.40</i>	± 2 ppb	<i>No -</i>

Analyzer Parameters

Sample Flow (<i>550 ± 55 cc/min</i>) <i>* 800 +/- 20 BR</i>	<i>7.71 -</i>	Sample Temp. (10 - 50 °C)	<i>39.0 -</i>
Photo Lamp (58 ± 1 °C)	<i>58.0 -</i>	BOX Temp. (30 ± 20 °C)	<i>26.4 -</i>
Slope (1 ± 0.15)	<i>1.051 -</i>	O ₃ Measure (2500 - 4800 mV)	<i>2891.6 -</i>
Offset (0.0 ± 5 PPB)	<i>3.8 -</i>	O ₃ Reference (2500 - 4800 mV)	<i>2893.7 -</i>

Operator Comments: ** As per the T-400 manual the Sample Flow should be within +/- 800 cc/min,* Operator Signature: *Kami Ballard*

Appendix I: Audits and Calibrations



AIR SCIENCES INC.

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**Air Quality
Audit and
Calibration Report
Resolution Copper
East Plant
Monitoring Station**

PREPARED FOR:
RESOLUTION COPPER
MINING



PREPARED BY:
AIR SCIENCES INC.

PROJECT NO. 262-9-02
AUGUST 2014

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Appendices

Appendix A – Audit and Calibration Forms	
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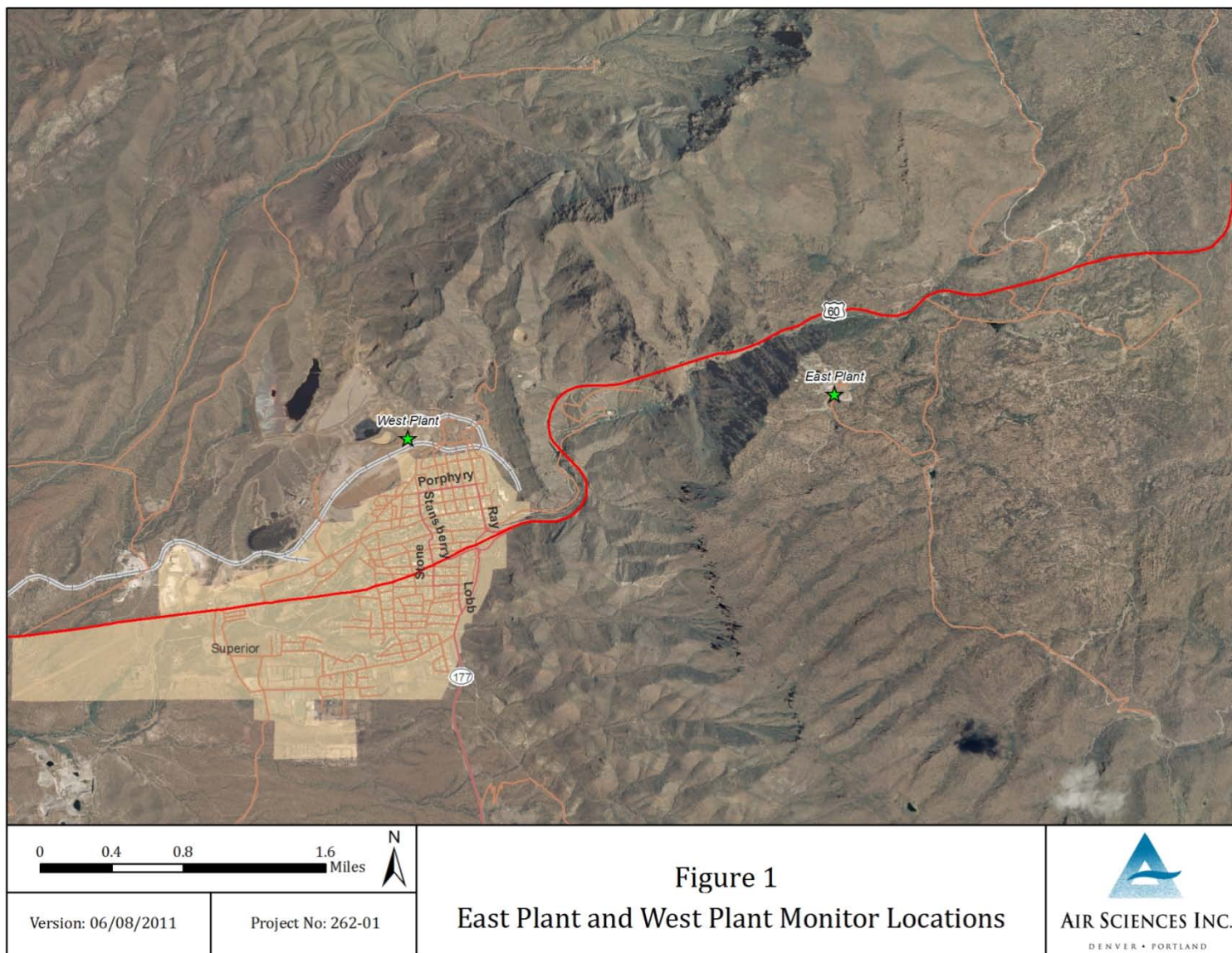
1.0 INTRODUCTION

On July 30, 2014, through August 1, 2014, the meteorological and air quality instrumentation was audited and/or calibrated at the Resolution Copper East Plant near Superior, AZ. The East Plant monitoring station is operated by the Resolution Copper Mining Company and is located approximately two miles east of the West Plant (see Figure 1).

The purpose of this document is to provide a brief synopsis of the air quality monitoring system and of the audit and/or calibration procedures for the meteorological, particulate, and ambient gas instrumentation at the East Plant monitoring station. The audit was conducted in accordance with the following guideline documents:

- EPA-450/4-87-007, Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), May 1987
- EPA-454/R-99-005, Meteorological Monitoring Guidance for Regulatory Modeling Applications, Section 8.4, February 2000
- EPA-454/B-13-003, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, May 2013
- EPA-454/B-08-002, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0, March 2008
- EPA-454/B-13-004, Transfer Standards for the Audit of Ambient Air Monitoring Analyzers for Ozone
- Code of Federal Regulations (40 CFR Parts 50 and 58)

Figure 1. Project Location Map - Resolution Copper East Plant and West Plant Monitoring Station Locations



2.0 SYSTEM DESCRIPTION

The instrumentation calibrated and/or audited at the East Plant monitoring site measures wind speed, wind direction, ambient temperature, vertical height temperature difference (delta temperature), solar radiation, relative humidity, precipitation, barometric pressure, particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ & PM_{2.5}), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and ozone (O₃).

The meteorological sensors are mounted to a 35-foot, open-lattice, aluminum drop tower, and the particulate and gaseous analyzers are housed in a 60-square-foot climate-controlled trailer. The sensor and particulate inlet heights are listed in Table 1 (as measured from ground-level).

Table 1. Sensors and Sample Inlet Heights (meters above the ground)

Parameter	Approximate Height(meters)
Wind Speed	10
Wind Direction	10
Ambient Temperature	2
Delta Temperature	2, 10
Solar Radiation	2
Relative Humidity	2
Precipitation	1
Barometric Pressure	1.5
PM ₁₀	3
PM _{2.5}	3
NO ₂	3
SO ₂	3
O ₃	3

The meteorological and ambient gas data are recorded via analog inputs on two Campbell Scientific CR3000 dataloggers, each powered independently by either DC solar or by locally supplied AC line power. All meteorological sensors are programmed on a two-second scan interval, and the output is digitally processed and recorded into 15-minute averages. The raw 15-minute averages are temporarily stored on the datalogger memory, and a local computer is automatically configured to permanently back up datalogger files on a 15-minute interval. The raw 15-minute data averages are securely transmitted, via cellular broadband Internet services, to the Air Sciences Inc. server and processed into the Data Acquisition and Storage System

(DASS) for quality assurance checks. These raw 15-minute averages are used as input for the calculation of one-hour averages.

PM₁₀ and PM_{2.5} are measured by two Met One Instruments model BAM-1020 particulate monitors. The BAM-1020 is a continuous monitoring device that produces 1-hour averages and a 24-hour average concentration for the period of 12:00 a.m. (midnight) through 11:59 p.m. for each calendar day. Particulate data are downloaded every hour onto the on-site datalogger via serial communications and are transported via wireless broadband modem directly to the DASS.

3.0 AUDIT AND CALIBRATION METHODOLOGY

This section provides the audit and/or calibration procedures for the meteorological, particulate, and ambient gas instrumentation at the Resolution Copper East Plant monitoring site. Copies of the completed audit and/or calibration forms are included in Appendix A.

3.1 Meteorological Sensor Audit Procedures

The wind speed sensor audit was performed by rotating the sensor shaft using a DC-powered variable-speed motor equipped with an optical encoder output referenced to a crystal oscillator. A target sensor speed was calculated based on the audit rotational speed and compared to the instantaneous datalogger reading. An R. M. Young Torque Disc was used to measure the anemometer starting torque. All data were recorded on a standardized form.

The audit of the wind direction system was performed by aligning the tail vane of the sensor to its mounting cross-arm. A Brunton Precision Magnetic Compass (BPMC) mounted on a tripod was used to establish the orientation of the cross-arm using the Magnetic Declination Method.¹ With the wind direction sensor oriented along the axis of the cross-arm, the sensor response was compared to the BPMC-measured value and recorded on a standardized form. The potentiometer linearity was checked by recording the system response at 45-degree intervals over the operating range of the system. Data were recorded on a standardized form.

The ambient temperature sensor audit was performed by comparing the temperature sensor in-situ to a NIST-traceable² temperature sensor. Both thermometer and datalogger readings were recorded on a standardized form.

The differential temperature sensor audit was performed by immersing both temperature sensors in a series of three water baths within the range of the temperature sensors. Positive and negative temperature differentials were checked by immersing the sensors in separate water baths. All cabling and associated wiring remained intact for the audit of both sensors. A Precision Temperature Sensor was used to measure the bath temperatures. All audit data were recorded on standardized forms.

The solar radiation sensor audit was performed by comparing the sensor in-situ to a calibrated pyranometer wired to an independent datalogger. Both the standard and the datalogger readings were recorded on a standardized form.

¹ Refer to section 2.5.2.2 of the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0, March 2008, for more details.

² National Institute of Standards and Technology

The relative humidity sensor audit was performed by comparing the humidity sensor in-situ to a NIST-traceable humidity sensor. Both the standard and datalogger readings were recorded on a standardized form.

The precipitation gauge was audited by employing a graduated syringe and distilled water. The volume of water required to cause the tipping bucket to activate was measured repeatedly, averaged, and compared to the calculated value for the activation. All volumes were recorded on a standardized form.

The barometric pressure sensor audit was performed by comparing the sensor in-situ to a NIST-traceable barometric pressure standard. Both the standard and datalogger readings were recorded on a standardized form.

3.2 Meteorological Sensor Calibration Procedures

The wind speed sensor calibration was performed by rotating the sensor shaft using a DC-powered variable-speed motor equipped with an optical encoder output referenced to a crystal oscillator. A target sensor speed was calculated based on the audit rotational speed and compared to the instantaneous datalogger reading. An R. M. Young Torque Disc was used to measure the anemometer starting torque. All data were recorded on a standardized form.

The calibration of the wind direction system was performed by aligning the tail vane of the sensor to its mounting cross-arm. A BPMC mounted on a tripod was used to establish the orientation of the cross-arm using the Magnetic Declination Method. With the wind direction sensor oriented along the axis of the cross-arm, the sensor response was compared to the BPMC-measured value and recorded on a standardized form. The potentiometer linearity was checked by recording the system response at 45-degree intervals over the operating range of the system. Data were recorded on a standardized form.

3.3 Particulate Matter Audit Procedures

The BAM-1020 PM₁₀ and PM_{2.5} monitors were audited by comparing and then adjusting the temperature, barometric pressure, and internal flow to a certified deltaCal Volumetric Air Flow Calibrator. All required maintenance was performed on the instruments to assure optimal operations. The temperature, barometric pressure, and flow output readings from the deltaCal and the BAM-1020 monitor were recorded on a standardized form.

3.4 Ambient Gas Audit Procedures

The audit of the Teledyne T100 SO₂ and T200 NO_x analyzers involved a Multi-Point Audit (MPA). The MPA was performed by using a Transfer Standard Teledyne API T700 Dilution Calibrator to dilute certified multi-component EPA-protocol audit gas with a clean zero-air source. The T100 SO₂ and T200 NO_x analyzer was challenged at zero, and at five points within the instruments range – typically a point from 100 to 500 parts per billion (ppb) of SO₂ or NO_x.

The audit of the Teledyne T400 O₃ analyzer involved an MPA. The MPA was performed by using a Transfer Standard Teledyne API T700 Dilution Calibrator to generate O₃ gas to audit the T400 analyzer at zero, and at a single point within the instrument range – typically a point from 100 to 500 ppb of O₃.

3.5 Ambient Gas Calibration Procedures

The calibration of the Teledyne T100 SO₂ and T200 NO_x analyzers involved a Multi-Point Calibration (MPC). The MPC was performed by using the Primary Standard Teledyne API T700 Dilution Calibrator to dilute certified multi-component EPA-protocol calibration gas with a clean zero-air source. The T100 SO₂ and T200 NO_x analyzer was challenged at zero, and at five points within the instruments range – typically from 100 to 500 parts per billion (ppb) of SO₂ or NO_x.

The calibration of the Teledyne T400 O₃ analyzer involved an MPC. The MPC was performed by using Primary Standard Teledyne API T700 Dilution Calibrator to generate O₃ gas and calibrate the T400 analyzer at zero, and at a five points within the instrument range – typically from 100 to 500 ppb of O₃.

4.0 RESULTS AND RECOMMENDATIONS

On July 30, 2014, Air Sciences Inc. (Air Sciences) personnel discovered a low sample flow alarm being reported by the Teledyne T100 SO₂ analyzer during the initial inspection of the site. A Level 2 Zero and Span Verification was performed, resulting in the analyzer displaying unstable responses. An inspection of the analyzer's flow system revealed an unserviceable internal vacuum pump. The T100 SO₂ analyzer was shut down pending replacement of the vacuum pump. The analyzer shall be subject to multipoint audit and calibration routines after the vacuum pump is replaced.

On July 31, 2014, Air Sciences staff replaced the R. M. Young 05305 Wind Monitor with a refurbished wind monitor per the manufacturer-recommended service schedule. The refurbished wind monitor included new nose cone assembly bearings, vertical shaft bearings, and potentiometer. The refurbished wind monitor was calibrated after its deployment.

The on-site cellular broadband communications signal has been greatly reduced over the past year, causing an intermittent loss of service. It is recommended that a cellular signal booster be installed during the next site visit to improve the communications.

All other instruments, sensors, and operating systems were found to be clean, serviceable, and within their recommended tolerance parameters.

Meteorological, particulate, and gaseous data collected during the on-site audit and calibration activities described in this report will be invalidated.

Appendix A - Audit and Calibration Forms

METEOROLOGICAL STATION AUDIT SUMMARY



AIR SCIENCES INC.

DENVER • PORTLAND

Client : Resolution Copper Company
Project No. : 262-9-02
Site : East Plant
Date : 7/31/2014
Time: 07:30 - 08:45
Personnel: R. Attridge
W. Rucker

SITE MONITORING PARAMETERS AND SENSORS				
Parameter	Sensors	Model #	Serial Number	Instrument Location on Site
Datalogger	Campbell Sci. Micrologger	CR3000	6591	1 meter
Wind Speed	R. M. Young Wind Monitor	5305	112953	10 meters
Wind Direction	R. M. Young Wind Monitor	5305	112953	10 meters
Ambient Temperature	Campbell Sci. Probe	HC2S3-L	60749863	2 meters
Relative Humidity	Campbell Sci. Probe	HC2S3-L	60749863	2 meters
Barometric Pressure	Vaisala PTB110 Barometer	PTB110	G0077095	1 meter
Delta Temperature (2m)	R. M. Young 1K RTD Temp. Sensor	41342	20208	2 meters
Delta Temperature (10m)	R. M. Young 1K RTD Temp. Sensor	41342	020213	10 meters
Solar Radiation	Campbell Sci. Pyranometer	CMP3	115422	2 meters
Precipitation	R. M. Young Heated Rain Gauge	52202	8721	Ground

QUALITY ASSURANCE AUDIT EQUIPMENT				
Parameter	Reference Device	Model #	Serial Number	Re-Calibration Date
Datalogger	Campbell Sci. Micrologger	CR 850	22877	
System Accuracy & Linearity	Compass	N/A	508031403	4/2/2014
Wind Speed	R. M. Young Anemometer Drive	18802	CA03377	02/27/2014
Torque	Disk 1	N/A	N/A	N/A
Ambient Temperature	HygroClip 2	HC2S3	61045434	02/20/2014
Relative Humidity	HygroClip 2	HC2S3	61045434	02/20/2014
Barometric Pressure	Vaisala PTB110 Barometer	CS106	C4240088	09/02/2013
Delta Temperature	Campbell Sci. RTD Probe	41342	TS22518	02/28/2014
Solar Radiation	Campbell Sci. Pyranometer	CMP6	123275	03/18/2014
Precipitation	10 mL Syringe	N/A	N/A	N/A

WIND SPEED, 10 METERS
AUDIT SUMMARY



DENVER • PORTLAND

Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: 5305 Calibration Motor No.: CA03377
Serial No: 112953 Calibration Disk No.: Disk 1

System Linearity Check

	Standard RPM	Target* m/s	Logger Reading m/s	Difference m/s	Acceptance Criteria
CW	0.0	0.00	0.00	0.00	0.0
CW	200.0	1.02	1.02	0.00	0.3
CW	400.0	2.05	2.04	-0.01	0.3
CW	600.0	3.07	3.07	0.00	0.4
CW	800.0	4.10	4.09	-0.01	0.4
CW	1000.0	5.12	5.12	0.00	0.5
CW	2000.0	10.24	10.24	0.00	0.7
CW	3000.0	15.36	15.36	0.00	1.0
CW	4000.0	20.48	20.48	0.00	1.2
CW	5000.0	25.60	25.60	0.00	1.5

Bearing Torque Test (Passing 0.4 m/s = 0.6 g-cm)

Clockwise 0.4 g-cm
Counterclockwise 0.4 g-cm

RM Young
*Target (m/s) = rpm x
0.00512

Audited By: R. Attridge

WIND DIRECTION, 10 METERS
AUDIT SUMMARY



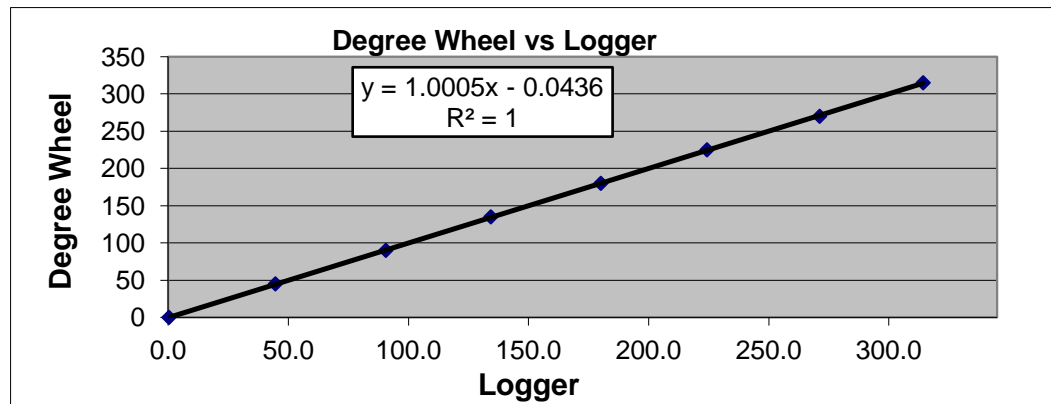
Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: 5305 Serial No: 112953 Compass No.: 508031403

System Accuracy and Linearity Check Declination^[1] = 10 °East

Orientation	Compass (w/o declination) (Degrees)	Compass (w/declination) (Degrees)	Target (Degrees)	Logger Reading (Degrees)	Difference (Degrees)	Acceptance Criteria
1. Vane	187.0	177.0	177.0	178.2	1.2	±5
Tail	7.0	357.0	357.0	0.1	3.1	±5

	Initial Logger (Degrees)	Difference (Degrees)	Corrected Logger (Degrees)	Difference (Degrees)	Acceptance Criteria ^[2]
CW					
0	0.3	0.3	0.3	0.3	±3
45	44.6	-0.4	44.6	-0.4	±3
90	90.6	0.6	90.6	0.6	±3
135	134.3	-0.7	134.3	-0.7	±3
180	180.1	0.1	180.1	0.1	±3
225	224.3	-0.7	224.3	-0.7	±3
270	271.2	1.2	271.2	1.2	±3
315	314.3	-0.7	314.3	-0.7	±3
Avg		<u>0.0</u>			
CCW					
0	0.4	0.4	0.6	0.6	±3
45	45.8	0.8	46.0	1.0	±3
90	90.1	0.1	90.3	0.3	±3
135	134.6	-0.4	134.8	-0.2	±3
180	180.9	0.9	181.1	1.1	±3
225	224.0	-1.0	224.2	-0.8	±3
270	269.3	-0.7	269.5	-0.5	±3
315	313.3	-1.7	313.5	-1.5	±3
Avg		<u>-0.2</u>			



Audited By: R. Attridge

¹ Declination added to compass

² May reference wider acceptance criteria in *QA Handbook for Air Pollution Measurement*

Systems, Volume IV - Meteorological Measurements, August 1989

WIND SPEED, 10 METERS

Calibration Summary



DENVER • PORTLAND

Operator: Air Sciences
 Site Name: East Plant
 Project: 262-9-02
 Date: 7/31/2014

Model: 5305 Calibration Motor No.: CA03377
 Serial No: 77645 Calibration Disk No.: Disk 1

System Linearity Check

	Standard RPM	Target* m/s	Logger Reading m/s	Difference m/s	Acceptance Criteria
CW	0.0	0.00	0.00	0.00	0.0
CW	200.0	1.02	1.02	0.00	0.3
CW	400.0	2.05	2.04	-0.01	0.3
CW	600.0	3.07	3.07	0.00	0.4
CW	800.0	4.10	4.09	-0.01	0.4
CW	1000.0	5.12	5.12	0.00	0.5
CW	2000.0	10.24	10.24	0.00	0.7
CW	3000.0	15.36	15.36	0.00	1.0
CW	4000.0	20.48	20.48	0.00	1.2
CW	5000.0	25.60	25.60	0.00	1.5

Bearing Torque Test (Passing 0.4 m/s = 0.6 g-cm)

Clockwise 0.2 g-cm
 Counterclockwise 0.2 g-cm

RM Young
 *Target (m/s) = rpm x
 0.00512

Audited By: W. Rucker

WIND DIRECTION, 10 METERS
Calibration Summary



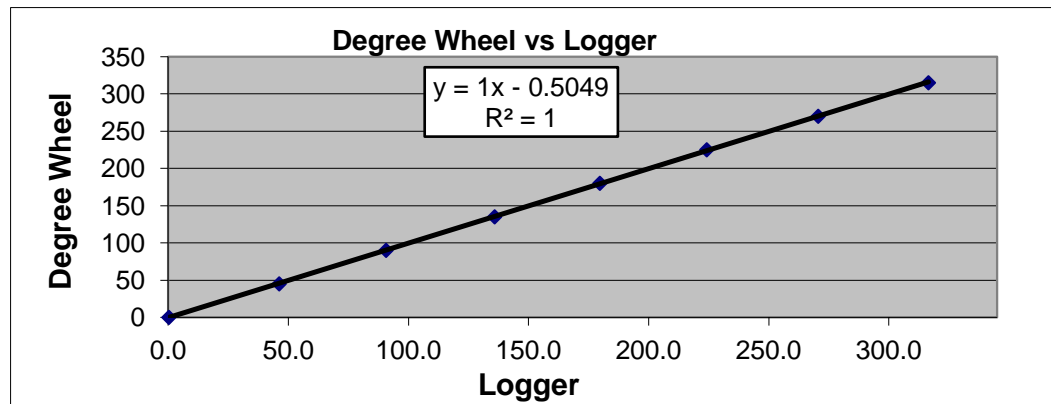
Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: 5305 Serial No: 77645 Compass No.: 508031403

System Accuracy and Linearity Check Declination^[1] = 10 °East

Orientation	Compass (w/o declination) (Degrees)	Compass (w/declination) (Degrees)	Target (Degrees)	Logger Reading (Degrees)	Difference (Degrees)	Acceptance Criteria
1. Vane	167.0	177.0	177.0	180.2	3.2	±5
Tail	3.0	357.0	357.0	1.6	4.6	±5

	Initial Logger (Degrees)	Difference (Degrees)	Corrected Logger (Degrees)	Difference (Degrees)	Acceptance Criteria ^[2]
CW					
0	0.3	0.3	-0.2	-0.2	±3
45	46.2	1.2	45.7	0.7	±3
90	90.7	0.7	90.2	0.2	±3
135	135.9	0.9	135.4	0.4	±3
180	179.7	-0.3	179.2	-0.8	±3
225	224.2	-0.8	223.7	-1.3	±3
270	270.6	0.6	270.1	0.1	±3
315	316.5	1.5	316.0	1.0	±3
Avg		<u>0.5</u>			
CCW					
0	0.2	0.2	0.4	0.4	±3
45	44.7	-0.3	44.9	-0.1	±3
90	90.2	0.2	90.4	0.4	±3
135	135.4	0.4	135.6	0.6	±3
180	179.3	-0.7	179.5	-0.5	±3
225	224.7	-0.3	224.9	-0.1	±3
270	268.3	-1.7	268.5	-1.5	±3
315	315.4	0.4	315.6	0.6	±3
Avg		<u>-0.2</u>			



Audited By: W. Rucker

¹ Declination added to compass

² May reference wider acceptance criteria in *QA Handbook for Air Pollution Measurement*

Systems, Volume IV - Meteorological Measurements, August 1989

AMBIENT TEMPERATURE, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: HC2S3-L Serial No: 60749863
Std Model: HC2S3 Ref Serial No: 61045434

System Linearity Check

	Standard (°C)	Logger Reading (°C)	Difference (°C)	Acceptance Criteria
1.	26.0	26.2	-0.2	±2
2.	26.0	26.2	-0.2	±2
3.	26.2	26.2	0.0	±2
4.	26.3	26.2	0.1	±2
5.	26.3	26.3	0.0	±2
6.	26.2	26.3	-0.1	±2
7.	26.3	26.3	0.0	±2
8.	26.4	26.3	0.1	±2
9.	26.4	26.3	0.1	±2
10.	26.4	26.3	0.1	±2

Audited By: R. Attridge

RELATIVE HUMIDITY, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
 Site Name: East Plant
 Project: 262-9-02
 Date: 7/31/2014

Model: HC2S3-L Serial No: 60749863
 Std Model: HC2S3 Std Serial No: 61045434

	Standard (%)	Logger Reading (%)	Difference (%)	Acceptance Criteria (%)
1.	43.5	42.5	1.0	±7
2.	43.5	42.3	1.2	±7
3.	43.8	42.3	1.5	±7
4.	43.6	42.8	0.8	±7
5.	43.5	42.8	0.7	±7
6.	43.5	42.6	0.9	±7
7.	43.6	42.8	0.8	±7
8.	43.8	43.0	0.8	±7
9.	43.3	43.2	0.1	±7
10.	44.3	43.6	0.7	±7

Audited By: R. Attridge

DELTA TEMPERATURE, 2 and 10 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: <u>41342</u>	Serial No (2m): <u>20208</u>
Std Model: <u>41342</u>	Serial No (10m): <u>020213</u>
	Std Serial No: <u>TS22518</u>

Aspirator Fans Working Properly? **Y**

	Standard (°C)	2 Meter (°C)	10 Meter (°C)	Difference 2 Meter ^[1] (°C)	Difference 10 Meter ^[1] (°C)
Bath 1	4.17	4.17	4.20	0.00	0.03
Bath 2	25.91	25.94	25.93	0.03	0.02
Bath 3	37.70	37.77	37.68	0.07	0.02

Delta T ^[2] (°C)	Difference 10M vs. 2M
	<u>0.03</u>
	<u>0.01</u>
	<u>0.09</u>

1. The acceptance criteria for deviation from the standard for both upper and lower temperatures is ± 0.5
2. The acceptance criteria for deviation from the standard for delta temperatures is ± 0.1

Audited By: R. Attridge

BAROMETRIC PRESSURE, 1 METER
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: PTB110 Serial No: G0077095
Std Model: CS106 Std Serial No: C4240088

System Linearity Check

	Standard (mmHg)	Logger Reading (mmHg)	Difference (mmHg)	Acceptance Criteria (mmHg)
1.	655.2	655.1	0.1	±2.3
2.	655.2	655.1	0.1	±2.3
3.	655.2	655.1	0.1	±2.3
4.	655.2	655.1	0.1	±2.3
5.	655.2	655.1	0.1	±2.3

Audited By: R. Attridge

SOLAR RADIATION, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: CMP3 Serial No: 115422
Std Model: CMP6 Std Serial No: 123275

System Linearity Check

	Standard (w/m ²)	Logger Reading (w/m ²)	Difference (w/m ²)	Difference (%)	Acceptance Criteria
Covered Reading	0.0	0.0	0.0		± 25 W/m ² or 5%
1.	85.6	91.5	-5.9	6.4	± 25 W/m ² or 5%
2.	86.0	91.5	-5.5	6.0	± 25 W/m ² or 5%
3.	86.2	91.5	-5.3	5.8	± 25 W/m ² or 5%
4.	86.4	91.5	-5.1	5.6	± 25 W/m ² or 5%
5.	86.4	91.5	-5.1	5.6	± 25 W/m ² or 5%
6.	86.5	91.4	-4.9	5.4	± 25 W/m ² or 5%
7.	86.2	91.2	-5.0	5.5	± 25 W/m ² or 5%
8.	86.2	91.1	-4.9	5.4	± 25 W/m ² or 5%
9.	86.1	91.1	-5.0	5.5	± 25 W/m ² or 5%
10.	86.1	90.0	-3.9	4.3	± 25 W/m ² or 5%
		Average	-5.1		

Audited By: R. Attridge

PRECIPITATION, GROUND LEVEL
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

Model: 52202 Serial No: 8721

System Linearity Check

	Water (cc)	Calculated Target* (inches)	Logger Reading (inches)	Difference (inches)
1.	2.10	0.0042	0.004	0.000
2.	2.10	0.0042	0.004	0.000
3.	2.10	0.0042	0.004	0.000
4.	2.10	0.0042	0.004	0.000
5.	2.20	0.0044	0.004	0.000
6.	2.20	0.0044	0.004	0.000
7.	2.10	0.0042	0.004	0.000
8.	2.10	0.0042	0.004	0.000
9.	2.20	0.0044	0.004	0.000
10.	2.20	0.0044	0.004	0.000
Total	21.40	0.0426	0.040	0.003

Reading taken from final storage for period averaged data = 0.284 inches

Target (Campbell Scientific gauge) = water (cc)/2.01.004(inches)

Audited By: R. Attridge

COMMENTS & SIGNATURES
AUDIT SUMMARY



Operator: Air Sciences
Site Name: East Plant
Project: 262-9-02
Date: 7/31/2014

COMMENTS:

The manufacturer recommended service schedule resulted in
the RMY 05305 Wind Monitor S/N 112953 being replaced with
a refurbished Wind Monitor S/N 77645.

Signatures:

Rory Attridge 8-5-2014
[Signature] 8-6-2014

Resolution Copper Mining
East Plant Monitoring Station
SO₂ Level 2 Zero and Span Verification



DENVER • PORTLAND

Operator: R. Attridge	Teledyne API T100 SO ₂ Analyzer S/N	193	Verification Start Time	1800
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Verification Stop Time	2300
Date: 7/30/2014	NIST Traceable Gas Conc.	40.0 ppm SO ₂	T100 Analyzer Range	500 ppb
			Shelter Temperature (5-40 ° C)	23.2

Biweekly Manual Level 2 Zero and Span Verification

Target Dilution (ppb)	Actual Target Dilution Generated	NO ₂ Response	Analyzer Stability	Acceptance Criteria	Adjustment Required?
Zero Air	0.0	4.34	3.6	Zero Drift ≤ ± 1.5 %	YES
400 ppb	XXXXX	XXXXX	XXXXX	Span Drift ≤ ± 10 %	

Real time Analyzer vs. Logger Data Comparison

Target Dilution (ppb)	Analyzer Response (ppb)	Logger Response (ppb)	Acceptance Criteria	Adjustment Required?
Zero Air	4.340	6.190	± 2 ppb	YES
400 ppb	XXXX	XXXX	± 2 ppb	

Analyzer Parameters

Sample Flow (450 ± 45 cc/min)	345	Sample Press. (Ambient ± 2 in-Hg)	24.3
UV Lamp (1000 - 4800 mV)	2432.2	Lamp Ratio (30 - 120%)	67.3
Slope (1 ± 0.3)	1.864	BOX Temp. (Ambient ± 5°C)	28.8
Offset (< 250 mV)	13.0	HVPS (400 - 900 V)	573

Operator Comments: A "Low Sample Flow Warning" alarm was discovered during initial on-site inspection. Verified instability by introducing zero air into the analyzer. Troubleshooting procedures revealed an unserviceable internal vacuum pump. All SO₂ data shall be flagged starting from the last known site inspection or when the analyzer was free of alarms up to the date the vacuum pump rebuild kit is installed. Multipoint Cal/Audit procedures and software calibration must be performed after pump refurbishment- RPA

Operator Signature: *Rory Attridge*

8-4-14

Resolution Copper Mining
East Plant Monitoring Station
NO_x Multipoint Audit



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Operator: B. Rucker	Teledyne API T200 NO _x Analyzer S/N	197	Multipoint Start Time	1010
	Teledyne API T700 Transfer Standard Dilution Calibrator S/N	816	Multipoint Stop Time	1253
Date: 8/01/2014	NIST Traceable Gas Conc.	40.9 NO ppm	T200 Analyzer Range	500ppb
			Shelter Temperature (5-40 ° C)	23.1

Multipoint Audit (Quarterly, or as needed):

Check the analyzer response over 0 - 500 ppb range using the Transfer Standard Dilution Calibrator.

Transfer Standard:

Target (PPB)	Actual Generated T200 (PPB)	NO Response	NO ₂ Response	NO _x Response	Best Fit Line	Acceptable Criteria (± 2% from BFL)
Zero Air	0.0	0.7	-1.0	-0.3	1.3	PASS, 0
100	100	108.5	-2.5	105.7	106.0	PASS, 0.3%
200	200	216.2	-2.1	214.2	210.6	PASS, 1.7%
300	300	317.4	-2.9	314.7	315.3	PASS, 0.2%
400	400	421.9	-2.3	419.5	419.9	PASS, 0.1%
500	500	529.7	-5.1	523.8	524.5	PASS, 0.1%

Best Fit Line (BFL)

$$Y = 1.046x + 1.3333$$

$$R^2 = 0.99991$$

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	494	Moly Temp. (315 ± 5°C)	314.4
Ozone Flow (80 ± 15 cc/min)	63	HVPS (400 - 900 V)	643
NO _x Slope (1 ± 0.3)	0.968	NO Slope (1 ± 0.3)	0.971
NO _x Offset (0 ± 100)	1.9	NO Offset (0 ± 100)	-1.6

Operator Comments:

Operator Signature:

8/1/2014

Resolution Copper Mining
East Plant Monitoring Station
NO_x Multipoint Calibration



Operator: R. Attridge	Teledyne API T200 NO _x Analyzer S/N	197	Multipoint Start Time	1315
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Multipoint Stop Time	1424
Date: 7/31/2014			T200 Analyzer Range	500ppb
	NIST Traceable Gas Conc.	40.1ppm	Shelter Temperature (5-40 ° C)	25.6

Multipoint Calibration (Quarterly, or as needed):

Check the analyzer response over 0 - 500 ppb range using the Primary Standard Dilution Calibrator.

Primary Standard:

Target (PPB)	Actual Generated T200 (PPB)	NO Response	NO ₂ Response	NO _x Response	Best Fit Line	Acceptable Criteria (± 2% from BFL)
Zero Air	0.0	-1.7	-1.2	-2.7	-1.3	PASS, 0 ± 5
100	101	105.8	-1.9	103.9	105.5	PASS, 1.5%
200	201	210.9	1.9	212.7	211.3	PASS, 0.7%
300	300	318.6	0.8	319.5	316.0	PASS, 1.1%
400	400	418.4	5.0	423.5	421.7	PASS, 0.4%
500	500	522.4	1.4	523.7	527.5	PASS, 0.7%

Best Fit Line (BFL)
 $Y = 1.0577x + -1.3355$
 $R = 0.99981$

Analyzer Parameters

Sample Flow (500 ± 50 cc/min)	491	Moly Temp. (315 ± 5°C)	314.9
Ozone Flow (80 ± 15 cc/min)	62	HVPS (400 - 900 V)	643
NO _x Slope (1 ± 0.3)	0.914	NO Slope (1 ± 0.3)	0.902
NO _x Offset (0 ± 100)	9.8	NO Offset (0 ± 100)	0.6

Operator Comments: Serviced the reaction cell assembly; replaced sintered stainless steel filters and o-rings of the sample and ozone orifices; inspected the ozone scrubber and dryer; replaced all associated analyzer flow tubing and fittings; performed software calibration to correct slopes and offsets.

Operator Signature:

Roy Attridge
 8-14-14

Resolution Copper Mining
East Plant Monitoring Station
O₃ Multipoint Calibration



Operator: R. Attridge	Teledyne API T400 O ₃ Analyzer S/N	224	Multipoint Start Time	1200
	Teledyne API T700 Primary Standard Dilution Calibrator S/N	191	Multipoint Stop Time	1700
Date: 07/31/2014			T400 Analyzer Range	500 ppb
			Shelter Temperature (5-40 ° C)	20.4

Multipoint Calibration (Quarterly, or as needed):

Check the analyzer response over 0 - 500 ppb range using the Primary Standard Dilution Calibrator.

Primary Standard:

Target (PPB)	Actual Generated O ₃ (PPB)	O ₃ Response (PPB)	Best Fit Line (PPB)	Acceptable Criteria (± 2% from BFL)
Zero Air	0.0	0.4	0.9	PASS, <2%FS
100	100	102.6	100.9	PASS, 1.6%
200	200	203.6	201.0	PASS, 1.3%
300	300	302.6	301.1	PASS, 0.5%
400	400	400.4	401.1	PASS, 0.2%
500	500	500.8	501.2	PASS, 0.1%

Best Fit Line (BFL)
 $Y = 1.0006x + 0.8786$
 $R^2 = 0.99998$

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	558	Sample Temp. (10 - 50 °C)	34.8
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	26.9
Slope (1 ± 0.15)	1.033	O ₃ Measure (2500 - 4800 mV)	2932.6
Offset (0.0 ± 5 PPB)	-3.5	O ₃ Reference (2500 - 4800 mV)	2934.5

Operator Comments: Replaced all associated analyzer flow tubing and fittings; performed software calibration.

Operator Signature:

Roy Attridge
8-4-14

Resolution Copper Mining
East Plant Monitoring Station
O₃ Multipoint Audit



Operator: B. Rucker	Teledyne API T400 O ₃ Analyzer S/N	224	Multipoint Start Time	0945
	Teledyne API T700 Transfer Standard Dilution Calibrator S/N	816	Multipoint Stop Time	1010
Date: 8/1/2014			T400 Analyzer Range	500ppb
			Shelter Temperature (5-40 ° C)	24.3

Multipoint Audit (Quarterly, or as needed):

Check the analyzer response over 0 - 500 ppb range using the Transfer Standard Dilution Calibrator.

Transfer Standard:

Target (PPB)	Actual Generated O ₃ (PPB)	O ₃ Response (PPB)	Best Fit Line (PPB)	Acceptable Criteria (± 2% from BFL)
Zero Air	0.00	-0.5	-0.8	PASS, <2%FS
100	101	103.5	101.9	PASS, 1.5%
200	201	204.4	203.6	PASS, 0.4%
300	301	304.7	305.3	PASS, 0.2%
400	401	406.8	406.9	PASS, 0%
500	499	507.1	506.6	PASS, 0.1%

Best Fit Line (BFL)
 $Y=1.0168x + -0.7658$

R²= 1

Analyzer Parameters

Sample Flow (550 ± 55 cc/min)	557	Sample Temp. (10 - 50 °C)	40.0
Photo Lamp (58 ± 1 °C)	58.0	BOX Temp. (30 ± 20 °C)	27.9
Slope (1 ± 0.15)	1.033	O ₃ Measure (2500 - 4800 mV)	2939.8
Offset (0.0 ± 5 PPB)	-3.5	O ₃ Reference (2500 - 4800 mV)	2941.0

Operator Comments:

Operator Signature:

8/01/2014

East Plant BAM-1020 PM₁₀ Audit Sheet

Model: BAM-1020

Serial Number: M8714

Audit Date: 07/30/14

Audited By: W. Rucker

Audit Time: 11:00 - 18:00

Firmware: 3236-06 V3.6.3

Flow Audits

Flow Reference Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2013
Temperature Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2013
Barometric Pressure Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2013

Leak Check Value: as found: 0.5 LPM Should Be: <1.0 as left: 0.4 LPM Should Be: <1.0

		BAM	Ref. Std.		BAM	Ref. Std.		
Ambient Temperature (°C):	as found:	33.9	33.7	as left:	34.4	33.7	Adjusted	X
Barometric Pressure (mmHg):	as found:	654	654	as left:	654	654	Adjusted	
Flow Rate (15.0 LPM):	as found:	15.1	14.58	as left:	15.0	15.03	Adjusted	X
Flow Rate (18.4 LPM):	as found:	18.4	17.85	as left:	18.4	18.46	Adjusted	X
Flow Rate (16.7 LPM):	as found:	16.7	16.19	as left:	16.7	16.76	Adjusted	X

Audit Notes: Invalidate all PM data collected on 7/30/2014 from 11:00 to 18:00.

Mechanical Audits

<p>Pump muffler unclogged: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Sample nozzle clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Tape support vane clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Capstan shaft clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Rubber pinch rollers clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Chassis ground wire installed: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p>		<p>PM10 particle trap clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM10 drip jar empty: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM10 bug screen clear: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM2.5 particle trap clean: As found <input type="checkbox"/> As left <input type="checkbox"/> N/A <input checked="" type="checkbox"/></p> <p>Inlet tube water-tight seal OK: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Inlet tube perpendicular to BAM: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p>
---	--	---

Signature:

8/11/2014

East Plant BAM-1020 PM_{2.5} Audit Sheet

Model: BAM-1020

Serial Number: M6466

Audit Date: 07/30/2014

Audited By: W. Rucker

Audit Time: 14:00 - 18:00

Firmware: 3236-06 V3.6.3

Flow Audits

Flow Reference Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014
Temperature Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014
Barometric Pressure Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014

Leak Check Value: as found: 0.5 LPM Should Be: <1.0 as left: 0.5 LPM Should Be: <1.0

		BAM	Ref. Std.		BAM	Ref. Std.		
Ambient Temperature (°C):	as found:	35.1	36.2	as left:	34.5	35.0	Adjusted	X
Barometric Pressure (mmHg):	as found:	654	654	as left:	654	654	Adjusted	
Flow Rate (15.0 LPM):	as found:	15.0	14.62	as left:	14.9	14.73	Adjusted	X
Flow Rate (18.4 LPM):	as found:	18.4	17.86	as left:	18.4	18.23	Adjusted	X
Flow Rate (16.7 LPM):	as found:	16.7	17.36	as left:	16.7	16.57	Adjusted	X

Audit Notes: Invalidate all PM 2.5 data collected on 7/30/2014 from 1400-1800hrs .

Mechanical Audits

<p>Pump muffler unclogged: As found X As left X</p> <p>Sample nozzle clean: As found As left X</p> <p>Tape support vane clean: As found As left X</p> <p>Capstan shaft clean: As found As left X</p> <p>Rubber pinch rollers clean: As found As left X</p> <p>Chassis ground wire installed: As found X As left X</p>		<p>PM10 particle trap clean: As found As left X N/A </p> <p>PM10 drip jar empty: As found As left X N/A </p> <p>PM10 bug screen clear: As found X As left X N/A </p> <p>PM2.5 particle trap clean: As found As left X N/A </p> <p>Inlet tube water-tight seal OK: As found As left X</p> <p>Inlet tube perpendicular to BAM: As found X As left x</p>
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Signature: 8-1-2014



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**Air Quality
Audit and
Calibration Report
Resolution Copper
East Plant
Monitoring Station**

PREPARED FOR:
RESOLUTION COPPER
MINING



PREPARED BY:
AIR SCIENCES INC.

PROJECT NO. 262-9-02
SEPTEMBER 2014

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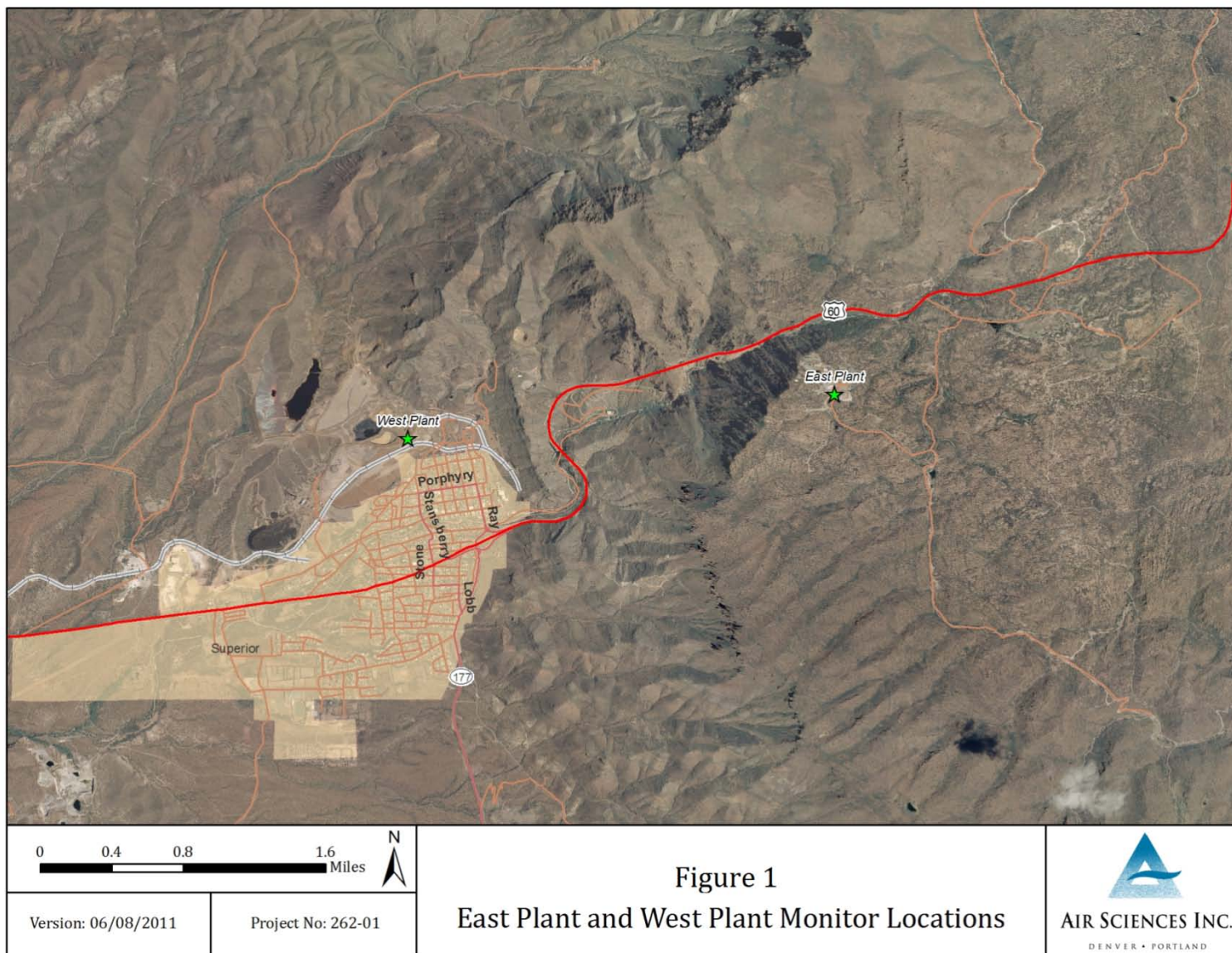
1.0 INTRODUCTION

On September 3, 2014, the sulfur dioxide (SO₂) analyzer was repaired, calibrated and/or audited at the Resolution Copper East Plant near Superior, AZ. The East Plant monitoring station is operated by the Resolution Copper Mining Company and is located approximately two miles east of the West Plant (see Figure 1).

The purpose of this document is to provide a brief synopsis of the audit and/or calibration procedures for the SO₂ ambient gas instrumentation at the East Plant monitoring station. The audit was conducted in accordance with the following applicable guideline documents:

- EPA-450/4-87-007, Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), May 1987
- EPA-454/R-99-005, Meteorological Monitoring Guidance for Regulatory Modeling Applications, Section 8.4, February 2000
- EPA-454/B-13-003, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, May 2013
- EPA-454/B-08-002, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0, March 2008
- EPA-454/B-13-004, Transfer Standards for the Audit of Ambient Air Monitoring Analyzers for Ozone
- Code of Federal Regulations (40 CFR Parts 50 and 58)

Figure 1. Project Location Map - Resolution Copper East Plant and West Plant Monitoring Station Locations



2.0 SYSTEM DESCRIPTION

The instrumentation at the East Plant monitoring site measures wind speed, wind direction, ambient temperature, vertical height temperature difference (delta temperature), solar radiation, relative humidity, precipitation, barometric pressure, particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ & PM_{2.5}), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and ozone (O₃).

The meteorological sensors are mounted to a 35-foot, open-lattice, aluminum drop tower, and the particulate and gaseous analyzers are housed in a 60-square-foot climate-controlled trailer. The sensor and particulate inlet heights are listed in Table 1 (as measured from ground-level).

Table 1. Sensors and Sample Inlet Heights (meters above the ground)

Parameter	Approximate Height(meters)
Wind Speed	10
Wind Direction	10
Ambient Temperature	2
Delta Temperature	2, 10
Solar Radiation	2
Relative Humidity	2
Precipitation	1
Barometric Pressure	1.5
PM ₁₀	3
PM _{2.5}	3
NO ₂	3
SO ₂	3
O ₃	3

The meteorological and ambient gas data are recorded via analog inputs on two Campbell Scientific CR3000 dataloggers, each powered independently by either DC solar or by locally supplied AC line power. All meteorological sensors are programmed on a two-second scan interval, and the output is digitally processed and recorded into 15-minute averages. The raw 15-minute averages are temporarily stored on the datalogger memory, and a local computer is automatically configured to permanently back up datalogger files on a 15-minute interval. The raw 15-minute data averages are securely transmitted, via cellular broadband Internet services, to the Air Sciences Inc. server and processed into the Data Acquisition and Storage System

(DASS) for quality assurance checks. These raw 15-minute averages are used as input for the calculation of one-hour averages.

PM₁₀ and PM_{2.5} are measured by two Met One Instruments model BAM-1020 particulate monitors. The BAM-1020 is a continuous monitoring device that produces 1-hour averages and a 24-hour average concentration for the period of 12:00 a.m. (midnight) through 11:59 p.m. for each calendar day. Particulate data are downloaded every hour onto the on-site datalogger via serial communications and are transported via wireless broadband modem directly to the DASS.

3.0 AUDIT AND CALIBRATION METHODOLOGY

This section provides the audit and/or calibration procedures for the SO₂ ambient gas instrumentation at the Resolution Copper East Plant monitoring site. A copy of the completed audit and/or calibration form is included in Appendix A.

3.1 Ambient Gas Audit Procedures

The audit of the Teledyne T100 SO₂ analyzer involved a Multi-Point Audit (MPA). The MPA was performed by using a Transfer Standard Teledyne API T700 Dilution Calibrator to dilute certified multi-component EPA-protocol audit gas with a clean zero-air source. The T100 SO₂ analyzer was challenged at zero, and at five points within the instruments range – typically a point from 100 to 500 parts per billion (ppb) of SO₂.

3.2 Ambient Gas Calibration Procedures

The calibration of the Teledyne T100 SO₂ analyzer involved a Multi-Point Calibration (MPC). The MPC was performed by using the Primary Standard Teledyne API T700 Dilution Calibrator to dilute certified multi-component EPA-protocol calibration gas with a clean zero-air source. The T100 SO₂ analyzer was challenged at zero, and at five points within the instruments range – typically from 100 to 500 parts per billion (ppb) of SO₂.

4.0 RESULTS AND RECOMMENDATIONS

On July 30, 2014, Air Sciences Inc. (Air Sciences) personnel discovered a low sample flow alarm being reported by the Teledyne T100 SO₂ analyzer resulting from a unserviceable internal vacuum pump. The SO₂ analyzer was immediately placed off-line and the vacuum pump refurbishment parts were ordered.

On August 7, 2014, the SO₂ analyzer vacuum pump was refurbished and a two-point calibration was performed by the field technician.

On August 24, 2014, the SO₂ analyzer reported low sample flow resulting from the vacuum pump failing.

On September 3, 2014, Air Sciences personnel replaced the internal vacuum pump assembly, flow system tubing and performed multi-point calibration/audit routines.

All collected SO₂ data affected by low flows, corrective actions, and calibration routines shall be invalidated.

Appendix A - Audit and Calibration Forms

Resolution EAST

SO₂ Monitoring Form

Site Operators: B.Rucker, K.Ballard

Date: 09/03/2014

Sampler Make /Model		T100	Instrument Check Start Time	10:04
Sampler SN		193	Instrument Check Stop Time	13:20
Dilution Calibrator Model/SN	Primary	T700/ 191	Filter Replacement Y/N	Yes
	Transfer	T-700/816	Shelter Temp (5 to 40 °C)	21.16
			Instrument Range	500 ppb
			Source Gas Conc.	40.4 ppm
			Transfer Gas Conc.	40.0 ppm

Level 1 Zero/ Span (once every 2 weeks):

Check the Zero/ Span with the T700 Dynamic Dilution Calibrator:

Target Dilution (PPB)	SO ₂ Response (PPB)	Final SO ₂ Response (PPB)	Acceptance Criteria (PPB)	Adjustment Required? Y/N
Zero Air	0.00	-0.243	± 3% of Full Scale (-15 to 15 PPB)	N
400	400	401.441	≤ ± 10% (360 to 440 PPB)	N

Check the real time Analog vs. Digital Converter:

Target Dilution (PPB)	SO ₂ Response (PPB)	CR3000 Response (PPB)	Acceptance Criteria (PPB)	Adjustment Required? Y/N
Zero Air	-0.275	-0.149	± 2	N
400	401.695	402.315	± 2	N

Verify Instrument Parameters:

Sample Flow (650 ± 65 cc/ min)	617	Sample Press. (Ambient ± 2 in-Hg)	25.7
UV Lamp (1000 - 4800 mV)	2182.3	Lamp Ratio (30 - 120%)	92.3
Slope (1 ± 0.3)	1.048	BOX Temp. (Ambient ± 5°C)	33.0
Offset (< 250 mV)	24.9	HVPS (400 - 900 V)	614

Operator comments/ observations: None

Multipoint Calibration (Quarterly, or as needed):

Check the analyzer response over 0 – 500 ppb range with the Dilution Calibrator.

Primary Standard:

Target (PPB)	Actual Generated SO ₂ (PPB)	SO ₂ Response (PPB)	Best Fit Line (PPB)	Acceptable Criteria (± 2% from BFL)
Zero Air	0.00	-0.293	-0.267	PASS, <2%FS
100	101.00	101.409	101.310	PASS, 0.1%
200	200.00	201.442	200.876	PASS, 0.3%
300	300.00	301.593	301.448	PASS, 0%
400	400.00	401.859	402.020	PASS, 0%
500	500.00	502.633	502.591	PASS, 0%

Best Fit Line (BFL)
 $Y = 0.9901x + -1.3271$
 $R^2 = 1$

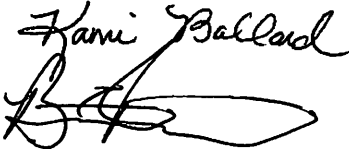
Transfer Standard:

Target (PPB)	Actual Generated SO ₂ (PPB)	SO ₂ Response (PPB)	Best Fit Line (PPB)	Acceptable Criteria (± 2% from BFL)
Zero Air	0.00	0.067	1.377	PASS, <2%FS
100	100.00	89.527	91.343	PASS, 2%
200	200.00	181.408	181.309	PASS, 0.1%
300	300.00	273.41	271.275	PASS, 0.8%
400	400.00	363.500	361.241	PASS, 0.6%
500	500.00	448.113	451.207	PASS, 0.7%

Best Fit Line (BFL)
 $Y = 0.8997X + 1.377$
 $R^2 = 0.99981$

Operator Comments/ observations:

Replaced the T-100 sample pump and contaminated exhaust tubing exiting the faulty sample pump. The multi-point calibration performed by B.Rucker (ASI), and the multi-point audit performed by K.Ballard (Resolution Copper).

Operator Signatures: 



AIR SCIENCES INC.

DENVER • PORTLAND

**Air Quality
Audit and
Calibration Report
Resolution Copper
West Plant
Monitoring Station**

PREPARED FOR:
RESOLUTION COPPER
MINING



PREPARED BY:
AIR SCIENCES INC.

PROJECT NO. 262-9-02
AUGUST 2014

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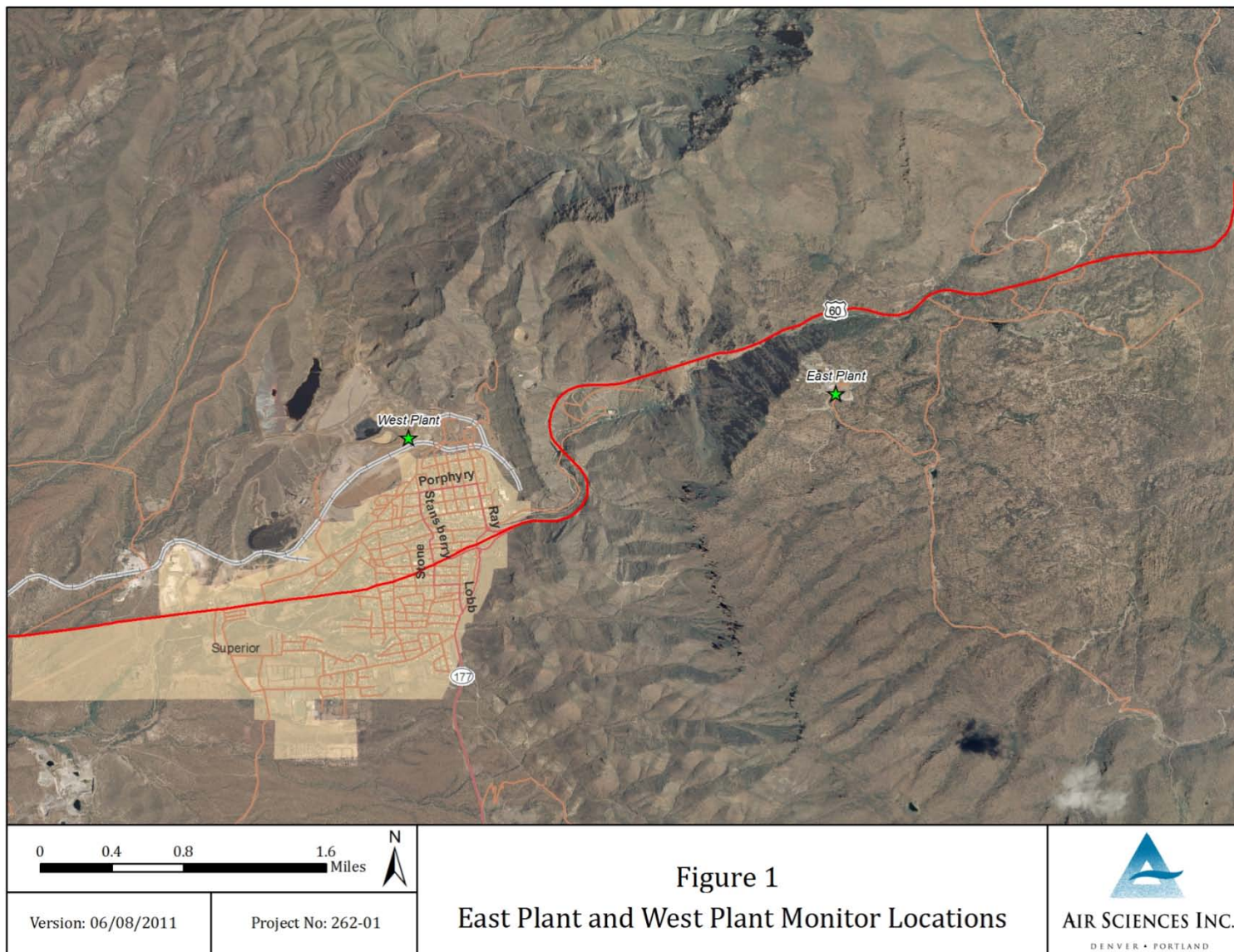
Appendix A – Audit and Calibration Forms	
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1.0 INTRODUCTION

On July 29, 2014, the meteorological and air quality instrumentation was audited and/or calibrated at the Resolution Copper West Plant near Superior, AZ. The West Plant monitoring station is operated by the Resolution Copper Mining Company and is located approximately one quarter mile west of the administration buildings (see Figure 1). The audit/calibration activities described in this report were conducted in accordance with the following guideline documents:

- EPA-450/4-87-007, Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), May 1987
- EPA-454/R-99-005, Meteorological Monitoring Guidance for Regulatory Modeling Applications, Section 8.4, February 2000
- EPA-454/B-13-003, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Quality Monitoring Program, May 2013
- EPA-454/B-08-002, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0, March 2008
- Code of Federal Regulations (40 CFR Parts 50 and 58)

Figure 1. Project Location Map - Resolution Copper East Plant and West Plant Monitoring Station Locations



2.0 SYSTEM DESCRIPTION

The instrumentation calibrated and/or audited at the West Plant monitoring site measures wind speed, wind direction, ambient temperature, vertical height temperature difference (delta temperature), solar radiation, relative humidity, precipitation, barometric pressure, and particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ & PM_{2.5}).

The meteorological sensors are mounted to a 35-foot, open-lattice, aluminum drop tower. The particulate monitors are housed in a climate-controlled enclosure. The sensor and particulate inlet heights are listed in Table 1 (as measured from ground-level).

Table 1. Sensor and Particulate Inlet Heights (meters above the ground)

Parameter	Approximate Height (meters)
Wind Speed	10
Wind Direction	10
Ambient Temperature	2
Delta Temperature	2, 10
Solar Radiation	2
Relative Humidity	2
Precipitation	1
Barometric Pressure	1.5
PM ₁₀	2
PM _{2.5}	2

Monitored data are recorded via analog inputs on two Campbell Scientific CR3000 dataloggers, each powered independently by either DC solar or by locally supplied AC line power. All meteorological sensors are programmed on a two-second scan interval, and the output is digitally processed and recorded into 15-minute averages. The raw 15-minute averages are temporarily stored on the datalogger memory, and a local computer is automatically configured to permanently back up datalogger files on a 15-minute interval. The raw 15-minute data averages are securely transmitted, via cellular broadband Internet services, to the Air Sciences Inc. server and processed into the Data Acquisition and Storage System (DASS) for quality assurance checks. These raw 15-minute averages are used as input for the calculation of one-hour averages.

PM₁₀ and PM_{2.5} are measured by two Met One Instruments model BAM-1020 particulate monitors. The BAM-1020 is a continuous monitoring device that produces 1-hour averages and a 24-hour average concentration for the period of 12:00 a.m. (midnight) through 11:59 p.m. for each calendar day. Particulate data are downloaded every hour onto the on-site datalogger via serial communications and are transported via wireless broadband modem directly to the DASS.

3.0 AUDIT AND CALIBRATION METHODOLOGY

This section provides the audit and/or calibration procedures for the meteorological and particulate instrumentation at the Resolution Copper West Plant monitoring site. Copies of the completed audit and/or calibration forms for each parameter are included in Appendix A.

3.1 Meteorological Sensor Audit Procedures

The wind speed sensor audit was performed by rotating the sensor shaft using a DC-powered variable-speed motor equipped with an optical encoder output referenced to a crystal oscillator. A target sensor speed was calculated based on the audit rotational speed and compared to the instantaneous datalogger reading. An R. M. Young Torque Disc was used to measure the anemometer starting torque. All data were recorded on a standardized form.

The audit of the wind direction system was performed by aligning the tail vane of the sensor to its mounting cross-arm. A Brunton Precision Magnetic Compass (BPMC) mounted on a tripod was used to establish the orientation of the cross-arm using the Magnetic Declination Method.¹ With the wind direction sensor oriented along the axis of the cross-arm, the sensor response was compared to the BPMC-measured value and recorded on a standardized form. The potentiometer linearity was checked by recording the system response at 45-degree intervals over the operating range of the system. Data were recorded on a standardized form.

The ambient temperature sensor audit was performed by comparing the temperature sensor in-situ to a NIST-traceable² temperature sensor. Both thermometer and datalogger readings were recorded on a standardized form.

The differential temperature sensor audit was performed by immersing both temperature sensors in a series of three water baths within the range of the temperature sensors. Positive and negative temperature differentials were checked by immersing the sensors in separate water baths. All cabling and associated wiring remained intact for the audit of both sensors. A Precision Temperature Sensor was used to measure the bath temperatures. All audit data were recorded on standardized forms.

The solar radiation sensor audit was performed by comparing the sensor in-situ to a calibrated pyranometer wired to an independent datalogger. Both the standard and the datalogger readings were recorded on a standardized form.

¹ Refer to section 2.5.2.2 of the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements Version 2.0, March 2008, for more details.

² National Institute of Standards and Technology

The relative humidity sensor audit was performed by comparing the humidity sensor in-situ to a NIST-traceable humidity sensor. Both the standard and datalogger readings were recorded on a standardized form.

The precipitation gauge was audited by employing a graduated syringe and distilled water. The volume of water required to cause the tipping bucket to activate was measured repeatedly, averaged, and compared to the calculated value for the activation. All volumes were recorded on a standardized form.

The barometric pressure sensor audit was performed by comparing the sensor in-situ to a NIST-traceable barometric pressure standard. Both the standard and datalogger readings were recorded on a standardized form.

3.2 Meteorological Sensor Calibration Procedures

The wind speed sensor calibration was performed by rotating the sensor shaft using a DC-powered variable-speed motor equipped with an optical encoder output referenced to a crystal oscillator. A target sensor speed was calculated based on the audit rotational speed and compared to the instantaneous datalogger reading. An R. M. Young Torque Disc was used to measure the anemometer starting torque. All data were recorded on a standardized form.

The calibration of the wind direction system was performed by aligning the tail vane of the sensor to its mounting cross-arm. A BPMC mounted on a tripod was used to establish the orientation of the cross-arm using the Magnetic Declination Method. With the wind direction sensor oriented along the axis of the cross-arm, the sensor response was compared to the BPMC-measured value and recorded on a standardized form. The potentiometer linearity was checked by recording the system response at 45-degree intervals over the operating range of the system. Data were recorded on a standardized form.

The ambient temperature sensor calibration was performed by comparing the temperature sensor in-situ to a NIST-traceable temperature sensor. Both thermometer and datalogger readings were recorded on a standardized form.

The relative humidity sensor calibration was performed by comparing the humidity sensor in-situ to a NIST-traceable humidity sensor. Both the standard and datalogger readings were recorded on a standardized form.

3.3 Particulate Matter Audit Procedures

The BAM-1020 PM₁₀ and PM_{2.5} monitors were audited by comparing and then adjusting the temperature, barometric pressure, and internal flow to a certified deltaCal Volumetric Air Flow Calibrator. All required maintenance was performed on the instruments to assure optimal

operations. The temperature, barometric pressure, and flow output readings from the deltaCal and the instrument were recorded on a standardized form.

4.0 RESULTS AND RECOMMENDATIONS

The Campbell Scientific HC2S3 Temperature and Relative Humidity sensor failed to meet the auditing acceptance criteria, resulting in its immediate removal from service. A replacement HC2S3 sensor was installed and calibrated, thus regaining valid temperature and relative humidity data collection at the site.

The R. M. Young 05305 Wind Monitor was replaced with a refurbished wind monitor per the manufacturer-recommended service schedule. The refurbished wind monitor included new nose cone assembly bearings, vertical shaft bearings, and potentiometer. The refurbished wind monitor was calibrated after its deployment.

All other instruments, sensors, and operating systems were found to be clean, serviceable, and within their recommended tolerance parameters.

All affected meteorological and particulate data will be invalidated due to the on-site audit and calibration activities.

Appendix A - Audit and Calibration Forms

METEOROLOGICAL STATION AUDIT SUMMARY



AIR SCIENCES INC.

DENVER • PORTLAND

Client : Resolution Copper Company
Project No. : 262-9-02
Site : West Plant
Date : 7/29/2014
Time: 13:00 -15:30
Personnel: R. Attridge
B. Rucker

SITE MONITORING PARAMETERS AND SENSORS				
Parameter	Sensors	Model #	Serial Number	Instrument Location on Site
Datalogger	Campbell Sci. Micrologger	CR3000	6590	1 meter
Wind Speed	R. M. Young Wind Monitor	5305	112952	10 meters
Wind Direction	R. M. Young Wind Monitor	5305	112952	10 meters
Ambient Temperature	Campbell Sci. Probe	HC2S3-L	60749962	2 meters
Relative Humidity	Campbell Sci. Probe	HC2S3-L	60749962	2 meters
Barometric Pressure	Vaisala PTB110 Barometer	PTB110	J3610003	1 meter
Delta Temperature (2m)	R. M. Young 1K RTD Temp. Sensor	41342	020205	2 meters
Delta Temperature (10m)	R. M. Young 1K RTD Temp. Sensor	41342	020211	10 meters
Solar Radiation	Campbell Sci. Pyranometer	CMP3	115433	2 meters
Precipitation	R. M. Young Heated Rain Gauge	52202	08738	Ground

QUALITY ASSURANCE AUDIT EQUIPMENT				
Parameter	Reference Device	Model #	Serial Number	Re-Calibration Date
Datalogger	Campbell Sci. Micrologger	CR 850	22877	
System Accuracy & Linearity	Compass	N/A	5080314103	4/14/2014
Wind Speed	R. M. Young Anemometer Drive	18802	CA03377	02/27/2014
Torque	Disk 1	N/A	N/A	N/A
Ambient Temperature	HygroClip 2	HC2S3	61045434	2/20/2014
Relative Humidity	HygroClip 2	HC2S3	61045434	2/20/2014
Barometric Pressure	Vaisala PTB110 Barometer	CS106	C4240088	12/02/2013
Delta Temperature	Campbell Sci. RTD Probe	41342	TS22518	02/28/2014
Solar Radiation	Campbell Sci. Pyranometer	CMP6	123275	03/8/2014
Precipitation	10 mL Syringe	N/A	N/A	N/A

WIND SPEED, 10 METERS
AUDIT SUMMARY



DENVER • PORTLAND

Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: 5305 Calibration Motor No.: CA03377
Serial No: 112952 Calibration Disk No.: Disk 1

System Linearity Check

	Standard RPM	Target* m/s	Logger Reading m/s	Difference m/s	Acceptance Criteria
CW	0.0	0.00	0.00	0.00	0.0
CW	200.0	1.02	1.02	0.00	0.3
CW	400.0	2.05	2.04	-0.01	0.3
CW	600.0	3.07	3.07	0.00	0.4
CW	800.0	4.10	4.09	-0.01	0.4
CW	1000.0	5.12	5.12	0.00	0.5
CW	2000.0	10.24	10.24	0.00	0.7
CW	3000.0	15.36	15.36	0.00	1.0
CW	4000.0	20.48	20.48	0.00	1.2
CW	5000.0	25.60	25.60	0.00	1.5

Bearing Torque Test (Passing 0.4 m/s = 0.6 g-cm)

Clockwise 0.4 g-cm
Counterclockwise 0.4 g-cm

RM Young
*Target (m/s) = rpm x
0.00512

Audited By: R. Attridge

WIND DIRECTION, 10 METERS
AUDIT SUMMARY



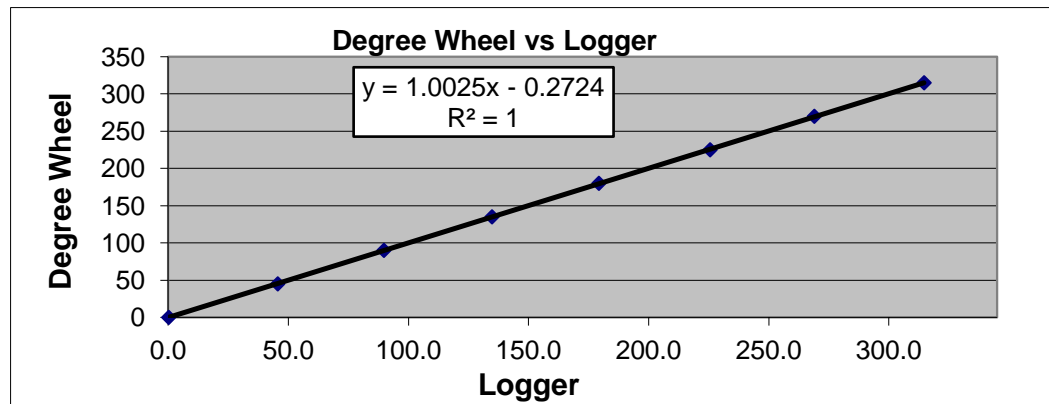
Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: 5305 Serial No: 112952 Compass No.: 5080314103

System Accuracy and Linearity Check Declination^[1] = 10 °East

Orientation	Compass (w/o declination) (Degrees)	Compass (w/declination) (Degrees)	Target (Degrees)	Logger Reading (Degrees)	Difference (Degrees)	Acceptance Criteria
1. Vane	160.0	170.0	170.0	171.3	1.3	±5
Tail	340.0	350.0	350.0	353.2	3.2	±5

	Initial Logger (Degrees)	Difference (Degrees)	Corrected Logger (Degrees)	Difference (Degrees)	Acceptance Criteria ^[2]
CW					
0	0.2	0.2	0.3	0.3	±3
45	45.6	0.6	45.7	0.7	±3
90	89.8	-0.2	89.9	-0.1	±3
135	134.8	-0.2	134.9	-0.1	±3
180	179.3	-0.7	179.4	-0.6	±3
225	225.6	0.6	225.7	0.7	±3
270	269.0	-1.0	269.1	-0.9	±3
315	314.7	-0.3	314.8	-0.2	±3
Avg		<u>-0.1</u>			
CCW					
0	0.5	0.5	0.4	0.4	±3
45	45.2	0.2	45.1	0.1	±3
90	89.4	-0.6	89.3	-0.7	±3
135	134.8	-0.2	134.7	-0.3	±3
180	179.3	-0.7	179.2	-0.8	±3
225	225.8	0.8	225.7	0.7	±3
270	270.9	0.9	270.8	0.8	±3
315	314.9	-0.1	314.8	-0.2	±3
Avg		<u>0.1</u>			



Audited By: R. Attridge

¹ Declination added to compass

² May reference wider acceptance criteria in *QA Handbook for Air Pollution Measurement*

Systems, Volume IV - Meteorological Measurements, August 1989

WIND SPEED, 10 METERS

Calibration Summary



DENVER • PORTLAND

Operator: Air Sciences
 Site Name: West Plant
 Project: 262-9-02
 Date: 7/29/2014

Model: 5305 Calibration Motor No.: CA03377
 Serial No: 98304 Calibration Disk No.: Disk 1

System Linearity Check

	Standard RPM	Target* m/s	Logger Reading m/s	Difference m/s	Acceptance Criteria
CW	0.0	0.00	0.00	0.00	0.0
CW	200.0	1.02	1.02	0.00	0.3
CW	400.0	2.05	2.04	-0.01	0.3
CW	600.0	3.07	3.07	0.00	0.4
CW	800.0	4.10	4.09	-0.01	0.4
CW	1000.0	5.12	5.12	0.00	0.5
CW	2000.0	10.24	10.24	0.00	0.7
CW	3000.0	15.36	15.36	0.00	1.0
CW	4000.0	20.48	20.48	0.00	1.2
CW	5000.0	25.60	25.60	0.00	1.5

Bearing Torque Test (Passing 0.4 m/s = 0.6 g-cm)

Clockwise 0.2 g-cm
 Counterclockwise 0.2 g-cm

RM Young
 *Target (m/s) = rpm x
 0.00512

Audited By: B. Rucker

WIND DIRECTION, 10 METERS
Calibration Summary



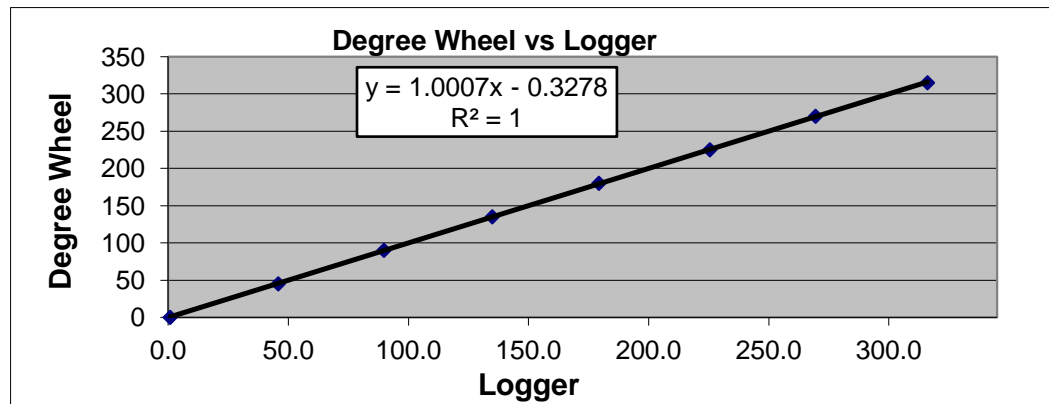
Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: 5305 Serial No: 98304 Compass No.: 5080314103

System Accuracy and Linearity Check Declination^[1] = 10 °East

Orientation	Compass (w/o declination) (Degrees)	Compass (w/declination) (Degrees)	Target (Degrees)	Logger Reading (Degrees)	Difference (Degrees)	Acceptance Criteria
1. Vane	160.0	170.0	170.0	171.1	1.1	±5
Tail	340.0	350.0	350.0	353.8	3.8	±5

	Initial Logger (Degrees)	Difference (Degrees)	Corrected Logger (Degrees)	Difference (Degrees)	Acceptance Criteria ^[2]
CW					
0	0.8	0.8	0.6	0.6	±3
45	45.8	0.8	45.6	0.6	±3
90	89.8	-0.2	89.6	-0.4	±3
135	134.9	-0.1	134.7	-0.3	±3
180	179.3	-0.7	179.1	-0.9	±3
225	225.5	0.5	225.3	0.3	±3
270	269.5	-0.5	269.3	-0.7	±3
315	316.1	1.1	315.9	0.9	±3
Avg		<u>0.2</u>			
CCW					
0	1.0	1.0	0.4	0.4	±3
45	44.6	-0.4	44.0	-1.0	±3
90	91.2	1.2	90.6	0.6	±3
135	136.4	1.4	135.8	0.8	±3
180	181.2	1.2	180.6	0.6	±3
225	225.1	0.1	224.5	-0.5	±3
270	270.3	0.3	269.7	-0.3	±3
315	314.9	-0.1	314.3	-0.7	±3
Avg		<u>0.6</u>			



Audited By: B. Rucker

¹ Declination added to compass

² May reference wider acceptance criteria in *QA Handbook for Air Pollution Measurement*

Systems, Volume IV - Meteorological Measurements, August 1989

AMBIENT TEMPERATURE, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: HC2S3-L Serial No: 60749962
Std Model: HC2S3 Ref Serial No: 61045434

System Linearity Check

	Standard (°C)	Logger Reading (°C)	Difference (°C)	Acceptance Criteria
1.	40.6	39.3	1.3	±2
2.	40.7	39.2	1.5	±2
3.	40.8	39.2	1.6	±2
4.	40.8	39.2	1.6	±2
5.	40.8	39.2	1.6	±2
6.	40.9	39.2	1.7	±2
7.	41.0	39.2	1.8	±2
8.	41.0	39.2	1.8	±2
9.	41.8	39.2	2.6	±2
10.	41.0	39.2	1.8	±2

Audited By: R. Attridge

RELATIVE HUMIDITY, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: HC2S3-L Serial No: 60749962
Std Model: HC2S3 Std Serial No: 61045434

	Standard (%)	Logger Reading (%)	Difference (%)	Acceptance Criteria (%)
1.	19.7	-32.7	52.4	±7
2.	20.5	-32.8	53.3	±7
3.	19.5	-32.7	52.2	±7
4.	19.5	-32.8	52.3	±7
5.	18.8	-32.8	51.6	±7
6.	18.7	-32.8	51.5	±7
7.	18.7	-32.7	51.4	±7
8.	18.4	-32.7	51.1	±7
9.	18.4	-32.7	51.1	±7
10.	18.7	-32.8	51.5	±7

Audited By: R. Attridge

AMBIENT TEMPERATURE, 2 METERS

Calibration Summary

Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014



Model: HC2S3-L Serial No: 61247378
Std Model: HC2S3 Ref Serial No: 61045434

System Linearity Check

	Standard (°C)	Logger Reading (°C)	Difference (°C)	Acceptance Criteria
1.	39.8	39.8	0.0	±2
2.	39.6	39.7	-0.1	±2
3.	39.5	39.6	-0.1	±2
4.	39.4	39.5	-0.1	±2
5.	39.3	39.5	-0.2	±2
6.	39.2	39.5	-0.3	±2
7.	39.1	39.4	-0.3	±2
8.	39.1	39.4	-0.3	±2
9.	39.1	39.3	-0.2	±2
10.	38.9	39.2	-0.3	±2

Audited By: B. Rucker

RELATIVE HUMIDITY, 2 METERS

Calibration Summary



Operator: Air Sciences
 Site Name: West Plant
 Project: 262-9-02
 Date: 7/29/2014

Model: HC2S3-L Serial No: 61247378
 Std Model: HC2S3 Std Serial No: 61045434

	Standard (%)	Logger Reading (%)	Difference (%)	Acceptance Criteria (%)
1.	20.6	21.5	-0.9	±7
2.	20.5	21.5	-1.0	±7
3.	21.1	21.5	-0.4	±7
4.	21.3	21.4	-0.1	±7
5.	21.3	21.6	-0.3	±7
6.	21.2	21.9	-0.7	±7
7.	21.4	21.6	-0.2	±7
8.	21.7	21.1	0.6	±7
9.	22	22.4	-0.4	±7
10.	22.4	22.3	0.1	±7

Audited By: B. Rucker

DELTA TEMPERATURE, 2 and 10 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: <u>41342</u>	Serial No (2m):	<u>020205</u>
	Serial No (10m):	<u>020211</u>
Std Model: <u>41342</u>	Std Serial No:	<u>TS22518</u>

Aspirator Fans Working Properly? **Y**

	Standard (°C)	2 Meter (°C)	10 Meter (°C)	Difference 2 Meter ^[1] (°C)	Difference 10 Meter ^[1] (°C)
Bath 1	4.72	4.74	4.76	0.02	0.04
Bath 2	28.42	28.41	28.42	0.01	0.00
Bath 3	38.79	38.84	38.88	0.05	0.09

Delta T ^[2] (°C)	Difference 10M vs. 2M
	<u>0.02</u>
	<u>0.01</u>
	<u>0.04</u>

1. The acceptance criteria for deviation from the standard for both upper and lower temperatures is ± 0.5
2. The acceptance criteria for deviation from the standard for delta temperatures is ± 0.1

Audited By: R. Attridge

BAROMETRIC PRESSURE, 1 METER
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: PTB110 Serial No: J3610003
Std Model: CS106 Std Serial No: C4240088

System Linearity Check

	Standard (mmHg)	Logger Reading (mmHg)	Difference (mmHg)	Acceptance Criteria (mmHg)
1.	685.5	683.4	2.1	±2.3
2.	685.5	683.4	2.1	±2.3
3.	685.5	683.4	2.1	±2.3
4.	685.5	683.4	2.1	±2.3
5.	685.5	683.4	2.1	±2.3

Audited By: R. Attridge

SOLAR RADIATION, 2 METERS
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: CMP3 Serial No: 115433
Std Model: CMP6 Std Serial No: 123275

System Linearity Check

	Standard (w/m ²)	Logger Reading (w/m ²)	Difference (w/m ²)	Difference (%)	Acceptance Criteria
Covered Reading	0.0	0.0	0.0		± 25 W/m ² or 5%
1.	980.6	983.0	-2.4	0.2	± 25 W/m ² or 5%
2.	979.3	981.6	-2.3	0.2	± 25 W/m ² or 5%
3.	978.9	977.4	1.5	-0.2	± 25 W/m ² or 5%
4.	974.8	974.3	0.5	-0.1	± 25 W/m ² or 5%
5.	972.3	972.2	0.1	0.0	± 25 W/m ² or 5%
6.	971.9	972.9	-1.0	0.1	± 25 W/m ² or 5%
7.	970.0	970.3	-0.3	0.0	± 25 W/m ² or 5%
8.	969.3	967.6	1.7	-0.2	± 25 W/m ² or 5%
9.	968.7	967.0	1.7	-0.2	± 25 W/m ² or 5%
10.	968.5	966.4	2.1	-0.2	± 25 W/m ² or 5%
		Average	0.2		

Audited By: R. Attridge

PRECIPITATION, GROUND LEVEL
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

Model: 52202 Serial No: 08738

System Linearity Check

	Water (cc)	Calculated Target* (inches)	Logger Reading (inches)	Difference (inches)
1.	2.10	0.0042	0.004	0.000
2.	2.00	0.0040	0.004	0.000
3.	2.10	0.0042	0.004	0.000
4.	2.00	0.0040	0.004	0.000
5.	2.00	0.0040	0.004	0.000
6.	2.00	0.0040	0.004	0.000
7.	2.10	0.0042	0.004	0.000
8.	2.00	0.0040	0.004	0.000
9.	2.10	0.0042	0.004	0.000
10.	2.00	0.0040	0.004	0.000
Total	20.40	0.0406	0.040	0.001

Reading taken from final storage for period averaged data = 0.04 inches

Target (Campbell Scientific gauge) = water (cc)/2.01.004(inches)

Audited By: R. Attridge

COMMENTS & SIGNATURES
AUDIT SUMMARY



Operator: Air Sciences
Site Name: West Plant
Project: 262-9-02
Date: 7/29/2014

COMMENTS:

The HC2S3 Ambient Temperature and Relative Humidity sensor S/N 60749962 failed to meet the auditing acceptance criteria resulting in its removal from the tower. A replacement HC2S3 sensor, S/N 61247378 was deployed in its place.

The manufacturer recommended service schedule resulted in the RMY 05305 Wind Monitor S/N 112952 being replaced with a refurbished Wind Monitor S/N 98034.

Signatures:

Rory Attridge 8-4-2014
[Signature] 8-6-2014

West Plant BAM-1020 PM₁₀ Audit Sheet

Model: BAM-1020

Serial Number: M8712

Audit Date: 7/29/2014

Audited By: R. Attridge

Audit Time: 16:00 - 18:00

Firmware: 3236-06 V3.6.3

Flow Audits

Flow Reference Standard Used:	Model: DeltaCal	Serial No: 1103	Calibration Date: 3/2014
Temperature Standard Used:	Model: DeltaCal	Serial No: 1103	Calibration Date: 3/2014
Barometric Pressure Standard Used:	Model: DeltaCal	Serial No: 1103	Calibration Date: 3/2014

Leak Check Value: as found: 0.4 Should Be: <1.0 as left: 0.3 Should Be: <1.0

	as found:	BAM	Ref. Std.	as left:	BAM	Ref. Std.	Adjusted
Ambient Temperature:		36.5	37.9		36.7	36.4	X
Barometric Pressure:		685	682.5		682	682.5	X
Flow Rate (15.0 lpm):		15.0	15.02		15.0	14.97	
Flow Rate (18.4 lpm):		18.4	18.39		18.4	18.39	
Flow Rate (16.7 lpm):		16.7	16.69		16.7	16.67	

Calibration Notes: Inspected and cleaned the reference membrane and assembly, and replaced sample tape.

Mechanical Audits

<p>Pump muffler unclogged: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Sample nozzle clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Tape support vane clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Capstan shaft clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Rubber pinch rollers clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Chassis ground wire installed: As found <input checked="" type="checkbox"/> As left <input type="checkbox"/></p>	<p>PM10 particle trap clean: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM10 drip jar empty: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM10 bug screen clear: As found <input type="checkbox"/> As left <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>PM2.5 particle trap clean: As found <input type="checkbox"/> As left <input type="checkbox"/> N/A <input checked="" type="checkbox"/></p> <p>Inlet tube water-tight seal OK: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p> <p>Inlet tube perpendicular to BAM: As found <input checked="" type="checkbox"/> As left <input checked="" type="checkbox"/></p>
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Signature: *Rory Attridge* 8-4-14

West Plant BAM-1020 PM_{2.5} Audit Sheet

Model: BAM-1020

Serial Number: M8193

Audit Date: 7/29/2014

Audited By: W. Rucker

Audit Time: 1600-1700 hrs

Firmware: 3236-06 V3.6.3

Flow Audits			
Flow Reference Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014
Temperature Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014
Barometric Pressure Standard Used:	Model: Delta Cal	Serial No: 1103	Calibration Date: 3/2014

Leak Check Value: as found: 0.6 LPM Should Be: <1.0 as left: 0.4 LPM Should Be: <1.0

	BAM	Ref. Std.		BAM	Ref. Std.		Adjusted
Ambient Temperature (°C):	as found: 38.5	38.0	as left:	37.4	37.0		<input checked="" type="checkbox"/>
Barometric Pressure (mmHg):	as found: 685	682.5	as left:	683	682.5		<input checked="" type="checkbox"/>
Flow Rate (15.0 LPM):	as found: 15.1	14.98	as left:	15.0	14.89		<input type="checkbox"/>
Flow Rate (18.4 LPM):	as found: 18.4	18.91	as left:	18.4	18.63		<input type="checkbox"/>
Flow Rate (16.7 LPM):	as found: 16.7	16.68	as left:	16.7	16.69		<input type="checkbox"/>

Audit Notes: Cleaned reference membrane and assembly; replaced sample tape.

Mechanical Audits

Pump muffler unclogged:	As found	<input checked="" type="checkbox"/>	As left	<input checked="" type="checkbox"/>	PM10 particle trap clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Sample nozzle clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	PM10 drip jar empty:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Tape support vane clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	PM10 bug screen clear:	As found	<input checked="" type="checkbox"/>	As left	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Capstan shaft clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	PM2.5 particle trap clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>
Rubber pinch rollers clean:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>	Inlet tube water-tight seal OK:	As found	<input type="checkbox"/>	As left	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Chassis ground wire installed:	As found	<input checked="" type="checkbox"/>	As left	<input checked="" type="checkbox"/>	Inlet tube perpendicular to BAM:	As found	<input checked="" type="checkbox"/>	As left	<input type="checkbox"/>		<input type="checkbox"/>

Signature: 8-1-2014

Appendix J: CD
