Alton Coal Development, LLC.

Summary of PM_{10} Data
Collected at Coal Hollow Mine, Utah
During the Second Quarter, 2015

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Alton Coal Development
Coal Hollow
Project

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1.0 INTRODUCTION

This report summarizes measurements of Particulate Matter less than 10 microns nominal aerodynamic diameter (PM_{10}) collected and processed by Alton Coal Development, LLC, (ACD) from the three monitoring stations located at the Coal Hollow Mine Facility in Alton, Utah. Monitoring for PM_{10} is a condition of the mines operating permit.

PM_{10} monitoring at the site consists of three BGI PQ200 PM_{10} monitors run by solar power. Figure 2 of this report shows the approximate locations of the monitoring locations. The BGI PQ200 monitors are EPA Reference Method monitors and are operated on the National Particulate 1-in-6 Monitoring Schedule. The data summarized herein covers the data collected during the second quarter of 2015.

2.0 SITE LOCATION

The Coal Hollow Mine is located in Kane County, Utah, approximately three miles southeast of the town of Alton, Utah. Figure I on the following page gives an overview of the site location. Specifically the Coal Hollow Mine is located in Sections 19, 20, 29, and 30 of Township 39S, Range 5W; with an approximate facility location of:

Northing: 41401699 meters

Easting: 371534 meters

Universal Transverse Mercator (UTM) Datum NAD27, Zone 12

The two monitoring locations as depicted in Figure 2, are located in positions to collect both background and maximum PM10 concentrations. The background monitor has a manufactures serial #962, therefore this monitor will be referred as monitor 962A. The compliance monitor has a manufactures serial #963, therefore this monitor will be referred as monitor 963B. The co-located monitor has a manufactures serial #964, therefore this monitor will be referred as monitor 964C. The compliance monitor and the co-located monitor coordinates are 37° 24' 5.04" North Latitude, 112° 27' 20.91" West Longitude, WGS84 Datum. The background monitor coordinates are 37° 24' 21.96" North Latitude, 112° 25' 59.97" West Longitude, WGS84 Datum.

Figure 1 - Site Location Map

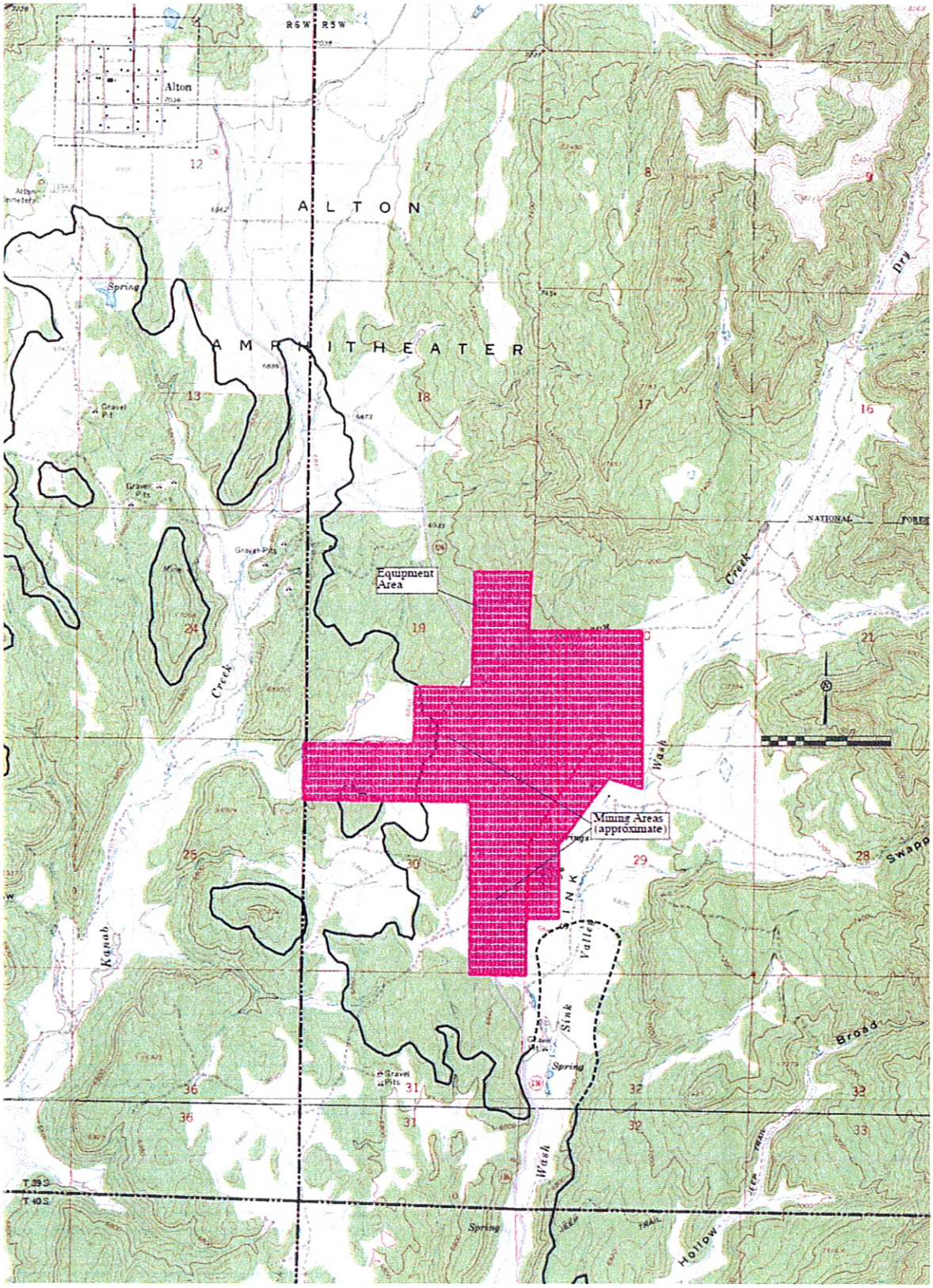


Figure 2 - Satellite View of Monitoring Locations

3.0 AIR QUALITY DATA SUMMARIES

A listing of the measured PM_{10} concentrations for the quarter are presented in Appendix B (individual data sheets are provided on the enclosed disk in the PDF version of Appendix B) and Field Data Sheets generated during the collection of each sample are presented in Appendix D. Measurements were collected during a 24-hour periods and represent the average PM_{10} concentration during the midnight to midnight data collection cycle. As required by the operating permit, duplicate measurements were made with Sampler #963B (designated as a compliance monitor) and Sampler #964C (designated as a co-located sampler) to the extent possible. The quarterly mean PM_{10} concentration and the comparison of measured concentrations to standards are based on measurements from the primary Sampler #963B. If a measurement from Sampler #963B was missing or invalid, the measurement from the secondary Sampler #964C would be used.

The highest 24-hour mean PM_{10} concentrations measured during the quarter from the two monitoring locations are summarized in Table I, Table II, and Table III. The three highest concentrations, # of valid samples, and the arithmetic mean concentrations from each of the sites are listed. All measured PM_{10} concentrations were below the 24-hour National Ambient Air Quality Standard (NAAQS) of 150 $\mu g/m^3$ with the exception of June 29th. The 29th sample was 161.3 $\mu g/m^3$ for the compliance monitor.

Table I - Summary of Measured PM_{10} Concentrations ($\mu g/m^3$)
Background Monitor - 962A

RANK	DATE	PM_{10} CONCENTRATION
Highest	06/29/2015	17.2
2nd Highest	06/23/2015	16.4
Monthly Mean	04/1/15-04/30/15	9.9
Monthly Mean	05/1/15-05/31/15	7.1
Monthly Mean	06/1/15-06/30/15	11.2
Quarterly Mean	04/1/15-06/30/15 (15 valid samples)	9.4

Table II - Summary of Measured PM_{10} Concentrations ($\mu g/m^3$)
Compliance Monitor - 963B

RANK	DATE	PM_{10} CONCENTRATION
Highest	06/29/2015	161.3
2nd Highest	06/23/2015	56.8
Monthly Mean	04/1/15-04/30/15	38.3
Monthly Mean	05/1/15-05/31/15	27.4
Monthly Mean	06/1/15-06/30/15	80.5
Quarterly Mean	04/1/15-06/30/15 (13 valid samples)	50.3

Table III - Summary of Measured PM_{10} Concentrations ($\mu g/m^3$)
Compliance Monitor – 964C

RANK	DATE	PM_{10} CONCENTRATION
Highest	06/05/2015	93.0
2nd Highest	05/12/2015	49.0
Monthly Mean	04/1/15-04/30/15	No valid runs
Monthly Mean	05/1/15-05/31/15	35.8
Monthly Mean	06/1/15-06/30/15	50.7
Quarterly Mean	04/1/15-06/30/15 (6 valid samples)	40.8

Table IV – Mean Quarterly and Monthly Wind Speed

	2nd Quarter 2015	April	May	June
Mean Wind Speed (m/s)	2.24	3.37	0.88	2.50

4.0 DATA RECOVERY AND QUALITY ASSURANCE

4.1 Data Recovery

Monitor 962A

Monitor 962A collected 15 of the 15 samples during the quarter. The percent recovery for this quarter is 100.

Monitor 963B

Monitor 963B collected 13 of the 15 samples during the quarter. The percent recovery for this quarter is 87%. For the sample date of April 24th no data file was downloaded. For the sample date of April 30th a filter used during maintenance was inadvertently left in the monitor.

Monitor 964C

Monitor 964C collected 6 of the 15 samples during the quarter. The percent recovery for this quarter is 40%. For the sample date of Apr. 6th the monitor ran 00:03 hours and shut down with Q and T errors. For the sample date of Apr. 12th the monitor ran 3 seconds and shut down with Q and T errors. For the sample date of Apr. 18th the monitor ran 14:42 hours and shut down with Q and T errors. For the sample date of Apr. 24th the monitor ran 00:03 hours and shut down with Q and T errors. For the sample date of Apr. 30th and May 6th the monitor was removed for maintenance. For the sample date of Jun. 17th, 23rd, and 29th the monitor ran for 2 minutes and shut down with Q and T errors.

The PM_{10} data recoveries for the three monitoring stations are presented below:

Table V - Summary of Data Recovery

SAMPLER	POSSIBLE SAMPLES	VALID SAMPLES	PERCENT DATA RECOVERY
962A	15	15	100%
963B	15	13	87%
964C	15	6	40%

4.2 Quality Assurance

Quality assurance procedures utilized to verify the integrity of the measured PM_{10} data included the following:

1. Review of PM_{10} precision measurements based upon duplicate, collocated measurements.

2. Independent quarterly audits of the PM_{10} samplers.

3. Monthly zero and single point flow rate checks of the PM_{10} samplers.

4.2.1 Precision of PM_{10} Measurements

The precision of the PM_{10} measurements was determined from the duplicate samples collected from the collocated BGI PQ200 Monitors 963B and 964C. As recommended in *40 CFR, Part 58*, Appendix A, Section 5.3.1, PM_{10} precision checks are reported for instances

when the concentrations for duplicate samples both exceed 3 $\mu g/m^3$. Duplicate samples that did not meet this condition were omitted for the purposes of the precision checks. Appendix C, of this report summarizes precision calculations between the compliance monitor and the co-located monitor. Monthly flow rate verification data is also summarized in Appendix C.

Precision calculations were developed based on 5 valid pairs of co-located monitoring data during the quarter. Single point precision based on *40 CFR, Part 58*, Appendix A Equation 2 results were -40.0% to 17.8%. The aggregate coefficient of variability (CV) calculated in accordance with *40 CFR, Part 58*, Appendix A Equation 11 is 35.23%. This value is not within the 10% goal for aggregate CV. Due to the 964C monitors failing to operate properly, the number of valid point did not generate any useful information.

4.2.2 Audit Results

The accuracy of the PM_{10} sampler flows was verified by a performance audit conducted by Air Resource Specialist on June 3, 2015. A copy of the audit report is presented in Appendix E and is summarized in Table VI. The audit results indicate that the three samplers were operating properly.

Table VI - Audit Summary

SAMPLER	AUDIT % DIFFERENCE	LIMIT*	DESIGN % DIFFERENCE	LIMIT*
962A	-1.9	±4%	2.0	± 5%
963B	0.7	±4%	0.0	± 5%
964C	-1.3	±4%	1.3	± 5%
*Values between ± 7% and ± 10% require recalibration but no data are invalidated.				

4.2.3 Zero and Single Point Flow Rate Checks

Zero and single-point flow rate verifications are performed by a site technician on a monthly basis. The data was then input into a statistical calculator to calculate percent difference and bias between each of the monitors and the monthly single point flow rate measured by a NIST traceable calibration orifice. The calculator used is called the "Data Assessment Statistical Calculator" DASC Tool. DASC was developed for the data user community and can be found in the Precision and Accuracy Reporting System within the Quality Assurance section of

EPA's Ambient Monitoring Technology Information System. This data is presented in Appendix C of this report.

APPENDIX A

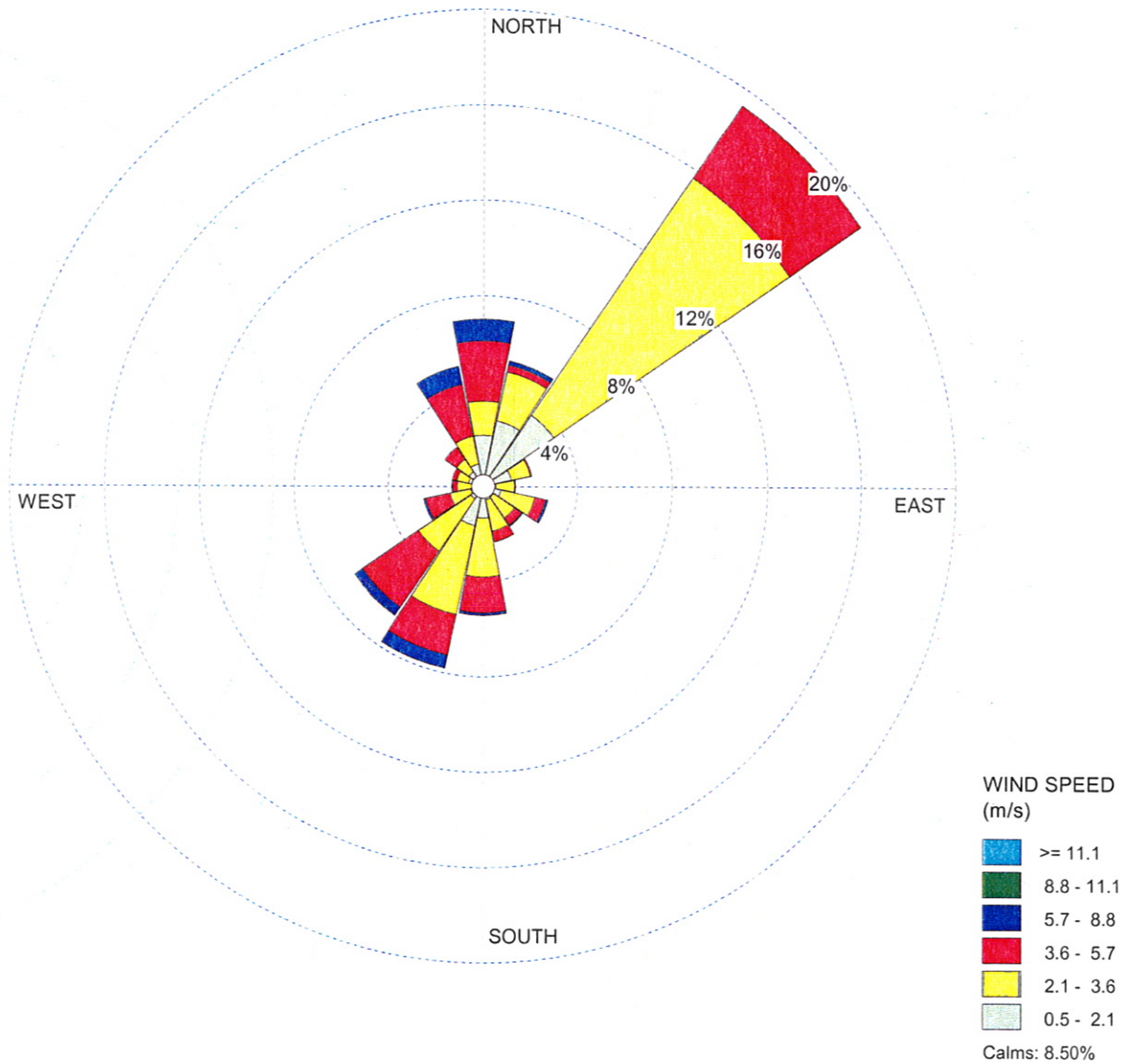
Windrose

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 2nd Quarter

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 4/1/2015 - 00:00 **End Date: 6/30/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **8.50%**	TOTAL COUNT: **2184 hrs.**	
	AVG. WIND SPEED: **2.24 m/s**	DATE: **8/3/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1 Run ID:
Start Date: 4/1/2015 - 00:00
End Date: 6/30/2015 - 23:00

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	47	31	55	20	0	0	153
11.25-33.75	61	46	6	4	0	0	117
33.75-56.25	79	262	80	0	0	0	421
56.25-78.75	27	18	1	0	0	0	46
78.75-101.25	12	17	1	0	0	0	30
101.25-123.75	17	32	10	2	0	0	61
123.75-146.25	12	23	8	1	0	0	44
146.25-168.75	13	29	10	0	0	0	52
168.75-191.25	29	54	33	2	0	0	118
191.25-213.75	37	83	38	12	0	0	170
213.75-236.25	14	58	62	9	0	0	143
236.25-258.75	12	19	23	2	0	0	56
258.75-281.25	10	14	4	1	0	0	29
281.25-303.75	14	11	4	0	0	0	29
303.75-326.25	16	14	13	0	0	0	43
326.25-348.75	21	26	48	17	0	0	112
Total	421	737	396	70	0	0	2184

Frequency of Calm Winds: 560
Average Wind Speed: 2.24 m/s

Station ID: 1
Start Date: 4/1/2015 - 00:00
End Date: 6/30/2015 - 23:00

Run ID:

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	0.021520	0.014194	0.025183	0.009158	0.000000	0.000000	0.070055
11.25-33.75	0.027930	0.021062	0.002747	0.001832	0.000000	0.000000	0.053571
33.75-56.25	0.036172	0.119963	0.036630	0.000000	0.000000	0.000000	0.192766
56.25-78.75	0.012363	0.008242	0.000458	0.000000	0.000000	0.000000	0.021062
78.75-101.25	0.005495	0.007784	0.000458	0.000000	0.000000	0.000000	0.013736
101.25-123.75	0.007784	0.014652	0.004579	0.000916	0.000000	0.000000	0.027930
123.75-146.25	0.005495	0.010531	0.003663	0.000458	0.000000	0.000000	0.020147
146.25-168.75	0.005952	0.013278	0.004579	0.000000	0.000000	0.000000	0.023810
168.75-191.25	0.013278	0.024725	0.015110	0.000916	0.000000	0.000000	0.054029
191.25-213.75	0.016941	0.038004	0.017399	0.005495	0.000000	0.000000	0.077839
213.75-236.25	0.006410	0.026557	0.028388	0.004121	0.000000	0.000000	0.065476
236.25-258.75	0.005495	0.008700	0.010531	0.000916	0.000000	0.000000	0.025641
258.75-281.25	0.004579	0.006410	0.001832	0.000458	0.000000	0.000000	0.013278
281.25-303.75	0.006410	0.005037	0.001832	0.000000	0.000000	0.000000	0.013278
303.75-326.25	0.007326	0.006410	0.005952	0.000000	0.000000	0.000000	0.019689
326.25-348.75	0.009615	0.011905	0.021978	0.007784	0.000000	0.000000	0.051282
Total	0.192766	0.337454	0.181319	0.032051	0.000000	0.000000	0.743590

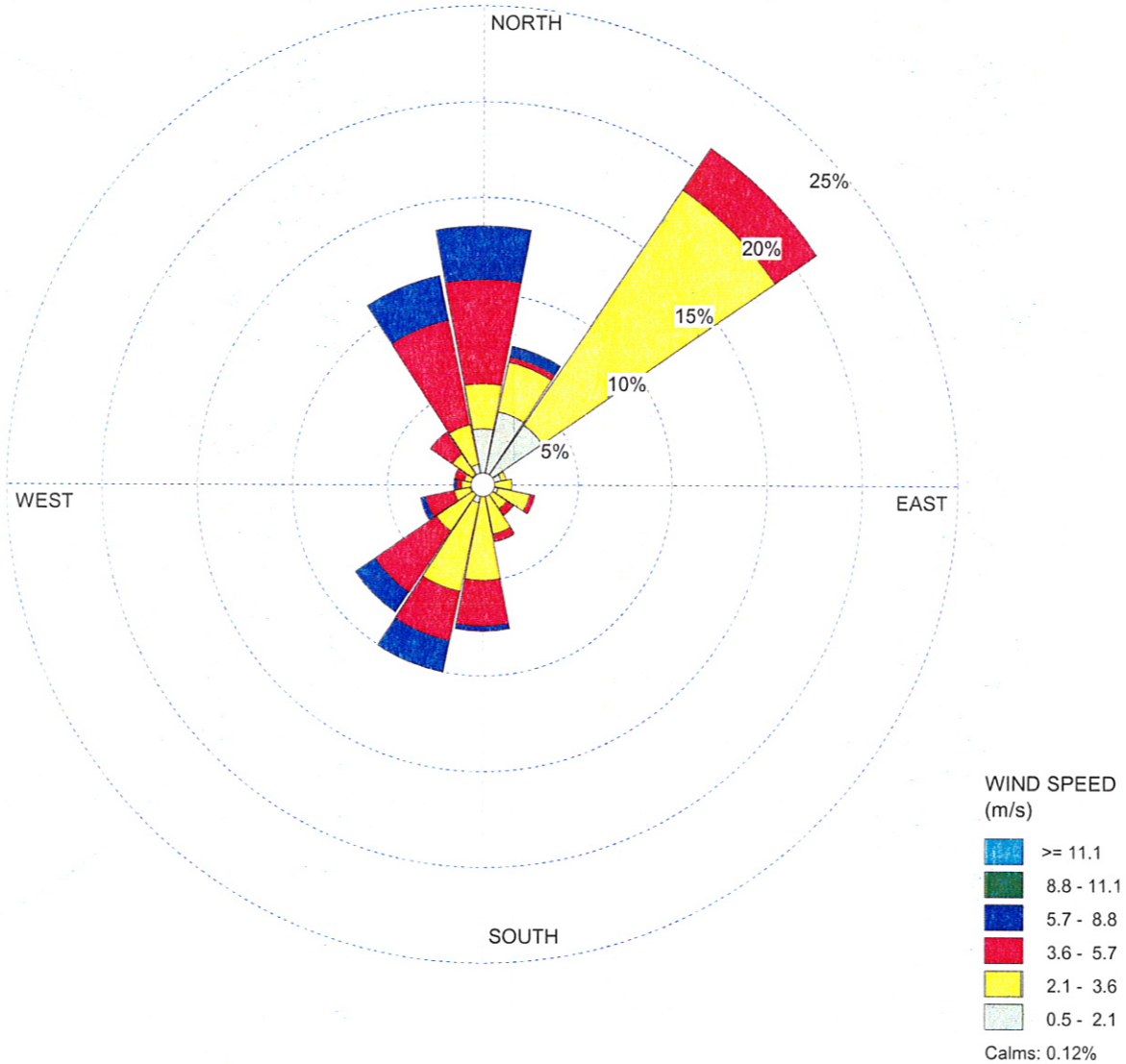
Frequency of Calm Winds: 25.64%
Average Wind Speed: 2.24 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 April

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 4/1/2015 - 00:00 **End Date: 4/30/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **0.12%**	TOTAL COUNT: **720 hrs.**	
	AVG. WIND SPEED: **3.37 m/s**	DATE: **8/3/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1
Start Date: 4/1/2015 - 00:00
End Date: 4/30/2015 - 23:00

Run ID:

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	21	17	39	20	0	0	97
11.25-33.75	28	19	2	4	0	0	53
33.75-56.25	27	107	19	0	0	0	153
56.25-78.75	7	2	0	0	0	0	9
78.75-101.25	4	7	0	0	0	0	11
101.25-123.75	6	12	2	0	0	0	20
123.75-146.25	0	11	3	0	0	0	14
146.25-168.75	3	16	3	0	0	0	22
168.75-191.25	4	32	17	2	0	0	55
191.25-213.75	7	34	19	12	0	0	72
213.75-236.25	4	17	28	9	0	0	58
236.25-258.75	5	6	11	2	0	0	24
258.75-281.25	2	6	2	1	0	0	11
281.25-303.75	3	4	4	0	0	0	11
303.75-326.25	5	9	10	0	0	0	24
326.25-348.75	8	15	40	17	0	0	80
Total	134	314	199	67	0	0	720

Frequency of Calm Winds: 6
Average Wind Speed: 3.37 m/s

Station ID: 1
Start Date: 4/1/2015 - 00:00
End Date: 4/30/2015 - 23:00

Run ID:

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	0.029167	0.023611	0.054167	0.027778	0.000000	0.000000	0.134722
11.25-33.75	0.038889	0.026389	0.002778	0.005556	0.000000	0.000000	0.073611
33.75-56.25	0.037500	0.148611	0.026389	0.000000	0.000000	0.000000	0.212500
56.25-78.75	0.009722	0.002778	0.000000	0.000000	0.000000	0.000000	0.012500
78.75-101.25	0.005556	0.009722	0.000000	0.000000	0.000000	0.000000	0.015278
101.25-123.75	0.008333	0.016667	0.002778	0.000000	0.000000	0.000000	0.027778
123.75-146.25	0.000000	0.015278	0.004167	0.000000	0.000000	0.000000	0.019444
146.25-168.75	0.004167	0.022222	0.004167	0.000000	0.000000	0.000000	0.030556
168.75-191.25	0.005556	0.044444	0.023611	0.002778	0.000000	0.000000	0.076389
191.25-213.75	0.009722	0.047222	0.026389	0.016667	0.000000	0.000000	0.100000
213.75-236.25	0.005556	0.023611	0.038889	0.012500	0.000000	0.000000	0.080556
236.25-258.75	0.006944	0.008333	0.015278	0.002778	0.000000	0.000000	0.033333
258.75-281.25	0.002778	0.008333	0.002778	0.001389	0.000000	0.000000	0.015278
281.25-303.75	0.004167	0.005556	0.005556	0.000000	0.000000	0.000000	0.015278
303.75-326.25	0.006944	0.012500	0.013889	0.000000	0.000000	0.000000	0.033333
326.25-348.75	0.011111	0.020833	0.055556	0.023611	0.000000	0.000000	0.111111
Total	0.186111	0.436111	0.276389	0.093056	0.000000	0.000000	0.991667

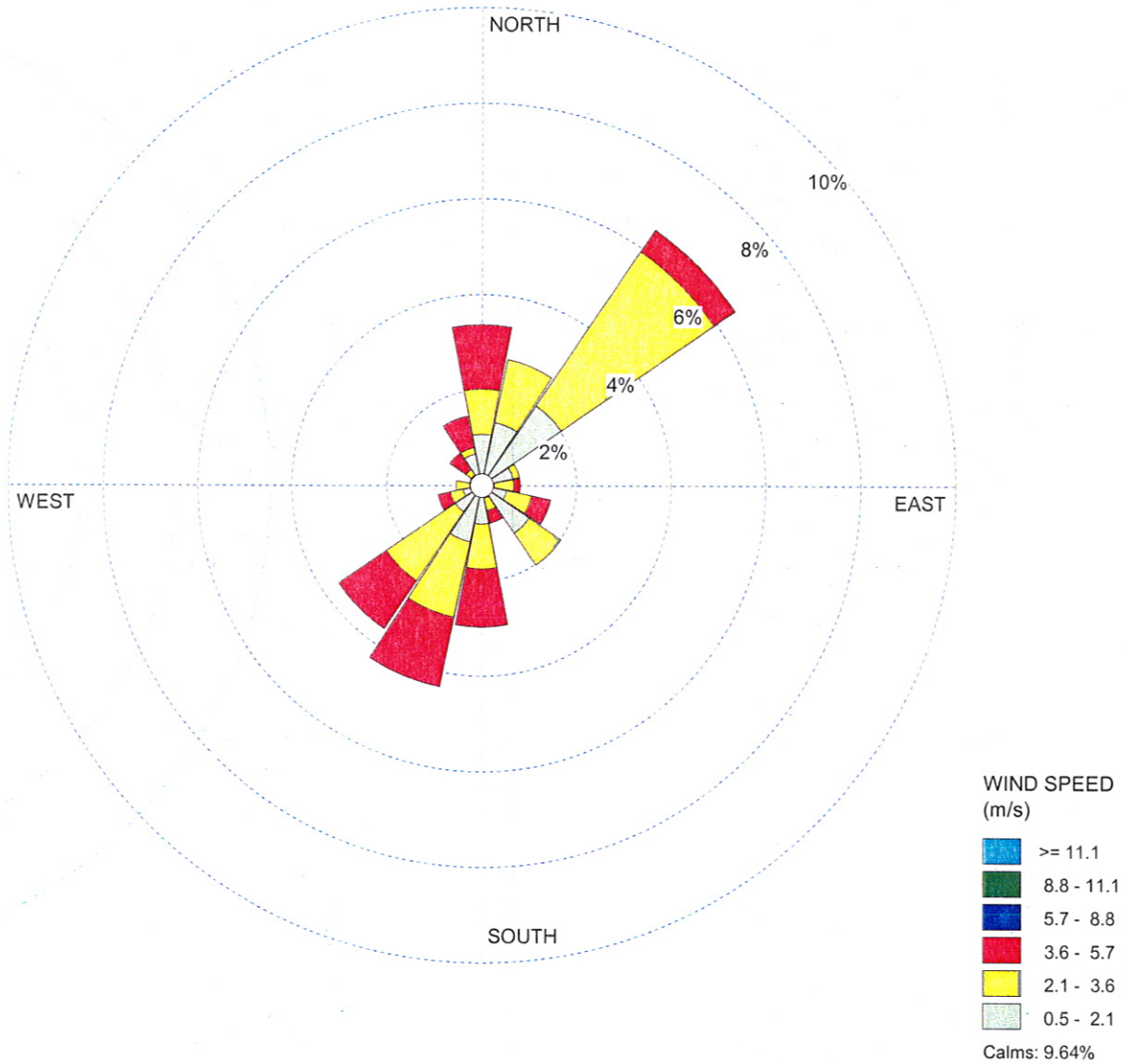
Frequency of Calm Winds: 0.83%
Average Wind Speed: 3.37 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 May

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 5/1/2015 - 00:00 **End Date: 5/31/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **9.64%**	TOTAL COUNT: **744 hrs.**	
	AVG. WIND SPEED: **0.88 m/s**	DATE: **8/3/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1
Start Date: 5/1/2015 - 00:00
End Date: 5/31/2015 - 23:00

Run ID:

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	8	7	10	0	0	0	25
11.25-33.75	10	10	0	0	0	0	20
33.75-56.25	15	29	4	0	0	0	48
56.25-78.75	5	1	0	0	0	0	6
78.75-101.25	2	3	1	0	0	0	6
101.25-123.75	4	4	3	0	0	0	11
123.75-146.25	9	6	0	0	0	0	15
146.25-168.75	2	2	2	0	0	0	6
168.75-191.25	6	7	9	0	0	0	22
191.25-213.75	9	12	11	0	0	0	32
213.75-236.25	5	13	9	0	0	0	27
236.25-258.75	3	2	2	0	0	0	7
258.75-281.25	2	2	0	0	0	0	4
281.25-303.75	2	0	0	0	0	0	2
303.75-326.25	2	1	3	0	0	0	6
326.25-348.75	5	1	5	0	0	0	11
Total	89	100	59	0	0	0	744

Frequency of Calm Winds: 496
Average Wind Speed: 0.88 m/s

Station ID: 1
Start Date: 5/1/2015 - 00:00
End Date: 5/31/2015 - 23:00

Run ID:

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	0.010753	0.009409	0.013441	0.000000	0.000000	0.000000	0.033602
11.25-33.75	0.013441	0.013441	0.000000	0.000000	0.000000	0.000000	0.026882
33.75-56.25	0.020161	0.038978	0.005376	0.000000	0.000000	0.000000	0.064516
56.25-78.75	0.006720	0.001344	0.000000	0.000000	0.000000	0.000000	0.008065
78.75-101.25	0.002688	0.004032	0.001344	0.000000	0.000000	0.000000	0.008065
101.25-123.75	0.005376	0.005376	0.004032	0.000000	0.000000	0.000000	0.014785
123.75-146.25	0.012097	0.008065	0.000000	0.000000	0.000000	0.000000	0.020161
146.25-168.75	0.002688	0.002688	0.002688	0.000000	0.000000	0.000000	0.008065
168.75-191.25	0.008065	0.009409	0.012097	0.000000	0.000000	0.000000	0.029570
191.25-213.75	0.012097	0.016129	0.014785	0.000000	0.000000	0.000000	0.043011
213.75-236.25	0.006720	0.017473	0.012097	0.000000	0.000000	0.000000	0.036290
236.25-258.75	0.004032	0.002688	0.002688	0.000000	0.000000	0.000000	0.009409
258.75-281.25	0.002688	0.002688	0.000000	0.000000	0.000000	0.000000	0.005376
281.25-303.75	0.002688	0.000000	0.000000	0.000000	0.000000	0.000000	0.002688
303.75-326.25	0.002688	0.001344	0.004032	0.000000	0.000000	0.000000	0.008065
326.25-348.75	0.006720	0.001344	0.006720	0.000000	0.000000	0.000000	0.014785
Total	0.119624	0.134409	0.079301	0.000000	0.000000	0.000000	0.333333

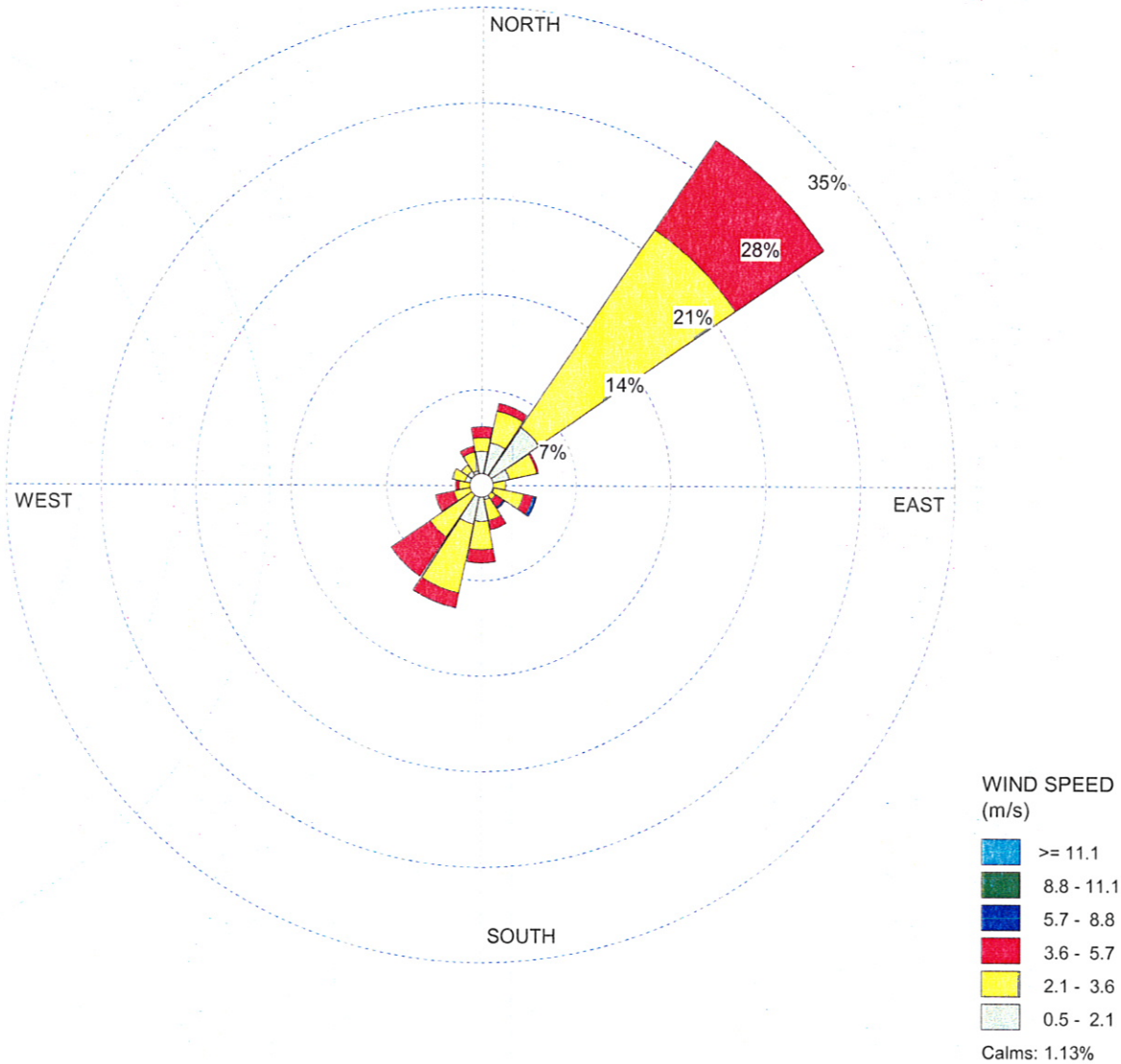
Frequency of Calm Winds: 66.67%
Average Wind Speed: 0.88 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 June

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 6/1/2015 - 00:00 **End Date: 6/30/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **1.13%**	TOTAL COUNT: **720 hrs.**	
	AVG. WIND SPEED: **2.50 m/s**	DATE: **8/3/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1
Start Date: 6/1/2015 - 00:00
End Date: 6/30/2015 - 23:00

Run ID:

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	18	7	6	0	0	0	31
11.25-33.75	23	17	4	0	0	0	44
33.75-56.25	37	126	57	0	0	0	220
56.25-78.75	15	15	1	0	0	0	31
78.75-101.25	6	7	0	0	0	0	13
101.25-123.75	7	16	5	2	0	0	30
123.75-146.25	3	6	5	1	0	0	15
146.25-168.75	8	11	5	0	0	0	24
168.75-191.25	19	15	7	0	0	0	41
191.25-213.75	21	37	8	0	0	0	66
213.75-236.25	5	28	25	0	0	0	58
236.25-258.75	4	11	10	0	0	0	25
258.75-281.25	6	6	2	0	0	0	14
281.25-303.75	9	7	0	0	0	0	16
303.75-326.25	9	4	0	0	0	0	13
326.25-348.75	8	10	3	0	0	0	21
Total	198	323	138	3	0	0	720

Frequency of Calm Winds: 58
Average Wind Speed: 2.50 m/s

Station ID: 1
Start Date: 6/1/2015 - 00:00
End Date: 6/30/2015 - 23:00

Run ID:

Frequency Distribution
(Normalized)

Wind Direction (Blowing From) / Wind Speed (m/s)

	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	0.025000	0.009722	0.008333	0.000000	0.000000	0.000000	0.043056
11.25-33.75	0.031944	0.023611	0.005556	0.000000	0.000000	0.000000	0.061111
33.75-56.25	0.051389	0.175000	0.079167	0.000000	0.000000	0.000000	0.305556
56.25-78.75	0.020833	0.020833	0.001389	0.000000	0.000000	0.000000	0.043056
78.75-101.25	0.008333	0.009722	0.000000	0.000000	0.000000	0.000000	0.018056
101.25-123.75	0.009722	0.022222	0.006944	0.002778	0.000000	0.000000	0.041667
123.75-146.25	0.004167	0.008333	0.006944	0.001389	0.000000	0.000000	0.020833
146.25-168.75	0.011111	0.015278	0.006944	0.000000	0.000000	0.000000	0.033333
168.75-191.25	0.026389	0.020833	0.009722	0.000000	0.000000	0.000000	0.056944
191.25-213.75	0.029167	0.051389	0.011111	0.000000	0.000000	0.000000	0.091667
213.75-236.25	0.006944	0.038889	0.034722	0.000000	0.000000	0.000000	0.080556
236.25-258.75	0.005556	0.015278	0.013889	0.000000	0.000000	0.000000	0.034722
258.75-281.25	0.008333	0.008333	0.002778	0.000000	0.000000	0.000000	0.019444
281.25-303.75	0.012500	0.009722	0.000000	0.000000	0.000000	0.000000	0.022222
303.75-326.25	0.012500	0.005556	0.000000	0.000000	0.000000	0.000000	0.018056
326.25-348.75	0.011111	0.013889	0.004167	0.000000	0.000000	0.000000	0.029167
Total	0.275000	0.448611	0.191667	0.004167	0.000000	0.000000	0.919444

Frequency of Calm Winds: 8.06%
Average Wind Speed: 2.50 m/s

APPENDIX B

Listing of PM_{10} Concentrations

Background Monitor 962A

PM_{10} Sampler Summary

April 1, 2015 - June 30, 2015

Network: **Alton Coal Development, LLC**
Site: Coal Hollow
Sampler ID: Coal Hollow-A
Sampler Type: BGI FRM Single

AQS ID:

Date	Filter ID	Concentration (µg/m3) LTP	Concentration (µg/m3) STP	Sample Period (hr:min)	Sample Volume (m3)	Std Volume (m3)	Mass (mg) Tare	Mass (mg) Gross	Mass (mg) Net	Flag	Comments
04/06/15	P2919860	**10.9**	**13.5**	23:59	24.0	19.5	366.657	366.921	0.264		
04/12/15	P2920158	**6.3**	**7.8**	23:59	24.0	19.5	367.401	367.554	0.153		
04/18/15	P2920161	**5.4**	**6.7**	23:59	24.0	19.7	360.880	361.012	0.132		
04/24/15	P2920164	**11.5**	**14.1**	23:59	24.0	19.6	363.615	363.892	0.277		
04/30/15	P2920503	**6.0**	**7.5**	24:00	24.0	19.3	365.678	365.824	0.146		
05/06/15	P2920505	**6.6**	**8.3**	23:59	24.0	19.4	365.767	365.928	0.161		
05/12/15	P2920507	**9.4**	**11.8**	23:59	24.0	19.2	369.183	369.410	0.227		
05/18/15	P2920762	**4.3**	**5.2**	23:59	24.0	19.7	367.343	367.447	0.104		
05/24/15	P2920765	**1.8**	**2.2**	23:59	24.0	19.6	363.272	363.317	0.045		
05/30/15	P2921327	**6.3**	**7.9**	23:59	24.0	19.2	381.295	381.447	0.152		
06/05/15	P2921330	**7.1**	**8.9**	24:00	24.0	19.3	377.865	378.037	0.172		
06/11/15	P2921620	**3.9**	**4.9**	23:59	24.0	19.3	381.798	381.893	0.095		
06/17/15	P2921624	**6.8**	**8.7**	23:59	24.0	19.0	378.910	379.075	0.165		
06/23/15	P2921084	**12.8**	**16.4**	23:59	24.0	18.9	364.832	365.142	0.310		
06/29/15	P2921078	**13.4**	**17.2**	23:59	24.0	18.8	367.735	368.058	0.323		
05/28/15	P2920769		**Field Blank**				364.719	364.730	0.011		

# Valid	Recovery	Average	St. Dev.	Max	Min
15	**100%**	**9.4**	**4.3**	**17.2**	**2.2**

BGI PQ200 Air Sampling System Downloaded 2015 01 apr 14:07:26

Job Details:

Job Name: 15Apr01A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5970:52
Flags:

Job Code:
Site Name:
Station Code:
Operators:
User1:
User2:

	Max	Min	Avg	Units
BP	586	581	584	mmHg
TA	19.8	1.7	9.8	°C
Q	---	---	16.71	Lpm

QCV 0.56 %

Max overheat 3.2 °C
occured 31-mar 20:28:26

Timer Information:

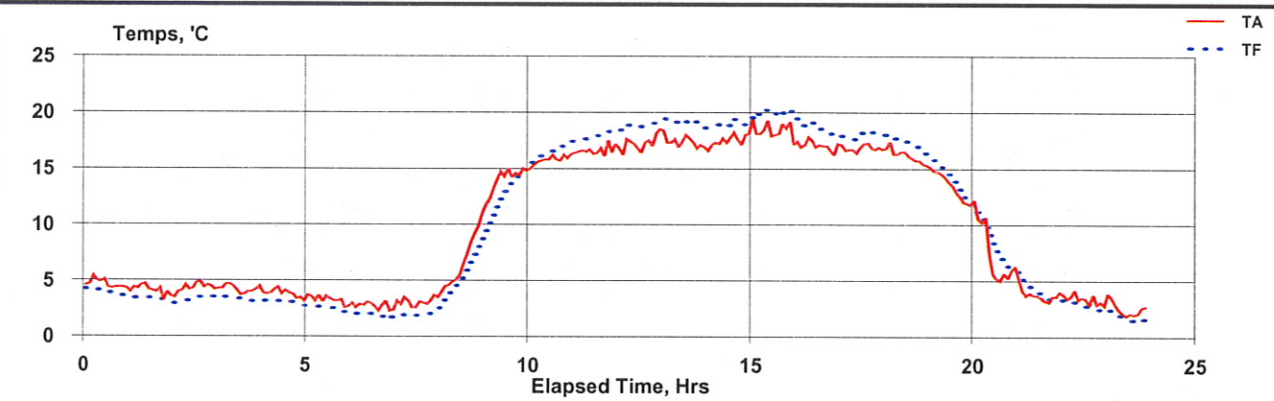
	Date dd-mmm	Time hh:mm:ss
Start:	15-31-mar	0:00:08
Stop:	15-01-apr	0:00:05

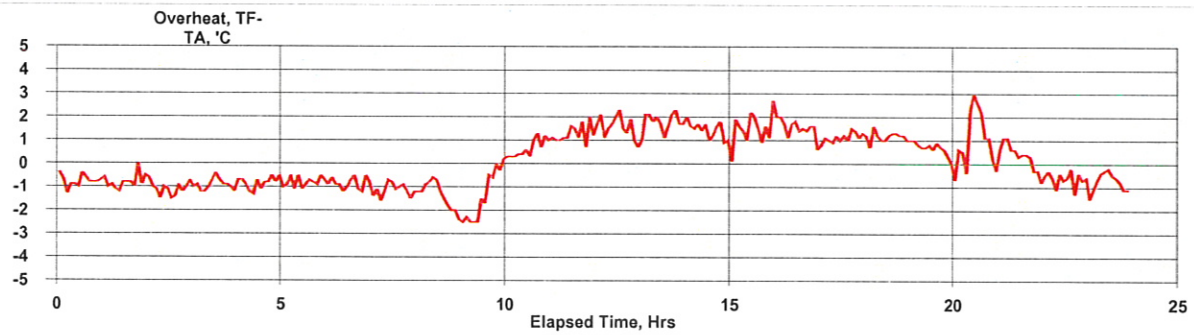
ET: 23:59

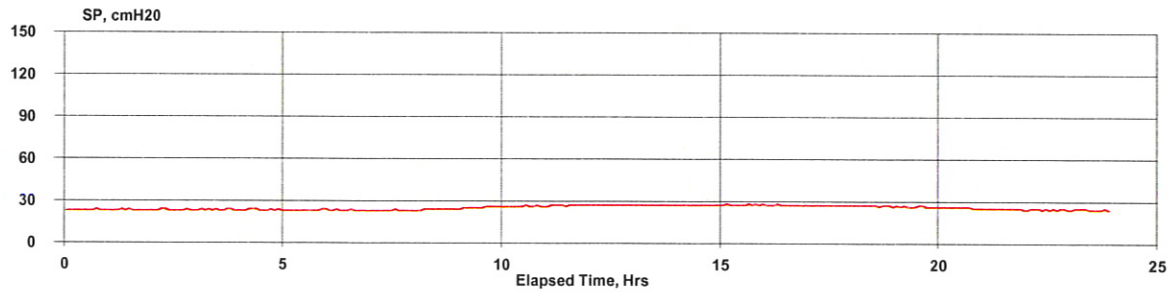
Mass Concentration Data:

Filter ID:	4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.041	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-31-mar	0:05:08	586	4.7	3.9	-0.8	23	16.71
15-31-mar	1:05:08	586	4.1	3.3	-0.8	23	16.71
15-31-mar	2:05:08	586	4.3	3.3	-1.1	23	16.71
15-31-mar	3:05:08	585	4.2	3.3	-0.9	23	16.71
15-31-mar	4:05:08	585	3.8	3.0	-0.8	23	16.71
15-31-mar	5:05:08	585	3.3	2.5	-0.8	23	16.71
15-31-mar	6:05:08	585	2.8	1.9	-0.9	23	16.71
15-31-mar	7:05:08	585	3.1	2.0	-1.1	23	16.71
15-31-mar	8:05:08	585	6.8	5.4	-1.4	24	16.72
15-31-mar	9:05:08	585	14.0	12.6	-1.4	25	16.71
15-31-mar	10:05:08	585	15.8	16.4	0.6	26	16.70
15-31-mar	11:05:08	585	16.6	17.9	1.3	27	16.72
15-31-mar	12:05:08	585	17.2	18.8	1.6	27	16.72
15-31-mar	13:05:08	584	17.4	19.2	1.8	27	16.71
15-31-mar	14:05:08	584	17.5	19.0	1.5	27	16.71
15-31-mar	15:05:08	583	18.4	19.9	1.5	27	16.70
15-31-mar	16:05:08	583	17.1	18.6	1.5	27	16.71
15-31-mar	17:05:08	582	16.8	18.0	1.1	27	16.71
15-31-mar	18:05:08	582	16.2	17.3	1.2	27	16.72
15-31-mar	19:05:08	582	13.5	14.2	0.7	26	16.71
15-31-mar	20:05:08	582	7.5	8.5	1.0	26	16.71
15-31-mar	21:05:08	582	3.8	4.1	0.3	25	16.70
15-31-mar	22:05:08	582	3.4	2.8	-0.6	25	16.72
15-31-mar	23:05:08	582	2.6	1.8	-0.8	24	16.71

BGI PQ200 Air Sampling System Downloaded 2015 07 apr 08:56:07

Job Details:

Job Name:	15Apr07A.JOB
Version:	5.62
Serial No:	962
Pump Time:	5994:51
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	580	576	578	mmHg
TA	14.1	-3.4	6.2	°C
Q	---	---	16.7	Lpm

QCV	0.53 %
Max overheat	2.7 °C
occured	06-apr 21:52:27

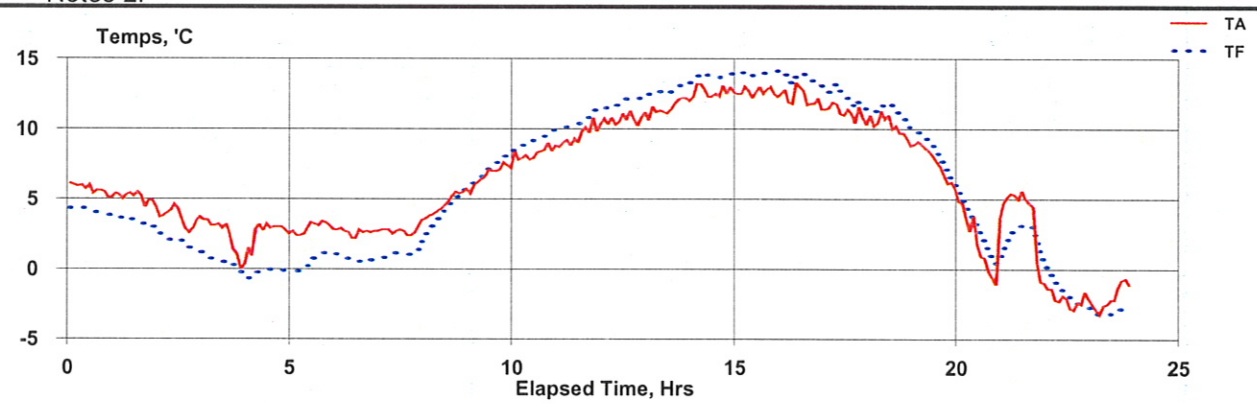
Timer Information:

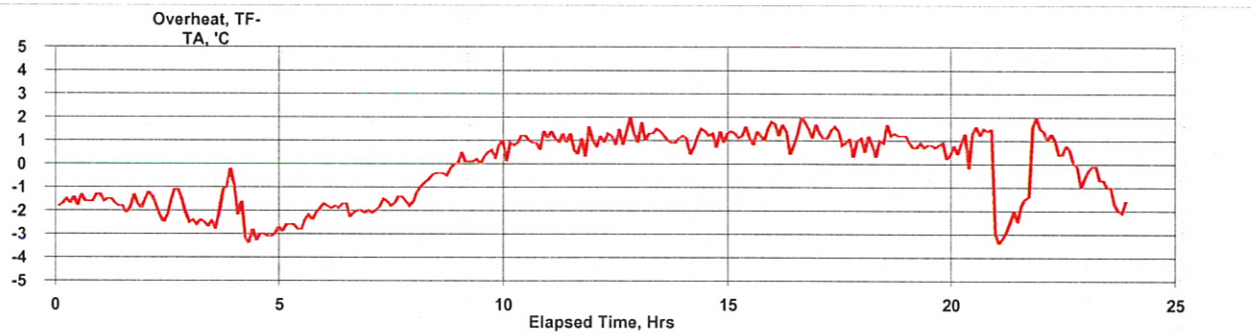
	Date dd-mmm	Time hh:mm:ss
Start:	15-06-apr	0:00:08
Stop:	15-07-apr	0:00:05
ET:	23:59	

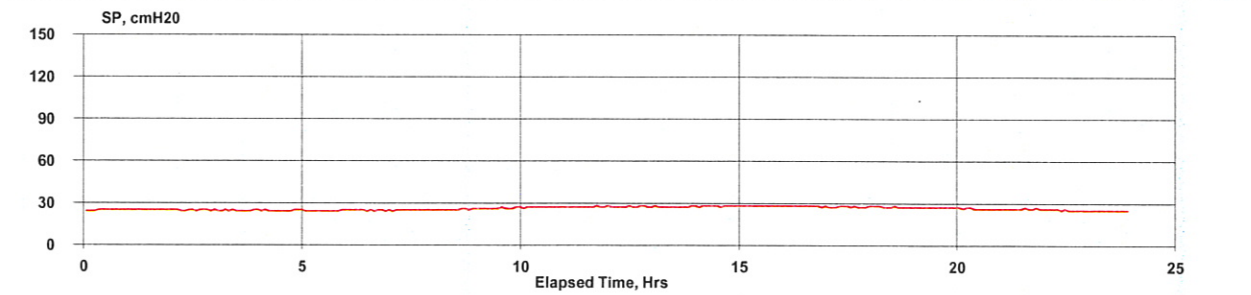
Mass Concentration Data:

Filter ID:	7	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.036	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-06-apr	0:05:08	578	5.7	4.1	-1.6	25	16.71
15-06-apr	1:05:08	578	5.1	3.4	-1.7	25	16.72
15-06-apr	2:05:08	578	3.6	1.9	-1.8	25	16.71
15-06-apr	3:05:08	578	2.3	0.4	-1.9	24	16.70
15-06-apr	4:05:08	578	2.6	-0.2	-2.9	24	16.71
15-06-apr	5:05:08	578	2.9	0.5	-2.4	24	16.71
15-06-apr	6:05:08	578	2.6	0.7	-1.9	25	16.71
15-06-apr	7:05:08	578	2.8	1.1	-1.7	25	16.71
15-06-apr	8:05:08	579	4.7	4.2	-0.5	25	16.71
15-06-apr	9:05:08	579	6.8	7.1	0.4	26	16.70
15-06-apr	10:05:08	579	8.3	9.2	0.9	27	16.71
15-06-apr	11:05:08	579	9.5	10.5	1.0	27	16.72
15-06-apr	12:05:08	579	10.7	11.9	1.2	27	16.71
15-06-apr	13:05:08	579	11.6	12.8	1.2	27	16.72
15-06-apr	14:05:08	579	12.7	13.8	1.1	28	16.70
15-06-apr	15:05:08	579	12.6	13.9	1.3	28	16.70
15-06-apr	16:05:08	579	12.2	13.6	1.4	28	16.71
15-06-apr	17:05:08	579	11.2	12.3	1.1	27	16.71
15-06-apr	18:05:08	579	10.2	11.2	1.0	27	16.71
15-06-apr	19:05:08	579	7.6	8.4	0.7	27	16.71
15-06-apr	20:05:08	579	2.1	2.8	0.7	26	16.71
15-06-apr	21:05:08	579	3.6	2.3	-1.3	26	16.72
15-06-apr	22:05:08	579	-2.1	-1.7	0.4	25	16.70
15-06-apr	23:05:08	579	-2.0	-3.0	-1.0	25	16.71

BGI PQ200 Air Sampling System Downloaded 2015 15 apr 14:25:15

Job Details:

Job Name: 15Apr15A.JOB
Version: 5.62
Serial No: 962
Pump Time: 6018:50
Flags: F

Job Code:
Site Name:
Station Code:
Operators:
User1:
User2:

	Max	Min	Avg	Units
BP	586	580	582	mmHg
TA	17.3	-1.3	8.1	°C
Q	---	---	16.7	Lpm

QCV 0.53 %

Max overheat 8.5 °C
occured 13-apr 20:18:34

Timer Information:

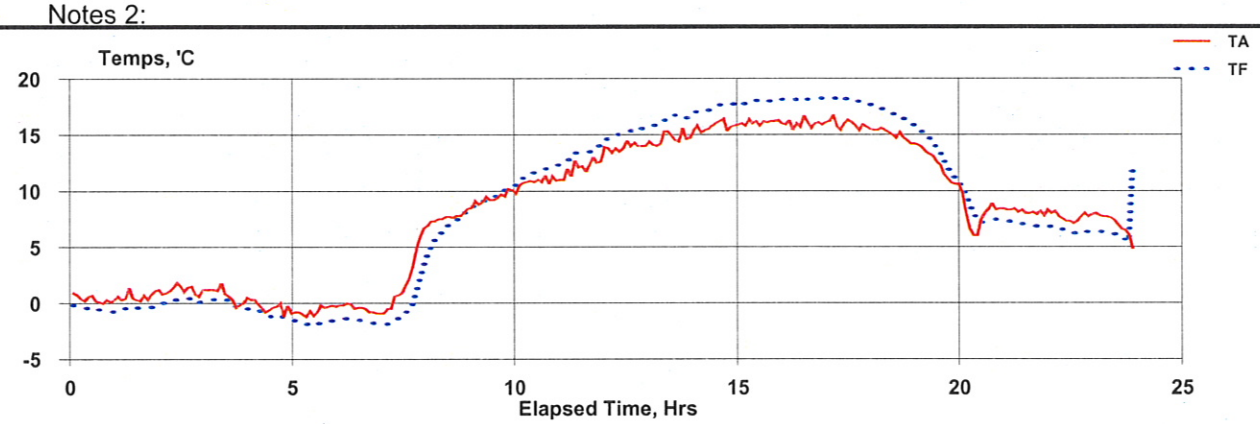
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-apr	0:00:08
Stop:	15-13-apr	0:00:05

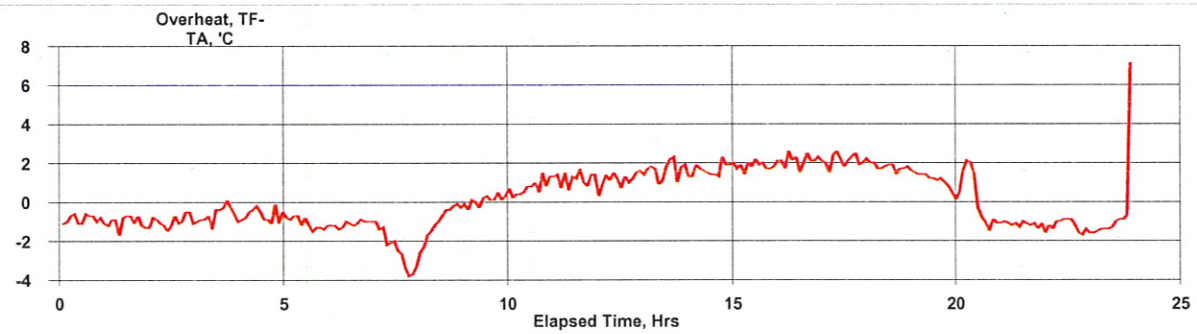
ET: 23:59

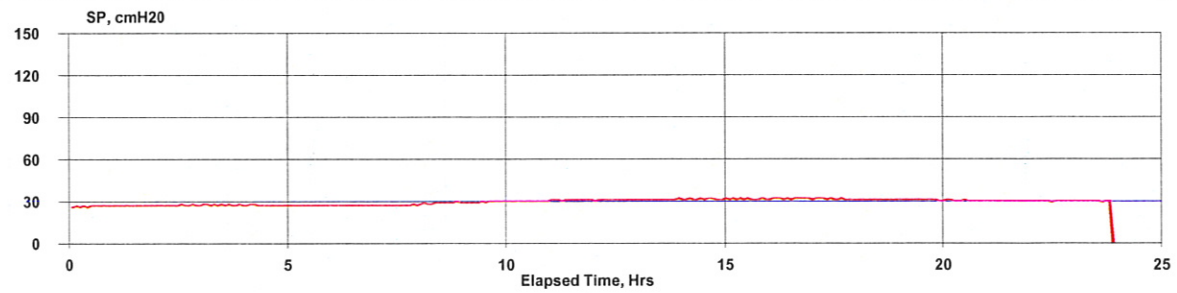
Mass Concentration Data:

Filter ID:	9	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-12-apr	0:05:08	581	0.4	-0.5	-0.9	27	16.71
15-12-apr	1:05:08	581	0.6	-0.4	-1.0	27	16.71
15-12-apr	2:05:08	581	1.2	0.2	-1.0	27	16.71
15-12-apr	3:05:08	581	0.7	0.0	-0.7	28	16.71
15-12-apr	4:05:08	581	-0.4	-1.0	-0.7	27	16.71
15-12-apr	5:05:08	582	-0.7	-1.7	-1.1	27	16.71
15-12-apr	6:05:08	582	-0.5	-1.6	-1.1	27	16.70
15-12-apr	7:05:08	582	2.1	-0.4	-2.5	27	16.71
15-12-apr	8:05:08	583	7.6	6.6	-1.0	29	16.71
15-12-apr	9:05:08	583	9.3	9.4	0.1	30	16.71
15-12-apr	10:05:08	584	10.8	11.5	0.7	30	16.71
15-12-apr	11:05:08	584	12.0	13.2	1.2	31	16.71
15-12-apr	12:05:08	584	13.9	15.1	1.1	31	16.71
15-12-apr	13:05:08	584	14.7	16.3	1.6	31	16.71
15-12-apr	14:05:08	583	15.7	17.3	1.6	31	16.74
15-12-apr	15:05:08	583	16.1	17.9	1.8	31	16.71
15-12-apr	16:05:08	583	16.0	18.1	2.1	32	16.72
15-12-apr	17:05:08	583	16.0	18.1	2.1	31	16.70
15-12-apr	18:05:08	583	15.1	16.9	1.8	31	16.71
15-12-apr	19:05:08	584	12.6	13.8	1.2	31	16.71
15-12-apr	20:05:08	584	8.0	8.2	0.2	30	16.71
15-12-apr	21:05:08	584	8.2	7.0	-1.1	30	16.71
15-12-apr	22:05:08	585	7.7	6.4	-1.2	30	16.72
15-12-apr	23:05:08	585	7.3	6.1	-1.2	30	16.71
15-13-apr	20:29:09	585	4.9	12.0	7.1		0.00

BGI PQ200 Air Sampling System Downloaded 2015 20 apr 14:05:52

Job Details:

Job Name:	15Apr20A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6042:49	Operators:	KN
Flags:	F	User1:	
		User2:	

	Max	Min	Avg	Units
BP	584	582	583	mmHg
TA	18.5	-3.3	6.6	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	7.9 °C
occured	19-apr 20:30:00

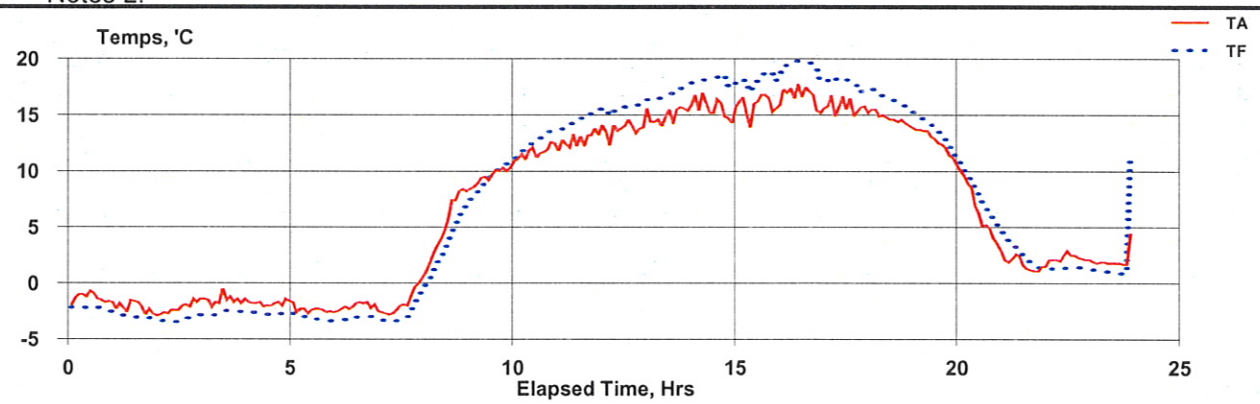
Timer Information:

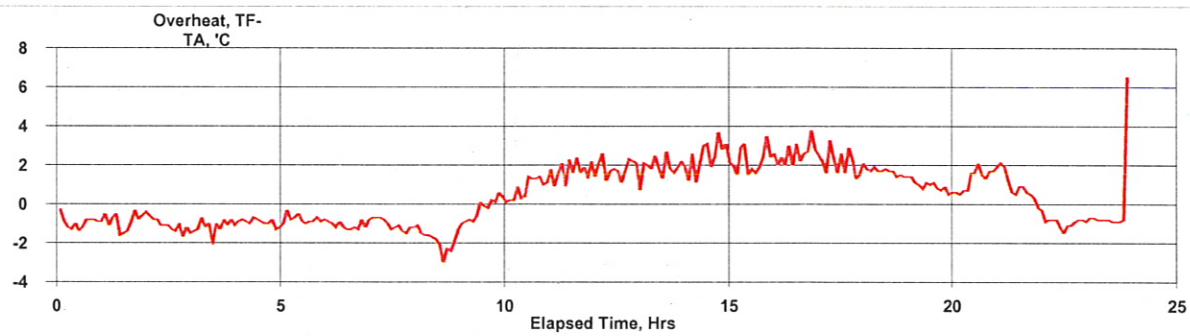
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-apr	0:00:08
Stop:	15-19-apr	0:00:04
ET:	23:59	

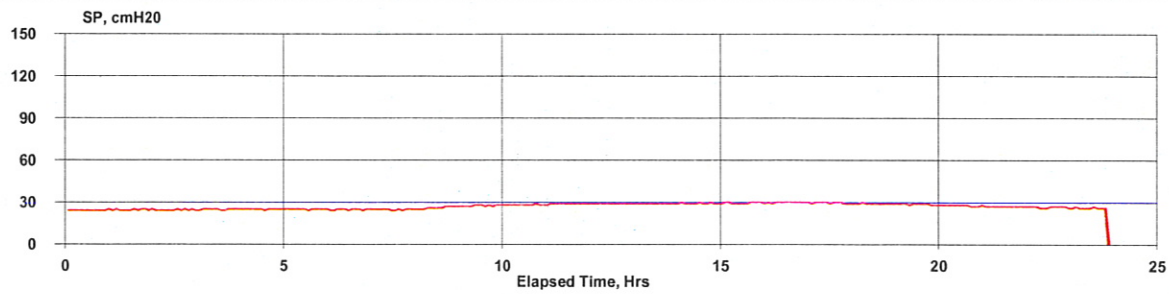
Mass Concentration Data:

Filter ID:	13	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.036	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-apr	0:05:08	583	-1.3	-2.3	-1.0	24	16.70
15-18-apr	1:05:08	583	-2.2	-3.1	-0.9	24	16.70
15-18-apr	2:05:08	583	-2.2	-3.3	-1.1	24	16.71
15-18-apr	3:05:08	583	-1.5	-2.7	-1.2	25	16.71
15-18-apr	4:05:08	583	-1.8	-2.7	-0.9	25	16.71
15-18-apr	5:05:08	583	-2.4	-3.2	-0.8	25	16.71
15-18-apr	6:05:08	583	-2.1	-3.2	-1.1	25	16.70
15-18-apr	7:05:08	583	-1.7	-2.7	-1.1	25	16.72
15-18-apr	8:05:08	584	5.2	3.4	-1.9	26	16.72
15-18-apr	9:05:08	584	9.5	9.3	-0.3	28	16.72
15-18-apr	10:05:08	584	11.7	12.5	0.8	28	16.70
15-18-apr	11:05:08	584	12.8	14.5	1.7	29	16.73
15-18-apr	12:05:08	583	13.8	15.6	1.8	29	16.72
15-18-apr	13:05:08	583	15.0	16.9	1.9	29	16.70
15-18-apr	14:05:08	583	15.7	18.1	2.4	29	16.71
15-18-apr	15:05:08	583	15.9	18.1	2.2	30	16.72
15-18-apr	16:05:08	583	16.7	19.3	2.6	30	16.71
15-18-apr	17:05:08	583	15.8	17.9	2.2	30	16.71
15-18-apr	18:05:08	583	14.8	16.5	1.7	29	16.71
15-18-apr	19:05:08	583	12.8	13.8	1.0	29	16.70
15-18-apr	20:05:08	583	7.0	8.2	1.2	28	16.71
15-18-apr	21:05:08	583	1.8	2.8	0.9	27	16.71
15-18-apr	22:05:08	583	2.2	1.3	-0.9	27	16.72
15-18-apr	23:05:08	583	1.8	1.0	-0.8	26	16.71
15-19-apr	20:36:08	582	4.4	10.9	6.5		0.00

BGI PQ200 Air Sampling System

Downloaded 2015 28 apr 14:59:00

Job Details:

Job Name:	15Apr28A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6066:48	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	580	578	578	mmHg
TA	13.7	-2.8	4.9	°C
Q	---	---	16.7	Lpm

QCV	0.51 %
Max overheat	3.6 °C
occured	26-apr 17:27:10

Timer Information:

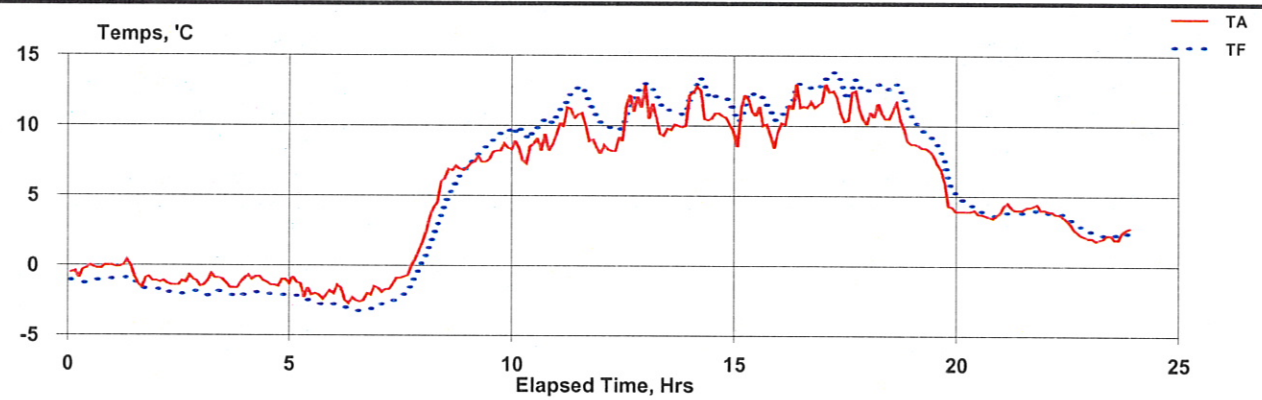
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-apr	0:00:08
Stop:	15-25-apr	0:00:04
ET:	23:59	

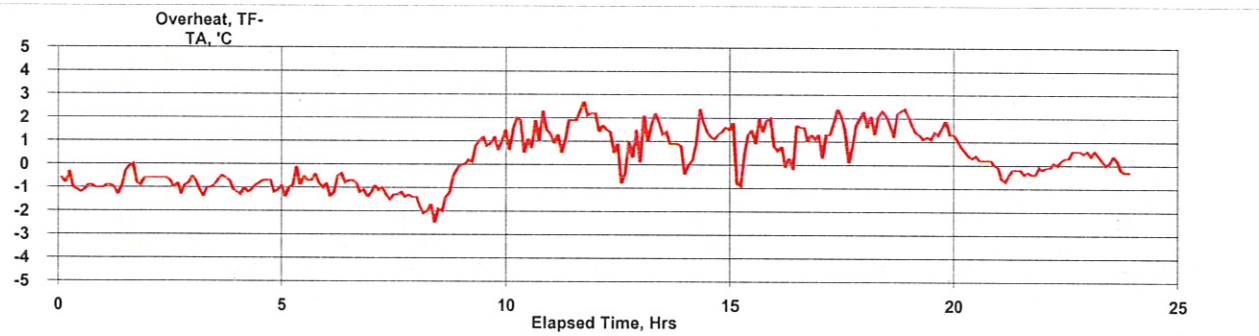
Mass Concentration Data:

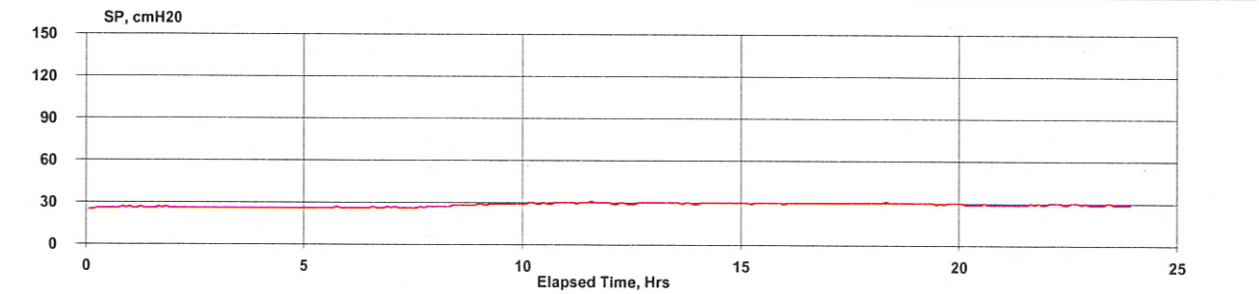
Filter ID:	16	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







15-24-apr	0:05:08	579	-0.2	-1.1	-0.9	26	16.70
15-24-apr	1:05:08	579	-0.6	-1.3	-0.7	26	16.70
15-24-apr	2:05:08	579	-1.2	-2.0	-0.8	26	16.70
15-24-apr	3:05:08	579	-1.2	-2.1	-0.9	26	16.71
15-24-apr	4:05:08	578	-1.1	-2.1	-1.0	26	16.71
15-24-apr	5:05:08	578	-1.8	-2.6	-0.8	26	16.71
15-24-apr	6:05:08	579	-2.1	-3.1	-1.0	26	16.72
15-24-apr	7:05:08	579	-0.6	-1.8	-1.3	26	16.71
15-24-apr	8:05:08	579	5.7	4.3	-1.4	28	16.71
15-24-apr	9:05:08	579	7.9	8.7	0.8	29	16.71
15-24-apr	10:05:08	580	8.5	9.9	1.4	30	16.72
15-24-apr	11:05:08	580	9.9	11.7	1.8	30	16.69
15-24-apr	12:05:08	579	10.2	11.0	0.8	30	16.72
15-24-apr	13:05:08	579	10.3	11.5	1.2	30	16.71
15-24-apr	14:05:08	579	11.0	12.2	1.2	30	16.70
15-24-apr	15:05:08	579	10.4	11.4	1.0	30	16.71
15-24-apr	16:05:08	579	11.4	12.3	0.9	30	16.71
15-24-apr	17:05:08	579	11.5	13.0	1.5	30	16.72
15-24-apr	18:05:08	579	10.5	12.4	2.0	30	16.71
15-24-apr	19:05:08	579	6.9	8.3	1.4	30	16.70
15-24-apr	20:05:08	579	3.7	4.1	0.4	29	16.71
15-24-apr	21:05:08	579	4.2	3.8	-0.3	29	16.72
15-24-apr	22:05:08	580	3.0	3.3	0.3	30	16.73
15-24-apr	23:05:08	580	2.1	2.3	0.1	29	16.72

BGI PQ200 Air Sampling System Downloaded 2015 01 may 14:35:30

Job Details:

Job Name:	15May01A.JOB
Version:	5.62
Serial No:	962
Pump Time:	6090:48
Flags:	

Job Code:	
Site Name:	962A
Station Code:	
Operators:	KN
User1:	
User2:	

	Max	Min	Avg	Units
BP	586	583	584	mmHg
TA	22.7	4.7	12.8	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	3.5 °C
occured	30-apr 19:58:05

Timer Information:

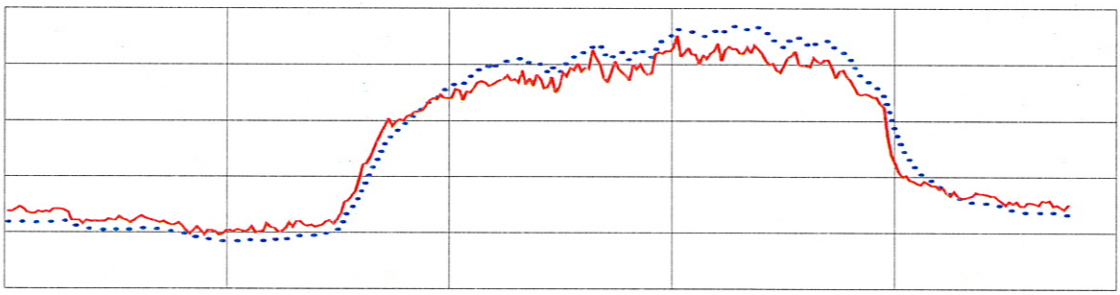
	Date dd-mmm	Time hh:mm:ss
Start:	15-30-apr	0:00:08
Stop:	15-01-may	0:00:05
ET:	24:00:00	

Mass Concentration Data:

Filter ID:	4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.04	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:



Overheat, TF-

15-30-apr	0:04:45	584	6.9	5.9	-1.0	25	16.71
15-30-apr	1:04:45	584	6.4	5.7	-0.8	26	16.72
15-30-apr	2:04:45	584	6.1	5.3	-0.9	26	16.71
15-30-apr	3:04:45	584	6.0	5.2	-0.8	26	16.71
15-30-apr	4:04:45	584	5.1	4.4	-0.7	26	16.72
15-30-apr	5:04:45	584	5.3	4.3	-1.0	26	16.70
15-30-apr	6:04:45	584	5.6	4.5	-1.1	26	16.72
15-30-apr	7:04:45	584	7.0	5.9	-1.1	26	16.71
15-30-apr	8:04:45	585	13.6	12.2	-1.4	27	16.71
15-30-apr	9:04:45	585	16.4	16.4	0.0	28	16.70
15-30-apr	10:04:45	585	17.8	19.0	1.1	29	16.71
15-30-apr	11:04:45	585	18.7	20.2	1.5	29	16.71
15-30-apr	12:04:45	585	18.8	20.0	1.2	29	16.71
15-30-apr	13:04:45	585	19.7	21.1	1.4	29	16.71
15-30-apr	14:04:45	585	20.1	21.3	1.2	29	16.71
15-30-apr	15:04:45	584	21.1	22.8	1.7	30	16.71
15-30-apr	16:04:45	584	21.3	23.2	1.9	30	16.71
15-30-apr	17:04:45	584	20.2	22.3	2.1	30	16.71
15-30-apr	18:04:45	584	19.8	21.6	1.8	30	16.71
15-30-apr	19:04:45	584	16.5	18.2	1.7	29	16.71
15-30-apr	20:04:45	584	9.8	11.2	1.4	28	16.72
15-30-apr	21:04:45	584	8.5	8.2	-0.3	28	16.71
15-30-apr	22:04:45	585	7.9	7.3	-0.6	27	16.71
15-30-apr	23:04:45	585	7.6	6.8	-0.8	27	16.71

BGI PQ200 Air Sampling System Downloaded 2015 08 may 14:33:18

Job Details:

Job Name:	15May08A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6114:47	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	582	577	579	mmHg
TA	16.1	4.3	8.6	°C
Q	---	---	16.71	Lpm

QCV	0.52	%
Max overheat	3.8	°C
occured	07-may 20:43:04	

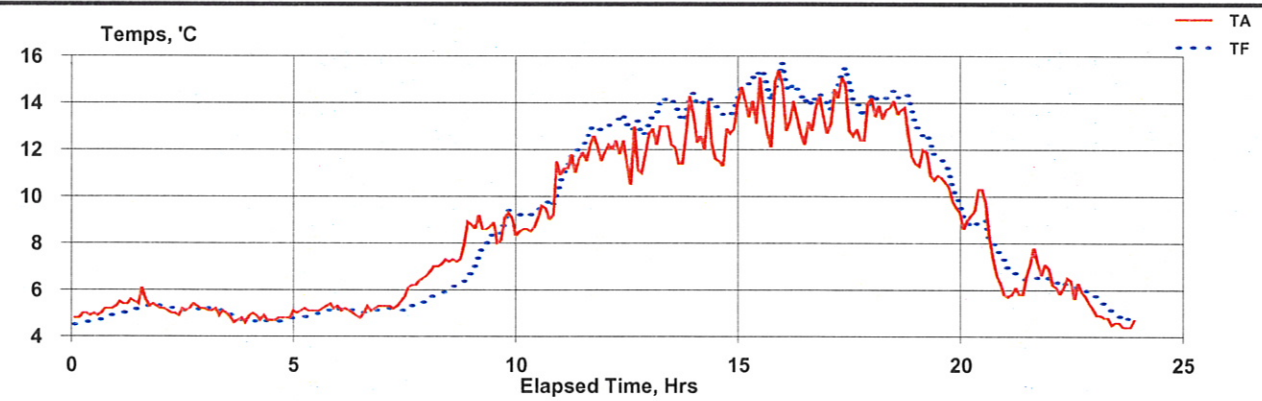
Timer Information:

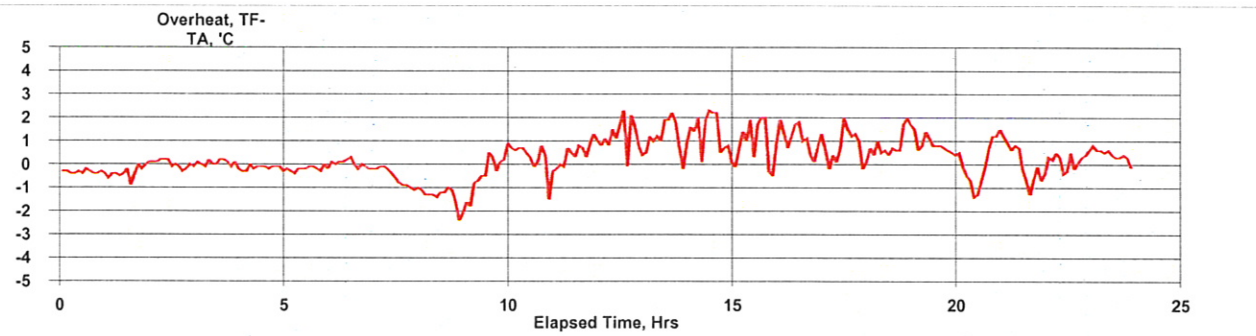
	Date dd-mmm	Time hh:mm:ss
Start:	15-06-may	0:00:08
Stop:	15-07-may	0:00:05
ET:	23:59	

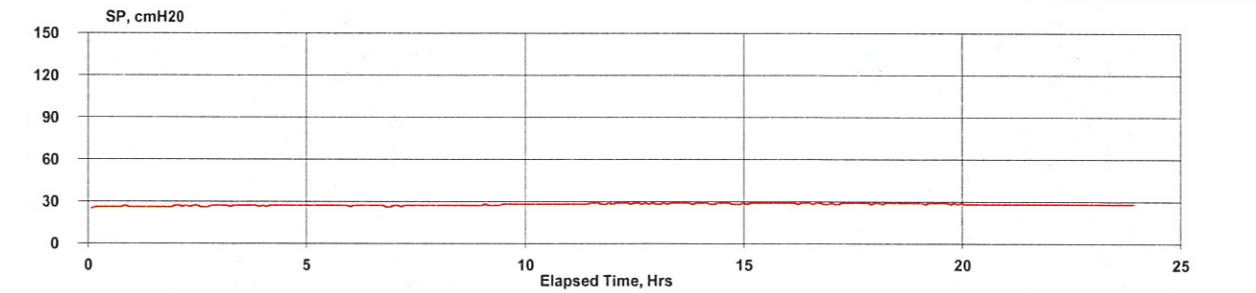
Mass Concentration Data:

Filter ID:	6	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.039	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-06-may	0:05:08	581	5.0	4.7	-0.3	26	16.72
15-06-may	1:05:08	581	5.5	5.2	-0.3	26	16.71
15-06-may	2:05:08	581	5.2	5.2	0.0	27	16.71
15-06-may	3:05:08	580	4.9	4.9	0.0	27	16.70
15-06-may	4:05:08	580	4.8	4.7	-0.2	27	16.71
15-06-may	5:05:08	580	5.2	5.0	-0.2	27	16.71
15-06-may	6:05:08	580	5.1	5.1	0.0	27	16.71
15-06-may	7:05:08	580	5.9	5.3	-0.6	27	16.71
15-06-may	8:05:08	580	7.5	6.1	-1.4	27	16.71
15-06-may	9:05:08	580	8.7	8.4	-0.4	28	16.71
15-06-may	10:05:08	580	9.3	9.6	0.2	28	16.71
15-06-may	11:05:08	580	11.7	12.2	0.5	28	16.71
15-06-may	12:05:08	580	11.9	13.0	1.2	29	16.71
15-06-may	13:05:08	580	12.6	13.8	1.2	29	16.70
15-06-may	14:05:08	579	12.5	13.8	1.3	29	16.70
15-06-may	15:05:08	579	14.0	14.9	0.9	29	16.71
15-06-may	16:05:08	578	13.2	14.3	1.1	29	16.71
15-06-may	17:05:08	578	13.6	14.3	0.7	29	16.70
15-06-may	18:05:08	578	13.2	14.2	0.9	29	16.72
15-06-may	19:05:08	578	10.7	11.5	0.8	29	16.71
15-06-may	20:05:08	578	8.4	8.4	0.0	28	16.71
15-06-may	21:05:08	578	6.5	6.6	0.0	28	16.71
15-06-may	22:05:08	579	5.9	6.1	0.2	28	16.72
15-06-may	23:05:08	579	4.6	5.1	0.4	28	16.71

BGI PQ200 Air Sampling System Downloaded 2015 13 may 15:29:38

Job Details:

Job Name:	15May13A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6138:46	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	583	580	581	mmHg
TA	18.4	3.3	12.7	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	3.7 °C
occured	13-may 03:31:45

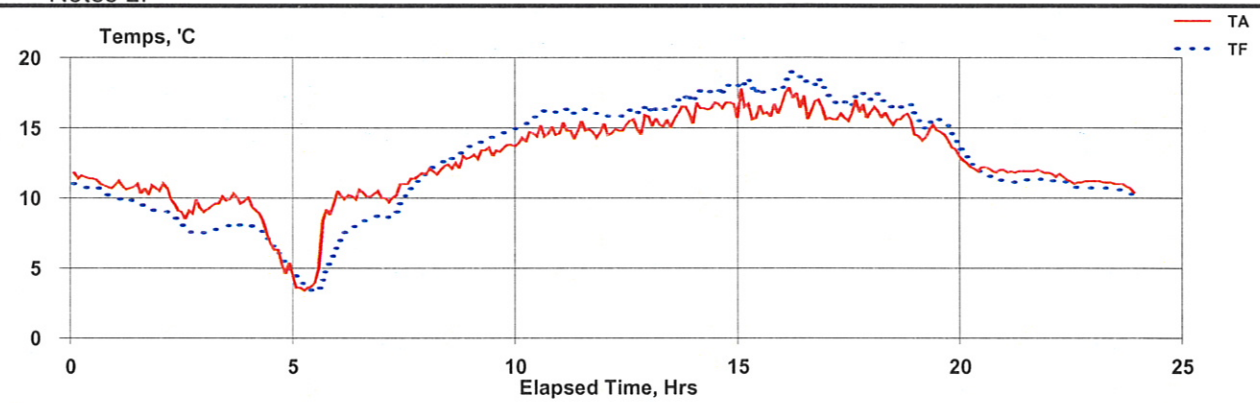
Timer Information:

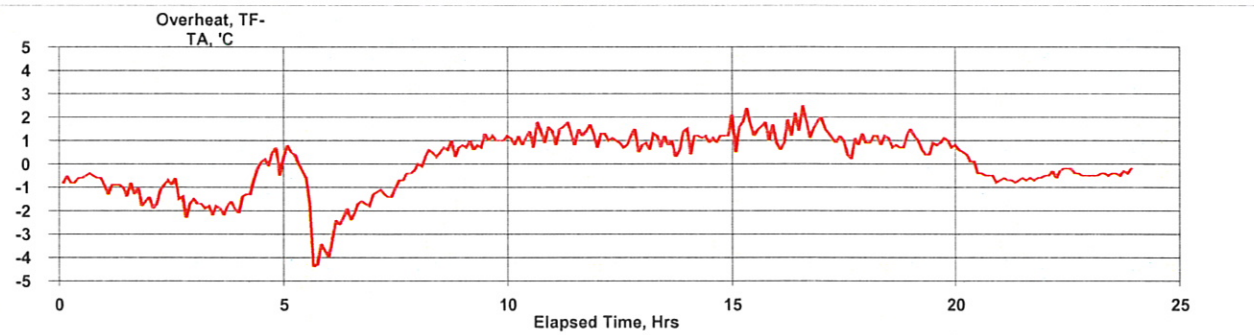
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-may	0:00:08
Stop:	15-13-may	0:00:04
ET:	23:59	

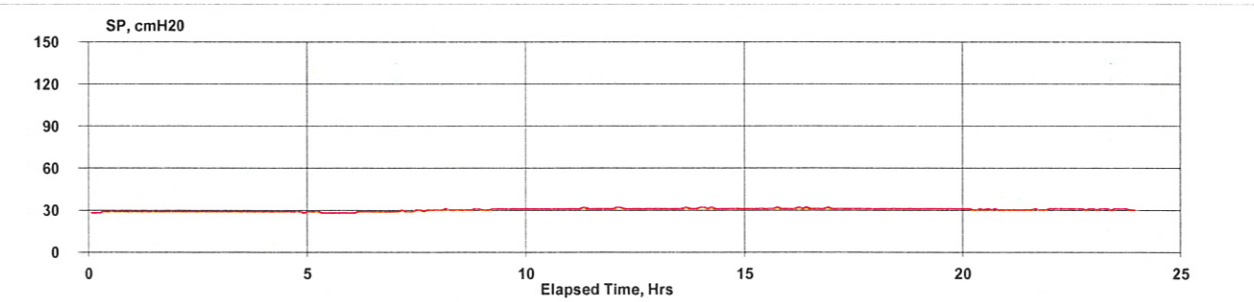
Mass Concentration Data:

Filter ID:	20	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-12-may	0:05:08	582	11.2	10.6	-0.6	29	16.72
15-12-may	1:05:08	582	10.7	9.5	-1.2	29	16.71
15-12-may	2:05:08	582	9.5	8.2	-1.4	29	16.71
15-12-may	3:05:08	582	9.8	7.9	-1.9	29	16.71
15-12-may	4:05:08	582	6.9	6.5	-0.3	29	16.71
15-12-may	5:05:08	582	6.1	4.4	-1.7	28	16.69
15-12-may	6:05:08	582	10.2	8.1	-2.1	29	16.72
15-12-may	7:05:08	582	10.9	10.1	-0.8	30	16.71
15-12-may	8:05:08	582	12.3	12.8	0.5	30	16.72
15-12-may	9:05:08	582	13.4	14.4	1.0	31	16.71
15-12-may	10:05:08	582	14.5	15.7	1.2	31	16.71
15-12-may	11:05:08	582	14.9	16.2	1.3	31	16.71
15-12-may	12:05:08	582	15.1	16.1	1.0	31	16.70
15-12-may	13:05:08	582	15.6	16.6	1.0	31	16.71
15-12-may	14:05:08	581	16.5	17.7	1.1	31	16.71
15-12-may	15:05:08	581	16.4	17.8	1.5	31	16.71
15-12-may	16:05:08	581	16.8	18.4	1.6	31	16.71
15-12-may	17:05:08	581	16.0	17.0	1.0	31	16.71
15-12-may	18:05:08	581	15.7	16.7	1.0	31	16.70
15-12-may	19:05:08	581	14.3	15.1	0.8	31	16.71
15-12-may	20:05:08	581	12.1	12.0	-0.2	30	16.71
15-12-may	21:05:08	581	11.9	11.2	-0.6	30	16.71
15-12-may	22:05:08	582	11.3	10.9	-0.4	31	16.71
15-12-may	23:05:08	582	11.0	10.6	-0.4	31	16.71

BGI PQ200 Air Sampling System Downloaded 2015 21 may 13:26:38

Job Details:

Job Name: 15May21A.JOB
Version: 5.62
Serial No: 962
Pump Time: 6162:45
Flags:

Job Code:
Site Name:
Station Code:
Operators:
User1:
User2:

	Max	Min	Avg	Units
BP	585	582	583	mmHg
TA	12	0.2	6.5	°C
Q	---	---	16.71	Lpm

QCV 0.58 %

Max overheat 6 °C
occured 19-may 20:46:39

Timer Information:

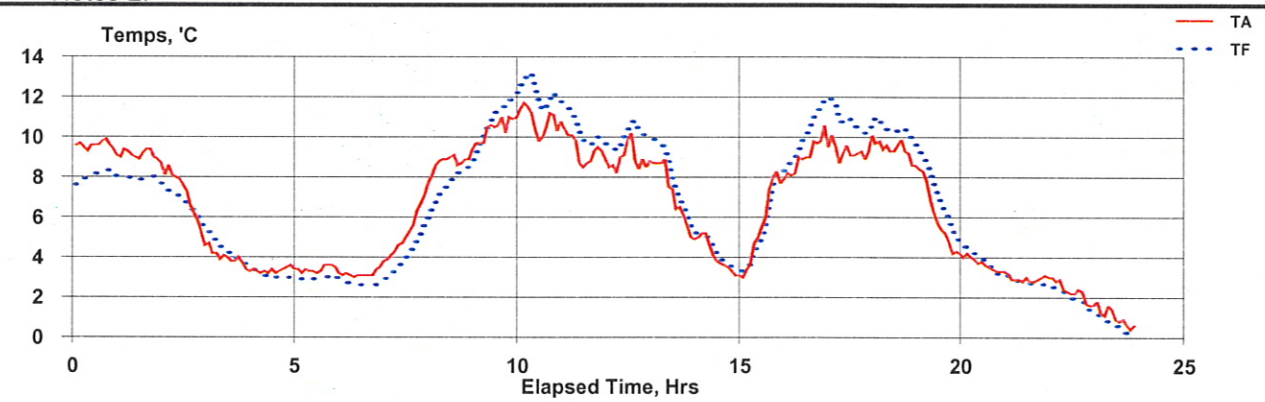
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-may	0:00:08
Stop:	15-19-may	0:00:05

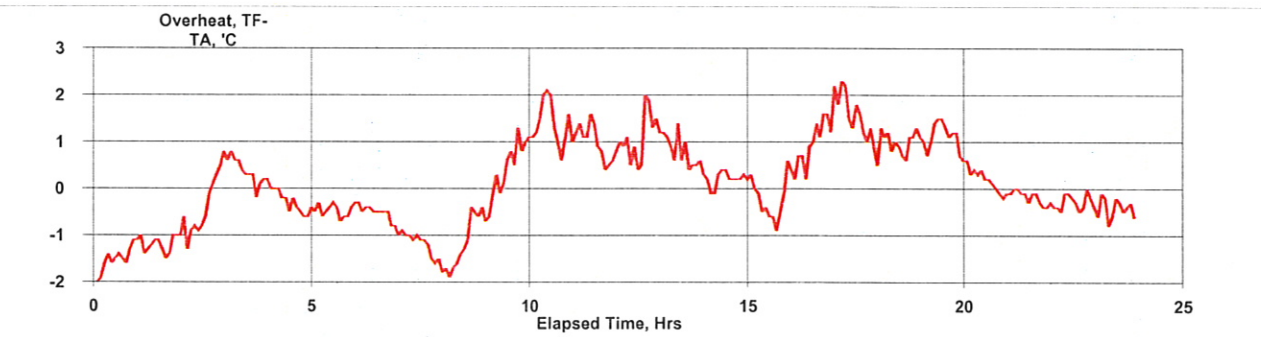
ET: 23:59

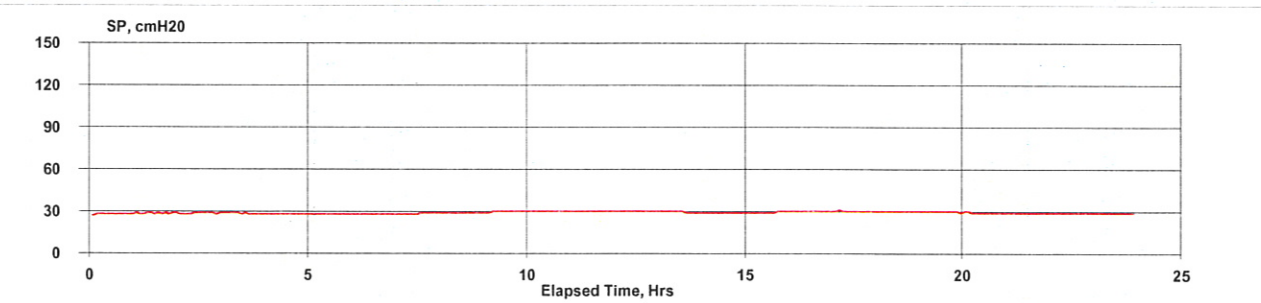
Mass Concentration Data:

Filter ID:	1	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.042	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-may	0:05:08	584	9.6	8.1	-1.5	28	16.70
15-18-may	1:05:08	584	9.1	7.9	-1.2	29	16.71
15-18-may	2:05:08	584	7.0	6.6	-0.4	29	16.71
15-18-may	3:05:08	584	3.9	4.3	0.4	29	16.71
15-18-may	4:05:08	584	3.4	3.1	-0.3	28	16.71
15-18-may	5:05:08	584	3.4	2.9	-0.5	28	16.71
15-18-may	6:05:08	584	3.2	2.7	-0.6	28	16.72
15-18-may	7:05:08	584	5.4	4.2	-1.2	29	16.71
15-18-may	8:05:08	584	8.8	7.7	-1.1	29	16.71
15-18-may	9:05:08	584	10.5	10.9	0.5	30	16.71
15-18-may	10:05:08	584	10.8	12.2	1.4	30	16.71
15-18-may	11:05:08	584	9.3	10.3	1.0	30	16.72
15-18-may	12:05:08	584	8.9	10.0	1.1	30	16.70
15-18-may	13:05:08	585	7.0	7.8	0.8	30	16.71
15-18-may	14:05:08	585	4.0	4.2	0.2	29	16.71
15-18-may	15:05:08	584	5.9	5.7	-0.2	29	16.71
15-18-may	16:05:08	583	9.2	10.2	1.1	30	16.71
15-18-may	17:05:08	583	9.3	10.8	1.5	30	16.71
15-18-may	18:05:08	583	9.4	10.4	1.0	30	16.72
15-18-may	19:05:08	583	6.0	7.1	1.1	30	16.71
15-18-may	20:05:08	584	3.7	3.8	0.2	29	16.71
15-18-may	21:05:08	583	2.9	2.8	-0.2	29	16.71
15-18-may	22:05:08	583	2.3	2.0	-0.3	29	16.72
15-18-may	23:05:08	583	1.0	0.6	-0.4	29	16.71

BGI PQ200 Air Sampling System Downloaded 2015 27 may 09:28:34

Job Details:

Job Name:	15May27A.JOB
Version:	5.62
Serial No:	962
Pump Time:	6186:44
Flags:	

Job Code:	
Site Name:	962A
Station Code:	
Operators:	KN
User1:	
User2:	

	Max	Min	Avg	Units
BP	583	580	581	mmHg
TA	14.1	0	6.7	°C
Q	---	---	16.71	Lpm

QCV	0.45 %
Max overheat	5.2 °C
occured	26-may 20:38:25

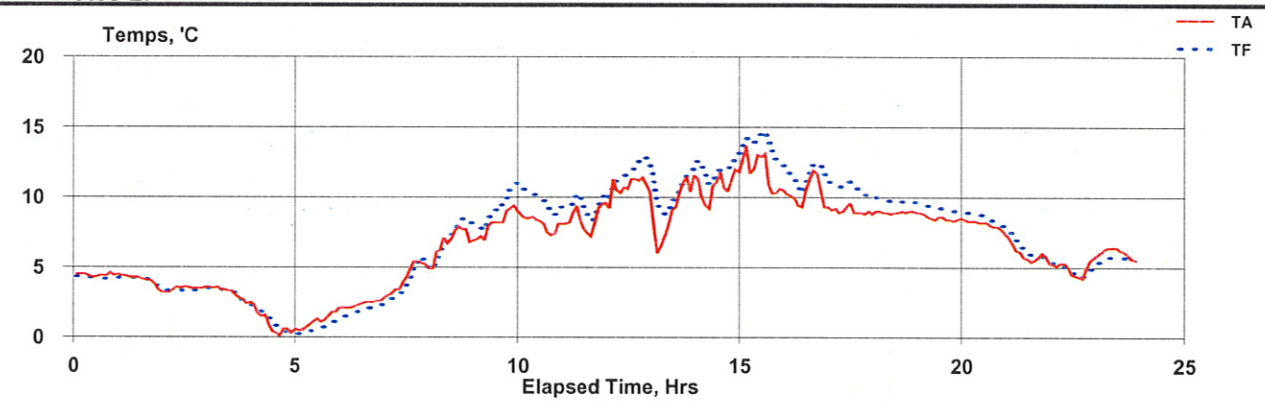
Timer Information:

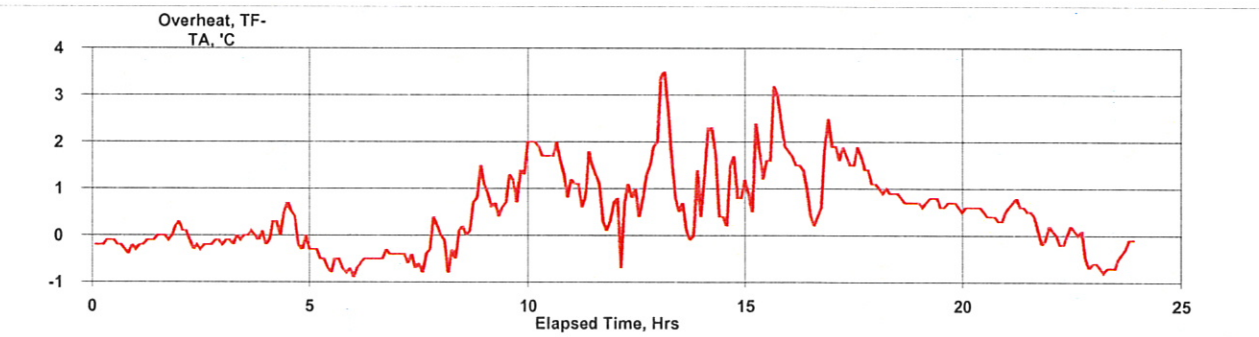
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-may	0:00:08
Stop:	15-25-may	0:00:05
ET:	23:59	

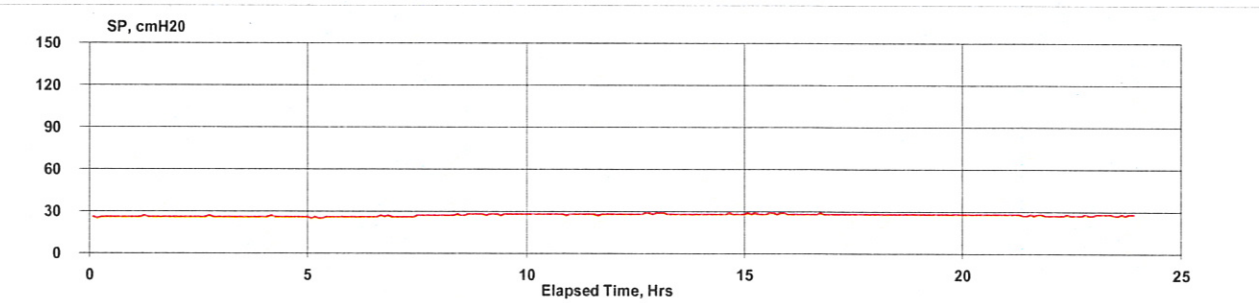
Mass Concentration Data:

Filter ID:	4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.032	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-24-may	0:05:08	582	4.4	4.2	-0.2	26	16.71
15-24-may	1:05:08	582	4.0	4.0	0.0	26	16.75
15-24-may	2:05:08	582	3.5	3.3	-0.1	26	16.70
15-24-may	3:05:08	582	3.1	3.1	-0.1	26	16.74
15-24-may	4:05:08	581	0.9	1.1	0.2	26	16.71
15-24-may	5:05:08	581	1.2	0.6	-0.6	26	16.70
15-24-may	6:05:08	582	2.4	1.9	-0.5	26	16.71
15-24-may	7:05:08	582	4.4	4.0	-0.3	27	16.71
15-24-may	8:05:08	582	6.9	7.1	0.2	28	16.71
15-24-may	9:05:08	582	8.2	9.2	1.0	28	16.70
15-24-may	10:05:08	582	8.1	9.8	1.6	28	16.71
15-24-may	11:05:08	582	8.5	9.4	0.9	28	16.71
15-24-may	12:05:08	582	10.8	11.7	1.0	28	16.71
15-24-may	13:05:08	582	9.1	10.3	1.2	28	16.71
15-24-may	14:05:08	582	10.8	12.0	1.2	28	16.71
15-24-may	15:05:08	581	11.8	13.7	1.9	29	16.72
15-24-may	16:05:08	581	10.3	11.5	1.3	28	16.70
15-24-may	17:05:08	582	9.0	10.6	1.6	28	16.71
15-24-may	18:05:08	581	8.9	9.8	0.8	28	16.70
15-24-may	19:05:08	582	8.5	9.2	0.7	28	16.70
15-24-may	20:05:08	582	8.1	8.6	0.5	28	16.73
15-24-may	21:05:08	582	5.9	6.3	0.4	28	16.70
15-24-may	22:05:08	582	5.0	4.8	-0.1	27	16.72
15-24-may	23:05:08	582	6.1	5.6	-0.5	28	16.71

BGI PQ200 Air Sampling System Downloaded 2015 01 jun 15:09:55

Job Details:

Job Name:	15Jun01A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6210:43	Operators:	KN
Flags:	F	User1:	
		User2:	

	Max	Min	Avg	Units
BP	589	586	587	mmHg
TA	24.6	5.1	15.5	°C
Q	---	---	16.7	Lpm

QCV	0.57 %
Max overheat	8.6 °C
occured	31-may 20:40:52

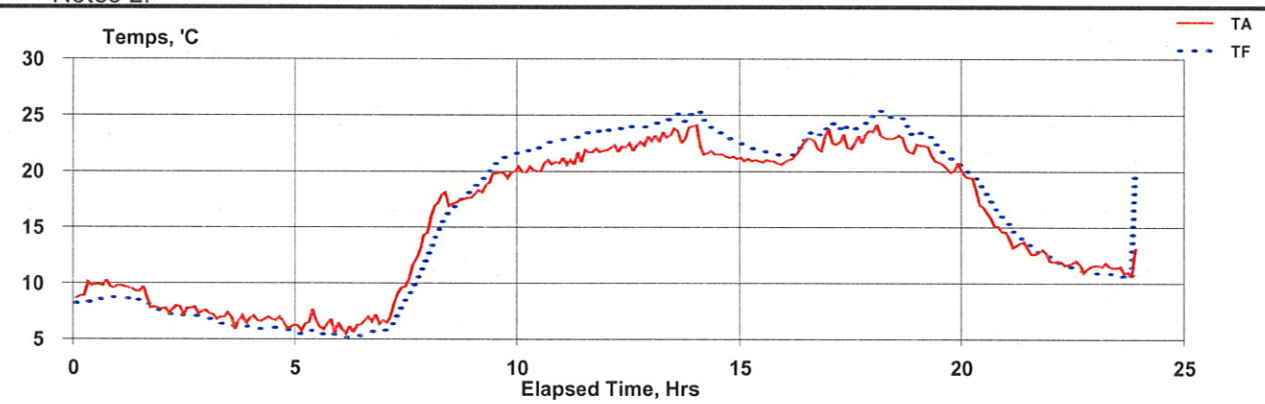
Timer Information:

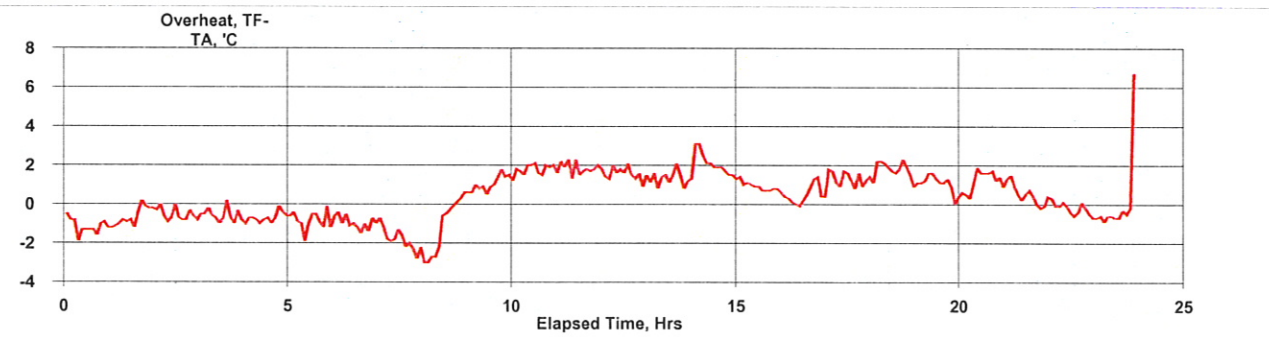
	Date dd-mmm	Time hh:mm:ss
Start:	15-30-may	0:00:08
Stop:	15-31-may	0:00:05
ET:	23:59	

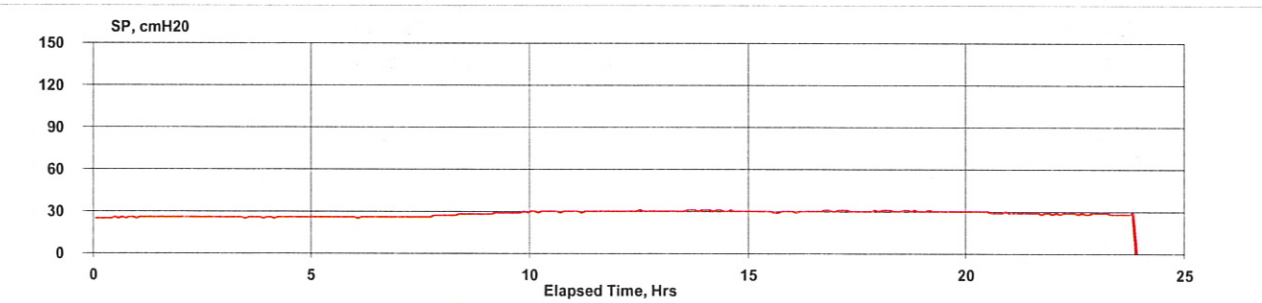
Mass Concentration Data:

Filter ID:	11	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.04	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-30-may	0:05:08	587	9.6	8.5	-1.2	25	16.71
15-30-may	1:05:08	587	8.9	8.3	-0.6	26	16.71
15-30-may	2:05:08	587	7.6	7.1	-0.5	26	16.70
15-30-may	3:05:08	587	6.9	6.3	-0.6	26	16.72
15-30-may	4:05:08	587	6.6	5.9	-0.7	26	16.72
15-30-may	5:05:08	587	6.4	5.5	-0.9	26	16.72
15-30-may	6:05:08	588	6.4	5.4	-1.0	26	16.70
15-30-may	7:05:08	588	10.5	8.7	-1.8	26	16.71
15-30-may	8:05:08	588	17.3	16.1	-1.2	28	16.71
15-30-may	9:05:08	588	19.2	20.3	1.0	29	16.71
15-30-may	10:05:08	588	20.4	22.2	1.8	30	16.71
15-30-may	11:05:08	588	21.4	23.2	1.8	30	16.71
15-30-may	12:05:08	588	22.2	23.8	1.6	30	16.71
15-30-may	13:05:08	588	23.2	24.6	1.3	30	16.70
15-30-may	14:05:08	588	21.7	23.8	2.1	30	16.70
15-30-may	15:05:08	588	20.9	21.9	0.9	30	16.71
15-30-may	16:05:08	587	22.0	22.5	0.5	30	16.71
15-30-may	17:05:08	587	22.8	24.1	1.2	30	16.71
15-30-may	18:05:08	587	22.9	24.7	1.8	31	16.71
15-30-may	19:05:08	587	21.2	22.3	1.1	30	16.72
15-30-may	20:05:08	587	17.3	18.5	1.2	30	16.71
15-30-may	21:05:08	587	13.3	13.8	0.6	29	16.71
15-30-may	22:05:08	587	11.7	11.6	-0.1	29	16.71
15-30-may	23:05:08	587	11.3	10.8	-0.6	28	16.72
15-31-may	20:52:09	585	13.1	19.8	6.7		0.00

BGI PQ200 Air Sampling System Downloaded 2015 06 jun 07:22:53

Job Details:

Job Name:	15Jun06A.JOB
Version:	5.62
Serial No:	962
Pump Time:	6234:43
Flags:	

Job Code:	
Site Name:	962A
Station Code:	
Operators:	LWJ
User1:	
User2:	

	Max	Min	Avg	Units
BP	585	581	583	mmHg
TA	18.6	3.9	11.5	°C
Q	---	---	16.7	Lpm

QCV	0.52	%
Max overheat	3	°C
occured	05-jun 14:58:56	

Timer Information:

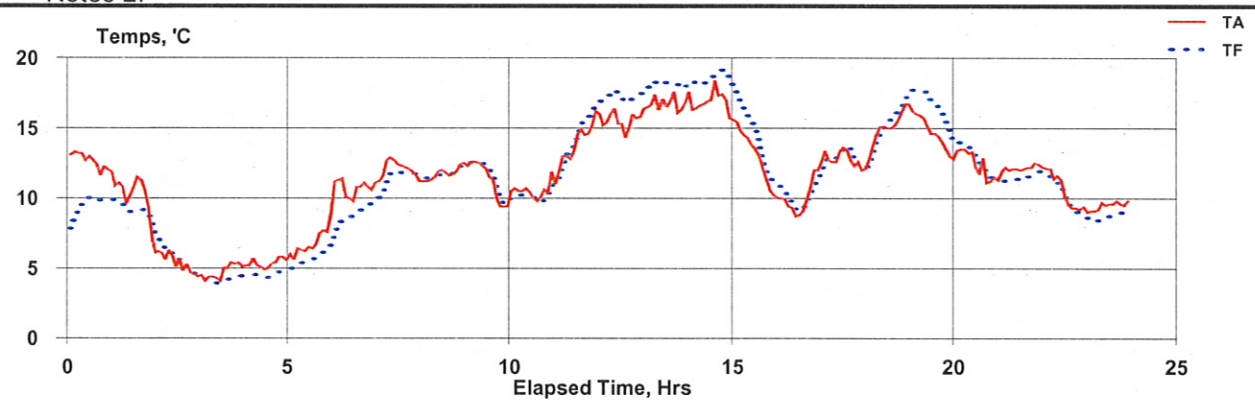
	Date dd-mmm	Time hh:mm:ss
Start:	15-05-jun	0:00:08
Stop:	15-06-jun	0:00:05
ET:	24:00:00	

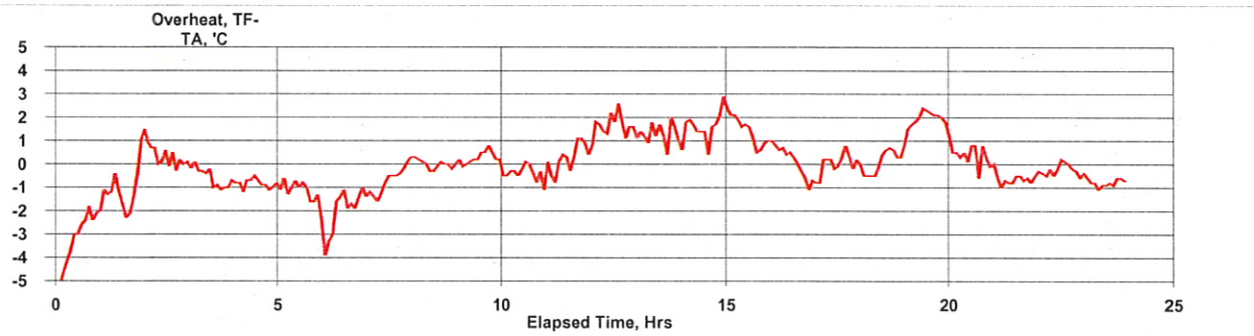
Mass Concentration Data:

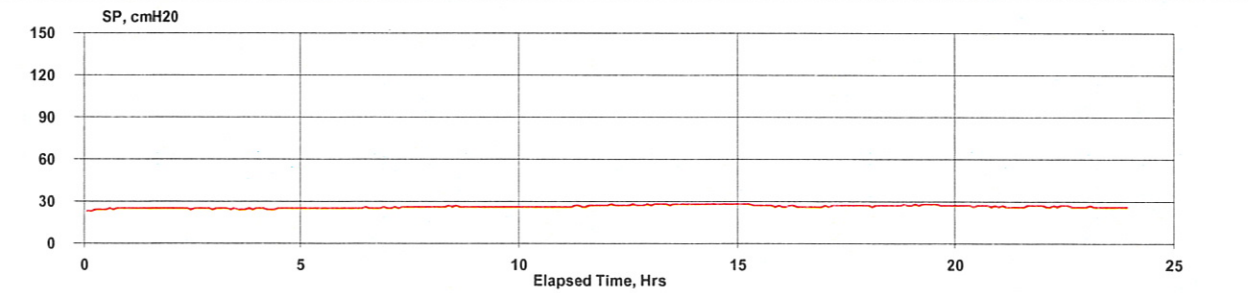
Filter ID:	14	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.041	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







15-05-jun	0:04:41	583	12.6	9.5	-3.1	24	16.71
15-05-jun	1:04:41	583	10.0	9.1	-0.9	25	16.71
15-05-jun	2:04:41	583	5.4	5.7	0.3	25	16.71
15-05-jun	3:04:41	583	4.8	4.2	-0.6	25	16.71
15-05-jun	4:04:41	583	5.4	4.5	-0.8	25	16.71
15-05-jun	5:04:41	583	6.8	5.6	-1.2	25	16.71
15-05-jun	6:04:41	583	10.8	8.8	-2.0	25	16.71
15-05-jun	7:04:41	583	12.1	11.4	-0.7	26	16.71
15-05-jun	8:04:41	583	11.8	11.7	0.0	26	16.72
15-05-jun	9:04:41	584	11.3	11.6	0.3	26	16.70
15-05-jun	10:04:41	584	10.5	10.1	-0.4	26	16.71
15-05-jun	11:04:41	584	13.8	14.0	0.3	27	16.71
15-05-jun	12:04:41	584	15.5	17.2	1.6	27	16.71
15-05-jun	13:04:41	584	16.7	18.0	1.3	28	16.71
15-05-jun	14:04:41	583	16.9	18.5	1.6	28	16.72
15-05-jun	15:04:41	583	13.3	14.7	1.5	27	16.71
15-05-jun	16:04:41	583	10.0	10.1	0.1	26	16.71
15-05-jun	17:04:41	583	12.8	12.8	0.0	27	16.72
15-05-jun	18:04:41	582	14.8	14.8	0.1	27	16.71
15-05-jun	19:04:41	582	15.0	16.9	1.9	28	16.71
15-05-jun	20:04:41	582	12.5	13.0	0.4	27	16.71
15-05-jun	21:04:41	582	12.1	11.5	-0.6	26	16.71
15-05-jun	22:04:41	583	10.6	10.4	-0.2	26	16.71
15-05-jun	23:04:41	583	9.5	8.7	-0.8	26	16.70

BGI PQ200 Air Sampling System Downloaded 2015 12 jun 12:00:31

Job Details:

Job Name:	15Jun12B.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	6258:42	Operators:	lwj
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	584	581	583	mmHg
TA	17.8	7.1	12.2	°C
Q	---	---	16.7	Lpm

QCV	0.57 %
Max overheat	4.1 °C
occured	11-jun 11:40:02

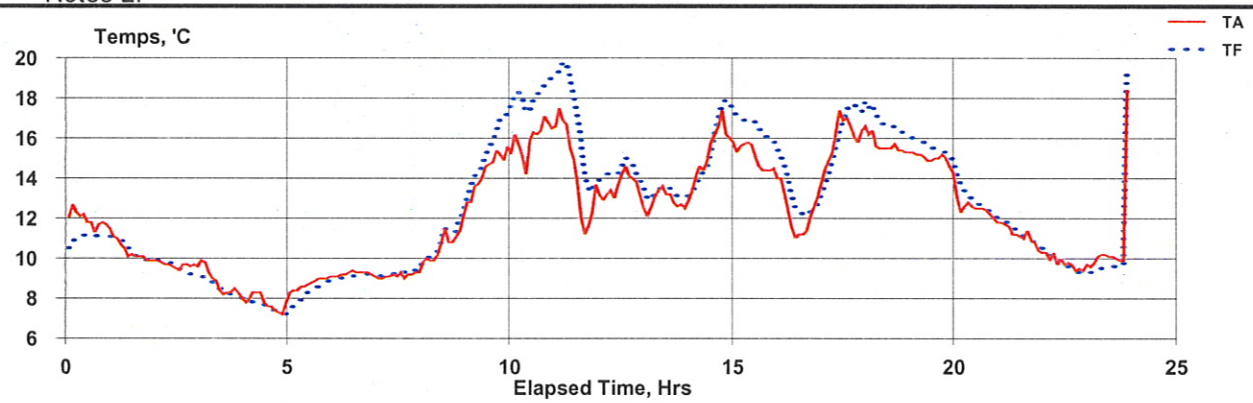
Timer Information:

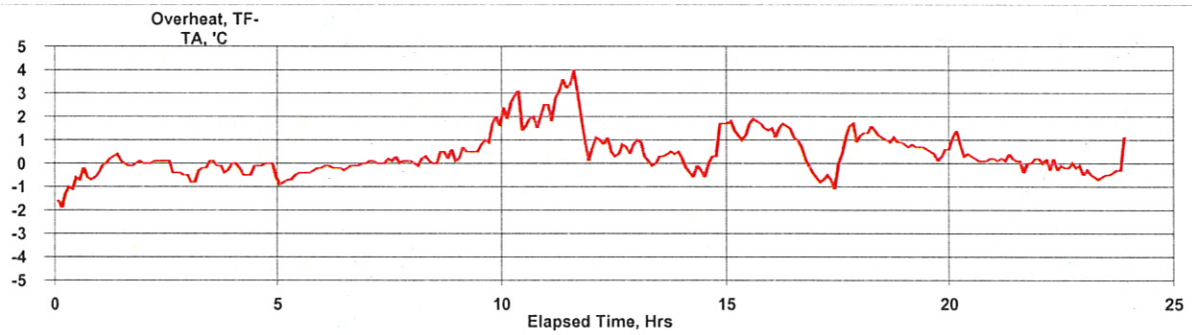
	Date dd-mmm	Time hh:mm:ss
Start:	15-11-jun	0:00:08
Stop:	15-12-jun	0:00:04
ET:	23:59	

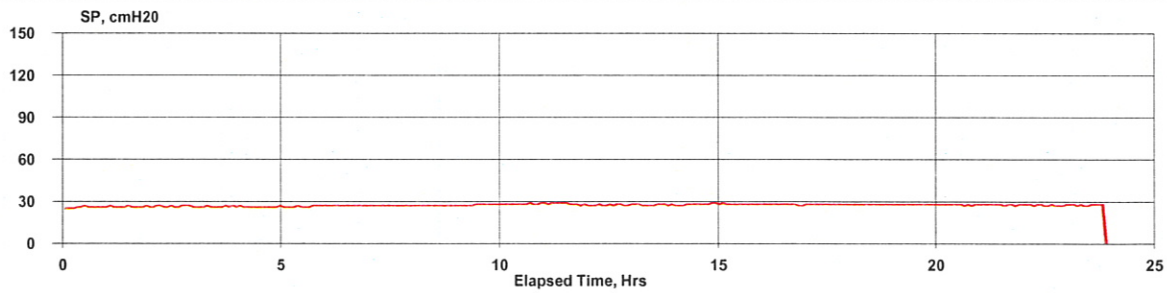
Mass Concentration Data:

Filter ID:	4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.041	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-11-jun	0:05:08	583	11.9	11.0	-0.9	26	16.71
15-11-jun	1:05:08	583	10.3	10.4	0.1	26	16.70
15-11-jun	2:05:08	583	9.7	9.5	-0.1	27	16.71
15-11-jun	3:05:08	583	8.7	8.5	-0.2	26	16.71
15-11-jun	4:05:08	582	7.8	7.6	-0.2	26	16.71
15-11-jun	5:05:08	583	8.7	8.2	-0.5	26	16.71
15-11-jun	6:05:08	583	9.2	9.1	-0.1	27	16.71
15-11-jun	7:05:08	583	9.2	9.2	0.1	27	16.71
15-11-jun	8:05:08	583	10.7	10.9	0.2	27	16.72
15-11-jun	9:05:08	584	14.3	15.3	0.9	28	16.71
15-11-jun	10:05:08	583	16.0	18.1	2.2	28	16.71
15-11-jun	11:05:08	583	14.4	16.9	2.5	28	16.70
15-11-jun	12:05:08	583	13.6	14.3	0.7	27	16.69
15-11-jun	13:05:08	583	12.9	13.2	0.4	28	16.72
15-11-jun	14:05:08	584	15.2	15.4	0.2	28	16.72
15-11-jun	15:05:08	584	15.1	16.6	1.5	28	16.71
15-11-jun	16:05:08	584	12.3	13.3	1.0	28	16.71
15-11-jun	17:05:08	583	15.9	16.0	0.1	28	16.71
15-11-jun	18:05:08	583	15.7	16.9	1.2	28	16.71
15-11-jun	19:05:08	584	15.1	15.6	0.6	28	16.71
15-11-jun	20:05:08	584	12.7	13.1	0.5	28	16.71
15-11-jun	21:05:08	584	11.2	11.3	0.1	28	16.71
15-11-jun	22:05:08	584	9.8	9.8	-0.1	28	16.72
15-11-jun	23:05:08	584	10.0	9.5	-0.5	28	16.70
15-12-jun	11:47:57	584	18.4	19.5	1.1		0.00

BGI PQ200 Air Sampling System Downloaded 2015 01 jul 09:46:30

Job Details:

Job Name: 15Jul01A.JOB
Version: 5.62
Serial No: 962
Pump Time: 6330:39
Flags:

Job Code:
Site Name: 962A
Station Code:
Operators: KN
User1:
User2:

	Max	Min	Avg	Units
BP	589	586	588	mmHg
TA	33.4	10.9	22.5	°C
Q	---	---	16.7	Lpm

QCV 0.52 %

Max overheat 5.2 °C
occured 30-jun 17:32:27

Timer Information:

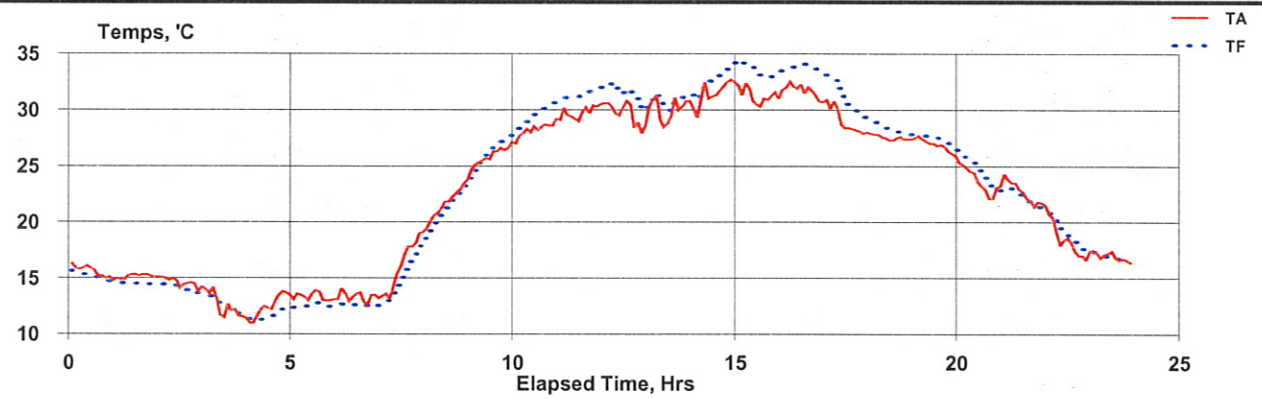
	Date dd-mmm	Time hh:mm:ss
Start:	15-29-jun	0:00:08
Stop:	15-30-jun	0:00:05

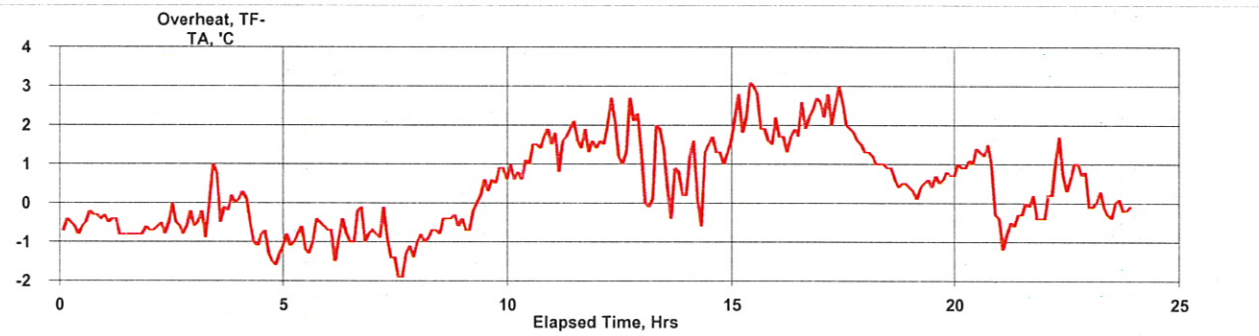
ET: 23:59

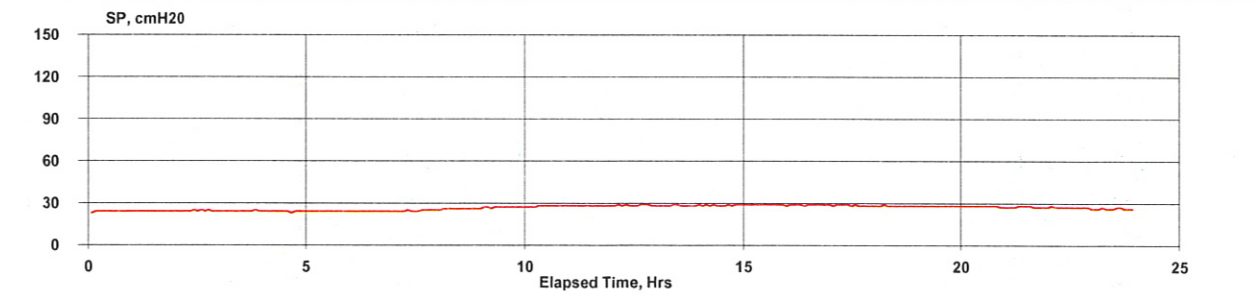
Mass Concentration Data:

Filter ID:	1	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.039	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-29-jun	0:05:08	588	15.6	15.1	-0.5	24	16.72
15-29-jun	1:05:08	588	15.2	14.5	-0.7	24	16.70
15-29-jun	2:05:08	588	14.6	14.0	-0.5	24	16.71
15-29-jun	3:05:08	588	12.5	12.5	0.0	24	16.71
15-29-jun	4:05:08	588	12.5	11.7	-0.9	24	16.71
15-29-jun	5:05:08	588	13.3	12.5	-0.8	24	16.72
15-29-jun	6:05:08	588	13.3	12.6	-0.8	24	16.71
15-29-jun	7:05:08	589	16.2	15.1	-1.2	25	16.71
15-29-jun	8:05:08	589	21.7	21.1	-0.6	26	16.71
15-29-jun	9:05:08	589	25.9	26.2	0.3	27	16.70
15-29-jun	10:05:08	589	28.3	29.5	1.2	28	16.71
15-29-jun	11:05:08	589	29.8	31.4	1.6	28	16.71
15-29-jun	12:05:08	589	29.7	31.5	1.8	28	16.70
15-29-jun	13:05:08	588	30.1	30.7	0.6	28	16.71
15-29-jun	14:05:08	588	31.5	32.6	1.1	29	16.70
15-29-jun	15:05:08	588	31.3	33.5	2.3	29	16.72
15-29-jun	16:05:08	587	31.7	33.8	2.0	29	16.71
15-29-jun	17:05:08	587	29.0	31.1	2.1	28	16.71
15-29-jun	18:05:08	587	27.5	28.4	0.8	28	16.70
15-29-jun	19:05:08	587	26.9	27.4	0.5	28	16.71
15-29-jun	20:05:08	587	23.7	24.6	0.9	28	16.71
15-29-jun	21:05:08	588	22.6	22.2	-0.4	27	16.72
15-29-jun	22:05:08	589	18.2	18.9	0.7	27	16.71
15-29-jun	23:05:08	589	16.9	16.8	-0.1	26	16.71

Compliance Monitor 963B

PM_{10} Sampler Summary

April 1, 2015 - June 30, 2015

Network: **Alton Coal Development, LLC**
Site: Coal Hollow
Sampler ID: Coal Hollow-B
Sampler Type: BGI FRM Single

AQS ID:

Date	Filter ID	Concentration (µg/m3) LTP	Concentration (µg/m3) STP	Sample Period (hr:min)	Sample Volume (m3)	Std Volume (m3)	Mass (mg) Tare	Mass (mg) Gross	Mass (mg) Net	Flag	Comments
04/06/15	P2919861	**44.3**	**54.2**	23:59	24.0	19.6	366.370	367.435	1.065		
04/12/15	P2920159	**11.4**	**13.9**	23:59	24.0	19.7	366.589	366.863	0.274		
04/18/15	P2920162	**38.5**	**46.8**	23:59	24.0	19.7	364.538	365.463	0.925		
04/24/15	P2920165	**Invalid - AI**	**Invalid - AI**				366.821	367.172	0.351		No sampler data
04/30/15	P2920504	**Invalid - AN**	**Invalid - AN**	23:59	24.0	19.5	369.150	369.165	0.015		Wrong filter in monitor
05/06/15	P2920506	**7.3**	**9.0**	23:59	24.0	19.5	367.772	367.949	0.177		
05/12/15	P2920508	**33.9**	**42.1**	23:59	24.0	19.4	370.581	371.398	0.817		
05/18/15	P2920763	**18.1**	**21.9**	23:59	24.0	19.8	367.284	367.719	0.435		
05/24/15	P2920766	**3.2**	**3.9**	23:59	24.0	19.8	361.612	361.691	0.079		
05/30/15	P2921328	**48.5**	**60.3**	23:59	24.0	19.3	375.995	377.160	1.165		
06/05/15	P2921323	**90.1**	**111.2**	24:00	24.0	19.4	376.452	378.613	2.161		
06/11/15	P2921621	**4.5**	**5.6**	23:59	24.0	19.4	372.854	372.964	0.110		
06/17/15	P2921626	**53.5**	**67.4**	23:59	24.0	19.0	384.369	385.653	1.284		
06/23/15	P2921325	**45.0**	**56.8**	23:59	23.9	19.0	376.611	377.689	1.078	XT	
06/29/15	P2921079	**126.8**	**161.3**	23:59	24.0	18.9	361.471	364.513	3.042		
04/01/15	P2919863		**Field Blank**				365.698	365.694	-0.004		
06/01/15	P2921331		**Field Blank**				380.245	380.251	0.006		
06/12/15	P2921326		**Field Blank**				388.626	388.628	0.002	XT	

# Valid	Recovery	Average	St. Dev.	Max	Min
13	**87%**	**50.3**	**45.2**	**161.3**	**3.9**

BGI PQ200 Air Sampling System Downloaded 2015 01 apr 14:23:14

Job Details:

Job Name:	15Apr01B.JOB
Version:	5.62
Serial No:	963
Pump Time:	6093:26
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	593	587	590	mmHg
TA	20.2	0.4	10.3	°C
Q	---	---	16.7	Lpm

QCV	0.46 %
Max overheat	2.6 °C
occured	01-apr 12:38:50

Timer Information:

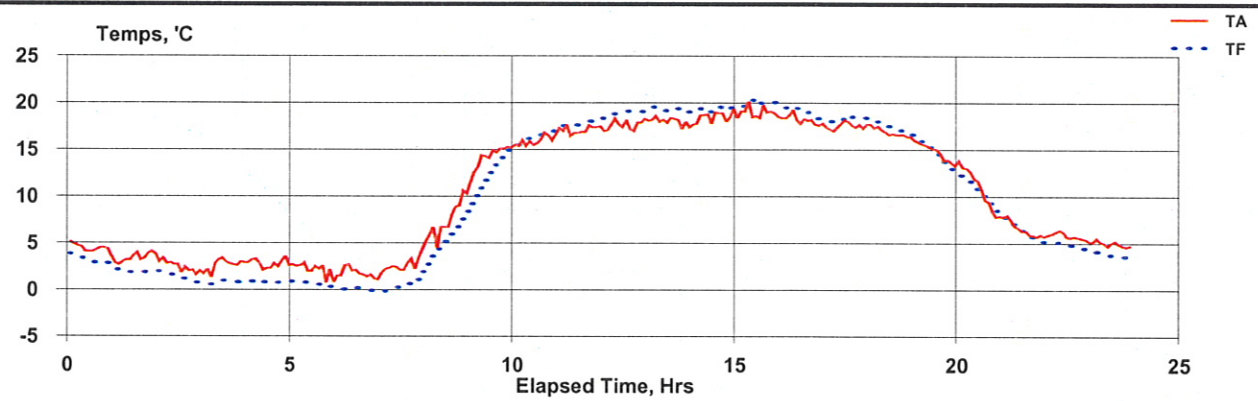
	Date dd-mmm	Time hh:mm:ss
Start:	15-31-mar	0:00:08
Stop:	15-01-apr	0:00:04
ET:	23:59	

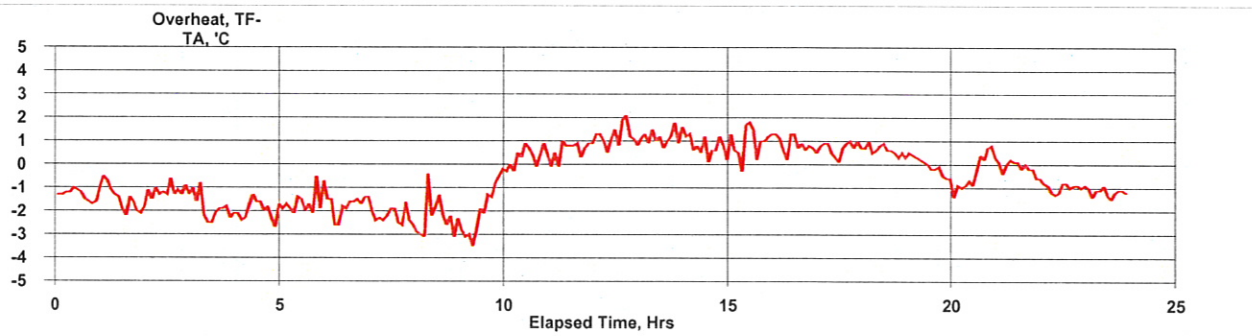
Mass Concentration Data:

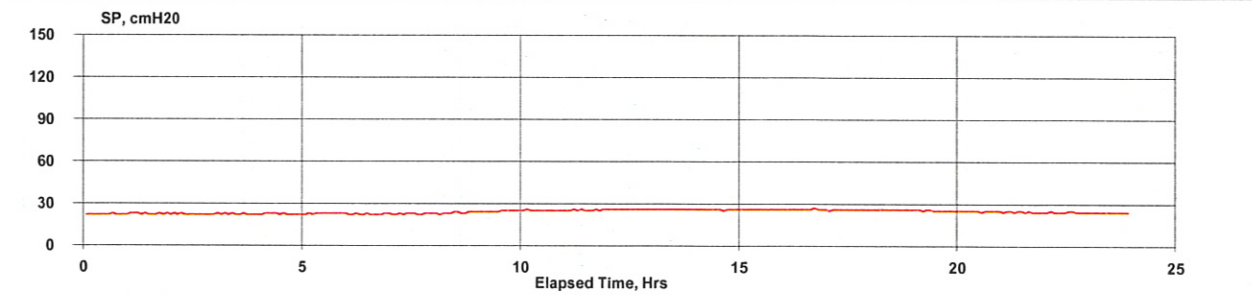
Filter ID:	5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.025	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







15-31-mar	0:05:08	592	4.4	3.1	-1.3	22	16.71
15-31-mar	1:05:08	592	3.4	1.9	-1.5	23	16.70
15-31-mar	2:05:08	592	2.5	1.3	-1.2	22	16.71
15-31-mar	3:05:08	592	2.6	0.7	-1.9	22	16.72
15-31-mar	4:05:08	591	2.8	0.8	-2.0	22	16.71
15-31-mar	5:05:08	591	2.1	0.5	-1.6	23	16.72
15-31-mar	6:05:08	591	1.8	0.0	-1.8	22	16.70
15-31-mar	7:05:08	591	2.6	0.4	-2.2	23	16.72
15-31-mar	8:05:08	591	7.4	5.2	-2.3	23	16.71
15-31-mar	9:05:08	592	14.2	12.2	-2.0	25	16.72
15-31-mar	10:05:08	592	16.0	16.3	0.3	25	16.71
15-31-mar	11:05:08	591	17.2	17.8	0.6	25	16.71
15-31-mar	12:05:08	591	17.6	18.9	1.2	26	16.70
15-31-mar	13:05:08	591	18.0	19.2	1.2	26	16.69
15-31-mar	14:05:08	590	18.5	19.3	0.8	26	16.69
15-31-mar	15:05:08	589	19.0	20.0	1.0	26	16.67
15-31-mar	16:05:08	589	18.2	19.0	0.8	26	16.66
15-31-mar	17:05:08	589	17.6	18.3	0.7	26	16.70
15-31-mar	18:05:08	588	16.9	17.5	0.6	26	16.72
15-31-mar	19:05:08	588	14.8	14.7	-0.1	25	16.71
15-31-mar	20:05:08	588	10.8	10.5	-0.3	25	16.71
15-31-mar	21:05:08	588	6.5	6.4	-0.1	24	16.71
15-31-mar	22:05:08	588	5.8	4.8	-1.0	24	16.71
15-31-mar	23:05:08	588	5.0	3.8	-1.2	24	16.71

BGI PQ200 Air Sampling System Downloaded 2015 07 apr 09:10:36

Job Details:

Job Name:	15Apr07B.JOB
Version:	5.62
Serial No:	963
Pump Time:	6117:25
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	586	582	584	mmHg
TA	15.2	-0.9	6.9	°C
Q	---	---	16.7	Lpm

QCV	0.57 %
Max overheat	2 °C
occured	06-apr 13:41:40

Timer Information:

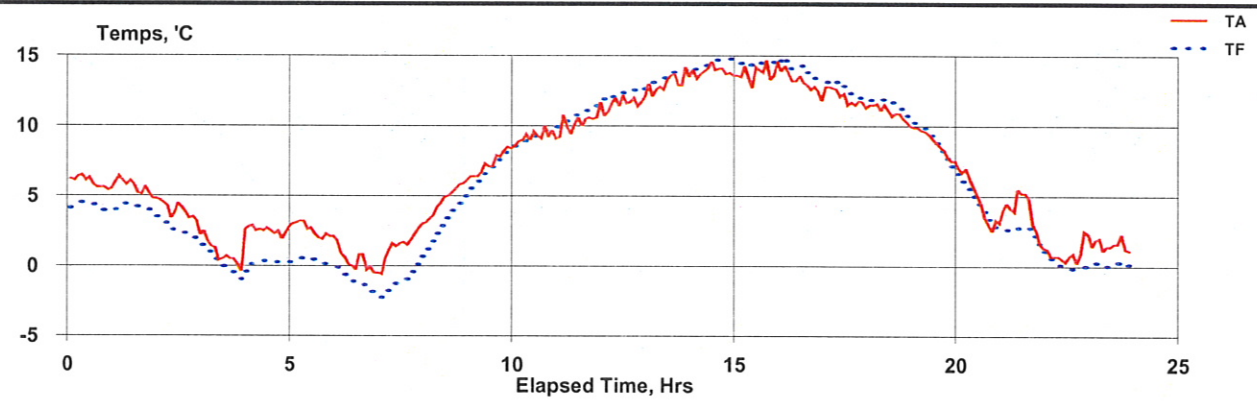
	Date dd-mmm	Time hh:mm:ss
Start:	15-06-apr	0:00:08
Stop:	15-07-apr	0:00:05
ET:	23:59	

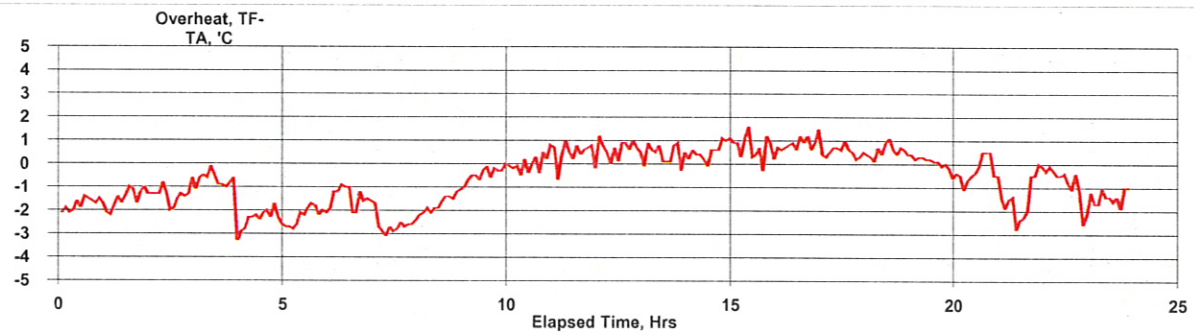
Mass Concentration Data:

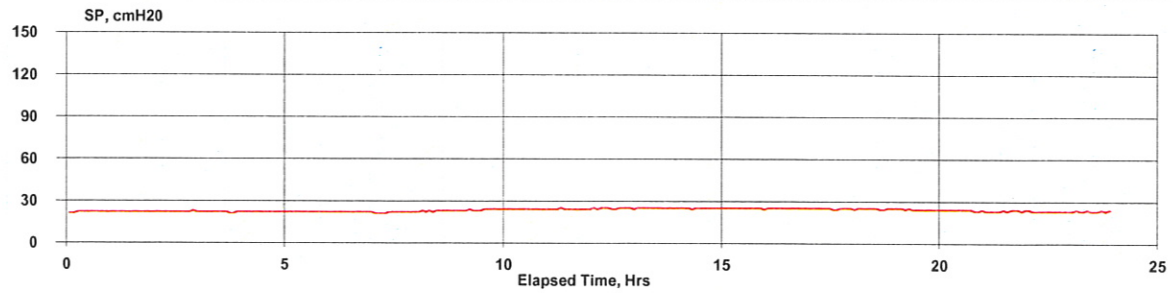
Filter ID:	8	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.006	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







15-06-apr	0:05:08	584	5.9	4.2	-1.8	22	16.72
15-06-apr	1:05:08	584	5.6	4.1	-1.5	22	16.73
15-06-apr	2:05:08	584	3.8	2.5	-1.3	22	16.70
15-06-apr	3:05:08	584	1.0	0.1	-0.9	22	16.68
15-06-apr	4:05:08	584	2.5	0.2	-2.3	22	16.72
15-06-apr	5:05:08	584	2.5	0.3	-2.2	22	16.71
15-06-apr	6:05:08	584	0.3	-1.2	-1.4	22	16.71
15-06-apr	7:05:08	585	1.6	-1.1	-2.6	22	16.73
15-06-apr	8:05:08	585	4.8	3.1	-1.7	23	16.72
15-06-apr	9:05:08	585	7.4	6.9	-0.4	24	16.71
15-06-apr	10:05:08	586	9.2	9.3	0.0	24	16.72
15-06-apr	11:05:08	586	10.3	10.8	0.4	24	16.65
15-06-apr	12:05:08	586	11.6	12.3	0.7	25	16.70
15-06-apr	13:05:08	585	13.1	13.5	0.4	25	16.69
15-06-apr	14:05:08	585	13.9	14.5	0.6	25	16.66
15-06-apr	15:05:08	585	13.8	14.5	0.7	25	16.68
15-06-apr	16:05:08	585	13.1	14.0	0.9	25	16.68
15-06-apr	17:05:08	585	12.1	12.6	0.5	25	16.72
15-06-apr	18:05:08	585	11.0	11.5	0.5	25	16.72
15-06-apr	19:05:08	585	8.8	8.9	0.1	24	16.72
15-06-apr	20:05:08	585	4.8	4.5	-0.3	24	16.72
15-06-apr	21:05:08	586	3.8	2.4	-1.4	23	16.71
15-06-apr	22:05:08	586	1.0	0.1	-0.9	23	16.72
15-06-apr	23:05:08	586	1.5	0.2	-1.4	23	16.71

BGI PQ200 Air Sampling System Downloaded 2015 15 apr 14:42:10

Job Details:

Job Name:	15Apr15B.JOB
Version:	5.62
Serial No:	963
Pump Time:	6141:24
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	592	585	589	mmHg
TA	18.1	-3.2	8.8	°C
Q	---	---	16.68	Lpm

QCV	0.4	%
Max overheat	3.5	°C
occured	15-apr 14:23:13	

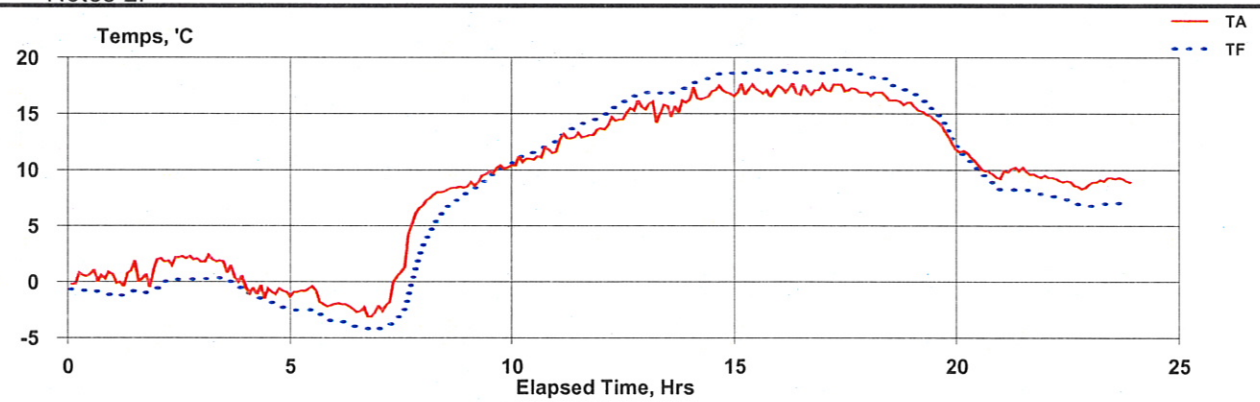
Timer Information:

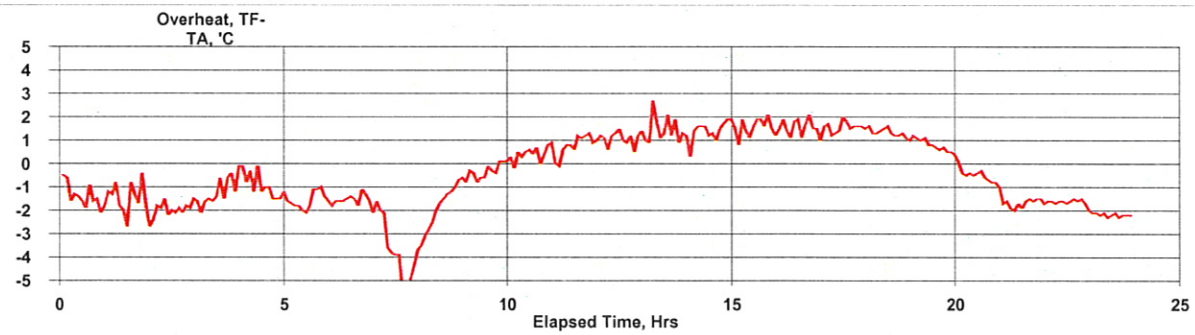
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-apr	0:00:08
Stop:	15-13-apr	0:00:04
ET:	23:59	

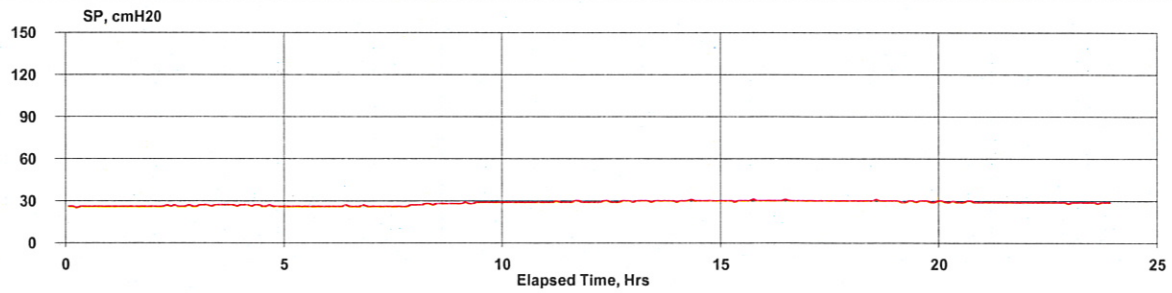
Mass Concentration Data:

Filter ID:	11	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.983	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-12-apr	0:05:08	588	0.5	-0.9	-1.4	26	16.71
15-12-apr	1:05:08	587	0.6	-1.0	-1.5	26	16.72
15-12-apr	2:05:08	587	2.0	0.1	-1.9	26	16.71
15-12-apr	3:05:08	587	1.2	0.0	-1.2	27	16.71
15-12-apr	4:05:08	588	-0.9	-1.8	-1.0	26	16.71
15-12-apr	5:05:08	588	-1.3	-2.9	-1.6	26	16.72
15-12-apr	6:05:08	588	-2.4	-4.0	-1.6	26	16.71
15-12-apr	7:05:08	588	2.1	-1.7	-3.7	26	16.71
15-12-apr	8:05:08	589	8.1	6.3	-1.8	28	16.71
15-12-apr	9:05:08	590	9.7	9.4	-0.3	29	16.70
15-12-apr	10:05:08	590	11.2	11.6	0.4	29	16.71
15-12-apr	11:05:08	590	13.1	13.9	0.8	29	16.67
15-12-apr	12:05:08	590	14.9	16.0	1.1	29	16.57
15-12-apr	13:05:08	590	15.6	17.0	1.5	30	16.62
15-12-apr	14:05:08	590	16.8	18.3	1.4	30	16.67
15-12-apr	15:05:08	589	17.1	18.7	1.5	30	16.70
15-12-apr	16:05:08	590	17.2	18.7	1.5	30	16.62
15-12-apr	17:05:08	590	17.2	18.8	1.6	30	16.66
15-12-apr	18:05:08	590	16.4	17.7	1.3	30	16.66
15-12-apr	19:05:08	590	14.1	14.9	0.8	30	16.60
15-12-apr	20:05:08	590	10.4	9.9	-0.5	29	16.68
15-12-apr	21:05:08	591	9.8	8.1	-1.7	29	16.69
15-12-apr	22:05:08	591	8.8	7.2	-1.6	29	16.70
15-12-apr	23:05:08	592	9.1	6.9	-2.2	29	16.72

BGI PQ200 Air Sampling System Downloaded 2015 20 apr 14:35:53

Job Details:

Job Name:	15Apr20B.JOB	Job Code:	
Version:	5.62	Site Name:	963B
Serial No:	963	Station Code:	
Pump Time:	6165:23	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	590	587	589	mmHg
TA	18.2	-3.1	7.8	°C
Q	---	---	16.7	Lpm

QCV	0.84 %
Max overheat	3.6 °C
occured	18-apr 15:10:10

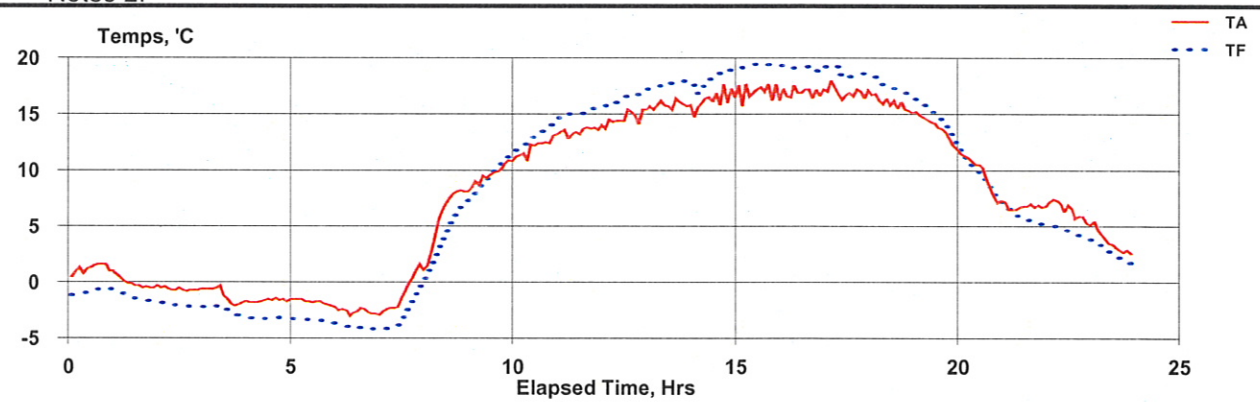
Timer Information:

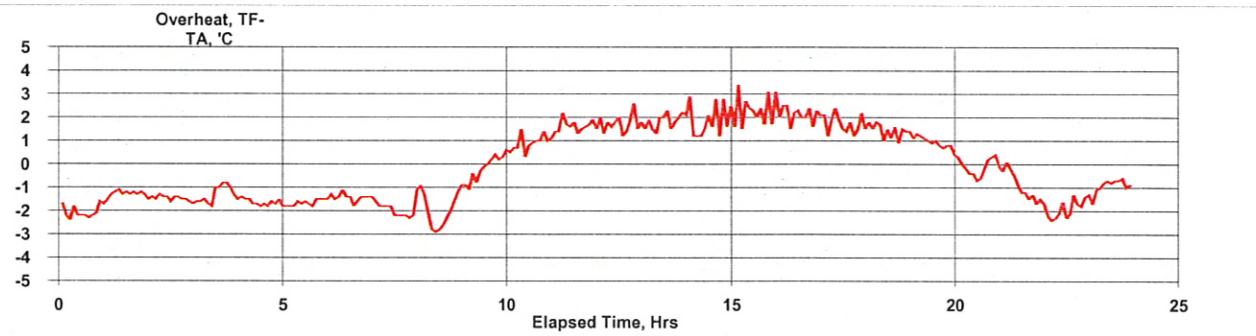
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-apr	0:00:08
Stop:	15-19-apr	0:00:05
ET:	23:59	

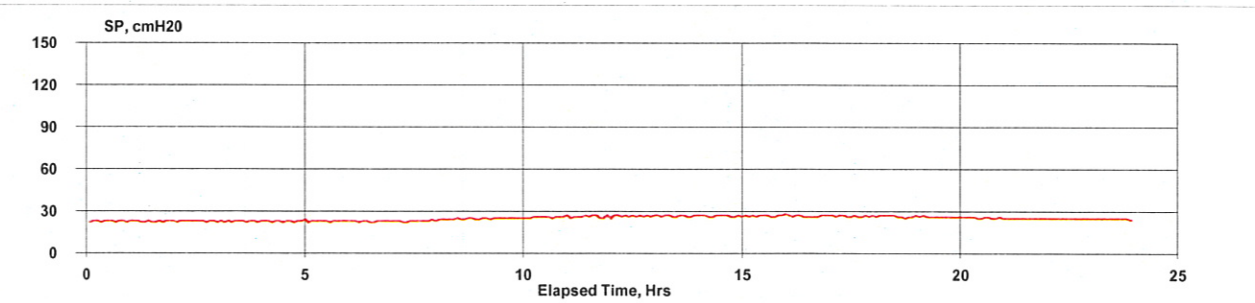
Mass Concentration Data:

Filter ID:	14	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.997	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-apr	0:05:08	590	1.2	-0.9	-2.1	23	16.74
15-18-apr	1:05:08	590	-0.2	-1.4	-1.3	23	16.71
15-18-apr	2:05:08	589	-0.6	-2.1	-1.5	23	16.74
15-18-apr	3:05:08	589	-1.2	-2.5	-1.3	23	16.73
15-18-apr	4:05:08	589	-1.6	-3.3	-1.6	23	16.67
15-18-apr	5:05:08	589	-1.8	-3.4	-1.7	23	16.73
15-18-apr	6:05:08	589	-2.6	-4.1	-1.4	23	16.73
15-18-apr	7:05:08	589	-0.8	-2.8	-1.9	23	16.82
15-18-apr	8:05:08	590	6.2	4.3	-2.0	24	16.85
15-18-apr	9:05:08	590	9.7	9.6	-0.2	25	16.71
15-18-apr	10:05:08	590	12.1	13.0	0.9	26	16.78
15-18-apr	11:05:08	590	13.5	15.2	1.6	26	16.67
15-18-apr	12:05:08	590	14.7	16.4	1.7	27	16.66
15-18-apr	13:05:08	589	15.8	17.7	1.8	27	16.65
15-18-apr	14:05:08	589	16.3	18.2	1.9	27	16.67
15-18-apr	15:05:08	589	17.0	19.3	2.3	27	16.70
15-18-apr	16:05:08	589	17.0	19.1	2.1	27	16.68
15-18-apr	17:05:08	589	17.0	18.7	1.7	27	16.62
15-18-apr	18:05:08	589	16.0	17.4	1.4	26	16.66
15-18-apr	19:05:08	589	13.8	14.7	0.9	26	16.70
15-18-apr	20:05:08	589	9.6	9.5	-0.1	26	16.66
15-18-apr	21:05:08	589	6.8	5.8	-1.0	25	16.70
15-18-apr	22:05:08	590	6.4	4.5	-1.9	25	16.70
15-18-apr	23:05:08	590	3.6	2.7	-0.9	25	16.71

BGI PQ200 Air Sampling System Downloaded 2015 01 may 14:56:16

Job Details:

Job Name: 15May01B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6213:21
Flags:

Job Code:
Site Name: 963B
Station Code:
Operators: KN
User1:
User2:

	Max	Min	Avg	Units
BP	592	589	590	mmHg
TA	22.8	1.6	12.7	°C
Q	---	---	16.7	Lpm

QCV 0.56 %

Max overheat 2.4 °C
occured 30-apr 16:33:55

Timer Information:

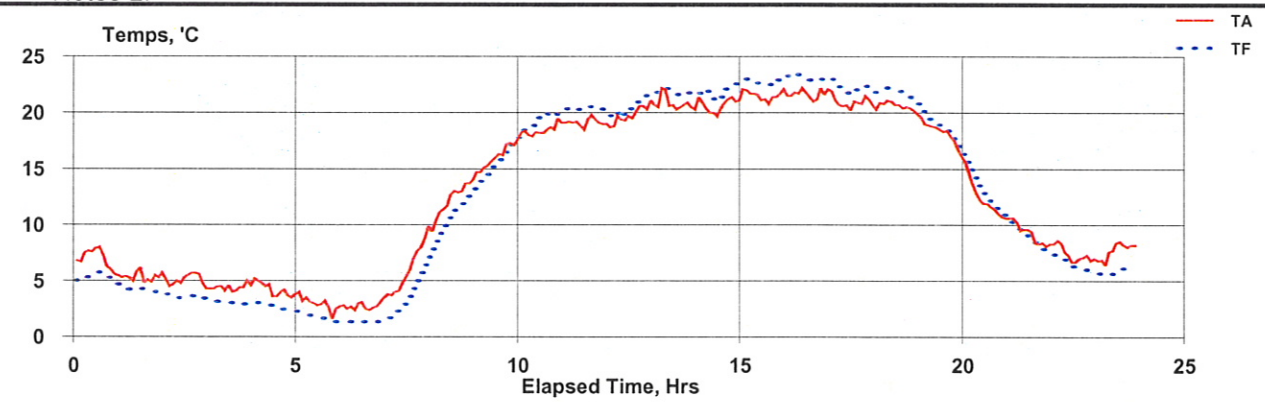
	Date dd-mmm	Time hh:mm:ss
Start:	15-30-apr	0:00:08
Stop:	15-01-may	0:00:04

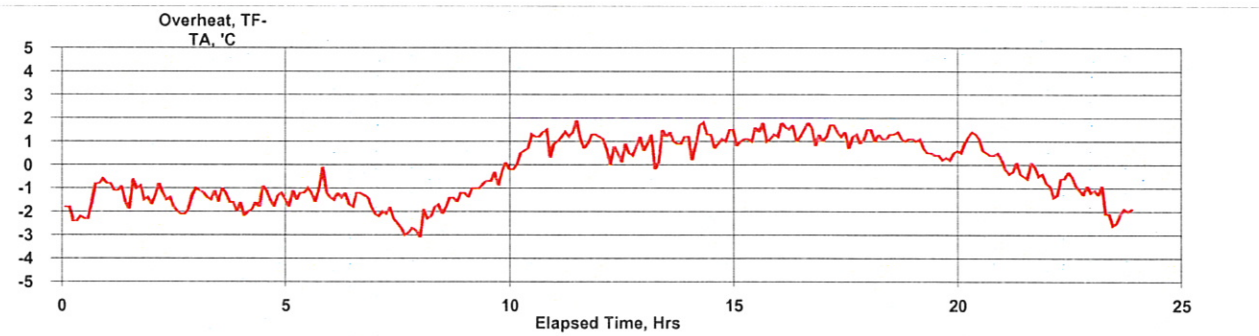
ET: 23:59

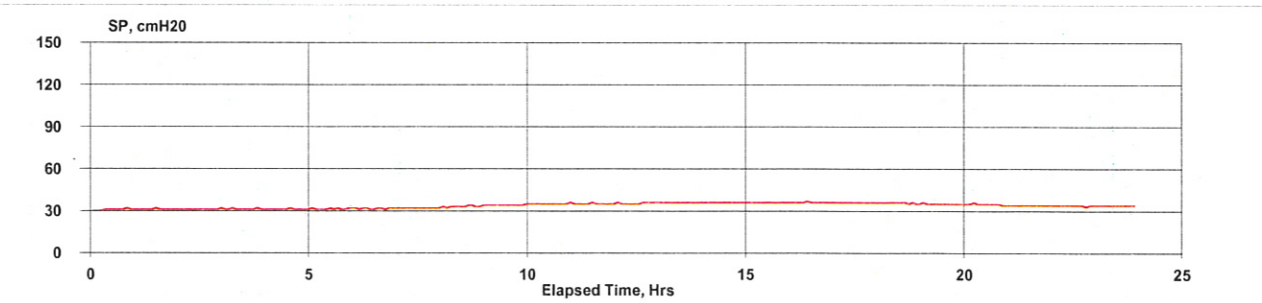
Mass Concentration Data:

Filter ID:	963B	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.041	m^3
Mass Conc:	0	ug/m3

Notes 1:
Notes 2:







15-30-apr	0:05:08	590	6.9	5.3	-1.7	31	16.72
15-30-apr	1:05:08	590	5.4	4.2	-1.2	31	16.71
15-30-apr	2:05:08	590	5.1	3.6	-1.5	31	16.71
15-30-apr	3:05:08	590	4.4	3.0	-1.4	31	16.71
15-30-apr	4:05:08	590	4.2	2.7	-1.6	31	16.70
15-30-apr	5:05:08	590	2.9	1.7	-1.2	31	16.70
15-30-apr	6:05:08	590	2.8	1.3	-1.5	32	16.71
15-30-apr	7:05:08	591	6.1	3.6	-2.5	32	16.71
15-30-apr	8:05:08	591	12.3	10.5	-1.7	33	16.71
15-30-apr	9:05:08	591	16.1	15.4	-0.7	34	16.72
15-30-apr	10:05:08	591	18.5	19.2	0.8	35	16.70
15-30-apr	11:05:08	591	19.1	20.4	1.2	35	16.71
15-30-apr	12:05:08	591	19.8	20.5	0.6	36	16.71
15-30-apr	13:05:08	591	20.8	21.8	1.0	36	16.71
15-30-apr	14:05:08	591	20.7	21.9	1.2	36	16.70
15-30-apr	15:05:08	591	21.6	22.8	1.2	36	16.71
15-30-apr	16:05:08	590	21.7	23.1	1.4	36	16.71
15-30-apr	17:05:08	590	20.9	22.2	1.3	36	16.71
15-30-apr	18:05:08	590	20.6	21.8	1.2	36	16.71
15-30-apr	19:05:08	590	18.2	18.7	0.5	35	16.71
15-30-apr	20:05:08	590	12.3	13.1	0.8	35	16.70
15-30-apr	21:05:08	590	9.3	8.9	-0.3	34	16.71
15-30-apr	22:05:08	591	7.4	6.5	-0.9	34	16.71
15-30-apr	23:05:08	591	7.7	5.9	-1.9	34	16.72

BGI PQ200 Air Sampling System Downloaded 2015 08 may 15:27:18

Job Details:

Job Name: 15May08B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6237:20
Flags:

Job Code:
Site Name: 963B
Station Code:
Operators: KN
User1:
User2:

	Max	Min	Avg	Units
BP	588	584	585	mmHg
TA	16	4.7	9.4	°C
Q	---	---	16.7	Lpm

QCV 0.54 %
Max overheat 2.1 °C
occured 06-may 14:26:02

Timer Information:

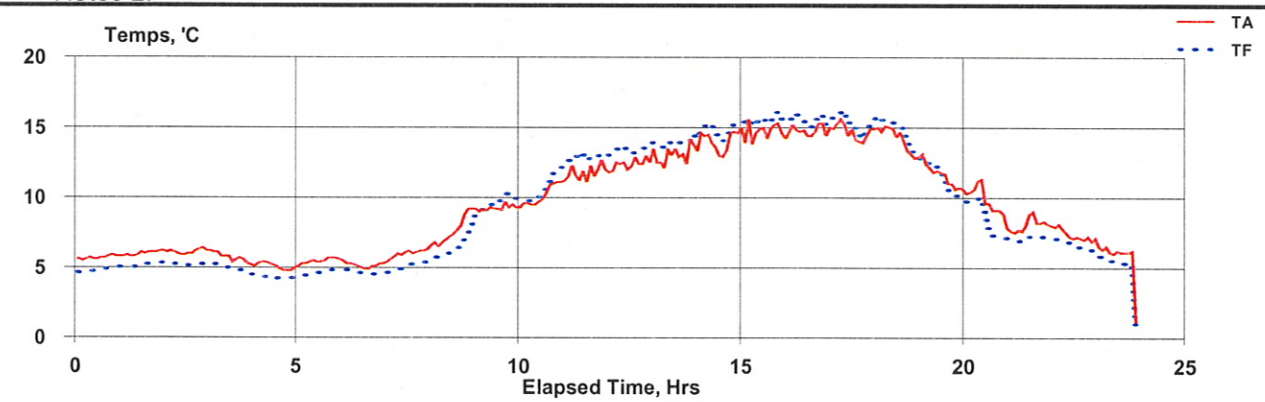
	Date dd-mmm	Time hh:mm:ss
Start:	15-06-may	0:00:08
Stop:	15-07-may	0:00:05

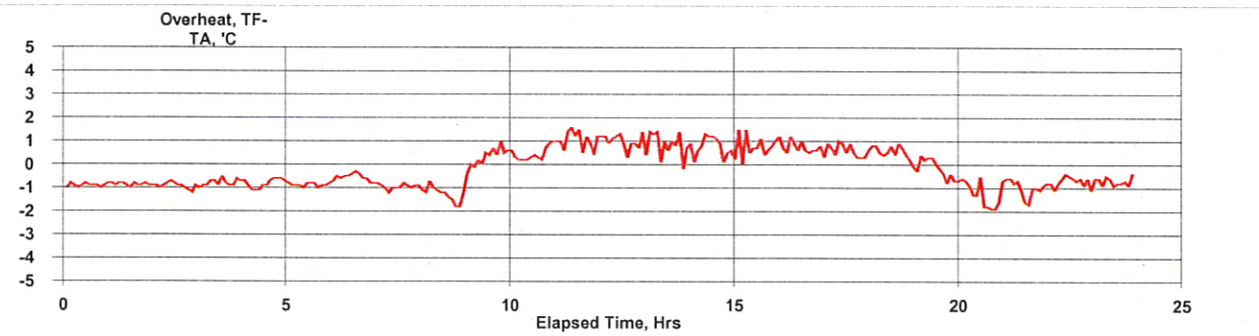
ET: 23:59

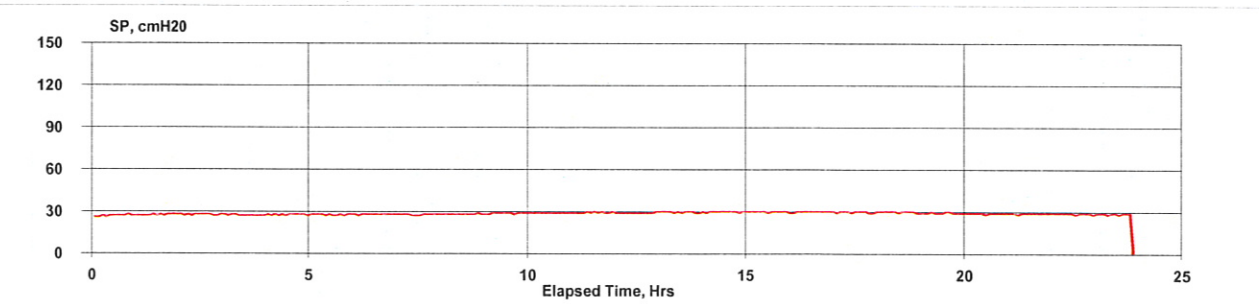
Mass Concentration Data:

Filter ID:	IML-4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.029	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-06-may	0:05:08	587	5.7	4.8	-0.9	27	16.71
15-06-may	1:05:08	587	6.0	5.1	-0.9	28	16.72
15-06-may	2:05:08	587	6.1	5.2	-0.9	28	16.71
15-06-may	3:05:08	586	5.7	4.9	-0.8	27	16.73
15-06-may	4:05:08	586	5.1	4.3	-0.8	28	16.72
15-06-may	5:05:08	587	5.5	4.6	-0.9	28	16.70
15-06-may	6:05:08	586	5.2	4.6	-0.6	28	16.71
15-06-may	7:05:08	587	6.0	5.0	-1.0	28	16.71
15-06-may	8:05:08	587	7.6	6.3	-1.3	28	16.71
15-06-may	9:05:08	587	9.3	9.6	0.3	29	16.70
15-06-may	10:05:08	587	10.1	10.6	0.4	29	16.70
15-06-may	11:05:08	586	11.8	12.8	1.0	29	16.69
15-06-may	12:05:08	586	12.4	13.4	1.0	29	16.71
15-06-may	13:05:08	586	13.1	13.9	0.8	30	16.71
15-06-may	14:05:08	585	14.0	14.7	0.8	30	16.70
15-06-may	15:05:08	585	14.8	15.5	0.8	30	16.71
15-06-may	16:05:08	584	14.7	15.5	0.8	30	16.72
15-06-may	17:05:08	584	14.7	15.3	0.6	30	16.71
15-06-may	18:05:08	584	14.3	14.9	0.6	30	16.71
15-06-may	19:05:08	584	11.8	11.6	-0.1	29	16.71
15-06-may	20:05:08	584	10.0	8.7	-1.3	29	16.70
15-06-may	21:05:08	585	8.1	7.1	-1.0	29	16.71
15-06-may	22:05:08	585	7.4	6.7	-0.7	29	16.71
15-06-may	23:05:08	585	6.3	5.5	-0.8	29	16.71
15-08-may	15:21:05	584	1.2	0.8	-0.4		0.00

BGI PQ200 Air Sampling System Downloaded 2015 13 may 15:42:29

Job Details:

Job Name:	15May13B.JOB	Job Code:	
Version:	5.62	Site Name:	963B
Serial No:	963	Station Code:	
Pump Time:	6261:19	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	589	586	587	mmHg
TA	19.4	0.6	12.2	°C
Q	---	---	16.7	Lpm

QCV	0.45 %
Max overheat	2.2 °C
occured	13-may 14:47:49

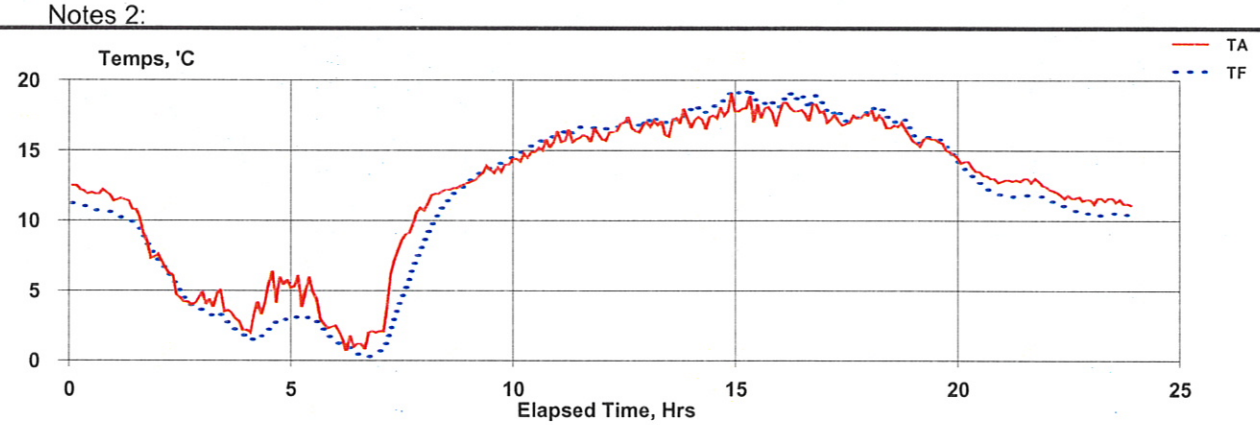
Timer Information:

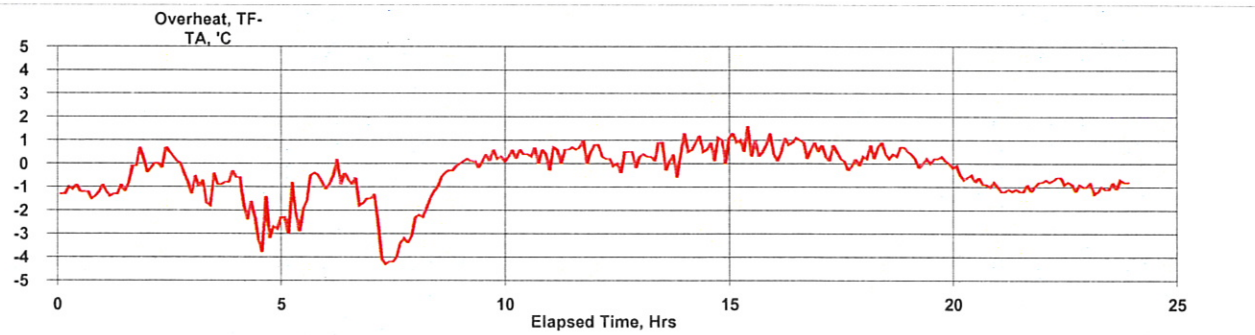
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-may	0:00:08
Stop:	15-13-may	0:00:05
ET:	23:59	

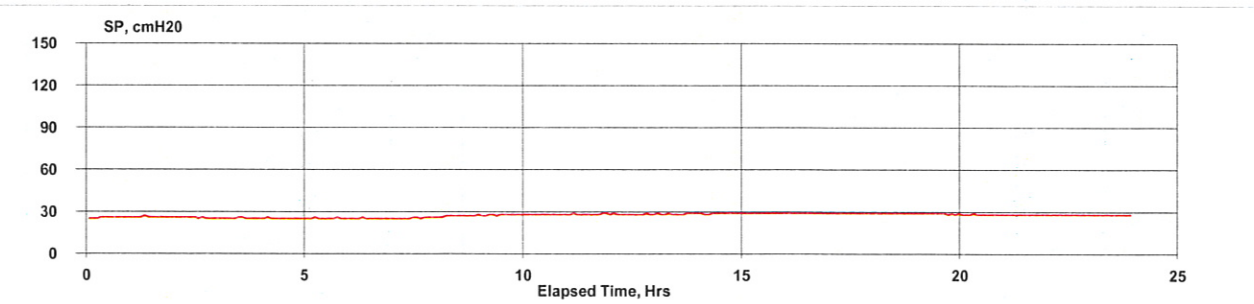
Mass Concentration Data:

Filter ID:	IML-4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-12-may	0:05:08	588	12.0	10.9	-1.2	26	16.71
15-12-may	1:05:08	588	9.8	9.2	-0.7	26	16.71
15-12-may	2:05:08	588	5.1	5.0	-0.1	26	16.71
15-12-may	3:05:08	588	3.6	2.7	-0.9	25	16.72
15-12-may	4:05:08	588	4.6	2.3	-2.4	25	16.71
15-12-may	5:05:08	588	4.0	2.5	-1.5	25	16.71
15-12-may	6:05:08	588	1.5	0.6	-0.9	25	16.72
15-12-may	7:05:08	588	8.0	4.7	-3.3	26	16.71
15-12-may	8:05:08	588	12.1	11.2	-1.0	27	16.72
15-12-may	9:05:08	589	13.6	13.8	0.2	28	16.71
15-12-may	10:05:08	588	15.1	15.4	0.4	28	16.70
15-12-may	11:05:08	589	16.0	16.5	0.6	28	16.71
15-12-may	12:05:08	588	16.6	16.8	0.2	28	16.70
15-12-may	13:05:08	588	16.9	17.3	0.3	29	16.72
15-12-may	14:05:08	588	17.6	18.3	0.7	29	16.71
15-12-may	15:05:08	587	17.8	18.6	0.8	29	16.71
15-12-may	16:05:08	587	17.9	18.6	0.7	29	16.72
15-12-may	17:05:08	587	17.2	17.5	0.2	29	16.72
15-12-may	18:05:08	587	16.8	17.3	0.5	29	16.72
15-12-may	19:05:08	587	15.4	15.5	0.1	29	16.71
15-12-may	20:05:08	587	13.4	12.7	-0.7	28	16.71
15-12-may	21:05:08	587	12.8	11.7	-1.1	28	16.72
15-12-may	22:05:08	588	11.7	10.9	-0.8	28	16.70
15-12-may	23:05:08	588	11.4	10.4	-1.0	28	16.71

BGI PQ200 Air Sampling System Downloaded 2015 21 may 13:37:21

Job Details:

Job Name:	15May21B.JOB
Version:	5.62
Serial No:	963
Pump Time:	6285:18
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	592	588	589	mmHg
TA	12.8	1.1	7.1	°C
Q	---	---	16.7	Lpm

QCV	0.55 %
Max overheat	2.6 °C
occured	20-may 22:29:17

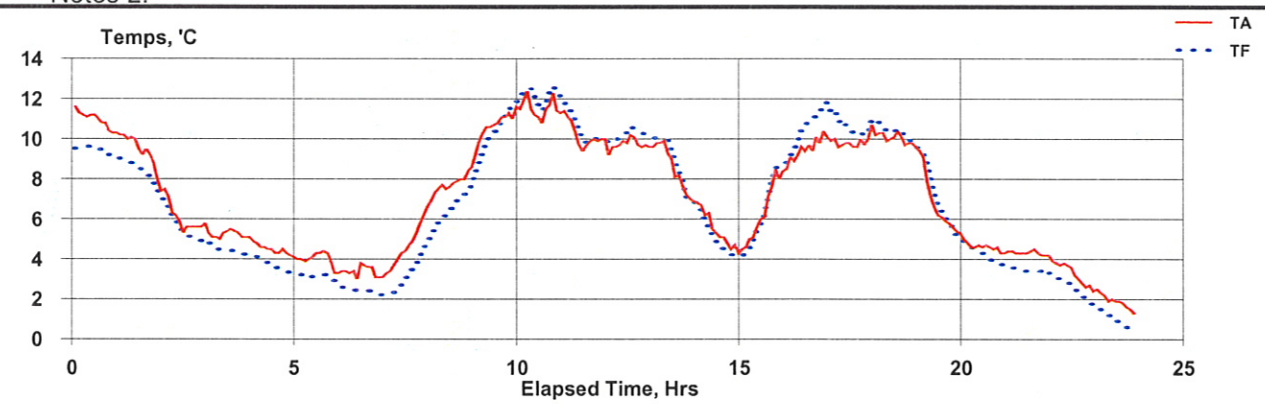
Timer Information:

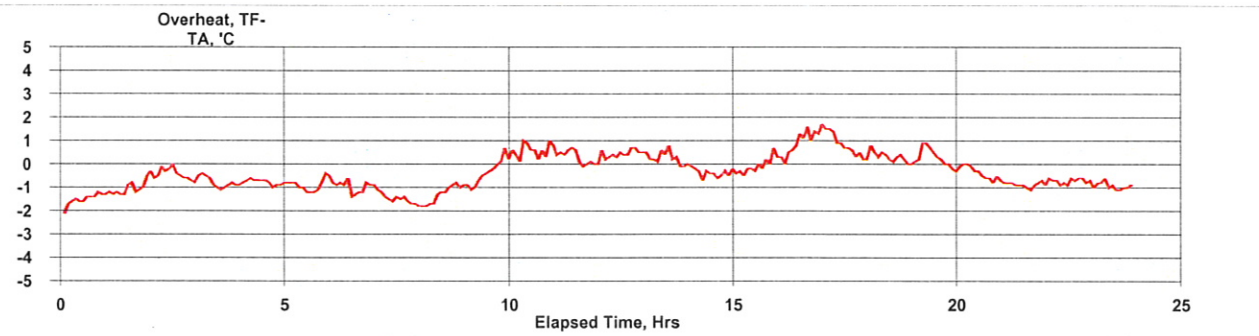
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-may	0:00:08
Stop:	15-19-may	0:00:05
ET:	23:59	

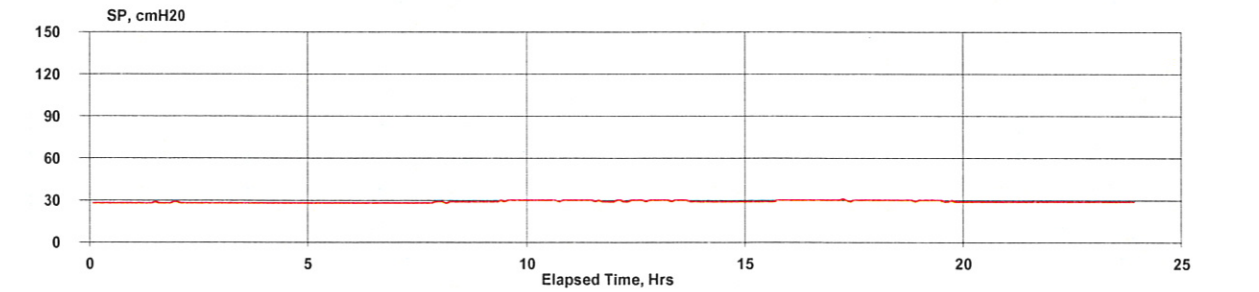
Mass Concentration Data:

Filter ID:	2	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.038	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-may	0:05:08	590	10.9	9.4	-1.5	28	16.70
15-18-may	1:05:08	590	9.3	8.3	-1.0	28	16.72
15-18-may	2:05:08	590	6.0	5.6	-0.4	28	16.70
15-18-may	3:05:08	590	5.2	4.4	-0.8	28	16.70
15-18-may	4:05:08	590	4.5	3.7	-0.8	28	16.70
15-18-may	5:05:08	590	4.0	3.1	-0.9	28	16.71
15-18-may	6:05:08	590	3.4	2.4	-1.0	28	16.71
15-18-may	7:05:08	590	4.7	3.2	-1.5	28	16.72
15-18-may	8:05:08	590	7.8	6.5	-1.3	29	16.71
15-18-may	9:05:08	590	10.7	10.3	-0.3	30	16.72
15-18-may	10:05:08	590	11.6	12.1	0.6	30	16.71
15-18-may	11:05:08	591	10.2	10.5	0.3	30	16.71
15-18-may	12:05:08	590	9.7	10.2	0.5	30	16.72
15-18-may	13:05:08	591	8.5	8.8	0.3	30	16.71
15-18-may	14:05:08	591	5.4	5.1	-0.4	29	16.71
15-18-may	15:05:08	590	6.4	6.3	-0.1	29	16.71
15-18-may	16:05:08	589	9.5	10.5	1.0	30	16.70
15-18-may	17:05:08	589	9.9	10.7	0.8	30	16.71
15-18-may	18:05:08	589	10.0	10.3	0.3	30	16.71
15-18-may	19:05:08	590	6.7	7.0	0.3	30	16.71
15-18-may	20:05:08	590	4.6	4.2	-0.4	29	16.70
15-18-may	21:05:08	590	4.3	3.4	-0.9	29	16.71
15-18-may	22:05:08	590	3.3	2.6	-0.7	29	16.72
15-18-may	23:05:08	590	1.9	1.0	-0.9	29	16.71

BGI PQ200 Air Sampling System Downloaded 2015 27 may 10:18:20

Job Details:

Job Name:	15May27B.JOB	Job Code:	
Version:	5.62	Site Name:	963B
Serial No:	963	Station Code:	
Pump Time:	6309:17	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	589	586	588	mmHg
TA	13.2	1.9	7.5	°C
Q	---	---	16.71	Lpm

QCV	0.48	%
Max overheat	2.5	°C
occured	26-may 16:09:48	

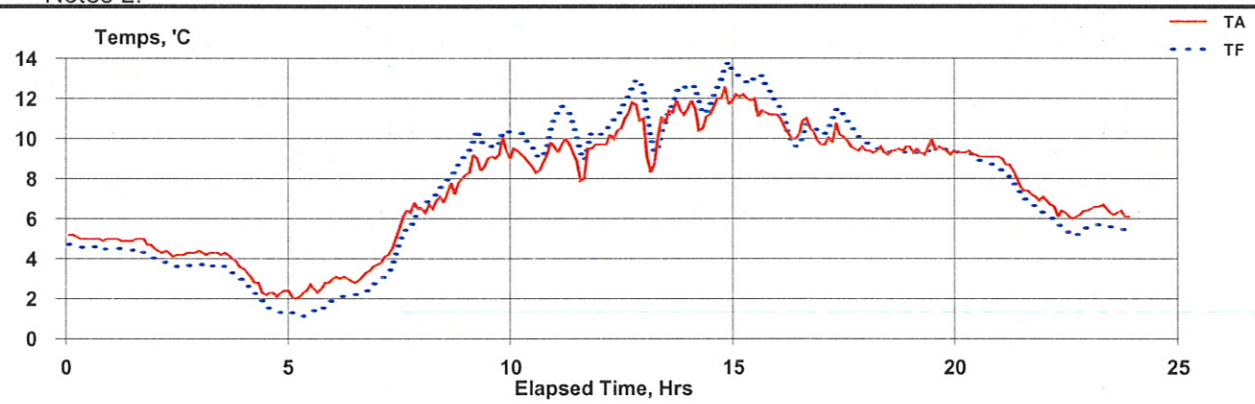
Timer Information:

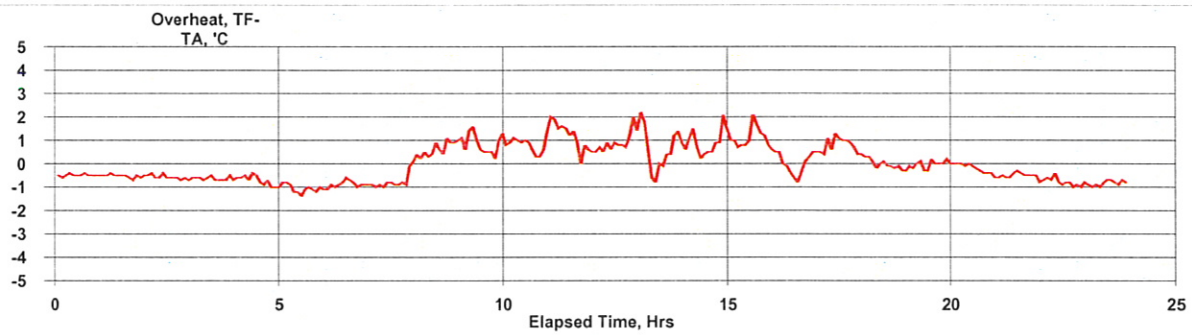
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-may	0:00:08
Stop:	15-25-may	0:00:05
ET:	23:59	

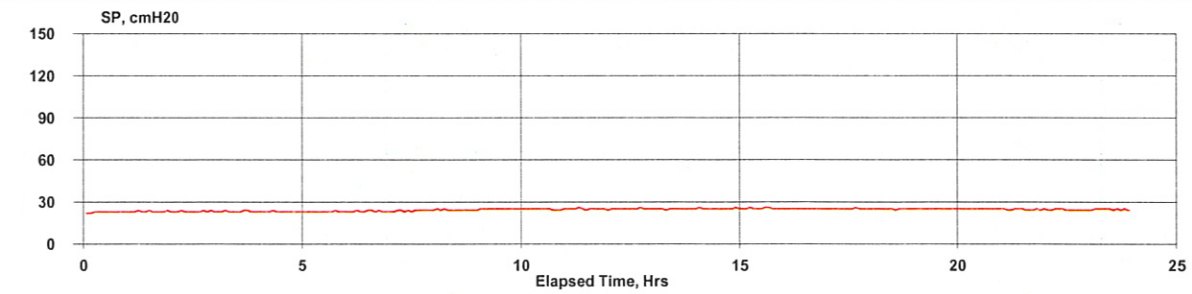
Mass Concentration Data:

Filter ID:	5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-24-may	0:05:08	588	5.0	4.5	-0.5	23	16.71
15-24-may	1:05:08	588	4.9	4.4	-0.5	23	16.72
15-24-may	2:05:08	588	4.3	3.7	-0.6	23	16.71
15-24-may	3:05:08	588	4.1	3.5	-0.6	23	16.72
15-24-may	4:05:08	588	2.5	1.8	-0.7	23	16.71
15-24-may	5:05:08	588	2.5	1.4	-1.1	23	16.70
15-24-may	6:05:08	588	3.2	2.3	-0.9	23	16.70
15-24-may	7:05:08	588	5.5	4.7	-0.7	24	16.70
15-24-may	8:05:08	588	7.2	7.9	0.6	24	16.71
15-24-may	9:05:08	588	9.0	9.9	0.9	25	16.71
15-24-may	10:05:08	588	9.1	9.9	0.8	25	16.71
15-24-may	11:05:08	589	9.3	10.4	1.2	25	16.72
15-24-may	12:05:08	588	10.7	11.6	0.9	25	16.73
15-24-may	13:05:08	588	10.6	11.2	0.6	25	16.71
15-24-may	14:05:08	588	11.5	12.4	0.9	25	16.71
15-24-may	15:05:08	588	11.7	12.7	1.1	25	16.71
15-24-may	16:05:08	588	10.4	10.4	0.0	25	16.71
15-24-may	17:05:08	588	9.8	10.6	0.8	25	16.71
15-24-may	18:05:08	588	9.4	9.4	0.0	25	16.71
15-24-may	19:05:08	588	9.5	9.4	0.0	25	16.70
15-24-may	20:05:08	588	9.2	9.0	-0.2	25	16.71
15-24-may	21:05:08	588	7.8	7.3	-0.5	25	16.73
15-24-may	22:05:08	588	6.4	5.6	-0.8	24	16.71
15-24-may	23:05:08	589	6.4	5.6	-0.8	25	16.72

BGI PQ200 Air Sampling System Downloaded 2015 01 jun 15:28:04

Job Details:

Job Name: 15Jun01B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6333:16
Flags:

Job Code:
Site Name: 963B
Station Code:
Operators: KN
User1:
User2:

	Max	Min	Avg	Units
BP	595	591	593	mmHg
TA	25.4	5	16.1	°C
Q	---	---	16.7	Lpm

QCV 0.41 %

Max overheat 2.9 °C
occured 31-may 20:42:35

Timer Information:

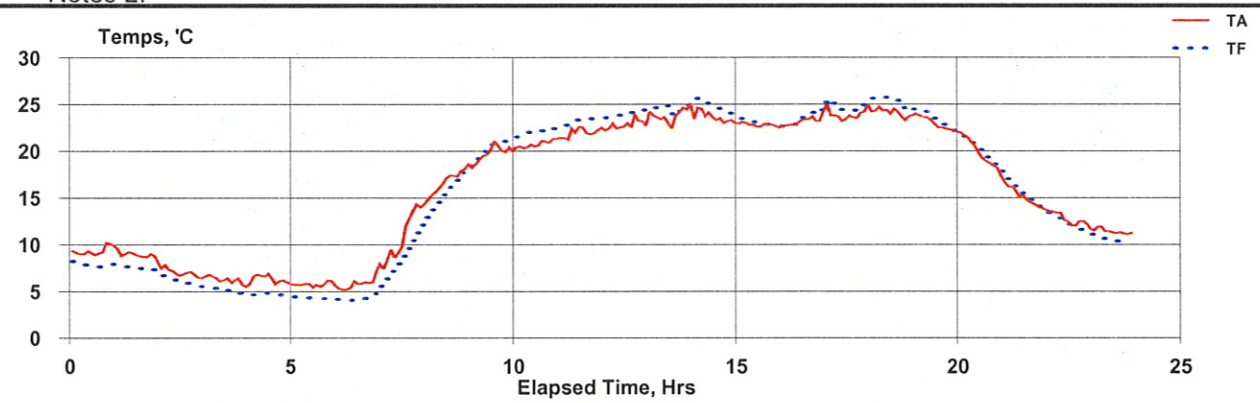
	Date dd-mmm	Time hh:mm:ss
Start:	15-30-may	0:00:08
Stop:	15-31-may	0:00:05

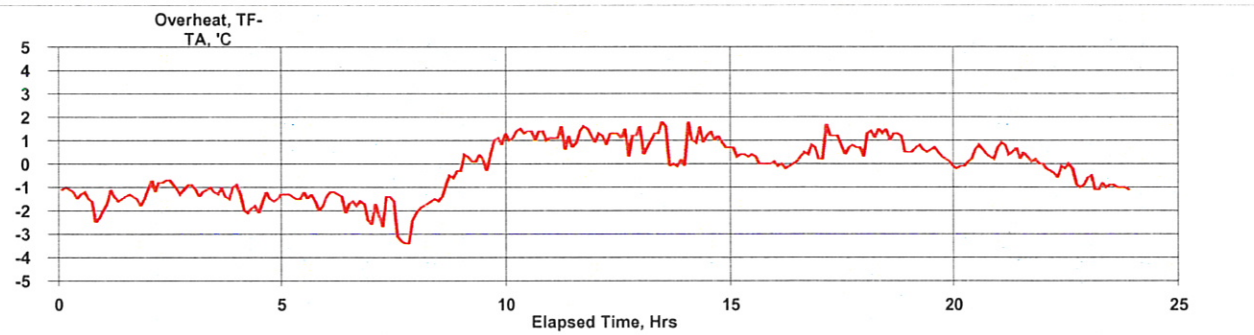
ET: 23:59

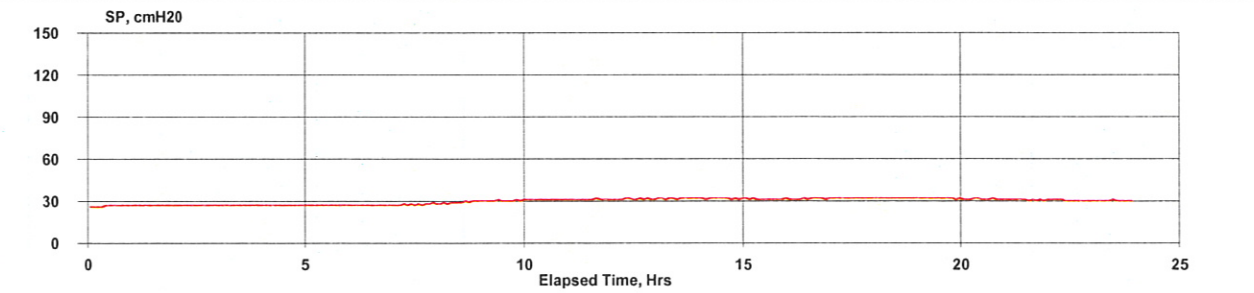
Mass Concentration Data:

Filter ID:	12	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.015	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-30-may	0:05:08	594	9.3	7.8	-1.5	27	16.72
15-30-may	1:05:08	593	8.9	7.4	-1.4	27	16.71
15-30-may	2:05:08	593	7.0	6.1	-0.9	27	16.70
15-30-may	3:05:08	593	6.2	5.1	-1.2	27	16.67
15-30-may	4:05:08	593	6.3	4.7	-1.7	27	16.70
15-30-may	5:05:08	594	5.8	4.3	-1.5	27	16.67
15-30-may	6:05:08	594	6.0	4.3	-1.7	27	16.69
15-30-may	7:05:08	594	11.2	8.8	-2.4	28	16.66
15-30-may	8:05:08	594	16.8	15.7	-1.2	29	16.70
15-30-may	9:05:08	594	19.8	20.2	0.5	30	16.69
15-30-may	10:05:08	595	20.8	22.0	1.3	31	16.71
15-30-may	11:05:08	595	22.0	23.1	1.2	31	16.69
15-30-may	12:05:08	594	22.8	24.0	1.2	31	16.70
15-30-may	13:05:08	594	23.8	24.5	0.7	32	16.72
15-30-may	14:05:08	594	23.6	24.7	1.1	32	16.71
15-30-may	15:05:08	594	22.8	23.0	0.2	31	16.70
15-30-may	16:05:08	593	23.2	23.4	0.2	32	16.71
15-30-may	17:05:08	593	23.9	24.7	0.8	32	16.71
15-30-may	18:05:08	593	24.1	25.3	1.2	32	16.71
15-30-may	19:05:08	593	22.9	23.4	0.5	32	16.70
15-30-may	20:05:08	593	19.8	20.0	0.3	31	16.70
15-30-may	21:05:08	593	15.0	15.4	0.4	31	16.71
15-30-may	22:05:08	593	12.7	12.2	-0.4	30	16.73
15-30-may	23:05:08	593	11.4	10.5	-0.9	30	16.71

BGI PQ200 Air Sampling System Downloaded 2015 06 jun 07:44:55

Job Details:

Job Name:	15Jun06B.JOB
Version:	5.62
Serial No:	963
Pump Time:	6357:16
Flags:	

Job Code:	
Site Name:	963B
Station Code:	
Operators:	LWJ
User1:	
User2:	

	Max	Min	Avg	Units
BP	591	587	589	mmHg
TA	18.4	4.9	11.9	°C
Q	---	---	16.67	Lpm

QCV	0.4	%
Max overheat	2.3	°C
occured	05-jun 14:42:19	

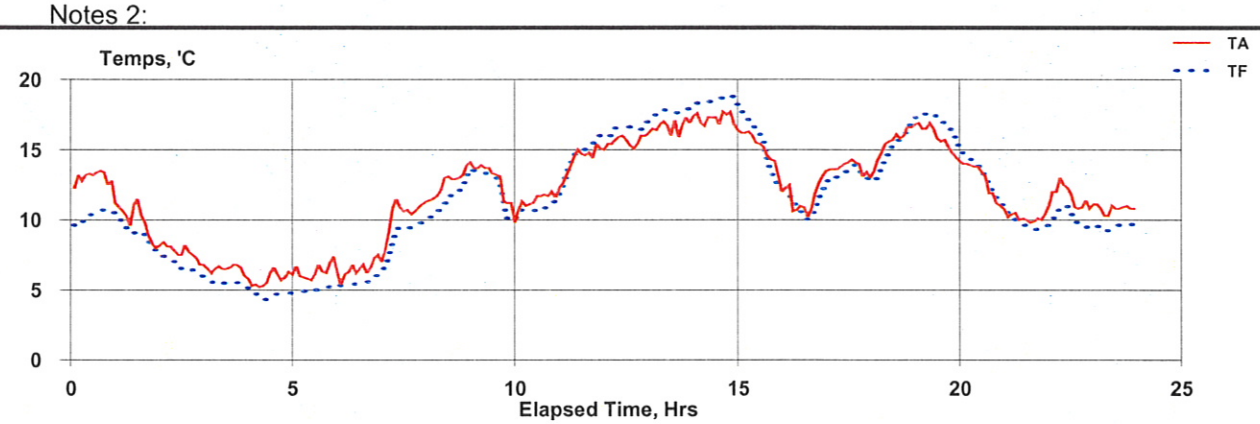
Timer Information:

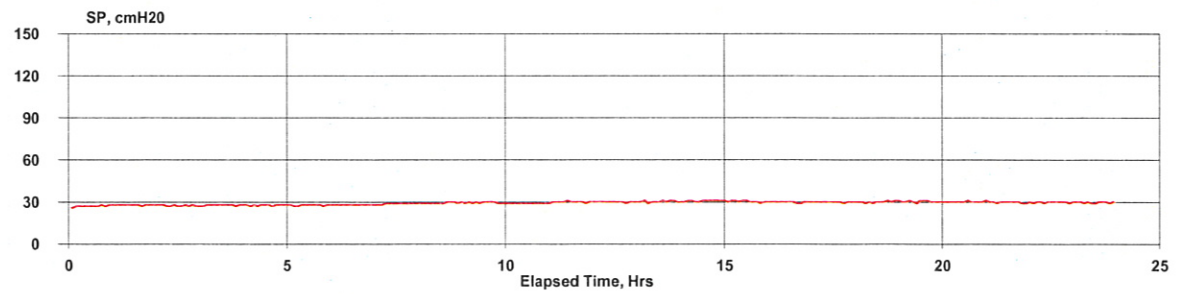
	Date dd-mmm	Time hh:mm:ss
Start:	15-05-jun	0:00:08
Stop:	15-06-jun	0:00:05
ET:	24:00:00	

Mass Concentration Data:

Filter ID:	7	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.964	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:





15-05-jun	0:05:10	589	12.9	10.3	-2.6	27	16.71
15-05-jun	1:05:10	589	9.8	8.9	-0.9	28	16.71
15-05-jun	2:05:10	589	7.6	6.6	-1.0	27	16.70
15-05-jun	3:05:10	589	6.5	5.5	-1.0	28	16.70
15-05-jun	4:05:10	589	5.8	4.6	-1.2	28	16.71
15-05-jun	5:05:10	589	6.3	5.1	-1.3	28	16.71
15-05-jun	6:05:10	589	6.6	5.6	-1.0	28	16.72
15-05-jun	7:05:10	590	10.5	9.0	-1.5	29	16.71
15-05-jun	8:05:10	590	12.7	11.6	-1.2	29	16.71
15-05-jun	9:05:10	590	12.7	12.3	-0.4	30	16.68
15-05-jun	10:05:10	590	11.5	10.9	-0.7	29	16.67
15-05-jun	11:05:10	590	14.4	14.7	0.3	30	16.67
15-05-jun	12:05:10	590	15.7	16.5	0.8	30	16.63
15-05-jun	13:05:10	590	16.7	17.7	1.0	30	16.62
15-05-jun	14:05:10	589	17.2	18.5	1.3	31	16.65
15-05-jun	15:05:10	589	14.9	15.2	0.3	30	16.72
15-05-jun	16:05:10	589	11.7	11.2	-0.5	30	16.68
15-05-jun	17:05:10	589	13.7	13.3	-0.4	30	16.54
15-05-jun	18:05:10	588	15.6	15.1	-0.5	30	16.67
15-05-jun	19:05:10	588	15.8	16.9	1.2	30	16.61
15-05-jun	20:05:10	589	12.7	13.0	0.3	30	16.70
15-05-jun	21:05:10	589	10.2	9.7	-0.5	30	16.69
15-05-jun	22:05:10	589	11.6	10.1	-1.6	30	16.64
15-05-jun	23:05:10	589	10.8	9.5	-1.3	30	16.66

BGI PQ200 Air Sampling System Downloaded 2015 12 jun 12:26:48

Job Details:

Job Name:	15Jun12D.JOB
Version:	5.62
Serial No:	963
Pump Time:	6381:15
Flags:	

Job Code:	
Site Name:	963B
Station Code:	
Operators:	lwj
User1:	
User2:	

	Max	Min	Avg	Units
BP	591	586	589	mmHg
TA	18	8.7	12.9	°C
Q	---	---	16.68	Lpm

QCV	0.94	%
Max overheat	2.9	°C
occured	11-jun 11:38:21	

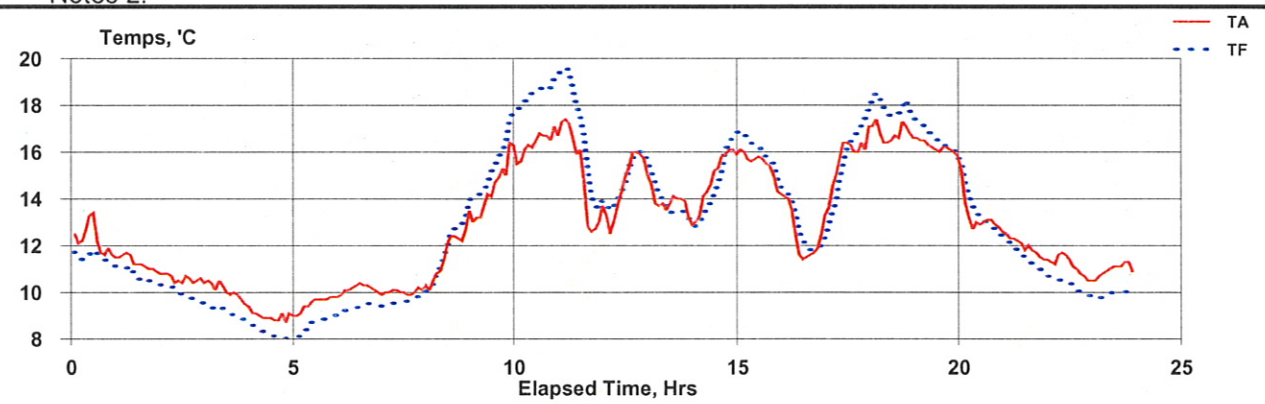
Timer Information:

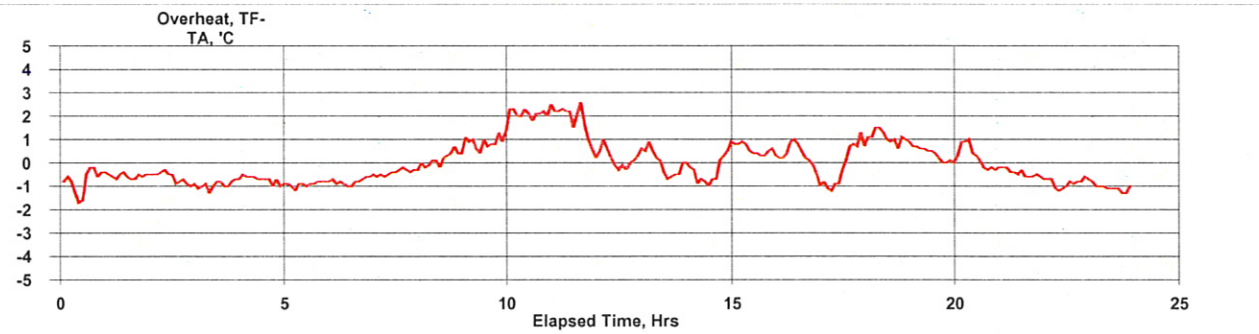
	Date dd-mmm	Time hh:mm:ss
Start:	15-11-jun	0:00:08
Stop:	15-12-jun	0:00:04
ET:	23:59	

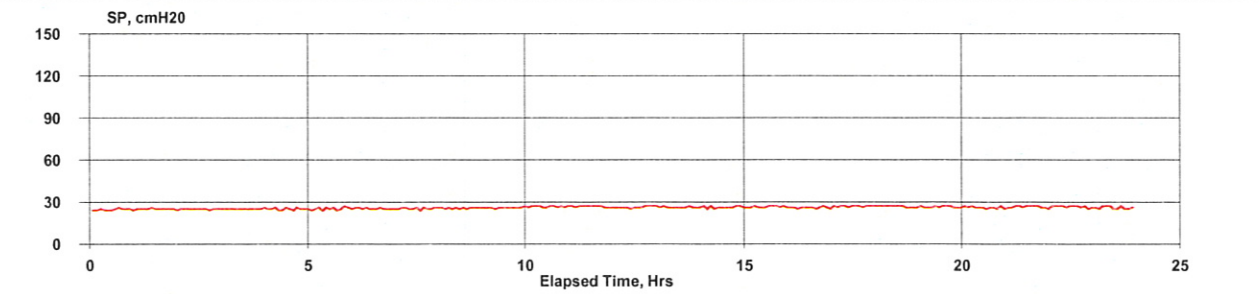
Mass Concentration Data:

Filter ID:	5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.975	m^3
Mass Conc:	0	ug/m3

Notes 1:
Notes 2:







15-11-jun	0:05:08	589	12.2	11.5	-0.8	25	16.73
15-11-jun	1:05:08	590	11.2	10.7	-0.6	25	16.67
15-11-jun	2:05:08	589	10.6	9.9	-0.7	25	16.69
15-11-jun	3:05:08	589	10.0	9.1	-0.9	25	16.73
15-11-jun	4:05:08	589	9.0	8.2	-0.7	25	16.69
15-11-jun	5:05:08	589	9.6	8.7	-0.9	25	16.76
15-11-jun	6:05:08	590	10.2	9.4	-0.8	25	16.81
15-11-jun	7:05:08	590	10.1	9.7	-0.4	25	16.80
15-11-jun	8:05:08	590	11.8	12.0	0.2	26	16.69
15-11-jun	9:05:08	590	14.5	15.4	0.9	26	16.65
15-11-jun	10:05:08	590	16.4	18.5	2.1	27	16.63
15-11-jun	11:05:08	590	15.0	16.7	1.7	27	16.64
15-11-jun	12:05:08	590	14.6	14.8	0.2	26	16.68
15-11-jun	13:05:08	590	13.8	13.7	0.0	26	16.64
15-11-jun	14:05:08	590	15.0	14.7	-0.3	26	16.67
15-11-jun	15:05:08	590	15.4	16.0	0.6	26	16.66
15-11-jun	16:05:08	590	12.5	12.7	0.2	26	16.64
15-11-jun	17:05:08	590	15.8	15.7	-0.1	27	16.80
15-11-jun	18:05:08	590	16.8	17.9	1.1	27	16.68
15-11-jun	19:05:08	590	16.2	16.6	0.4	26	16.63
15-11-jun	20:05:08	590	13.2	13.4	0.2	26	16.58
15-11-jun	21:05:08	590	11.9	11.5	-0.5	26	16.69
15-11-jun	22:05:08	590	11.1	10.3	-0.9	27	16.77
15-11-jun	23:05:08	590	11.0	9.9	-1.1	26	16.69

BGI PQ200 Air Sampling System Downloaded 2015_01 jul_10:55:41

Job Details:

Job Name:	15Jul01B.JOB	Job Code:	
Version:	5.62	Site Name:	963B
Serial No:	963	Station Code:	
Pump Time:	6453:12	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	595	592	594	mmHg
TA	33.2	11.5	23.2	°C
Q	---	---	16.68	Lpm

QCV	0.24 %
Max overheat	4.1 °C
occured	30-jun 15:58:00

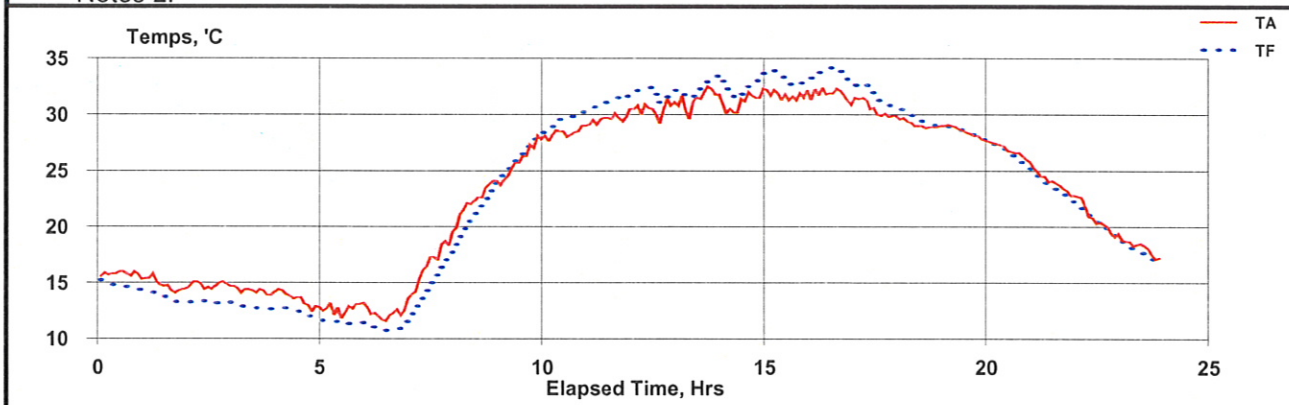
Timer Information:

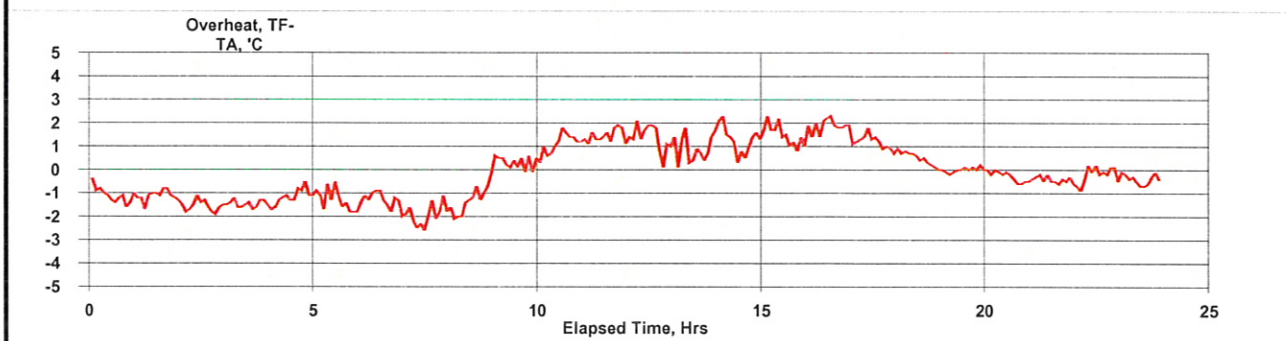
	Date dd-mmm	Time hh:mm:ss
Start:	15-29-jun	0:00:08
Stop:	15-30-jun	0:00:05
ET:	23:59	

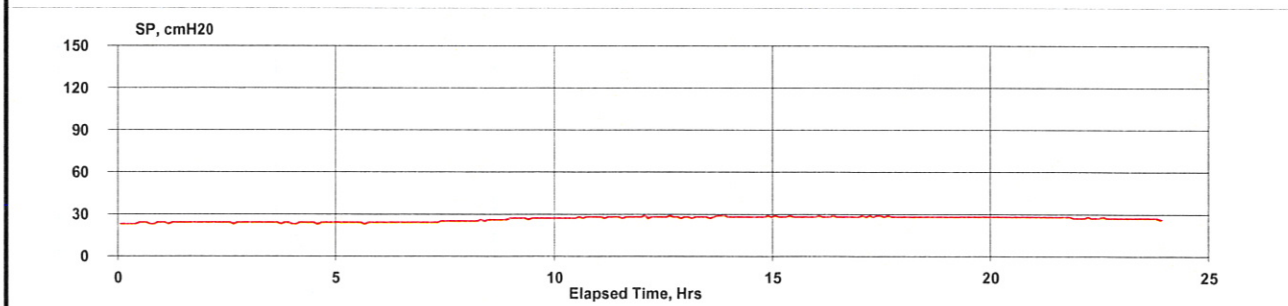
Mass Concentration Data:

Filter ID:	2	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.988	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-29-jun	0:05:08	594	15.8	14.7	-1.1	23	16.70
15-29-jun	1:05:08	594	14.8	13.7	-1.1	24	16.71
15-29-jun	2:05:08	594	14.8	13.2	-1.6	24	16.70
15-29-jun	3:05:08	594	14.3	12.8	-1.5	24	16.71
15-29-jun	4:05:08	594	13.5	12.3	-1.2	24	16.71
15-29-jun	5:05:08	594	12.7	11.4	-1.3	24	16.71
15-29-jun	6:05:08	594	12.3	11.0	-1.3	24	16.72
15-29-jun	7:05:08	595	16.9	14.9	-1.9	25	16.73
15-29-jun	8:05:08	595	22.5	21.2	-1.3	26	16.70
15-29-jun	9:05:08	595	26.0	26.3	0.3	27	16.71
15-29-jun	10:05:08	595	28.4	29.5	1.1	27	16.71
15-29-jun	11:05:08	595	29.7	31.1	1.5	28	16.70
15-29-jun	12:05:08	595	30.5	31.9	1.4	28	16.66
15-29-jun	13:05:08	595	31.4	32.3	0.9	28	16.67
15-29-jun	14:05:08	594	31.1	32.4	1.3	28	16.66
15-29-jun	15:05:08	594	31.7	33.2	1.5	28	16.66
15-29-jun	16:05:08	594	31.8	33.7	1.9	28	16.65
15-29-jun	17:05:08	593	30.5	31.7	1.2	28	16.69
15-29-jun	18:05:08	593	29.1	29.6	0.5	28	16.67
15-29-jun	19:05:08	593	28.5	28.5	0.0	28	16.66
15-29-jun	20:05:08	593	26.8	26.5	-0.3	28	16.69
15-29-jun	21:05:08	594	23.9	23.5	-0.4	28	16.71
15-29-jun	22:05:08	595	20.6	20.4	-0.2	27	16.71
15-29-jun	23:05:08	595	18.1	17.7	-0.4	27	16.69

Collocated Monitor 964C

PM_{10} Sampler Summary

April 1, 2015 - June 30, 2015

Network: **Alton Coal Development, LLC**
Site: Coal Hollow
Sampler ID: Coal Hollow-C **AQS ID:**
Sampler Type: BGI FRM Single

Date	Filter ID	Concentration (µg/m3) LTP	Concentration (µg/m3) STP	Sample Period (hr:min)	Sample Volume (m3)	Std Volume (m3)	Mass (mg) Tare	Mass (mg) Gross	Mass (mg) Net	Flag	Comments
04/06/15	P2919862	**Invalid - AN**	**Invalid - AN**	0:03			365.603	365.619	0.016	SP	
04/12/15	P2920160	**Invalid - AN**	**Invalid - AN**	0:03			370.458	370.472	0.014	SP	
04/18/15	P2920163	**Invalid - AG**	**Invalid - AG**	14:42	14.7	12.3	364.589	364.782	0.193	SP	
04/24/15	P2920166	**Invalid - AN**	**Invalid - AN**	0:03			363.020	363.042	0.022	SP	QT errors
04/30/15		**Invalid - AI**	**Invalid - AI**								Out for Maintenance
05/06/15		**Invalid - AI**	**Invalid - AI**								
05/12/15	P2920509	**49.0**	**60.6**	23:59	24.0	19.5	371.130	372.310	1.180		
05/18/15	P2920764	**17.8**	**21.5**	23:59	24.0	19.9	364.406	364.835	0.429		
05/24/15	P2920767	**1.5**	**1.9**	23:59	24.0	19.8	363.149	363.187	0.038		
05/30/15	P2921329	**47.7**	**59.2**	23:59	24.0	19.4	384.788	385.937	1.149		
06/05/15	P2921324	**75.6**	**93.0**	24:00	24.0	19.5	376.502	378.321	1.819		
06/11/15	P2921622	**6.8**	**8.4**	23:59	24.0	19.5	375.013	375.177	0.164		
06/17/15	P2921625	**Invalid - AN**	**Invalid - AN**	0:02			376.243	376.250	0.007	SP	
06/23/15	P2921623	**Invalid - AN**	**Invalid - AN**	0:02			372.070	372.077	0.007	SP, XT	
06/29/15	P2921080	**Invalid - AN**	**Invalid - AN**	0:02			359.401	359.414	0.013	SP	
06/25/15	P2921081		**Field Blank**				363.831	363.836	0.005		

# Valid	Recovery	Average	St. Dev.	Max	Min
6	**40%**	**40.8**	**35.8**	**93.0**	**1.9**

BGI PQ200 Air Sampling System Downloaded 2015_01 apr_14:26:00

Job Details:

Job Name:	15Apr01C.JOB
Version:	5.62
Serial No:	964
Pump Time:	1052:12
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	595	589	592	mmHg
TA	20.3	0.7	10.4	°C
Q	---	---	16.71	Lpm

QCV	0.54	%
Max overheat	2.9	°C
occured	01-apr 12:37:54	

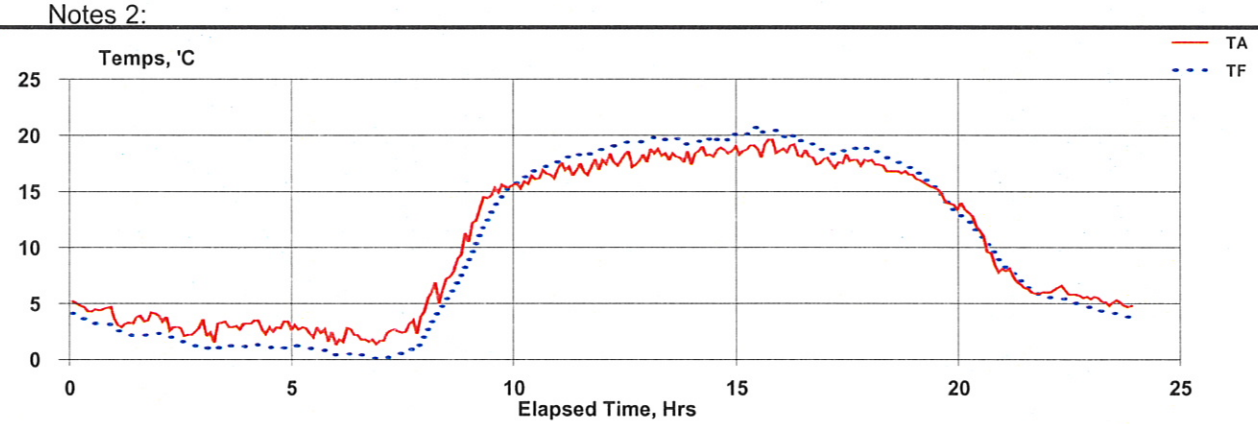
Timer Information:

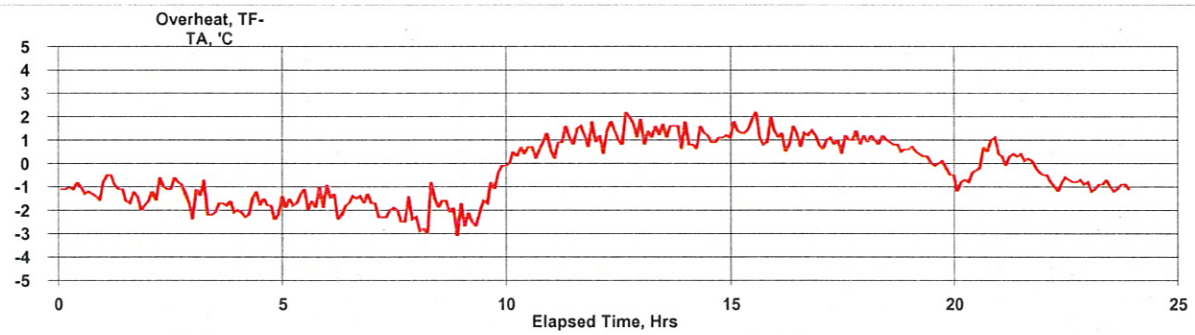
	Date dd-mmm	Time hh:mm:ss
Start:	15-31-mar	0:00:08
Stop:	15-01-apr	0:00:05
ET:	23:59	

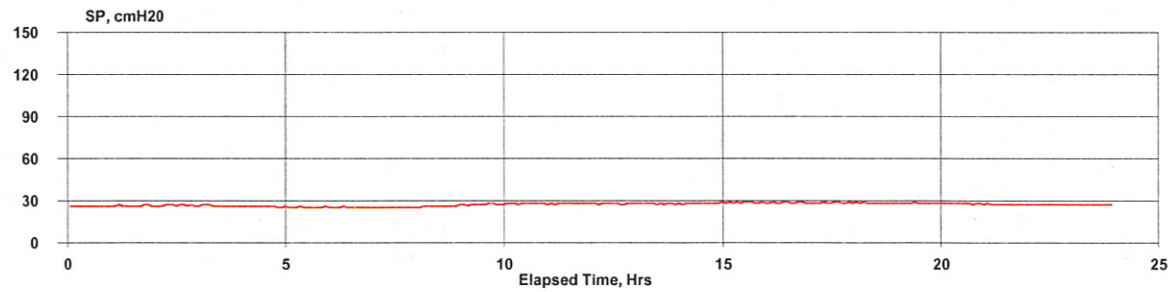
Mass Concentration Data:

Filter ID:	6	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.042	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-31-mar	0:05:08	594	4.6	3.4	-1.1	26	16.70
15-31-mar	1:05:08	594	3.5	2.3	-1.3	26	16.71
15-31-mar	2:05:08	594	2.8	1.6	-1.2	27	16.71
15-31-mar	3:05:08	594	2.8	1.1	-1.7	26	16.71
15-31-mar	4:05:08	593	3.0	1.1	-1.9	26	16.71
15-31-mar	5:05:08	593	2.4	0.9	-1.6	25	16.71
15-31-mar	6:05:08	593	2.0	0.3	-1.7	25	16.72
15-31-mar	7:05:08	593	2.8	0.7	-2.1	25	16.71
15-31-mar	8:05:08	593	7.7	5.6	-2.1	26	16.71
15-31-mar	9:05:08	593	14.5	13.0	-1.5	27	16.71
15-31-mar	10:05:08	593	16.2	16.8	0.6	28	16.70
15-31-mar	11:05:08	593	17.1	18.2	1.1	28	16.72
15-31-mar	12:05:08	593	17.8	19.2	1.4	28	16.70
15-31-mar	13:05:08	593	18.2	19.6	1.3	28	16.71
15-31-mar	14:05:08	592	18.6	19.6	1.1	28	16.73
15-31-mar	15:05:08	591	18.8	20.3	1.5	29	16.70
15-31-mar	16:05:08	590	18.3	19.4	1.1	28	16.70
15-31-mar	17:05:08	590	17.7	18.6	1.0	28	16.71
15-31-mar	18:05:08	590	17.0	17.8	0.9	28	16.71
15-31-mar	19:05:08	590	14.9	15.0	0.1	28	16.71
15-31-mar	20:05:08	590	10.9	10.9	-0.1	28	16.71
15-31-mar	21:05:08	590	6.6	6.7	0.1	27	16.71
15-31-mar	22:05:08	590	5.9	5.1	-0.8	27	16.71
15-31-mar	23:05:08	590	5.1	4.1	-1.0	27	16.72

BGI PQ200 Air Sampling System Downloaded 2015 07 apr 09:11:13

Job Details:

Job Name:	15Apr07C.JOB
Version:	5.62
Serial No:	964
Pump Time:	1052:15
Flags:	Q T

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	586	584	584	mmHg
TA	7	5.8	7	°C
Q	---	---	0	Lpm

QCV	0 %
Max overheat	2.2 °C
occured	06-apr 20:35:35

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	15-06-apr	0:00:08
Stop:	15-07-apr	0:00:05
ET:	0:03	

Mass Concentration Data:

Filter ID:	10	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	0.01	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:

Hourly

yy-dd-mmm	hh:mm:ss	mmHg	°C	°C	°C	cmH2O	aLpm

BGI PQ200 Air Sampling System Downloaded 2015 15 apr 14:44:03

Job Details:

Job Name: 15Apr15C.JOB
Version: 5.62
Serial No: 964
Pump Time: 1052:18
Flags: Q T

Job Code:
Site Name:
Station Code:
Operators:
User1:
User2:

	Max	Min	Avg	Units
BP	590	587	588	mmHg
TA	1	0	1	°C
Q	---	---	0	Lpm

QCV 0 %

Max overheat 3.6 °C
occured 15-apr 14:22:05

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	15-12-apr	0:00:08
Stop:	15-13-apr	0:00:05

ET: 0:03

Mass Concentration Data:

Filter ID:	12	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	0.008	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:

Hourly

yy-dd-mmm	hh:mm:ss	mmHg	°C	°C	°C	cmH2O	aLpm

BGI PQ200 Air Sampling System Downloaded 2015 20 apr 14:37:12

Job Details:

Job Name: 15Apr20C.JOB
Version: 5.62
Serial No: 964
Pump Time: 1067:00
Flags: Q T

Job Code:
Site Name: 964C
Station Code:
Operators: KN
User1:
User2:

	Max	Min	Avg	Units
BP	592	590	591	mmHg
TA	18.1	-2.9	5.3	°C
Q	---	---	16.7	Lpm

QCV	0 %
Max overheat	3.3 °C
occured	18-apr 14:04:06

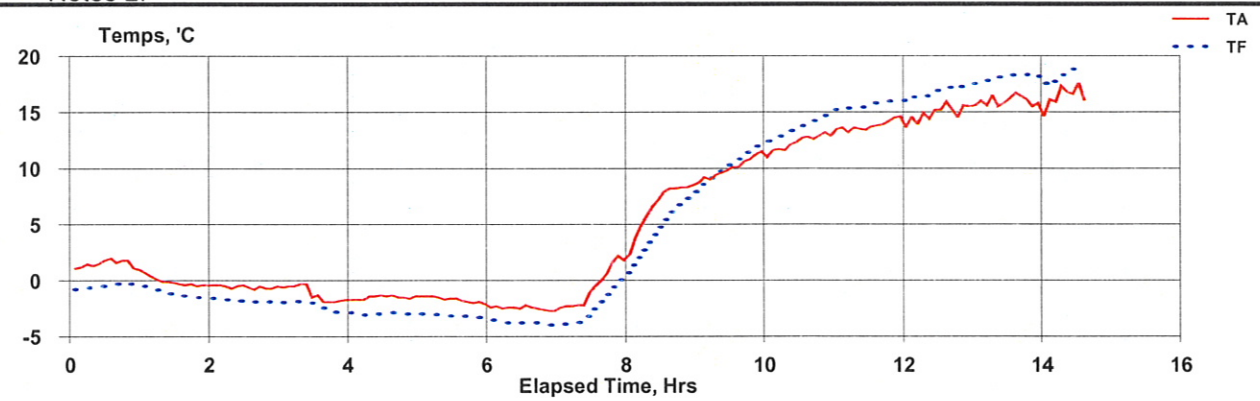
Timer Information:

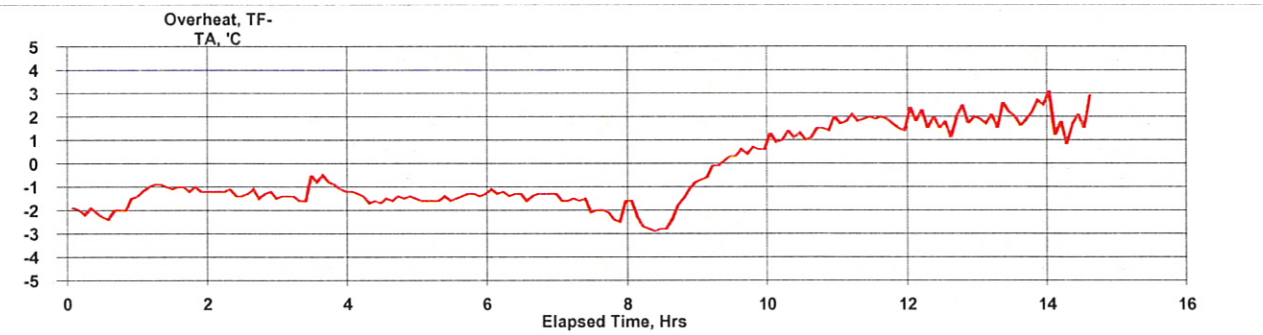
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-apr	0:00:08
Stop:	15-19-apr	0:00:05
ET:	14:42	

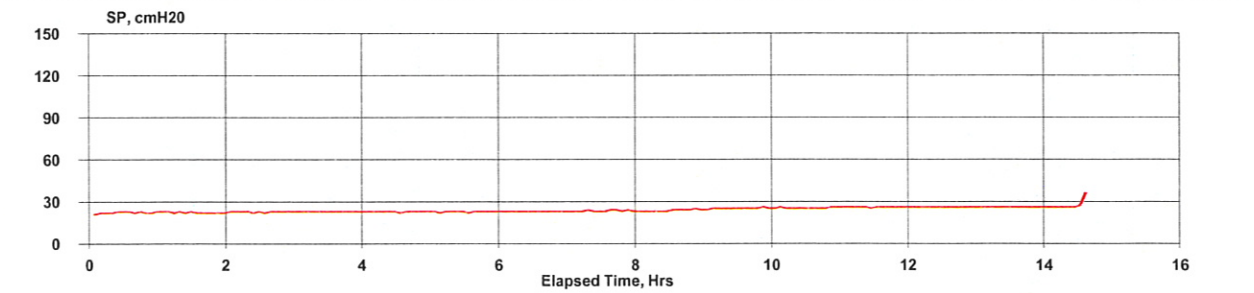
Mass Concentration Data:

Filter ID:	15	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	14.734	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-apr	0:05:08	592	1.5	-0.5	-2.0	22	16.71
15-18-apr	1:05:08	592	-0.1	-1.2	-1.1	22	16.71
15-18-apr	2:05:08	592	-0.6	-1.8	-1.3	23	16.71
15-18-apr	3:05:08	591	-1.2	-2.3	-1.1	23	16.71
15-18-apr	4:05:08	591	-1.5	-3.0	-1.5	23	16.71
15-18-apr	5:05:08	591	-1.7	-3.2	-1.5	23	16.70
15-18-apr	6:05:08	591	-2.5	-3.8	-1.3	23	16.72
15-18-apr	7:05:08	592	-0.6	-2.4	-1.9	23	16.72
15-18-apr	8:05:08	592	6.7	4.5	-2.1	24	16.71
15-18-apr	9:05:08	592	10.0	10.2	0.2	25	16.72
15-18-apr	10:05:08	592	12.3	13.6	1.3	25	16.71
15-18-apr	11:05:08	592	13.8	15.6	1.8	26	16.71
15-18-apr	12:05:08	592	14.9	16.8	1.9	26	16.70
15-18-apr	13:05:08	591	16.0	18.1	2.1	26	16.71
15-18-apr	14:05:08	591	16.4	18.3	1.9	27	16.70

BGI PQ200 Air Sampling System Downloaded 2015 28 apr 15:36:30

Job Details:

Job Name:	15Apr28B.JOB	Job Code:	
Version:	5.62	Site Name:	963C
Serial No:	964	Station Code:	
Pump Time:	1067:03	Operators:	KN
Flags:	Q T	User1:	
		User2:	

	Max	Min	Avg	Units
BP	588	586	586	mmHg
TA	3.2	2	3.1	°C
Q	---	---	0	Lpm
QCV			0	%
Max overheat			3.4	°C
occured			24-apr 19:46:35	

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	15-24-apr	0:00:08
Stop:	15-25-apr	0:00:05
ET:	0:03	

Mass Concentration Data:

Filter ID:	18	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	0.009	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:

Hourly

yy-dd-mmm	hh:mm:ss	mmHg	°C	°C	°C	cmH2O	aLpm

BGI PQ200 Air Sampling System Downloaded 2015 13 may 15:45:10

Job Details:

Job Name:	15May13C.JOB
Version:	5.62
Serial No:	964
Pump Time:	1150:09
Flags:	

Job Code:	
Site Name:	964C
Station Code:	
Operators:	KN
User1:	
User2:	

	Max	Min	Avg	Units
BP	591	588	589	mmHg
TA	19.7	0.8	12.3	°C
Q	---	---	16.71	Lpm

QCV	0.58 %
Max overheat	2.5 °C
occured	13-may 14:46:35

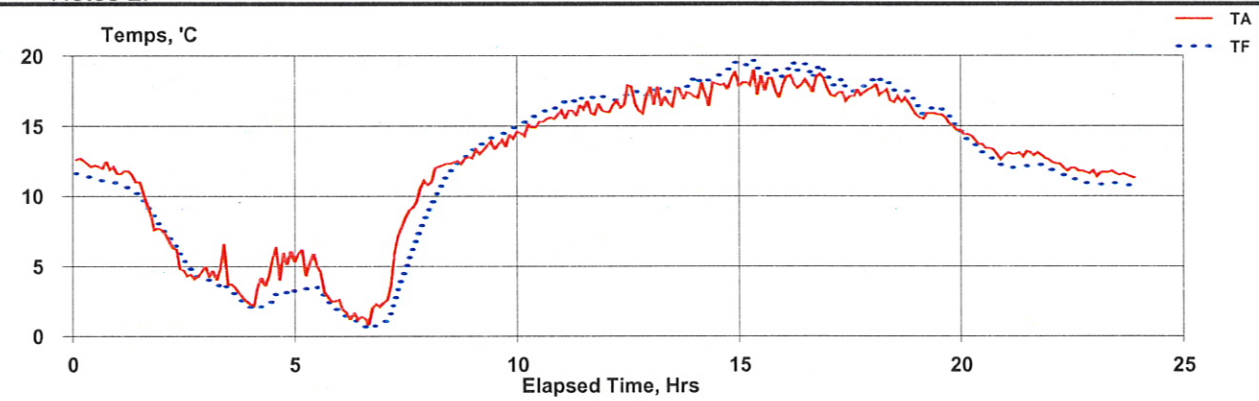
Timer Information:

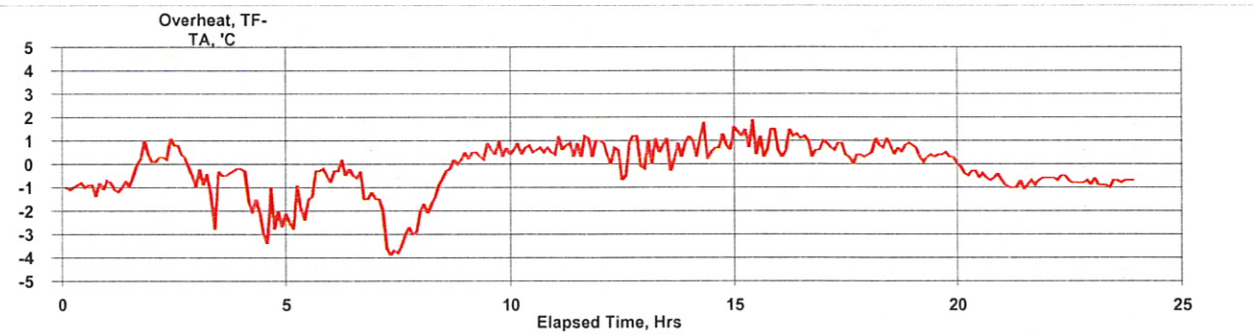
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-may	0:00:08
Stop:	15-13-may	0:00:05
ET:	23:59	

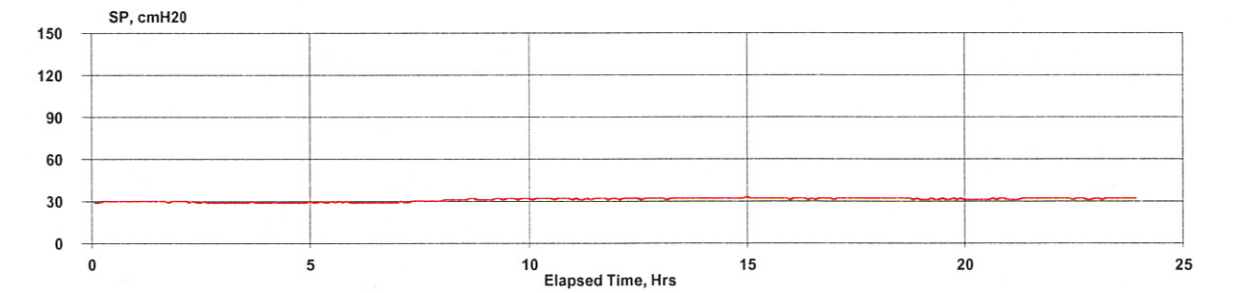
Mass Concentration Data:

Filter ID:	IML-5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.043	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-12-may	0:05:08	590	12.2	11.3	-1.0	30	16.72
15-12-may	1:05:08	590	10.0	9.6	-0.4	30	16.71
15-12-may	2:05:08	590	5.2	5.5	0.2	29	16.71
15-12-may	3:05:08	590	3.8	3.2	-0.7	29	16.71
15-12-may	4:05:08	590	4.7	2.6	-2.1	29	16.71
15-12-may	5:05:08	590	4.2	2.9	-1.3	29	16.71
15-12-may	6:05:08	590	1.7	1.0	-0.7	29	16.72
15-12-may	7:05:08	590	8.0	5.0	-3.0	30	16.71
15-12-may	8:05:08	590	12.3	11.6	-0.7	31	16.72
15-12-may	9:05:08	590	13.7	14.2	0.5	32	16.71
15-12-may	10:05:08	590	15.2	15.8	0.6	32	16.70
15-12-may	11:05:08	590	16.1	16.9	0.8	32	16.71
15-12-may	12:05:08	590	16.8	17.2	0.4	32	16.71
15-12-may	13:05:08	590	17.1	17.7	0.6	32	16.72
15-12-may	14:05:08	589	17.8	18.7	0.9	32	16.70
15-12-may	15:05:08	589	18.0	19.0	1.1	32	16.71
15-12-may	16:05:08	589	18.1	19.0	0.9	32	16.72
15-12-may	17:05:08	588	17.3	17.8	0.5	32	16.72
15-12-may	18:05:08	589	16.9	17.7	0.8	32	16.71
15-12-may	19:05:08	589	15.5	15.8	0.3	31	16.70
15-12-may	20:05:08	589	13.6	13.1	-0.5	31	16.71
15-12-may	21:05:08	589	13.0	12.1	-0.8	32	16.71
15-12-may	22:05:08	590	12.0	11.3	-0.7	32	16.71
15-12-may	23:05:08	590	11.6	10.8	-0.8	32	16.71

BGI PQ200 Air Sampling System Downloaded 2015 21 may 13:39:35

Job Details:

Job Name:	15May21C.JOB
Version:	5.62
Serial No:	964
Pump Time:	1174:08
Flags:	

Job Code:	
Site Name:	
Station Code:	
Operators:	
User1:	
User2:	

	Max	Min	Avg	Units
BP	594	590	591	mmHg
TA	12.9	1.3	7.3	°C
Q	---	---	16.71	Lpm

QCV	0.56 %
Max overheat	2.7 °C
occured	20-may 22:30:08

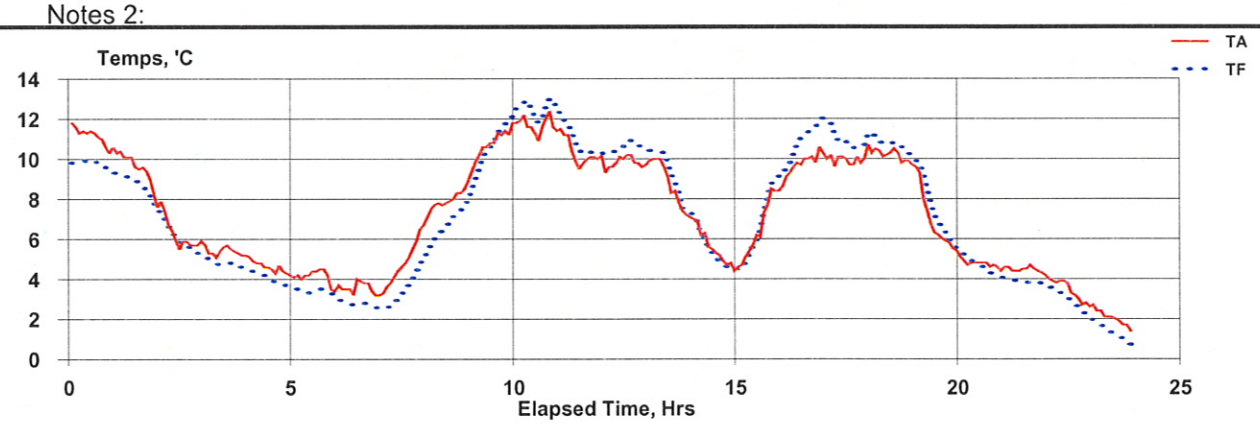
Timer Information:

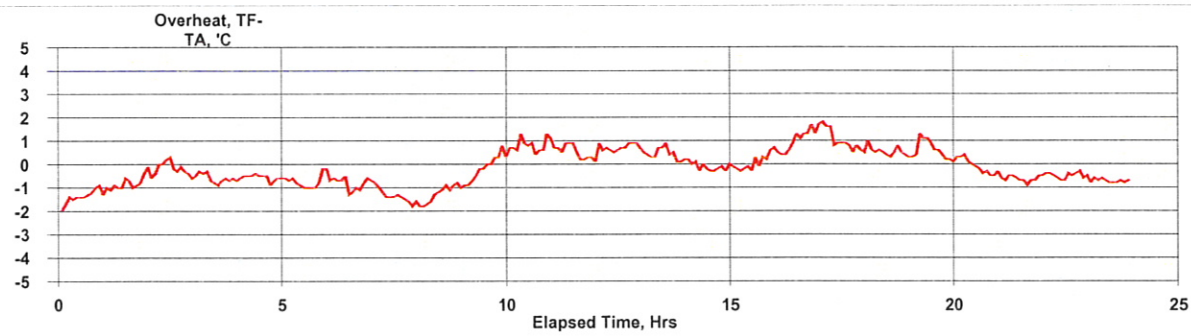
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-may	0:00:08
Stop:	15-19-may	0:00:05
ET:	23:59	

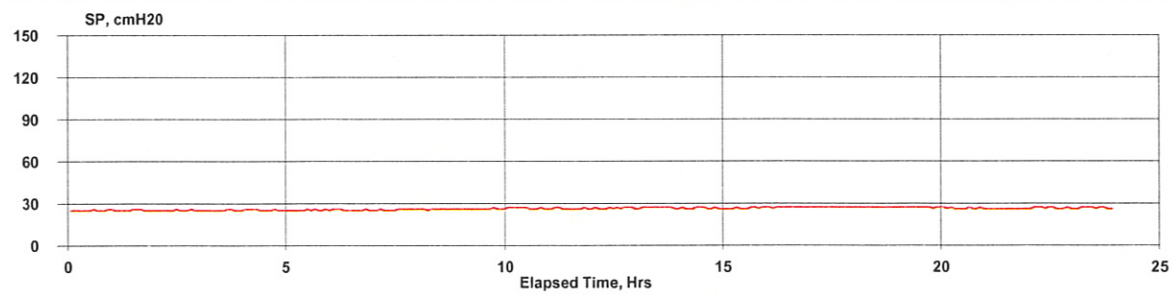
Mass Concentration Data:

Filter ID:	3	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.036	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-may	0:05:08	592	11.1	9.8	-1.4	25	16.71
15-18-may	1:05:08	592	9.5	8.7	-0.8	25	16.72
15-18-may	2:05:08	592	6.2	6.0	-0.2	25	16.72
15-18-may	3:05:08	592	5.4	4.8	-0.6	25	16.71
15-18-may	4:05:08	592	4.6	4.0	-0.6	25	16.70
15-18-may	5:05:08	592	4.1	3.4	-0.7	25	16.71
15-18-may	6:05:08	592	3.6	2.7	-0.8	25	16.71
15-18-may	7:05:08	592	4.9	3.5	-1.4	26	16.71
15-18-may	8:05:08	592	8.0	6.7	-1.3	26	16.71
15-18-may	9:05:08	592	10.8	10.6	-0.1	26	16.70
15-18-may	10:05:08	592	11.7	12.5	0.8	27	16.71
15-18-may	11:05:08	592	10.3	10.8	0.5	26	16.72
15-18-may	12:05:08	592	9.8	10.5	0.7	27	16.71
15-18-may	13:05:08	593	8.7	9.2	0.4	27	16.71
15-18-may	14:05:08	593	5.6	5.5	-0.1	26	16.71
15-18-may	15:05:08	592	6.5	6.6	0.1	26	16.71
15-18-may	16:05:08	591	9.7	10.8	1.0	27	16.71
15-18-may	17:05:08	591	10.0	11.0	1.0	27	16.71
15-18-may	18:05:08	591	10.2	10.7	0.5	27	16.72
15-18-may	19:05:08	592	6.8	7.4	0.6	27	16.71
15-18-may	20:05:08	592	4.8	4.7	-0.1	26	16.71
15-18-may	21:05:08	592	4.5	3.8	-0.6	26	16.71
15-18-may	22:05:08	592	3.4	2.9	-0.5	27	16.71
15-18-may	23:05:08	592	2.0	1.3	-0.7	27	16.71

BGI PQ200 Air Sampling System Downloaded 2015 27 may 10:25:35

Job Details:

Job Name:	15May27C.JOB	Job Code:	
Version:	5.62	Site Name:	
Serial No:	964	Station Code:	964C
Pump Time:	1198:07	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	591	588	590	mmHg
TA	13.6	2	7.7	°C
Q	---	---	16.71	Lpm

QCV	0.53 %
Max overheat	2.7 °C
occured	26-may 13:52:35

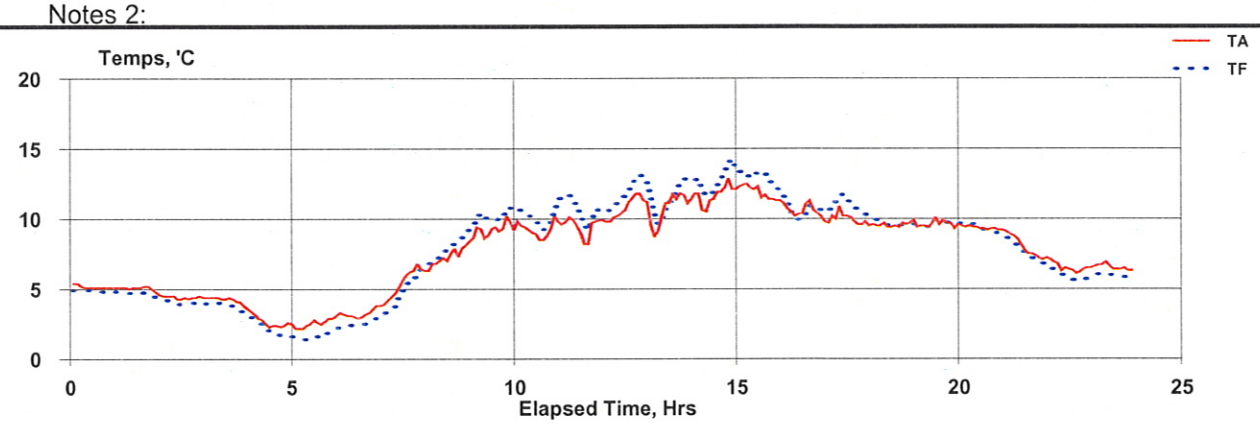
Timer Information:

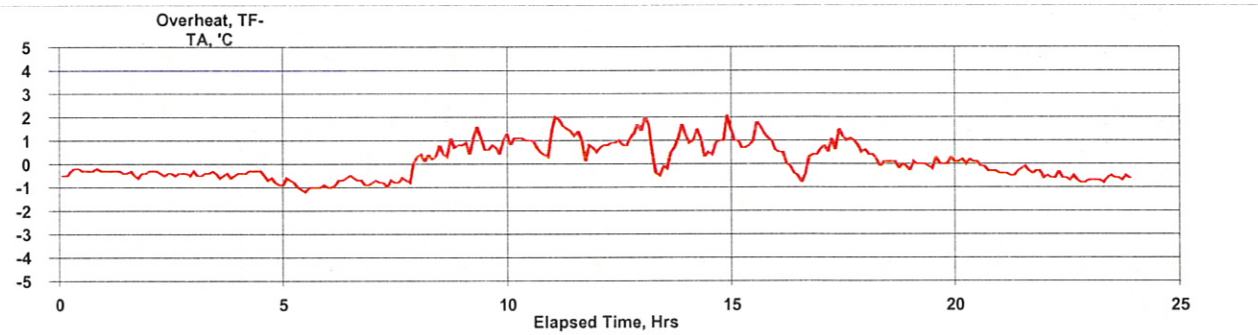
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-may	0:00:08
Stop:	15-25-may	0:00:05
ET:	23:59	

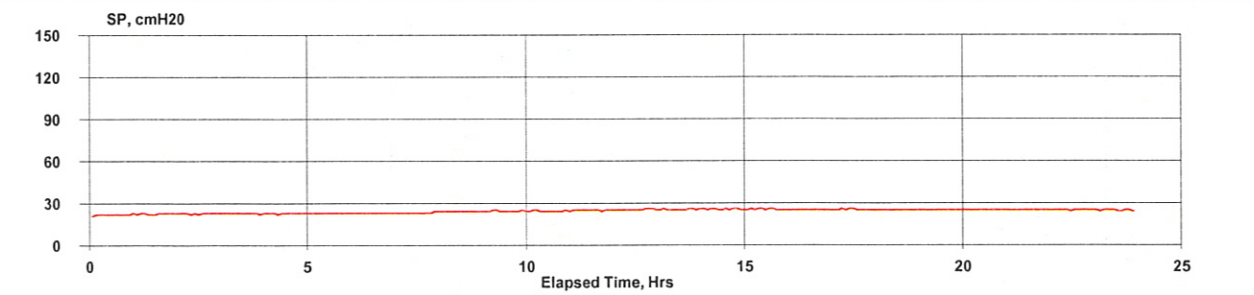
Mass Concentration Data:

Filter ID:	6	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.042	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-24-may	0:05:08	590	5.2	4.9	-0.3	22	16.70
15-24-may	1:05:08	590	5.0	4.7	-0.4	23	16.72
15-24-may	2:05:08	590	4.4	4.0	-0.4	23	16.72
15-24-may	3:05:08	590	4.2	3.8	-0.5	23	16.72
15-24-may	4:05:08	590	2.6	2.1	-0.5	23	16.72
15-24-may	5:05:08	590	2.6	1.6	-0.9	23	16.71
15-24-may	6:05:08	590	3.3	2.5	-0.7	23	16.71
15-24-may	7:05:08	590	5.5	4.9	-0.6	23	16.71
15-24-may	8:05:08	590	7.4	7.9	0.5	24	16.72
15-24-may	9:05:08	590	9.3	10.1	0.9	24	16.72
15-24-may	10:05:08	590	9.2	10.1	0.9	24	16.70
15-24-may	11:05:08	591	9.5	10.6	1.2	25	16.71
15-24-may	12:05:08	590	10.8	11.8	1.0	25	16.71
15-24-may	13:05:08	590	10.7	11.4	0.7	25	16.71
15-24-may	14:05:08	590	11.7	12.7	1.0	26	16.71
15-24-may	15:05:08	590	11.9	12.9	1.1	25	16.71
15-24-may	16:05:08	590	10.6	10.6	0.0	25	16.72
15-24-may	17:05:08	590	10.0	10.9	0.9	25	16.71
15-24-may	18:05:08	590	9.6	9.6	0.1	25	16.71
15-24-may	19:05:08	590	9.6	9.7	0.0	25	16.71
15-24-may	20:05:08	590	9.3	9.3	-0.1	25	16.71
15-24-may	21:05:08	590	7.9	7.6	-0.4	25	16.71
15-24-may	22:05:08	590	6.5	5.9	-0.6	25	16.71
15-24-may	23:05:08	591	6.5	5.9	-0.6	25	16.71

BGI PQ200 Air Sampling System Downloaded 2015 06 jun 07:54:31

Job Details:

Job Name:	15Jun06C.JOB
Version:	5.62
Serial No:	964
Pump Time:	1246:06
Flags:	

Job Code:	
Site Name:	964C
Station Code:	
Operators:	LWJ
User1:	
User2:	

	Max	Min	Avg	Units
BP	593	589	591	mmHg
TA	18.6	5.2	12.1	°C
Q	---	---	16.7	Lpm

QCV	0.57 %
Max overheat	2.6 °C
occured	05-jun 14:42:21

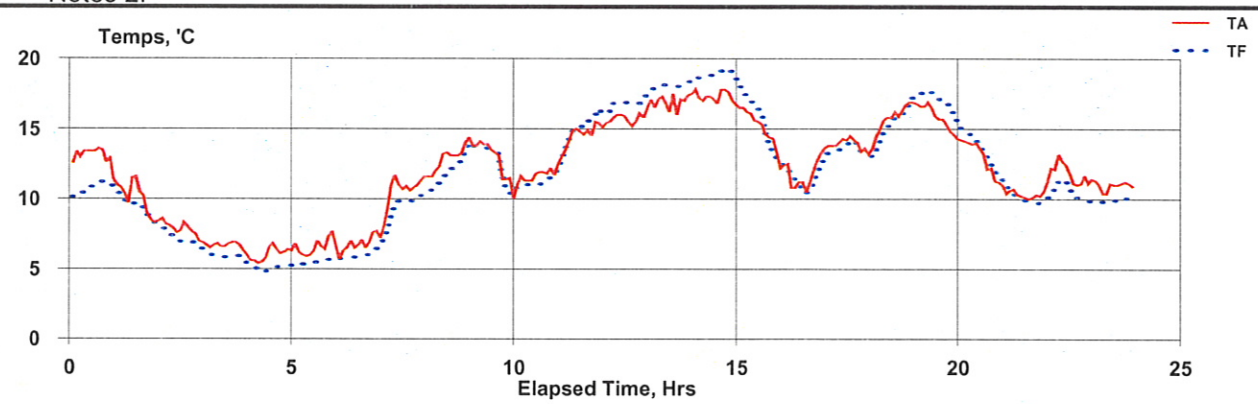
Timer Information:

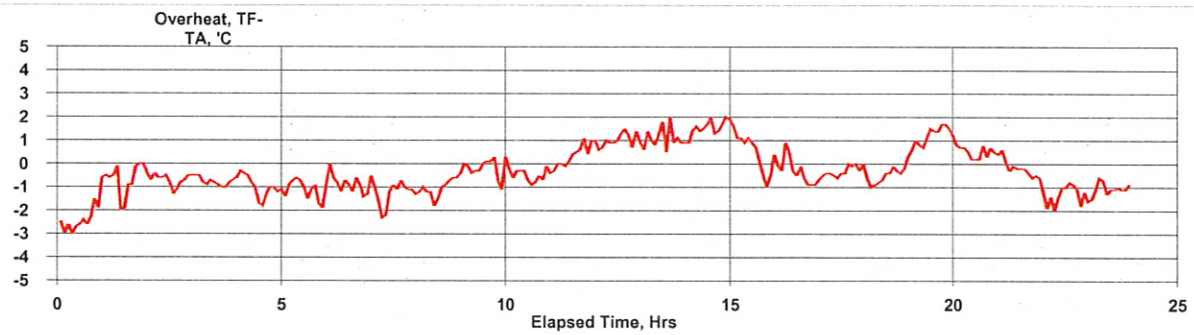
	Date dd-mmm	Time hh:mm:ss
Start:	15-05-jun	0:00:08
Stop:	15-06-jun	0:00:04
ET:	24:00:00	

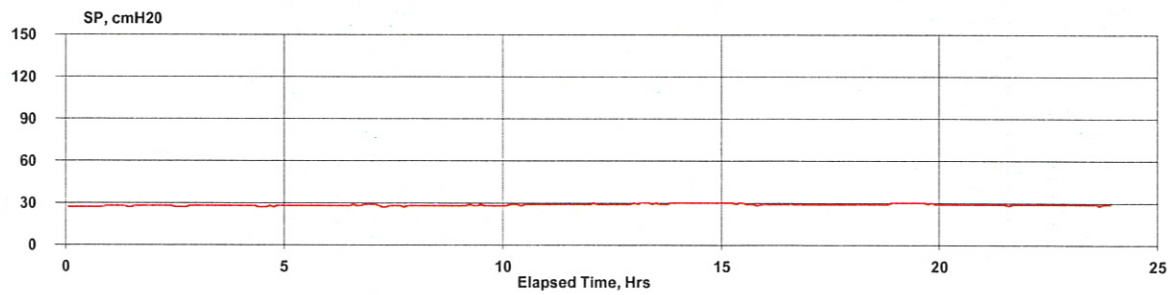
Mass Concentration Data:

Filter ID:	8	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.042	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-05-jun	0:05:22	591	13.1	10.8	-2.3	27	16.70
15-05-jun	1:05:22	591	10.0	9.3	-0.7	28	16.70
15-05-jun	2:05:22	591	7.8	7.1	-0.7	28	16.71
15-05-jun	3:05:22	591	6.6	5.9	-0.8	28	16.71
15-05-jun	4:05:22	591	6.1	5.0	-1.0	28	16.71
15-05-jun	5:05:22	591	6.6	5.5	-1.1	28	16.72
15-05-jun	6:05:22	591	6.8	6.0	-0.8	28	16.71
15-05-jun	7:05:22	591	10.7	9.4	-1.3	28	16.71
15-05-jun	8:05:22	592	12.9	11.9	-1.0	28	16.71
15-05-jun	9:05:22	592	12.8	12.6	-0.2	28	16.72
15-05-jun	10:05:22	592	11.7	11.2	-0.5	29	16.71
15-05-jun	11:05:22	592	14.6	15.0	0.4	29	16.71
15-05-jun	12:05:22	592	15.8	16.8	1.0	29	16.71
15-05-jun	13:05:22	591	17.0	18.1	1.1	30	16.71
15-05-jun	14:05:22	591	17.3	18.9	1.6	30	16.70
15-05-jun	15:05:22	591	15.1	15.5	0.5	29	16.71
15-05-jun	16:05:22	591	11.8	11.5	-0.3	29	16.71
15-05-jun	17:05:22	591	13.9	13.6	-0.3	29	16.71
15-05-jun	18:05:22	590	15.8	15.3	-0.5	29	16.71
15-05-jun	19:05:22	590	15.8	17.0	1.2	30	16.71
15-05-jun	20:05:22	590	12.9	13.4	0.5	29	16.70
15-05-jun	21:05:22	591	10.4	10.1	-0.3	29	16.71
15-05-jun	22:05:22	591	11.8	10.5	-1.3	29	16.71
15-05-jun	23:05:22	591	11.0	9.9	-1.0	29	16.71

BGI PQ200 Air Sampling System Downloaded 2015 12 jun 12:22:24

Job Details:

Job Name:	15Jun12C.JOB	Job Code:	
Version:	5.62	Site Name:	964C
Serial No:	964	Station Code:	
Pump Time:	1270:05	Operators:	lwj
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	593	589	591	mmHg
TA	18.3	8.8	13	°C
Q	---	---	16.7	Lpm

QCV	0.57 %
Max overheat	3.1 °C
occured	11-jun 11:16:33

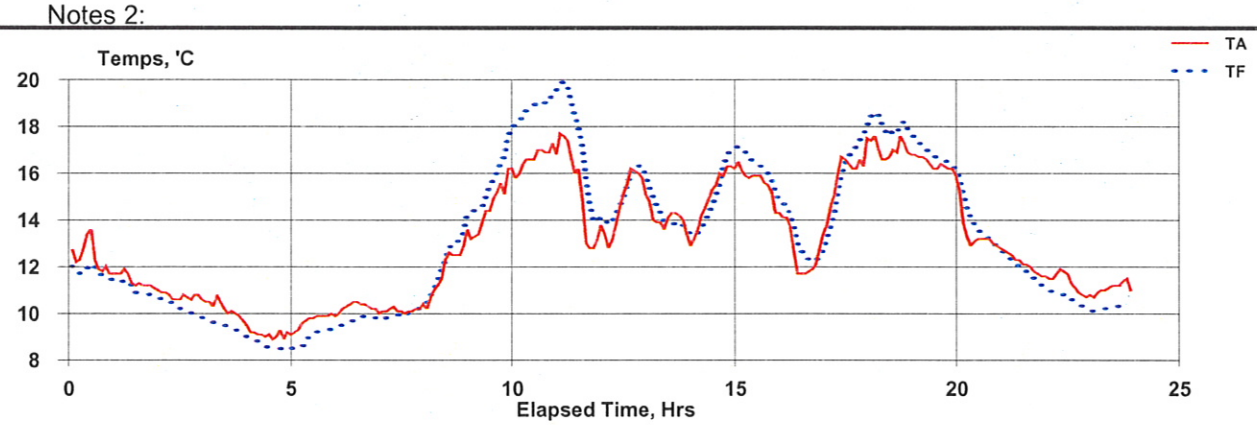
Timer Information:

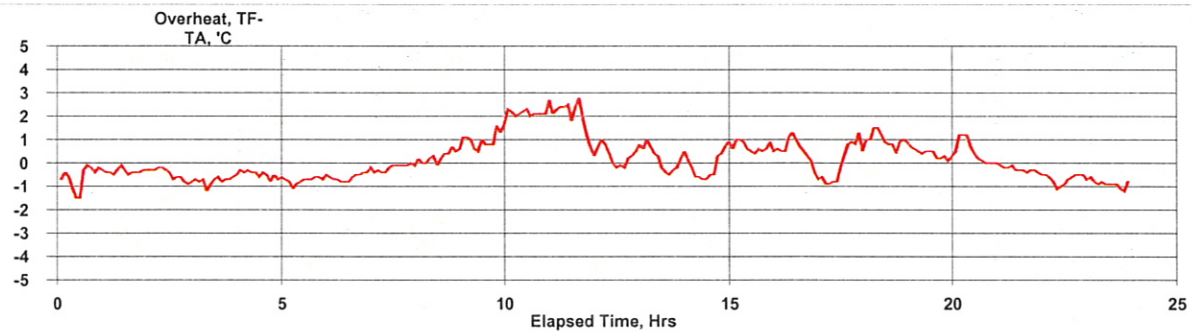
	Date dd-mmm	Time hh:mm:ss
Start:	15-11-jun	0:00:08
Stop:	15-12-jun	0:00:04
ET:	23:59	

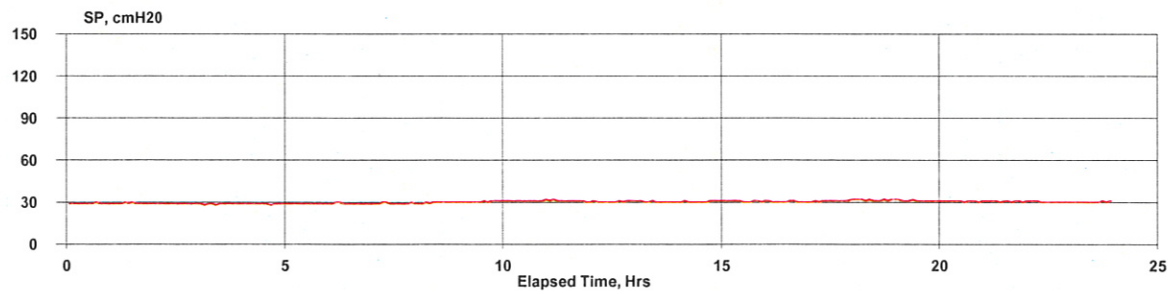
Mass Concentration Data:

Filter ID:	16	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.042	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-11-jun	0:05:08	591	12.4	11.8	-0.6	29	16.71
15-11-jun	1:05:08	592	11.4	11.0	-0.4	29	16.71
15-11-jun	2:05:08	591	10.7	10.2	-0.5	29	16.71
15-11-jun	3:05:08	591	10.2	9.4	-0.7	29	16.71
15-11-jun	4:05:08	591	9.1	8.6	-0.5	29	16.71
15-11-jun	5:05:08	591	9.7	9.0	-0.7	29	16.71
15-11-jun	6:05:08	592	10.3	9.7	-0.6	29	16.72
15-11-jun	7:05:08	592	10.2	10.0	-0.2	29	16.71
15-11-jun	8:05:08	592	12.0	12.2	0.3	30	16.70
15-11-jun	9:05:08	592	14.7	15.7	1.0	30	16.72
15-11-jun	10:05:08	591	16.7	18.8	2.2	31	16.71
15-11-jun	11:05:08	591	15.2	17.1	1.9	31	16.71
15-11-jun	12:05:08	592	14.8	15.1	0.3	30	16.71
15-11-jun	13:05:08	592	14.0	14.1	0.2	30	16.70
15-11-jun	14:05:08	592	15.2	15.0	-0.1	30	16.71
15-11-jun	15:05:08	592	15.6	16.3	0.7	31	16.70
15-11-jun	16:05:08	592	12.6	13.1	0.5	30	16.71
15-11-jun	17:05:08	592	16.0	16.0	0.0	31	16.71
15-11-jun	18:05:08	591	17.0	18.0	1.0	32	16.71
15-11-jun	19:05:08	592	16.4	16.8	0.4	31	16.71
15-11-jun	20:05:08	592	13.3	13.8	0.5	31	16.69
15-11-jun	21:05:08	592	12.1	11.8	-0.3	31	16.71
15-11-jun	22:05:08	592	11.3	10.6	-0.7	30	16.71
15-11-jun	23:05:08	592	11.1	10.2	-0.9	30	16.70

BGI PQ200 Air Sampling System

Downloaded 2015 01 jul 10:57:25

Job Details:			
Job Name:	15Jul01C.JOB	Job Code:	
Version:	5.62	Site Name:	964C
Serial No:	964	Station Code:	
Pump Time:	1782:11	Operators:	KN
Flags:	Q T	User1:	
		User2:	

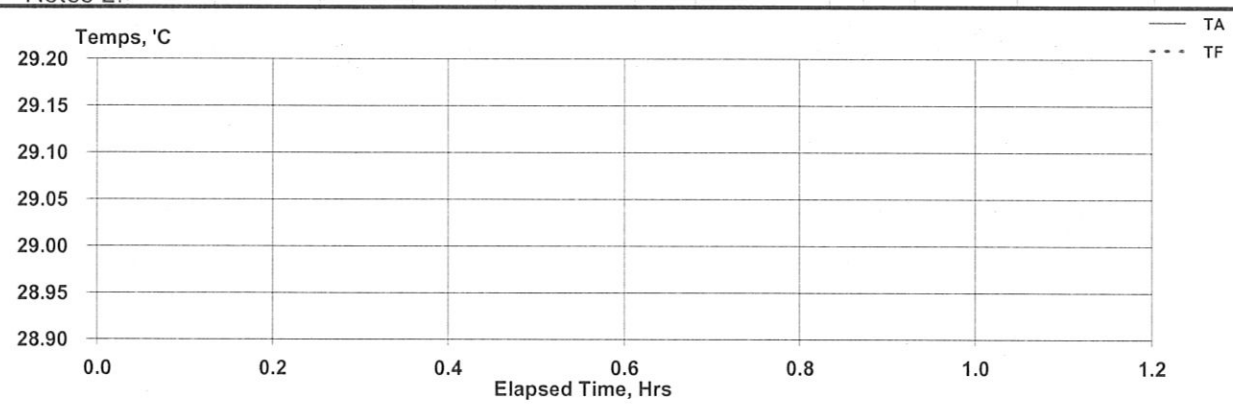
	Max	Min	Avg	Units
BP	596	594	594	mmHg
TA	16.7	15.7	16.7	°C
Q	---	---	0	Lpm
QCV			0	%
Max overheat			4.3	°C
occured	30-jun 15:55:59			

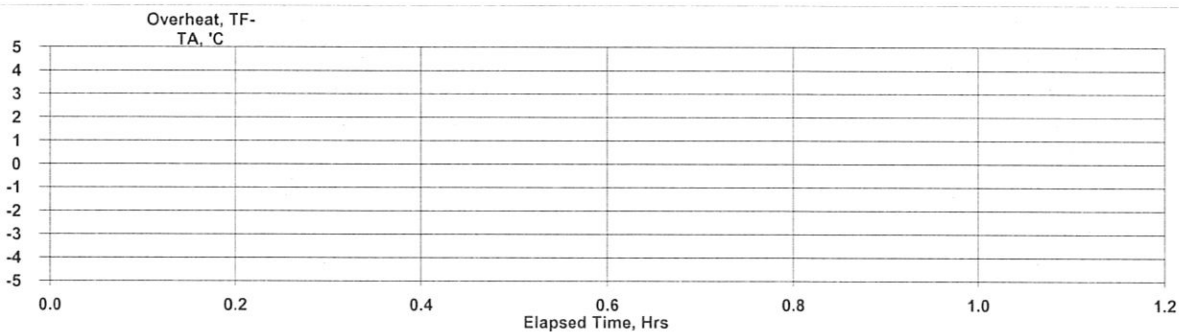
Timer Information:	Date	Time
	dd-mmm	hh:mm:ss
Start:	15-29-jun	0:00:08
Stop:	15-30-jun	0:00:05
ET:	0:02	

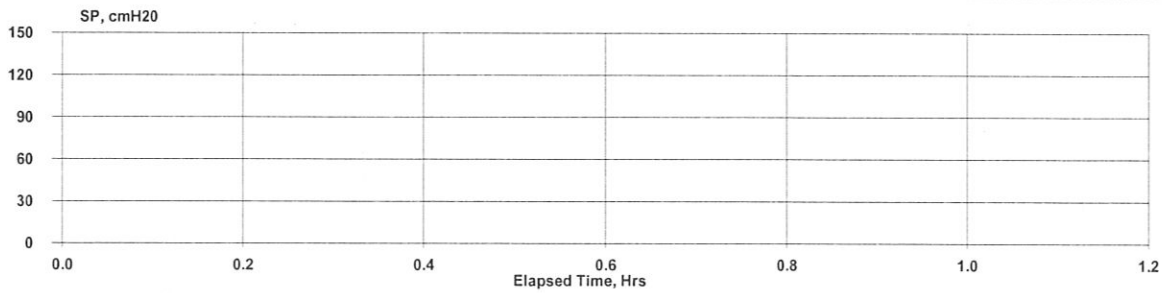
Mass Concentration Data:		
Filter ID:	3	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	0.01	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







15-01-jul	10:56:31	594	29.2	28.9	-0.3		0.00

APPENDIX C

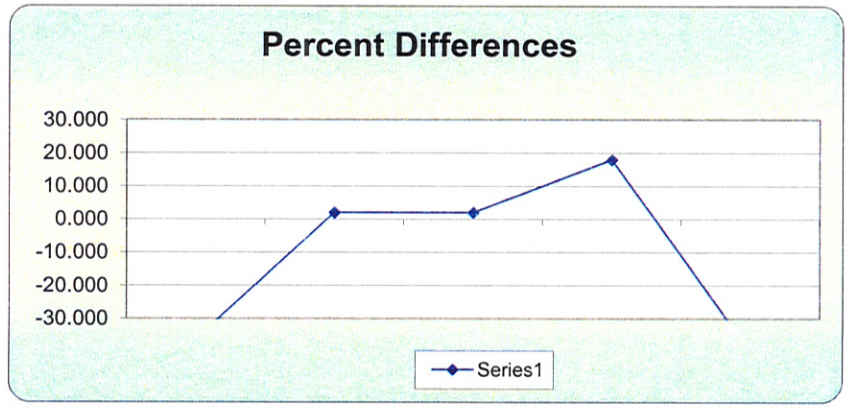
Precision and Single-Point Flow Rate Checks

Alton Coal Development, LLC - Coal Hollow Mine

Precision Estimate (From Collocated Samples)

Monitors 963B & 964C		Pollutant type:					CV_{ub} (%)				
Meas Val (Y)	Audit Val (X)	d (Eqn 10)	25th Percentile	d^2	|d|	$\|d\|^2$					
42	60.6	-36.257	-36.257	1314.593	36.257	1314.593				5.5	17.7
21.9	21.5	1.843	75th Percentile	3.398	1.843	3.398	n	$\Sigma\|d\|$	$\Sigma\|d\|^2$	5.5	17.9
60.3	59.2	1.841	1.843	3.389	1.841	3.389	5	97.767	3239.134		
111.2	93	17.826		317.754	17.826	317.754	n-1	Σd	Σd^2		
5.6	8.4	-40.000		1600.000	40.000	1600.000	4	-54.747	3239.134		

CV (%) (Eqn 11)
35.23

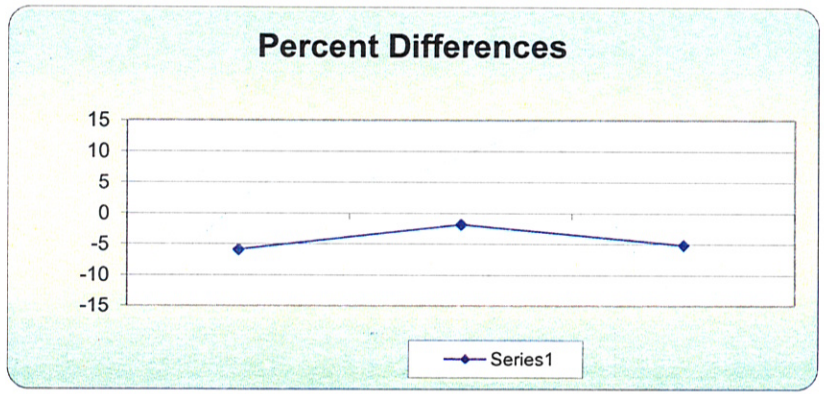


Alton Coal Development, LLC - Coal Hollow Mine

One-Point Flow Rate Bias Estimate

Site ID: Monitor 962A		Pollutant type:					Bias (%)		
Meas Val (Y)	Audit Val (X)	d (Eqn. 1)	25th Percentile	d^2	$\|d\|$	$\|d\|^2$			
			-1.631						
16.7	16.26	2.706	75th Percentile	7.323	2.706	7.323	n	$\Sigma\|d\|$	"AB" (Eqn 4)
16.7	17.23	-3.076	1.261	9.462	3.076	9.462	2	5.782	2.891
							n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
							1	16.785	0.262

Bias (%) (Eqn 3)	Both Signs Positive
4.06	FALSE
Signed Bias (%)	Both Signs Negative
+/-4.06	FALSE



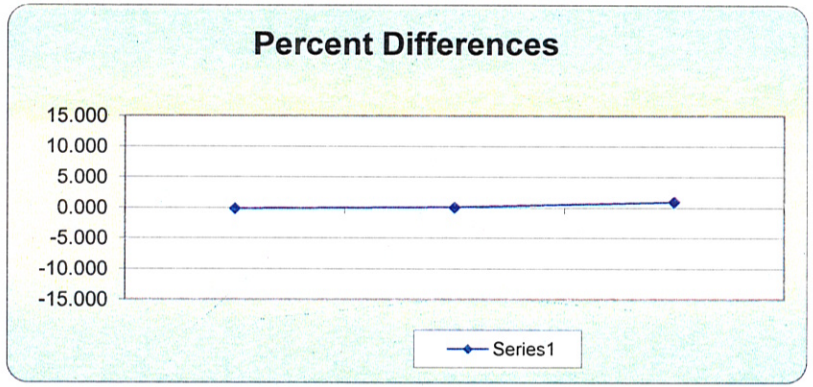
Alton Coal Development, LLC - Coal Hollow Mine

One-Point Flow Rate Bias Estimate

Site ID: Monitor 963B		Pollutant type:					Bias (%)
Meas Val (Y)	Audit Val (X)	d (Eqn. 1)	25th Percentile	d^2	$\|d\|$	$\|d\|^2$	
16.7	16.72	-0.120	-0.030	0.014	0.120	0.014	
16.7	16.69	0.060	75th Percentile	0.004	0.060	0.004	
16.7	16.55	0.906	0.483	0.821	0.906	0.821	

n	$\Sigma\|d\|$	"AB" (Eqn 4)
3	1.086	0.362
n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
2	0.839	0.472

Bias (%) (Eqn 3)	Both Signs Positive
1.16	FALSE
Signed Bias (%)	Both Signs Negative
+/-1.16	FALSE



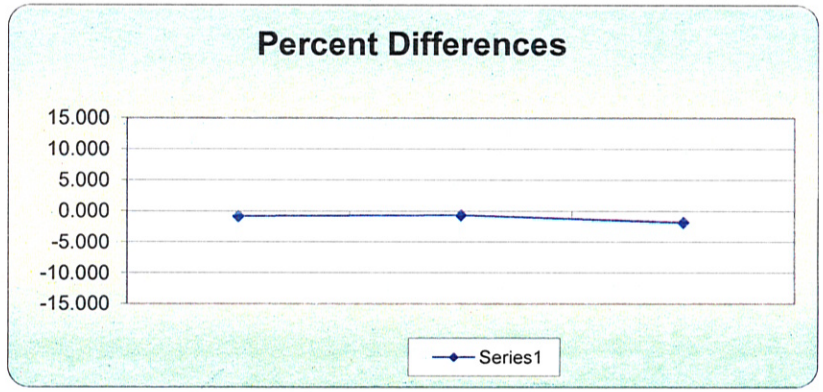
Alton Coal Development, LLC - Coal Hollow Mine

One-Point Flow Rate Bias Estimate

Site ID: Monitor 964C		Pollutant type:					Bias (%)
Meas Val (Y)	Audit Val (X)	d (Eqn. 1)	25th Percentile	d^2	$\|d\|$	$\|d\|^2$	
16.7	16.84	-0.831	-1.327	0.691	0.831	0.691	
16.7	16.81	-0.654	75th Percentile	0.428	0.654	0.428	
16.7	17.01	-1.822	-0.743	3.321	1.822	3.321	

n	$\Sigma\|d\|$	"AB" (Eqn 4)
3	3.308	1.103
n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
2	4.441	0.630

Bias (%) (Eqn 3)	Both Signs Positive
2.16	FALSE
Signed Bias (%)	Both Signs Negative
-2.16	TRUE



APPENDIX D

Field Data Sheets

Background Monitor 962A

Table I - Every 6th Day Sampling

Date	Time	Displayed Date	Displayed Time	Collected Filter ID#	New Filter ID#	Sample Start Time	Sample Start Date	Sampler Initials	
4-1-15	1407	04-01-15	14:02	4	7	M-M	04-06-15	JKSR	
4-07-15	0856	04-07-15	08:56	7	9	M-M	04-12-15	JKSR	
04-15-15	1425	04-15-15	1425	9	13	M-M	04-18-15	JKSR	
04-20-15	14:07	04-20-15	1407	13	16	M-M	04-24-15	KN	
04-28-15	15:00	04-28-15	14:59	16	4	M-M	04-30-15	KN	
05-1-15	14:38	05-1-15	14:39	4	6	M-M	05-06-15	KN	
05-08-15	14:35	05-08-15	14:36	6	20	M-M	05-13-15	KN	
05-13-15	15:31	05-13-15	15:30	20	1	M-M	05-18-15	KN	
05-21-15	1325	05-21-15	1325	1	4	M-M	05-24-15	JKSR	
05-27-15	9:30	05-27-15	9:30	4	7	M-M	05-27-15	KN	Field Blank
05-27-15	9:39	05-27-15	9:39	7	11	M-M	05-30-15	KN	
06-01-15	1511	06-01-15	15:11	11	14	M-M	06-05-15	KN	
06/06/15	0727	06/06/15	07:26	14	4	M-M	06-11-15	TM	
6/12/15	11:49	6/12/15	11:48	4	18	M-M	6/17/15	TM	
06-19-15	1452	06-19-15	1452	18	7	M-M	06-23-15	KN	
06-25-15	0802	06-25-15	0802	7	1	M-M	06-29-15	KN	
07-01-15	9:49	07-01-15	9:49	1	5	9:49	07-01-15	KN	Field Blank
07-01-15	10:29	07-01-15	10:29	5	6	M-M	07-05-15	KN	

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
4-28-15	15:05	98	98	Pass	KN	
05-27-15	9:39	101	100	Pass	KN	cleaned Dexitab manifold
07-01-15	9:53	96	95	Pass	KN	

Table III - Monthly Flow Rate Verification

Date	Time	Monitor Flow (Q Lpm)	Monitor Baro Pressure (mmHg)	Delta Cal Baro Pressure (mmHg)	Monitor Temp (A)	Delta Cal Temp (Ta)	Delta Cal Flow (Qs)	Delta Cal Flow (Qa)	Accuracy	Initials
4-28-15	15:10	16.70	586	588.5	18.6	18.6	13.34	16.84	-0.83	KN
05-27-15	9:48	16.70	586	588	15.2	15.8	13.41	16.81	-0.65	KN
07-01-15	10:25	16.70	588	587.5	27.8	28.2	13.06	17.01	-1.8	KN

Compliance Monitor 963B

Table I - Every 6th Day Sampling

Date	Time	Displayed Date	Displayed Time	Collected Filter ID#	New Filter ID#	Sample Start Time	Sample Start Date	Sampler Initials	
04-01-15	1424	04-01-15	1424	IML-5		Field Blank	—	JKSR	
04-07-15	0910	04-07-15	0910	8	11		04-12-15	JKSR	
04-15-15	1441	04-15-15	1441	11	14	11-11	04-18-15	JKSR	
04-20-15	14:33	04-20-15	14:33	14	17	M-M	04-24-15	KN	
04-28-15	15:32	04-28-15	15:32	17	5	M-M	04-30-15	KN	Filter Swap installed after Monthly check
05-01-15	14:59	05-01-15	14:58	5	19	M-M	05-06-15	KN	
05-08-15	15:32	05-01-15	15:31	19	IML-4	M-M	05-12-15	KN	
05-13-15	15:46	05-13-15	15:45	IML-4	2	M-M	05-18-15	KN	
05-21-15	1337	05-21-15	1337	2	5	M-M	05-24-15	JKSR	
05-27-15	10:22	05-27-15	10:22	5	12	M-M	05-30-15	KN	
06-01-15	15:29	06-01-15	15:29	12	15	15:29	06-01-15	KN	
06-01-15	15:31	06-01-15	15:32	15	7	M-M	06-05-15	KN	
06/06/15	07:47	06/06/15	07:46	7	5	m-m	06-11-15	JM	
6/12/15	12:28	6/12/15	12:27	5	6	m-m	6/17/15	JM	
06-19-15	1507	06-19-15	1507	6	9	M-M	06-23-15	MG.	
06-25-15	0818	06-25-15	0818	9	2	M-M	06-29-15	JKSR	
07-01-15	11:18	07-01-15	11:17	2	8	M-M	07-05-15	KN	

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
04-28-15	1540	106	105	Pass	KN	
05-27-15	10:32	95	93	Pass	KN	Cleaned down tube + Manifold
07-01-15	11:21	99	97	Pass	KN	

Table III - Monthly Flow Rate Verification

Date	Time	Monitor Flow (Q Lpm)	Monitor Baro Pressure (mmHg)	Delta Cal Baro Pressure (mmHg)	Monitor Temp (A)	Delta Cal Temp (Ta)	Delta Cal Flow (Qs)	Delta Cal Flow (Qa)	Accuracy	Initials
04-28-15	15:45	16.70	591	592	20.7°C	20.8°C	13.22	16.72	-0.17	KN
05-27-15	10:35	16.70	592	593	17.0	17.6	13.34	16.69	0.06	KN
07-01-15	11:24	16.70	594	595	30.8	31.0	12.67	16.55	0.91	KN

Co-located Monitor 964C

Table I - Every 6th Day Sampling

Date	Time	Displayed Date	Displayed Time	Collected Filter ID#	New Filter ID#	Sample Start Time	Sample Start Date	Sampler Initials	
04-01-15	1426	04-01-15	1425	6	10	M-M	04-06-15	JKSR	
04-07-15	0911	04-07-15	0911	10	12	M-M	04-12-15	JKSR	QT
04-15-15	1444	04-15-15	1444	12	15	M-M	04-18-15	JKSR	QT
04-20-15	1441	04-20-15	14:39	15	18	M-M	04-24-15	KN	QT
05-08-15	15:35	05-08-15	15:35	18	EML-5	M-M	05-12-15	KN	→ Out for repairs
05-13-15	15:51	05-13-15	15:50	EML-5	3	M-M	05-15-15	KN	
05-21-15	1339	05-21-15	1339	3	6	M-M	05-24-15	JKSR	
05-27-15	10:41	05-27-15	10:41	6	13	M-M	05-30-15	KN	
06-01-15	15:41	06-01-15	15:40	13	8	M-M	06-05-15	KN	
06/06/15	07:57	06/06/15	07:58	8	16	M-M	06-11-15	JKJ	
~~06/15/15~~	~~11:49~~	~~06/15/15~~	~~11:48~~						
6/12/15	12:18	6/12/15	12:16	16	19	M-M	6/17/15	JKJ	
06-19-15	1509	06-19-15	1506	19	17	M-M	06-23-15	[illegible]	QT
06-25-15	0820	06-25-15	0820	17	3	M-M	06-29-15	[illegible]	QT
07-01-15	11:40	07-01-15	11:40	3	10	M-M	07-05-15	KN	QT

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
						Out for Repairs
05-27-15	10:45	97	91	Pass	KN	Cleaned down tube & Manifold
07-01-15	11:39	95	94	Pass	KN	

Table III - Monthly Flow Rate Verification

Date	Time	Monitor Flow (Q Lpm)	Monitor Baro Pressure (mmHg)	Delta Cal Baro Pressure (mmHg)	Monitor Temp (A)	Delta Cal Temp (Ta)	Delta Cal Flow (Qs)	Delta Cal Flow (Qa)	Accuracy	Initials
05-27-15	10:48	16.7	594	594	16.9	17.2	13.03	16.26	2.7	KN
07-01-15	11:42	16.70	595	595	30.2	30.5	13.23	17.23	-3.1	KN

APPENDIX E

Independent PM_{10} Sampler Performance Audit Report

AUDIT REPORT
FOR

ALTON COAL DEVELOPMENT, LLC
COAL HOLLOW MINE
ALTON, UTAH
SECOND QUARTER 2015

Prepared for

Kirk Nicholes
Alton Coal Development, LLC
463 N 100 W
Cedar City, Utah, 84721

Prepared by

Air Resource SPECIALISTS

1901 Sharp Point Dr.
Suite E
Fort Collins, CO 80525
970-484-7941

Site Audited: June 3, 2015

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1.0 INTRODUCTION

Air Resource Specialists, Inc. (ARS) conducted a performance audit of Alton Coal Development, LLC ambient air quality monitoring systems on June 3, 2015. The monitoring sites are located at the Coal Hollow Mine near Alton, Utah.

Table 1-1

Site Location Information

	Primary	Background	Meteorological
Latitude	37° 24' 5.0" N	37° 24' 20.9" N	37° 23' 53.2" N
Longitude	112° 27' 21.0" W	112° 26' 1.1" W	112° 26' 43.1" W
UTM	12S 371147 4140396	12S 373119 4140856	12S 372073 4140018
Elevation	6,890 feet MSL	7,158 feet MSL	7,007 feet MSL

Audit results for the particulate samplers are summarized in Table 1-2. Audit results for the meteorological measurements are summarized in Table 1-3. Detailed discussions of performance audit findings and other findings can be found in Section 3.0.

Table 1-2

Summary of Particulate Sampler Audit Results

	Parameter	**Instrument**	**Within Accuracy Goal**
Primary	PM_{10}	BGI PQ200S	Yes
	PM_{10} (collocated)	BGI PQ200S	Yes
Background	PM_{10}	BGI PQ200S	Yes

Table 1-3

Summary of Meteorological Audit Results

Parameter	**Sensor**	**Within Accuracy Goal**
Wind Direction	Met One 034B	Yes
Precipitation	Texas Electronics TR-525I-HT	Yes

Details of the audit are presented in the following sections:

Section 2.0	Audit Methods and Equipment
Section 3.0	Audit Results
Appendix A	Audit Data Forms
Appendix B	Audit Standards Certifications

Any questions related to this audit or audit report should be addressed to:

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Fort Collins, Colorado 80525
Telephone: 970-484-7941
Fax: 970-484-3423
E-mail: ckirk@air-resource.com

2.0 AUDIT METHODS

Audit procedures, audit challenge ranges, and acceptance criteria are described below. These ranges and limits conform to EPA's PSD guidelines. Audit results were verbally communicated to the site operator prior to departure from the site. A follow-up e-mail summarizing audit findings was also sent to Alton Coal Development, LLC personnel. Audit details are provided in Appendix A.

Guidance from the following EPA documents was used to establish the audit procedures:

- 40 CFR 58, Appendix A. *Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring*
- EPA *Quality Assurance Handbook for Air Pollution Measurement Systems:*
  - *Volume I. A Field Guide to Environmental Quality Assurance*
  - *Volume II. Ambient Air Quality Monitoring Program*
  - *Volume IV. Meteorological Measurements*
- EPA *Meteorological Monitoring Guidance for Regulatory Modeling Applications*
- EPA *Transfer Standards for Calibration of Air Monitoring Analyzers for Ozone*

2.1 PARTICULATE SAMPLERS (FRM PM_{10})

The filter-based FRM PM_{10} particulate samplers are audited in their normal operating mode. ARS audits the samplers with a BGI DeltaCal audit standard which measures flow, temperature, and barometric pressure. Prior to conducting the flow audit, a system leak check is performed in accordance with the manufacturer's specifications. The observed volumetric operational flow and design flow of the sampler are compared to the audit flows measured by the audit standard. Differences between the operational sampler flow and audit flow that are greater than ±10% are considered out of tolerance. Differences between the designated design flow and the audit flow greater than ±10% are considered out of tolerance. In addition to the flow audits, observed ambient temperature, filter temperature, and barometric pressure measurements of the particulate samplers are also audited by comparison to the audit standard. A temperature difference greater than ±2°C and a barometric pressure difference greater than ±10mm Hg are considered out of tolerance. Audit methods and acceptable criteria for the particulate samplers are summarized in Table 2-1.

Table 2-1

Particulate Samplers
Audit Acceptance Criteria

Parameter	Audit Method	Acceptance Criteria
FRM PM_{10}	Leak Check	Manufacturer specs
	Audit flow to actual sampler flow	$\leq \pm 4\%$
	Design criteria flow to audit flow	$\leq \pm 5\%$
	Audit temperature to sampler temperature	$\leq \pm 2\,^{\circ}C$
	Audit temperature to sampler filter temperature	$\leq \pm 2\,^{\circ}C$
	Audit barometric pressure to sampler pressure	$\leq \pm 10$mm Hg

Table 2-2

Particulate Samplers
Audit Equipment

References	Manufacturer	Model Number	Serial Number	Expiration Date
FRM Flow	BGI	deltaCal	1237	1/19/2016

2.2 METEOROLOGICAL PARAMETERS

Meteorological measurement systems are audited in accordance with (and accuracy goals were obtained from) the EPA's *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV – Meteorological Measurements*, (March 2008). ARS uses National Institute of Standards and Technologies (NIST) traceable test equipment for all meteorological parameters. All equipment is recertified annually. Audit ranges and acceptable criteria for each parameter are summarized in Table 2-3.

2.2.1 Wind Direction

Wind direction sensor audits include the verification of sensor orientation, linearity, and starting threshold (bearing integrity). The sensor orientation accuracy is verified by a reference. The reference can be an internal reference (a tower-mounted alignment vane) or external (pointing at landmarks from the sensor). Accuracy of the references is verified by the solar azimuth method for the determination of true north. Using a compass and the site latitude and longitude, a computer model outputs the sun's azimuth for that exact time of day. The compass is adjusted to that azimuth, effectively correcting for the compass to the local magnetic declination (which may include local magnetic field disturbances). The sensor orientation accuracy is checked by aligning the wind direction vane to and from each landmark reference, recording sensor responses from the on-site datalogger.

Potentiometer linearity is tested by verifying the change in response between two successive orientations across eight points on a calibrated disc mounted atop the sensor. For example, any two adjacent orientations on the eight-point disc are separated by 45 degrees. The difference in the datalogger response for these two adjacent orientations is compared to this value.

2.2.2 Precipitation

The tipping bucket style precipitation gauges are audited with a volumetric precipitation gauge calibrator by transferring a known amount of water through the gauge orifice at a maximum rate equivalent to 2.0 inches/hour of precipitation. The total values from the on-site datalogger values are compared to the actual introduced volume. The level and cleanliness of the sensor is observed where possible.

Table 2-3

Meteorological Sensors
Audit Ranges and Acceptance Criteria

Parameter	Audit Method	Acceptance Criteria
Wind Direction	Accuracy with compass	$\leq \pm 5^{\circ}$
Precipitation	Accuracy via known volume of water	$\leq \pm 10\%$

Table 2-4

Meteorological Audit Equipment

References	Manufacturer	Model Number	Serial Number	Expiration Date
Precipitation	Novalynx	260-2595	N/A	N/A

3.0 AUDIT RESULTS

Audit findings and recommendations are discussed below. Detailed audit results are provided in Appendix A.

Performance Audit Results

There were no performance audit failures during this audit.

Other Audit Findings

All PM_{10} instruments appear to be set to local daylight time rather than the standard convention of local standard time.

Other Work Performed

Alton Coal contracted with ARS to rebuild and test the Met One 034B wind sensor in ARS' laboratory. During the audit, ARS reinstalled the sensor and confirmed proper alignment by use of known landmarks to verify direction.

Alton Coal also requested that ARS adjust and verify the calibration on the precipitation gauge at the meteorological station.

APPENDIX A

AUDIT DATA FORMS

WIND DIRECTION AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Direction Alignment Reference				
Direction Linearity Reference				
Direction Torque Gauge				

Manufacturer & Model	Met One - 034B
Sensor Serial #	E2281
Vane Serial #	n/a

Local Magnetic Declination (degrees)	0.0
Method	

Mag. Dec. from NOAA (deg/min/sec)				0.00

http://www.ngdc.noaa.gov/geomag-web/#declination

AUDIT CRITERIA (<=)	
Cross-arm Alignment Error (degrees)	2
Total Align. Diff (degrees)	5
Sensor Linearity (degrees)	5

Landmarks	Degrees
From left most building barn to the east	338
To left most building barn to the east	158
To center of right rock outcrop, saddle	73
From center of right rock outcrop, saddle	253

Reference Alignment Error (degrees)	0.0	PASS

SENSOR ALIGNMENT			
Reference	Degrees	DAS	Difference
From the North	0		
From the South	180		
From the East	90		
From the West	270		
Total Alignment MAX ABS Diff			

OR

SENSOR ALIGNMENT				
Landmark	Degrees	DAS	Difference	
most building barn t	338	339.5	1.5	
ost building barn to	158	160.6	2.6	
r of right rock outcro	73	73.3	0.3	
er of right rock outcr	253	255.7	2.7	
Total Alignment MAX ABS Diff			2.7	PASS

SENSOR LINEARITY			
Point	DAS	Difference	
1		N/A	
2			
3			
4			
5			
6			
7			
8			
1			
MAX Difference			

Starting Threshold	TORQUE
Torque <= 6.5 g-cm	

Heater sleeve functional?	☐ Yes ☐ No ☐ N/A

NOTES:

PRECIPITATION SENSOR AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Precipitation Reference	Nova Lynx	260-2595	n/a	n/a

Manufacturer	Hydrological Services
Model	TB4
Serial Number	05-94

AUDIT CRITERIA (<=)	
Difference from Input Volume (%)	10%

	Reference Chart			Input Volume (mL)		946
	Manufacturer	Model	Diameter (in.)	mm/tip	mL/tip	DAS target
	Met One	385	12	0.254	18.53	12.96
	RM Young	52202	6.2825	0.100	2.00	47.30
	Climatronics	100097-1-G0-H0	8	0.254	8.24	29.17
	Climatronics	100508	9.66	0.100	4.73	20.01
x	Hydrological Serv.	TB4	8	0.254	8.24	29.17

Conversions			
Value	Units	Value	Units
1.000	inch	25.40	mm
25.40	mm	1.000	inch

		Precipitation		
Reference (mL)	Target (mm)	DAS (mm)	Difference	
946	29.17	30.23	3.6%	PASS

Heater functional?	☐ Yes ☐ No ☑ N/A
Sensor found level?	☑ Yes ☐ No
Sensor found clean?	☑ Yes ☐ No

NOTES:

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Temperature Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Barometric Pressure Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200
SERIAL NUMBER	962A

Date and Time correct?
☐ Yes ☑ No
If no, time off by:
+1 hr

SETTINGS	
Total Flow	16.70

	Automated LEAK CHECK	
	Vacuum Loss Rate	Pass/Fail
	2 cm/2 min	PASS

	FLOW VERIFICATION				
	Reference	Instrument	Actual Diff	Design Diff	
Total Flow	17.03	16.70	-1.9%	2.0%	PASS

AUDIT CRITERIA (<=)	
Actual Flow % Diff	10%
Design Flow % Diff	10%

	AMBIENT TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	17.8	17.7	-0.1	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

	FILTER TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	19.1	18.3	-0.8	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

	PRESSURE SENSOR (mmHg)			
	Reference	Instrument	Difference	
	584.0	583.0	-1.0	PASS

AUDIT CRITERIA (<=)	
Pressure Difference (mmHg)	10

NOTES:

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Temperature Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Barometric Pressure Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200
SERIAL NUMBER	963B

Date and Time correct?
☐ Yes ☑ No
If no, time off by:
+1 hr

SETTINGS	
Total Flow	16.70

Automated LEAK CHECK	
Vacuum Loss Rate	Pass/Fail
4 cm/2 min	PASS

FLOW VERIFICATION					
	Reference	Instrument	Actual Diff	Design Diff	
Total Flow	16.70	16.82	0.7%	0.0%	PASS

AUDIT CRITERIA (<=)	
Actual Flow % Diff	10%
Design Flow % Diff	10%

AMBIENT TEMPERATURE SENSOR (°C)			
Reference	Instrument	Difference	
21.0	20.6	-0.4	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

FILTER TEMPERATURE SENSOR (°C)			
Reference	Instrument	Difference	
21.7	20.4	-1.3	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

PRESSURE SENSOR (mmHg)			
Reference	Instrument	Difference	
589.5	589.0	-0.5	PASS

AUDIT CRITERIA (<=)	
Pressure Difference (mmHg)	10

NOTES:

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Temperature Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Barometric Pressure Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200
SERIAL NUMBER	964C

Date and Time correct?
☐ Yes ☑ No
If no, time off by:
+1 hr

SETTINGS	
Total Flow	16.70

	Automated LEAK CHECK	
	Vacuum Loss Rate	Pass/Fail
	2 cm/2 min	PASS

	FLOW VERIFICATION				
	Reference	Instrument	Actual Diff	Design Diff	
Total Flow	16.92	16.70	-1.3%	1.3%	PASS

AUDIT CRITERIA (<=)	
Actual Flow % Diff	10%
Design Flow % Diff	10%

	AMBIENT TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	20.0	19.4	-0.6	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

	FILTER TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	21.1	21.0	-0.1	PASS

AUDIT CRITERIA (<=)	
Temperature Difference (°C)	2

	PRESSURE SENSOR (mmHg)			
	Reference	Instrument	Difference	
	589.5	591.0	1.5	PASS

AUDIT CRITERIA (<=)	
Pressure Difference (mmHg)	10

NOTES:

SITE INFORMATION

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
NETWORK TYPE		PSD					

		Deg	Min	Sec		Decimal
LATITUDE	North	34	24	22.1	--CALCULATE->	34.4061
LONGITUDE	West	112	27	15.5		112.4543

Decimal		Deg	Min	Sec
	--CALCULATE->			

	Meters		Feet
ELEVATION		--CALCULATE->	

Feet		Meters
	--CALCULATE->	

Please verify site standards used by the site operator

SITE STANDARDS	MANUFACTURER	MODEL	SERIAL #	Calibration Expiration Date
PM Flow Reference				

NOTES:	Coordinates are for the office at the Coal Hollow Mine

CALIBRATION AND VERIFICATION STANDARDS

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	M. Farinacci	DATE	6/3/2015
SITE NAME		Alton Coal					
Network type		PSD					

			MANUFACTURER	MODEL	SERIAL #	Calibration Expiration Date
Ozone Transfer Standard						
Gas Dilution Transfer Standard						
MFC High Flow Reference						
MFC Low Flow Reference						
Temperature Reference						
AT/RH Sensor Reference						
Barometric Pressure Reference						
Wind Speed Reference						
Wind Speed Torque Gauge						
Wind Direction Alignment Reference						
Wind Direction Linearity Reference						
Wind Direction Torque Gauge						
Solar Radiation Reference						
Multiplier		W/m2 / mV				
UV Radiation Reference						
Multiplier		W/m2 / mV				
Precipitation Reference						
Volume	946	mL	Nova Lynx	260-2595	n/a	n/a

PM Flow Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Flow Standard #2				
PM Flow Standard #3				
PM Flow Standard #4				

PM Temperature Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Temperature Standard #2				
PM Temperature Standard #3				
PM Temperature Standard #4				

PM Barometric Pressure Standard #1	Mesa Labs	DeltaCal	1237	1/19/2016
PM Barometric Pressure Standard #2				
PM Barometric Pressure Standard #3				
PM Barometric Pressure Standard #4				

TEOM MTV Standard				

APPENDIX B

AUDIT STANDARDS CERTIFICATIONS

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered

MesaLabs

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

deltaCal Serial Number: **1237** DATE: 12-Jan-2015

Calibration Operator: P.Pitty

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1A *CEESI NVLAP NIST Data File 07BGI-0001*
Serial Number: 2A *CEESI NVLAP NIST Data File 07BGI-0003*
Serial Number: 5C COX Nist Data File CCAL33222 - 5 C
Serial Number: 4A *CEESI NVLAP NIST Data File 07BGI-0002*
Serial Number: 3A *CEESI NVLAP NIST Data File 07BGI-0004*

Room Temperature: Uncertainity=0.071% Room Temperature: 23.0 °C
Brand: Accu-Safe Serial Number: 254881
NIST Traceability No. 516837
deltaCal:
Ambient Temperature (set): 23.0 °C
Aux (filter) Temperature (set): 23.0 °C

Barometric Pressure ans Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N DH0850001
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
deltaCal:
Barometric pressure (set): 759 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

Q= 3.86319 ΔP ^ 0.52084 Overall Uncertainty: 0.35%

Date Placed In Service 1/19/15
(To be filled in by operator upon receipt)

Recommended Recalibration Date 1/19/16
(12 months from date placed in service)

Revised: October 2014
Cal102-01T2 Rev A

To Check a deltaCal 12-Jan-15 P.Pitty

1.5-19.5 VER 3.41P

BP= 759 mm of Hg

Maximum allowable error at any flow rate is .75%.

Serial No. 1237

	Reading Abs. P Crit. Vent. mm of Hg	Room Temp	CV Qa Flow Lpm	Qa deltaCal Indicated	% Error
# 5	198.8	23.0	6.46	6.50	**0.56**
	263.7	23.0	8.65	8.64	**-0.08**
	350.8	23.0	11.58	11.56	**-0.15**
	459.4	23.0	15.23	15.23	**0.02**
	578.2	23.0	19.22	19.28	**0.30**
				Average %	**0.13**