Alton Coal Development, LLC.

Summary of PM_{10} Data
Collected at Coal Hollow Mine, Utah
During the First 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 first 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 37º 24' 5.04" North Latitude, 112º 27' 20.91" West Longitude, WGS84 Datum. The background monitor coordinates are 37º 24' 21.96" North Latitude, 112º 25' 59.97" West Longitude, WGS84 Datum.

Figure 1 - Site Location Map

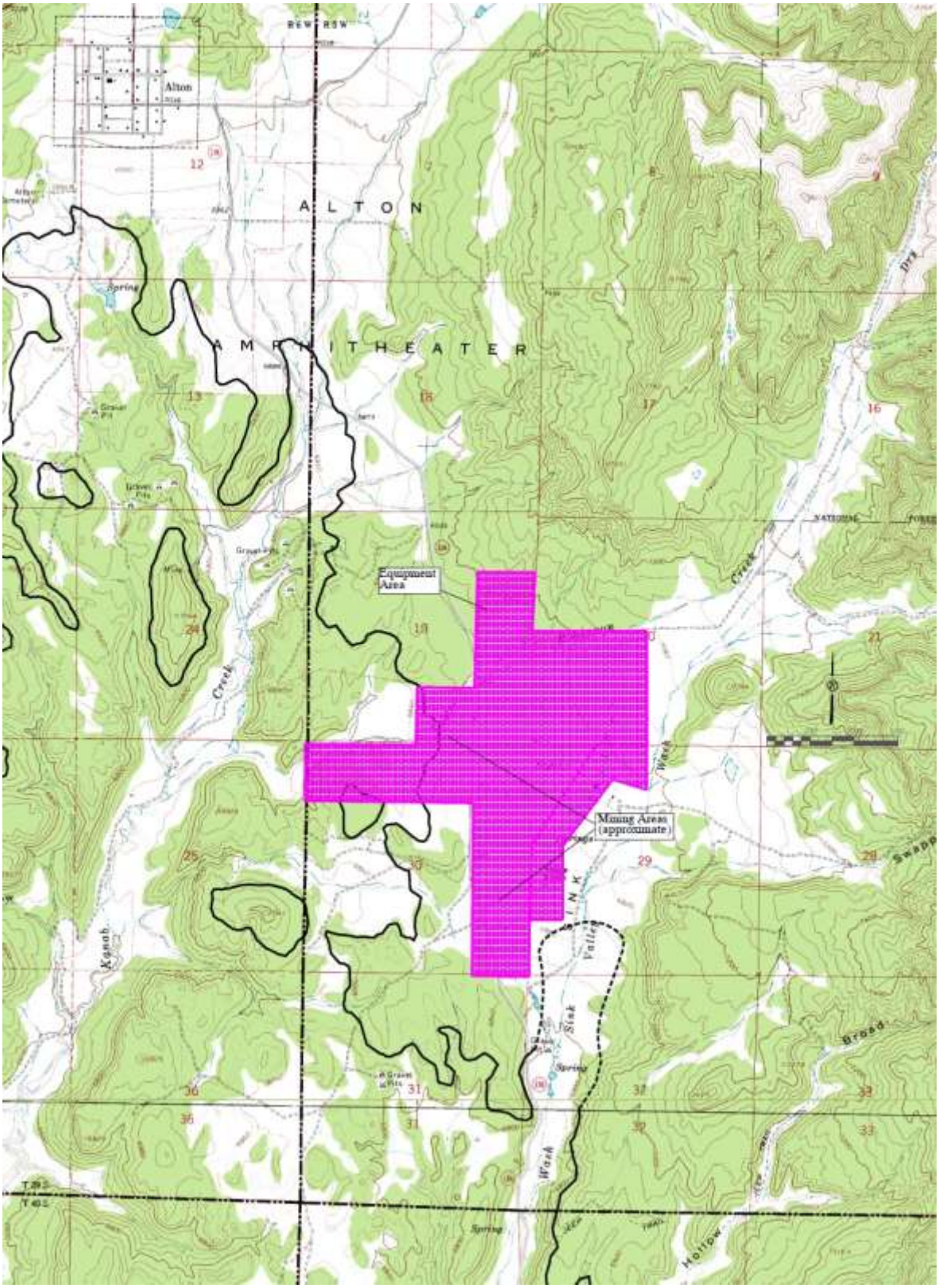


Figure 2 - Satellite View of Monitoring Locations

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 $\mu g/m^3$.

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

RANK	DATE	PM_{10} CONCENTRATION
Highest	03/07/2015	9.2
2nd Highest	03/31/2015	7.2
Monthly Mean	01/1/15-01/31/15	1.2
Monthly Mean	02/1/15-02/28/15	2.5
Monthly Mean	03/1/15-03/31/15	5.4
Quarterly Mean	01/1/15-03/31/15 (13 valid samples)	3.5

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

RANK	DATE	PM_{10} CONCENTRATION
Highest	02/05/2015	64.2
2nd Highest	01/24/2015	48.3
Monthly Mean	01/1/15-01/31/15	12.3
Monthly Mean	02/1/15-02/28/15	23.7
Monthly Mean	03/1/15-03/31/15	16.6
Quarterly Mean	01/1/15-03/31/15 (15 valid samples)	17.0

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

RANK	DATE	PM_{10} CONCENTRATION
Highest	03/13/2015	43.5
2nd Highest	02/17/2015	25.5
Monthly Mean	01/1/15-01/31/15	0.9
Monthly Mean	02/1/15-02/28/15	14.3
Monthly Mean	03/1/15-03/31/15	19.2
Quarterly Mean	01/1/15-03/31/15 (9 valid samples)	14.0

Table IV – Mean Quarterly and Monthly Wind Speed

	1st Quarter 2015	January	February	March
Mean Wind Speed (m/s)	2.61	2.36	2.69	2.78

4.0 DATA RECOVERY AND QUALITY ASSURANCE

4.1 Data Recovery

Monitor 962A

Monitor 962A collected 13 of the 15 samples during the quarter. The percent recovery for this quarter is 87%. For the sample date of Jan. 6th the start for the monitor was inadvertently set for Jan. 7th. For the sample date of Jan. 30th there was no errors, the monitor did not run.

Monitor 963B

Monitor 963B collected 15 of the 15 samples during the quarter. The percent recovery for this quarter is 100%.

Monitor 964C

Monitor 964C collected 9 of the 15 samples during the quarter. The percent recovery for this quarter is 60%. For the sample date of Jan 6th the monitor ran 13:32 hours and shut down with errors indicating a leak, no leak as found. For the sample date of Jan 18th the monitor ran 3 seconds and shut down with Q and T errors. For the sample date of Jan 24th the monitor ran 3 seconds and shut down with Q and T errors. For the sample date of Feb 5th the monitor ran 12:06 hours and shut down with errors indicating a leak, no leak as found. For the sample date of Feb 11th the monitor ran 3 seconds and shut down with Q and T errors. For the sample date of Mar 7th the monitor ran for 3 seconds 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	13	87%
963B	15	15	100%
964C	15	9	60%

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 2 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 -36.7% to 63.9%. The aggregate coefficient of variability (CV) calculated in accordance with *40 CFR, Part 58*, Appendix A Equation 11 is 85.11%. 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 March 18, 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	-9.2	±4%	9.9	± 5%
963B	-0.7	±4%	0.7	± 5%
964C	-4.7	±4%	4.9	± 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

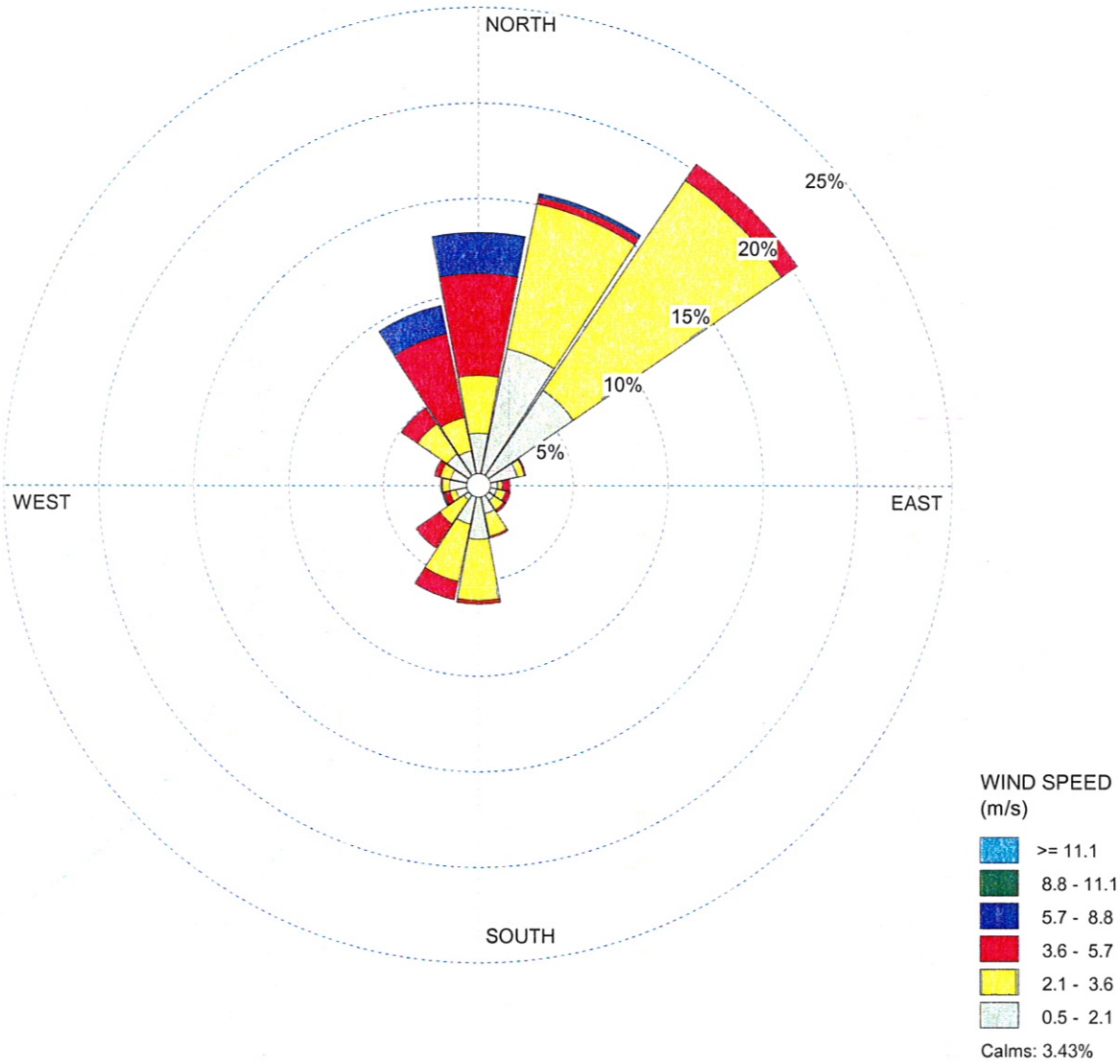
Windrose

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 1st Quarter

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2015 - 00:00 **End Date: 3/31/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **3.43%**	TOTAL COUNT: **2160 hrs.**	
	AVG. WIND SPEED: **2.61 m/s**	DATE: **4/27/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1 Run ID:
Start Date: 1/1/2015 - 00:00
End Date: 3/31/2015 - 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	59	65	115	46	0	0	285
11.25-33.75	157	167	8	4	0	0	336
33.75-56.25	130	286	22	0	0	0	438
56.25-78.75	45	8	2	0	0	0	55
78.75-101.25	22	5	9	0	0	0	36
101.25-123.75	21	10	6	0	0	0	37
123.75-146.25	21	13	3	0	0	0	37
146.25-168.75	33	26	2	0	0	0	61
168.75-191.25	61	69	4	0	0	0	134
191.25-213.75	45	66	21	0	0	0	132
213.75-236.25	20	33	33	0	0	0	86
236.25-258.75	26	7	7	2	0	0	42
258.75-281.25	33	8	2	0	0	0	43
281.25-303.75	32	12	7	0	0	0	51
303.75-326.25	43	41	22	0	0	0	106
326.25-348.75	40	38	97	32	0	0	207
Total	788	854	360	84	0	0	2160

Frequency of Calm Winds: 74
Average Wind Speed: 2.61 m/s

Station ID: 1 Run ID:
Start Date: 1/1/2015 - 00:00
End Date: 3/31/2015 - 23:00

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	0.027315	0.030093	0.053241	0.021296	0.000000	0.000000	0.131944
11.25-33.75	0.072685	0.077315	0.003704	0.001852	0.000000	0.000000	0.155556
33.75-56.25	0.060185	0.132407	0.010185	0.000000	0.000000	0.000000	0.202778
56.25-78.75	0.020833	0.003704	0.000926	0.000000	0.000000	0.000000	0.025463
78.75-101.25	0.010185	0.002315	0.004167	0.000000	0.000000	0.000000	0.016667
101.25-123.75	0.009722	0.004630	0.002778	0.000000	0.000000	0.000000	0.017130
123.75-146.25	0.009722	0.006019	0.001389	0.000000	0.000000	0.000000	0.017130
146.25-168.75	0.015278	0.012037	0.000926	0.000000	0.000000	0.000000	0.028241
168.75-191.25	0.028241	0.031944	0.001852	0.000000	0.000000	0.000000	0.062037
191.25-213.75	0.020833	0.030556	0.009722	0.000000	0.000000	0.000000	0.061111
213.75-236.25	0.009259	0.015278	0.015278	0.000000	0.000000	0.000000	0.039815
236.25-258.75	0.012037	0.003241	0.003241	0.000926	0.000000	0.000000	0.019444
258.75-281.25	0.015278	0.003704	0.000926	0.000000	0.000000	0.000000	0.019907
281.25-303.75	0.014815	0.005556	0.003241	0.000000	0.000000	0.000000	0.023611
303.75-326.25	0.019907	0.018981	0.010185	0.000000	0.000000	0.000000	0.049074
326.25-348.75	0.018519	0.017593	0.044907	0.014815	0.000000	0.000000	0.095833
Total	0.364815	0.395370	0.166667	0.038889	0.000000	0.000000	0.965741

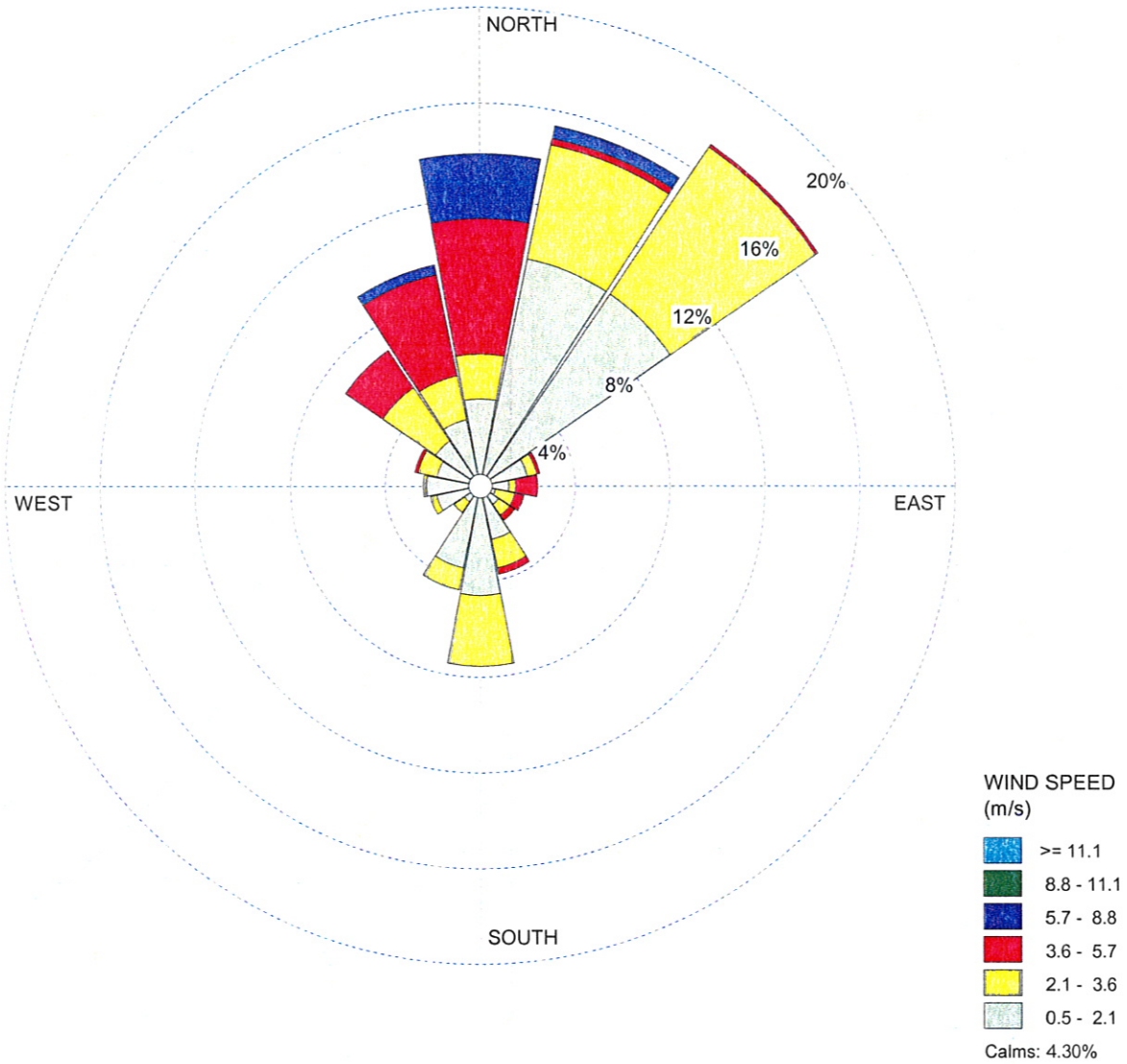
Frequency of Calm Winds: 3.43%
Average Wind Speed: 2.61 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 January

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2015 - 00:00 **End Date: 1/31/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **4.30%**	TOTAL COUNT: **744 hrs.**	
	AVG. WIND SPEED: **2.36 m/s**	DATE: **4/27/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1
Start Date: 1/1/2015 - 00:00
End Date: 1/31/2015 - 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	27	14	42	20	0	0	103
11.25-33.75	72	36	2	4	0	0	114
33.75-56.25	72	55	1	0	0	0	128
56.25-78.75	15	3	1	0	0	0	19
78.75-101.25	9	2	7	0	0	0	18
101.25-123.75	5	6	3	0	0	0	14
123.75-146.25	7	4	2	0	0	0	13
146.25-168.75	17	9	2	0	0	0	28
168.75-191.25	34	22	0	0	0	0	56
191.25-213.75	26	7	0	0	0	0	33
213.75-236.25	6	4	0	0	0	0	10
236.25-258.75	14	2	0	0	0	0	16
258.75-281.25	17	1	0	0	0	0	18
281.25-303.75	14	6	1	0	0	0	21
303.75-326.25	17	20	14	0	0	0	51
326.25-348.75	21	14	32	3	0	0	70
Total	373	205	107	27	0	0	744

Frequency of Calm Winds: 32
Average Wind Speed: 2.36 m/s

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

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	0.036290	0.018817	0.056452	0.026882	0.000000	0.000000	0.138441
11.25-33.75	0.096774	0.048387	0.002688	0.005376	0.000000	0.000000	0.153226
33.75-56.25	0.096774	0.073925	0.001344	0.000000	0.000000	0.000000	0.172043
56.25-78.75	0.020161	0.004032	0.001344	0.000000	0.000000	0.000000	0.025538
78.75-101.25	0.012097	0.002688	0.009409	0.000000	0.000000	0.000000	0.024194
101.25-123.75	0.006720	0.008065	0.004032	0.000000	0.000000	0.000000	0.018817
123.75-146.25	0.009409	0.005376	0.002688	0.000000	0.000000	0.000000	0.017473
146.25-168.75	0.022849	0.012097	0.002688	0.000000	0.000000	0.000000	0.037634
168.75-191.25	0.045699	0.029570	0.000000	0.000000	0.000000	0.000000	0.075269
191.25-213.75	0.034946	0.009409	0.000000	0.000000	0.000000	0.000000	0.044355
213.75-236.25	0.008065	0.005376	0.000000	0.000000	0.000000	0.000000	0.013441
236.25-258.75	0.018817	0.002688	0.000000	0.000000	0.000000	0.000000	0.021505
258.75-281.25	0.022849	0.001344	0.000000	0.000000	0.000000	0.000000	0.024194
281.25-303.75	0.018817	0.008065	0.001344	0.000000	0.000000	0.000000	0.028226
303.75-326.25	0.022849	0.026882	0.018817	0.000000	0.000000	0.000000	0.068548
326.25-348.75	0.028226	0.018817	0.043011	0.004032	0.000000	0.000000	0.094086
Total	0.501344	0.275538	0.143817	0.036290	0.000000	0.000000	0.956989

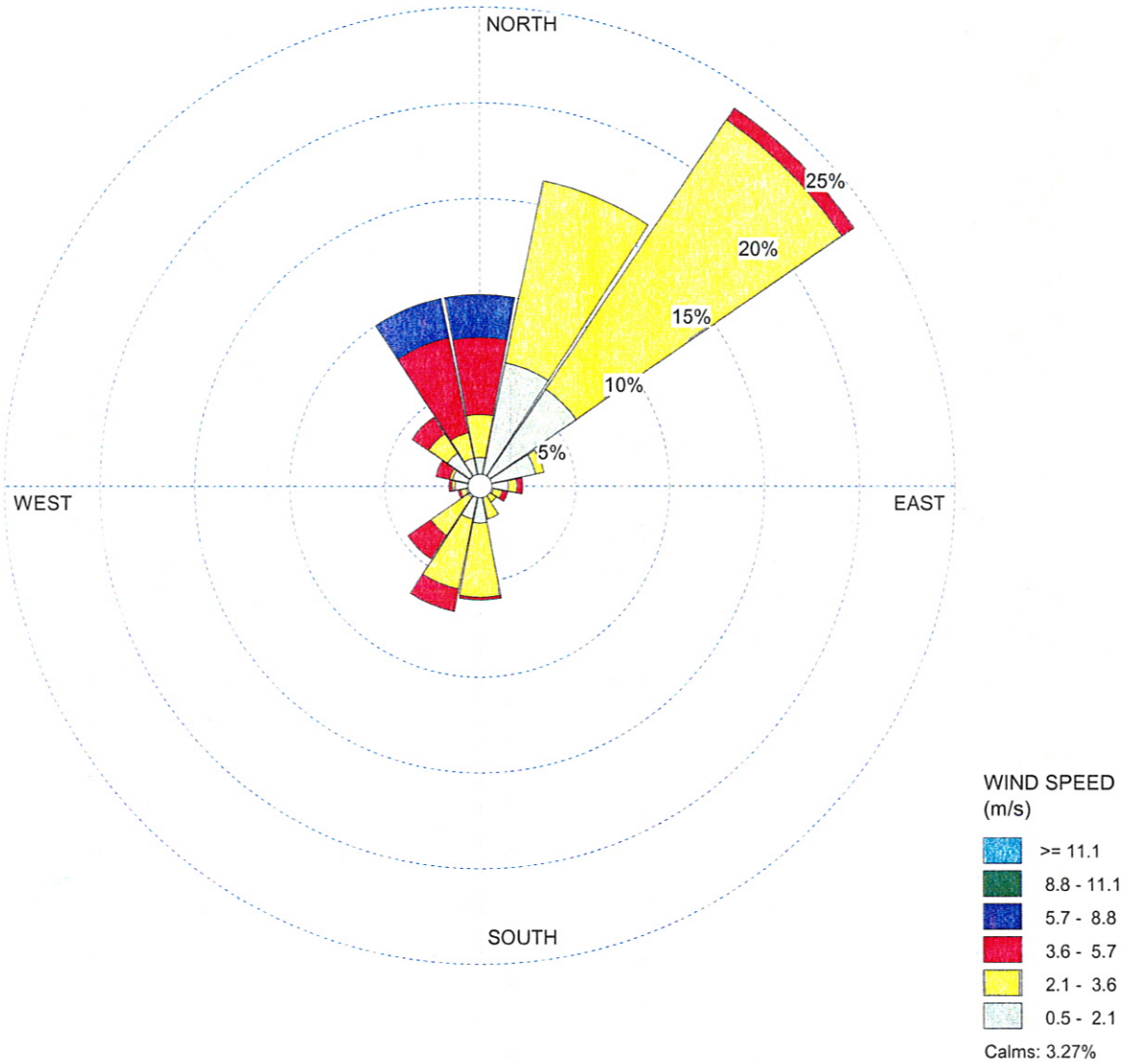
Frequency of Calm Winds: 4.30%
Average Wind Speed: 2.36 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 February

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 2/1/2015 - 00:00 **End Date: 2/28/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **3.27%**	TOTAL COUNT: **672 hrs.**	
	AVG. WIND SPEED: **2.69 m/s**	DATE: **4/27/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1 Run ID:
Start Date: 2/1/2015 - 00:00
End Date: 2/28/2015 - 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	10	15	27	15	0	0	67
11.25-33.75	44	65	0	0	0	0	109
33.75-56.25	41	114	5	0	0	0	160
56.25-78.75	20	3	0	0	0	0	23
78.75-101.25	10	3	2	0	0	0	15
101.25-123.75	5	3	2	0	0	0	10
123.75-146.25	3	4	0	0	0	0	7
146.25-168.75	4	8	0	0	0	0	12
168.75-191.25	13	26	1	0	0	0	40
191.25-213.75	12	25	8	0	0	0	45
213.75-236.25	5	16	10	0	0	0	31
236.25-258.75	5	2	1	0	0	0	8
258.75-281.25	9	1	1	0	0	0	11
281.25-303.75	10	1	5	0	0	0	16
303.75-326.25	14	8	7	0	0	0	29
326.25-348.75	10	9	34	14	0	0	67
Total	215	303	103	29	0	0	672

Frequency of Calm Winds: 22
Average Wind Speed: 2.69 m/s

Station ID: 1 Run ID:
Start Date: 2/1/2015 - 00:00
End Date: 2/28/2015 - 23:00

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	0.014881	0.022321	0.040179	0.022321	0.000000	0.000000	0.099702
11.25-33.75	0.065476	0.096726	0.000000	0.000000	0.000000	0.000000	0.162202
33.75-56.25	0.061012	0.169643	0.007440	0.000000	0.000000	0.000000	0.238095
56.25-78.75	0.029762	0.004464	0.000000	0.000000	0.000000	0.000000	0.034226
78.75-101.25	0.014881	0.004464	0.002976	0.000000	0.000000	0.000000	0.022321
101.25-123.75	0.007440	0.004464	0.002976	0.000000	0.000000	0.000000	0.014881
123.75-146.25	0.004464	0.005952	0.000000	0.000000	0.000000	0.000000	0.010417
146.25-168.75	0.005952	0.011905	0.000000	0.000000	0.000000	0.000000	0.017857
168.75-191.25	0.019345	0.038690	0.001488	0.000000	0.000000	0.000000	0.059524
191.25-213.75	0.017857	0.037202	0.011905	0.000000	0.000000	0.000000	0.066964
213.75-236.25	0.007440	0.023810	0.014881	0.000000	0.000000	0.000000	0.046131
236.25-258.75	0.007440	0.002976	0.001488	0.000000	0.000000	0.000000	0.011905
258.75-281.25	0.013393	0.001488	0.001488	0.000000	0.000000	0.000000	0.016369
281.25-303.75	0.014881	0.001488	0.007440	0.000000	0.000000	0.000000	0.023810
303.75-326.25	0.020833	0.011905	0.010417	0.000000	0.000000	0.000000	0.043155
326.25-348.75	0.014881	0.013393	0.050595	0.020833	0.000000	0.000000	0.099702
Total	0.319940	0.450893	0.153274	0.043155	0.000000	0.000000	0.967262

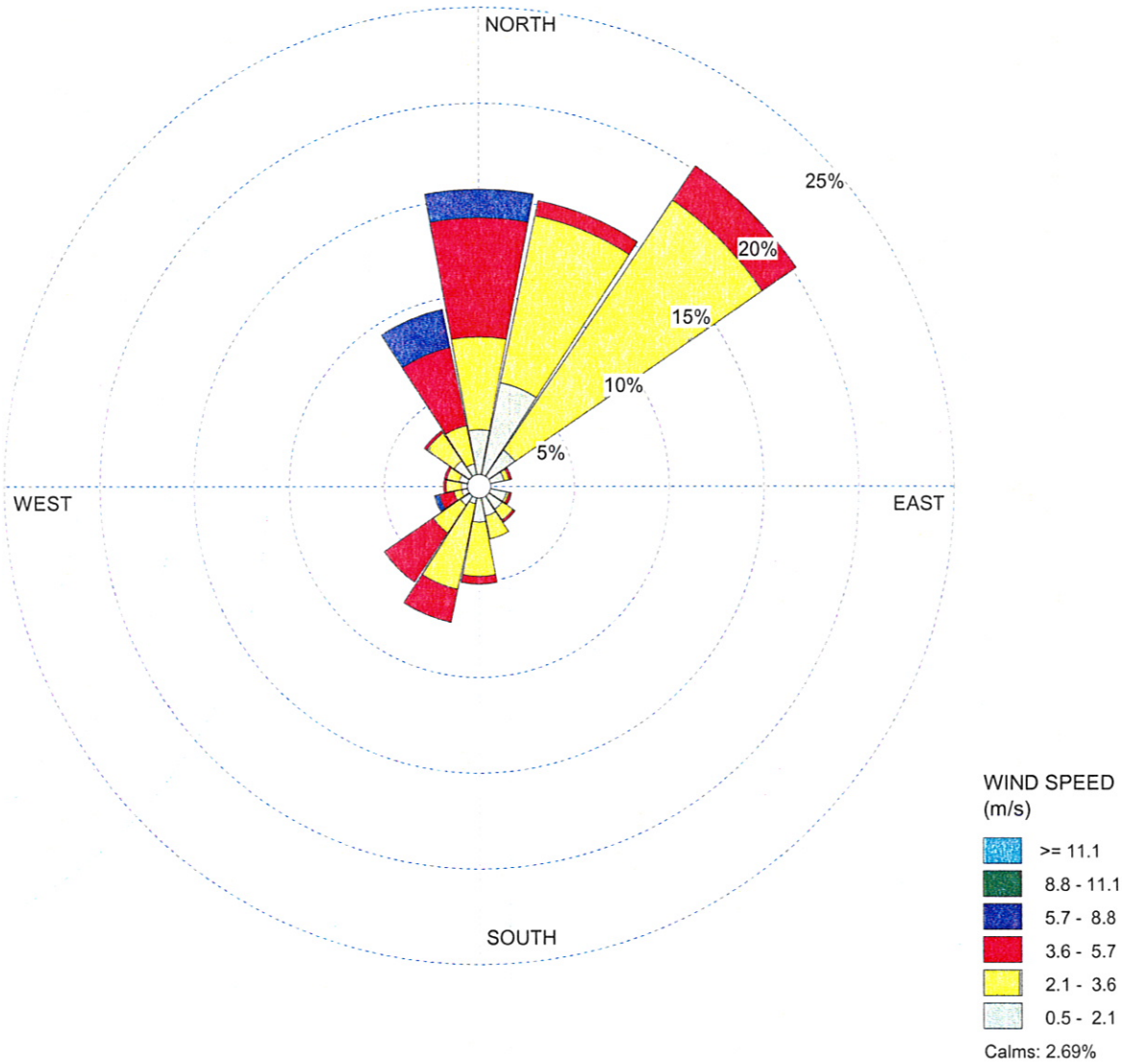
Frequency of Calm Winds: 3.27%
Average Wind Speed: 2.69 m/s

WIND ROSE PLOT:

Alton Coal Development , Alton, Utah
2015 March

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 3/1/2015 - 00:00 **End Date: 3/31/2015 - 23:00**	**Alton Coal Development, LLC - Coal Hollow Mine**	
		MODELER: **K. Nicholes**	
	CALM WINDS: **2.69%**	TOTAL COUNT: **744 hrs.**	
	AVG. WIND SPEED: **2.78 m/s**	DATE: **4/27/2015**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Station ID: 1 Run ID:
Start Date: 3/1/2015 - 00:00
End Date: 3/31/2015 - 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	22	36	46	11	0	0	115
11.25-33.75	41	66	6	0	0	0	113
33.75-56.25	17	117	16	0	0	0	150
56.25-78.75	10	2	1	0	0	0	13
78.75-101.25	3	0	0	0	0	0	3
101.25-123.75	11	1	1	0	0	0	13
123.75-146.25	11	5	1	0	0	0	17
146.25-168.75	12	9	0	0	0	0	21
168.75-191.25	14	21	3	0	0	0	38
191.25-213.75	7	34	13	0	0	0	54
213.75-236.25	9	13	23	0	0	0	45
236.25-258.75	7	3	6	2	0	0	18
258.75-281.25	7	6	1	0	0	0	14
281.25-303.75	8	5	1	0	0	0	14
303.75-326.25	12	13	1	0	0	0	26
326.25-348.75	9	15	31	15	0	0	70
Total	200	346	150	28	0	0	744

Frequency of Calm Winds: 20
Average Wind Speed: 2.78 m/s

Station ID: 1 Run ID:
Start Date: 3/1/2015 - 00:00
End Date: 3/31/2015 - 23:00

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	0.029570	0.048387	0.061828	0.014785	0.000000	0.000000	0.154570
11.25-33.75	0.055108	0.088710	0.008065	0.000000	0.000000	0.000000	0.151882
33.75-56.25	0.022849	0.157258	0.021505	0.000000	0.000000	0.000000	0.201613
56.25-78.75	0.013441	0.002688	0.001344	0.000000	0.000000	0.000000	0.017473
78.75-101.25	0.004032	0.000000	0.000000	0.000000	0.000000	0.000000	0.004032
101.25-123.75	0.014785	0.001344	0.001344	0.000000	0.000000	0.000000	0.017473
123.75-146.25	0.014785	0.006720	0.001344	0.000000	0.000000	0.000000	0.022849
146.25-168.75	0.016129	0.012097	0.000000	0.000000	0.000000	0.000000	0.028226
168.75-191.25	0.018817	0.028226	0.004032	0.000000	0.000000	0.000000	0.051075
191.25-213.75	0.009409	0.045699	0.017473	0.000000	0.000000	0.000000	0.072581
213.75-236.25	0.012097	0.017473	0.030914	0.000000	0.000000	0.000000	0.060484
236.25-258.75	0.009409	0.004032	0.008065	0.002688	0.000000	0.000000	0.024194
258.75-281.25	0.009409	0.008065	0.001344	0.000000	0.000000	0.000000	0.018817
281.25-303.75	0.010753	0.006720	0.001344	0.000000	0.000000	0.000000	0.018817
303.75-326.25	0.016129	0.017473	0.001344	0.000000	0.000000	0.000000	0.034946
326.25-348.75	0.012097	0.020161	0.041667	0.020161	0.000000	0.000000	0.094086
Total	0.268817	0.465054	0.201613	0.037634	0.000000	0.000000	0.973118

Frequency of Calm Winds: 2.69%
Average Wind Speed: 2.78 m/s

APPENDIX B

Listing of PM_{10} Concentrations

Background Monitor 962A

PM_{10} Sampler Summary

January 1, 2015 - March 31, 2015

Network: **JBR - Cedar City**
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
01/06/15	P2916478	**Invalid - BJ**	**Invalid - BJ**	13:11	13.2	11.0	370.684	370.710	0.026	SP	Wrong start date
01/12/15	P2916481	**1.3**	**1.5**	23:59	24.0	20.1	372.914	372.946	0.032		
01/18/15	P2916765	**0.4**	**0.4**	23:59	24.0	20.1	372.043	372.053	0.010		
01/24/15	P2916767	**1.5**	**1.8**	23:59	24.0	20.1	370.324	370.362	0.038		
01/30/15	P2916770	**Invalid - AN**	**Invalid - AN**	0:00		0.0	369.868	369.867	-0.001	SP,NM	
02/05/15	P2918610	**0.9**	**1.1**	23:59	24.0	19.8	361.947	361.970	0.023		
02/11/15	P2918614	**1.5**	**1.8**	23:59	24.0	20.1	367.087	367.124	0.037		
02/17/15	P2918893	**3.8**	**4.5**	24:00	24.0	20.3	364.686	364.779	0.093		
02/23/15	P2918890	**2.2**	**2.6**	23:59	24.0	20.3	362.007	362.061	0.054		
03/01/15	P2919163	**2.1**	**2.5**	23:59	24.0	20.2	366.682	366.734	0.052		
03/07/15	P2919166	**7.7**	**9.2**	23:59	24.0	20.1	373.113	373.300	0.187		
03/13/15	P2919169	**3.3**	**4.0**	23:59	24.0	19.9	364.253	364.333	0.080		
03/19/15	P2919513	**4.7**	**5.8**	24:00	24.0	19.6	366.232	366.346	0.114		
03/25/15	P2919516	**2.9**	**3.5**	23:59	24.0	19.9	370.697	370.768	0.071		
03/31/15	P2919857	**5.9**	**7.2**	23:59	24.0	19.5	363.267	363.409	0.142		
02/11/15	P2918613		**Field Blank**				368.396	368.401	0.005		

# Valid	Recovery	Average	St. Dev.	Max	Min
13	**87%**	**3.5**	**2.6**	**9.2**	**0.4**

BGI PQ200 Air Sampling System Downloaded 2015 07 jan 13:13:37

Job Details:

Job Name:	15Jan07A.JOB
Version:	5.62
Serial No:	962
Pump Time:	5659:03
Flags:	

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

	Max	Min	Avg	Units
BP	592	590	591	mmHg
TA	16.8	-2.9	4.6	°C
Q	---	---	16.71	Lpm

QCV	0	%
Max overheat	2.3	°C
occured 07-jan 12:59:52		

Timer Information:

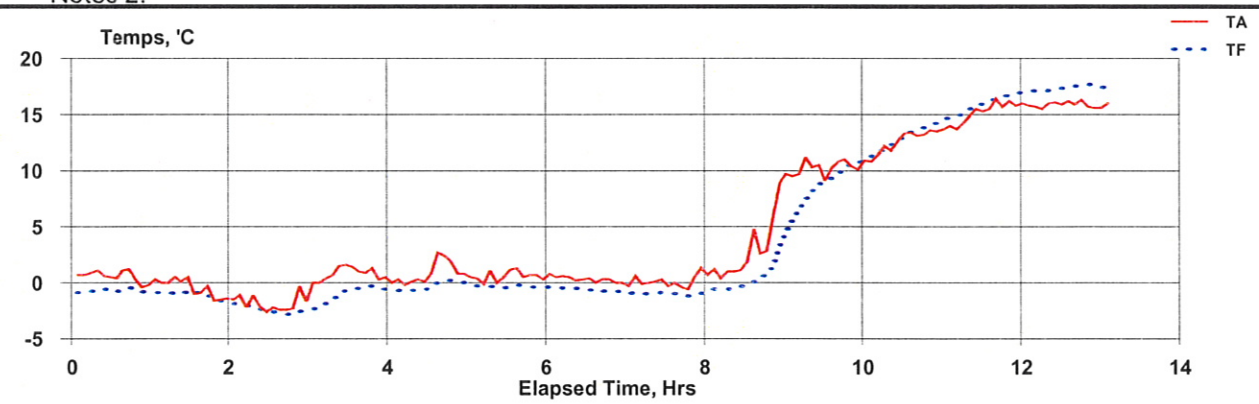
	Date dd-mmm	Time hh:mm:ss
Start:	15-07-jan	0:00:08
Stop:	15-07-jan	13:11:19
ET:	13:11	

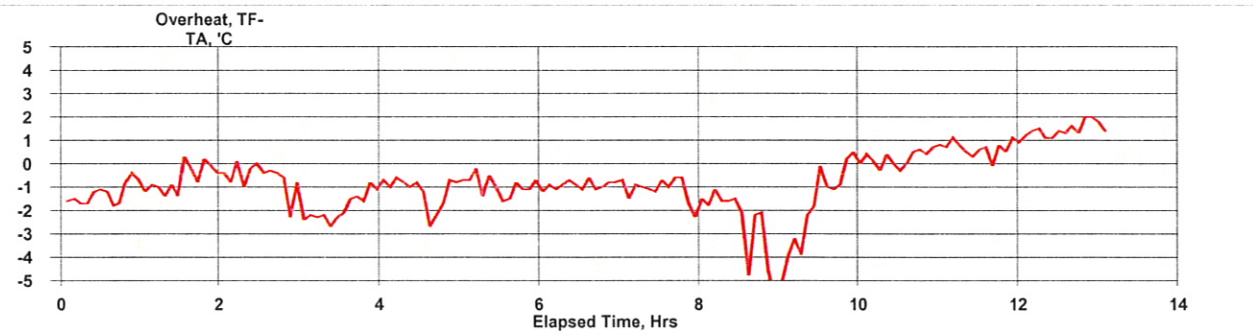
Mass Concentration Data:

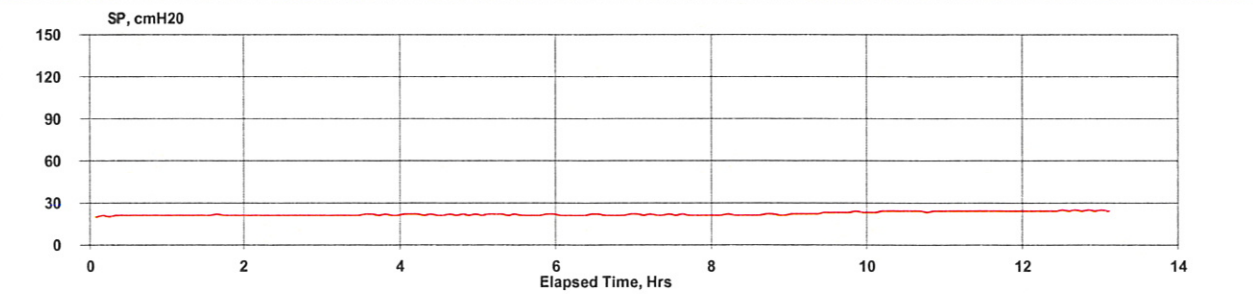
Filter ID:	7	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	13.203	m^3
Mass Conc:	0	µg/m3

Notes 1: Still running start date set same as end

Notes 2:







15-07-jan	0:05:08	592	0.6	-0.7	-1.3	21	16.72
15-07-jan	1:05:08	592	-0.4	-1.1	-0.7	21	16.71
15-07-jan	2:05:08	592	-1.8	-2.4	-0.6	21	16.71
15-07-jan	3:05:08	592	0.8	-1.1	-1.9	21	16.72
15-07-jan	4:05:08	592	0.8	-0.4	-1.2	22	16.73
15-07-jan	5:05:08	592	0.6	-0.4	-0.9	22	16.73
15-07-jan	6:05:08	592	0.3	-0.6	-0.9	21	16.71
15-07-jan	7:05:08	592	0.1	-1.0	-1.1	21	16.71
15-07-jan	8:05:08	592	2.7	0.2	-2.6	21	16.73
15-07-jan	9:05:08	592	10.2	8.3	-1.9	23	16.70
15-07-jan	10:05:08	592	12.5	12.7	0.2	24	16.71
15-07-jan	11:05:08	591	15.1	15.7	0.7	24	16.69
15-07-jan	12:05:08	591	15.9	17.3	1.4	24	16.71
15-07-jan	13:05:08	590	15.8	17.4	1.6	25	16.69

BGI PQ200 Air Sampling System Downloaded 2015 14 jan 07:44:26

Job Details:

Job Name: 15Jan14A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5683:02
Flags:

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

	Max	Min	Avg	Units
BP	586	582	584	mmHg
TA	2.5	-1.3	0.8	°C
Q	---	---	16.71	Lpm

QCV 0.52 %
Max overheat 2.2 °C
occured 13-jan 14:59:00

Timer Information:

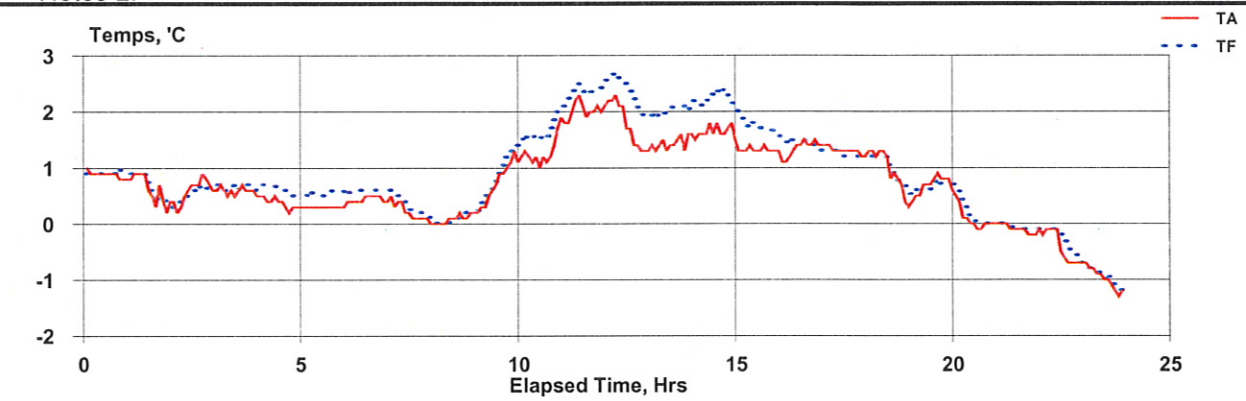
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-jan	0:00:08
Stop:	15-13-jan	0:00:04

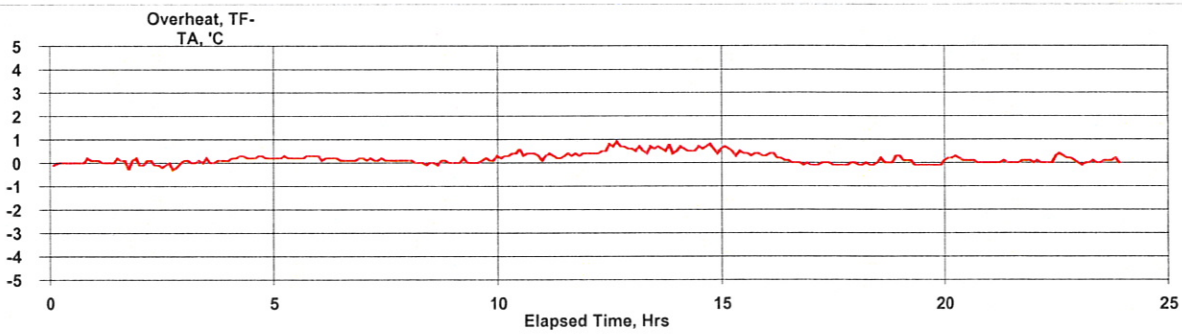
ET: 23:59

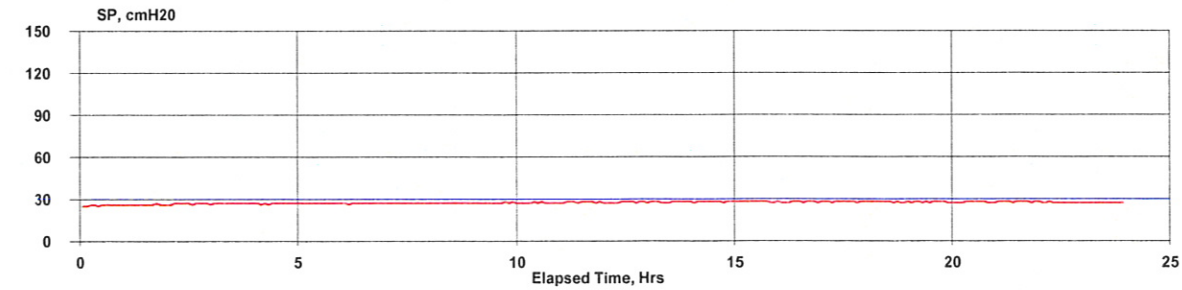
Mass Concentration Data:

Filter ID:	10	
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:







15-12-jan	0:05:08	585	0.9	0.9	0.0	26	16.71
15-12-jan	1:05:08	585	0.6	0.7	0.0	26	16.71
15-12-jan	2:05:08	585	0.6	0.5	-0.1	27	16.72
15-12-jan	3:05:08	585	0.6	0.7	0.1	27	16.72
15-12-jan	4:05:08	585	0.4	0.6	0.2	27	16.71
15-12-jan	5:05:08	585	0.3	0.5	0.2	27	16.71
15-12-jan	6:05:08	585	0.4	0.6	0.2	27	16.71
15-12-jan	7:05:08	585	0.2	0.3	0.1	27	16.71
15-12-jan	8:05:08	585	0.1	0.1	0.0	27	16.71
15-12-jan	9:05:08	585	0.7	0.8	0.1	27	16.71
15-12-jan	10:05:08	586	1.3	1.6	0.3	27	16.71
15-12-jan	11:05:08	585	2.0	2.4	0.3	28	16.72
15-12-jan	12:05:08	585	1.8	2.4	0.6	28	16.72
15-12-jan	13:05:08	584	1.4	2.0	0.6	28	16.72
15-12-jan	14:05:08	584	1.6	2.2	0.6	28	16.70
15-12-jan	15:05:08	584	1.3	1.7	0.4	28	16.71
15-12-jan	16:05:08	583	1.3	1.4	0.1	28	16.71
15-12-jan	17:05:08	583	1.3	1.2	-0.1	28	16.71
15-12-jan	18:05:08	583	1.0	1.0	0.0	28	16.71
15-12-jan	19:05:08	583	0.7	0.6	0.0	28	16.71
15-12-jan	20:05:08	583	0.1	0.2	0.1	28	16.71
15-12-jan	21:05:08	583	-0.1	-0.1	0.0	28	16.71
15-12-jan	22:05:08	583	-0.4	-0.3	0.1	27	16.71
15-12-jan	23:05:08	583	-1.0	-0.9	0.0	27	16.71

BGI PQ200 Air Sampling System Downloaded 2015 20 jan 10:05:21

Job Details:

Job Name: 15Jan20A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5707:01
Flags:

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

	Max	Min	Avg	Units
BP	590	588	588	mmHg
TA	14.5	-4.8	3.1	°C
Q	---	---	16.71	Lpm

QCV 0.56 %
Max overheat 3.5 °C
occured 19-jan 16:50:00

Timer Information:

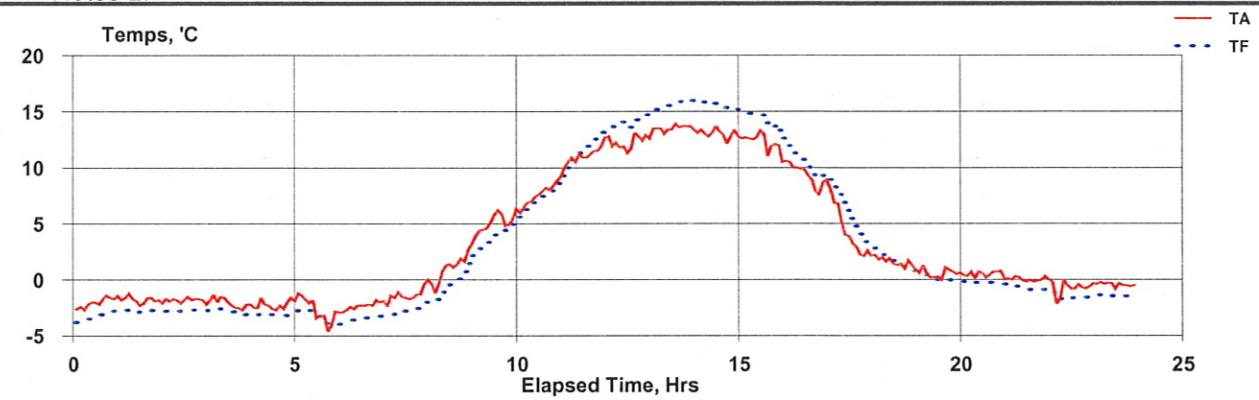
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-jan	0:00:08
Stop:	15-19-jan	0:00:05

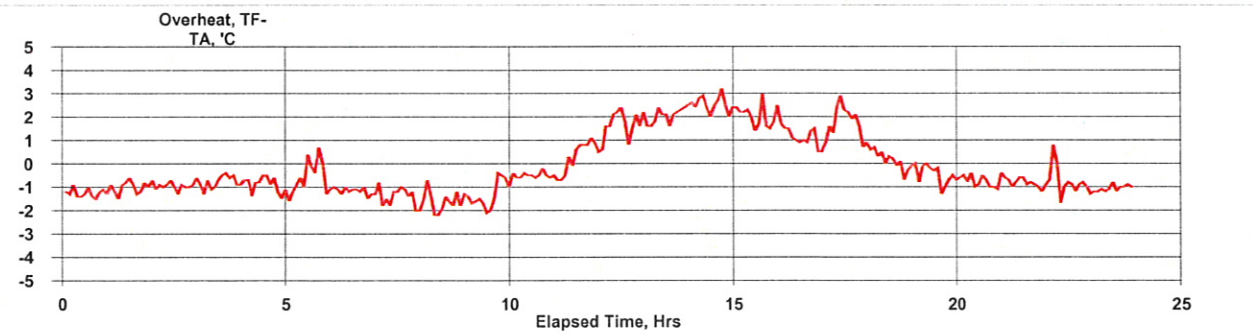
ET: 23:59

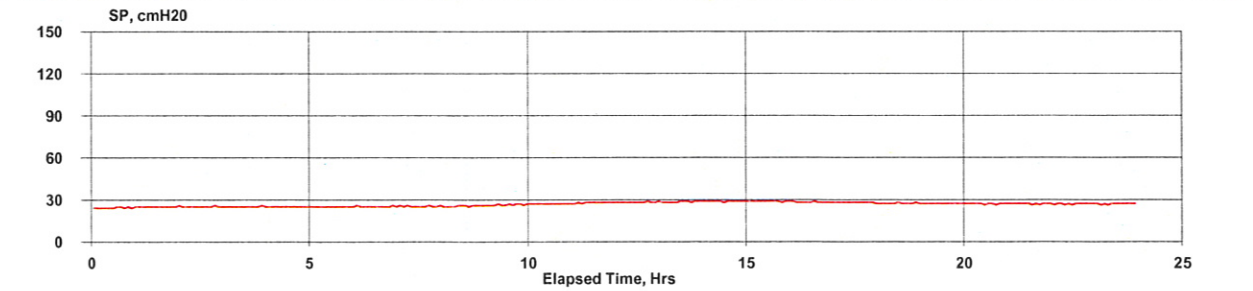
Mass Concentration Data:

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

Notes 1:
Notes 2:







15-18-jan	0:05:08	589	-2.0	-3.2	-1.3	24	16.70
15-18-jan	1:05:08	589	-1.8	-2.8	-1.0	25	16.71
15-18-jan	2:05:08	589	-1.8	-2.8	-0.9	25	16.73
15-18-jan	3:05:08	589	-2.1	-2.8	-0.8	25	16.71
15-18-jan	4:05:08	589	-2.2	-3.1	-0.9	25	16.71
15-18-jan	5:05:08	589	-2.7	-3.3	-0.6	25	16.72
15-18-jan	6:05:08	589	-2.3	-3.5	-1.2	25	16.72
15-18-jan	7:05:08	589	-1.3	-2.7	-1.4	25	16.71
15-18-jan	8:05:08	589	1.1	-0.5	-1.6	26	16.71
15-18-jan	9:05:08	590	5.2	3.8	-1.3	26	16.70
15-18-jan	10:05:08	590	7.7	7.2	-0.5	27	16.71
15-18-jan	11:05:08	590	11.1	11.5	0.3	28	16.70
15-18-jan	12:05:08	589	12.3	14.0	1.7	28	16.70
15-18-jan	13:05:08	589	13.5	15.6	2.1	29	16.72
15-18-jan	14:05:08	589	13.0	15.6	2.5	29	16.73
15-18-jan	15:05:08	589	12.2	14.3	2.1	29	16.71
15-18-jan	16:05:08	589	9.3	10.5	1.1	28	16.71
15-18-jan	17:05:08	588	4.2	5.9	1.7	28	16.71
15-18-jan	18:05:08	589	1.5	1.7	0.1	27	16.71
15-18-jan	19:05:08	589	0.6	0.1	-0.5	27	16.71
15-18-jan	20:05:08	588	0.5	-0.3	-0.7	27	16.71
15-18-jan	21:05:08	588	0.0	-0.8	-0.8	27	16.71
15-18-jan	22:05:08	588	-0.8	-1.6	-0.8	27	16.71
15-18-jan	23:05:08	588	-0.4	-1.5	-1.1	27	16.70

BGI PQ200 Air Sampling System Downloaded 2015 26 jan 14:18:06

Job Details:

Job Name: 15Jan26A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5731:00
Flags:

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

	Max	Min	Avg	Units
BP	590	587	588	mmHg
TA	12	-3.6	3.1	°C
Q	---	---	16.7	Lpm

QCV 0.52 %
Max overheat 7.2 °C
occured 25-jan 18:05:11

Timer Information:

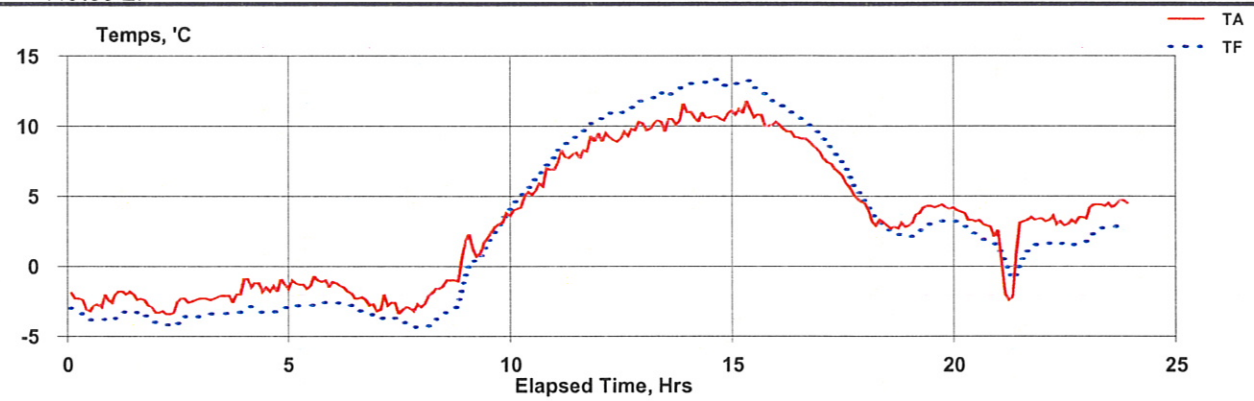
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-jan	0:00:08
Stop:	15-25-jan	0:00:05

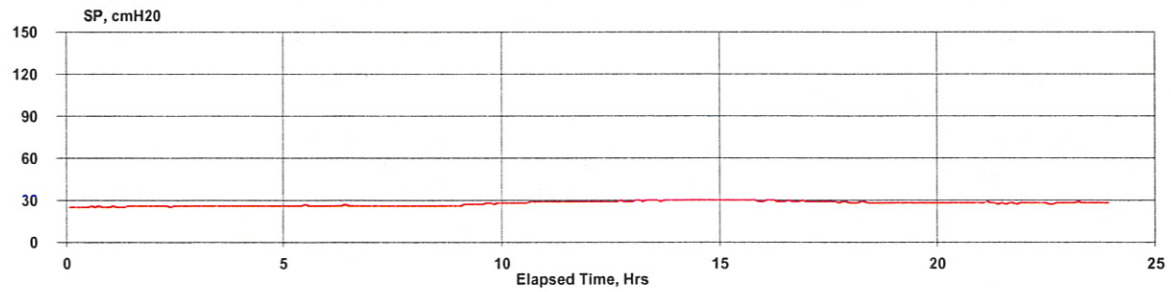
ET: 23:59

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:





15-24-jan	0:05:08	588	-2.6	-3.6	-1.1	25	16.70
15-24-jan	1:05:08	588	-2.3	-3.5	-1.2	26	16.72
15-24-jan	2:05:08	589	-2.8	-3.9	-1.1	26	16.70
15-24-jan	3:05:08	589	-2.1	-3.4	-1.3	26	16.71
15-24-jan	4:05:08	588	-1.4	-3.1	-1.7	26	16.71
15-24-jan	5:05:08	588	-1.2	-2.8	-1.6	26	16.71
15-24-jan	6:05:08	589	-2.1	-3.1	-0.9	26	16.71
15-24-jan	7:05:08	589	-2.9	-4.0	-1.1	26	16.70
15-24-jan	8:05:08	589	-1.1	-3.2	-2.1	26	16.71
15-24-jan	9:05:08	589	2.3	1.8	-0.5	27	16.70
15-24-jan	10:05:08	589	5.5	6.0	0.6	28	16.71
15-24-jan	11:05:08	589	8.3	9.4	1.1	29	16.71
15-24-jan	12:05:08	589	9.5	11.1	1.6	29	16.70
15-24-jan	13:05:08	588	10.3	12.3	2.0	30	16.71
15-24-jan	14:05:08	588	10.7	13.1	2.4	30	16.70
15-24-jan	15:05:08	587	10.7	12.6	1.9	30	16.71
15-24-jan	16:05:08	588	9.1	10.5	1.4	29	16.72
15-24-jan	17:05:08	588	6.1	7.0	0.9	29	16.71
15-24-jan	18:05:08	588	3.0	2.8	-0.2	28	16.72
15-24-jan	19:05:08	588	4.1	2.9	-1.2	28	16.71
15-24-jan	20:05:08	588	3.2	2.3	-0.9	28	16.71
15-24-jan	21:05:08	588	1.5	0.6	-0.9	28	16.71
15-24-jan	22:05:08	588	3.3	1.6	-1.7	28	16.70
15-24-jan	23:05:08	588	4.4	2.7	-1.8	28	16.71

BGI PQ200 Air Sampling System Downloaded 2015 02 feb 06:55:11

Job Details:

Job Name: 15Feb02A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5731:00
Flags:

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

	Max	Min	Avg	Units
BP	588	588	588	mmHg
TA	11	11	11	°C
Q	---	---	0	Lpm

QCV 0 %

Max overheat 0 °C
occured 00-00:00:00 *

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	00-00-00:00:00	*
Stop:	00-00-00:00:00	Code:007

ET: 0:00

Mass Concentration Data:

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

Notes 1:
Notes 2:

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

BGI PQ200 Air Sampling System Downloaded 2015 06 feb 13:25:05

Job Details:

Job Name: 15Feb06A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5754:59
Flags:

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

	Max	Min	Avg	Units
BP	589	586	587	mmHg
TA	15.8	-0.4	5.9	°C
Q	---	---	16.71	Lpm

QCV 0.56 %
Max overheat 2.9 °C
occured 05-feb 13:20:26

Timer Information:

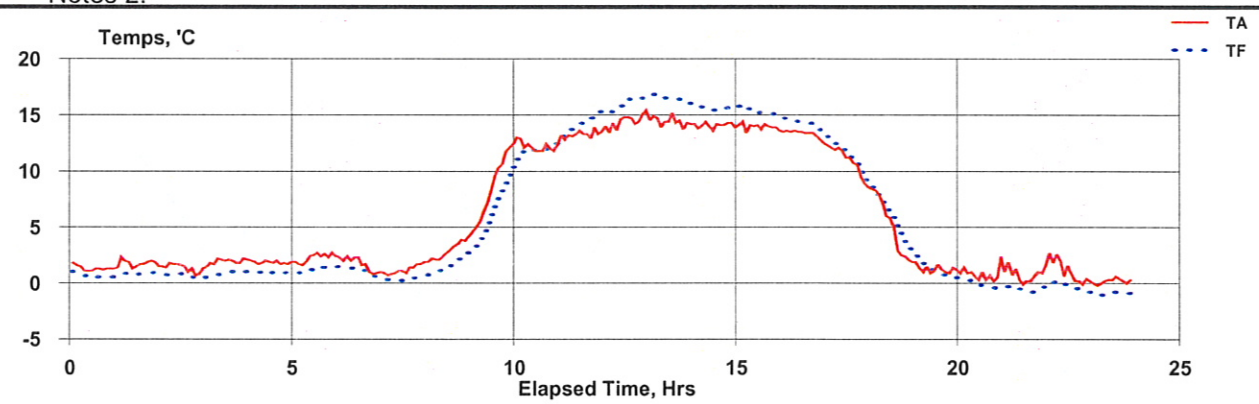
	Date dd-mmm	Time hh:mm:ss
Start:	15-05-feb	0:00:08
Stop:	15-06-feb	0:00:04

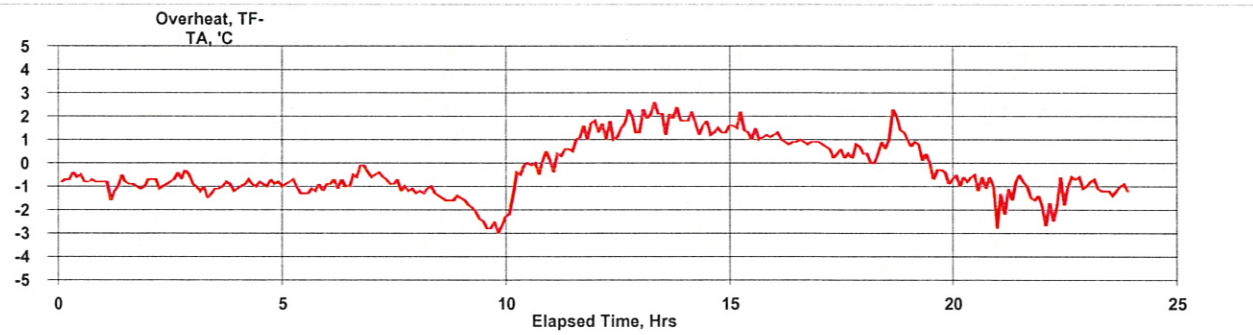
ET: 23:59

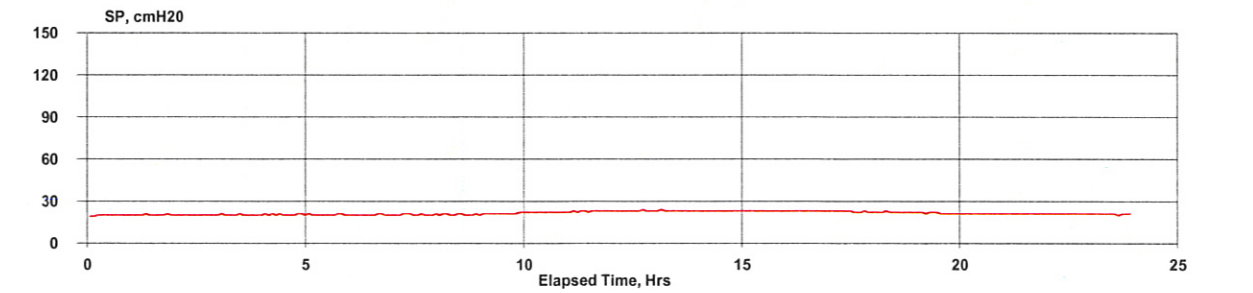
Mass Concentration Data:

Filter ID:	7	
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:







15-05-feb	0:05:08	588	1.3	0.6	-0.7	20	16.71
15-05-feb	1:05:08	588	1.8	0.8	-1.0	20	16.72
15-05-feb	2:05:08	588	1.4	0.6	-0.7	20	16.71
15-05-feb	3:05:08	588	1.9	0.8	-1.1	20	16.71
15-05-feb	4:05:08	588	1.9	1.0	-0.9	20	16.73
15-05-feb	5:05:08	588	2.3	1.2	-1.1	20	16.71
15-05-feb	6:05:08	588	1.7	1.1	-0.6	20	16.70
15-05-feb	7:05:08	588	1.2	0.3	-0.9	20	16.71
15-05-feb	8:05:08	588	2.9	1.6	-1.4	20	16.71
15-05-feb	9:05:08	588	8.6	6.3	-2.4	21	16.70
15-05-feb	10:05:08	589	12.2	11.8	-0.4	22	16.70
15-05-feb	11:05:08	589	13.3	14.1	0.8	23	16.71
15-05-feb	12:05:08	588	14.4	15.9	1.5	23	16.71
15-05-feb	13:05:08	588	14.4	16.4	2.0	23	16.71
15-05-feb	14:05:08	587	14.1	15.6	1.5	23	16.71
15-05-feb	15:05:08	587	14.0	15.3	1.3	23	16.72
15-05-feb	16:05:08	587	13.3	14.3	0.9	23	16.71
15-05-feb	17:05:08	587	10.9	11.4	0.5	23	16.72
15-05-feb	18:05:08	587	5.0	6.0	0.9	22	16.72
15-05-feb	19:05:08	587	1.3	1.2	0.0	21	16.71
15-05-feb	20:05:08	588	0.9	-0.1	-0.9	21	16.71
15-05-feb	21:05:08	588	0.8	-0.5	-1.3	21	16.72
15-05-feb	22:05:08	588	1.1	-0.3	-1.3	21	16.71
15-05-feb	23:05:08	588	0.2	-0.9	-1.1	21	16.71

BGI PQ200 Air Sampling System Downloaded 2015 12 feb 09:47:18

Job Details:

Job Name: 15Feb12A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5778:58
Flags:

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

	Max	Min	Avg	Units
BP	591	584	587	mmHg
TA	12.1	-6.9	2.6	°C
Q	---	---	16.71	Lpm

QCV 0.56 %

Max overheat 3 °C
occured 11-feb 11:54:59

Timer Information:

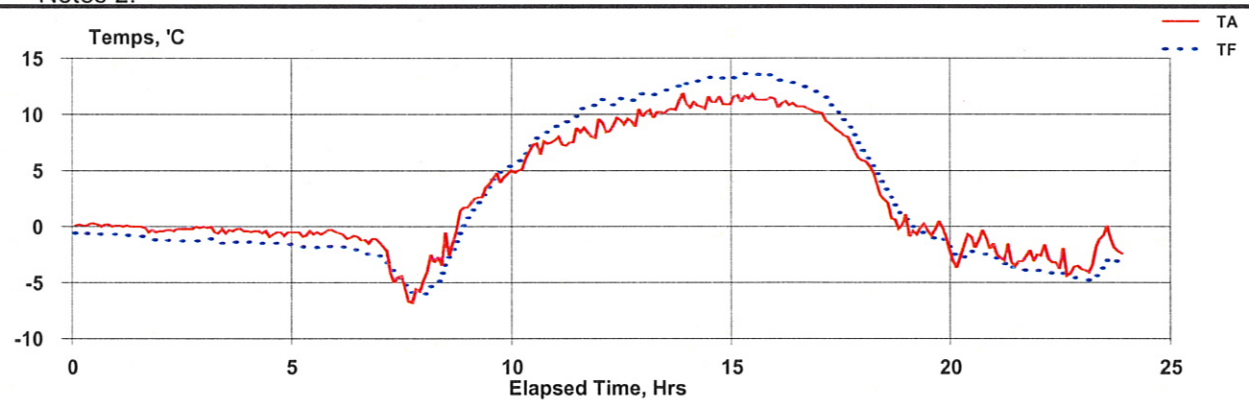
	Date dd-mmm	Time hh:mm:ss
Start:	15-11-feb	0:00:08
Stop:	15-12-feb	0:00:04

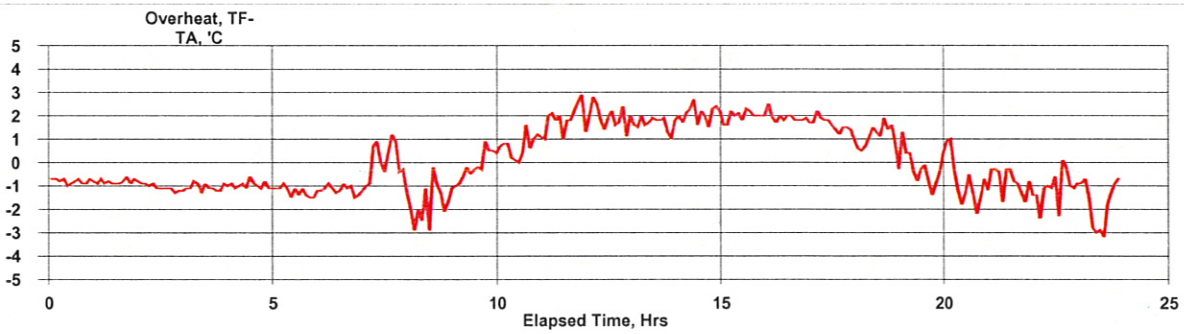
ET: 23:59

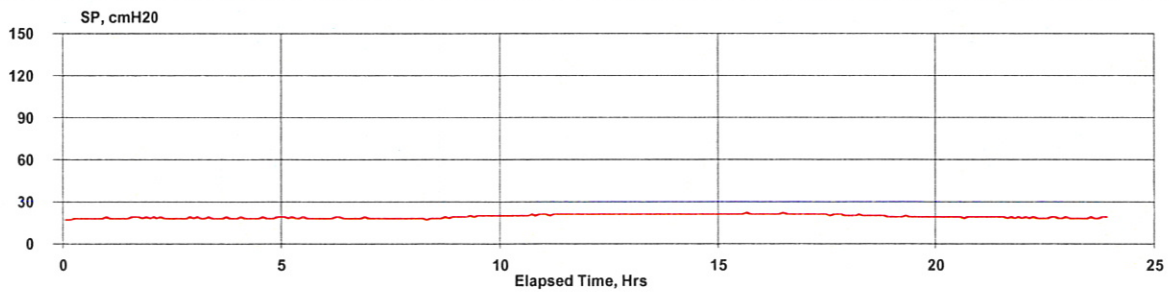
Mass Concentration Data:

Filter ID:	15	
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:







15-11-feb	0:05:08	586	0.2	-0.6	-0.8	18	16.71
15-11-feb	1:05:08	586	-0.1	-1.0	-0.8	18	16.71
15-11-feb	2:05:08	586	-0.2	-1.3	-1.1	18	16.72
15-11-feb	3:05:08	586	-0.3	-1.4	-1.1	18	16.72
15-11-feb	4:05:08	586	-0.6	-1.5	-1.0	18	16.71
15-11-feb	5:05:08	586	-0.6	-1.8	-1.2	18	16.71
15-11-feb	6:05:08	587	-1.1	-2.2	-1.2	18	16.72
15-11-feb	7:05:08	587	-4.8	-4.8	0.0	18	16.71
15-11-feb	6.72 0	588	-1.3	-3.1	-1.7	18	16.72
15-11-feb	9:05:08	588	3.7	3.5	-0.1	20	16.71
15-11-feb	10:05:08	589	6.6	7.3	0.7	20	16.71
15-11-feb	11:05:08	589	8.1	10.0	1.9	21	16.69
15-11-feb	12:05:08	589	9.3	11.3	2.0	21	16.71
15-11-feb	13:05:08	588	10.5	12.2	1.7	21	16.71
15-11-feb	14:05:08	588	11.0	13.1	2.1	21	16.70
15-11-feb	15:05:08	588	11.4	13.4	2.0	21	16.71
15-11-feb	16:05:08	589	10.7	12.6	1.9	21	16.71
15-11-feb	17:05:08	589	8.1	9.6	1.6	21	16.72
15-11-feb	18:05:08	589	2.5	3.5	1.0	20	16.71
15-11-feb	19:05:08	589	-0.5	-0.7	-0.2	19	16.72
15-11-feb	20:05:08	589	-1.7	-2.6	-0.8	19	16.71
15-11-feb	21:05:08	590	-2.8	-3.6	-0.9	19	16.72
15-11-feb	22:05:08	590	-3.2	-4.3	-1.1	18	16.71
15-11-feb	23:05:08	590	-2.1	-3.8	-1.8	18	16.72

BGI PQ200 Air Sampling System Downloaded 2015 20 feb 09:08:34

Job Details:

Job Name: 15Feb20A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5802:58
Flags: F

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

	Max	Min	Avg	Units
BP	586	584	585	mmHg
TA	11	-12	-1.1	°C
Q	---	---	16.7	Lpm

QCV 0.53 %

Max overheat 9.9 °C
occured 18-feb 18:21:57

Timer Information:

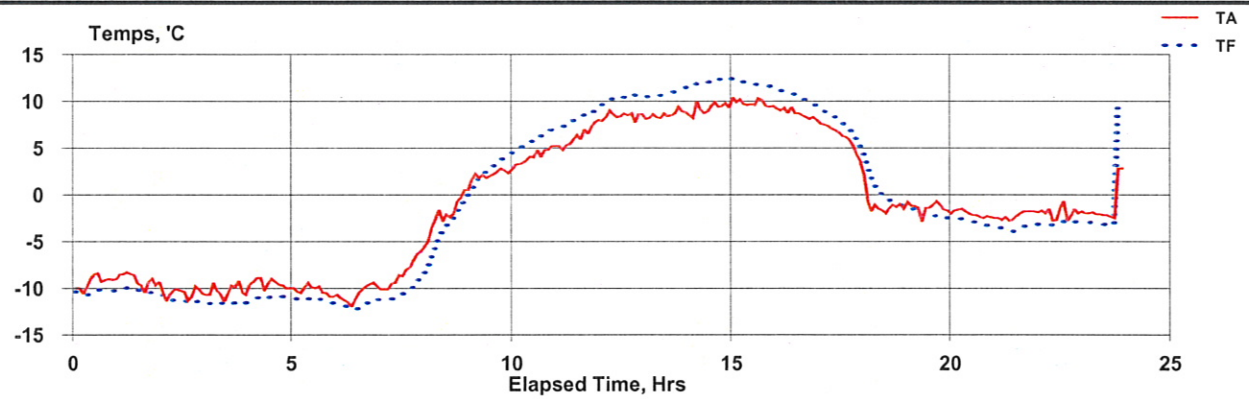
	Date dd-mmm	Time hh:mm:ss
Start:	15-17-feb	0:00:00
Stop:	15-18-feb	0:00:04

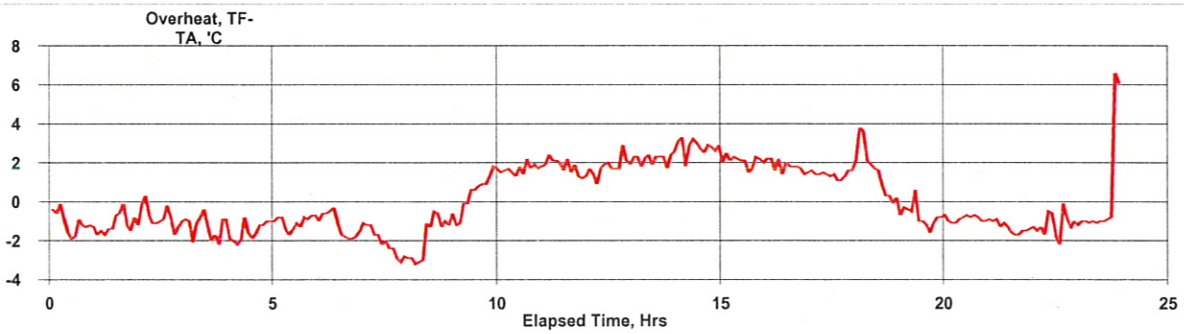
ET: 24:00:00

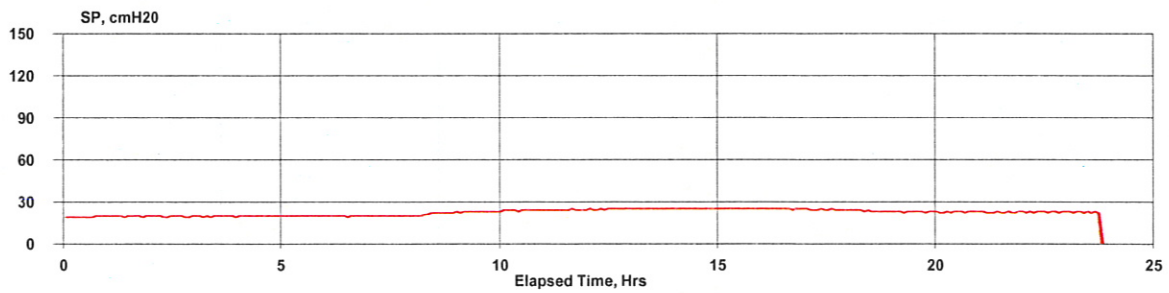
Mass Concentration Data:

Filter ID:	16	
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:







15-17-feb	0:05:10	585	-9.3	-10.4	-1.1	19	16.72
15-17-feb	1:05:10	585	-9.1	-10.3	-1.2	20	16.71
15-17-feb	2:05:10	585	-10.5	-11.3	-0.8	20	16.71
15-17-feb	3:05:10	585	-10.3	-11.6	-1.3	20	16.71
15-17-feb	4:05:10	585	-9.5	-11.0	-1.5	20	16.71
15-17-feb	5:05:10	585	-10.2	-11.3	-1.1	20	16.71
15-17-feb	6:05:10	585	-10.6	-11.8	-1.2	20	16.71
15-17-feb	7:05:10	585	-8.5	-10.5	-2.1	20	16.71
15-17-feb	8:05:10	585	-2.4	-4.2	-1.8	21	16.72
15-17-feb	9:05:10	586	2.0	2.4	0.3	23	16.71
15-17-feb	10:05:10	586	4.0	5.7	1.7	24	16.70
15-17-feb	11:05:10	586	6.1	7.9	1.8	24	16.71
15-17-feb	12:05:10	586	8.4	10.1	1.8	25	16.71
15-17-feb	13:05:10	585	8.6	10.7	2.2	25	16.72
15-17-feb	14:05:10	585	9.2	12.0	2.8	25	16.70
15-17-feb	15:05:10	585	9.8	12.0	2.2	25	16.70
15-17-feb	16:05:10	585	8.8	10.7	1.8	25	16.72
15-17-feb	17:05:10	585	6.6	8.0	1.4	24	16.71
15-17-feb	18:05:10	585	-0.6	1.0	1.6	24	16.71
15-17-feb	19:05:10	585	-1.4	-2.0	-0.7	23	16.71
15-17-feb	20:05:10	585	-2.0	-2.9	-0.9	23	16.71
15-17-feb	21:05:10	586	-2.3	-3.6	-1.3	22	16.70
15-17-feb	22:05:10	586	-1.9	-3.1	-1.2	23	16.71
15-17-feb	23:05:10	586	-2.1	-3.1	-1.0	23	16.71
15-18-feb	18:41:10	586	2.8	9.2	6.3		0.00

BGI PQ200 Air Sampling System Downloaded 2015 25 feb 09:26:41

Job Details:

Job Name:	15Feb25A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	5826:57	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	583	577	580	mmHg
TA	3.8	-11.1	-3.8	°C
Q	---	---	16.7	Lpm

QCV	0.52 %
Max overheat	3.1 °C
occured	23-feb 15:43:24

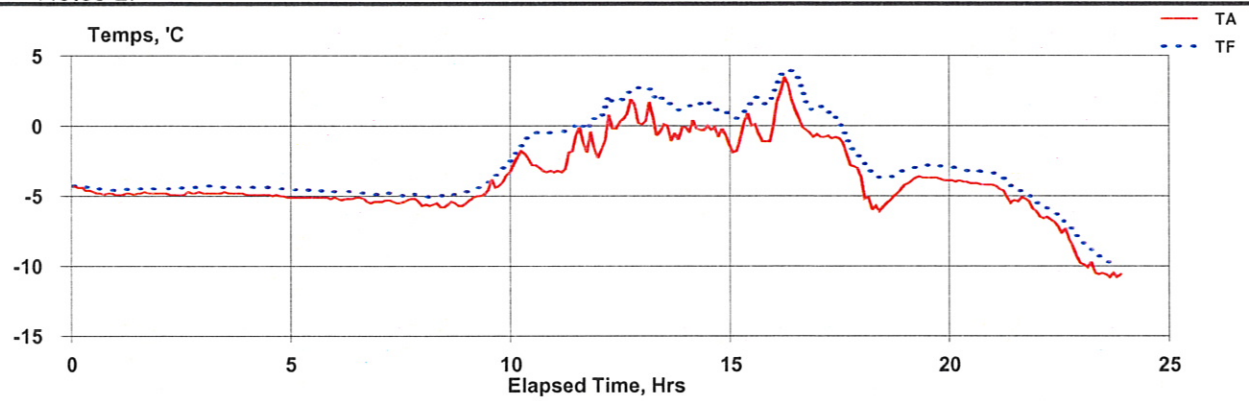
Timer Information:

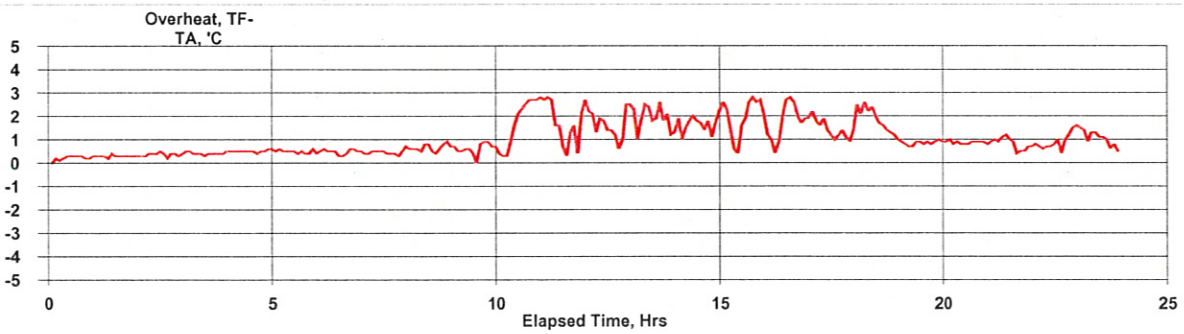
	Date dd-mmm	Time hh:mm:ss
Start:	15-23-feb	0:00:08
Stop:	15-24-feb	0:00:05
ET:	23:59	

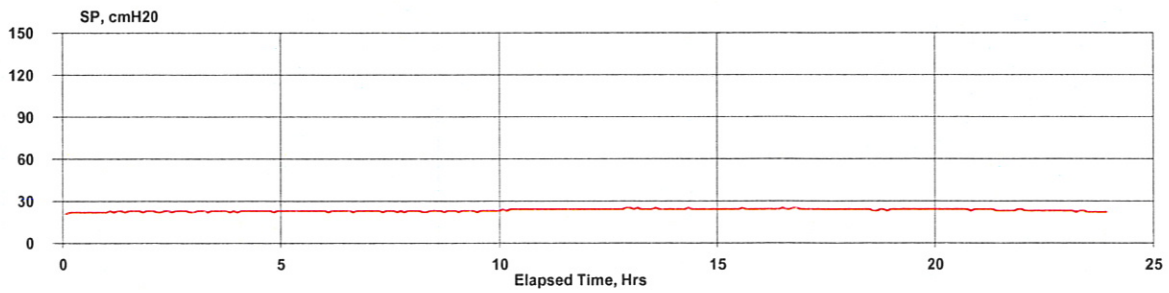
Mass Concentration Data:

Filter ID:	4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.038	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-23-feb	0:05:08	579	-4.7	-4.4	0.2	22	16.71
15-23-feb	1:05:08	578	-4.8	-4.5	0.3	23	16.71
15-23-feb	2:05:08	578	-4.8	-4.5	0.4	23	16.71
15-23-feb	3:05:08	578	-4.8	-4.4	0.4	23	16.71
15-23-feb	4:05:08	578	-5.0	-4.5	0.5	23	16.71
15-23-feb	5:05:08	578	-5.1	-4.6	0.5	23	16.71
15-23-feb	6:05:08	578	-5.3	-4.8	0.5	23	16.71
15-23-feb	7:05:08	578	-5.4	-4.9	0.5	23	16.70
15-23-feb	8:05:08	579	-5.6	-5.0	0.6	23	16.71
15-23-feb	9:05:08	579	-4.4	-3.8	0.6	23	16.72
15-23-feb	10:05:08	580	-2.7	-1.0	1.8	24	16.73
15-23-feb	11:05:08	580	-1.8	-0.1	1.7	24	16.70
15-23-feb	12:05:08	581	0.3	1.9	1.7	24	16.71
15-23-feb	13:05:08	580	-0.1	1.8	1.9	24	16.71
15-23-feb	14:05:08	581	-0.4	1.3	1.7	24	16.71
15-23-feb	15:05:08	581	-0.6	1.4	2.0	24	16.72
15-23-feb	16:05:08	581	1.0	2.7	1.8	24	16.70
15-23-feb	17:05:08	581	-1.7	-0.3	1.4	24	16.70
15-23-feb	18:05:08	582	-5.3	-3.4	1.8	24	16.71
15-23-feb	19:05:08	582	-3.8	-2.9	0.8	24	16.71
15-23-feb	20:05:08	582	-4.1	-3.2	0.9	24	16.70
15-23-feb	21:05:08	583	-5.2	-4.4	0.8	24	16.71
15-23-feb	22:05:08	582	-7.6	-6.7	0.9	23	16.71
15-23-feb	23:05:08	582	-10.4	-9.4	1.0	22	16.72

BGI PQ200 Air Sampling System

Downloaded 2015 05 mar 15:28:03

Job Details:

Job Name: 15Mar04A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5850:56
Flags:

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

	Max	Min	Avg	Units
BP	582	578	580	mmHg
TA	1.9	-5	-1.9	°C
Q	---	---	16.7	Lpm

QCV 0.47 %

Max overheat 4.6 °C
occured 04-mar 20:37:38

Timer Information:

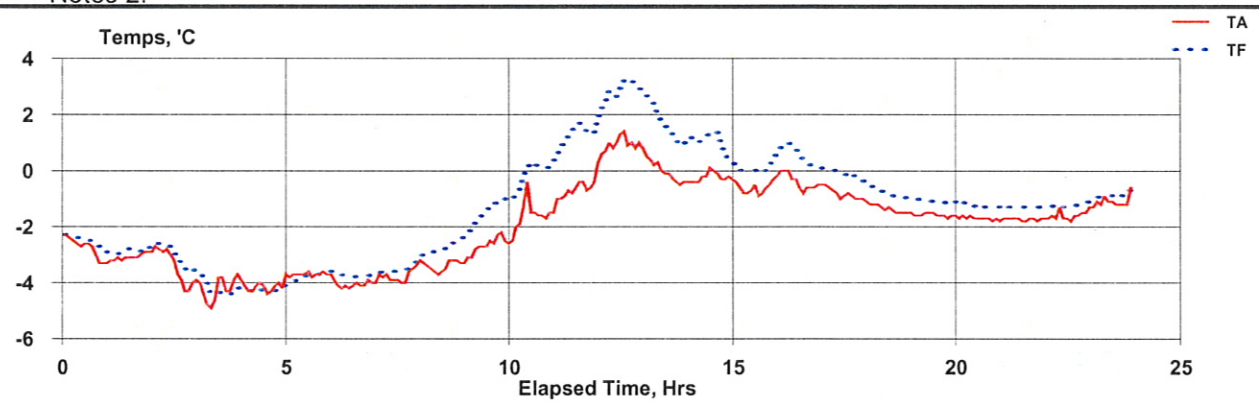
	Date dd-mmm	Time hh:mm:ss
Start:	15-01-mar	0:00:08
Stop:	15-02-mar	0:00:05

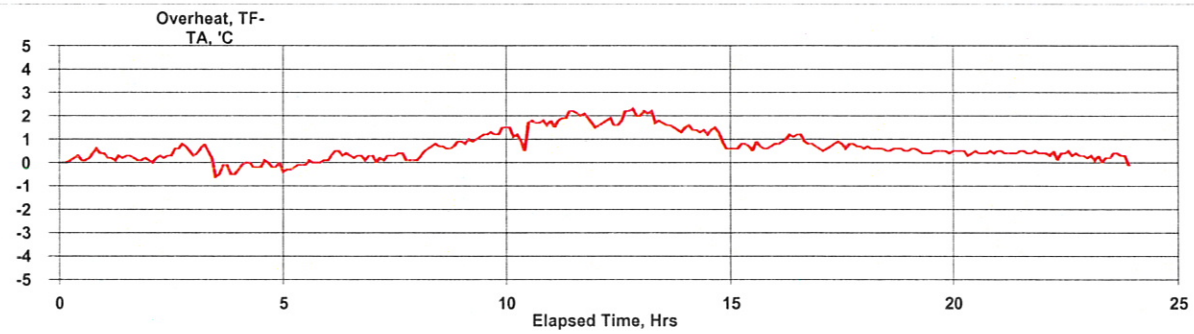
ET: 23:59

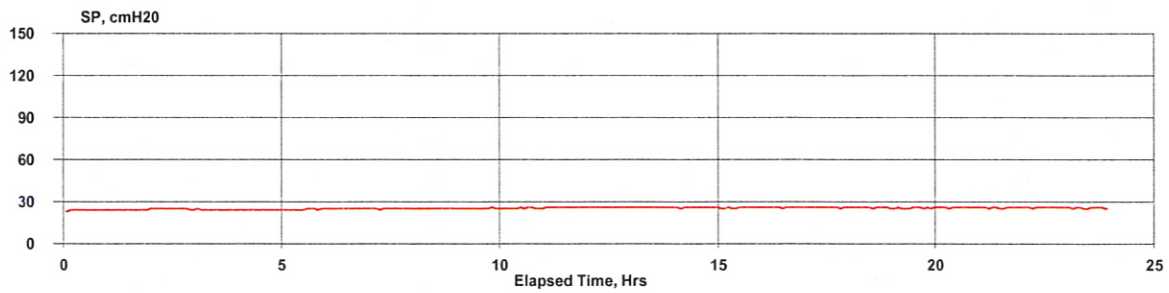
Mass Concentration Data:

Filter ID:	6	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-01-mar	0:05:08	580	-2.8	-2.5	0.2	24	16.70
15-01-mar	1:05:08	580	-3.1	-2.9	0.2	24	16.71
15-01-mar	2:05:08	580	-3.5	-3.1	0.4	25	16.72
15-01-mar	3:05:08	580	-4.2	-4.2	0.0	24	16.72
15-01-mar	4:05:08	580	-4.1	-4.3	-0.1	24	16.69
15-01-mar	5:05:08	580	-3.7	-3.8	-0.1	24	16.70
15-01-mar	6:05:08	581	-4.1	-3.7	0.3	25	16.71
15-01-mar	7:05:08	581	-3.7	-3.5	0.2	25	16.71
15-01-mar	8:05:08	581	-3.4	-2.7	0.7	25	16.71
15-01-mar	9:05:08	582	-2.7	-1.5	1.2	25	16.70
15-01-mar	10:05:08	582	-1.6	-0.1	1.4	25	16.71
15-01-mar	11:05:08	582	-0.6	1.3	1.9	26	16.72
15-01-mar	12:05:08	581	0.9	2.8	1.9	26	16.71
15-01-mar	13:05:08	581	-0.1	1.7	1.7	26	16.71
15-01-mar	14:05:08	581	-0.2	1.0	1.2	26	16.70
15-01-mar	15:05:08	581	-0.6	0.1	0.7	26	16.71
15-01-mar	16:05:08	581	-0.4	0.5	0.9	26	16.71
15-01-mar	17:05:08	581	-0.9	-0.2	0.7	26	16.71
15-01-mar	18:05:08	581	-1.4	-0.8	0.6	26	16.71
15-01-mar	19:05:08	581	-1.6	-1.1	0.5	26	16.71
15-01-mar	20:05:08	581	-1.7	-1.3	0.4	26	16.72
15-01-mar	21:05:08	580	-1.7	-1.3	0.4	26	16.70
15-01-mar	22:05:08	580	-1.6	-1.2	0.3	26	16.72
15-01-mar	23:05:08	580	-1.1	-0.9	0.2	26	16.72

BGI PQ200 Air Sampling System Downloaded 2015 09 mar 08:26:24

Job Details:

Job Name: 15Mar09A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5874:55
Flags:

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

	Max	Min	Avg	Units
BP	588	584	586	mmHg
TA	12.1	-8.1	1.2	°C
Q	---	---	16.71	Lpm

QCV 0.58 %

Max overheat 6 °C
occured 07-mar 14:27:30

Timer Information:

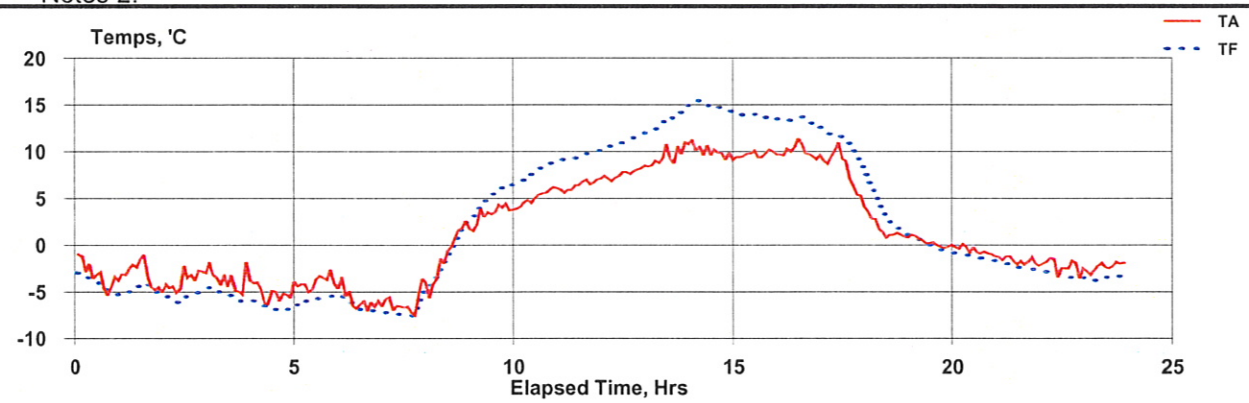
	Date dd-mmm	Time hh:mm:ss
Start:	15-07-mar	0:00:08
Stop:	15-08-mar	0:00:05

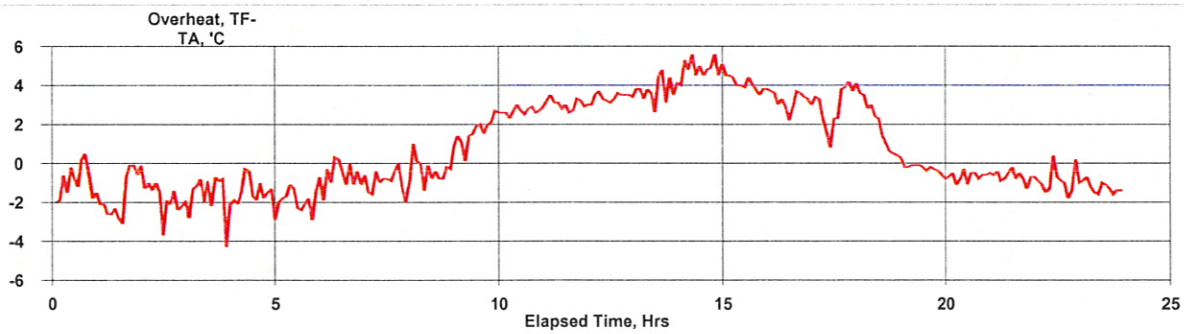
ET: 23:59

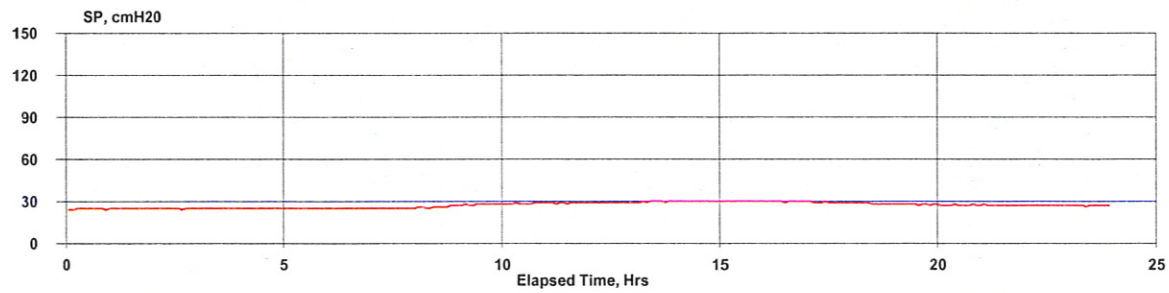
Mass Concentration Data:

Filter ID:	9	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.039	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-07-mar	0:05:08	588	-3.2	-4.2	-1.0	25	16.72
15-07-mar	1:05:08	588	-3.2	-4.8	-1.6	25	16.71
15-07-mar	2:05:08	587	-3.7	-5.5	-1.8	25	16.71
15-07-mar	3:05:08	587	-3.7	-5.4	-1.7	25	16.70
15-07-mar	4:05:08	587	-5.1	-6.6	-1.5	25	16.71
15-07-mar	5:05:08	587	-4.0	-5.8	-1.8	25	16.72
15-07-mar	6:05:08	587	-6.0	-6.6	-0.6	25	16.71
15-07-mar	7:05:08	587	-6.0	-7.0	-1.0	25	16.70
15-07-mar	8:05:08	587	-0.8	-1.0	-0.2	26	16.71
15-07-mar	9:05:08	587	3.4	5.1	1.7	28	16.72
15-07-mar	10:05:08	588	5.1	7.8	2.7	28	16.72
15-07-mar	11:05:08	587	6.4	9.5	3.0	29	16.71
15-07-mar	12:05:08	587	7.7	11.0	3.4	29	16.70
15-07-mar	13:05:08	586	9.6	13.3	3.8	30	16.71
15-07-mar	14:05:08	586	10.0	14.9	4.9	30	16.71
15-07-mar	15:05:08	586	9.7	13.8	4.1	30	16.71
15-07-mar	16:05:08	585	10.0	13.2	3.2	30	16.71
15-07-mar	17:05:08	585	7.9	10.9	3.0	29	16.72
15-07-mar	18:05:08	585	1.6	3.4	1.8	28	16.71
15-07-mar	19:05:08	585	0.3	0.0	-0.3	28	16.71
15-07-mar	20:05:08	585	-0.6	-1.3	-0.7	27	16.71
15-07-mar	21:05:08	585	-1.7	-2.4	-0.7	27	16.72
15-07-mar	22:05:08	585	-2.3	-3.2	-0.9	27	16.72
15-07-mar	23:05:08	585	-2.3	-3.6	-1.2	27	16.71

BGI PQ200 Air Sampling System Downloaded 2015 16 mar 09:47:40

Job Details:

Job Name: 15Mar16A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5898:54
Flags:

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

	Max	Min	Avg	Units
BP	590	586	588	mmHg
TA	12.9	-1.4	5.9	°C
Q	---	---	16.71	Lpm

QCV 0.54 %

Max overheat 4.9 °C
occured 14-mar 19:51:40

Timer Information:

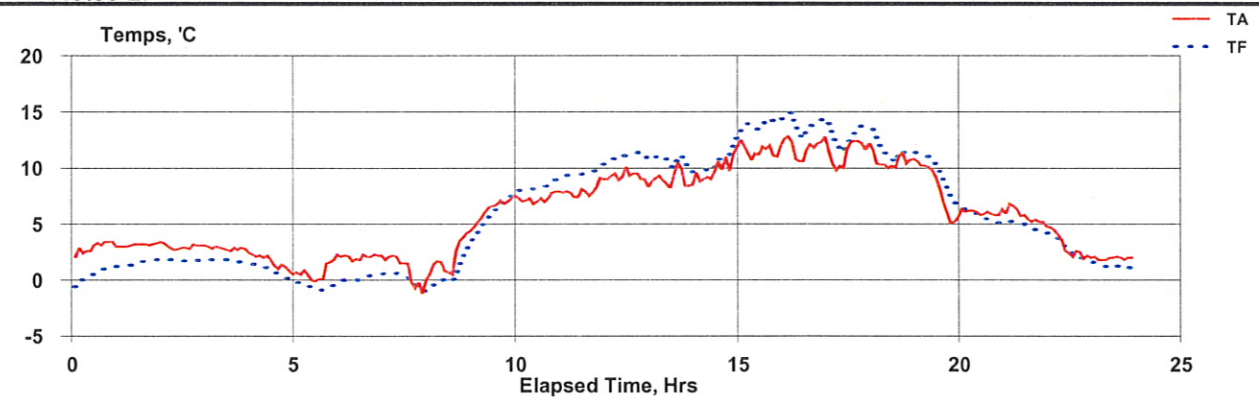
	Date dd-mmm	Time hh:mm:ss
Start:	15-13-mar	0:00:08
Stop:	15-14-mar	0:00:05

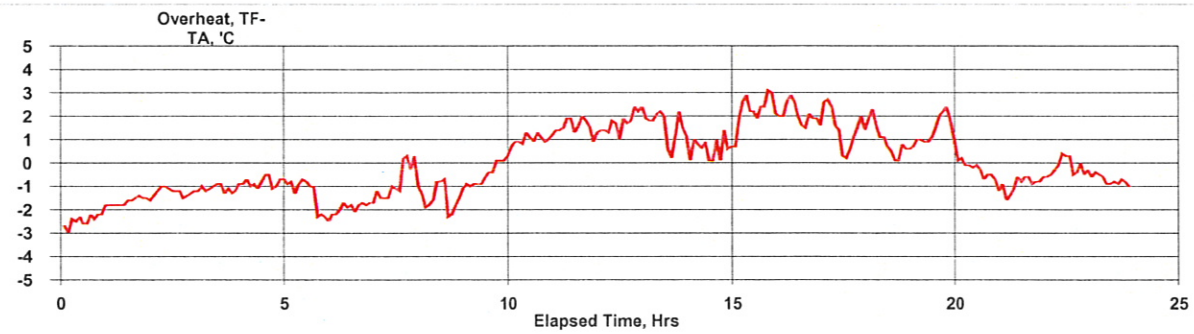
ET: 23:59

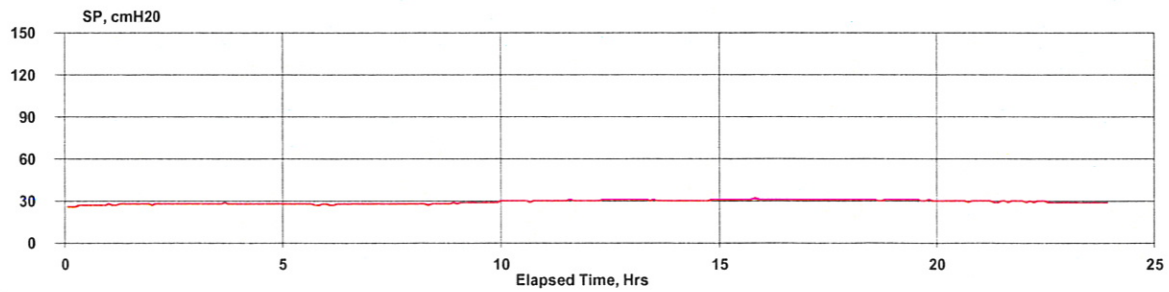
Mass Concentration Data:

Filter ID:	13	
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:







15-13-mar	0:05:08	588	2.9	0.5	-2.4	27	16.71
15-13-mar	1:05:08	587	3.2	1.5	-1.6	28	16.71
15-13-mar	2:05:08	587	3.0	1.8	-1.2	28	16.71
15-13-mar	3:05:08	587	2.8	1.7	-1.1	28	16.71
15-13-mar	4:05:08	588	1.6	0.7	-0.8	28	16.70
15-13-mar	5:05:08	588	0.8	-0.6	-1.4	28	16.71
15-13-mar	6:05:08	588	2.1	0.2	-1.9	28	16.71
15-13-mar	7:05:08	588	0.9	0.1	-0.8	28	16.71
15-13-mar	8:05:08	588	2.1	0.7	-1.5	28	16.71
15-13-mar	9:05:08	589	6.4	6.0	-0.5	29	16.71
15-13-mar	10:05:08	589	7.3	8.3	1.0	30	16.71
15-13-mar	11:05:08	589	8.0	9.5	1.5	30	16.71
15-13-mar	12:05:08	589	9.2	11.0	1.8	31	16.71
15-13-mar	13:05:08	589	9.0	10.6	1.6	30	16.71
15-13-mar	14:05:08	589	10.0	10.6	0.6	30	16.71
15-13-mar	15:05:08	588	11.6	13.8	2.3	31	16.71
15-13-mar	16:05:08	588	11.9	13.9	2.1	31	16.71
15-13-mar	17:05:08	588	11.4	12.9	1.5	31	16.71
15-13-mar	18:05:08	588	10.6	11.5	1.0	31	16.72
15-13-mar	19:05:08	588	8.1	9.5	1.4	31	16.70
15-13-mar	20:05:08	589	6.0	5.7	-0.3	30	16.72
15-13-mar	21:05:08	589	5.7	4.8	-0.9	30	16.70
15-13-mar	22:05:08	589	2.9	2.8	-0.2	29	16.71
15-13-mar	23:05:08	590	1.9	1.2	-0.7	29	16.71

BGI PQ200 Air Sampling System Downloaded 2015 20 mar 12:25:05

Job Details:

Job Name: 15Mar20A.JOB
Version: 5.62
Serial No: 962
Pump Time: 5922:54
Flags:

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

	Max	Min	Avg	Units
BP	586	582	583	mmHg
TA	14.2	-2.7	7.1	°C
Q	---	---	16.7	Lpm

QCV 0.45 %

Max overheat 3 °C
occured 19-mar 15:32:50

Timer Information:

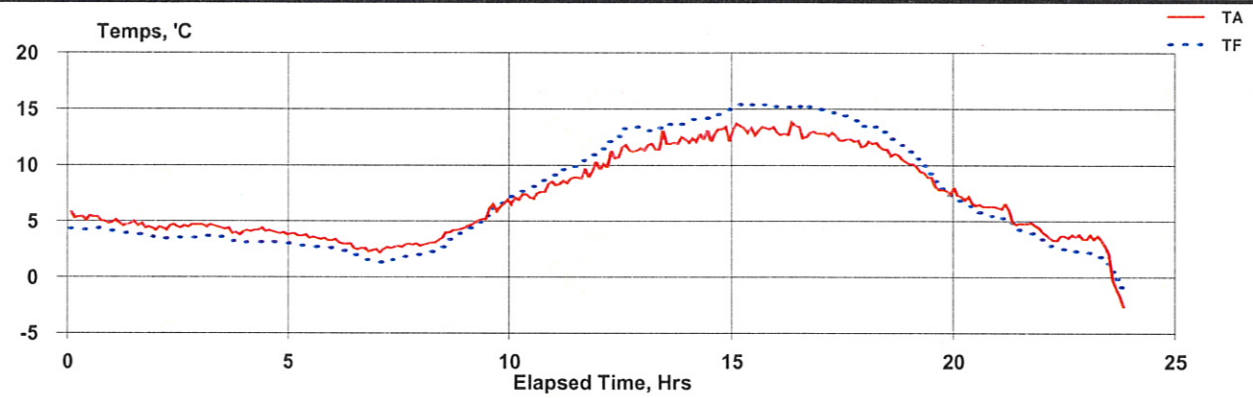
	Date dd-mmm	Time hh:mm:ss
Start:	15-19-mar	0:00:00
Stop:	15-20-mar	0:00:04

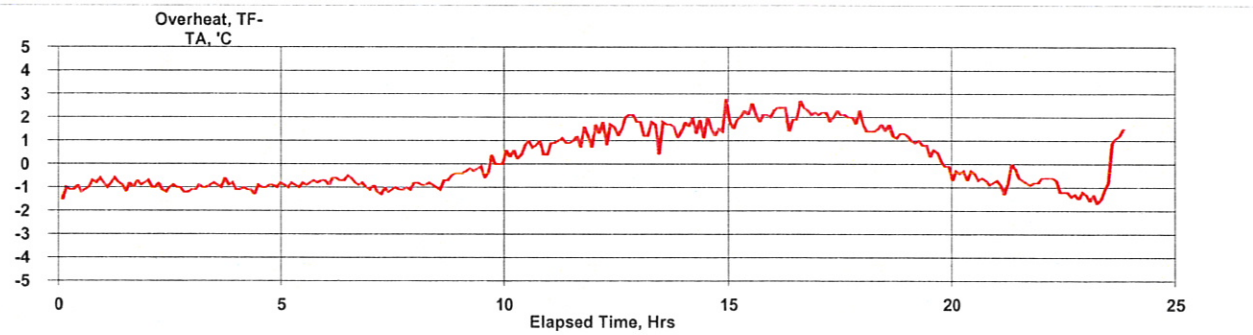
ET: 24:00:00

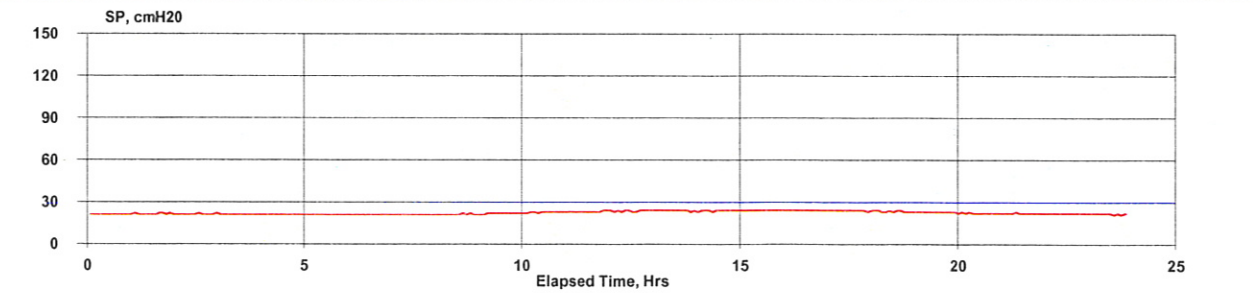
Mass Concentration Data:

Filter ID:	15	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.034	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-19-mar	0:05:00	583	5.3	4.3	-1.0	21	16.71
15-19-mar	1:05:00	583	4.7	3.8	-0.9	21	16.71
15-19-mar	2:05:00	583	4.5	3.5	-1.0	21	16.71
15-19-mar	3:05:00	583	4.3	3.4	-0.9	21	16.71
15-19-mar	4:05:00	583	4.1	3.1	-1.0	21	16.71
15-19-mar	5:05:00	583	3.6	2.8	-0.8	21	16.70
15-19-mar	6:05:00	583	2.8	2.0	-0.8	21	16.70
15-19-mar	7:05:00	583	2.7	1.7	-1.1	21	16.70
15-19-mar	8:05:00	583	3.7	2.9	-0.8	21	16.71
15-19-mar	9:05:00	584	5.7	5.5	-0.2	22	16.72
15-19-mar	10:05:00	584	7.4	8.0	0.6	23	16.72
15-19-mar	11:05:00	584	8.9	10.0	1.0	23	16.70
15-19-mar	12:05:00	584	10.9	12.5	1.6	24	16.70
15-19-mar	13:05:00	584	12.0	13.4	1.5	24	16.70
15-19-mar	14:05:00	584	12.6	14.3	1.7	24	16.72
15-19-mar	15:05:00	583	13.3	15.3	2.0	24	16.71
15-19-mar	16:05:00	584	13.0	15.2	2.2	24	16.69
15-19-mar	17:05:00	584	12.4	14.5	2.1	24	16.71
15-19-mar	18:05:00	584	11.3	12.7	1.4	24	16.71
15-19-mar	19:05:00	584	8.8	9.4	0.6	23	16.72
15-19-mar	20:05:00	584	6.8	6.2	-0.6	22	16.71
15-19-mar	21:05:00	585	5.2	4.5	-0.7	22	16.71
15-19-mar	22:05:00	585	3.6	2.6	-1.0	22	16.70
15-19-mar	23:05:00	586	1.2	0.9	-0.3	22	16.71

BGI PQ200 Air Sampling System Downloaded 2015 26 mar 15:42:59

Job Details:

Job Name:	15Mar26A.JOB	Job Code:	
Version:	5.62	Site Name:	962A
Serial No:	962	Station Code:	
Pump Time:	5946:53	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	589	582	586	mmHg
TA	12	0	5.1	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	3.3 °C
occured	25-mar 16:10:54

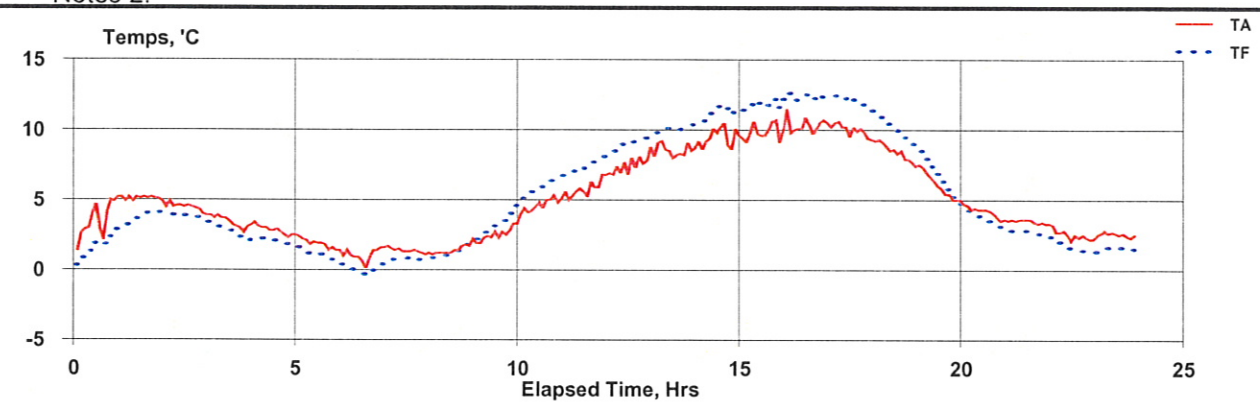
Timer Information:

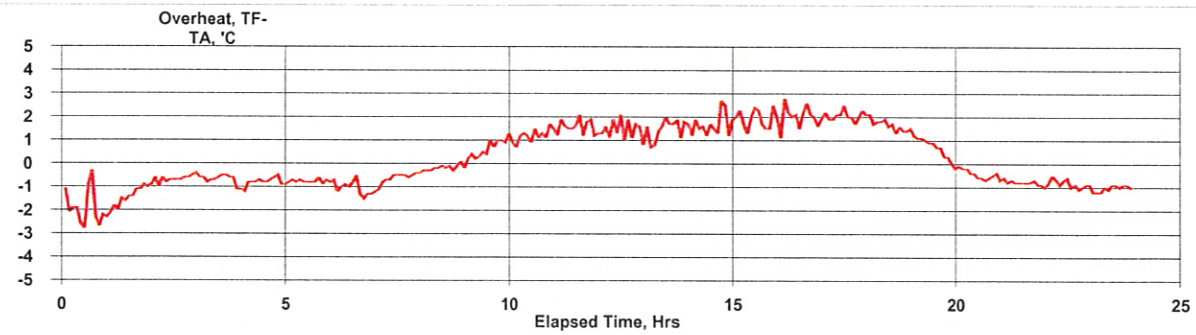
	Date dd-mmm	Time hh:mm:ss
Start:	15-25-mar	0:00:08
Stop:	15-26-mar	0:00:05
ET:	23:59	

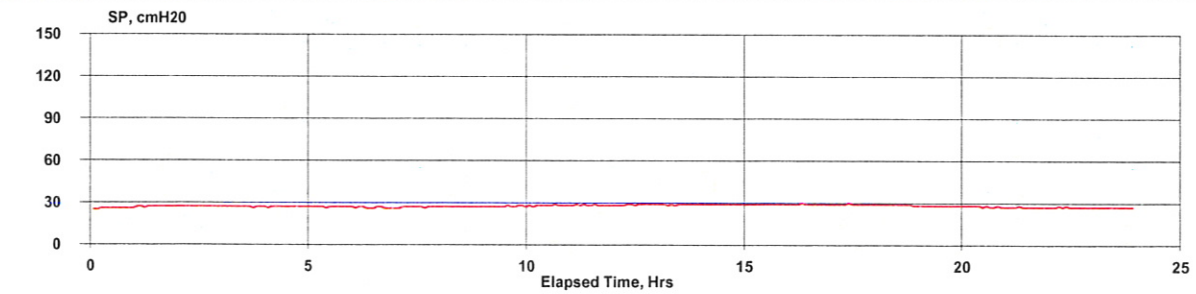
Mass Concentration Data:

Filter ID:	19	
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:







15-25-mar	0:05:08	584	3.6	1.6	-1.9	26	16.70
15-25-mar	1:05:08	584	5.1	3.7	-1.4	27	16.71
15-25-mar	2:05:08	584	4.4	3.8	-0.7	27	16.72
15-25-mar	3:05:08	584	3.4	2.7	-0.7	27	16.72
15-25-mar	4:05:08	584	2.8	2.0	-0.8	27	16.71
15-25-mar	5:05:08	585	1.8	1.1	-0.8	27	16.72
15-25-mar	6:05:08	584	1.1	0.0	-1.1	26	16.72
15-25-mar	7:05:08	585	1.4	0.8	-0.6	27	16.72
15-25-mar	8:05:08	586	1.4	1.3	-0.2	27	16.71
15-25-mar	9:05:08	586	2.5	3.2	0.7	27	16.71
15-25-mar	10:05:08	587	4.6	5.8	1.2	28	16.71
15-25-mar	11:05:08	587	5.8	7.4	1.6	28	16.71
15-25-mar	12:05:08	587	7.5	9.0	1.5	29	16.71
15-25-mar	13:05:08	587	8.5	10.0	1.5	29	16.71
15-25-mar	14:05:08	587	9.5	11.2	1.7	29	16.70
15-25-mar	15:05:08	587	9.8	11.8	1.9	29	16.71
15-25-mar	16:05:08	587	10.4	12.4	2.0	29	16.71
15-25-mar	17:05:08	587	10.0	12.1	2.1	29	16.70
15-25-mar	18:05:08	587	8.4	10.1	1.7	29	16.71
15-25-mar	19:05:08	587	6.0	6.7	0.7	28	16.72
15-25-mar	20:05:08	588	4.2	3.7	-0.5	28	16.71
15-25-mar	21:05:08	588	3.5	2.7	-0.8	27	16.72
15-25-mar	22:05:08	588	2.5	1.7	-0.8	27	16.71
15-25-mar	23:05:08	589	2.6	1.5	-1.0	27	16.71

Compliance Monitor 963B

PM_{10} Sampler Summary

January 1, 2015 - March 31, 2015

Network: **JBR - Cedar City**
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
01/06/15	P2916479	**7.6**	**9.0**	23:59	24.0	20.3	368.071	368.255	0.184		
01/12/15	P2916483	**2.7**	**3.3**	24:00	24.0	20.3	376.940	377.007	0.067		
01/18/15	P2916766	**0.7**	**0.8**	23:59	24.0	20.3	369.975	369.992	0.017		
01/24/15	P2916768	**40.7**	**48.3**	23:59	24.0	20.2	368.196	369.175	0.979		
01/30/15	P2916771	**0.3**	**0.3**	23:59	23.9	20.1	372.320	372.328	0.008		
02/05/15	P2918611	**53.7**	**64.2**	23:59	24.0	20.1	365.630	366.920	1.290		
02/11/15	P2918615	**8.3**	**9.9**	23:59	24.0	20.2	364.892	365.093	0.201		
02/17/15	P2918895	**14.9**	**17.6**	23:59	24.0	20.4	364.373	364.733	0.360		
02/23/15	P2918891	**2.6**	**3.0**	23:59	24.0	20.4	361.508	361.571	0.063		
03/01/15	P2919164	**1.7**	**2.0**	23:59	24.1	20.4	369.871	369.912	0.041		
03/07/15	P2919167	**7.9**	**9.3**	23:59	24.1	20.2	370.767	370.957	0.190		
03/13/15	P2919170	**7.6**	**9.2**	23:59	24.0	20.0	364.923	365.107	0.184		
03/19/15	P2919514	**26.7**	**32.5**	23:59	24.0	19.8	368.353	368.995	0.642		
03/25/15	P2919517	**26.8**	**32.2**	23:59	24.0	20.0	365.943	366.587	0.644		
03/31/15	P2919858	**11.5**	**14.1**	23:59	24.0	19.6	371.094	371.371	0.277		
01/12/15	P2916482		**Field Blank**				378.607	378.613	0.006		

# Valid	Recovery	Average	St. Dev.	Max	Min
15	100%	17.0	19.0	64.2	0.3

BGI PQ200 Air Sampling System Downloaded 2015 07 jan 13:35:44

Job Details:

Job Name: 15Jan07B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5757:39
Flags:

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

	Max	Min	Avg	Units
BP	600	596	597	mmHg
TA	13.9	-1.3	4.8	°C
Q	---	---	16.71	Lpm

QCV 0.57 %
Max overheat 2.8 °C
occured 06-jan 12:32:55

Timer Information:

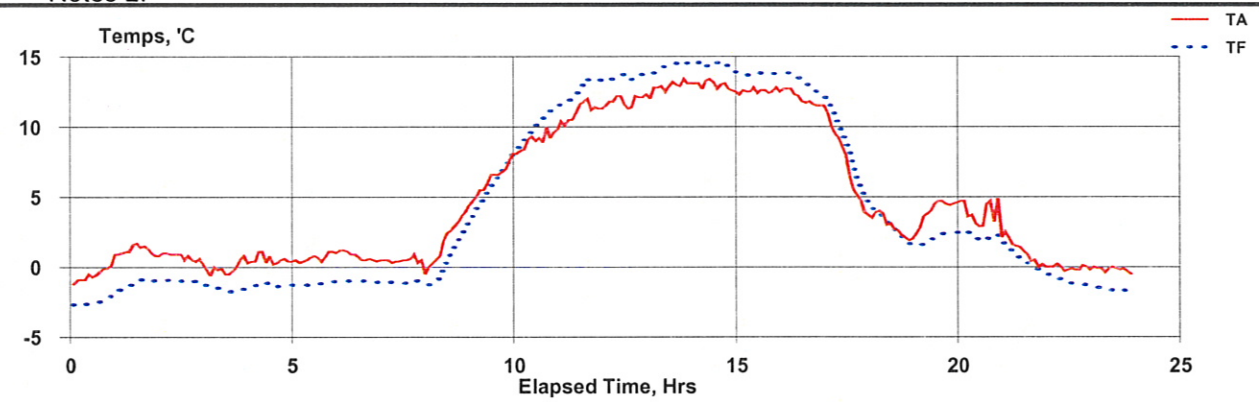
	Date dd-mmm	Time hh:mm:ss
Start:	15-06-jan	0:00:08
Stop:	15-07-jan	0:00:05

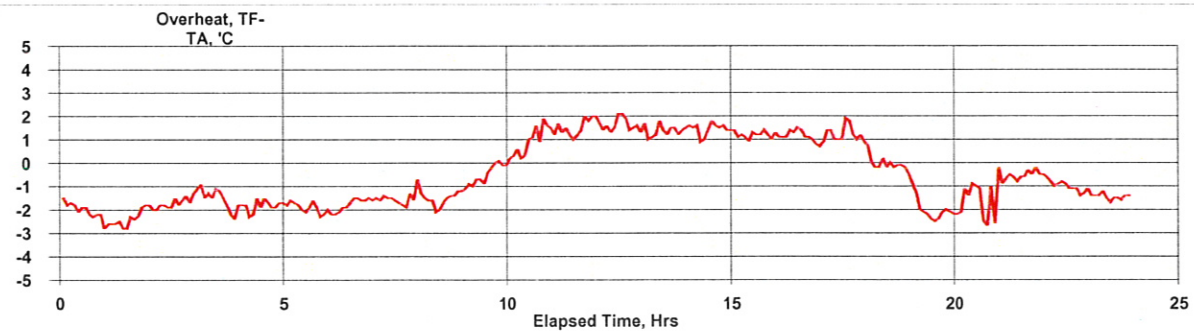
ET: 23:59

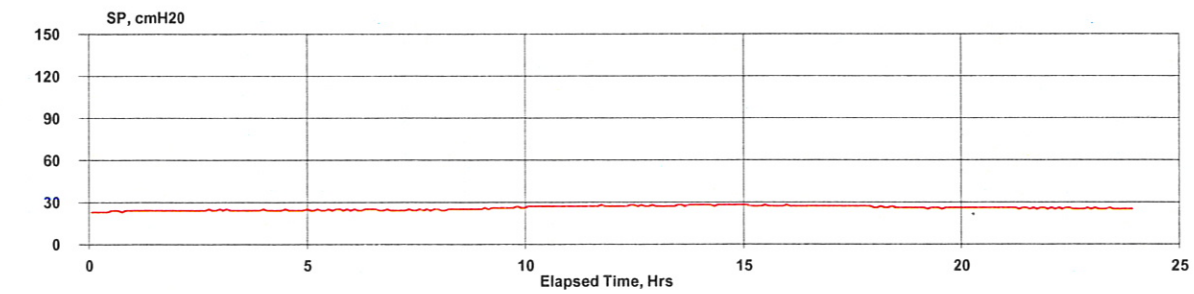
Mass Concentration Data:

Filter ID:	8	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.04	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-06-jan	0:05:08	598	-0.4	-2.5	-2.0	24	16.71
15-06-jan	1:05:08	598	1.2	-1.2	-2.4	24	16.72
15-06-jan	2:05:08	598	0.7	-1.0	-1.7	24	16.71
15-06-jan	3:05:08	599	-0.1	-1.6	-1.5	24	16.71
15-06-jan	4:05:08	599	0.5	-1.3	-1.8	24	16.71
15-06-jan	5:05:08	598	0.7	-1.2	-1.9	24	16.71
15-06-jan	6:05:08	598	0.8	-1.0	-1.8	25	16.72
15-06-jan	7:05:08	598	0.4	-1.1	-1.5	24	16.72
15-06-jan	8:05:08	599	2.2	0.7	-1.5	25	16.71
15-06-jan	9:05:08	599	6.3	5.8	-0.5	26	16.71
15-06-jan	10:05:08	599	9.1	10.0	0.9	27	16.71
15-06-jan	11:05:08	599	11.1	12.6	1.5	27	16.72
15-06-jan	12:05:08	598	11.9	13.5	1.6	27	16.71
15-06-jan	13:05:08	598	12.9	14.3	1.4	28	16.71
15-06-jan	14:05:08	597	13.0	14.4	1.4	28	16.71
15-06-jan	15:05:08	597	12.5	13.7	1.2	27	16.71
15-06-jan	16:05:08	597	12.0	13.1	1.1	27	16.70
15-06-jan	17:05:08	597	7.1	8.4	1.2	27	16.71
15-06-jan	18:05:08	597	2.9	2.8	-0.1	26	16.71
15-06-jan	19:05:08	597	4.0	2.0	-2.0	26	16.72
15-06-jan	20:05:08	598	3.8	2.2	-1.6	26	16.72
15-06-jan	21:05:08	598	1.0	0.5	-0.6	26	16.71
15-06-jan	22:05:08	598	-0.1	-1.1	-1.0	25	16.71
15-06-jan	23:05:08	598	-0.2	-1.6	-1.5	25	16.70

BGI PQ200 Air Sampling System Downloaded 2015 14 jan 08:10:54

Job Details:

Job Name: 15Jan14B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5781:39
Flags:

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

	Max	Min	Avg	Units
BP	592	589	590	mmHg
TA	2.7	-0.7	1.4	°C
Q	---	---	16.71	Lpm

QCV 0.57 %

Max overheat 0.7 °C
occured 13-jan 15:49:00

Timer Information:

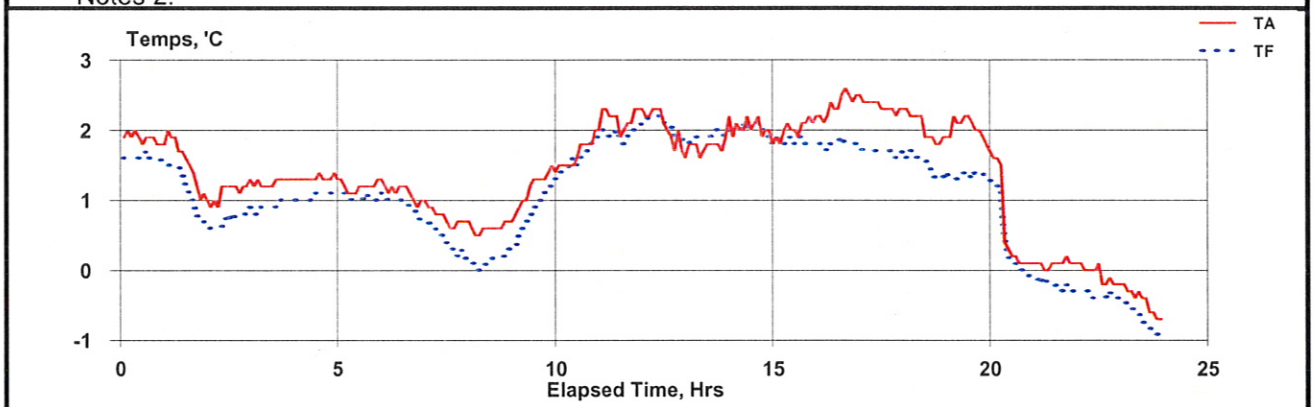
	Date dd-mmm	Time hh:mm:ss
Start:	15-12-jan	0:00:00
Stop:	15-13-jan	0:00:05

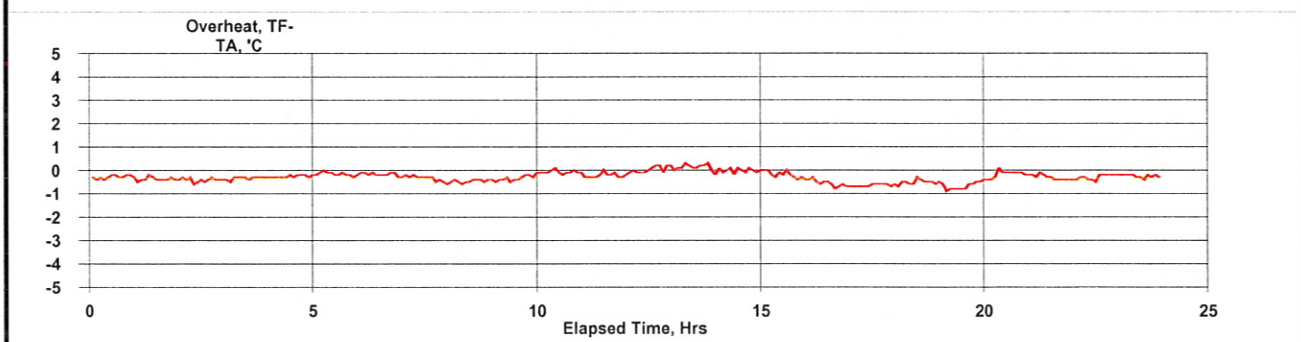
ET: 24:00:00

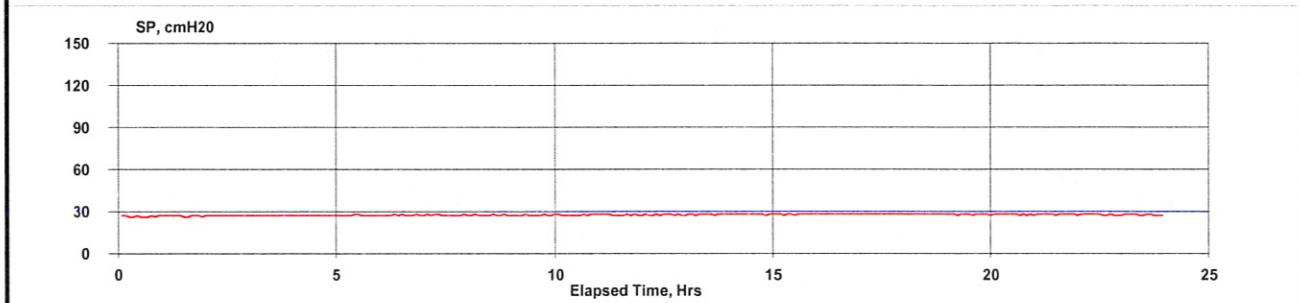
Mass Concentration Data:

Filter ID:	16	
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-jan	0:05:06	592	1.9	1.6	-0.3	27	16.72
15-12-jan	1:05:06	591	1.5	1.1	-0.4	27	16.71
15-12-jan	2:05:06	592	1.1	0.7	-0.4	27	16.70
15-12-jan	3:05:06	592	1.3	0.9	-0.3	27	16.71
15-12-jan	4:05:06	591	1.3	1.1	-0.3	27	16.71
15-12-jan	5:05:06	591	1.2	1.0	-0.2	27	16.71
15-12-jan	6:05:06	591	1.1	0.9	-0.2	27	16.71
15-12-jan	7:05:06	591	0.7	0.4	-0.4	27	16.71
15-12-jan	8:05:06	592	0.6	0.2	-0.5	27	16.71
15-12-jan	9:05:06	592	1.2	0.9	-0.3	27	16.72
15-12-jan	10:05:06	592	1.7	1.6	-0.1	27	16.72
15-12-jan	11:05:06	592	2.2	2.0	-0.2	27	16.72
15-12-jan	12:05:06	591	2.0	2.1	0.0	28	16.71
15-12-jan	13:05:06	590	1.8	1.9	0.1	28	16.71
15-12-jan	14:05:06	590	2.0	2.0	0.0	28	16.72
15-12-jan	15:05:06	590	2.0	1.8	-0.2	28	16.71
15-12-jan	16:05:06	590	2.4	1.8	-0.6	28	16.71
15-12-jan	17:05:06	590	2.3	1.7	-0.7	28	16.72
15-12-jan	18:05:06	590	2.0	1.5	-0.5	28	16.71
15-12-jan	19:05:06	589	2.0	1.3	-0.7	28	16.72
15-12-jan	20:05:06	589	0.5	0.4	-0.2	28	16.71
15-12-jan	21:05:06	589	0.1	-0.2	-0.3	28	16.71
15-12-jan	22:05:06	589	-0.1	-0.4	-0.3	28	16.71
15-12-jan	23:05:06	589	-0.4	-0.7	-0.3	28	16.71

BGI PQ200 Air Sampling System

Downloaded 2015 20 jan 10:20:22

Job Details:

Job Name: 15Jan20B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5805:38
Flags:

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

	Max	Min	Avg	Units
BP	597	594	595	mmHg
TA	13.7	-3.7	3	°C
Q	---	---	16.7	Lpm

QCV 0.54 %

Max overheat 2.4 °C
occured 19-jan 17:42:54

Timer Information:

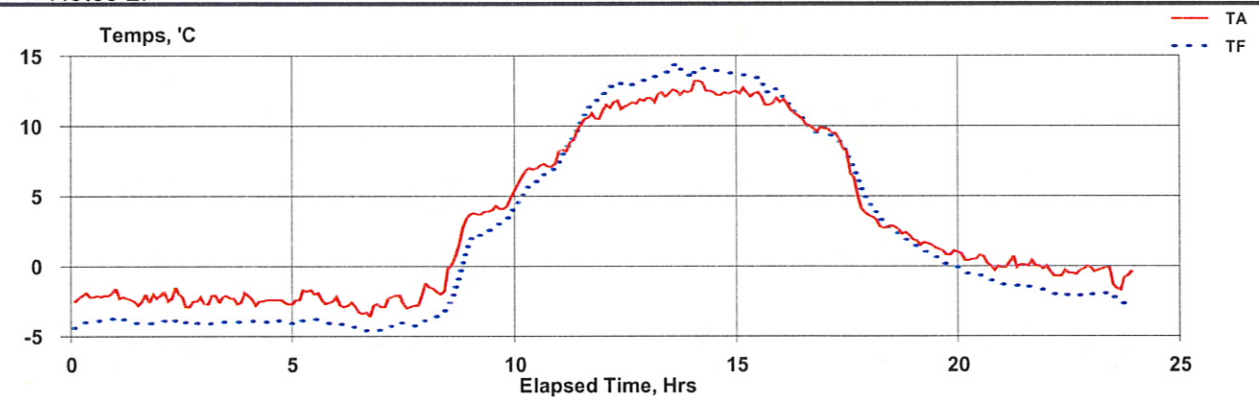
	Date dd-mmm	Time hh:mm:ss
Start:	15-18-jan	0:00:08
Stop:	15-19-jan	0:00:05

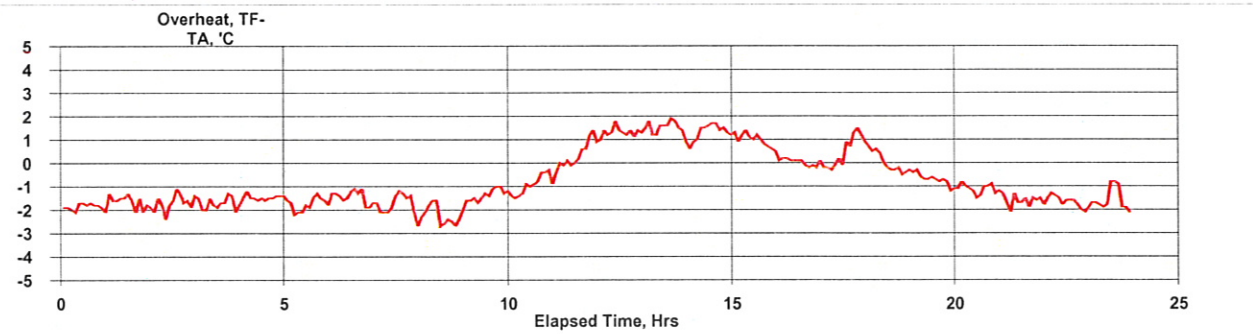
ET: 23:59

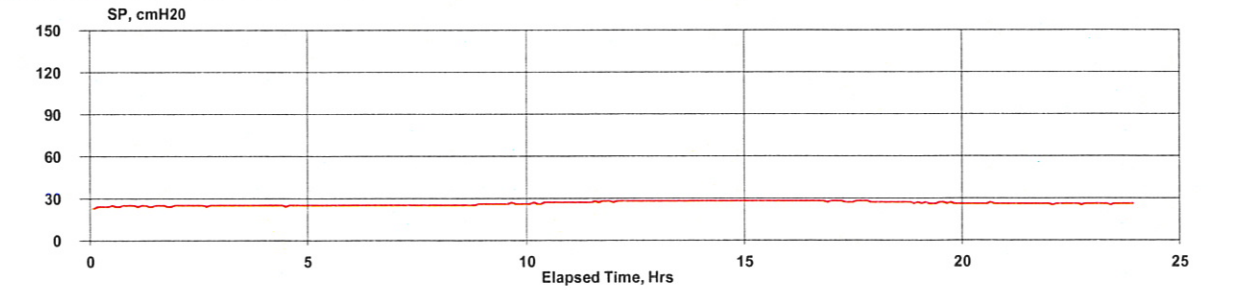
Mass Concentration Data:

Filter ID:	5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.034	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-18-jan	0:05:08	596	-2.1	-4.0	-1.9	24	16.72
15-18-jan	1:05:08	596	-2.3	-4.0	-1.7	25	16.71
15-18-jan	2:05:08	596	-2.3	-4.0	-1.7	25	16.71
15-18-jan	3:05:08	595	-2.3	-4.0	-1.7	25	16.72
15-18-jan	4:05:08	595	-2.5	-4.0	-1.5	25	16.71
15-18-jan	5:05:08	595	-2.2	-4.0	-1.8	25	16.71
15-18-jan	6:05:08	595	-3.0	-4.4	-1.4	25	16.72
15-18-jan	7:05:08	596	-2.4	-4.2	-1.8	25	16.71
15-18-jan	8:05:08	596	0.3	-2.0	-2.2	25	16.71
15-18-jan	9:05:08	596	4.2	2.8	-1.4	26	16.71
15-18-jan	10:05:08	596	7.0	6.1	-0.9	27	16.70
15-18-jan	11:05:08	596	9.8	10.2	0.4	27	16.71
15-18-jan	12:05:08	596	11.6	12.9	1.3	28	16.72
15-18-jan	13:05:08	595	12.3	13.8	1.5	28	16.69
15-18-jan	14:05:08	595	12.6	13.9	1.3	28	16.69
15-18-jan	15:05:08	595	12.1	13.0	1.0	28	16.73
15-18-jan	16:05:08	595	10.5	10.5	0.0	28	16.71
15-18-jan	17:05:08	595	7.0	7.5	0.5	28	16.71
15-18-jan	18:05:08	595	2.7	2.7	0.0	27	16.71
15-18-jan	19:05:08	595	1.3	0.6	-0.7	26	16.71
15-18-jan	20:05:08	595	0.3	-0.8	-1.1	26	16.72
15-18-jan	21:05:08	594	0.1	-1.5	-1.6	26	16.71
15-18-jan	22:05:08	594	-0.4	-2.1	-1.7	26	16.71
15-18-jan	23:05:08	595	-0.7	-2.3	-1.6	26	16.71

BGI PQ200 Air Sampling System Downloaded 2015 26 jan 14:38:09

Job Details:

Job Name: 15Jan26B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5829:37
Flags:

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

	Max	Min	Avg	Units
BP	596	593	594	mmHg
TA	12	-2.9	3.3	°C
Q	---	---	16.7	Lpm

QCV 0.35 %

Max overheat 2.3 °C
occured 24-jan 13:59:22

Timer Information:

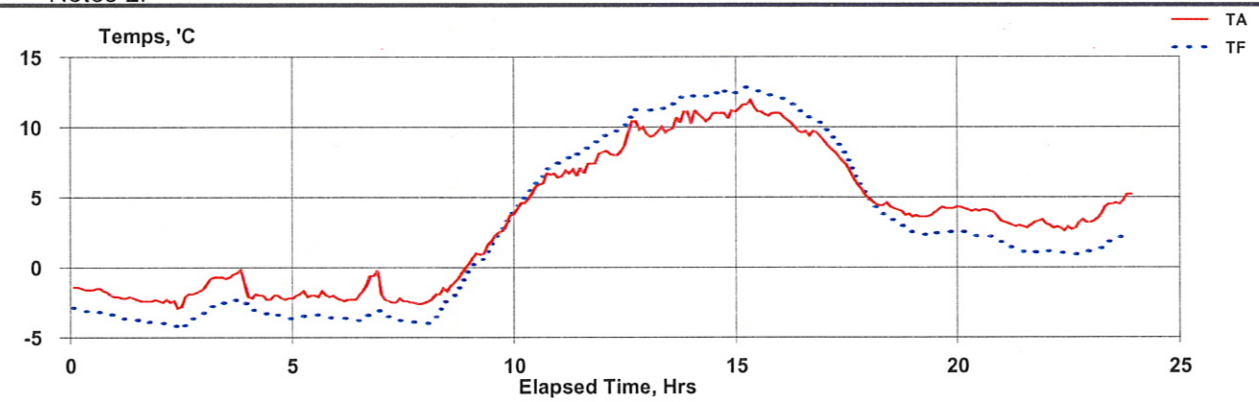
	Date dd-mmm	Time hh:mm:ss
Start:	15-24-jan	0:00:08
Stop:	15-25-jan	0:00:05

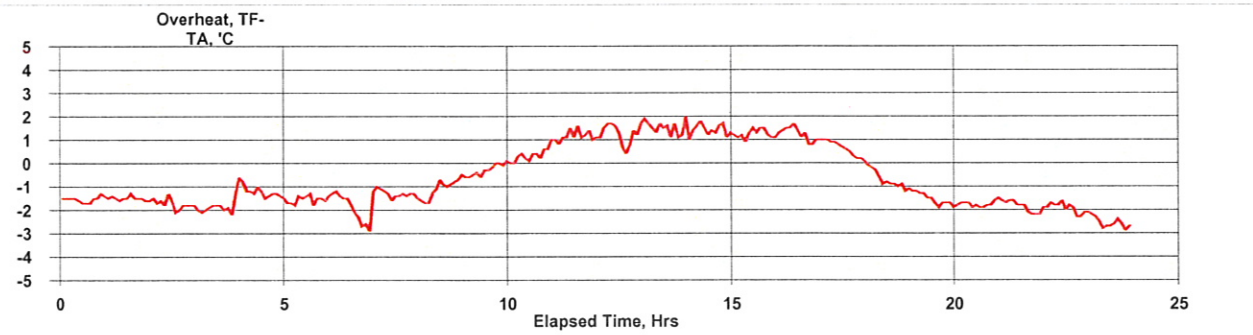
ET: 23:59

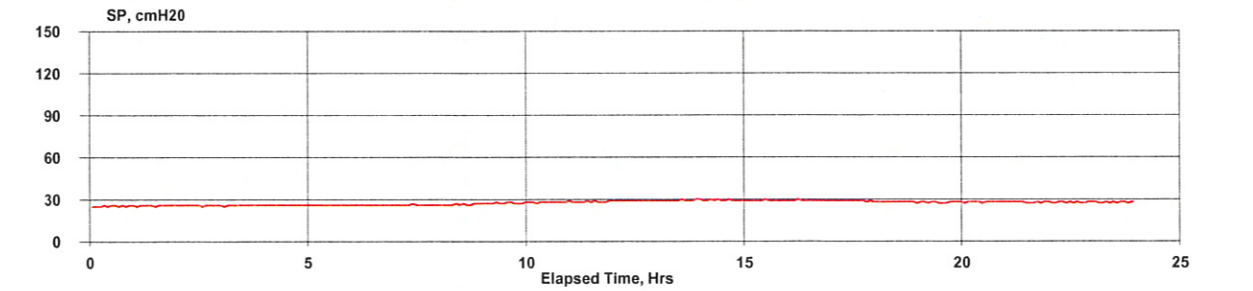
Mass Concentration Data:

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:







15-24-jan	0:05:08	595	-1.6	-3.2	-1.5	26	16.72
15-24-jan	1:05:08	595	-2.3	-3.8	-1.5	26	16.71
15-24-jan	2:05:08	595	-2.2	-3.9	-1.7	26	16.70
15-24-jan	3:05:08	595	-0.8	-2.6	-1.8	26	16.72
15-24-jan	4:05:08	595	-2.1	-3.4	-1.3	26	16.71
15-24-jan	5:05:08	595	-2.0	-3.5	-1.6	26	16.71
15-24-jan	6:05:08	595	-1.7	-3.5	-1.9	26	16.71
15-24-jan	7:05:08	595	-2.5	-3.8	-1.3	26	16.71
15-24-jan	8:05:08	595	-1.2	-2.3	-1.1	26	16.72
15-24-jan	9:05:08	596	2.1	1.8	-0.3	27	16.70
15-24-jan	10:05:08	596	5.6	6.0	0.4	28	16.70
15-24-jan	11:05:08	596	7.2	8.3	1.2	28	16.68
15-24-jan	12:05:08	595	9.1	10.4	1.3	29	16.68
15-24-jan	13:05:08	595	10.1	11.6	1.5	29	16.70
15-24-jan	14:05:08	594	10.9	12.3	1.4	29	16.68
15-24-jan	15:05:08	594	11.2	12.5	1.2	29	16.64
15-24-jan	16:05:08	594	9.8	11.0	1.2	29	16.70
15-24-jan	17:05:08	594	6.9	7.5	0.6	29	16.70
15-24-jan	18:05:08	595	4.2	3.5	-0.7	28	16.71
15-24-jan	19:05:08	595	4.0	2.4	-1.6	28	16.69
15-24-jan	20:05:08	595	4.0	2.2	-1.8	28	16.69
15-24-jan	21:05:08	594	3.1	1.2	-1.9	28	16.69
15-24-jan	22:05:08	595	3.0	1.0	-1.9	28	16.68
15-24-jan	23:05:08	595	4.4	1.8	-2.6	28	16.68

BGI PQ200 Air Sampling System Downloaded 2015 02 feb 07:07:37

Job Details:

Job Name:	15Feb02B.JOB
Version:	5.62
Serial No:	963
Pump Time:	5853:36
Flags:	

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

	Max	Min	Avg	Units
BP	592	585	587	mmHg
TA	3.6	-0.3	1.1	°C
Q	---	---	16.65	Lpm

QCV	0.52 %
Max overheat	2.4 °C
occured	01-feb 18:08:31

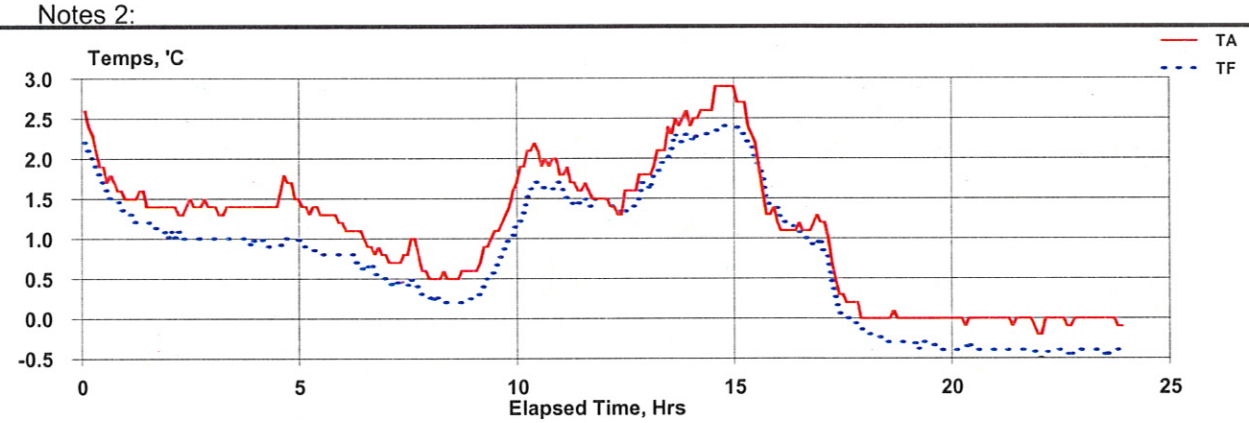
Timer Information:

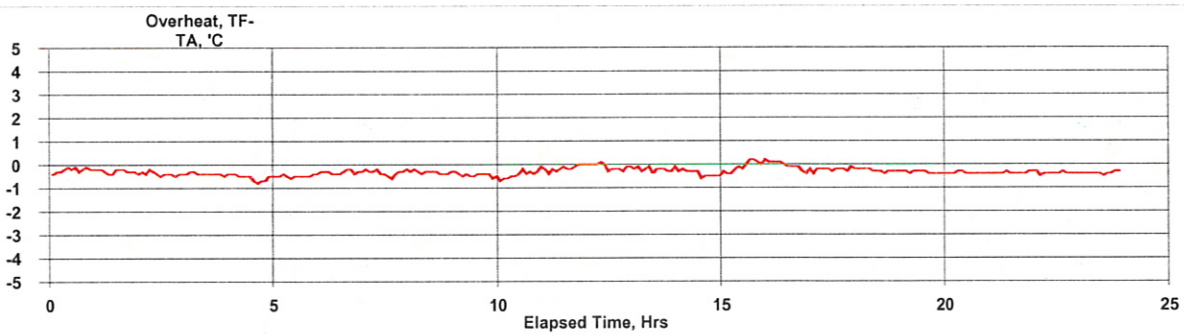
	Date dd-mmm	Time hh:mm:ss
Start:	15-30-jan	0:00:08
Stop:	15-31-jan	0:00:05
ET:	23:59	

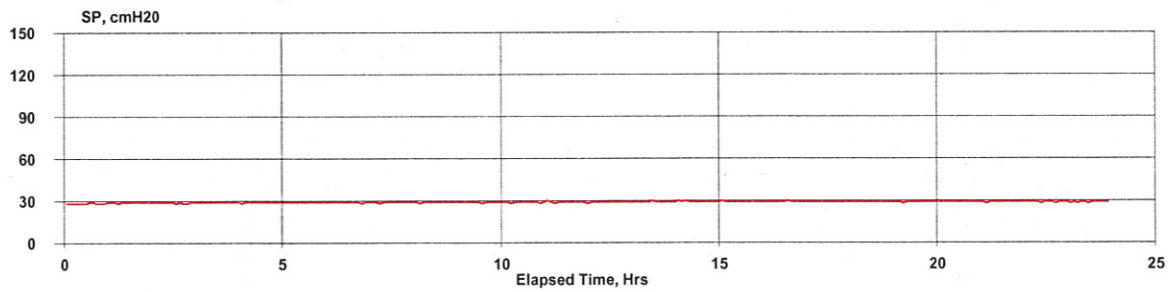
Mass Concentration Data:

Filter ID:	18	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	23.936	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-30-jan	0:05:08	592	1.9	1.7	-0.2	28	16.69
15-30-jan	1:05:08	591	1.5	1.2	-0.3	29	16.68
15-30-jan	2:05:08	591	1.4	1.0	-0.4	29	16.66
15-30-jan	3:05:08	590	1.4	1.0	-0.4	29	16.65
15-30-jan	4:05:08	589	1.5	1.0	-0.6	29	16.64
15-30-jan	5:05:08	589	1.3	0.8	-0.5	29	16.67
15-30-jan	6:05:08	589	1.0	0.7	-0.3	29	16.69
15-30-jan	7:05:08	589	0.7	0.4	-0.3	29	16.67
15-30-jan	8:05:08	589	0.5	0.2	-0.3	29	16.63
15-30-jan	9:05:08	588	1.1	0.7	-0.4	29	16.66
15-30-jan	10:05:08	588	2.0	1.6	-0.4	29	16.55
15-30-jan	11:05:08	588	1.6	1.5	-0.2	29	16.68
15-30-jan	12:05:08	588	1.6	1.5	-0.1	29	16.67
15-30-jan	13:05:08	587	2.3	2.0	-0.2	29	16.61
15-30-jan	14:05:08	586	2.7	2.3	-0.4	29	16.65
15-30-jan	15:05:08	586	2.0	1.9	-0.1	29	16.64
15-30-jan	16:05:08	586	1.1	1.1	-0.1	29	16.70
15-30-jan	17:05:08	586	0.4	0.2	-0.2	29	16.64
15-30-jan	18:05:08	586	0.0	-0.3	-0.3	29	16.72
15-30-jan	19:05:08	586	0.0	-0.4	-0.4	29	16.69
15-30-jan	20:05:08	586	0.0	-0.4	-0.4	29	16.70
15-30-jan	21:05:08	586	0.0	-0.4	-0.4	29	16.68
15-30-jan	22:05:08	586	0.0	-0.4	-0.4	29	16.63
15-30-jan	23:05:08	586	0.0	-0.4	-0.4	29	16.67

BGI PQ200 Air Sampling System Downloaded 2015 06 feb 14:25:09

Job Details:

Job Name: 15Feb06B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5877:35
Flags:

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

	Max	Min	Avg	Units
BP	595	592	593	mmHg
TA	15.3	-1.7	5.3	°C
Q	---	---	16.72	Lpm

QCV 0.67 %

Max overheat 2.2 °C
occured 05-feb 12:47:25

Timer Information:

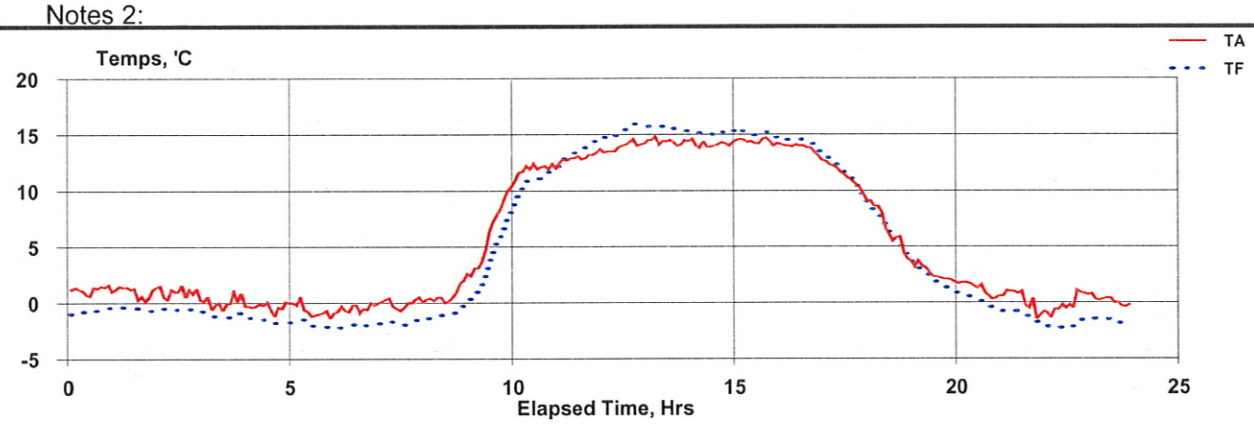
	Date dd-mmm	Time hh:mm:ss
Start:	15-05-feb	0:00:08
Stop:	15-06-feb	0:00:05

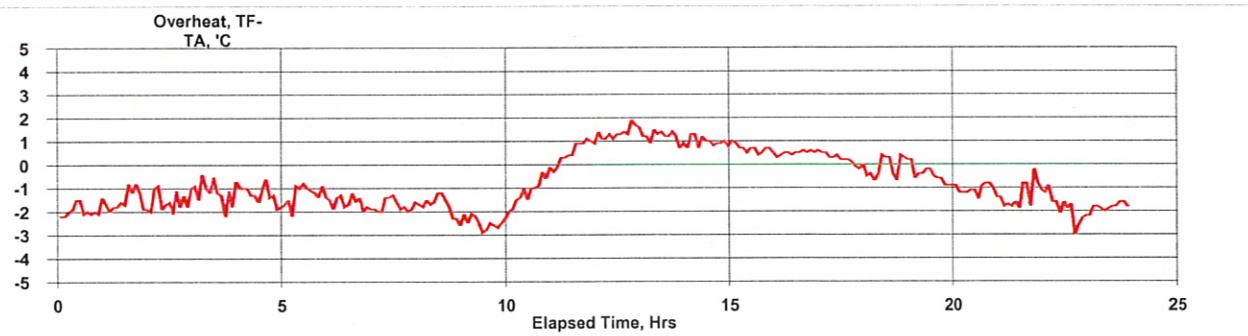
ET: 23:59

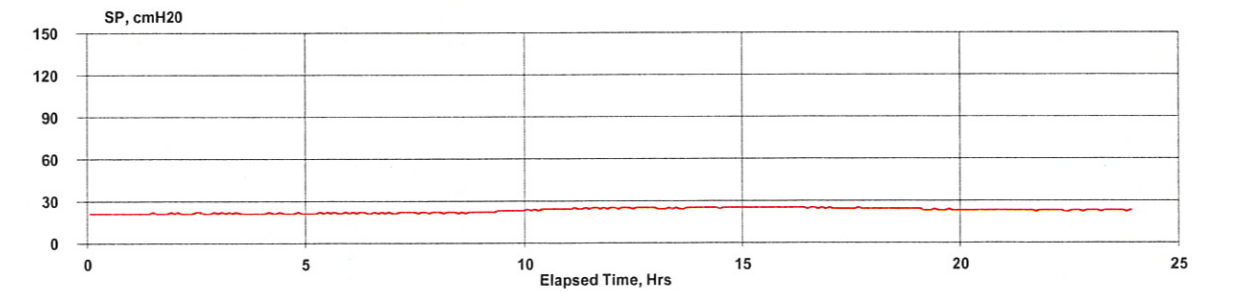
Mass Concentration Data:

Filter ID:	8	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.029	m^3
Mass Conc:	0	ug/m3

Notes 1:
Notes 2:







15-05-feb	0:05:08	594	1.2	-0.7	-1.9	21	16.71
15-05-feb	1:05:08	594	1.0	-0.5	-1.5	21	16.69
15-05-feb	2:05:08	594	0.9	-0.6	-1.5	21	16.70
15-05-feb	3:05:08	594	0.1	-1.1	-1.2	21	16.71
15-05-feb	4:05:08	594	-0.3	-1.6	-1.3	21	16.70
15-05-feb	5:05:08	594	-0.7	-1.9	-1.3	21	16.69
15-05-feb	6:05:08	594	-0.4	-2.1	-1.6	22	16.74
15-05-feb	7:05:08	594	0.0	-1.8	-1.7	22	16.76
15-05-feb	8:05:08	594	0.8	-1.0	-1.8	22	16.72
15-05-feb	9:05:08	595	6.4	3.9	-2.5	23	16.80
15-05-feb	10:05:08	595	11.9	10.8	-1.1	24	16.83
15-05-feb	11:05:08	595	13.0	13.6	0.6	25	16.78
15-05-feb	12:05:08	594	13.9	15.3	1.4	25	16.77
15-05-feb	13:05:08	594	14.4	15.6	1.2	25	16.66
15-05-feb	14:05:08	594	14.1	15.1	1.0	25	16.71
15-05-feb	15:05:08	593	14.4	15.1	0.7	25	16.71
15-05-feb	16:05:08	593	13.7	14.2	0.5	25	16.70
15-05-feb	17:05:08	593	11.2	11.4	0.2	24	16.71
15-05-feb	18:05:08	593	6.4	6.3	-0.1	24	16.71
15-05-feb	19:05:08	594	2.6	2.1	-0.5	23	16.71
15-05-feb	20:05:08	594	1.2	0.1	-1.1	23	16.70
15-05-feb	21:05:08	594	0.1	-1.2	-1.3	23	16.71
15-05-feb	22:05:08	594	-0.1	-2.0	-1.9	23	16.70
15-05-feb	23:05:08	594	0.1	-1.7	-1.8	23	16.71

BGI PQ200 Air Sampling System Downloaded 2015 12 feb 10:23:05

Job Details:

Job Name: 15Feb12B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5901:34
Flags:

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

	Max	Min	Avg	Units
BP	597	590	594	mmHg
TA	12.9	-3.2	3.6	°C
Q	---	---	16.7	Lpm

QCV 0.45 %

Max overheat 2.4 °C
occured 11-feb 14:00:02

Timer Information:

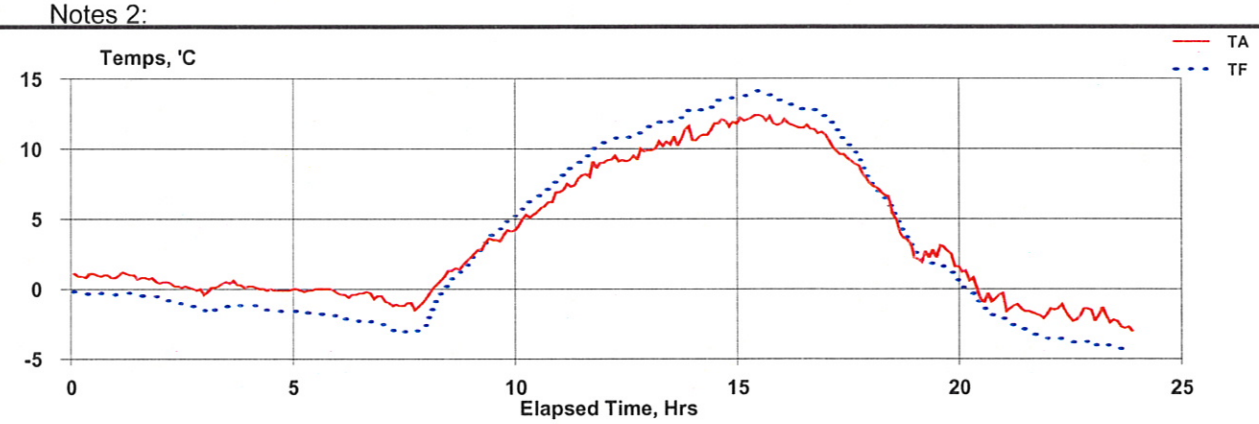
	Date dd-mmm	Time hh:mm:ss
Start:	15-11-feb	0:00:08
Stop:	15-12-feb	0:00:05

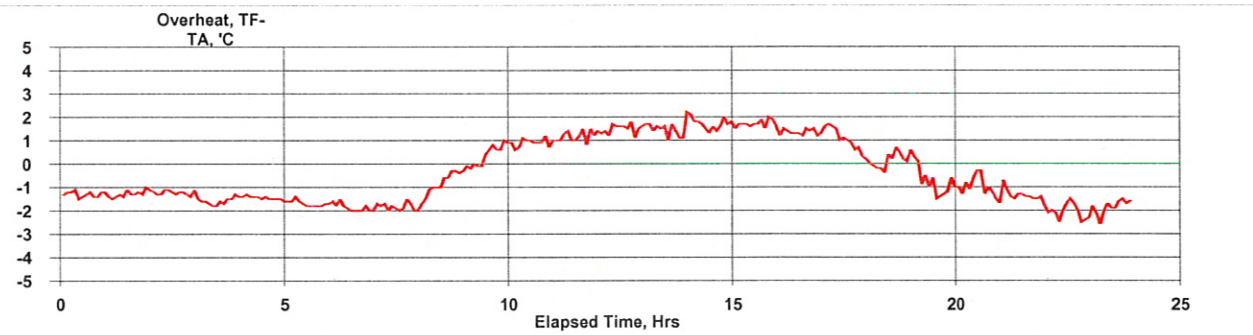
ET: 23:59

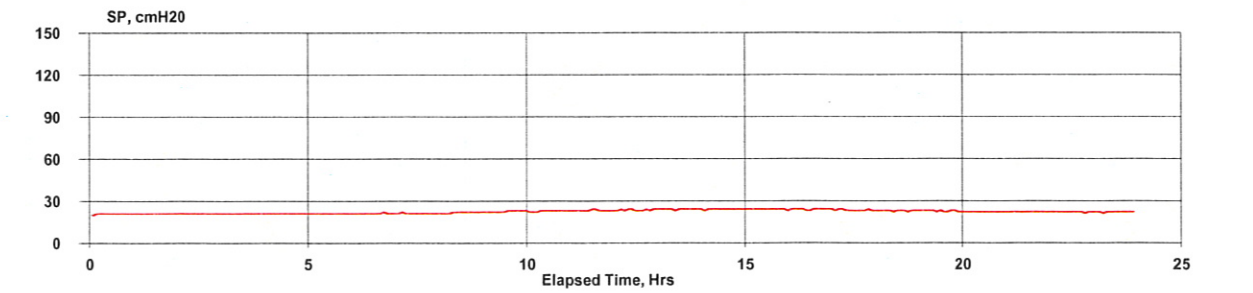
Mass Concentration Data:

Filter ID:	17	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.016	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-11-feb	0:05:08	592	1.0	-0.3	-1.3	21	16.72
15-11-feb	1:05:08	592	0.8	-0.4	-1.3	21	16.71
15-11-feb	2:05:08	593	0.1	-1.1	-1.2	21	16.70
15-11-feb	3:05:08	593	0.3	-1.3	-1.6	21	16.72
15-11-feb	4:05:08	593	0.0	-1.5	-1.5	21	16.75
15-11-feb	5:05:08	593	-0.1	-1.8	-1.7	21	16.72
15-11-feb	6:05:08	594	-0.4	-2.3	-1.9	21	16.71
15-11-feb	7:05:08	594	-1.1	-2.9	-1.8	21	16.72
15-11-feb	8:05:08	594	1.1	0.3	-0.8	22	16.70
15-11-feb	9:05:08	595	3.5	3.9	0.4	23	16.71
15-11-feb	10:05:08	595	5.7	6.6	0.9	23	16.70
15-11-feb	11:05:08	595	8.1	9.3	1.2	23	16.70
15-11-feb	12:05:08	595	9.4	10.9	1.5	24	16.71
15-11-feb	13:05:08	595	10.6	12.1	1.5	24	16.68
15-11-feb	14:05:08	595	11.5	13.2	1.7	24	16.68
15-11-feb	15:05:08	595	12.1	13.8	1.7	24	16.68
15-11-feb	16:05:08	595	11.5	12.8	1.3	24	16.69
15-11-feb	17:05:08	595	9.1	10.1	1.0	23	16.68
15-11-feb	18:05:08	595	5.1	5.3	0.2	23	16.70
15-11-feb	19:05:08	596	2.4	1.6	-0.8	23	16.71
15-11-feb	20:05:08	596	0.0	-1.0	-1.0	22	16.71
15-11-feb	21:05:08	596	-1.6	-3.0	-1.4	22	16.71
15-11-feb	22:05:08	596	-1.6	-3.7	-2.1	22	16.72
15-11-feb	23:05:08	597	-2.3	-4.2	-1.9	22	16.71

BGI PQ200 Air Sampling System

Downloaded 2015 20 feb 09:30:56

Job Details:

Job Name:	15Feb20B.JOB
Version:	5.62
Serial No:	963
Pump Time:	5925:33
Flags:	

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

	Max	Min	Avg	Units
BP	593	589	591	mmHg
TA	11.2	-10.3	-0.2	°C
Q	---	---	16.7	Lpm

QCV	0.46	%
Max overheat	3	°C
occured	17-feb 13:13:49	

Timer Information:

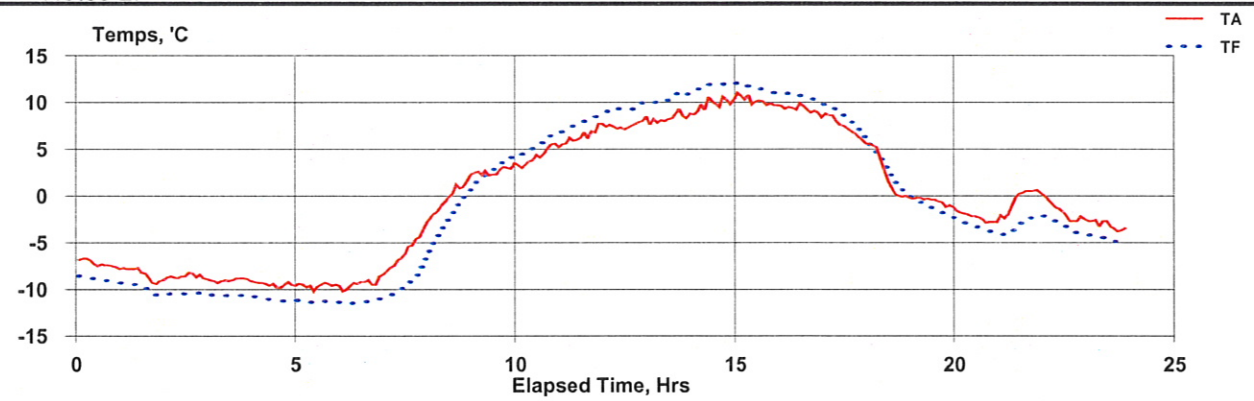
	Date dd-mmm	Time hh:mm:ss
Start:	15-17-feb	0:00:08
Stop:	15-18-feb	0:00:05
ET:	23:59	

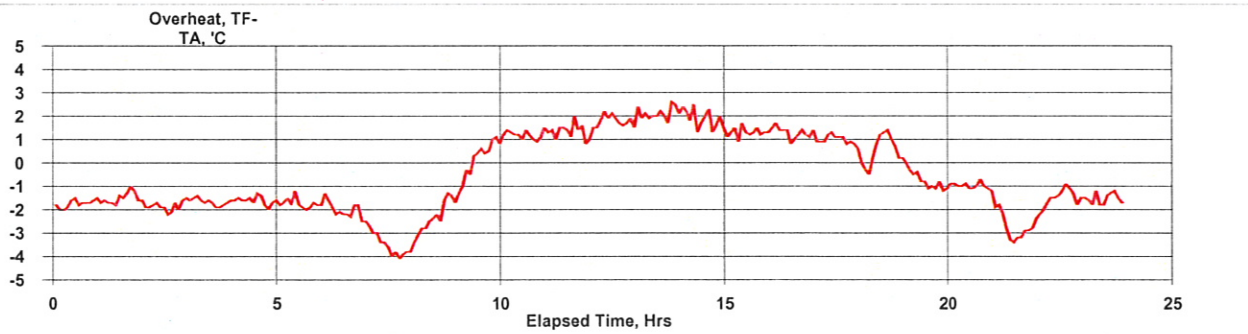
Mass Concentration Data:

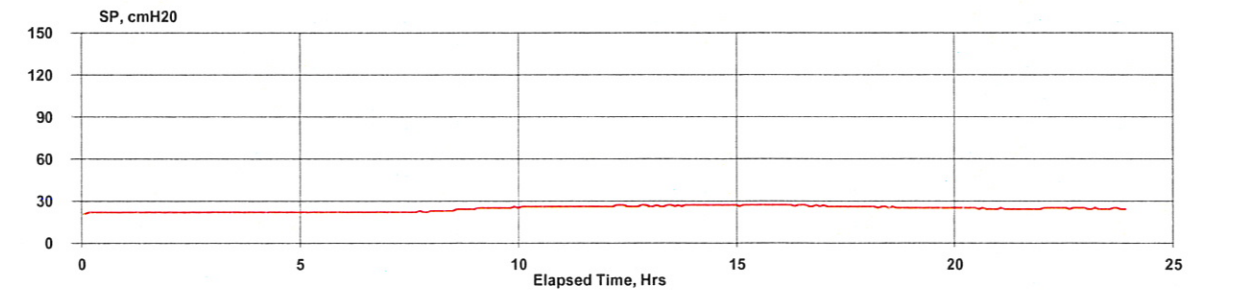
Filter ID:	IML4	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.027	m^3
Mass Conc:	0	ug/m3

Notes 1:

Notes 2:







15-17-feb	0:05:08	591	-7.2	-9.0	-1.7	22	16.71
15-17-feb	1:05:08	591	-8.4	-9.9	-1.5	22	16.70
15-17-feb	2:05:08	591	-8.6	-10.5	-1.9	22	16.72
15-17-feb	3:05:08	591	-9.0	-10.7	-1.7	22	16.71
15-17-feb	4:05:08	591	-9.5	-11.1	-1.6	22	16.72
15-17-feb	5:05:08	592	-9.6	-11.3	-1.7	22	16.72
15-17-feb	6:05:08	592	-9.3	-11.4	-2.0	22	16.71
15-17-feb	7:05:08	592	-5.8	-9.3	-3.5	22	16.71
15-17-feb	8:05:08	592	0.0	-2.3	-2.3	24	16.71
15-17-feb	9:05:08	592	2.7	2.8	0.2	25	16.69
15-17-feb	10:05:08	593	4.3	5.5	1.2	26	16.72
15-17-feb	11:05:08	593	6.4	7.8	1.3	26	16.70
15-17-feb	12:05:08	592	7.6	9.3	1.8	26	16.71
15-17-feb	13:05:08	592	8.3	10.4	2.1	27	16.71
15-17-feb	14:05:08	591	9.8	11.7	1.9	27	16.71
15-17-feb	15:05:08	591	10.2	11.5	1.3	27	16.69
15-17-feb	16:05:08	591	9.3	10.5	1.3	27	16.69
15-17-feb	17:05:08	591	7.3	8.3	1.0	26	16.69
15-17-feb	18:05:08	592	2.1	2.6	0.5	25	16.71
15-17-feb	19:05:08	592	-0.6	-1.3	-0.8	25	16.71
15-17-feb	20:05:08	592	-2.3	-3.3	-1.0	25	16.71
15-17-feb	21:05:08	592	-0.4	-3.2	-2.7	24	16.70
15-17-feb	22:05:08	592	-1.7	-3.2	-1.5	25	16.71
15-17-feb	23:05:08	592	-3.1	-4.7	-1.5	24	16.72

BGI PQ200 Air Sampling System Downloaded 2015 25 feb 09:46:55

Job Details:

Job Name: 15Feb25B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5949:32
Flags:

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

	Max	Min	Avg	Units
BP	589	583	586	mmHg
TA	4.8	-10.5	-2.6	°C
Q	---	---	16.7	Lpm

QCV 0.46 %
Max overheat 3.4 °C
occured 23-feb 16:34:11

Timer Information:

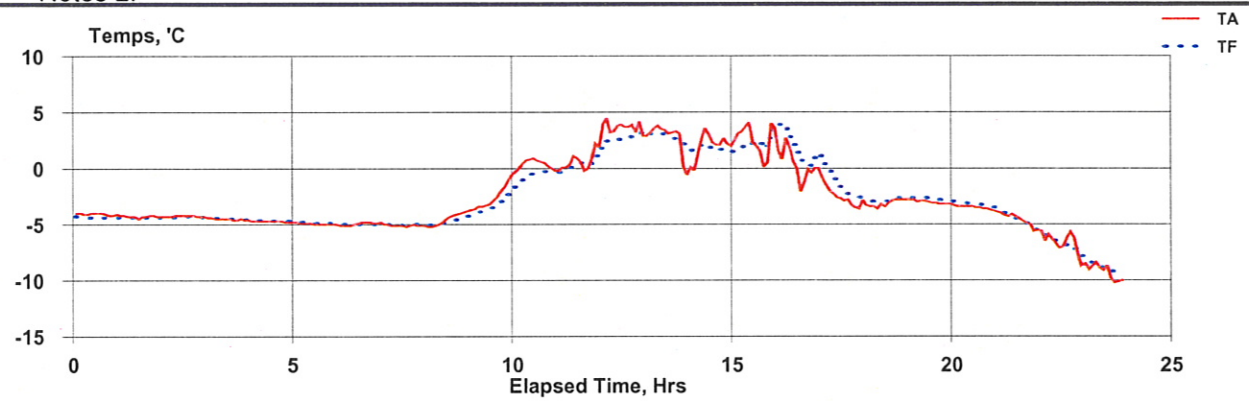
	Date dd-mmm	Time hh:mm:ss
Start:	15-23-feb	0:00:08
Stop:	15-24-feb	0:00:05

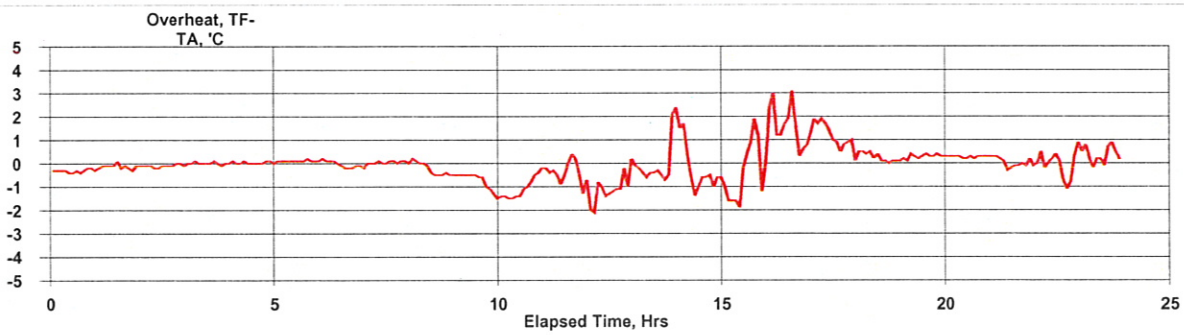
ET: 23:59

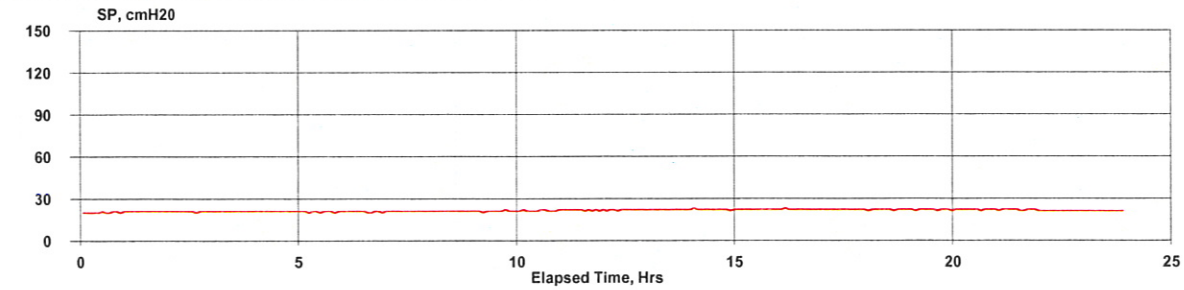
Mass Concentration Data:

Filter ID:	5	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.015	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-23-feb	0:05:08	585	-4.1	-4.4	-0.3	20	16.71
15-23-feb	1:05:08	585	-4.3	-4.4	-0.1	21	16.71
15-23-feb	2:05:08	585	-4.3	-4.4	-0.1	21	16.71
15-23-feb	3:05:08	585	-4.5	-4.5	0.0	21	16.68
15-23-feb	4:05:08	585	-4.7	-4.7	0.0	21	16.70
15-23-feb	5:05:08	585	-5.0	-4.8	0.1	21	16.71
15-23-feb	6:05:08	585	-4.9	-5.0	0.0	21	16.73
15-23-feb	7:05:08	585	-5.1	-5.0	0.0	21	16.70
15-23-feb	8:05:08	586	-4.5	-4.8	-0.3	21	16.72
15-23-feb	9:05:08	586	-2.6	-3.4	-0.8	21	16.73
15-23-feb	10:05:08	587	0.4	-0.7	-1.1	21	16.70
15-23-feb	11:05:08	587	0.6	0.3	-0.4	22	16.70
15-23-feb	12:05:08	587	3.7	2.6	-1.1	22	16.70
15-23-feb	13:05:08	587	2.7	2.8	0.0	22	16.70
15-23-feb	14:05:08	587	2.0	1.7	-0.3	22	16.71
15-23-feb	15:05:08	587	2.6	2.2	-0.4	22	16.71
15-23-feb	16:05:08	588	0.3	1.9	1.6	22	16.71
15-23-feb	17:05:08	588	-2.6	-1.4	1.2	22	16.71
15-23-feb	18:05:08	588	-3.1	-2.9	0.3	22	16.71
15-23-feb	19:05:08	589	-3.0	-2.7	0.3	22	16.70
15-23-feb	20:05:08	589	-3.5	-3.2	0.3	22	16.72
15-23-feb	21:05:08	589	-4.6	-4.6	0.0	22	16.69
15-23-feb	22:05:08	589	-6.6	-6.7	0.0	21	16.72
15-23-feb	23:05:08	589	-9.2	-8.9	0.4	21	16.71

BGI PQ200 Air Sampling System Downloaded 2015 04 mar 14:40:01

Job Details:

Job Name: 15Mar04B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5973:31
Flags:

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

	Max	Min	Avg	Units
BP	589	584	587	mmHg
TA	1.8	-4.8	-1.5	°C
Q	---	---	16.74	Lpm

QCV 0.9 %
Max overheat 2.2 °C
occured 01-mar 12:19:36

Timer Information:

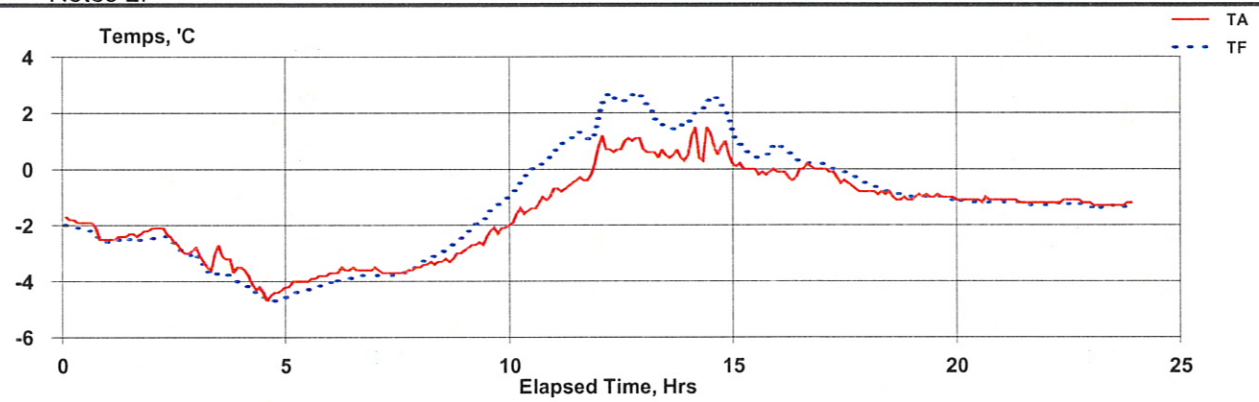
	Date dd-mmm	Time hh:mm:ss
Start:	15-01-mar	0:00:08
Stop:	15-02-mar	0:00:04

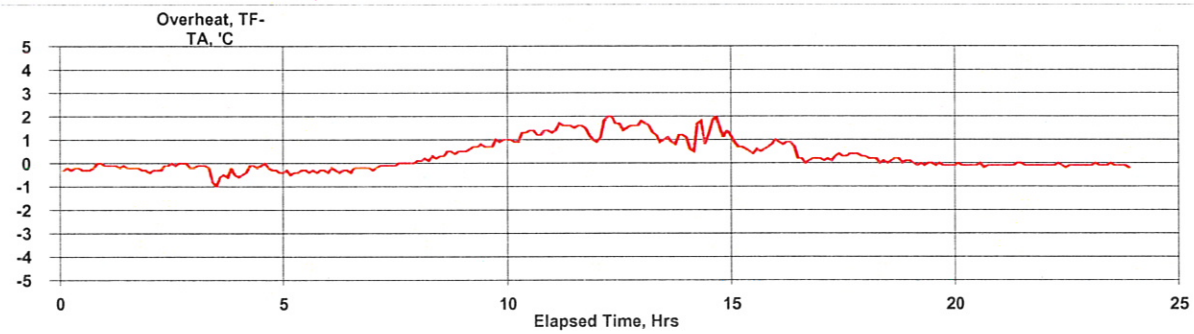
ET: 23:59

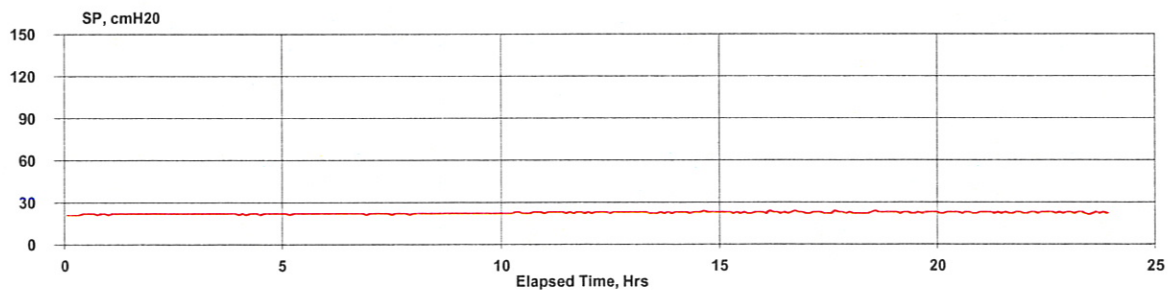
Mass Concentration Data:

Filter ID:	7	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.07	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-01-mar	0:05:08	586	-2.0	-2.2	-0.2	22	16.71
15-01-mar	1:05:08	586	-2.3	-2.5	-0.2	22	16.72
15-01-mar	2:05:08	587	-2.6	-2.7	-0.1	22	16.72
15-01-mar	3:05:08	586	-3.3	-3.7	-0.4	22	16.71
15-01-mar	4:05:08	586	-4.2	-4.5	-0.2	22	16.72
15-01-mar	5:05:08	587	-3.9	-4.3	-0.4	22	16.71
15-01-mar	6:05:08	587	-3.6	-3.9	-0.3	22	16.69
15-01-mar	7:05:08	587	-3.6	-3.7	0.0	22	16.70
15-01-mar	8:05:08	588	-3.2	-2.9	0.3	22	16.70
15-01-mar	9:05:08	588	-2.4	-1.6	0.8	22	16.71
15-01-mar	10:05:08	589	-1.3	-0.1	1.2	22	16.70
15-01-mar	11:05:08	589	-0.3	1.1	1.4	23	16.74
15-01-mar	12:05:08	588	0.9	2.5	1.7	23	16.71
15-01-mar	13:05:08	588	0.5	1.7	1.2	23	16.72
15-01-mar	14:05:08	587	0.8	2.1	1.3	23	16.73
15-01-mar	15:05:08	588	0.0	0.6	0.7	23	16.87
15-01-mar	16:05:08	587	-0.1	0.4	0.4	23	16.89
15-01-mar	17:05:08	587	-0.5	-0.2	0.3	23	16.82
15-01-mar	18:05:08	587	-1.0	-0.8	0.1	23	16.82
15-01-mar	19:05:08	587	-1.0	-1.0	-0.1	23	16.74
15-01-mar	20:05:08	587	-1.1	-1.2	-0.1	23	16.85
15-01-mar	21:05:08	587	-1.2	-1.3	-0.1	23	16.83
15-01-mar	22:05:08	587	-1.2	-1.3	-0.1	23	16.84
15-01-mar	23:05:08	586	-1.3	-1.4	-0.1	22	16.73

BGI PQ200 Air Sampling System Downloaded 2015 09 mar 09:03:02

Job Details:

Job Name: 15Mar09B.JOB
Version: 5.62
Serial No: 963
Pump Time: 5997:30
Flags:

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

	Max	Min	Avg	Units
BP	595	591	592	mmHg
TA	13.1	-4.8	3	°C
Q	---	---	16.73	Lpm

QCV 1.09 %

Max overheat 4.5 °C
occured 07-mar 14:33:23

Timer Information:

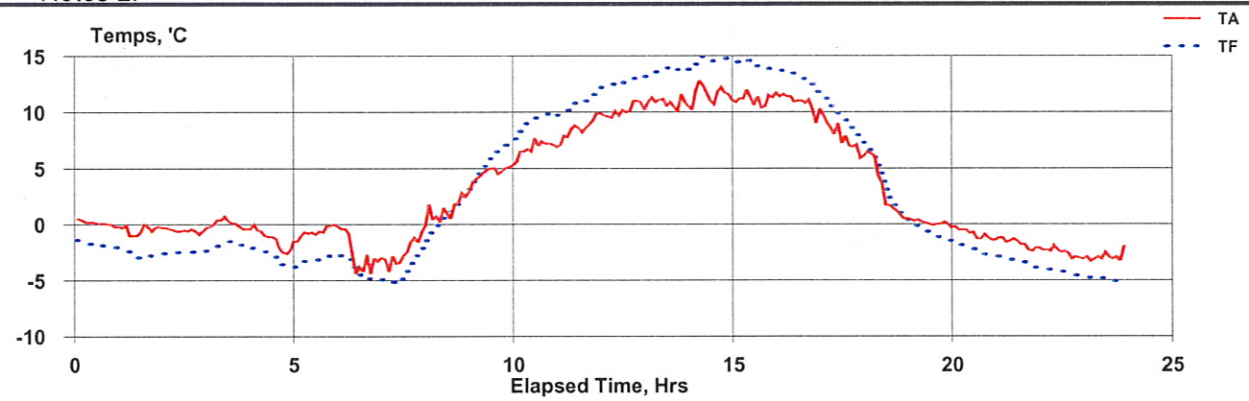
	Date dd-mmm	Time hh:mm:ss
Start:	15-07-mar	0:00:08
Stop:	15-08-mar	0:00:04

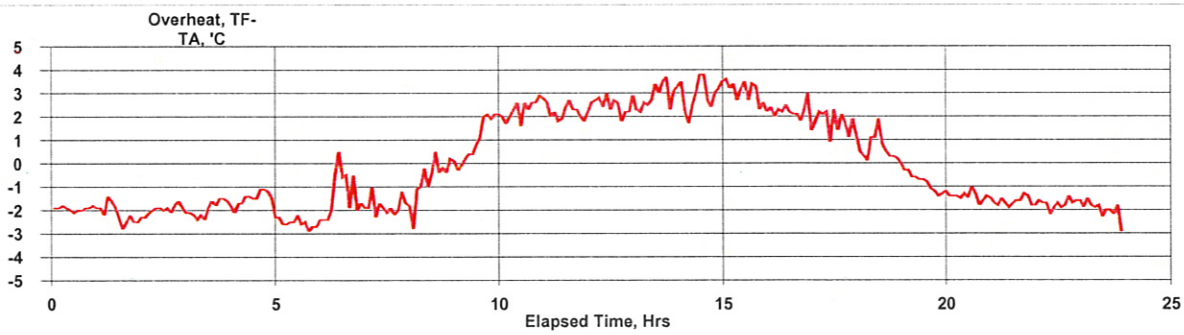
ET: 23:59

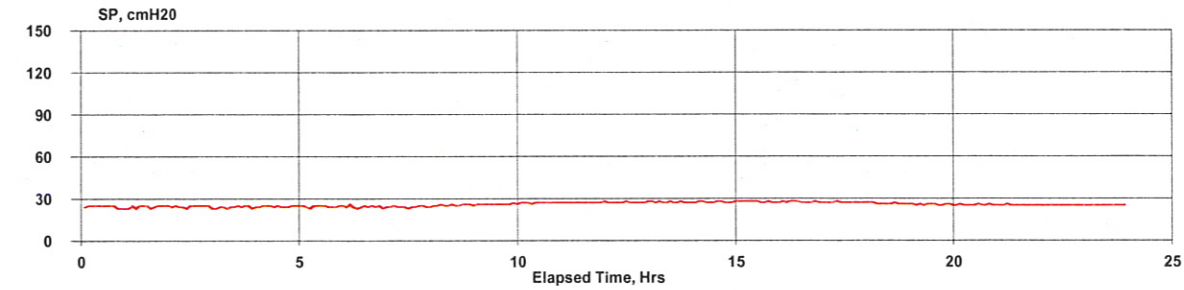
Mass Concentration Data:

Filter ID:	11	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.054	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-07-mar	0:06:08	594	0.1	-1.8	-1.9	24	17.05
15-07-mar	1:06:08	594	-0.5	-2.7	-2.2	24	16.95
15-07-mar	2:06:08	594	-0.5	-2.5	-2.0	24	16.87
15-07-mar	3:06:08	594	0.0	-1.9	-1.9	24	16.79
15-07-mar	4:06:08	594	-1.4	-2.9	-1.5	25	16.82
15-07-mar	5:06:08	594	-0.6	-3.2	-2.5	25	16.89
15-07-mar	6:06:08	593	-2.8	-4.1	-1.3	24	16.70
15-07-mar	7:06:08	593	-2.3	-4.1	-1.8	24	16.76
15-07-mar	8:06:08	594	1.5	0.9	-0.6	25	16.81
15-07-mar	9:06:08	594	4.7	5.7	1.1	26	16.70
15-07-mar	10:06:08	594	6.9	9.2	2.3	27	16.68
15-07-mar	11:06:08	594	8.6	10.8	2.2	27	16.65
15-07-mar	12:06:08	593	10.2	12.7	2.5	27	16.61
15-07-mar	13:06:08	593	10.9	13.7	2.9	27	16.62
15-07-mar	14:06:08	592	11.6	14.5	3.0	27	16.68
15-07-mar	15:06:08	592	11.2	14.2	3.0	28	16.71
15-07-mar	16:06:08	592	10.9	13.0	2.2	27	16.71
15-07-mar	17:06:08	591	7.7	9.4	1.7	27	16.71
15-07-mar	18:06:08	591	2.9	3.5	0.6	26	16.71
15-07-mar	19:06:08	591	0.1	-0.8	-0.9	26	16.71
15-07-mar	20:06:08	591	-0.9	-2.3	-1.4	25	16.71
15-07-mar	21:06:08	591	-1.7	-3.4	-1.7	25	16.71
15-07-mar	22:06:08	592	-2.6	-4.3	-1.7	25	16.71
15-07-mar	23:06:08	591	-2.9	-4.9	-2.0	25	16.71

BGI PQ200 Air Sampling System Downloaded 2015 16 mar 10:05:42

Job Details:

Job Name: 15Mar16B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6021:29
Flags:

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

	Max	Min	Avg	Units
BP	596	592	594	mmHg
TA	14.1	1.6	6.9	°C
Q	---	---	16.7	Lpm

QCV 0.43 %

Max overheat 2.6 °C
occured 13-mar 16:02:09

Timer Information:

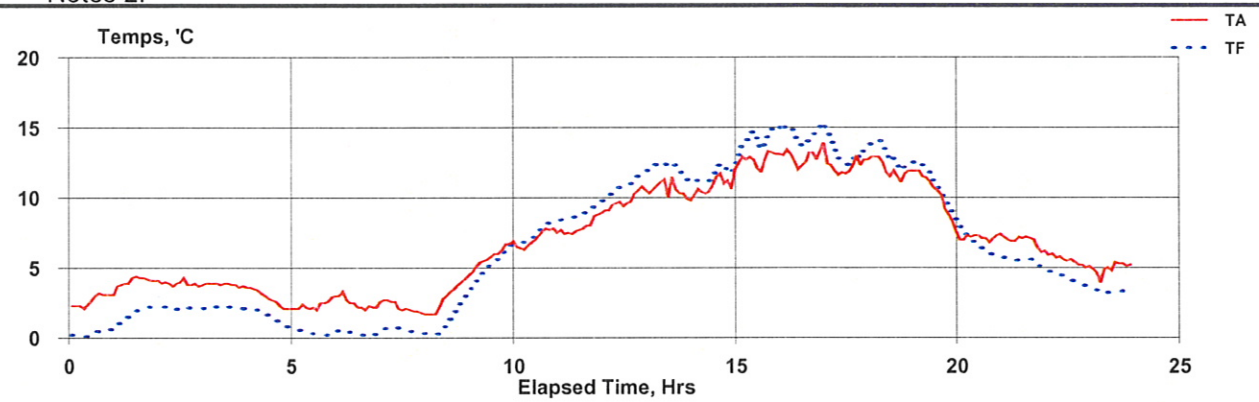
	Date dd-mmm	Time hh:mm:ss
Start:	15-13-mar	0:00:08
Stop:	15-14-mar	0:00:05

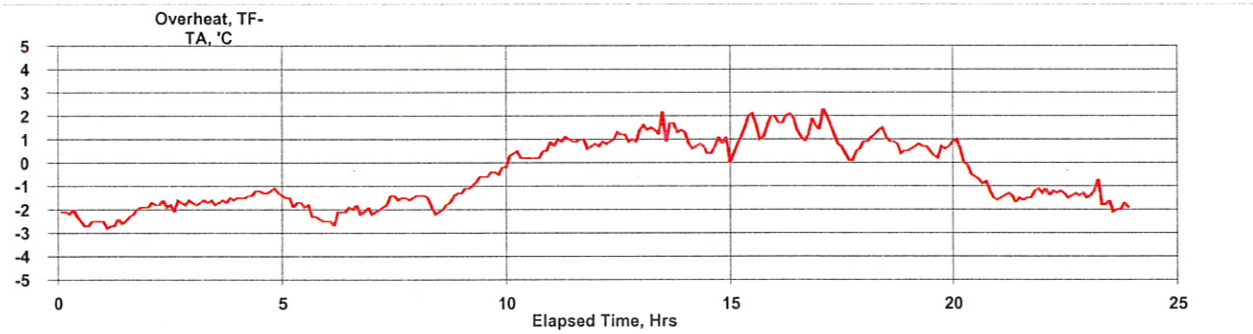
ET: 23:59

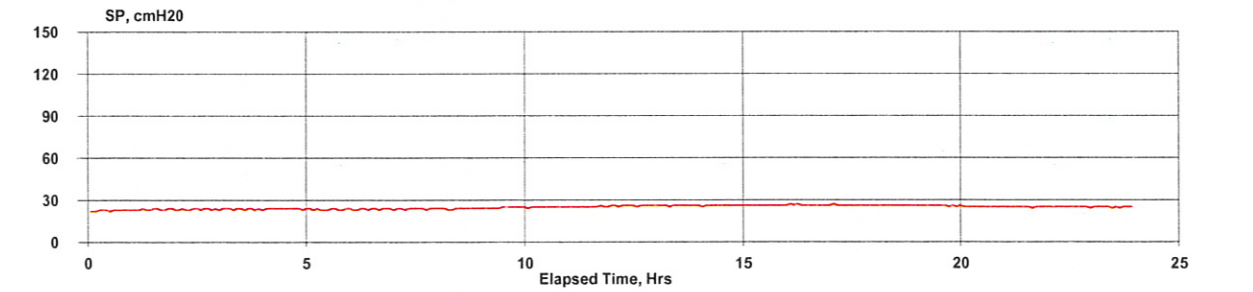
Mass Concentration Data:

Filter ID:	14	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.03	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-13-mar	0:05:08	594	2.7	0.3	-2.4	23	16.71
15-13-mar	1:05:08	594	4.1	1.8	-2.3	23	16.71
15-13-mar	2:05:08	594	3.9	2.1	-1.8	24	16.72
15-13-mar	3:05:08	594	3.8	2.2	-1.7	24	16.71
15-13-mar	4:05:08	594	2.8	1.5	-1.3	24	16.71
15-13-mar	5:05:08	594	2.4	0.4	-2.0	24	16.71
15-13-mar	6:05:08	594	2.5	0.3	-2.1	24	16.71
15-13-mar	7:05:08	594	2.2	0.5	-1.6	24	16.71
15-13-mar	8:05:08	595	3.0	1.4	-1.7	24	16.71
15-13-mar	9:05:08	595	5.9	5.3	-0.6	25	16.71
15-13-mar	10:05:08	595	7.1	7.5	0.4	25	16.71
15-13-mar	11:05:08	595	8.0	8.8	0.9	25	16.71
15-13-mar	12:05:08	595	9.8	10.8	1.0	26	16.72
15-13-mar	13:05:08	595	10.6	12.0	1.5	26	16.71
15-13-mar	14:05:08	595	10.9	11.6	0.7	26	16.72
15-13-mar	15:05:08	595	12.8	14.2	1.4	26	16.68
15-13-mar	16:05:08	595	12.9	14.5	1.6	26	16.66
15-13-mar	17:05:08	594	12.2	13.2	0.9	26	16.69
15-13-mar	18:05:08	594	12.0	13.0	0.9	26	16.72
15-13-mar	19:05:08	595	10.3	10.9	0.6	26	16.70
15-13-mar	20:05:08	595	7.2	6.6	-0.5	25	16.71
15-13-mar	21:05:08	595	6.9	5.4	-1.4	25	16.71
15-13-mar	22:05:08	596	5.5	4.2	-1.3	25	16.72
15-13-mar	23:05:08	596	4.9	3.3	-1.7	25	16.72

BGI PQ200 Air Sampling System Downloaded 2015 20 mar 12:55:11

Job Details:

Job Name: 15Mar20B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6045:28
Flags:

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

	Max	Min	Avg	Units
BP	592	587	589	mmHg
TA	14.8	0.8	7.7	°C
Q	---	---	16.69	Lpm

QCV 0.52 %
Max overheat 2.6 °C
occured 19-mar 14:56:56

Timer Information:

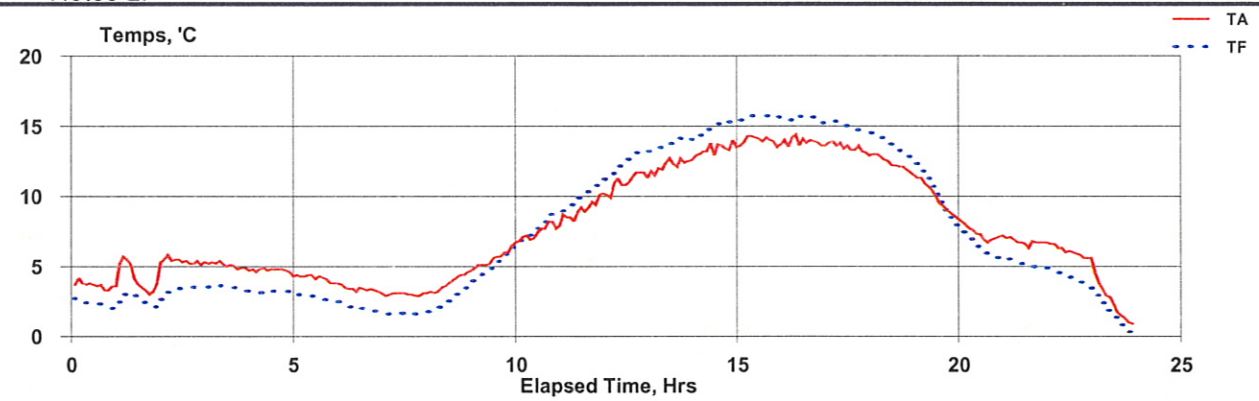
	Date dd-mmm	Time hh:mm:ss
Start:	15-19-mar	0:00:08
Stop:	15-20-mar	0:00:05

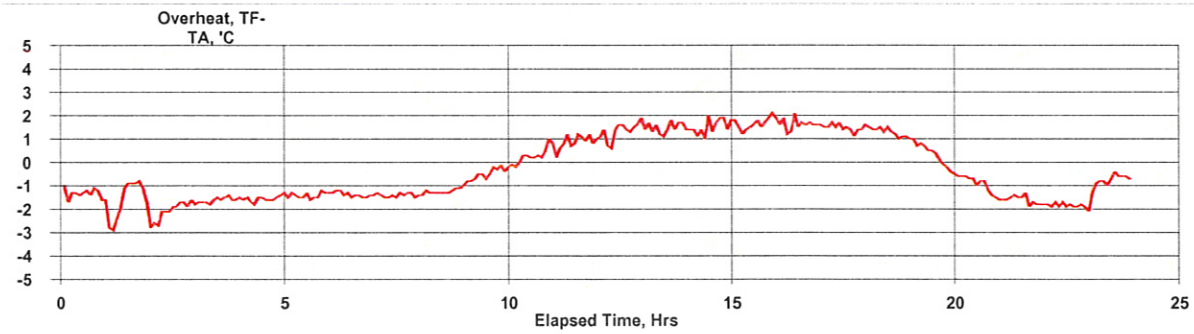
ET: 23:59

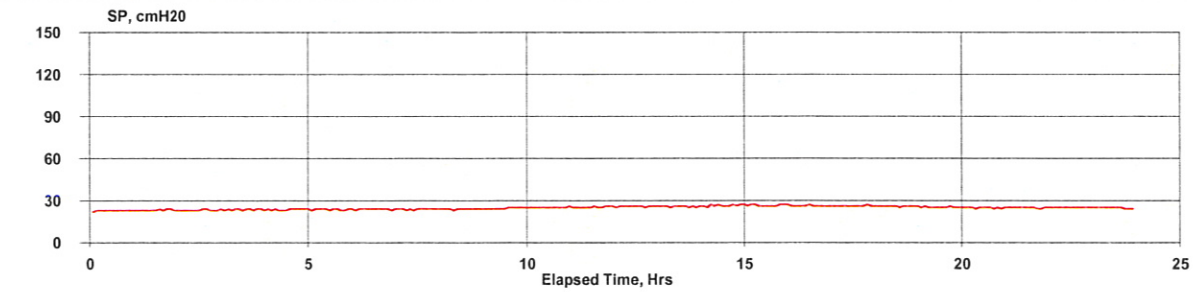
Mass Concentration Data:

Filter ID:	16	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.007	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-19-mar	0:05:08	590	3.7	2.3	-1.3	23	16.71
15-19-mar	1:05:08	589	4.3	2.6	-1.7	23	16.72
15-19-mar	2:05:08	589	5.4	3.4	-2.0	23	16.72
15-19-mar	3:05:08	589	5.1	3.5	-1.6	24	16.72
15-19-mar	4:05:08	589	4.7	3.2	-1.6	24	16.71
15-19-mar	5:05:08	589	4.2	2.8	-1.4	24	16.71
15-19-mar	6:05:08	589	3.4	2.0	-1.4	24	16.71
15-19-mar	7:05:08	590	3.0	1.6	-1.4	24	16.71
15-19-mar	8:05:08	590	3.9	2.7	-1.2	24	16.71
15-19-mar	9:05:08	590	5.6	5.2	-0.5	25	16.70
15-19-mar	10:05:08	590	7.5	7.8	0.3	25	16.71
15-19-mar	11:05:08	590	9.1	10.0	0.9	25	16.69
15-19-mar	12:05:08	591	11.1	12.4	1.3	26	16.63
15-19-mar	13:05:08	590	12.2	13.7	1.5	26	16.62
15-19-mar	14:05:08	590	13.4	14.9	1.5	26	16.73
15-19-mar	15:05:08	590	14.0	15.6	1.7	26	16.73
15-19-mar	16:05:08	590	13.9	15.5	1.6	26	16.65
15-19-mar	17:05:08	590	13.5	14.9	1.5	26	16.69
15-19-mar	18:05:08	590	12.3	13.6	1.3	26	16.66
15-19-mar	19:05:08	590	9.9	10.1	0.3	25	16.64
15-19-mar	20:05:08	591	7.3	6.4	-1.0	25	16.70
15-19-mar	21:05:08	591	6.7	5.1	-1.6	25	16.70
15-19-mar	22:05:08	592	6.0	4.2	-1.9	25	16.71
15-19-mar	23:05:08	592	2.4	1.6	-0.8	25	16.72

BGI PQ200 Air Sampling System Downloaded 2015 26 mar 15:57:48

Job Details:

Job Name: 15Mar26B.JOB
Version: 5.62
Serial No: 963
Pump Time: 6069:27
Flags:

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

	Max	Min	Avg	Units
BP	595	587	592	mmHg
TA	12.6	0.9	5.8	°C
Q	---	---	16.69	Lpm

QCV 0.51 %
Max overheat 2.7 °C
occured 25-mar 14:45:24

Timer Information:

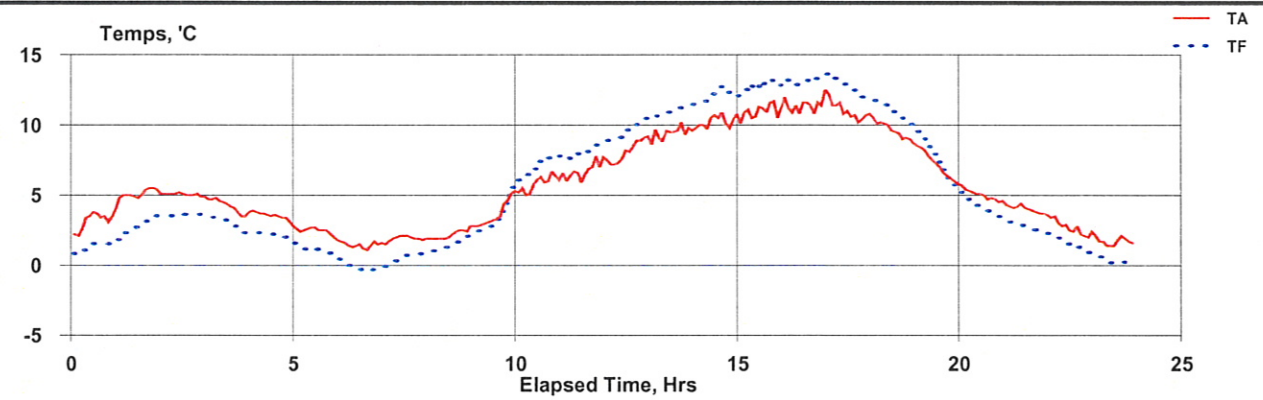
	Date dd-mmm	Time hh:mm:ss
Start:	15-25-mar	0:00:08
Stop:	15-26-mar	0:00:04

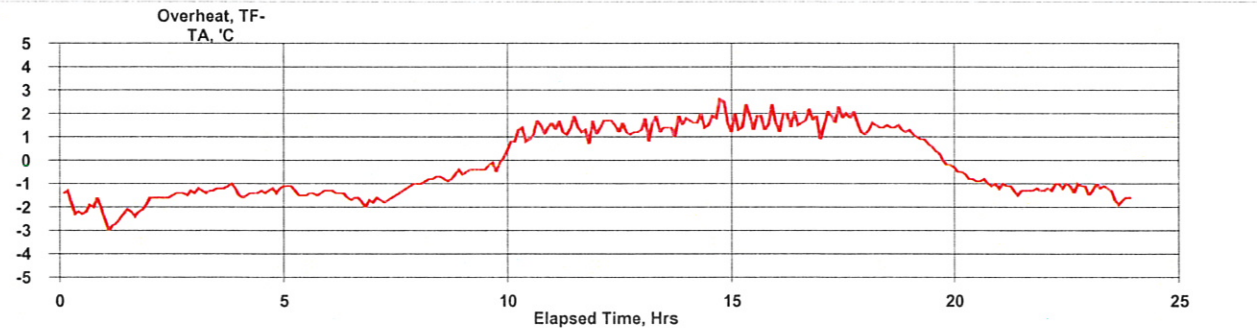
ET: 23:59

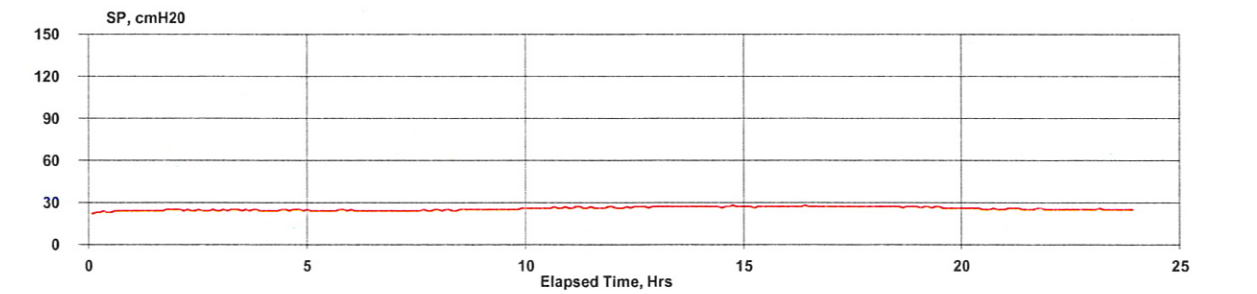
Mass Concentration Data:

Filter ID:	20	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.005	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-25-mar	0:05:08	590	3.2	1.3	-2.0	24	16.70
15-25-mar	1:05:08	590	5.1	2.8	-2.3	24	16.70
15-25-mar	2:05:08	590	5.1	3.6	-1.5	24	16.70
15-25-mar	3:05:08	590	4.2	3.0	-1.2	25	16.71
15-25-mar	4:05:08	590	3.5	2.2	-1.4	25	16.71
15-25-mar	5:05:08	591	2.4	1.1	-1.4	24	16.70
15-25-mar	6:05:08	591	1.5	-0.2	-1.6	24	16.70
15-25-mar	7:05:08	591	1.9	0.5	-1.4	24	16.71
15-25-mar	8:05:08	592	2.2	1.4	-0.8	25	16.71
15-25-mar	9:05:08	593	3.7	3.4	-0.2	25	16.69
15-25-mar	10:05:08	593	5.8	7.0	1.2	26	16.72
15-25-mar	11:05:08	593	6.8	8.1	1.3	26	16.69
15-25-mar	12:05:08	594	8.1	9.5	1.4	27	16.71
15-25-mar	13:05:08	594	9.4	10.9	1.5	27	16.67
15-25-mar	14:05:08	593	10.3	12.1	1.8	27	16.63
15-25-mar	15:05:08	593	11.0	12.7	1.7	27	16.61
15-25-mar	16:05:08	593	11.4	13.1	1.7	27	16.62
15-25-mar	17:05:08	594	11.0	12.7	1.8	27	16.69
15-25-mar	18:05:08	593	9.6	11.0	1.4	27	16.71
15-25-mar	19:05:08	594	7.1	7.6	0.4	26	16.71
15-25-mar	20:05:08	594	5.0	4.2	-0.8	26	16.70
15-25-mar	21:05:08	594	4.0	2.8	-1.3	26	16.71
15-25-mar	22:05:08	595	2.7	1.5	-1.2	25	16.70
15-25-mar	23:05:08	595	1.7	0.3	-1.4	25	16.71

Collocated Monitor 964C

PM_{10} Sampler Summary

January 1, 2015 - March 31, 2015

Network: **JBR - Cedar City**
Site: Coal Hollow
Sampler ID: Coal Hollow-C
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
01/06/15	P2916480	**Invalid - AN**	**Invalid - AN**	13:32	13.6	11.5	367.288	367.363	0.075	SP	QT max load exceeded
01/12/15	P2916484	**1.3**	**1.5**	24:00	24.0	20.5	374.192	374.224	0.032		
01/18/15	P2916773	**Invalid - AN**	**Invalid - AN**	0:03			376.069	376.065	-0.004	SP,NM	
01/24/15	P2916769	**Invalid - AN**	**Invalid - AN**	0:03			372.826	372.839	0.013	SP	
01/30/15	P2916772	**0.2**	**0.2**	23:59	24.0	20.2	375.167	375.172	0.005		
02/05/15	P2918612	**Invalid - AG**	**Invalid - AG**	12:06	12.1	10.3	367.657	368.693	1.036	SP	
02/11/15	P2918616	**Invalid - AN**	**Invalid - AN**	0:03			367.922	368.036	0.114	SP	
02/17/15	P2918896	**21.7**	**25.5**	23:59	24.0	20.5	366.841	367.364	0.523		
02/23/15	P2918892	**2.5**	**3.0**	23:59	24.0	20.5	365.332	365.394	0.062		
03/01/15	P2919165	**1.4**	**1.6**	23:59	24.0	20.2	366.529	366.563	0.034		
03/07/15	P2919168	**Invalid - AN**	**Invalid - AN**	0:03			363.003	363.015	0.012		
03/13/15	P2919171	**36.4**	**43.5**	23:59	24.0	20.1	365.536	366.412	0.876		Filter darker
03/19/15	P2919515	**14.2**	**17.2**	24:00	24.0	19.9	368.261	368.603	0.342		
03/25/15	P2919519	**13.9**	**16.6**	23:59	24.0	20.1	361.936	362.271	0.335		
03/31/15	P2919859	**14.2**	**17.3**	23:59	24.0	19.7	373.080	373.422	0.342		
02/20/15	P2918894		**Field Blank**				364.770	364.778	0.008		
03/20/15	P2919518		**Field Blank**				364.762	364.766	0.004		

# Valid	Recovery	Average	St. Dev.	Max	Min
9	60%	14.0	14.4	43.5	0.2

BGI PQ200 Air Sampling System

Downloaded 2016 06 jan 13:45:04

Job Details:

Job Name:	15Jan07C.JOB	Job Code:	
Version:	5.62	Site Name:	964C
Serial No:	964	Station Code:	
Pump Time:	312:01	Operators:	KN
Flags:	Q T	User1:	
		User2:	

	Max	Min	Avg	Units
BP	601	598	599	mmHg
TA	16.7	-1.3	4.4	°C
Q	---	---	16.7	Lpm
QCV			0.26	%
Max overheat			2.3	°C
occured 06-jan 13:33:12				

Timer Information:

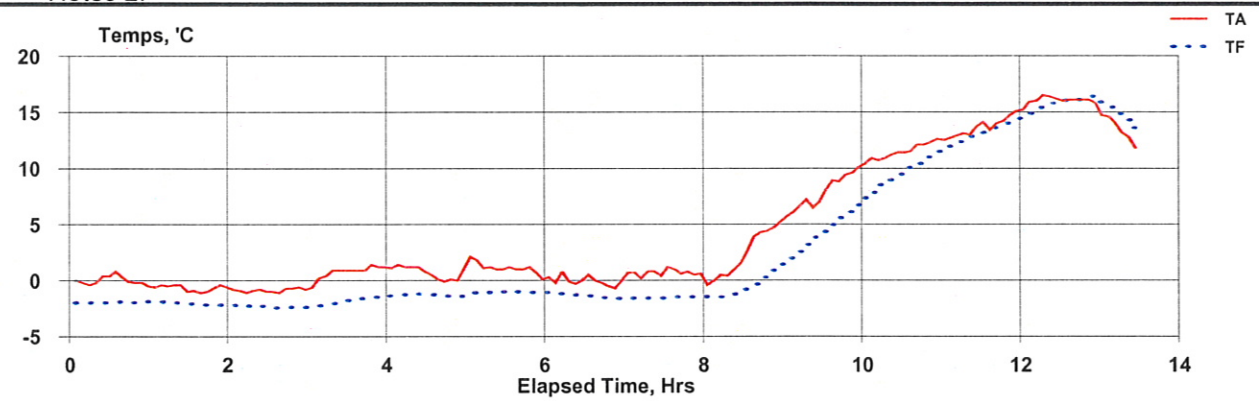
	Date dd-mmm	Time hh:mm:ss
Start:	16-06-jan	0:00:08
Stop:	16-06-jan	13:32:18
ET:	13:32	

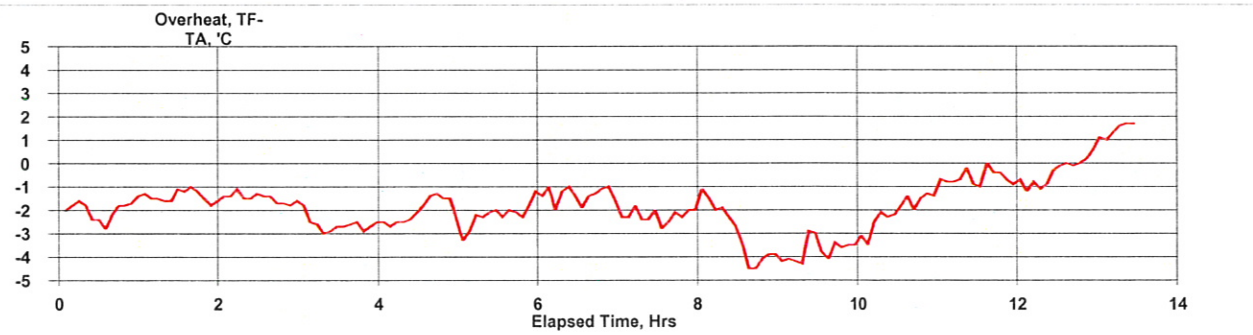
Mass Concentration Data:

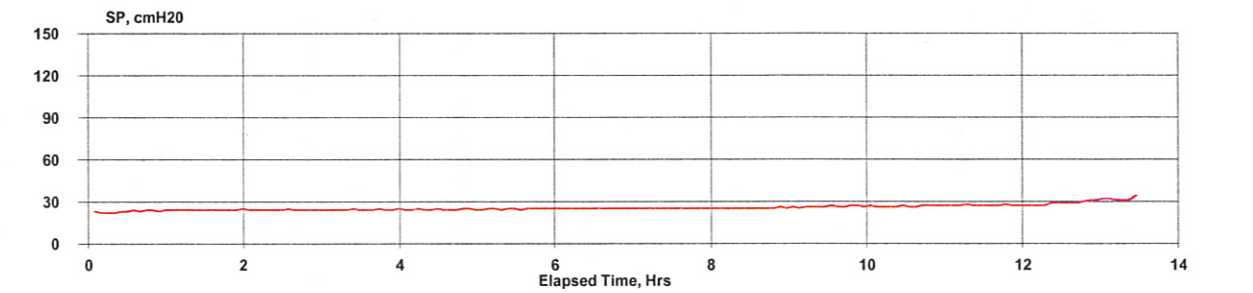
Filter ID:	9	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	13.556	m^3
Mass Conc:	0	µg/m3

Notes 1: Error Q, T, Max load exceeded

Notes 2:







16-06-jan	0:05:08	600	0.0	-2.0	-2.0	23	16.72
16-06-jan	1:05:08	600	-0.7	-2.1	-1.4	24	16.70
16-06-jan	2:05:08	601	-0.9	-2.4	-1.5	24	16.71
16-06-jan	3:05:08	601	0.8	-1.9	-2.6	24	16.71
16-06-jan	4:05:08	600	0.7	-1.3	-2.1	24	16.71
16-06-jan	5:05:08	600	1.1	-1.1	-2.2	25	16.71
16-06-jan	6:05:08	600	0.0	-1.4	-1.4	25	16.71
16-06-jan	7:05:08	600	0.7	-1.6	-2.2	25	16.71
16-06-jan	8:05:08	600	2.3	-0.6	-3.0	25	16.70
16-06-jan	9:05:08	600	7.8	4.1	-3.7	26	16.72
16-06-jan	10:05:08	600	11.5	9.4	-2.1	27	16.70
16-06-jan	11:05:08	600	13.6	13.0	-0.6	27	16.71
16-06-jan	12:05:08	599	16.0	15.7	-0.4	29	16.71
16-06-jan	13:05:08	598	13.5	14.9	1.4	32	16.73

BGI PQ200 Air Sampling System Downloaded 2016 13 jan 08:15:34

Job Details:

Job Name:	15Jan14C.JOB	Job Code:	
Version:	5.62	Site Name:	
Serial No:	964	Station Code:	
Pump Time:	336:01	Operators:	
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	593	589	591	mmHg
TA	1.6	-3.4	-1	°C
Q	---	---	16.71	Lpm
QCV			0.52	%
Max overheat			1.9	°C
occured	12-jan 13:17:53			

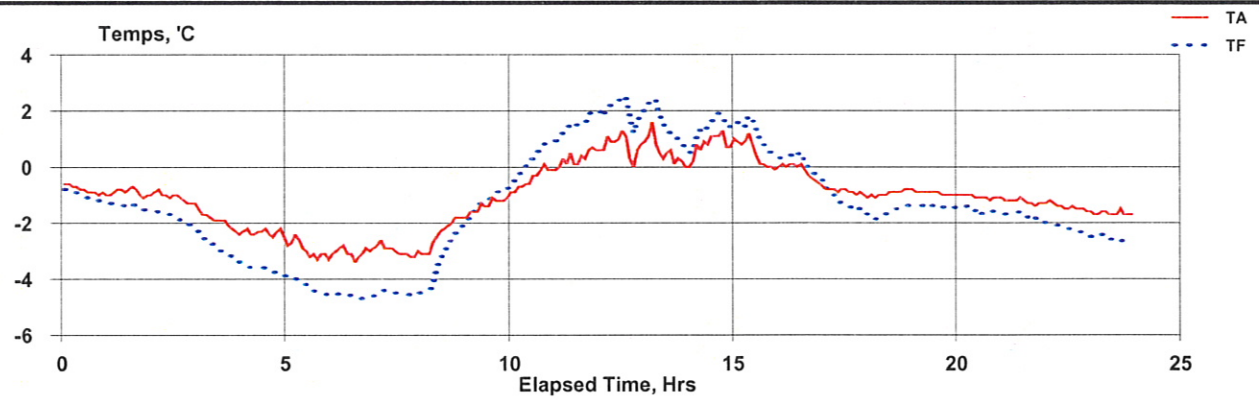
Timer Information:

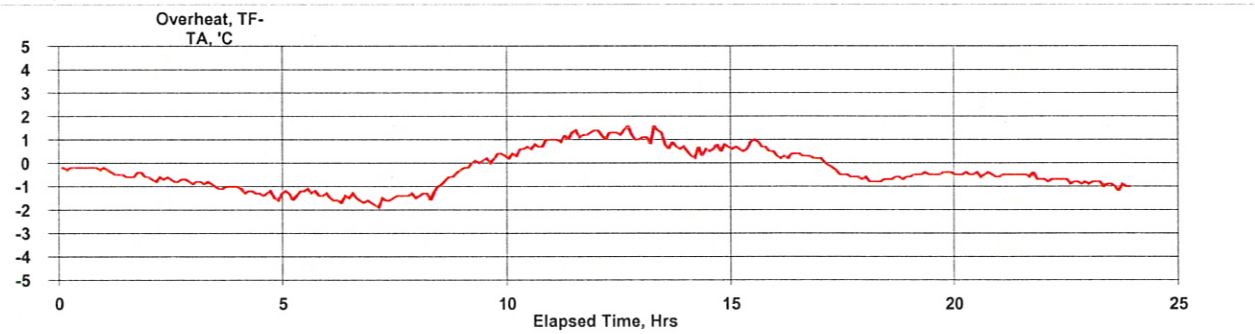
	Date dd-mmm	Time hh:mm:ss
Start:	16-12-jan	0:00:08
Stop:	16-13-jan	0:00:05
ET:	24:00:00	

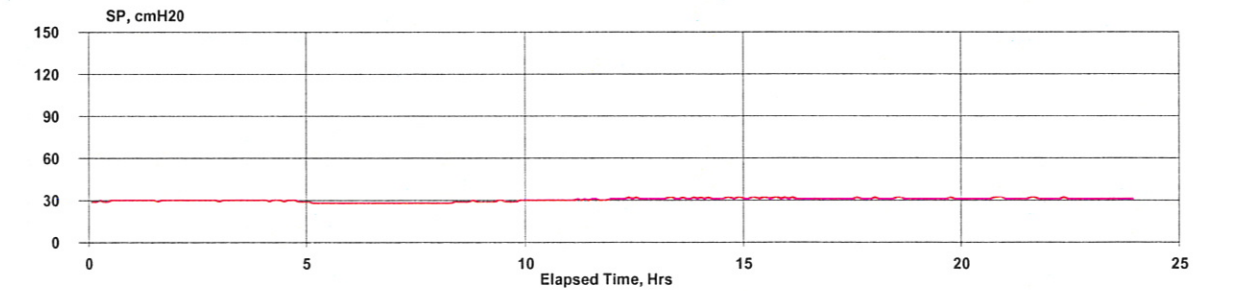
Mass Concentration Data:

Filter ID:	IML32	
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:







16-12-jan	0:04:50	591	-0.8	-1.0	-0.2	30	16.70
16-12-jan	1:04:50	591	-0.9	-1.4	-0.5	30	16.71
16-12-jan	2:04:50	591	-1.1	-1.8	-0.7	30	16.72
16-12-jan	3:04:50	591	-1.9	-2.9	-1.0	30	16.71
16-12-jan	4:04:50	591	-2.3	-3.6	-1.3	30	16.70
16-12-jan	5:04:50	591	-3.0	-4.3	-1.3	28	16.71
16-12-jan	6:04:50	591	-3.0	-4.6	-1.6	28	16.71
16-12-jan	7:04:50	591	-3.0	-4.5	-1.5	28	16.71
16-12-jan	8:04:50	591	-2.4	-3.3	-0.9	29	16.72
16-12-jan	9:04:50	592	-1.4	-1.3	0.1	29	16.71
16-12-jan	10:04:50	592	-0.4	0.2	0.6	30	16.72
16-12-jan	11:04:50	592	0.3	1.5	1.2	30	16.70
16-12-jan	12:04:50	591	0.8	2.0	1.2	31	16.71
16-12-jan	13:04:50	591	0.6	1.5	1.0	31	16.72
16-12-jan	14:04:50	591	0.8	1.3	0.5	32	16.72
16-12-jan	15:04:50	591	0.5	1.2	0.7	32	16.71
16-12-jan	16:04:50	592	-0.1	0.2	0.3	31	16.71
16-12-jan	17:04:50	592	-0.9	-1.2	-0.4	31	16.73
16-12-jan	18:04:50	592	-1.0	-1.7	-0.7	31	16.72
16-12-jan	19:04:50	592	-0.9	-1.4	-0.5	31	16.70
16-12-jan	20:04:50	592	-1.1	-1.6	-0.5	31	16.71
16-12-jan	21:04:50	593	-1.2	-1.8	-0.5	31	16.71
16-12-jan	22:04:50	593	-1.4	-2.2	-0.8	31	16.71
16-12-jan	23:04:50	593	-1.7	-2.6	-0.9	31	16.71

BGI PQ200 Air Sampling System Downloaded 2016 19 jan 10:23:34

Job Details:

Job Name:	15Jan20C.JOB
Version:	5.62
Serial No:	964
Pump Time:	336:04
Flags:	Q T

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

	Max	Min	Avg	Units
BP	597	595	595	mmHg
TA	0	-1.8	0	°C
Q	---	---	0	Lpm
QCV			0	%
Max overheat			2.2	°C

occured 18-jan 17:44:00

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	16-18-jan	0:00:08
Stop:	16-19-jan	0:00:05
ET:	0:03	

Mass Concentration Data:

Filter ID:	20	
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:

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

BGI PQ200 Air Sampling System Downloaded 2016 25 jan 14:44:35

Job Details:

Job Name:	15Jan26C.JOB
Version:	5.62
Serial No:	964
Pump Time:	336:07
Flags:	Q T

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

	Max	Min	Avg	Units
BP	597	595	595	mmHg
TA	6	5	6	°C
Q	---	---	0	Lpm
QCV			0	%
Max overheat			2.1	°C

occured 24-jan 17:32:58

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	16-24-jan	0:00:08
Stop:	16-25-jan	0:00:05
ET:	0:03	

Mass Concentration Data:

Filter ID:	13	
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:

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

BGI PQ200 Air Sampling System Downloaded 2016 02 feb 07:12:10

Job Details:

Job Name:	15Feb02C.JOB
Version:	5.62
Serial No:	964
Pump Time:	360:06
Flags:	

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

	Max	Min	Avg	Units
BP	594	587	589	mmHg
TA	4	-0.2	1.3	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	2.4 °C
occured	01-feb 18:10:16

Timer Information:

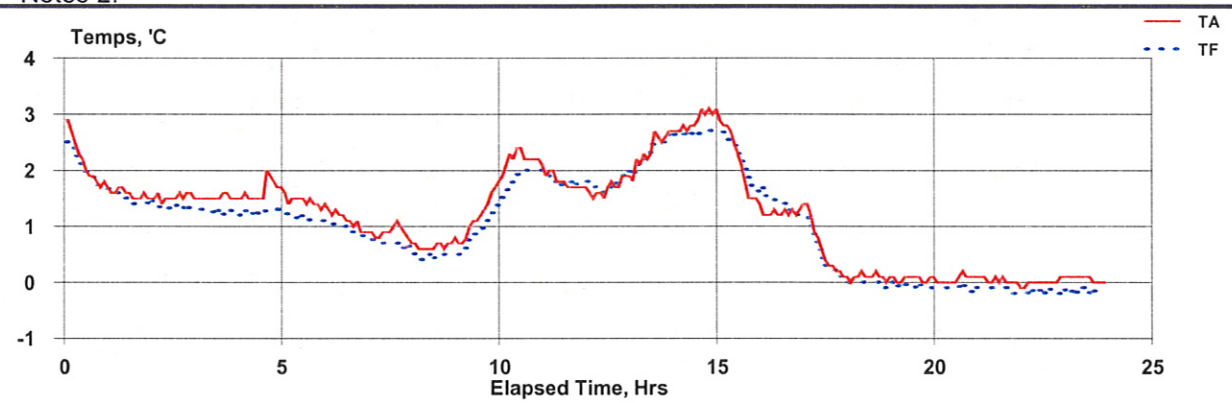
	Date dd-mmm	Time hh:mm:ss
Start:	16-30-jan	0:00:08
Stop:	16-31-jan	0:00:04
ET:	23:59	

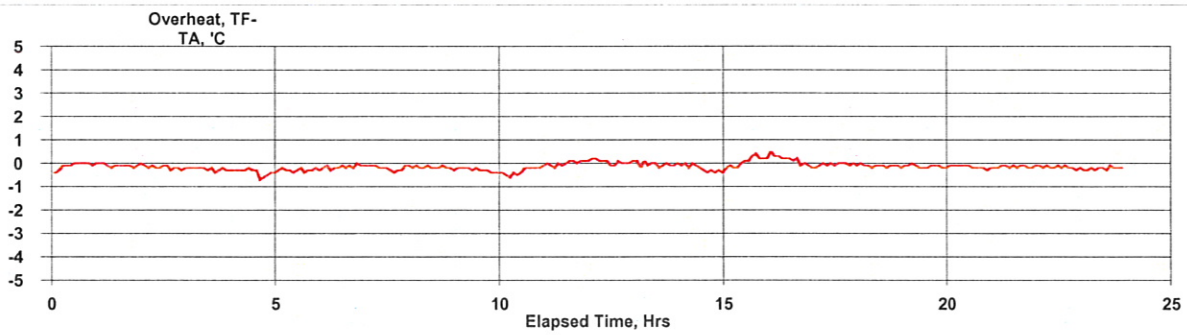
Mass Concentration Data:

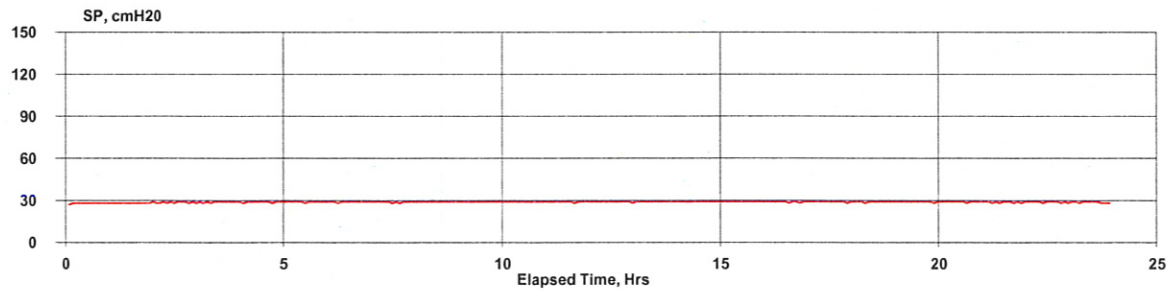
Filter ID:	19	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.037	m^3
Mass Conc:	0	µg/m3

Notes 1:

Notes 2:







16-30-jan	0:05:08	594	2.1	2.0	-0.1	28	16.70
16-30-jan	1:05:08	593	1.6	1.5	-0.1	28	16.70
16-30-jan	2:05:08	593	1.5	1.3	-0.2	29	16.70
16-30-jan	3:05:08	592	1.5	1.3	-0.3	29	16.70
16-30-jan	4:05:08	592	1.6	1.3	-0.4	29	16.71
16-30-jan	5:05:08	591	1.5	1.2	-0.3	29	16.71
16-30-jan	6:05:08	591	1.1	1.0	-0.2	29	16.72
16-30-jan	7:05:08	591	0.9	0.7	-0.2	29	16.71
16-30-jan	8:05:08	591	0.7	0.5	-0.2	29	16.71
16-30-jan	9:05:08	591	1.2	0.9	-0.3	29	16.71
16-30-jan	10:05:08	591	2.2	1.9	-0.3	29	16.72
16-30-jan	11:05:08	590	1.8	1.8	0.0	29	16.71
16-30-jan	12:05:08	590	1.7	1.8	0.1	29	16.70
16-30-jan	13:05:08	589	2.4	2.3	0.0	29	16.71
16-30-jan	14:05:08	588	2.9	2.7	-0.2	29	16.71
16-30-jan	15:05:08	588	2.2	2.2	0.1	29	16.70
16-30-jan	16:05:08	588	1.3	1.4	0.1	29	16.70
16-30-jan	17:05:08	588	0.5	0.5	-0.1	29	16.71
16-30-jan	18:05:08	588	0.1	0.0	-0.1	29	16.72
16-30-jan	19:05:08	588	0.1	-0.1	-0.1	29	16.72
16-30-jan	20:05:08	588	0.1	-0.1	-0.2	29	16.72
16-30-jan	21:05:08	588	0.0	-0.1	-0.2	29	16.71
16-30-jan	22:05:08	588	0.0	-0.2	-0.2	29	16.71
16-30-jan	23:05:08	588	0.1	-0.2	-0.2	29	16.71

BGI PQ200 Air Sampling System Downloaded 2016 06 feb 14:29:01

Job Details:

Job Name:	15Feb06C.JOB	Job Code:	
Version:	5.62	Site Name:	963C
Serial No:	964	Station Code:	
Pump Time:	628:12	Operators:	KN
Flags:	Q T	User1:	
		User2:	

	Max	Min	Avg	Units
BP	597	594	596	mmHg
TA	14.1	-1.3	3	°C
Q	---	---	16.7	Lpm

QCV	0.25 %
Max overheat	2.5 °C
occured	05-feb 18:28:00

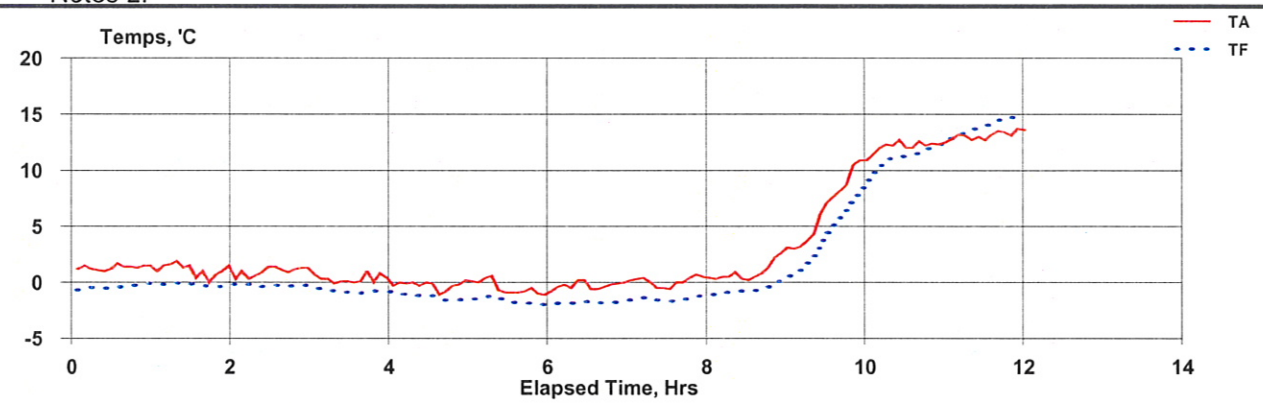
Timer Information:

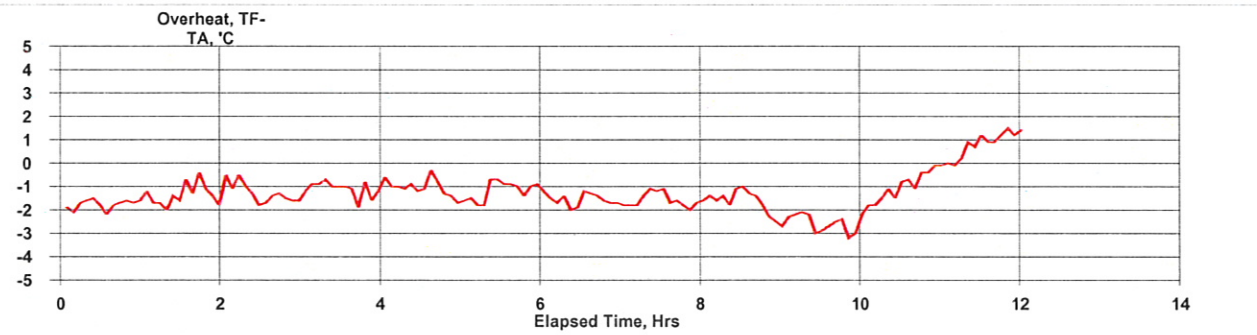
	Date dd-mmm	Time hh:mm:ss
Start:	16-05-feb	0:00:08
Stop:	16-06-feb	0:00:05
ET:	12:06	

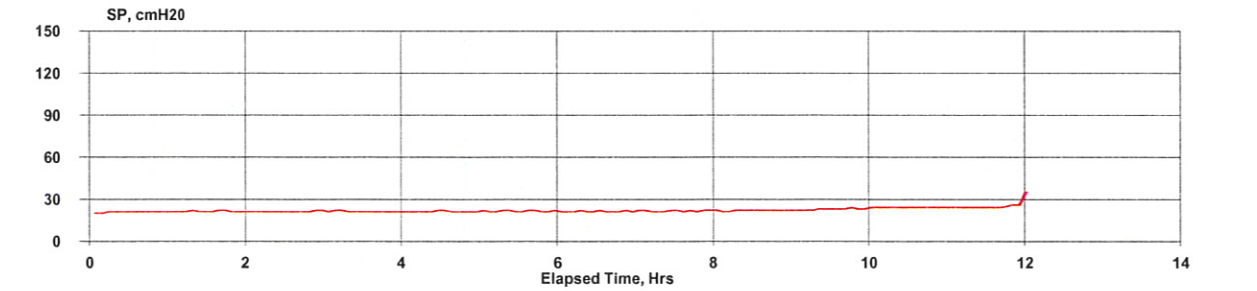
Mass Concentration Data:

Filter ID:	9	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	12.119	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







16-05-feb	0:05:08	596	1.3	-0.4	-1.8	21	16.71
16-05-feb	1:05:08	596	1.1	-0.2	-1.4	21	16.70
16-05-feb	2:05:08	596	1.0	-0.3	-1.3	21	16.71
16-05-feb	3:05:08	596	0.3	-0.8	-1.1	21	16.71
16-05-feb	4:05:08	596	-0.3	-1.3	-1.0	21	16.71
16-05-feb	5:05:08	596	-0.5	-1.7	-1.2	22	16.71
16-05-feb	6:05:08	596	-0.3	-1.8	-1.6	21	16.71
16-05-feb	7:05:08	596	0.1	-1.5	-1.6	22	16.72
16-05-feb	8:05:08	597	0.9	-0.7	-1.6	22	16.72
16-05-feb	9:05:08	597	6.4	3.8	-2.6	23	16.71
16-05-feb	10:05:08	597	12.1	11.0	-1.1	24	16.70
16-05-feb	11:05:08	597	13.1	13.8	0.7	24	16.71
16-05-feb	12:05:08	597	13.6	15.0	1.4	35	15.70

BGI PQ200 Air Sampling System Downloaded 2016 12 feb 10:26:47

Job Details:

Job Name:	15Feb12C.JOB
Version:	5.62
Serial No:	964
Pump Time:	628:15
Flags:	Q T

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

	Max	Min	Avg	Units
BP	594	592	592	mmHg
TA	2.5	1.3	2.4	°C
Q	---	---	0	Lpm

QCV	0 %
Max overheat	2.2 °C
occured	11-feb 15:42:24

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	16-11-feb	0:00:08
Stop:	16-12-feb	0:00:05
ET:	0:03	

Mass Concentration Data:

Filter ID:	IML1	
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:

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

BGI PQ200 Air Sampling System Downloaded 2016_20 feb_09:35:41

Job Details:

Job Name:	15Feb20C.JOB
Version:	5.62
Serial No:	964
Pump Time:	652:14
Flags:	

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

	Max	Min	Avg	Units
BP	595	592	593	mmHg
TA	11.4	-10.2	-0.1	°C
Q	---	---	16.7	Lpm

QCV	0.54 %
Max overheat	3.3 °C
occured	17-feb 13:15:45

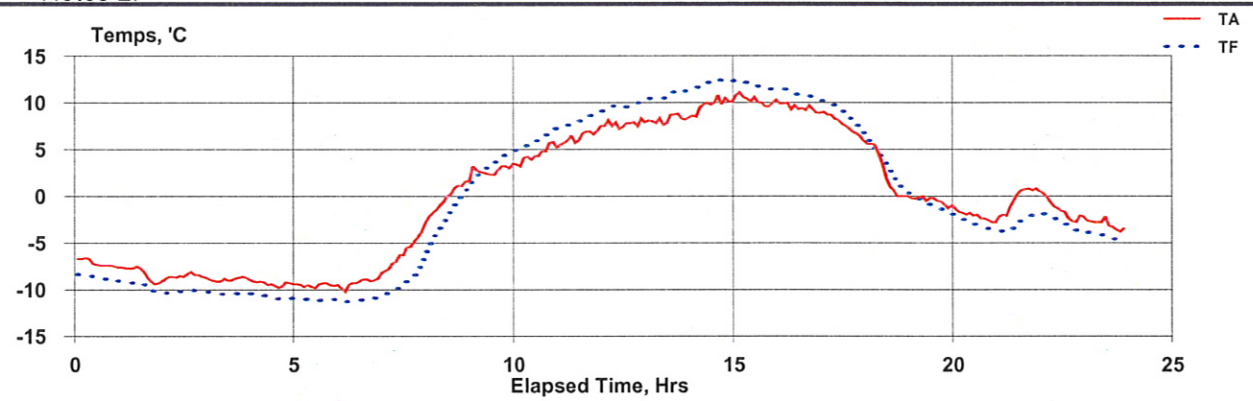
Timer Information:

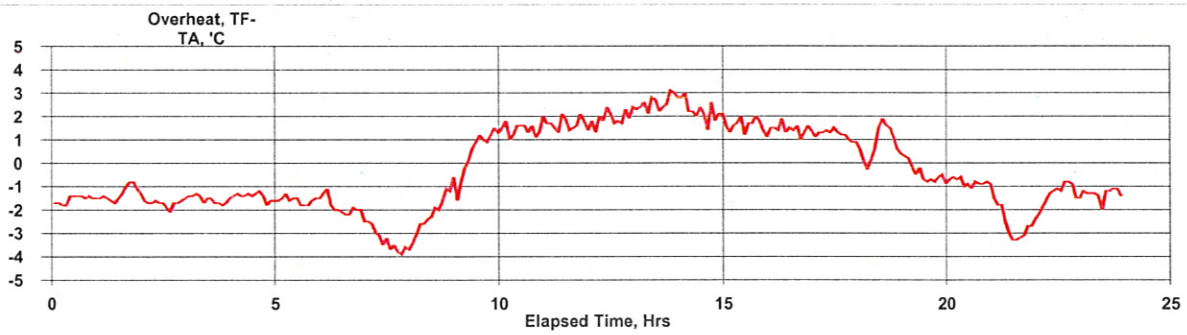
	Date dd-mmm	Time hh:mm:ss
Start:	16-17-feb	0:00:08
Stop:	16-18-feb	0:00:05
ET:	23:59	

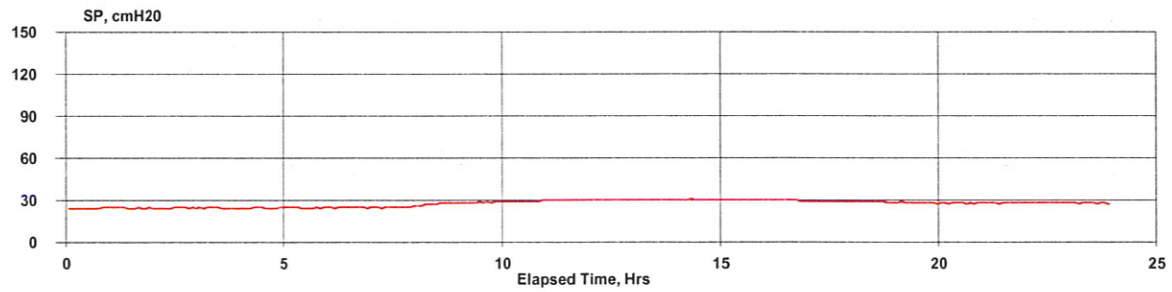
Mass Concentration Data:

Filter ID:	IML32	
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:







16-17-feb	0:05:08	594	-7.2	-8.7	-1.5	24	16.71
16-17-feb	1:05:08	593	-8.3	-9.6	-1.3	25	16.72
16-17-feb	2:05:08	594	-8.5	-10.2	-1.7	24	16.71
16-17-feb	3:05:08	594	-8.9	-10.4	-1.6	24	16.72
16-17-feb	4:05:08	594	-9.4	-10.8	-1.4	24	16.71
16-17-feb	5:05:08	594	-9.5	-11.1	-1.6	25	16.71
16-17-feb	6:05:08	594	-9.2	-11.1	-1.9	25	16.71
16-17-feb	7:05:08	594	-5.8	-9.1	-3.3	25	16.71
16-17-feb	8:05:08	594	-0.1	-2.1	-2.1	27	16.71
16-17-feb	9:05:08	594	2.8	3.3	0.5	28	16.71
16-17-feb	10:05:08	595	4.5	5.9	1.5	29	16.71
16-17-feb	11:05:08	594	6.4	8.1	1.7	30	16.71
16-17-feb	12:05:08	594	7.7	9.7	1.9	30	16.71
16-17-feb	13:05:08	594	8.2	10.8	2.6	30	16.72
16-17-feb	14:05:08	593	9.8	12.0	2.2	30	16.71
16-17-feb	15:05:08	593	10.3	11.9	1.6	30	16.71
16-17-feb	16:05:08	593	9.5	10.9	1.5	30	16.71
16-17-feb	17:05:08	593	7.6	8.8	1.2	29	16.71
16-17-feb	18:05:08	594	2.4	3.2	0.8	29	16.70
16-17-feb	19:05:08	594	-0.5	-0.9	-0.5	28	16.71
16-17-feb	20:05:08	594	-2.2	-3.0	-0.8	28	16.72
16-17-feb	21:05:08	594	-0.3	-2.9	-2.6	28	16.71
16-17-feb	22:05:08	595	-1.5	-2.9	-1.3	28	16.71
16-17-feb	23:05:08	595	-3.0	-4.3	-1.3	28	16.71

BGI PQ200 Air Sampling System Downloaded 2016_25 feb_09:50:42

Job Details:

Job Name:	15Feb25C.JOB	Job Code:	
Version:	5.62	Site Name:	964C
Serial No:	964	Station Code:	
Pump Time:	676:13	Operators:	KN
Flags:		User1:	
		User2:	

	Max	Min	Avg	Units
BP	592	585	588	mmHg
TA	4.4	-10.2	-3.2	°C
Q	---	---	16.71	Lpm

QCV	0.54 %
Max overheat	4.1 °C
occured	23-feb 16:09:31

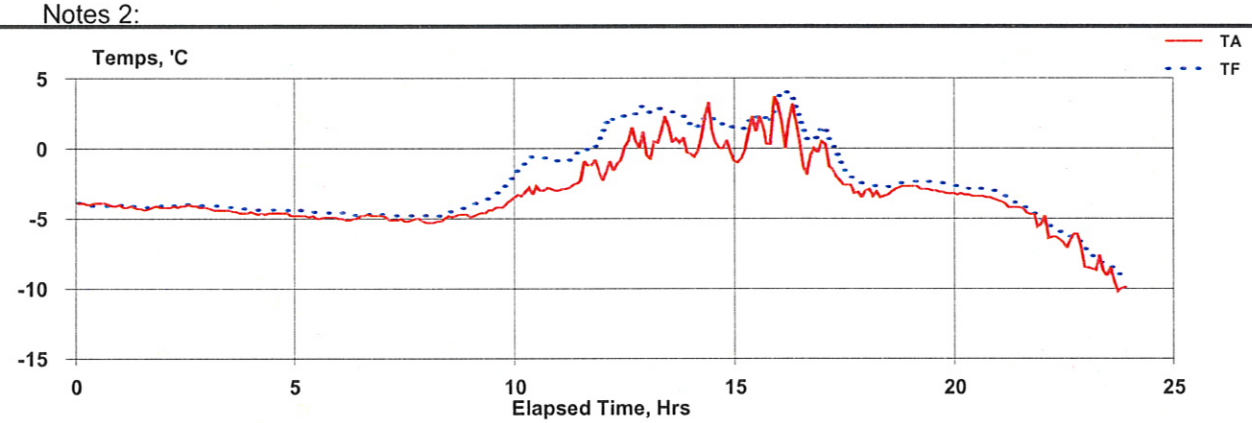
Timer Information:

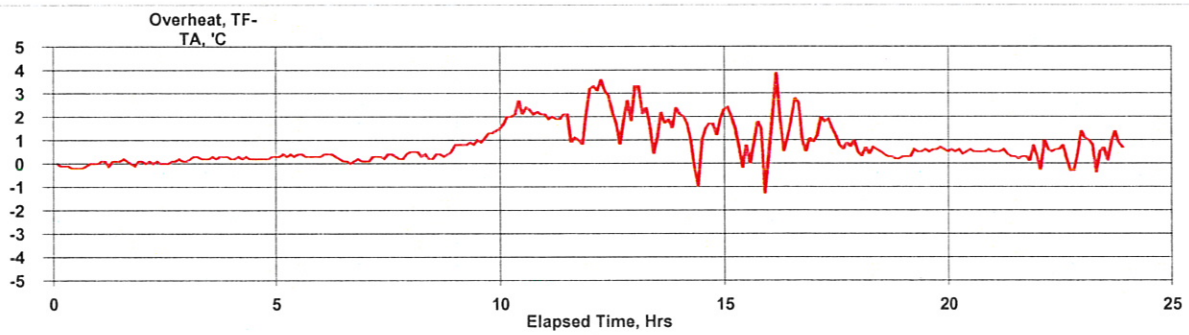
	Date dd-mmm	Time hh:mm:ss
Start:	16-23-feb	0:00:08
Stop:	16-24-feb	0:00:05
ET:	23:59	

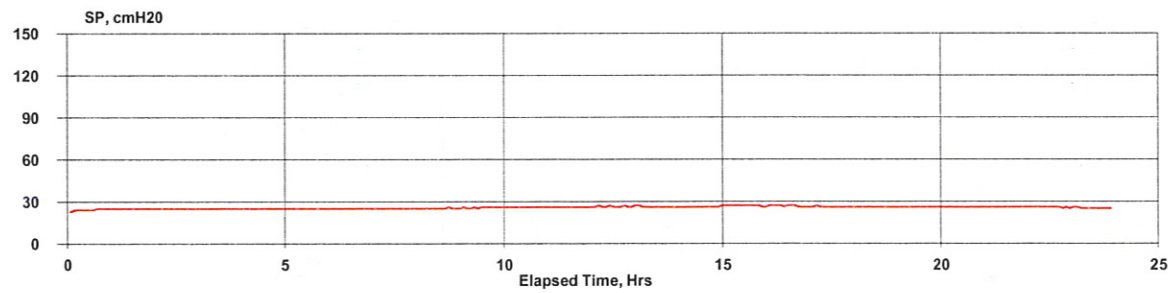
Mass Concentration Data:

Filter ID:	10	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.044	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







16-23-feb	0:05:08	587	-4.0	-4.1	-0.1	24	16.71
16-23-feb	1:05:08	587	-4.2	-4.2	0.1	25	16.71
16-23-feb	2:05:08	587	-4.1	-4.1	0.1	25	16.71
16-23-feb	3:05:08	587	-4.5	-4.2	0.3	25	16.71
16-23-feb	4:05:08	587	-4.6	-4.4	0.2	25	16.71
16-23-feb	5:05:08	587	-4.9	-4.6	0.3	25	16.72
16-23-feb	6:05:08	587	-4.9	-4.7	0.2	25	16.71
16-23-feb	7:05:08	587	-5.1	-4.8	0.3	25	16.72
16-23-feb	8:05:08	588	-5.0	-4.6	0.4	25	16.71
16-23-feb	9:05:08	588	-4.3	-3.2	1.1	26	16.71
16-23-feb	10:05:08	589	-3.0	-0.9	2.2	26	16.71
16-23-feb	11:05:08	589	-2.0	-0.3	1.8	26	16.71
16-23-feb	12:05:08	589	-0.2	2.3	2.5	26	16.72
16-23-feb	13:05:08	589	0.6	2.5	1.9	26	16.71
16-23-feb	14:05:08	589	0.6	1.8	1.2	26	16.70
16-23-feb	15:05:08	590	1.2	2.0	0.9	27	16.71
16-23-feb	16:05:08	590	0.5	2.2	1.7	27	16.71
16-23-feb	17:05:08	590	-2.3	-1.1	1.2	26	16.71
16-23-feb	18:05:08	590	-3.0	-2.6	0.4	26	16.71
16-23-feb	19:05:08	591	-3.0	-2.5	0.5	26	16.71
16-23-feb	20:05:08	591	-3.4	-2.9	0.5	26	16.71
16-23-feb	21:05:08	591	-4.5	-4.1	0.4	26	16.71
16-23-feb	22:05:08	591	-6.5	-6.1	0.4	26	16.71
16-23-feb	23:05:08	591	-9.0	-8.3	0.7	25	16.71

BGI PQ200 Air Sampling System Downloaded 2016 03 mar 14:43:18

Job Details:

Job Name:	15Mar04C.JOB
Version:	5.62
Serial No:	964
Pump Time:	700:12
Flags:	

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

	Max	Min	Avg	Units
BP	588	583	585	mmHg
TA	3	-3.6	-0.6	°C
Q	---	---	16.71	Lpm

QCV	0.34 %
Max overheat	2.6 °C
occured	01-mar 13:52:05

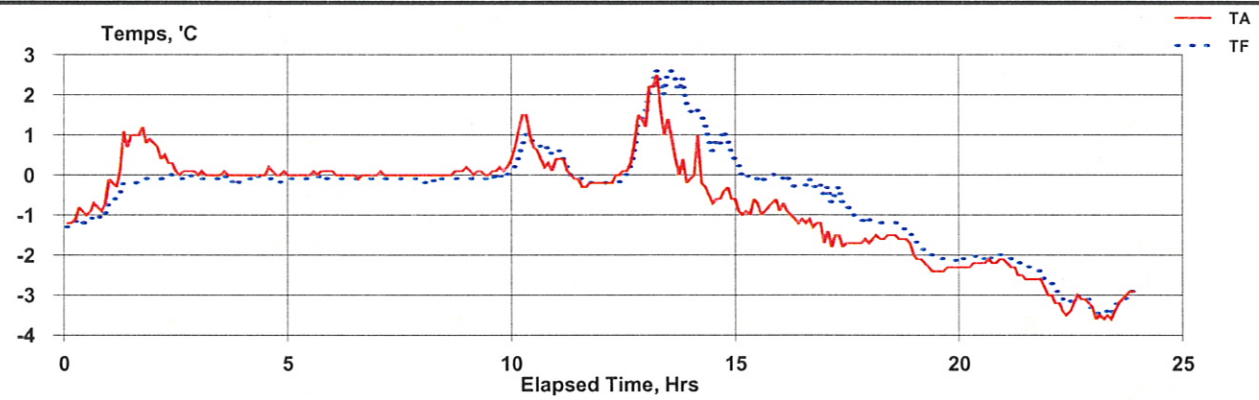
Timer Information:

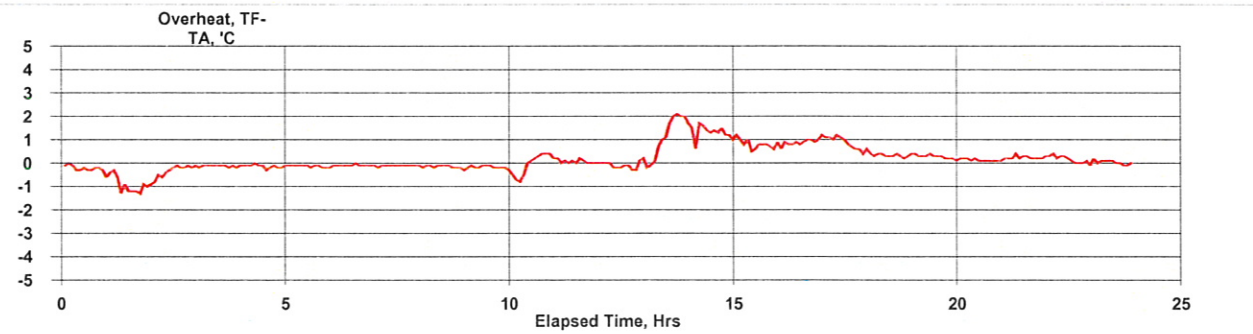
	Date dd-mmm	Time hh:mm:ss
Start:	16-01-mar	0:00:08
Stop:	16-02-mar	0:00:05
ET:	23:59	

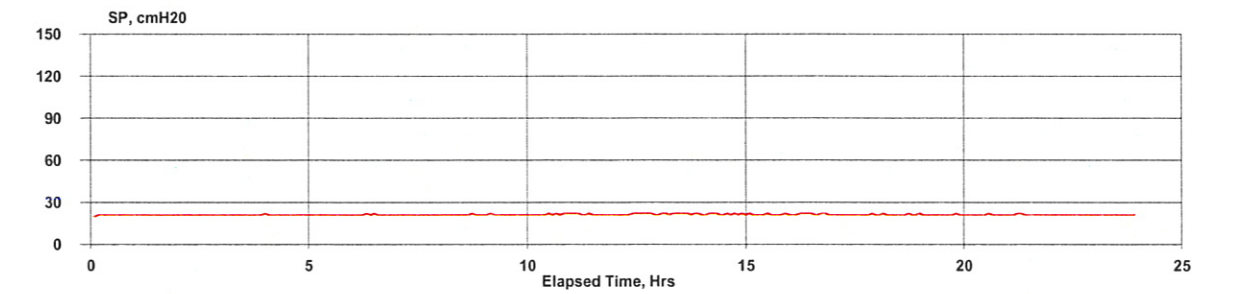
Mass Concentration Data:

Filter ID:	8	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.024	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







16-01-mar	0:05:08	588	-0.9	-1.1	-0.2	21	16.72
16-01-mar	1:05:08	587	0.7	-0.3	-0.9	21	16.72
16-01-mar	2:05:08	587	0.2	-0.1	-0.3	21	16.71
16-01-mar	3:05:08	586	0.0	-0.1	-0.1	21	16.71
16-01-mar	4:05:08	586	0.0	-0.1	-0.1	21	16.69
16-01-mar	5:05:08	585	0.0	-0.1	-0.1	21	16.74
16-01-mar	6:05:08	585	0.0	-0.1	-0.1	21	16.72
16-01-mar	7:05:08	585	0.0	-0.1	-0.1	21	16.72
16-01-mar	8:05:08	585	0.0	-0.1	-0.2	21	16.70
16-01-mar	9:05:08	585	0.1	-0.1	-0.2	21	16.71
16-01-mar	10:05:08	585	0.7	0.7	0.0	21	16.70
16-01-mar	11:05:08	585	-0.1	0.0	0.1	21	16.72
16-01-mar	12:05:08	585	0.4	0.3	-0.1	22	16.72
16-01-mar	13:05:08	584	1.0	2.2	1.2	22	16.72
16-01-mar	14:05:08	584	-0.3	1.0	1.3	22	16.71
16-01-mar	15:05:08	585	-0.8	0.0	0.8	21	16.70
16-01-mar	16:05:08	585	-1.1	-0.2	0.9	22	16.71
16-01-mar	17:05:08	585	-1.7	-0.8	0.9	21	16.72
16-01-mar	18:05:08	586	-1.6	-1.3	0.3	21	16.71
16-01-mar	19:05:08	586	-2.3	-2.0	0.3	21	16.69
16-01-mar	20:05:08	587	-2.2	-2.1	0.1	21	16.68
16-01-mar	21:05:08	587	-2.6	-2.3	0.2	21	16.71
16-01-mar	22:05:08	587	-3.2	-3.1	0.2	21	16.72
16-01-mar	23:05:08	587	-3.3	-3.3	0.0	21	16.72

BGI PQ200 Air Sampling System Downloaded 2016 08 mar 09:05:59

Job Details:

Job Name:	15Mar09C.JOB
Version:	5.62
Serial No:	964
Pump Time:	956:15
Flags:	Q T

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

	Max	Min	Avg	Units
BP	594	591	592	mmHg
TA	-1.2	-2.9	-1.3	°C
Q	---	---	0	Lpm

QCV	0 %
Max overheat	2.2 °C
occured	07-mar 14:07:25

Timer Information:

	Date dd-mmm	Time hh:mm:ss
Start:	16-07-mar	0:00:08
Stop:	16-08-mar	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:

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

BGI PQ200 Air Sampling System Downloaded 2015 15 mar 10:07:07

Job Details:

Job Name:	15Mar16C.JOB
Version:	5.62
Serial No:	964
Pump Time:	980:14
Flags:	

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

	Max	Min	Avg	Units
BP	599	596	597	mmHg
TA	14.7	-1.5	6.6	°C
Q	---	---	16.71	Lpm

QCV	0.57 %
Max overheat	2.4 °C
occured	13-mar 16:43:24

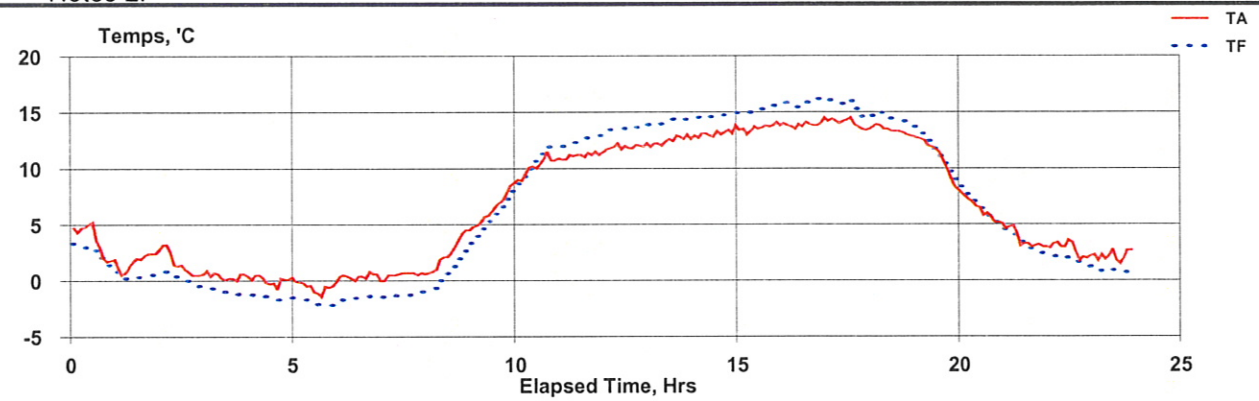
Timer Information:

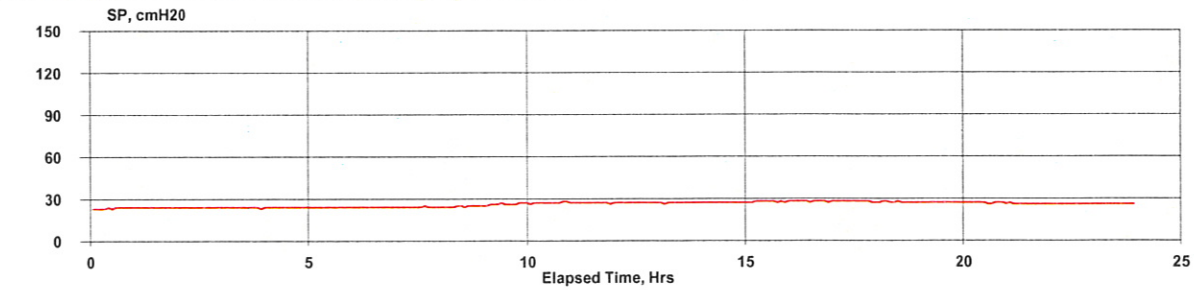
	Date dd-mmm	Time hh:mm:ss
Start:	15-13-mar	0:00:08
Stop:	15-14-mar	0:00:05
ET:	23:59	

Mass Concentration Data:

Filter ID:	18	
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:





15-13-mar	0:05:08	598	3.6	2.5	-1.1	24	16.70
15-13-mar	1:05:08	598	1.8	0.4	-1.4	24	16.70
15-13-mar	2:05:08	598	1.4	0.2	-1.3	24	16.71
15-13-mar	3:05:08	598	0.4	-1.0	-1.4	24	16.71
15-13-mar	4:05:08	598	0.1	-1.5	-1.5	24	16.70
15-13-mar	5:05:08	598	-0.5	-2.0	-1.4	24	16.71
15-13-mar	6:05:08	598	0.4	-1.5	-1.9	24	16.71
15-13-mar	7:05:08	599	0.6	-1.3	-1.8	24	16.72
15-13-mar	8:05:08	599	2.6	0.8	-1.8	25	16.73
15-13-mar	9:05:08	599	6.5	5.7	-0.9	26	16.71
15-13-mar	10:05:08	599	10.2	10.5	0.3	27	16.70
15-13-mar	11:05:08	599	11.2	12.5	1.3	27	16.71
15-13-mar	12:05:08	599	11.9	13.5	1.6	27	16.71
15-13-mar	13:05:08	598	12.5	14.2	1.7	27	16.70
15-13-mar	14:05:08	598	13.1	14.6	1.5	27	16.72
15-13-mar	15:05:08	597	13.6	15.2	1.6	28	16.71
15-13-mar	16:05:08	597	13.9	15.8	1.9	28	16.71
15-13-mar	17:05:08	597	14.0	15.5	1.5	28	16.71
15-13-mar	18:05:08	597	13.4	14.4	1.1	27	16.71
15-13-mar	19:05:08	597	10.9	11.4	0.4	27	16.71
15-13-mar	20:05:08	597	6.3	6.5	0.2	27	16.71
15-13-mar	21:05:08	597	3.6	3.3	-0.3	26	16.71
15-13-mar	22:05:08	598	2.8	1.8	-1.0	26	16.70
15-13-mar	23:05:08	598	2.2	0.8	-1.4	26	16.71

BGI PQ200 Air Sampling System Downloaded 2015 20 mar 12:59:03

Job Details:

Job Name: 15Mar20C.JOB
Version: 5.62
Serial No: 964
Pump Time: 1004:14
Flags:

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

	Max	Min	Avg	Units
BP	594	591	592	mmHg
TA	14.9	1.1	7.8	°C
Q	---	---	16.7	Lpm

QCV 0.51 %

Max overheat 2.8 °C
occured 19-mar 14:56:20

Timer Information:

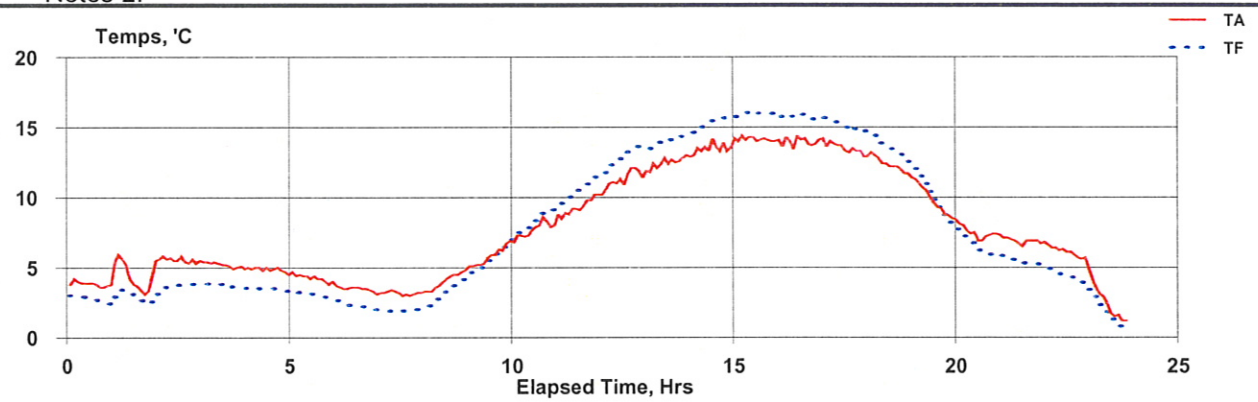
	Date dd-mmm	Time hh:mm:ss
Start:	15-19-mar	0:00:00
Stop:	15-20-mar	0:00:05

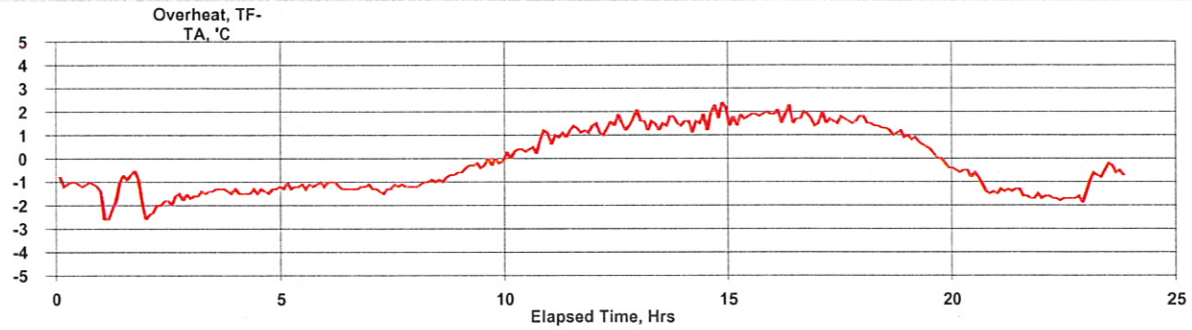
ET: 24:00:00

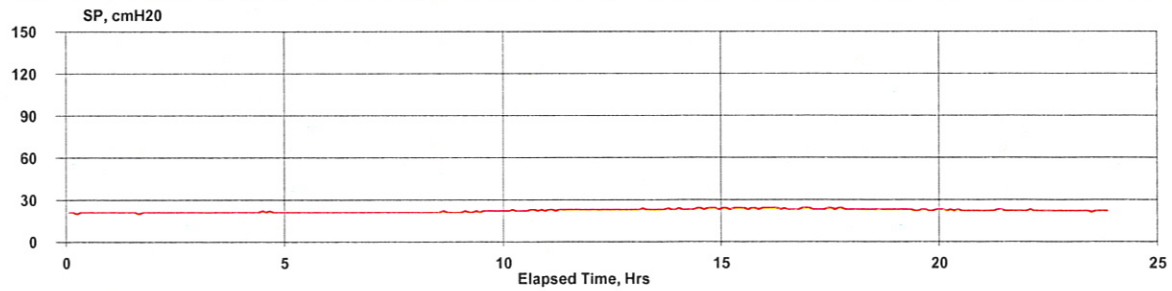
Mass Concentration Data:

Filter ID:	17	
Final Wt:		mg
Initial Wt:		mg
Delta Wt:	0.000	mg
Total Vol:	24.044	m^3
Mass Conc:	0	µg/m3

Notes 1:
Notes 2:







15-19-mar	0:05:00	592	3.8	2.7	-1.1	21	16.71
15-19-mar	1:05:00	592	4.5	2.9	-1.5	21	16.71
15-19-mar	2:05:00	591	5.6	3.7	-1.9	21	16.71
15-19-mar	3:05:00	591	5.2	3.8	-1.4	21	16.72
15-19-mar	4:05:00	591	4.9	3.5	-1.4	21	16.70
15-19-mar	5:05:00	591	4.3	3.1	-1.2	21	16.71
15-19-mar	6:05:00	592	3.5	2.3	-1.2	21	16.71
15-19-mar	7:05:00	592	3.2	1.9	-1.3	21	16.70
15-19-mar	8:05:00	592	4.0	3.1	-0.9	21	16.71
15-19-mar	9:05:00	592	5.8	5.5	-0.3	22	16.71
15-19-mar	10:05:00	593	7.7	8.2	0.5	22	16.71
15-19-mar	11:05:00	593	9.3	10.4	1.1	23	16.71
15-19-mar	12:05:00	593	11.3	12.8	1.5	23	16.71
15-19-mar	13:05:00	592	12.5	14.0	1.5	23	16.70
15-19-mar	14:05:00	592	13.5	15.2	1.8	24	16.71
15-19-mar	15:05:00	592	14.1	15.9	1.8	24	16.70
15-19-mar	16:05:00	592	14.0	15.8	1.8	24	16.70
15-19-mar	17:05:00	592	13.5	15.2	1.7	23	16.71
15-19-mar	18:05:00	592	12.4	13.7	1.3	23	16.71
15-19-mar	19:05:00	592	9.9	10.3	0.4	23	16.71
15-19-mar	20:05:00	593	7.5	6.7	-0.8	22	16.71
15-19-mar	21:05:00	593	6.9	5.4	-1.5	22	16.70
15-19-mar	22:05:00	594	6.2	4.5	-1.7	22	16.72
15-19-mar	23:05:00	594	2.5	1.8	-0.7	22	16.71

BGI PQ200 Air Sampling System

Downloaded 2015 26 mar 16:00:55

Job Details:

Job Name: 15Mar26C.JOB
Version: 5.62
Serial No: 964
Pump Time: 1028:13
Flags:

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

	Max	Min	Avg	Units
BP	597	590	594	mmHg
TA	12.8	1.1	5.9	°C
Q	---	---	16.71	Lpm

QCV 0.55 %

Max overheat 3.1 °C
occured 25-mar 14:50:48

Timer Information:

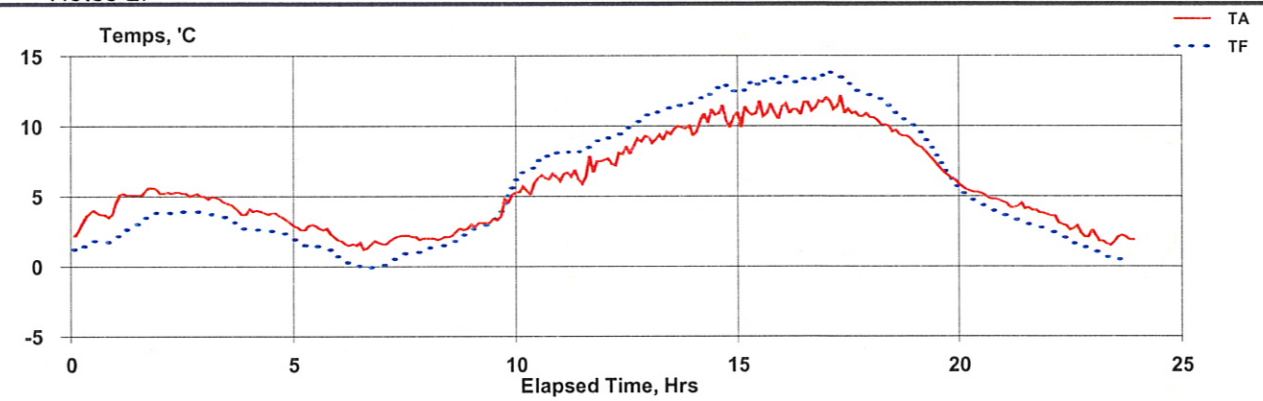
	Date dd-mmm	Time hh:mm:ss
Start:	15-25-mar	0:00:08
Stop:	15-26-mar	0:00:05

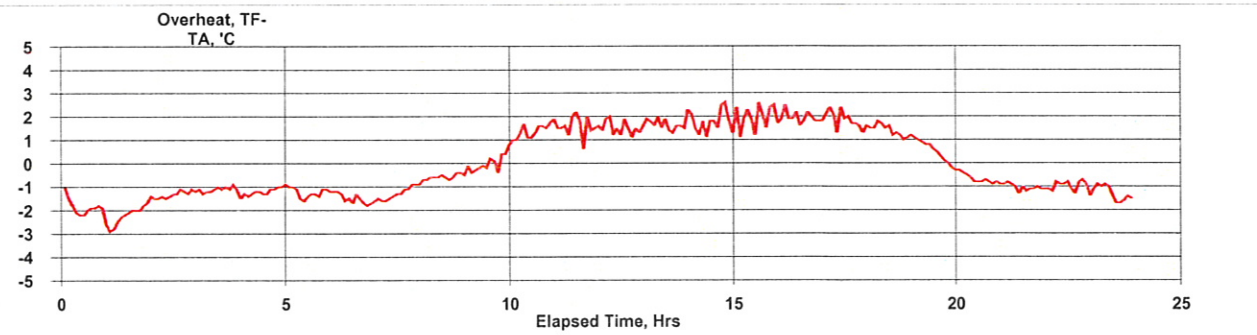
ET: 23:59

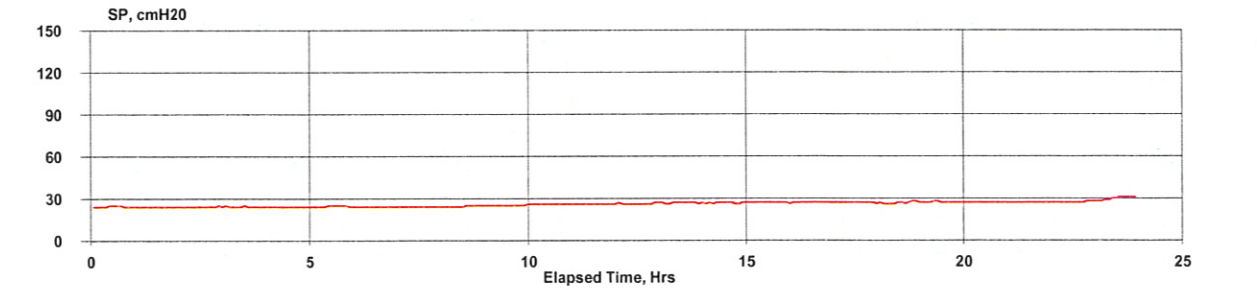
Mass Concentration Data:

Filter ID:	IML4	
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:







15-25-mar	0:05:08	592	3.5	1.6	-1.9	24	16.71
15-25-mar	1:05:08	592	5.3	3.1	-2.1	24	16.73
15-25-mar	2:05:08	592	5.2	3.9	-1.3	24	16.71
15-25-mar	3:05:08	592	4.4	3.3	-1.1	24	16.71
15-25-mar	4:05:08	593	3.6	2.4	-1.2	24	16.71
15-25-mar	5:05:08	593	2.6	1.3	-1.3	25	16.72
15-25-mar	6:05:08	593	1.6	0.1	-1.5	24	16.72
15-25-mar	7:05:08	594	2.0	0.8	-1.3	24	16.71
15-25-mar	8:05:08	594	2.3	1.7	-0.6	25	16.72
15-25-mar	9:05:08	595	3.8	3.8	0.0	25	16.74
15-25-mar	10:05:08	595	6.0	7.4	1.4	26	16.71
15-25-mar	11:05:08	595	6.9	8.4	1.6	26	16.71
15-25-mar	12:05:08	596	8.3	9.8	1.5	26	16.72
15-25-mar	13:05:08	596	9.5	11.2	1.7	27	16.71
15-25-mar	14:05:08	595	10.6	12.4	1.8	27	16.71
15-25-mar	15:05:08	595	11.0	13.0	2.0	27	16.70
15-25-mar	16:05:08	595	11.4	13.4	2.0	27	16.71
15-25-mar	17:05:08	595	11.1	13.0	1.8	27	16.71
15-25-mar	18:05:08	595	9.7	11.1	1.4	27	16.71
15-25-mar	19:05:08	596	7.2	7.7	0.5	27	16.71
15-25-mar	20:05:08	596	5.1	4.4	-0.7	27	16.71
15-25-mar	21:05:08	596	4.1	3.1	-1.0	27	16.71
15-25-mar	22:05:08	597	2.8	1.8	-1.0	27	16.71
15-25-mar	23:05:08	597	1.9	0.6	-1.3	30	16.72

APPENDIX C

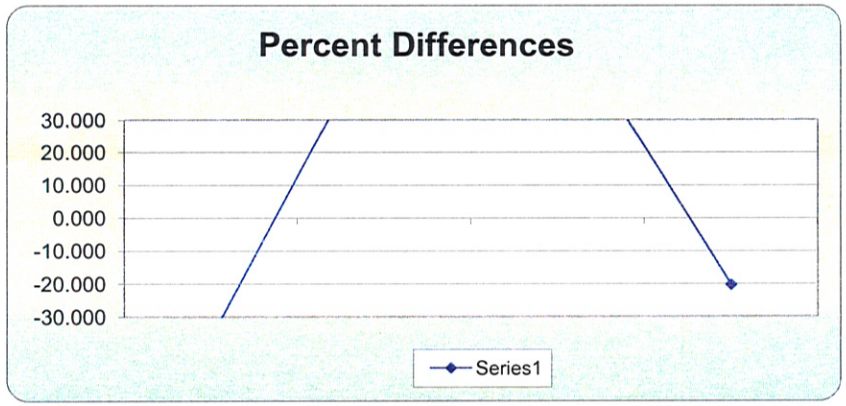
Precision and Single-Point Flow Rate Checks

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|**	**$\|d\|^2$**					
17.6	25.5	-36.659	-24.451	1343.877	36.659	1343.877				5.5	17.7
32.5	17.2	61.569	**75th Percentile**	3790.793	61.569	3790.793	**n**	**$\Sigma\|d\|$**	**$\Sigma\|d\|^2$**	5.5	17.9
32.2	16.6	63.934	62.161	4087.611	63.934	4087.611	4	182.545	9637.714		
14.1	17.3	-20.382		415.433	20.382	415.433	**n-1**	**Σd**	**Σd^2**		
							3	68.463	9637.714		

CV (%) (Eqn 11)
85.11



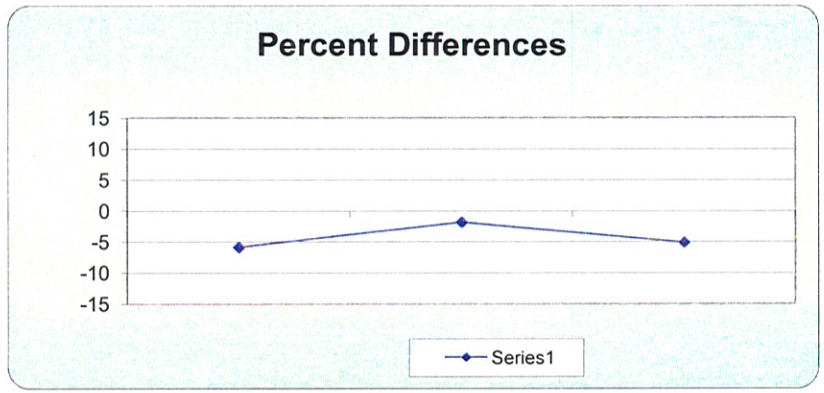
Alton Coal Development, LLC - Coal Hollow Mine

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	$\|d\|$	$\|d\|^2$	
16.7	16.64	0.361	-3.715	0.130	0.361	0.130	
16.7	17.28	-3.356	75th Percentile	11.266	3.356	11.266	
16.72	17.43	-4.073	-1.498	16.593	4.073	16.593	

n	$\Sigma\|d\|$	"AB" (Eqn 4)
3	7.790	2.597
n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
2	27.989	1.970

Bias (%) (Eqn 3)	Both Signs Positive
5.92	FALSE
Signed Bias (%)	Both Signs Negative
-5.92	TRUE



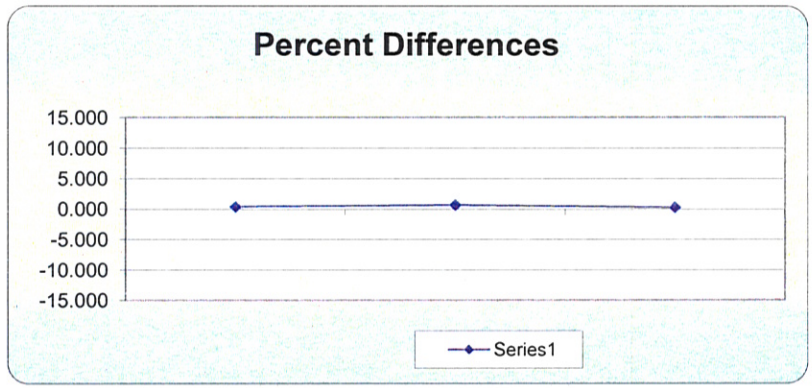
Alton Coal Development, LLC - Coal Hollow Mine

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	16.64	0.361	0.300	0.130	0.361	0.130	
16.7	16.59	0.663	75th Percentile	0.440	0.663	0.440	
16.7	16.66	0.240	0.512	0.058	0.240	0.058	

n	$\Sigma\|d\|$	"AB" (Eqn 4)
3	1.264	0.421
n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
2	0.627	0.218

Bias (%) (Eqn 3)	Both Signs Positive
0.79	TRUE
Signed Bias (%)	Both Signs Negative
+0.79	FALSE



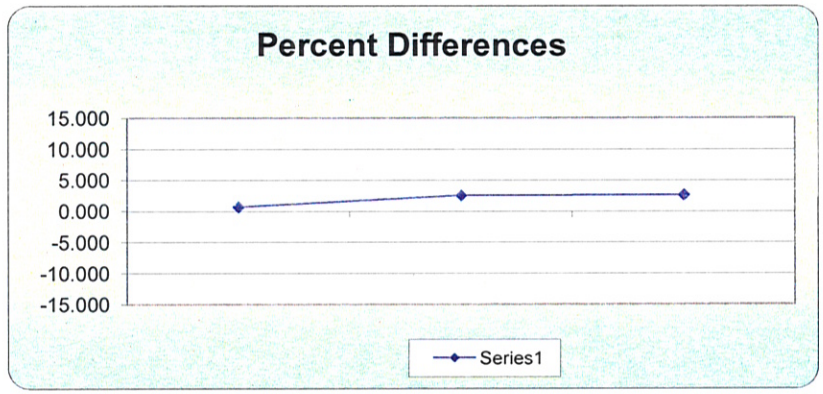
Alton Coal Development, LLC - Coal Hollow Mine

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	16.59	0.663	1.590	0.440	0.663	0.440
16.7	16.29	2.517	75th Percentile	6.335	2.517	6.335
16.72	16.3	2.577	2.547	6.639	2.577	6.639

n	$\Sigma\|d\|$	"AB" (Eqn 4)
3	5.757	1.919
n-1	$\Sigma\|d\|^2$	"AS" (Eqn 5)
2	13.414	1.088

Bias (%) (Eqn 3)	Both Signs Positive
3.75	TRUE
Signed Bias (%)	Both Signs Negative
+3.75	FALSE



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	
1-2-15	10:25	1-2-15	10:24	IML 11	7	M-M	1-6-15	KN	
1-7-15	13:16	1-7-15	13:14	7	10	M-M	1-12-15	KN	
01-14-15	0747	01-14-15	0747	10	4	M-M	01-18-15	JKSR	
01-20-15	1004	01-20-15	1004	4	6	M-M	01-24-15	JKSR	
01-26-15	14:22	01-26-15	14:20	6	14	M-M	01-30-15	KN	
02-02-15	0652	02-02-15	0652	14	7	M-M	02-05-15	JKSR	Did Not Run
02-06-15	13:28	02-06-15	13:24	7	11	13:28	02-06-15	KN	Field Blank
02-06-15	13:31	02-06-15	13:31	11	15	M-M	02-11-15	KN	
02-12-15	0948	02-12-15	0948	15	16	M-M	02-17-15	JKSR	
02-20-15	0910	02-20-15	0910	16	4	M-M	02-23-15	JKSR	
02-25-15	0926	02-25-15	0926	4	6	M-M	03-01-15	JKSR/KN	
03-05-15	1532	03-05-15	1528	6	9	M-M	03-07-15	JKSR	
03-09-15	0926	03-09-15	0826	9	13	M-M	03-13-15	JKSR	
03-16-15	0946 ~~1006~~	03-16-15	0946	13	15	M-M	03-19-15	JKSR	
03-20-15	12:25	3/20/15	12:25	15	19	M-M	03-25-15	KN	
03-26-15	15:37	03/26/15	15:37	19	4	M-M	03-31-15	KN	
04-01-15	1407	04-01-15	1402	4	7	M-M	04-06-15	JKSR	
04-07-15	0856	04-07-15	0856	7	9	M-M	04-12-15	JKSR	

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
1-19-15	12:24	100	99	Pass	KN	Cleaned down tube venturi
2-13-15	14:24	103	102	Pass	KN	Cleaned down tube, venturi
3-07-15	8:50am	98	98	Pass	KN	Cleaned down tube, venturi

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
1-19-15	12:24	16.70	590	592	10.9	11.4	13:58	16.64	0.36	
2-13-15	14:28	16.70	589	590	17.4	17.7	14.55	17.28	-3.4	
3-11-15	9:22am	16.72	582	585	3.1°c	3.2°c	14.47	17.43	-4.1	

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	
1-2-15	10:55	12-2015	10:54	15	8	M-M	1-6-15	KN	
1-7-15	13:38	1-7-15	13:36	8	11	13:40	1-7-15	KN	Blank
1-7-15	13:41	1-7-15	13:39	11	16	M-M	1-12-15	KN	
01-14-15	0810	01-14-15	0810	16	5	M-M	01-18-15	JKSR	
01-20-15	1020	01-20-15	1020	5	12	M-M	01-24-15	JKSR	
01-26-15	14:20	01-26-15	14:18	12	18	M-M	01-30-15	KN	
02-02-15	0707	02-02-15	0707	18	8	M-M	02-05-15	JKSR	
02-06-15	14:23	02-06-15	14:21	8	17	M-M	02-11-15	KN	
02-12-15	1022	02-12-15	1022	17	IML 4	M-M	02-17-15	JKSR	
02-20-15	0930	02-20-15	0930	IML 4	~~10~~ 5	M-M	02-23-15	JKSR	
02-25-15	0948	02-25-15	0945	5	7	M-M	03-01-15	JKSR/KN	
03-04-15	1443	03-04-15	1440	7	11	M-M	03-07-15	JKSR	
03-09-15	1006	03-09-15	0903	11	14	M-M	03-13-15	JKSR	
03-16-15	1005	03-16-15	1005	14	16	M-M	03-19-15	JKSR	
03-20-15	12:56	03-20-15	12:56	16	20	M-M	03-25-15	KN	
03-26-15	15:59	03-26-15	15:59	20	5	M-M	03-31-15	KN	
04-01-15	1422	04-01-15	1422	5	8	M-M	04-06-15	JKSR	
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	

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
1-9-15	13:29	108	107	Pass	KN	lub, cleaned downtube etc
2-13-15	14:58	97	97	Pass	KN	Cleaned downtube etc
3-11-15	9:47	102	101	Pass	KN	cleaned Manifold & downtube etc

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
1-9-15	13:29	16.70	590	592	10.9	11.5	13.58	16.64	0.36	KN
2-13-15	15:06	16.70	595	596	16.7	17.5	13.36	16.59	0.66	KN
3-11-15	9:51	16.70	589	591	4.4°C	5.0°C	13.89	16.66	0.24	

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	
1-2-15	11:01	1-2-15	10:57	17	9	M-M	1-6-15	KN	QT
1-7-15	13:47	1-7-15	13:47	9	IML-32	M-M	1-12-15	KN	
01-14-15	0814	01-14-15	0815	IML-32	20	M-M	01-18-15	JKSR	Run not connected to the External battery and solar panel
01-20-15	1022	01-20-15	1023	20	13	M-M	01-24-15	JKSR	QT
01-26-15	14:51	01-26-15	14:51	13	19	M-M	01-30-15	KN	Run without Internal Battery
02-02-15	0710	02-02-15	0712	19	9	M-M	02-05-15	JKSR	
02-06-15	14:31	02-06-15	14:30	9	IML1	M-M	02-11-15	KN	
02-12-15	1025	02-12-15	1027	IML 1	IML 32	M-M	02-17-15	JKSR	QT
02-20-15	0931	02-20-15	0931	20	Blank	Blank	02-20-15	JKSR	Blank
02-20-15	0934	02-20-15	0936	IML 32	10	M-M	02-23-15	JKSR	
02-25-15	0950	02-25-15	0950	10	8	M-M	03-01-15	JKSR/KN	
03-04-15	1446	03-04-15	1444	8	12	M-M	03-07-15	JKSR	
03-09-15	1007	03-09-15	0906	12	18	M-M	03-13-15	JKSR	QT
03-16-15	1007	03-16-15	1007	18	17	M-M	03-19-15	JKSR	
03-20-15	13:03	03-20-15	13:02	17	IML-1	13:03	03-20-15	KN	Field Blank
03-20-15	13:04	03-20-15	13:05	IML-1	IML-4	M-M	03-25-15	KN	
03-26-15	16:04	03-26-15	16:03	IML-4	6				
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

Table II - Monthly Leak Test

Date	Time	Initial SP Value	Final SP Value	Pass/Fail	Initials	Maintenance
1-9-15	13:10	100	100	Pass	KN	Grease fittings, cleaned downtube
2-13-15	15:10	97	97	Pass	KN	Cleaned downtube, Man. fold
3-11-15	9:51	95	95	Pass	KN	Cleaned downtube, Manifold, etc

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
1-9-15	1:13	16.7	592	592	11.2°C	11.8°C	13.53	16.59	KN	0.663
2-13-15	15:15	16.7	596	596	16.2°C	16.7°C	13.14	16.29	2.52	KN
3-11-15	9:58	16.72	591	590.5	4.6°C	4.8°C	13.58	16.70	2.58	KN

APPENDIX E

Independent PM_{10} Sampler Performance Audit Report

AUDIT REPORT

FOR

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

Prepared for

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

Prepared by

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Site Audited: March 18, 2015

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1.0 INTRODUCTION

Air Resources Specialists, Inc. (ARS) conducted a performance audit of Alton Coal Development, LLC ambient air quality monitoring systems on March 18, 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 Speed	Climatronics 100075	Yes
Wind Direction	Climatronics 100076	No
Temperature	Climatronics 100093	Yes
Precipitation	Texas Electronics TR-525I-HT	No

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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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	≤ ± 4%
	Design criteria flow to audit flow	≤ ± 5%
	Audit temperature to sampler temperature	≤ ± 2 °C
	Audit temperature to sampler filter temperature	≤ ± 2 °C
	Audit barometric pressure to sampler pressure	≤ ±10mm 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 Speed

Wind speed sensors are audited using an R.M. Young model 18802 (high RPM) or 18811 (low RPM) pulsed motor wind speed calibrator. Each sensor is tested at zero and five shaft revolution speeds. The equivalent wind speed is calculated corresponding to the sensor manufacturer's specified values for shaft speed versus wind velocity and compared to readings obtained from the on-site datalogger.

2.2.2 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.

2.2.3 Ambient Temperature

Temperature sensors that are non-immersible are audited by collocation of the audit sensor under ambient conditions utilizing similar methods of sensor aspiration. Collocated comparisons are typically carried out using hourly averages. Audit data are collected by a datalogger provided by the auditor. Temperature sensors that are immersible are audited by comparison to the audit sensor in water baths. The test baths are typically at 0°C, near ambient conditions (or approximately 25°C), and near the full scale of the sensor (typically near 50°C). Data observed on the on-site datalogger are used to assess the accuracy of sensors. Sensor aspirators are inspected for proper function, including fan function and flow direction.

2.2.4 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 Speed	Accuracy at five speeds with anemometer drive	$\leq \pm 0.2$ m/s
	Starting threshold with torque gauge	Manufacturer specs
Wind Direction	Accuracy with compass	$\leq \pm 5°$
	Linearity	$\leq \pm 5°$
	Starting threshold with torque gauge	Manufacturer specs
Ambient Temperature (non-immersible sensor)	Accuracy via collocation in ambient conditions	$\leq \pm 0.5°$
Ambient Temperature (immersible sensor)	Accuracy via collocation in three water baths	$\leq \pm 0.5°$
Precipitation	Accuracy via known volume of water	$\leq \pm 10\%$

Table 2-4

Meteorological Audit Equipment

References	Manufacturer	Model Number	Serial Number	Expiration Date
Wind Speed (high rpm)	R.M. Young	18802	CA03359	5/28/2015
Wind Speed (low rpm)	R.M. Young	18811	CA03912	1/6/2016
Wind Direction Orientation	Brunton	Transit	5103212072	N/A
Temperature (immersible)	Eutechnics	4400	307365	5/27/2015
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

- Although the wind direction measurement passed the audit, the linearity check indicates that the sensor potentiometer may need to be replaced or the data logger scaling of the wind direction may need to be optimized.
- The precipitation measurement was found outside of audit requirements. This result is very similar to the previous audit.
- Although the background site PM_{10} instrument passed audit requirements, the flow rate of the instrument appeared to very high (+9%). This was confirmed by comparing the audit result to the most recent monthly flow verification performed by Alton Coal Development, LLC. This should be addressed to prevent any future audit failures.
- It appears all of the PM_{10} instruments are set to local daylight time as opposed to the standard convention of local standard time. Additionally, the collocated PM_{10} instrument was a day behind. This was confirmed and corrected by the site operator.

APPENDIX A

AUDIT DATA FORMS

Air Resource Specialists, Inc.

TEMPERATURE / DELTA-TEMPERATURE SYSTEM AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Temperature Reference	Eutechnics	4400	307635	5/27/2015

2m Temperature Sensor	
Manufacturer	Campbell Scientific
Model	107
Serial Number	10755-14 / WO#1272

List sensors according to height on tower, from highest to lowest.

Temp. Deltas

CALIBRATION ACCEPTANCE CRITERIA (<=)	
Ambient Temperature Difference (°C)	0.5
Vertical Temperature Difference (°C)	0.1

AS FOUND	2m Temperature		
Bath Temp (°C)	DAS	Difference	
0.01	0.17	0.16	PASS
40.22	40.32	0.10	PASS
16.26	16.46	0.20	PASS
MAX ABS Difference		0.20	PASS

MAX ABS Difference						

Aspirator fan functional 2m?	☐ Yes	☐ No	☑ N/A
	☐ Yes	☐ No	☐ N/A
	☐ Yes	☐ No	☐ N/A
	☐ Yes	☐ No	☐ N/A

Each sensor was verified against its data channel ?	☐ Yes	☐ No	☑ N/A
Each Temperature Difference = Upper - Lower ?	☐ Yes	☐ No	☑ N/A

NOTES:

Air Resource Specialists, Inc.

WIND SPEED SENSOR AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Wind Speed Reference	RM Young	18811	CA03912	1/16/2016
Wind Speed Torque Gauge	RM Young	18310		

Manufacturer and Model	Met One - 034B
Sensor Serial #	E2281
Cups Serial #	N/A

Speed Conversion			
mph	m/s	m/s	mph
1.000	0.447	0.447	1.000

AUDIT CRITERIA (<=)	
Wind Speed Difference (m/s)	0.20
Wind Speed Difference (%)	N/A

Select UNITS	m/s

		Wind Speed			
Motor Speed (rpm)	Target Speed (m/s)	DAS (m/s)	Difference		
0	0.000	0.000	N/A	N/A	N/A
100	2.943	2.920	-0.02		PASS
200	5.607	5.630	0.02		PASS
300	8.270	8.270	0.00		PASS
600	16.260				
1800	48.220				

Starting Threshold	TORQUE
Torque <= 0.2 g-cm	

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

NOTES:

Air Resource Specialists, Inc.

WIND DIRECTION AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Direction Alignment Reference	Brunton	Transit	5103212072	
Direction Linearity Reference				
Direction Torque Gauge				

Manufacturer & Model	Met One - 035B
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
To left most building/barn to the east	338
From left most building/barn to the east	158
From center of right rock outcrop, saddle	73
To 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	
ıost building/barn to	338	339.8	1.8	
most building/barn t	158	157.0	-1.0	
er of right rock outcr	73	68.4	-4.6	
r of right rock outcro	253	249.6	-3.4	
Total Alignment MAX ABS Diff			4.6	PASS

SENSOR LINEARITY			
Point	DAS	Difference	
1	307.5	N/A	
2	352.9	0	PASS
3	31.8	-6	FAIL
4	79.7	3	PASS
5	123.9	-1	PASS
6	170.9	2	PASS
7	216.0	0	PASS
8	260.6	0	PASS
1	305.2	0	PASS
MAX Difference		6	

ACTION REQUIRED

Starting Threshold	TORQUE
Torque <= 6.5 g-cm	

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

NOTES: The meteorological site Lat/Long is 37°23'53.20"N, 112°26'43.07"W

Air Resource Specialists, Inc.

PRECIPITATION SENSOR AUDIT

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
Precipitation Reference	Novalynx	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	32.51	11.4%	FAIL

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

NOTES:

Air Resource Specialists, Inc.

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	BGI	Deltacal	1237	1/19/2016
PM Temperature Standard #1	BGI	Deltacal	1237	1/19/2016
PM Barometric Pressure Standard #1	BGI	Deltacal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200S
SERIAL NUMBER	N963B

Date and Time correct?
☑ Yes ☐ No
If no, time off by:
0 min

SETTINGS	
Total Flow	16.70

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

	FLOW VERIFICATION				
	Reference	Instrument	Actual Diff	Design Diff	
Total Flow	16.81	16.70	-0.7%	0.7%	PASS

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

	AMBIENT TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	13.2	12.8	-0.4	PASS

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

	FILTER TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	14.0	13.1	-0.9	PASS

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

	PRESSURE SENSOR (mmHg)			
	Reference	Instrument	Difference	
	590.0	589.0	-1.0	PASS

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

NOTES: Lat/Long 37°24'4.99"N, 112°27'20.98"W Time = MDT

Air Resource Specialists, Inc.

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	BGI	Deltacal	1237	1/19/2016
PM Temperature Standard #1	BGI	Deltacal	1237	1/19/2016
PM Barometric Pressure Standard #1	BGI	Deltacal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200S
SERIAL NUMBER	N964C

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

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	17.52	16.70	-4.7%	4.9%	PASS

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

AMBIENT TEMPERATURE SENSOR (°C)				
	Reference	Instrument	Difference	
	13.1	12.9	-0.2	PASS

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

FILTER TEMPERATURE SENSOR (°C)				
	Reference	Instrument	Difference	
	13.8	14.4	0.6	PASS

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

PRESSURE SENSOR (mmHg)				
	Reference	Instrument	Difference	
	590.5	592.0	1.5	PASS

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

NOTES: Lat/Long 37°24'4.99"N, 112°27'20.98"W Time = MDT

Air Resource Specialists, Inc.

FRM AUDIT (PM_{10})

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
SITE NAME		Alton Coal					
Network type		PSD					

	MANUFACTURER	MODEL	SERIAL NUMBER	EXPIRATION DATE
PM Flow Standard #1	BGI	Deltacal	1237	1/19/2016
PM Temperature Standard #1	BGI	Deltacal	1237	1/19/2016
PM Barometric Pressure Standard #1	BGI	Deltacal	1237	1/19/2016

MANUFACTURER	BGI
MODEL	PQ200S
SERIAL NUMBER	N962A

Date and Time correct?
☑ Yes ☐ No
If no, time off by:
0 min

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	18.36	16.67	-9.2%	9.9%	PASS

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

	AMBIENT TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	12.5	12.5	0.0	PASS

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

	FILTER TEMPERATURE SENSOR (°C)			
	Reference	Instrument	Difference	
	12.1	11.6	-0.5	PASS

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

	PRESSURE SENSOR (mmHg)			
	Reference	Instrument	Difference	
	584.5	584.0	-0.5	PASS

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

NOTES: Lat/Long 37°24'20.91"N, 112°26'1.07"W, Time = MDT

Air Resource Specialists, Inc.

SITE INFORMATION

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
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: Lat/Long listed above is for office at the Coal Hollow Mine

Air Resource Specialists, Inc.

CALIBRATION AND VERIFICATION STANDARDS

ABBR.	N/A	CLIENT	Alton Coal	AUDITOR	C.Kirk	DATE	3/18/2015
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	Eutechnics	4400	307635	5/27/2015
AT/RH Sensor Reference	Vaisala	HMP155	H4970003	2/3/2016
Barometric Pressure Reference				
Wind Speed Reference	RM Young	18811	CA03912	1/16/2016
Wind Speed Torque Gauge	RM Young	18310		
Wind Direction Alignment Reference	Brunton	Transit	5103212072	
Wind Direction Linearity Reference				
Wind Direction Torque Gauge				
Solar Radiation Reference Multiplier W/m2 / mV	Eppley	PSP	29282F3	12/23/2015
UV Radiation Reference Multiplier W/m2 / mV				
Precipitation Reference Volume 946 mL	Novalynx	260-2595	N/A	N/A

PM Flow Standard #1	BGI	Deltacal	1237	1/19/2016
PM Flow Standard #2				
PM Flow Standard #3				
PM Flow Standard #4				

PM Temperature Standard #1	BGI	Deltacal	1237	1/19/2016
PM Temperature Standard #2				
PM Temperature Standard #3				
PM Temperature Standard #4				

PM Barometric Pressure Standard #1	BGI	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

MICRO PRECISION CALIBRATION INC.

MICRO PRECISION CALIBRATION
22835 INDUSTRIAL PLACE
GRASS VALLEY CA 95949
530-268-1860

Certificate of Calibration

Date: May 27, 2014 **Cert No. 220081222138835**

Customer:
AIR RESOURCE SPECIALIST, INC
1901 SHARP POINT DR, STE E
FORT COLLINS CO 80525

		Work Order #:	SAC-70065869
		Purchase Order #:	A28492
MPC Control #:	AX7278	Serial Number:	307635
Asset ID:	N/A	Department:	N/A
Gage Type:	DIGITAL THERMOMETER	Performed By:	BARRY MORRIS
Manufacturer:	EUTECHNICS	Received Condition:	IN TOLERANCE
Model Number:	4400	Returned Condition:	IN TOLERANCE
Size:	N/A	Cal. Date:	May 27, 2014
Temp/RH:	68.8°F / 34.5 %	Cal. Interval:	12 MONTHS
		Cal. Due Date:	May 27, 2015

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CL7456	STANDARD PLATINUM RESISTANCE THERMOMETER PROBE	5681	1595	FLUKE	Dec 4, 2015	A7B16006
CR6700	DOUBLE WELL BATH	7013	79006	HART	Oct 8, 2014	220081202163455

Procedures Used in this Event

Procedure Name	Description
NAVAIR 17-20ST-183	Digital ThermometersÂ

Calibrating Technician: Barry Morris

BARRY MORRIS

QC Approval: B. Gold

BRIAN GOLD

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO 17025:2005, ISO 9001:2008, ANSI/NCSL Z540-1, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. The information on this report, pertains only to the instrument identified.

All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. This report may not be reproduced in part or in a whole without the prior written approval of the issuing MPC lab.

VAISALA Certificate of Calibration

Certificate #: 2011517-150203-HMP155-H4970003
Calibration Date: February 3, 2015
Type: Vaisala Humidity & Temperature Probe
Model #: HMP155
Serial #: H4970003
SR #: 303090

Customer: Air Resource Specialists Inc
1901 Sharp Point Drive
Suite E
Fort Collins, CO 80525

Condition: The instrument was operational upon receipt.

Action Taken: The instrument was calibrated. No adjustment was necessary.

Due Date: * February 3, 2016

RH Calibrated By:

Justin Walsh
Calibration Technician

Approved By:

The measurement results on the certificate are traceable to national or international standards. The results of this calibration relate only to the items being calibrated. This certificate may not be reproduced, except in full, without the prior written approval of the issuing laboratory. Vaisala is ISO 9001:2008 certified. Vaisala's calibration system complies with the requirements of ANSI/NCSL Z540-1-1994.

The calibration laboratory is controlled at 22 °C ± 3 °C and 40 %RH ± 20 %RH.

Special Limitations: None.

*Any due date given is based on a customer provided calibration interval. A number of factors may cause drift prior to the due date. Monitor all devices and calibrate when measurement error is suspected.

Vaisala Inc. | Boston Office
10-D Gill Street, Woburn, MA 01801, USA
Phone +1 781 933 4500 | Fax +1 781 933 8029
www.vaisala.com

VAISALA Certificate of Calibration

Certificate #: 2011517-150203-HMP155-H4970003
Calibration Date: February 3, 2015
Type: Vaisala Humidity & Temperature Probe
Model #: HMP155
Serial #: H4970003
SR #: 303090

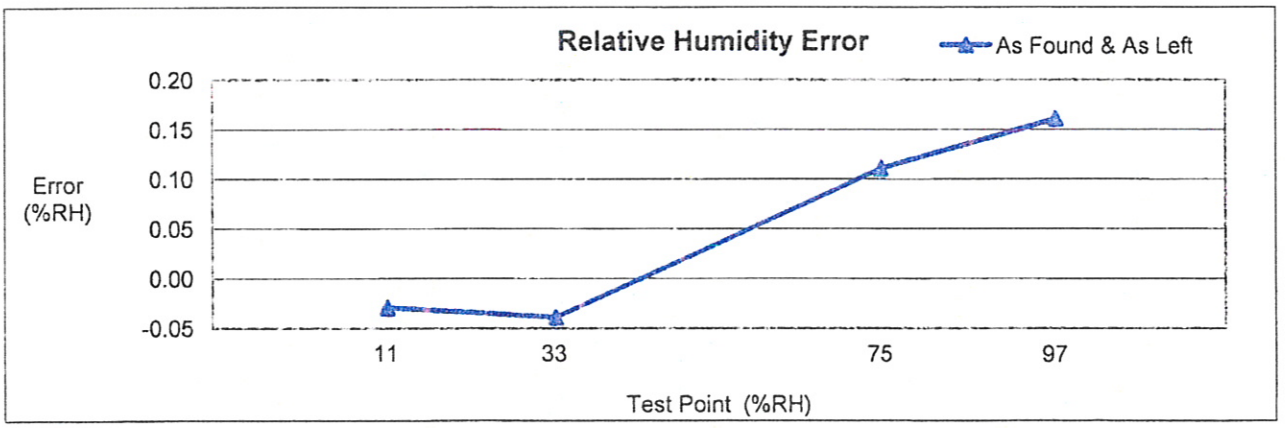
Relative Humidity Calibration

Procedure #: PI213851 Rev. F
Instrument Range: 0 to 100 %RH
Lab Environment: Relative Humidity 49.5 %RH, Temperature 21.3 °C

As Found & As Left Data

Out Of Tolerance As Received: NO

Relative Humidity, %RH				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
11.32	11.29	-0.03	1.00	0.92
32.97	32.93	-0.04	1.00	1.01
74.67	74.78	0.11	1.00	1.02
97.24	97.40	0.16	1.70	1.50
Temperature, °C				
Reference	**Unit Under Test**	**Error**	**± Tolerance**	**± Uncertainty**
21.36	21.37	0.01	0.18	0.12



Reference Standards Calibration Information: Station 3A				
Model	**Serial Number**	**Asset Number**	**Calibration Date**	**Due Date**
Vaisala DMT348	C3040013	3011-0315	Mar. 11, 2014	Mar. 11, 2015
Fluke 45	7781003	3011-0264	Aug. 20, 2014	Aug. 20, 2016
Vaisala HMK13B	V324	3011-0270	N/A	N/A
Vaisala HMT333	E0230023	3011-0323	Dec. 04, 2014	Mar. 04, 2015
Vaisala HMT333	E0230024	3011-0324	Dec. 04, 2014	Mar. 04, 2015

VAISALA Certificate of Calibration

Certificate #:	2011517-150203-HMP155-H4970003
Calibration Date:	February 3, 2015
Type:	Vaisala Humidity & Temperature Probe
Model #:	HMP155
Serial #:	H4970003
SR #:	303090

Description

The calibration was performed in the Standard Laboratory of Vaisala, Inc. The instrument was first allowed to equilibrate to the laboratory environmental conditions for a period of at least 8 hours.

Relative Humidity Calibration: The sensor of the instrument was placed inside a Vaisala HMK13B calibrator along with two Vaisala HMT333 probes. Each reference value is the average of the two HMT333 readings. The instrument was allowed to stabilize inside the chamber for at least 30 minutes at each testpoint.

References

The chambers of the Vaisala HMK13B generate RH testpoints in the air above saturated salt solutions. The Vaisala HMT333 measures RH using a capacitive polymer sensor and temperature using an RTD.

The Vaisala DMT348 measures dewpoint using a capacitive polymer sensor and temperature using an RTD. It calculates RH from the dewpoint and temperature readings.

In or Out of Tolerance Decision Rule

Out of tolerance conditions are determined by the product specification only. The calibration uncertainty is not tied in with the instrument's accuracy.

Uncertainty

The reported expanded uncertainty of the measurement is stated as the standard uncertainty of the measurement multiplied by the coverage factor of k=2, which corresponds to a coverage probability of approximately 95%. The standard uncertainty of the measurement has been determined in accordance with the ISO Guide to the Expression of Uncertainty in Measurement.

DOC228428 Rev. B

Vaisala Inc. | Boston Office
10-D Gill Street, Woburn, MA 01801, USA
Phone +1 781 933 4500 | Fax +1 781 933 8029
www.vaisala.com

CERTIFICATE OF CALIBRATION AND TESTING

MODEL: **18811** (Comprised of Models 18820A Control Unit & 18831A Motor Assembly)
SERIAL NUMBER: CA03912

R. M. Young Company certifies that the above equipment was inspected and calibrated prior to shipment in accordance with established manufacturing and testing procedures. Standards established by R.M. Young Company for calibrating the measuring and test equipment used in controlling product quality are traceable to the National Institute of Standards and Technology.

Nominal Motor Rpm	27106D Output Frequency Hz (1)	Calculated Rpm (1)	Indicated Rpm (2)
30.0	5	30.0	30.0
150.0	25	150.0	150.0
300.0	50	300.0	300.0
450.0	75	450.0	450.0
600.0	100	600.0	600.0
750.0	125	750.0	750.0
990.0	165	990.0	990.0
☑ Clockwise and Counterclockwise rotation verified			

(1) Measured frequency output of RM Young Model 27106D standard anemometer attached to motor shaft 27106D produces 10 pulses per revolution of the anemometer shaft
(2) Indicated on the Control Unit LCD display

* Indicates out of tolerance

☐ New Unit	☒ Service / Repair Unit	☐ As Found
	☒ No Calibration Adjustments Required	☐ As Left

Traceable frequency meter used in calibration Model: 34405A SN: 53020093

Date of inspection 1-16-15
Inspection Interval One Year

Tested By RP

EPLAB

THE EPPLEY LABORATORY, INC.

12 Sheffield Avenue, PO Box 419, Newport, Rhode Island USA 02840
Phone: 401.847.1020 Fax: 401.847.1031 Email: info@eppleylab.com

Calibration Certificate

Instrument: Precision Spectral Pyranometer, Model PSP, Serial Number 29282F3

Procedure: This pyranometer was compared in Eppley's Integrating Hemisphere according to procedures described in ***ISO 9847 Section 5.3.1*** and Technical Procedure, TP01 of The Eppley Laboratory, Inc.'s Quality Assurance Manual on Calibrations.

Transfer Standard: Eppley Precision Spectral Pyranometer, Model PSP, Serial Number 21231F3

Results: **Sensitivity:** **$S = 7.43\ \mu V / Wm^{-2}$**
Uncertainty: $U_{95} = \pm 0.91\%$ (95% confidence level, k=2)
Resistance: 717 Ω at 23°C

Date of Test: December 23, 2014

Traceability: This calibration is traceable to the World Radiation Reference (WRR) through comparisons with Eppley's AHF standard self-calibrating cavity pyrheliometers which participated in the Eleventh International Pyrheliometric Comparisons (IPC XI) at Davos, Switzerland in September-October 2010. Unless otherwise stated in the remarks section below or on the Sales Order, the results of this calibration are "AS FOUND / AS LEFT".

Due Date: Eppley recommends a minimum calibration cycle of five (5) years but encourages annual calibrations for highest measurement accuracy.

Customer: Air Resource Specialist, Inc.
Ft. Collins, CO

Signatures: In Charge of Test: Reviewed by:

Eppley SO: 64297

Date of Certificate: December 23, 2014

Remarks:

End of Report

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**