

Appendix 1

The Ekati Mine High Volume Air Sampling Work Instruction

Note:

This draft document was produced by BHP Billiton. DDEC did not adopt its own version of this document as the high volume air sampling equipment was phased out in 2013 before the mine completely transitioned to DDEC.

EKATI DIAMOND MINE

2014 Air Quality Monitoring Program

High Volume Air Sampling Work Instruction

EKA WI. 2113.07
Task Description:

The EKATI Diamond Mine uses an air quality management and monitoring plan to watch for possible effects of emissions and fugitive dust to soil, water, vegetation, animals and worker health and safety. This work instruction covers the proper operation of the High Volume (HiVol) Total Suspended Particulate (TSP) air samplers.

The purpose of this work instruction is to provide instruction on the proper operation of the HiVol TSP sampling to employees and contractors, thereby ensuring that samples are collected in a consistent manner in accordance with the Air Quality Monitoring Program.

This work instruction applies to all Environment Department employees and consultants designated to operate the HiVol TSP samplers. There are two HiVol TSP samples located at:

1. On the roof of the Grizzly Lake Pumphouse,
2. East of Cell B of the LLCF (at the base of the meteorology station).

Sampling is scheduled on a 6-day rotation and is required year-round.

HSE Information / Safety Risks:

- Working on roof tops, snow and ice may make access slippery
- Sampler shelter doors or roof may slam in wind and may pinch fingers/hands
- Exposure – wind chills may be encountered
- Difficult terrain walking up to access Cell B station
- Wildlife – Cell B station is approx.200 m from the road
- Slips, trips and falls accessing both HiVol stations
- Electrical energy source

Additional Resources Required:
Tools

- 2 Filter Paper Cartridges loaded with prepared filters;
- Clipboard;
- Pencil;
- 2 Data Sheets;
- 2 Circular charts;
- Spare flow recorder pens;
- Spare timer stops;
- Screwdriver or multi-tool;
- Watch; and
- PPE (Steel Toe Boots, Reflective Vest, Safety Glass, Gloves, Hard-Hat, Winter Clothing as Required).

High Volume Air Sampling Work Instruction

EKA WI. 2113.07
Work Preparation:

Item	Task Description
1	Equipment Preparation
2	Filters used for the collection of TSP are batch prepared and stored individually in sequentially numbered envelopes or ziplock bags.
3	- Dry filters in the Fisher Scientific 737F Isotemp drying oven at 105°C for 24 hours - Transfer dried filters to a Plas Labs #863-CG desiccator and cool to room temperature (approximately 2 hours). - Weigh filters individually using a Mettler Toledo AG204 analytical balance. Record the weight of the filter to four decimal places on the data sheet and on the envelope that the filter paper will go into after the run. <i>Filters must never be touched with bare hands, only with tweezers and must be treated very carefully.</i>
4	Position one of the pre-weighed filters on the Graseby G3000 Filter Paper Cartridge with the rougher side facing up. Secure the filter hand-tight with the knurled part of the retaining nut facing upwards. <i>The filters must not be damaged! Even the slightest rip or hole make them useless and a new filter must be weighed and installed.</i> The cartridge cover is snapped on to prevent damage and contamination during transport.
5	Blank data sheets are located in Section 7 of the <i>High Volume Air Sampling binder</i> . Two data sheets are required for each sampling round (one for each location). Record the filter number and filter weight as indicated on the envelope on the data sheets when they are placed into the cartridge. TSP-2 refers to the Grizzly Lake station and TSP-3 refers to the Cell B station. Destination and sampling personnel must also be entered on the data sheet. It is important that the next <i>brush change</i> and <i>calibration due</i> fields at the top of the data sheet is filled in. These values may be taken from the previous data sheet or the calibration sheets in section 4 and 5 in the HiVol binder. This allows instant recognition of the need to service and calibrate the sampler motors.
6	Sampling must take place every 6 days during the entire year. Consult the sampling schedule calendar to ensure proper timing. During periods of possible heavy snowfall, the suspension of sampling to avoid sampler motor damage should be discussed with the on-site Advisor or Team Leader.

Work Execution Steps:

Item	Task Description
1	Starting the Sampling Sampling is generally started at TSP-2 on top of the Grizzly Lake pumphouse. During winter months access to Cell B (TSP-3) should be confirmed prior to installing at Grizzly (TSP-2). Upon arrival, inspect the sampler for damage and test the motor by turning it on manually without a filter cartridge loaded. Run the motor for 2 to 5 minutes to warm it up and check for proper function. The On/Off switch is reached by opening the main housing door, then opening the mechanical timer housing. The switch is located at the 6 o'clock position below the timer disk and is moved right/left to switch On/Off.

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	• After the warm-up period, the motor is shut off and the filter cartridge is placed and secured to the Graseby G10470 Filter Holder (located on top of the sampler underneath the tip-up roof). A chain and S-hook secure the tip-up roof in the open (and closed) position while fastening the cartridge using the four plastic wing nuts. The wing nuts should be evenly finger-tight tightened. Remember to remove the filter cartridge cover before closing the roof and securing it with the S-hook. The removed cover should be brought back to the Environment Lab. • A TE-106 circular chart is labelled with the date and location (TSP-2 or TSP-3) and inserted into the TE-5009 continuous flow recorder. The chart will fit two ways and care must be taken to insert it so that the pen is at the correct time setting (am or pm). The chart is secured underneath by the two small metal retainers. The pen should be tested and replaced if necessary. The pen is then lowered onto the chart by moving the silver lifter arm. The pen should now sit at the correct present time. If not, adjust the chart by inserting a screwdriver into the slot of the axis. The recorder is not yet closed. • The TE-5007 Flow Controller/7-Day Mechanical timer is checked and set to the correct present time, as displayed by the end of the indicator hand. To correct it, manually turn only in the direction indicated on the timer disk. A stop-clip is attached to the rim of the disk and hand-tightened. The pointed part of the clip indicates the shut-off time; it should be set for 24 hours plus a 30 minutes extra run time from the present time. Care must be taken not to confuse am and pm, as the machine will then only run for 12 hours. • Month, Day, Year, Hour Meter Reading and the Present Time (24-hour time) are filled out on the data sheet. This hour reading is compared to the hours previously entered in the Next Brush Change and Calibration Due field. If the sampler has reached (or will be reaching during the sampling), the hours indicated the motors will have to be removed at the end of the sampling event for service/calibration. • The sampler is now turned on manually to measure the circular chart reading. The flow recorder is lightly tapped and the stabilized pen reading on the circular chart is read and written into the field provided on the data sheet under Circular Chart Reading. The reading is taken in CFM; the distance between two lines equals 2 CFM. The min/max reading should be in the 45 to 55 CFM range, if it deviates significantly, it may indicate a problem such as cartridge cover not removed or tear in filter paper. If it is still not within the min/max range, an adjustment to the flow can be made on the mass flow controller, using the adjustment pen and inserting it into the hole and adjusting right or left. • Upon completion of the set-up, call the airport technician at 880-2220 for the required weather information. Temperature must be accurate to one decimal point. The airport technician takes hourly readings on the hour and the reading closest to the start time must be used. This could mean that two different weather data set are required. Example: one sampler was started at 15:20 (nearest to the 15:00 weather recording), the other one at 15:40 (nearest to the 16:00 weather recording). • The above procedure is repeated at TSP-3.
2	Ending the Sampling • After the 24 hours run-time has been completed, the samplers will be shut down (manually or automatically) and the used filter cartridges returned to the Environment Lab. A reasonable effort should be made to arrive at the site precisely at the same time they were set the previous day. If the samplers are found still running upon arrival, the Start

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	Sampling Hour Meter entry is compared to the actual hour meter reading. If at least 24 hours have passed according to these numbers (not watch time) the sampler motor is shut-down manually. If not enough time has passed wait until the correct amount of time has passed. If the sampler stopped already on its own, this step can be omitted. - Any clips on the edge of the yellow timer disk, stop or others, must be removed and placed at the bottom of the timer housing. Date, Time of Shutdown (24-hour time) and Hour Meter Reading are entered on the data sheet. The meter hours are compared to the Brush Change and Calibration Due entered at the start of the run time. If the meter is in need of service, the motors must be removed, serviced and calibrated before the next sampling even. For calibration, refer to Section 5: Calibration below. - The circular chart is removed and the last pen reading (before it dropped down to zero) is recorded on the data sheet. - The roof of the sampler is opened and secured, the cartridge cover is snapped back on and the cartridge removed by loosening the four plastic wing nuts. The sampler roof, the cover and doors are closed securely and re-checked before leaving. This is repeated at the other sampler. - During transport, the filter cartridges containing the used filters should be handled carefully and kept horizontal to avoid particles from falling off. - Upon completion of the shutdown, the airport technician (880-2220) is called to supply the required weather information in the units necessary. Temperature must be accurate to one decimal point. The airport technician takes hourly readings on the hour, the time nearest to the actual shut-down event must be chosen for the weather data. This could mean that two different weather data sets may be required. Example: one sampler was stopped at 15:20 (nearest to the 15:00 weather recording), the other one at 15:40 (nearest to the 16:00 weather recording).
3	Lab Procedures - Upon returning to the Environment Lab, the filter covers and frames are taken off the filter papers. The filters are then folded into quarters using tweezers, lying on the open cartridge base. The side that captured the particulates is always folded in to avoid loss of particles. - The filters are then placed in the designated preheated pan and dried in the oven at 105° C for 24 hours. The pan must be labelled to identify the filters. - After 24 hours, the filter papers are removed from the oven and placed in the desiccator until they reach room temperature (approximately two hours). The filters should not be left in the desiccator longer than necessary. The desiccator door must be closed during cooling and the desiccant should be dry (blue). - The cooled filters are removed and weighed individually using the Mettler Toledo AG204 analytical balance. A pedestal is needed on the scale plate to accommodate the filters; a small beaker works well. The scale will need to be reset to zero prior to filter placement. The weight in grams up to four decimal points is recorded on the data sheet and the storage envelope. - The used filters are returned to their original envelopes or ziplock storage bags and stored in the boxes on in the Environment Lab. The empty filter cartridges and the clipboard are stored at the same location. - At this time, the supply of prepared filters should be checked and restocked, if required.

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4	Calculation and Data Entry Calculations are now performed on the data sheets in the following steps: • The atmospheric pressure is converted from mb to kPa by using the measurement conversion program and entered on the data sheet. • Run time hours are calculated and entered (two decimal places) by subtracting the meter hours at start-up from the meter hours at shut-down. If the above procedures were followed carefully this number should never be less than 24.00, but may be slightly above 24.00. • Average Pressure is calculated and entered by adding the converted pressures at start-up and shut-down and dividing the sum by two. • Average Temperature is calculated and entered in the same manner. • Average Circular Chart is calculated and entered by taking a chart pen reading every three hours (i.e. at 09:00, 12:00, 15:00, 18:00h etc.) for a total of eight readings. The average is calculated by dividing the sum of these readings by eight. • These calculations are performed twice, one for each data sheet for each location. • The circular charts are stapled to the data sheet. Each data entry field of the data sheet should now be filled out. • The data is entered from the data sheets into the HiVol Excel spreadsheet located under S:\Environment\Data\Air Quality\Hi-Vol\Calibration on the field computer and then saved in Documentum. The TSP value will be calculated automatically once all the data is transferred.
5	Calibration and Brush Change Calibration of the sampler unit should be completed by a trained individual following the instructions found in WI.2107.04 High Volume Air Sampler Calibration. • Calibration is required under the following conditions: after three months or 400 operation hours, after motor maintenance and upon initial installation. Brush changes are required every 400 running hours. If it is recognized during sampling that any of these conditions apply, a trained technician should be notified immediately to perform the task. • Changing the brushes of the electric motors require the sample motors to be removed back at the Environment Lab. This requires a partial disassembly to exchange these parts. The procedure is outlined in the Operations Manual for Graseby Tisch Environmental TE-5170 Series. • Calibration of the unit is performed using the Graseby G2835 (Vari-Flo) calibration kit, located in the Environment Lab mud room. The procedure is covered in EKA WI.2107.04 and can be found on Pg. 10-22 in the Operations Manual for Tisch Environmental Model TE-5170 Series. The calibration result are calculated using the excel data sheet S:\Environment\Data\Air Quality\Hi-Vol\Calibration located on the field computer and then saved in Documentum. The spreadsheet formulas will automatically calculate the correlation coefficient r which must be 0.990 or larger for the calibration to be accepted. If r is smaller than 0.990 the system has not been calibrated, and the calibration must be performed again. This procedure must be performed twice, once for each TSP sampler serviced. It is advisable that brush changes and calibration are done for both samplers at the same time.

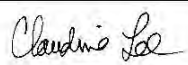
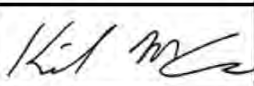
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Definitions

HiVol TSP sampler - High Volume Total Suspended Particulate Air Sampler, namely the Tisch Environmental Model TE-5170 Series equipped with a mass flow controller. The equipment functions by drawing a known volume of air through a pre-weighed rectangular glass fibre filter at a known flow rate for a 24-hour period. The filter paper is weighed after the 24-hour period and the concentration of TSP determined gravimetrically. The sampler is operated on a six day sampling schedule to avoid sampling bias.

Filter - Binderless glass fibre filters measuring 20.0 by 25.4 cm (Graseby Model # G810).

APPROVAL SIGNATURES EKA WI.2113.07 Version 1.0

REVIEWER ROLE	NAME	SIGNATURE	DATE
Environmental Advisor - Operations	Claudine Lee		23-Feb-2012
Team Leader - Compliance	Richard Ehlert		21-Feb-2012
Superintendent - Environmental Operations	Keith Mclean		23-Feb-2012

Appendix 2

High Volume Air Sampling Calibration Records, 2012 to 2014

EKATI DIAMOND MINE

2014 Air Quality Monitoring Program

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Sampler: **TSP-2**

Test #	KPa Manometer	in. H ₂ O Total	Y I	X IC	Qstd	xy	x ²	y ²
1	1.65	6.6165	39	43.023	1.782	76.6718	3.17593	1850.98
2	2.17	8.7017	46	50.745	2.040	103.496	4.15969	2575.06
3	1.88	7.5388	41	45.229	1.900	85.9511	3.6113	2045.69
4	1.04	4.1704	30	33.095	1.421	47.0188	2.0185	1095.25
5	0.25	1.0025	18	19.857	0.711	14.1211	0.50573	394.291

CFM
62.93
72.03
67.11
50.17
25.11

Pa =	1001.5	mb	Sum	191.949	7.854	327.259	13.4712	7961.26
Pa conversion =	801.2	mm Hg	(sum) ²	36844.3	61.6834			
T =	-15	C						

Pa/760 = 1.054211 mean of y= 38.390
 298/T = 1.154368 mean of x= 1.571

conversion 35.31467 m =slope = 22.6983
 m³/min to CFM b =intercept = 2.73583

r =correlation coefficient = 0.9933

r must be >= to 0.990

Date of Calibration: 13/Jan/2012
 Calibrated by: R.Ehlert/ K.Janke
 Hours at start of calibration:
 Hours at end of calibration:
 Hours at next calibration/brush change: 400

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Sampler: **TSP-3**

Test #	KPa Manometer	in. H ₂ O Total	Y I	X IC	Qstd	xy	x ²	y ²
1	0.95	3.8095	44	49.137	1.376	67.5908	1.89214	2414.48
2	1.27	5.0927	49	54.721	1.586	86.7861	2.5153	2994.4
3	1.48	5.9348	52	58.071	1.710	99.2909	2.92344	3372.29
4	1.01	4.0501	44	49.137	1.417	69.6489	2.00912	2414.48
5	0.19	0.7619	26	29.036	0.631	18.3206	0.39812	843.072

CFM
48.58
56.01
60.38
50.06
22.28

Pa =	1002.5	mb	Sum	240.103	6.720	341.637	9.73811	12038.7
Pa conversion =	802	mm Hg	(sum) ²	57649.4	45.1547			
T =	-21	C						

Pa/760 = 1.055263 mean of y= 48.021
 298/T = 1.181836 mean of x= 1.344

conversion 35.31467 m =slope = 26.8
 m³/min to CFM b =intercept = 12.0029

r =correlation coefficient = 0.99909

r must be >= to 0.990

Date of Calibration: 14/Jan/2012
 Calibrated by: C.Lee/K.Janke
 Hours at start of calibration:
 Hours at end of calibration:
 Hours at next calibration/brush change: 400

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Range
 1 1.25-1.33
 2 1.57-1.63
 3 1.51-1.57
 4 1.14-1.18
 5 1.39-1.46

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Sampler: **TSP-2**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	1.3	5.213	47	49.887	1.526	76.13689	2.329247	2488.713
2	1.7	6.817	53.5	56.786	1.741	98.87387	3.031632	3224.68
3	1.54	6.1754	51	54.133	1.659	89.78317	2.750872	2930.35
4	1.16	4.6516	44.5	47.233	1.443	68.16968	2.082972	2230.998
5	1.42	5.6942	49.5	52.541	1.594	83.73818	2.54014	2760.511

CFM
53.90
61.49
58.57
50.97
56.28

Pa =	999	mb	Sum	260.580	7.963	416.7018	12.73486	13635.25
Pa conversion =	799.2	mm Hg	(sum) ²	67901.92	63.40861			
T =	5	C						

Pa/760 = 1.051579 mean of y= 52.116
 298/T = 1.071364 mean of x= 1.593

conversion 35.31467 m =slope = 32.07782
 m³/min to CFM b =intercept = 1.029161

r =correlation coefficient = 0.998298
 r must be >= to 0.990

Date of Calibration: 9/May/2012
 Calibrated by: M.King and K.Shea
 Hours at start of calibration:
 Hours at end of calibration:
 Hours at next calibration/brush change: 400

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Range
 1 .55-.65
 2 1.1-1.2
 3 1.07-1.15
 4 .84-.91
 5 1.06-1.14

Sampler: TSP-3

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	0.6	2.406	35	37.083	1.044	38.7217	1.090316	1375.171
2	1.15	4.6115	46.5	49.268	1.435	70.6803	2.058119	2427.317
3	1.11	4.4511	45	47.679	1.410	67.22411	1.987946	2273.241
4	0.86	3.4486	41.5	43.970	1.244	54.71987	1.548722	1933.378
5	1.13	4.5313	46	48.738	1.422	69.3218	2.023035	2375.397

CFM
36.87
50.66
49.79
43.95
50.23

Pa =	999	mb	Sum	226.738	6.556	300.6678	8.708137	10384.5
Pa conversion =	799.2	mm Hg	(sum) ²	51410.05	42.97527			
T =	6	C						

Pa/760 = 1.051579 mean of y= 45.348
 298/T = 1.067526 mean of x= 1.311

conversion 35.31467 **m =slope = 29.97257**
 m³/min to CFM **b =intercept = 6.050217**

r =correlation coefficient = 0.995583
 r must be >= to 0.990

Date of Calibration: 9/May/2012
 Calibrated by: M.King/K.Shea
 Hours at start of calibration:
 Hours at end of calibration:
 Hours at next calibration/brush change: 400

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Range
 1 1.25-1.33
 2 1.57-1.63
 3 1.51-1.57
 4 1.14-1.18
 5 1.39-1.46

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Sampler: **TSP-2**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	1.3	5.213	47	49.887	1.526	76.13689	2.329247	2488.713
2	1.7	6.817	53.5	56.786	1.741	98.87387	3.031632	3224.68
3	1.54	6.1754	51	54.133	1.659	89.78317	2.750872	2930.35
4	1.16	4.6516	44.5	47.233	1.443	68.16968	2.082972	2230.998
5	1.42	5.6942	49.5	52.541	1.594	83.73818	2.54014	2760.511

CFM
53.90
61.49
58.57
50.97
56.28

Pa =	999	mb	Sum	260.580	7.963	416.7018	12.73486	13635.25
Pa conversion =	799.2	mm Hg	(sum) ²	67901.92	63.40861			
T =	5	C						

Pa/760 = 1.051579 mean of y= 52.116
 298/T = 1.071364 mean of x= 1.593

conversion 35.31467 m =slope = 32.07782
 m³/min to CFM b =intercept = 1.029161

r =correlation coefficient = 0.998298
 r must be >= to 0.990

Date of Calibration: 30-Sep-2012
 Calibrated by: K.Shea/J.Heron
 Hours at start of calibration: 4723.09
 Hours at end of calibration: 4723.09
 Hours at next calibration/brush change: 5123.09

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Range
 1 .55-.65
 2 1.1-1.2
 3 1.07-1.15
 4 .84-.91
 5 1.06-1.14

Sampler: **TSP-3**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	0.6	2.406	35	37.083	1.044	38.7217	1.090316	1375.171
2	1.15	4.6115	46.5	49.268	1.435	70.6803	2.058119	2427.317
3	1.11	4.4511	45	47.679	1.410	67.22411	1.987946	2273.241
4	0.86	3.4486	41.5	43.970	1.244	54.71987	1.548722	1933.378
5	1.13	4.5313	46	48.738	1.422	69.3218	2.023035	2375.397

CFM
36.87
50.66
49.79
43.95
50.23

Pa =	999	mb	Sum	226.738	6.556	300.6678	8.708137	10384.5
Pa conversion =	799.2	mm Hg	(sum) ²	51410.05	42.97527			
T =	6	C						

Pa/760 = 1.051579 mean of y= 45.348
 298/T = 1.067526 mean of x= 1.311

conversion 35.31467 **m =slope = 29.97257**
 m³/min to CFM **b =intercept = 6.050217**

r =correlation coefficient = 0.995583

r must be >= to 0.990

Date of Calibration: 30-Sep-2012
 Calibrated by: K.Shea/J.Heron
 Hours at start of calibration: 4358.15
 Hours at end of calibration: 4358.15
 Hours at next calibration/brush change: 4758.15

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O

I = Continuous flow recorder readings during calibration

IC = Continuous flow recorder readings corrected to standard

Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28

Serial # 5339

m= 1.61822

b= -0.046260

Range

1 .55-.65

2 1.1-1.2

3 1.07-1.15

4 .84-.91

5 1.06-1.14

Sampler: **TSP-3**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	2.1	8.421	62	68.556	2.011	137.898	4.04602	4699.92
2	1.95	7.8195	60	66.344	1.939	128.665	3.76105	4401.59
3	1.39	5.5739	51	56.393	1.642	92.5865	2.69555	3180.15
4	1.01	4.0501	45	49.758	1.404	69.8474	1.97047	2475.89
5	0.4	1.604	29	32.066	0.894	28.6671	0.79922	1028.26

CFM
71.03
68.49
57.98
49.57
31.57

Pa =	1014	mb	Sum	273.118	7.890	457.664	13.2723	15785.8
Pa conversion =	811.2	mm Hg	(sum) ²	74593.4	62.2576			
T =	-13	C						

Pa/760 =	1.067368	mean of y=	54.624
298/T =	1.145493	mean of x=	1.578

conversion	35.31467	m =slope =	32.4869
m ³ /min to CFM		b =intercept =	3.35695

r =correlation coefficient = 0.9995

r must be >= to 0.990

Date of Calibration:	05-Nov-2012 15:45
Calibrated by:	D. Bruce
Hours at start of calibration:	4511.94
Hours at end of calibration:	4511.94
Hours at next calibration/brush change:	4911.94

Note: calibration was required due to new motor installation

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28 Recently calibrated Nov 2012 by Tisch Environmental.
 Serial # 5339 Cal sheet TE-5028A call for questions 18772637610
 m= 1.62805
 b= -0.049130

Sampler: **TSP-2**

Test #	KPa Manometer	in. H ₂ O Total	Y I	X IC	Qstd	xy	x ²	y ²
1	2.45	9.8245	66	72.448	2.144	155.293	4.59465	5248.68
2	2.25	9.0225	62	68.057	2.055	139.886	4.22475	4631.76
3	1.45	5.8145	49	53.787	1.656	89.0705	2.74229	2893.04
4	0.42	1.6842	28	30.735	0.905	27.8211	0.81935	944.666
5	0.17	0.6817	8	8.782	0.587	5.15357	0.34441	77.1156

CFM
75.70
72.59
58.48
31.97
20.72

Pa =	953.2	mb	Sum	233.809	7.347	417.224	12.7255	13795.3
Pa conversion =	762.56	mm Hg	(sum) ²	54666.5	53.9779			
T =	-25	C						

Pa/760 = 1.003368 mean of y= 46.762
 298/T = 1.200887 mean of x= 1.469

conversion 35.31467 **m =slope = 38.1718**
 m³/min to CFM **b =intercept = -9.32761**

r =correlation coefficient = 0.99123

r must be >= to 0.990

Date of Calibration:	25/Jan/2013
Calibrated by:	kj/ J.Po
Hours at start of calibration:	5149
Hours at end of calibration:	5149
Hours at next calibration/brush change:	5549

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

cell b.

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O

I = Continuous flow recorder readings during calibration

IC = Continuous flow recorder readings corrected to standard

Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28

Recently calibrated Nov 2012 by Tisch Environmental.

Serial # 5339

Cal sheet TE-5028A call for questions 18772637610

m= 1.62805

b= -0.049130

Sampler: **TSP-3-Cell B**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	1.51	6.0551	56	61.471	1.689	103.8417	2.853678	3778.666
2	1.35	5.4135	48	52.689	1.599	84.24613	2.556554	2776.163
3	1.02	4.0902	44	48.299	1.394	67.3172	1.942604	2332.748
4	0.6	2.406	33	36.224	1.076	38.97719	1.157792	1312.171
5	0.14	0.5614	7	7.684	0.535	4.113639	0.286612	59.04165

CFM
59.66
56.47
49.22
38.00
18.91

Pa =	953.2	mb	Sum	206.366	6.293	298.4958	8.79724	10258.79
Pa conversion =	762.56	mm Hg	(sum) ²	42587.1	39.60623			
T =	-25	C						

Pa/760 =	1.003368	mean of y=	41.273
298/T =	1.200887	mean of x=	1.259

conversion	35.31467	m = slope =	44.23396
m ³ /min to CFM		b = intercept =	-14.4027

r = correlation coefficient = 0.992113

r must be >= to 0.990

Date of Calibration:	25/Jan/2013
Calibrated by:	kj/ J.Po
Hours at start of calibration:	4728
Hours at end of calibration:	4728
Hours at next calibration/brush change:	5128

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
 I = Continuous flow recorder readings during calibration
 IC = Continuous flow recorder readings corrected to standard
 Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Range
 1 1.57-.161
 2 1.65-.1.70
 3 1.37-1.44
 4 0.96-0.98
 5 .29-.31

Calibration Orifice:

Model G28
 Serial # 5339
 m= 1.61822
 b= -0.046260

Sampler: **TSP-2**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	1.59	6.3759	53	17.620	0.547	9.644124	0.299583	310.4624
2	1.68	6.7368	54	17.952	0.562	10.08603	0.315643	322.2885
3	1.4	5.614	50	16.623	0.515	8.566631	0.265597	276.3104
4	0.97	3.8897	42	13.963	0.434	6.056691	0.188155	194.9646
5	0.3	1.203	20	6.649	0.254	1.68832	0.064475	44.20967

CFM
19.33
19.84
18.20
15.32
8.97

Pa =	95.15	mb	Sum	72.807	2.312	36.0418	1.133452	1148.236
Pa conversion =	76.12	mm Hg	(sum) ²	5300.85	5.346319			
T =	-3.1	C						

Pa/760 = 0.100158 mean of y= 14.561
 298/T = 1.103499 mean of x= 0.462

conversion 35.31467 m =slope = 36.96627
 m³/min to CFM b =intercept = -2.53337

r =correlation coefficient = 0.998

r must be >= to 0.990

Date of Calibration: 14-May-2013
 Calibrated by: ks/ah
 Hours at start of calibration: 5188.36
 Hours at end of calibration:
 Hours at next calibration/brush change: 400

Total Suspended Particulate Hi-Volume Air Sampler - Calibration Worksheet

!!ONLY EDIT SHADED FIELDS!!

Definitions:

H₂O = Orifice manometer reading during calibration, inches H₂O
I = Continuous flow recorder readings during calibration
IC = Continuous flow recorder readings corrected to standard
Qstd = Actual flow rate as indicated by the calibrator orifice, m³/min

Calibration Orifice:

Model G28
Serial # 5339
m= 1.61822
b= -0.046260

Range
1 1.74-1.81
2 1.37-1.42
3 0.39-.40
4 0.19-.2
5 0.10-.11

Sampler: **TSP-3**

Test #	KPa	in. H ₂ O	Y	X	Qstd	xy	x ²	y ²
	Manometer	Total	I	IC				
1	1.77	7.0977	55.5	18.465	0.576	10.64225	0.332166	340.966
2	1.4	5.614	48	15.970	0.516	8.236272	0.265983	255.0396
3	0.39	1.5639	24.5	8.151	0.286	2.328862	0.081626	66.44424
4	0.19	0.7619	15	4.991	0.208	1.038295	0.043285	24.90621
5	0.1	0.401	10	3.327	0.159	0.528282	0.025212	11.06943

CFM
20.35
18.21
10.09
7.35
5.61

Pa =	95.12	mb	Sum	50.904	1.745	22.77396	0.748272	698.4255
Pa conversion =	76.096	mm Hg	(sum) ²	2591.242	3.043663			
T =	-3.6	C						

Pa/760 = 0.100126 mean of y= 10.181
298/T = 1.105546 mean of x= 0.349

conversion 35.31467 m =slope = 35.92063
m³/min to CFM b =intercept = -2.35265

r =correlation coefficient = 0.999639

r must be >= to 0.990

Date of Calibration: 14-May-2013
Calibrated by: ks/ah
Hours at start of calibration: 5604.81
Hours at end of calibration: 5604.96
Hours at next calibration/brush change: 6004.96

Appendix 3

The Ekati Mine Partisol Sampling Work Instruction

EKA WI.2113.26 Partisol Deployment and Retrieval

Version:	1.1
Replaces:	NA
Creation Date:	2014-01-04
Scheduled Review Date:	2015-08-06
Review Date:	N/A
Document Team Members:	Environment Specialist Team Leader – Environment
Document Owner:	Environment Advisor - Operations
Document Approver:	Superintendent – Environment Operations
Related Documents:	Thermo Scientific Partisol 2000i Sampler Manual
Key Contacts:	Maxxam, Environment Advisor/ Team Leader/ Compliance Specialist
Change Requests:	Environment Advisor - Operations
Brief Description:	Procedure to deploy and collect Partisol filters and USB data download.

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Task Description

To complete Partisol filter exchange and Partisol external leak check maintenance in a consistent manner in accordance with the Partisol operation procedure.

HSE Information/ Safety Risks

- Wildlife encounters
- Vehicle and/or haul traffic
- Uneven terrain to/from the Partisol location. Deep snow or soft snow in winter conditions
- Slips, trips and falls
- Pinch points
- Working Alone
- Electricity
- Exposure and changing weather conditions
- Polar Explosives yard

Cell B: The Cell B Partisol is accessed from the north side of the Long Lake Containment Facility Road. Cell B roadway is regularly used by mine services equipment (water truck/grader) and other light vehicles. The terrain in the vicinity of Cell B is uneven, steep and mainly rocky ground. Winter terrain conditions include snow drifts and deep snow pockets. Confirmation of road access to Cell B with Camp Services is advised during the winter season.

Grizzly Lake: Partisol is accessed by the stairs at the Grizzly fresh water pump house. Winter conditions include deep snow and slippery stair conditions.

CAMB: Partisol can be accessed by calling Polar Explosives on radio channel 18 to request permission to enter their yard. Once inside the yard, sign in at the main office and proceed to CAMB. Winter conditions include deep snow and slippery stair conditions. Sign out when work is complete and exit yard.

Additional Resources Required:

- Filter exchange: 3 new filters and 3 new field sheets plus the previous filter exchange field sheets and the empty cassettes for the filters that are in the Partisol units. All supplies can go into one clipboard that is designated for Partisols; found in the lab near the desiccator.
- External Leak Test: requires an external adaptor and a 'test' filter.
- Data Download: USB stick

Partisol Deployment

A sample cannot be programmed when the Partisol is in WAIT or DONE mode. Each deployment session requires input of the filter RP ID and sample date. The machine must be in STOP mode to make changes.

Enter into STOP Mode status by pressing  twice. Confirmation to enter STOP mode by pressing yes arrow.

Filter Exchange and Sample Date Input

- I. Press  to access the Main Menu.
- II. Machine should be in 'STOP' mode. If not, enter into STOP Mode status by pressing  twice.
The machine will ask confirmation to enter STOP mode. Press yes.
- III. Sampling Set Up: Filter ID
Under Sample Set Up> Sample> Filter ID
Use the arrows to scroll to enter the filter ID (on cassette) and then Save Filter #.
Exit back to Sample Date tab to enter the actual sample date and press Save.
- IV. Filter exchange (install/ exchange):
Pull the black roller handle to the front SLOWLY. Manual Pg. 3-7
Remove metal cassette and carefully insert the filter into the metal filter cassette and tighten the screw until the filter is secure. The filter should not be loose or fall out of the metal cassette.
Inspect the black rubber cassette seal to ensure that there are no cracks or damage, etc.
Insert the metal cassette into the holder and **Slowly** push the roller handle back into place.

Sampling Set Up Date

All Partisols sample automatically for 24hrs starting at 00:00. Only the sample data is required to be changed.

- I. Under Main Menu
- II. Sample Set Up > Enter > Sample set up > Enter
- III. To change start date (scroll with arrow) 
- IV. Then Save your new start date.
- V. Press  twice to return to main screen.
- VI. The sample date is indicated on the main screen.
- VII. Press 'Run'  in main menu twice and confirm the change.
- VIII. In the main menu screen the machine will indicate 'WAIT' mode until it enters 'SAMPLING' mode.
Deployment of the filter and time & filter RP# is complete.

Partisol Retrieval and Data download

Filter Retrieval: See Appendix 1 for photos.

Ensure when the sampled filters are removed, the filter is positioned upright during transport back to the Lab.

Open the enclosure door of Partisol station. The main screen will show 'DONE' (i.e. standby).

The machine must be in **STOP mode** to change filter cassettes.

Press  in main menu to confirm enter Stop Mode. Choose **Yes**.

- I. **Slowly** pull the filter exchange mechanism towards you to open filter exchange mechanism (Filters may pop out accidentally if exchange mechanism is forced quickly).
- II. Remove filter from metal filter cassette holder.
- III. Keeping the filter upright out of wind/rain/snow. Store filter into grey plastic bag and cassette for storage.
- IV. Store in lab desiccator until shipping occurs.

- V. Ensure that during transport, storage and shipping, filters remain upright.

Data Download

Records are stored separately as Records #1-32.

- I. Main Menu > **View Records** screen> Choose the latest Filter record via up/down arrow
 - a. Retrieve all required data on field sheets: Actual START; Actual END; Total Time, Valid Time; Total m³, STD and Errors(if any).
- II. Review alarms: This is required as there could be a power outage and it will record the actual start/stop time.
Exit by pressing  to return to main screen.
- III. The machine will hold a maximum of 32 records. After which it will not store any more records internally and be manually downloaded onto a USB key (see USB Download 5.0).

USB Data Download and Datalog Record Erase

Each Partisol memory can hold 32 records internally. The data log is downloaded prior to record 30 with a USB stick. A USB stick is inserted into the front panel port to export the data log.

- I. Insert USB
- II. Press  to scroll to locate USB menu item on the main menu and press  (enter).
- III. The available USB port is displayed (Port1).
- IV. Select the Port and press  enter scroll to sample data and export data logs then press  enter to follow instructions. Export progress will be shown as a percentage.
- V. Remove USB when data export is completed.
- VI. Exit to main menu.

Erase Use Data Log

The Erase User Data log screen is used to erase all saved data for the selected record type.

- I. Main Menu, choose Instrument Setup> Data Logging > Erase Filter Data Log.
- II. The machine will erase all data and reset to Record 0.

External Leak Check

External leak checks are preformed quarterly throughout the year or when flow rates are observed to be out of range. Inform the Operations Advisor of when a leak check is preformed and not within the acceptable range. Review pages 7-4 to 7-8 in the Partisol manual.

- I. Enter AUDIT mode by pressing  scrolling to Audit and Calibration and pressing  to display the Audit and Calibration menu. With the cursor at Audit Mode, press  to display the Audit Mode screen, press  to enter the Audit mode and  to confirm the setting.
- II. Carefully remove the PM10 inlet from the Sampler and install the flow audit adapter on the end of the sample tube; turn the valve on the flow audit adapter to the closed position (i.e. horizontal).
- III. Install the designated test filter (labeled and re-usable for external leak checks).

- IV. Press  to return to the Audit and Calibration menu.
- V. Scroll to Leak Checks> External. Press  then press  to begin 60 second test.
- VI. A mmHg total is noted with a Pass or Fail message will be displayed based on test results. Record this information on the field sheet.
- VII. **Slowly** open the flow audit adaptor valve to release the vacuum pressure. Do not open the filter roller without releasing the adaptor valve first.
- VIII. Replace the leak adaptor with the PM10 inlet tube.
- IX. Exit Audit mode and enter into STOP mode.

General Remarks

1. The fan automatically runs to regulate internal temperatures when it detects 2°C difference. This can be turned off in winter.
2. Winter: Clean the external fan ports and inlets as frost accumulates.
3. Review Flow rate in the Records screen each time to confirm the machine is running correctly. A default of 16.7 L/min via mass flow controller and ambient temperature and pressure sensors. If the flow rate is **not** 16.7 L/min then complete an external flow check (as per manual instructions) and inspect the internal filter.
4. All calibration/ cleaning requires the machine to be in AUDIT mode. You must exit audit mode once finished.
5. Filters are pre-weighed by Maxxam Analytics. Contact project manager Levi Manchak at LManchak@maxxam.ca

Appendix 1

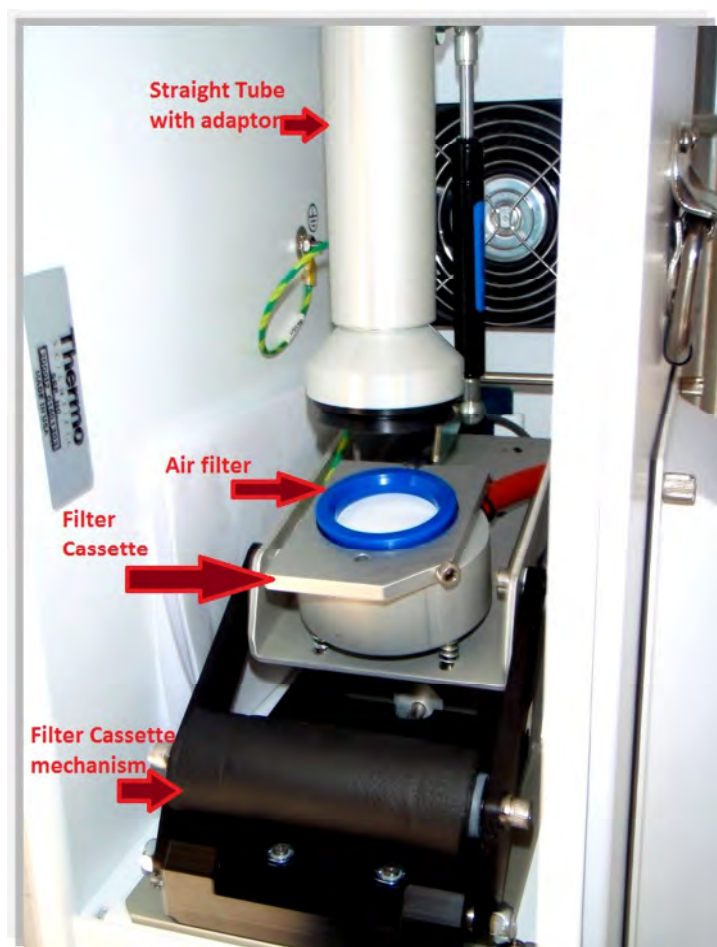
Main Screen view.



Current Time

Sampling

Machine Status: STOP, DONE, WAIT or



Internal set up of Partisol

Approval signatures record

REVIEWER ROLE	NAME	SIGNATURE	DATE
Advisor – Operations	Andrew Howton	<i>A Howton</i>	15 Apr 2014
Environment Superintendent	Claudine Lee	<i>Claudine Lee</i>	6Aug2014

Appendix 4

Partisol Sampling Calibration Records, 2013 to 2014

EKATI DIAMOND MINE

2014 Air Quality Monitoring Program

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 23, 2012	Make/Model:	Bios DC-2
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	1193 Cell 2272
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #1 PM2.5	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	20.97
Unit #:	NA	Pressure (mmHg):	723
S/N:	2000I201601203	Filter Temp (°C):	23.2
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	20.7	Δ °C	0.27
Filt Temp (±2 °C)	22.8	Δ °C	0.4
RH (%)	35.8	Δ %	
Ambient Press (±10.0 mmHg)	723	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
6 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.72/16.8

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:	slop:0.98, Intercept:0.49.
	After calibrate change to slop:0.95, Intercept:1.41.
	Calibrated from 17.5/17.63

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 23, 2012	Make/Model:	Bios DC-2
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	1193 Cell 2272
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #2 PM2.5	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	21.80
Unit #:	NA	Pressure (mmHg):	722
S/N:	2000I201631203	Filter Temp (°C):	23.2
		Set Flow (l/min):	16.67
		RH (%):	

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as DOL in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	21.5	Δ °C	0.30
Filt Temp (±2 °C)	22.9	Δ °C	0.3
RH (%)	40.6	Δ °%	
Ambient Press (±10.0 mmHg)	721	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
6 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.69/16.76

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:	slop:1.00, Intercept:-0.09.
	After calibrate change to slop:1.03, Intercept:-0.32.
	Calibrated from 17.0/17.1

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
--------------	---------	--------------------------------	---------	-------------------	---------

Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 24, 2012	Make/Model:	Bios DC-2
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	1193 Cell 2272
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #1 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	21.40
Unit #:	NA	Pressure (mmHg):	721
S/N:	2000I201581203	Filter Temp (°C):	22.7
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as **DOES** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	21.7	Δ °C	0.30
Filt Temp (±2 °C)	22.5	Δ °C	0.3
RH (%)	34.6	Δ °%	
Ambient Press (±10.0 mmHg)	720	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
6 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.71/16.78

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:	slop:0.95, Intercept:0.48.
	After calibrate change to slop:0.97, Intercept:0.31.
	Calibrated from 17.0/17.1

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
--------------	---------	--------------------------------	---------	-------------------	---------

Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 24, 2012	Make/Model:	Bios DC-2
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	1193 Cell 2272
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #2 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	21.40
Unit #:	NA	Pressure (mmHg):	721
S/N:	2000I201591203	Filter Temp (°C):	22.8
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	21.7	Δ °C	0.30
Filt Temp (±2 °C)	22.5	Δ °C	0.3
RH (%)	39.5	Δ °%	
Ambient Press (±10.0 mmHg)	720	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
20 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.69/16.82

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:	slop:0.97, Intercept:0.43.
	After calibrate change to slop:1.01, Intercept:-0.09.
	Calibrated from 16.93/17.04

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	October 29, 2012	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #1 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-14.30
Unit #:	#1	Pressure (mmHg):	722
S/N:	2000I201581203	Filter Temp (°C):	-14.2
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-15.2	Δ °C	0.90
Filt Temp (±2 °C)	-14.9	Δ °C	0.7
RH (%)	83	Δ °%	
Ambient Press (±10.0 mmHg)	723	Δ ATM	-1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	15.25	15.09

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition unknown	Status:	Condition ok
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Comments: Checked flow setpoint is 16.67lpm. But reading on front display is 15.25lpm.
Leakage check fail. Can not reach the setpoint flow rate.
Maybe it is blocked somewhere in sample line.
Try to change inline filter next trip.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	October 29, 2012	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #2 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-14.20
Unit #:	#2	Pressure (mmHg):	722
S/N:	2000I201591203	Filter Temp (°C):	-13
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-15.2	Δ °C	1.00
Filt Temp (±2 °C)	-14	Δ °C	1.0
RH (%)	87	Δ °%	
Ambient Press (±10.0 mmHg)	721	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		FAIL	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.71

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments: Leakage check fail.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 23, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #1 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-15.56
Unit #:	#1	Pressure (mmHg):	728
S/N:	2000I201581203	Filter Temp (°C):	-15.4
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-16.2	Δ °C	-0.64
Filt Temp (±2 °C)	-13.7	Δ °C	1.7
RH (%)	68.80%	Δ °%	
Ambient Press (±10.0 mmHg)	728	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
22 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	15.3	15.4

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition dirty	Status:	Condition ok
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Comments: Checked flow setpoint is 16.67lpm. But reading on front display is 15.3lpm.
 Audit it, flow meter is 15.4lpm.
 Remove it from field to shop. Try to repair it tomorrow.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 23, 2013	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #2 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-15.60
Unit #:	#2	Pressure (mmHg):	728
S/N:	2000I201591203	Filter Temp (°C):	-14.1
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-15.6	Δ °C	0.00
Filt Temp (±2 °C)	-12.4	Δ °C	1.7
RH (%)	75.10%	Δ °%	
Ambient Press (±10.0 mmHg)	728	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
21 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.69

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments: _____

Calibration Performed By: _____ Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 23, 2013	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #2 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-13.70
Unit #:	#2	Pressure (mmHg):	728
S/N:	2000I201591203	Filter Temp (°C):	-14.1
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as BOD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-16.2	Δ °C	-2.50
Filt Temp (±2 °C)	-12.4	Δ °C	1.7
RH (%)	75.10%	Δ °%	
Ambient Press (±10.0 mmHg)	728	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
21 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.96

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition ok	Status:	Condition ok
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Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 24, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 1551A Ex
Station:	EKATI #1 TSP	Serial Number:	1735039

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	4.90
Unit #:	#1	Pressure (mmHg):	727
S/N:	2000I201581203	Filter Temp (°C):	5.1
		Set Flow (l/min):	16.67
		RH (%):	15.5

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	4.9	Δ °C	0.00
Filt Temp (±2 °C)	5.1	Δ °C	0.0
RH (%)	16.1	Δ %	0.6
Ambient Press (±10.0 mmHg)	727	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
22 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.68

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		OK		ok

Comments: Found bug in the sample line before inline filter.
Clean the hose and change a new inline filter. Ok.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 13, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #1 PM2.5	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	23.80
Unit #:	NA	Pressure (mmHg):	721
S/N:	2000I201601203	Filter Temp (°C):	23.5
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	22.9	Δ °C	0.27
Filt Temp (±2 °C)	23	Δ °C	0.4
RH (%)	41.20%	Δ %	
Ambient Press (±10.0 mmHg)	720	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
20 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.8

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition ok	Status:	Condition ok
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Comments: Calibrate flow rate.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 13, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #1 TSP	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	20.30
Unit #:	#1	Pressure (mmHg):	720
S/N:	2000I201581203	Filter Temp (°C):	22.8
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	20.5	Δ °C	0.20
Filt Temp (±2 °C)	22.7	Δ °C	-0.1
RH (%)	40.8	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	720	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
20 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	17.04/16.92

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		OK		ok

Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 13, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #2 PM2.5	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	23.80
Unit #:	NA	Pressure (mmHg):	721
S/N:	2000I201631203	Filter Temp (°C):	23.5
		Set Flow (l/min):	16.67
		RH (%):	

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	22.7	Δ °C	0.30
Filt Temp (±2 °C)	22.7	Δ °C	0.3
RH (%)	45%	Δ %	
Ambient Press (±10.0 mmHg)	721	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
22 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.68

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments: Flow rate Calibrated by KATIE

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 13, 2013	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #2 TSP	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	18.60
Unit #:	#2	Pressure (mmHg):	721
S/N:	2000I201591203	Filter Temp (°C):	18.7
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as **DOES** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	19.1	Δ °C	0.50
Filt Temp (±2 °C)	19.1	Δ °C	0.4
RH (%)	52.50%	Δ °%	
Ambient Press (±10.0 mmHg)	722	Δ ATM	-1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
20 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.91

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 15, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #1 PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	17.90
Unit #:	NA	Pressure (mmHg):	717.3
S/N:	2000I201601203	Filter Temp (°C):	17.9
		Set Flow (l/min):	16.67
		RH (%):	46.3

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	17.9	Δ °C	0.0
Filt Temp (±2 °C)	17.9	Δ °C	0.0
RH (%)	48.3	Δ %	-2.0
Ambient Press (±10.0 mmHg)	717	Δ ATM	0.3
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
21 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.62

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition ok	Status:	Condition ok
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Comments:	Slope:1.10
	Intercept:-0.22

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 15, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #1 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	12.00
Unit #:	#1	Pressure (mmHg):	715.8
S/N:	2000I201581203	Filter Temp (°C):	12
		Set Flow (l/min):	16.67
		RH (%):	43.7

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	12	Δ °C	0.0
Filt Temp (±2 °C)	12	Δ °C	0.0
RH (%)	78.6	Δ %	34.9
Ambient Press (±10.0 mmHg)	716	Δ ATM	-0.2
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
18 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.76

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		OK		ok

Comments: _____ Slope: _____
 Intercept: _____

Calibration Performed By: _____ Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	N/A
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 15, 2013	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #2 PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	18.20
Unit #:	NA	Pressure (mmHg):	717
S/N:	2000I201631203	Filter Temp (°C):	18.2
		Set Flow (l/min):	16.67
		RH (%):	46.3

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	18.2	Δ °C	0.00
Filt Temp (±2 °C)	18.2	Δ °C	0.0
RH (%)	51.9	Δ %	-5.6
Ambient Press (±10.0 mmHg)	717	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
22 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.64

Rubber Seals:	Condition ok	Inlet:	Condition ok	Inline Filter:	Condition ok	Status:	Condition ok
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Comments:	Slope:1.02
	Intercept:0.02

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	N/A
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 15, 2013	Make/Model:	FTS
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #2 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	14.00
Unit #:	#2	Pressure (mmHg):	716.1
S/N:	2000I201591203	Filter Temp (°C):	14
		Set Flow (l/min):	16.67
		RH (%):	44.0

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	14	Δ °C	0.0
Filt Temp (±2 °C)	14	Δ °C	0.0
RH (%)	65.6	Δ %	-21.6
Ambient Press (±10.0 mmHg)	716	Δ ATM	0.1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
19 mmHG		PASS	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.71

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:	Slope:1.01
	Intercept:-0.09

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 15, 2013	Make/Model:	MNF1868
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #1 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-25.80
Unit #:	#1	Pressure (mmHg):	700.3
S/N:	2000I201581203	Filter Temp (°C):	-21.7
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-25.8	Δ °C	0.0
Filt Temp (±2 °C)	-21.7	Δ °C	0.0
RH (%)	78.6	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	700	Δ ATM	0.3
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.89

Rubber Seals:	Condition ok	Inlet:	Condition na	Inline Filter:	Condition no check	Status:	Condition ok
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Comments: Leak check fail due to cold weather.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	N/A
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 15, 2013	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE 1551A EX
Station:	EKATI #2 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-24.80
Unit #:	#2	Pressure (mmHg):	700.3
S/N:	2000I201591203	Filter Temp (°C):	-21.2
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-24.8	Δ °C	0.0
Filt Temp (±2 °C)	-21.2	Δ °C	0.0
RH (%)	77.0	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	701	Δ ATM	-0.7
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.71

Rubber Seals:	Condition ok	Inlet:	Condition na	Inline Filter:	Condition no check	Status:	Condition ok
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Comments: Leak check fail due to cold weather.

Calibration Performed By: Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 16, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #1 PM2.5	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	18.00
Unit #:	NA	Pressure (mmHg):	715
S/N:	2000I201601203	Filter Temp (°C):	18
		Set Flow (l/min):	16.67
		RH (%):	NA

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as DOED in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	18	Δ °C	0.00
Filt Temp (±2 °C)	18	Δ °C	0.0
RH (%)	45.00%	Δ °%	#VALUE!
Ambient Press (±10.0 mmHg)	714	Δ ATM	1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.7

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 16, 2016	Make/Model:	MNF1868
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #1 TSP	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-11.00
Unit #:	#1	Pressure (mmHg):	707.7
S/N:	2000I201581203	Filter Temp (°C):	-11
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-11.7	Δ °C	-0.7
Filt Temp (±2 °C)	-10	Δ °C	1.0
RH (%)	70.0	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	708	Δ ATM	-0.3
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
23 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.87

Rubber Seals:	Condition ok	Inlet:	Condition na	Inline Filter:	Condition no check	Status:	Condition ok
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Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	N/A
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 16, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #2 PM2.5	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	17.00
Unit #:	NA	Pressure (mmHg):	714.5
S/N:	2000I201631203	Filter Temp (°C):	17
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	17	Δ °C	0.00
Filt Temp (±2 °C)	17	Δ °C	0.0
RH (%)	55%	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	714.0	Δ ATM	0.5
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.65

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments: _____

Calibration Performed By: _____ Limin Li

**Flow Audit Report
Station Information**

Audit Date:	3-Apr-12	Previous Calibration:	N/A
Company:	Clean Harbors		
Plant / Location:	Ryley Facility		
Barometric Pressure:		Temperature:	
Calibrator:	Bios DC-2	S/N Flow / Cell:	1193 Cell 2272

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1	16.7	16.7	
2	17.5	17.6	
3	15.8	15.8	
4	18.3	18.4	
5	15.0	15.0	

Slop:	#DIV/0!	Correlation Coefficient	0.99958	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	March 16, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	Fluke 87V
Station:	EKATI #2 TSP	Serial Number:	99300071

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-10.50
Unit #:	#2	Pressure (mmHg):	707.7
S/N:	2000I201591203	Filter Temp (°C):	-10.5
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-11.3	Δ °C	-0.8
Filt Temp (±2 °C)	-10.9	Δ °C	-0.4
RH (%)	67.0	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	707	Δ ATM	0.7
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
25 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.96

Rubber Seals:	Condition ok	Inlet:	Condition na	Inline Filter:	Condition no check	Status:	Condition ok
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Comments:

Calibration Performed By:

Limin Li

**Flow Audit Report
Station Information**

Audit Date:		Previous Calibration:	
Company:			
Plant / Location:			
Barometric Pressure:		Temperature:	
Calibrator:		S/N Flow / Cell:	

Multi-Point Flow Calibration Table			
Point	Set Flow (LPM)	Current Flow (LPM)	Actual Flow (LPM)
1			
2			
3			
4			
5			

Slop:	#DIV/0!	Correlation Coefficient	#DIV/0!	Intercept:	#DIV/0!
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Note:

Flow Audit Performed By:	
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PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 26, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI CAMB # 2 PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	0.43
Unit #:	#2	Pressure (mmHg):	725
S/N:	2000I201631203	Filter Temp (°C):	2
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOES** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	0.4	Δ °C	0.03
Filt Temp (±2 °C)	1.7	Δ °C	0.3
RH (%)	60.00%	Δ °%	#VALUE!
Ambient Press (±10.0 mmHg)	726	Δ ATM	-1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
15 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.79

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments:

Calibration Performed By:

Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 26, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	GARAGE PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	14.70
Unit #:	NA	Pressure (mmHg):	724.4
S/N:	2000I201591203	Filter Temp (°C):	14.7
		Set Flow (l/min):	16.67
		RH (%):	34.7

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOED** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	14.7	Δ °C	0.0
Filt Temp (±2 °C)	14.7	Δ °C	0.0
RH (%)	36.3	Δ °%	-1.6
Ambient Press (±10.0 mmHg)	724	Δ ATM	0.4
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
11 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.67

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments:

Calibration Performed By:

Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 28, 2014	Make/Model:	MNF1868
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #1 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	4.70
Unit #:	#1	Pressure (mmHg):	716.3
S/N:	2000I201581203	Filter Temp (°C):	4.9
		Set Flow (l/min):	16.67
		RH (%):	75.3

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOED** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	4.7	Δ °C	0.0
Filt Temp (±2 °C)	4.9	Δ °C	0.0
RH (%)	93.1	Δ °%	17.8
Ambient Press (±10.0 mmHg)	716	Δ ATM	0.3
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
12 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.65

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments: No calibrate. Only audit.

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	September 28, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #2 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	3.60
Unit #:	#2	Pressure (mmHg):	716.8
S/N:	2000I201601203	Filter Temp (°C):	3.8
		Set Flow (l/min):	16.67
		RH (%):	53.5

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	3.5	Δ °C	-0.1
Filt Temp (±2 °C)	3.8	Δ °C	0.0
RH (%)	63.4	Δ °%	-9.9
Ambient Press (±10.0 mmHg)	717	Δ ATM	-0.2
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
24 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.66

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments: AF sample flow rate is 15.7lpm. Calibrate it to 16.66lpm.

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 28, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI CAMB PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	20.90
Unit #:	NA	Pressure (mmHg):	709
S/N:	2000I201601203	Filter Temp (°C):	20.9
		Set Flow (l/min):	16.67
		RH (%):	56%

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	20.9	Δ °C	0.00
Filt Temp (±2 °C)	20.9	Δ °C	0.0
RH (%)	56.00%	Δ °%	0.0
Ambient Press (±10.0 mmHg)	709	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
16mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.68

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:

Calibration Performed By:

Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 28, 2016	Make/Model:	MNF1868
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #1 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-11.00
Unit #:	#1	Pressure (mmHg):	707.7
S/N:	2000I201581203	Filter Temp (°C):	-11
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-11.7	Δ °C	-0.7
Filt Temp (±2 °C)	-10	Δ °C	1.0
RH (%)	70.0	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	708	Δ ATM	-0.3
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
23 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.87

Rubber Seals:	Condition ok	Inlet:	Condition na	Inline Filter:	Condition ok	Status:	Condition ok
---------------	-----------------	--------	-----------------	----------------	-----------------	---------	-----------------

Comments:

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 28, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI CAMB PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	20.90
Unit #:	NA	Pressure (mmHg):	709
S/N:	2000I201631203	Filter Temp (°C):	20.9
		Set Flow (l/min):	16.67
		RH (%):	56%

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	20.9	Δ °C	0.00
Filt Temp (±2 °C)	20.9	Δ °C	0.0
RH (%)	56.00%	Δ %	0.0
Ambient Press (±10.0 mmHg)	709	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
12 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.69

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		ok		ok		ok

Comments:

Calibration Performed By:

Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	June 28, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #2 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-10.50
Unit #:	#2	Pressure (mmHg):	707.7
S/N:	2000I201591203	Filter Temp (°C):	-10.5
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as **BOLD** in Brackets

Note: Tolerances are noted as BOLD in Brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-11.3	Δ °C	-0.8
Filt Temp (±2 °C)	-10.9	Δ °C	-0.4
RH (%)	67.0	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	707	Δ ATM	0.7
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
25 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.96

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments:

Calibration Performed By:

Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 13, 2014	Make/Model:	MNF1868
Company:	BHP Billiton Diamonds Inc.	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI CAMB # 2 PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-18.60
Unit #:	#2	Pressure (mmHg):	717
S/N:	2000I201631203	Filter Temp (°C):	-16.4
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOES** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-18.6	Δ °C	0.00
Filt Temp (±2 °C)	-16.4	Δ °C	0.0
RH (%)	65.00%	Δ °%	#VALUE!
Ambient Press (±10.0 mmHg)	717	Δ ATM	0
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
12 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.79

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments: Calibrate temperature and pressure

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 13, 2014	Make/Model:	MNF1868
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #1 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-16.90
Unit #:	#1	Pressure (mmHg):	718.1
S/N:	2000I201581203	Filter Temp (°C):	-14.6
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOE** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-16.2	Δ °C	0.7
Filt Temp (±2 °C)	-14.4	Δ °C	0.2
RH (%)	63.3	Δ °%	#VALUE!
Ambient Press (±10.0 mmHg)	718	Δ ATM	0.1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±5.0 % Adjust to 16.67 L	16.67	16.68

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments: No calibrate. Only audit.

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 13, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	EKATI #2 TSP	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	-18.00
Unit #:	#2	Pressure (mmHg):	717.8
S/N:	2000I201601203	Filter Temp (°C):	-16.3
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Notes: Performance data noted as PASS or FAIL in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	-17.8	Δ °C	0.2
Filt Temp (±2 °C)	-15.8	Δ °C	0.5
RH (%)	67.7	Δ %	#VALUE!
Ambient Press (±10.0 mmHg)	719	Δ ATM	-1.2
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
26 mmHG		Fail	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.73

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments: No calibrate. Only audit.

Calibration Performed By: Limin Li

PARTISOL 2000i

Station		Audit Transfer Standard	
Date:	December 14, 2014	Make/Model:	FTS
Company:	Dominion Diamonds Ekati	S/N Flow/Cell:	FRM1210
Plant:	EKATI Mine	Temperature (°C):	FLUKE1551A EX
Station:	GARAGE PM2.5	Serial Number:	2329070

Sampler		Ambient Data	
Make/Model:	2000i	AmbTemperature (°C):	23.00
Unit #:	NA	Pressure (mmHg):	718.1
S/N:	2000I201591203	Filter Temp (°C):	23
		Set Flow (l/min):	16.67
		RH (%):	na

Note: Tolerances are noted as BOLD in Brackets

Note: Tolerances are noted as **DOED** in brackets

Temperature/Pressure Calibration			
Amb Temp (±2 °C)	23	Δ °C	0.0
Filt Temp (±2 °C)	23	Δ °C	0.0
RH (%)	36.3	Δ °%	#VALUE!
Ambient Press (±10.0 mmHg)	718	Δ ATM	0.1
External Leak Check (Pressure drop after 60 Secs)			
Delta pressure		Leak Status	
10 mmHG		Pass	
Flow Audit			
Item	Acceptable	Calculated	Actual
"Flow" Span	±7.0 % Adjust to 16.7 L	16.67	16.68

Rubber Seals:	Condition	Inlet:	Condition	Inline Filter:	Condition	Status:	Condition
	ok		na		ok		ok

Comments:

Calibration Performed By:

Limin Li

Appendix 5

Partisol Sampling Lab Analysis Data, 2013 to 2014

EKATI DIAMOND MINE

2014 Air Quality Monitoring Program



Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2012/07/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B262910

Received: 2012/07/19, 13:14

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	9	N/A	2012/07/23	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Levi Manchak

23 Jul 2012 09:20:28 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B262910
Report Date: 2012/07/23

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		DZ0429	DZ0437	DZ0438	DZ0439	DZ0440	DZ0441		
Sampling Date									
	UNITS	RP 1561	RP 1565	RP 1567	RP 1568	RP 1571	RP 1580	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	98	75	355	71	194	311	3	6026363
RDL = Reportable Detection Limit									

Maxxam ID		DZ0443	DZ0444	DZ0447		
Sampling Date						
	UNITS	RP 1583	RP 10328	BLANK	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	92	74	5	3	6026363
RDL = Reportable Detection Limit						



Maxxam Job #: B262910
Report Date: 2012/07/23

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #:
P.O. #:
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB262910

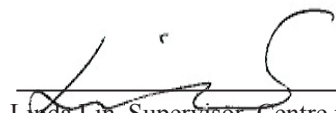
QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6026363 SS6	Calibration Check	Particulate Matter	2012/07/23		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

Validation Signature Page

Maxxam Job #: B262910

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Linda Lin", written over a horizontal line.

Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2012/08/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B271275

Received: 2012/08/13, 15:27

Sample Matrix: Filter
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	8	N/A	2012/08/15	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

20 Aug 2012 11:41:18 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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Total cover pages: 1



Maxxam Job #: B271275
Report Date: 2012/08/15

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		EE4196	EE4197	EE4198	EE4199	EE4200	EE4201		
Sampling Date									
	UNITS	RP 9940	RP 9918	RP 15502	RP 9917	RP 26380	RP 15503	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	47	241	56	100	229	43	3	6084199
RDL = Reportable Detection Limit									

Maxxam ID		EE4202	EE4204		
Sampling Date					
	UNITS	RP 15529	BLANK	RDL	QC Batch

PM2.5/10					
Particulate Matter	ug/filter	75	5	3	6084199
RDL = Reportable Detection Limit					



Maxxam Job #: B271275
Report Date: 2012/08/15

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

General Comments

Sample EE4196-01: Filter RP#15510 returned to the Lab unused. In note stated: "Unable to use at Cell B on July 19/20 due to lack of electrical power at Cell B." SS
Sample RP# 26380 (EE4200) returned to the Lab with visible particulate on it. SS

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #:
P.O. #:
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB271275

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6084199 SS6	Calibration Check	Particulate Matter	2012/08/15		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B271275

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2012/09/12

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B280963

Received: 2012/09/11, 12:48

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	9	N/A	2012/09/12	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

12 Sep 2012 13:54:04 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====
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Total cover pages: 1



Maxxam Job #: B280963
Report Date: 2012/09/12

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		EK7973	EK7974	EK7975	EK7976	EK7977	EK7978		
Sampling Date		2012/08/12	2012/08/12	2012/08/18	2012/08/18	2012/08/25	2012/08/25		
	UNITS	RP 93472	RP 92715	RP 15242	RP 15241	RP 15238	RP 15236	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	<3	27	270	33	38	19	3	6161319
RDL = Reportable Detection Limit									

Maxxam ID		EK7979	EK7980	EK7996		
Sampling Date		2012/08/30	2012/08/30			
	UNITS	RP 17779	RP 86155	BLANK	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	17	27	5	3	6161319
RDL = Reportable Detection Limit						



Maxxam Job #: B280963
Report Date: 2012/09/12

BHP BILLITON CANADA INC.

Site Location: EKATI DIAMOND MINE

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #:
P.O. #:
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB280963

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6161319 SS6	Calibration Check	Particulate Matter	2012/09/12		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B280963

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 42748
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2012/11/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2A7929

Received: 2012/11/28, 11:09

Sample Matrix: Filter
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	3	N/A	2012/11/29	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

30 Nov 2012 08:45:49 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B2A7929
Report Date: 2012/11/30

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42748

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FC6327	FC8105	FC8106		
Sampling Date						
	UNITS	RP 090833	RP 15506	BLANK	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	35	88	7	3	6384822

RDL = Reportable Detection Limit



Maxxam Job #: B2A7929
Report Date: 2012/11/30

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42748

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 42748
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB2A7929

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6384822 SS6	Calibration Check	Particulate Matter	2012/11/29		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B2A7929

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 42836
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2012/12/28

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B2B5246

Received: 2012/12/21, 08:36

Sample Matrix: Filter
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	5	N/A	2012/12/27	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

03 Jan 2013 08:30:36 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B2B5246
Report Date: 2012/12/28

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42836

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FG9853	FG9854	FG9855	FG9867	FG9868		
Sampling Date		2012/12/10	2012/12/10	2012/12/16	2012/12/16			
	UNITS	RP 15550	RP 04247	RP 15165	RP 15532	BLANK	RDL	QC Batch

PM2.5/10								
Particulate Matter	ug/filter	67	76	173	323	4	3	6453774

RDL = Reportable Detection Limit



Maxxam Job #: B2B5246
Report Date: 2012/12/28

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42836

General Comments

Sample FG9867-01: PM filters RP#15532 (FG9867) and RP#15165 (FG9855) received to the lab wet. SS

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 42836
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB2B5246

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6453774 SS6	Calibration Check	Particulate Matter	2012/12/27		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B2B5246

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Your P.O. #: 42842
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/01/09

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B301426

Received: 2013/01/08, 11:30

Sample Matrix: Filter
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	3	N/A	2013/01/09	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

09 Jan 2013 11:57:53 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B301426
Report Date: 2013/01/09

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42842

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FI4594	FI4595	FI4598		
Sampling Date		2012/12/22	2012/12/22			
	UNITS	RP 27287	RP 25064	BLANK	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	92	98	11	3	6474064

RDL = Reportable Detection Limit



Maxxam Job #: B301426
Report Date: 2013/01/09

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 42842

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 42842
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB301426

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6474064 SS6	Calibration Check	Particulate Matter	2013/01/09		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B301426

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a light gray rectangular background.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/02/05

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B308427

Received: 2013/02/04, 12:48

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	9	N/A	2013/02/05	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

05 Feb 2013 13:31:39 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====
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Total cover pages: 1



Maxxam Job #: B308427
Report Date: 2013/02/05

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FN6210	FN6211	FN6212	FN6213	FN6214		
Sampling Date		2013/01/28 14:14	2013/01/28 14:50	2013/01/25 14:44	2013/01/25 16:34			
	UNITS	RP 010349	RP 17875	RP 010312	RP 10346	BLANK	RDL	QC Batch

PM2.5/10								
Particulate Matter	ug/filter	185	186	119	146	10	3	6540353

RDL = Reportable Detection Limit

Maxxam ID		FN6216	FN6217	FN6218	FN6219		
Sampling Date		2013/01/15 11:00	2013/01/15 11:00	2013/01/10 11:00	2013/01/10 12:00		
	UNITS	RP 15067	RP 045025	RP 097715	RP 00862	RDL	QC Batch

PM2.5/10							
Particulate Matter	ug/filter	119	180	27	173	3	6540353

RDL = Reportable Detection Limit



Maxxam Job #: B308427
Report Date: 2013/02/05

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB308427

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6540353 SS6	Calibration Check	Particulate Matter	2013/02/05		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B308427

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a light gray rectangular background.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/02/22

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B313192

Received: 2013/02/20, 12:42

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2013/02/22	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

25 Feb 2013 08:57:47 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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Total cover pages: 1



Maxxam Job #: B313192
Report Date: 2013/02/22

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FR0946	FR0947	FR0948	FR0949	FR0950	FR0951		
Sampling Date		2013/02/02	2013/02/02	2013/02/08	2013/02/08		2013/02/14		
	UNITS	RP 29758	RP 13792	RP 010072	RP 098000	BLANK	RP 27773	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	142	139	126	132	<3	30	3	6591290

RDL = Reportable Detection Limit

Maxxam ID		FR0952		
Sampling Date		2013/02/14		
	UNITS	RP 010063	RDL	QC Batch

PM2.5/10				
Particulate Matter	ug/filter	78	3	6591290

RDL = Reportable Detection Limit



Maxxam Job #: B313192
Report Date: 2013/02/22

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB313192

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6591290 SS6	Calibration Check	Particulate Matter	2013/02/22		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B313192

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Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Coding # 42808

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/03/13

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B319469

Received: 2013/03/12, 13:07

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2013/03/13	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

13 Mar 2013 15:16:13 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B319469
Report Date: 2013/03/13

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		FV9146	FV9147	FV9148	FV9149	FV9150	FV9151		
Sampling Date		2013/03/05	2013/03/01	2013/03/01	2013/03/05		2013/02/21		
	UNITS	RP 44274	RP 46685	RP 20556	RP 24942	BLANK	RP 00889	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	41	52	126	259	7	113	3	6646198

RDL = Reportable Detection Limit

Maxxam ID		FV9152		
Sampling Date		2013/02/21		
	UNITS	RP 15480	RDL	QC Batch

PM2.5/10				
Particulate Matter	ug/filter	155	3	6646198

RDL = Reportable Detection Limit



Maxxam Job #: B319469
Report Date: 2013/03/13

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB319469

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6646198 SS6	Calibration Check	Particulate Matter	2013/03/13		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B319469

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a light gray rectangular background.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/04/03

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B325290

Received: 2013/04/02, 11:11

Sample Matrix: Filter
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	10	N/A	2013/04/03	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

03 Apr 2013 13:32:16 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B325290
Report Date: 2013/04/03

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		GB0444	GB0445	GB0446	GB0447	GB0448	GB0449		
Sampling Date		2013/03/10	2013/03/10	2013/03/16	2013/03/16		2013/03/24		
	UNITS	RP 14350	RP 010077	RP 20553	RP 010084	BLANK	RP 076204	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	132	157	93	45	8	119	3	6703744

RDL = Reportable Detection Limit

Maxxam ID		GB0450	GB0496	GB0498	GB0499		
Sampling Date		2013/03/28	2013/03/28	2013/03/29	2013/03/29		
	UNITS	RP 015489	RP 15543	RP 25442	RP 036940	RDL	QC Batch

PM2.5/10							
Particulate Matter	ug/filter	101	19	28	27	3	6703744

RDL = Reportable Detection Limit



Maxxam Job #: B325290
Report Date: 2013/04/03

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Sample GB0445-01: Sample Invalid

Sample GB0447-01: Sample Invalid, sample time 03:25 min.

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB325290

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6703744 SS6	Calibration Check	Particulate Matter	2013/04/03		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B325290

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/05/13

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B335151
Received: 2013/05/06, 08:44

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	9	N/A	2013/05/13	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**
Manchak
Levi Manchak
14 May 2013 08:18:39 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B335151
Report Date: 2013/05/13

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		GH6625	GH6626	GH6627	GH6628	GH6629	GH6630		
Sampling Date		2013/04/15	2013/04/21	2013/04/09	2013/04/03		2013/04/09		
	UNITS	RP 27284	RP 04219	RP 082059	RP 15541	BLANK	RP 10307	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	114	182	683	108	9	235	3	6809804

RDL = Reportable Detection Limit

Maxxam ID		GH6631	GH6632	GH6633		
Sampling Date		2013/04/03	2013/04/15	2013/04/21		
	UNITS	RP 076324	RP 04240	RP 13060	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	121	126	275	3	6809804

RDL = Reportable Detection Limit



Maxxam Job #: B335151
Report Date: 2013/05/13

BHP BILLITON CANADA INC.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



BHP BILLITON CANADA INC.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB335151

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6809804 SS6	Calibration Check	Particulate Matter	2013/05/13		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B335151

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a light gray rectangular background.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Coding # 42771

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/06/13

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B346026

Received: 2013/06/06, 11:15

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2013/06/13	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

13 Jun 2013 12:56:50 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B346026
Report Date: 2013/06/13

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		GO6827	GO6828	GO6829	GO6830	GO6831	GO6832		
Sampling Date		2013/05/21	2013/05/21	2013/05/27	2013/05/27		2013/06/02		
	UNITS	RP 71615	RP 14339	RP 2883	RP 10344	BLANK	RP 15512	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	50	68	98	222	10	72	3	6897589

RDL = Reportable Detection Limit

Maxxam ID		GO6833		
Sampling Date		2013/06/02		
	UNITS	RP 37984	RDL	QC Batch

PM2.5/10				
Particulate Matter	ug/filter	110	3	6897589

RDL = Reportable Detection Limit



Maxxam Job #: B346026
Report Date: 2013/06/13

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB346026

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6897589 SS6	Calibration Check	Particulate Matter	2013/06/13		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B346026

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a light gray rectangular background.

Darren Funnell, Analyst I

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/07/15

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B357894

Received: 2013/07/03, 11:33

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2013/07/13	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	2	N/A	2013/07/15	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

15 Jul 2013 14:29:49 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B357894
Report Date: 2013/07/15

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		GW0480	GW0481	GW0482	GW0483	GW0484	GW0485		
Sampling Date		2013/06/09	2013/06/09	2013/06/15	2013/06/15		2013/06/22		
	UNITS	RP 00883	RP 009917	RP 14087	RP 086155	BLANK	RP 29749	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	67	68	296	270	21	472	3	6980612

RDL = Reportable Detection Limit

Maxxam ID		GW0486	GW0489	GW0490		
Sampling Date		2013/06/22	2013/06/26	2013/06/26		
	UNITS	RP 015522	RP 27590	RP 00881	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	533	MISSING	MISSING	3	6980612

RDL = Reportable Detection Limit



Maxxam Job #: B357894
Report Date: 2013/07/15

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Sample GW0489-01: PM filter not present in petri dish.

Sample GW0490-01: PM filter not present in petri dish.

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB357894

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6980612 LL	Calibration Check	Particulate Matter	2013/07/13		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B357894

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
BHP BILLITON CANADA INC.
#1102 4920 - 52ND ST
YELLOWKNIFE, NT
CANADA X1A3T1

Report Date: 2013/08/06

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B365489
Received: 2013/07/30, 12:44

Sample Matrix: Filter
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	12	N/A	2013/08/02	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	1	N/A	2013/08/06	EINDSOP-00151	EPA 2.12 Monitoring

* Results relate only to the items tested.

Encryption Key

Levi

Levi Manchak

Manchak

06 Aug 2013 13:10:03 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		HB0229	HB0230	HB0231	HB0232	HB0233	HB0234	HB0235		
Sampling Date		2013/06/28	2013/07/04	2013/07/11	2013/07/12		2013/07/16	2013/07/28		
	UNITS	RP 00881 FIELD BLANK	RP 22903	RP 22210	RP 015530	BLANK	RP 010081	RP 022206	RDL	QC Batch
PM2.5/10										
Particulate Matter	ug/filter	893	173	70	84	20	57	DAMAGED	3	7046339

Maxxam ID		HB0236	HB0237	HB0238	HB0245	HB0246	HB0247		
Sampling Date		2013/06/28	2013/07/04	2013/07/11	2013/07/12	2013/07/16	2013/07/28		
	UNITS	RP 27590 FIELD BLANK	RP 27278	RP 28688	RP 091292	RP 17814	RP 27282	RDL	QC Batch
PM2.5/10									
Particulate Matter	ug/filter	360	77	94	40	73	170	3	7046339

General Comments

Sample HB0235-01: Sample returned to lab without filter, analysis attempted but unable to be completed.

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Calibration Check	
			% Recovery	QC Limits
7046339	Particulate Matter	2013/08/02	100	N/A

N/A = Not Applicable

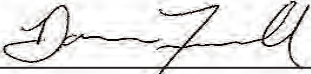
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.



Validation Signature Page

Maxxam Job #: B365489

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Darren Funnell, Analyst I

=====

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/09/06

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B376192

Received: 2013/08/27, 12:26

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	9	N/A	2013/08/29	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

06 Sep 2013 09:44:20 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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Total cover pages: 1



Maxxam Job #: B376192
Report Date: 2013/09/06

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		HI1629	HI1630	HI1631	HI1632	HI1633	HI1634		
Sampling Date		2013/07/28	2013/08/03				2013/08/03		
	UNITS	RP 76187	RP 17873	RP 00868	RP 01582	BLANK	RP 22207	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	103	750	NA	NA	10	261	3	7126868

RDL = Reportable Detection Limit

Maxxam ID		HI1635	HI1636	HI1637		
Sampling Date		2013/08/15	2013/08/09	2013/08/09		
	UNITS	RP 18844	RP 46619	RP 22215	RDL	QC Batch

PM2.5/10						
Particulate Matter	ug/filter	711	505	747	3	7126868

RDL = Reportable Detection Limit



Maxxam Job #: B376192
Report Date: 2013/09/06

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB376192

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7126868 SS6	Calibration Check	Particulate Matter	2013/08/29		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B376192

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Linda Lim", is written over a horizontal line.

Linda Lim, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/09/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B383960

Received: 2013/09/17, 11:57

Sample Matrix: Filter
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	13	N/A	2013/09/19	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

19 Sep 2013 14:34:51 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

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Total cover pages: 1



Maxxam Job #: B383960
Report Date: 2013/09/19

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		HN6459	HN6460	HN6461	HN6462	HN6463	HN6464		
Sampling Date		2013/08/09	2013/08/09	2013/08/27	2013/08/27		2013/08/21		
	UNITS	RP 28689	RP 17819	RP 10346	RP 17833	BLANK	RP 10060	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	156	78	62	31	10	265	3	7179968

RDL = Reportable Detection Limit

Maxxam ID		HN6465	HN6466	HN6467	HN6510	HN6511	HN6512		
Sampling Date		2013/08/21	2013/08/23	2013/08/23	2013/09/02	2013/09/02	2013/09/14		
	UNITS	RP 13270	RP 29748	RP 27293	RP 01569	RP 010062	RP 053332	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	196	42	48	91	69	290	3	7179968

RDL = Reportable Detection Limit

Maxxam ID		HN6513		
Sampling Date		2013/09/14		
	UNITS	RP 9904	RDL	QC Batch

PM2.5/10				
Particulate Matter	ug/filter	103	3	7179968

RDL = Reportable Detection Limit



Maxxam Job #: B383960
Report Date: 2013/09/19

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB383960

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7179968 SS6	Calibration Check	Particulate Matter	2013/09/19		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

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Validation Signature Page

Maxxam Job #: B383960

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A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/10/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B395292

Received: 2013/10/16, 14:15

Sample Matrix: Filter
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	11	N/A	2013/10/23	EINDSOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Carmen
Toker**

Carmen Toker

24 Oct 2013 10:53:58 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

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Total cover pages: 1



Maxxam Job #: B395292
Report Date: 2013/10/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		HV3421	HV3422	HV3423	HV3424	HV3425	HV3426		
Sampling Date		2013/09/20	2013/09/20	2013/09/26	2013/09/26		2013/09/28		
	UNITS	RP 28681	RP 089937	RP 28673	RP 27429	BLANK	RP 24907	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	245	216	110	86	10	26	3	7244317

RDL = Reportable Detection Limit

Maxxam ID		HV3427	HV3428	HV3429	HV3430	HV3431		
Sampling Date		2013/09/28	2013/10/02	2013/10/02	2013/10/08	2013/10/08		
	UNITS	RP 00909	RP 29741	RP 92715	RP 17816	RP 15114	RDL	QC Batch

PM2.5/10								
Particulate Matter	ug/filter	18	74	65	144	142	3	7244317

RDL = Reportable Detection Limit



Maxxam Job #: B395292
Report Date: 2013/10/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB395292

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7244317 SS6	Calibration Check	Particulate Matter	2013/10/23		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699



Validation Signature Page

Maxxam Job #: B395292

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Linda Lim", is written over a horizontal line.

Linda Lim, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE
DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2013/12/02

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B3A7089

Received: 2013/11/19, 09:31

Sample Matrix: Filter
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	11	N/A	2013/11/21	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**

Levi Manchak

Manchak

02 Dec 2013 09:57:53 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B3A7089
Report Date: 2013/12/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		ID0226	ID0227	ID0228	ID0229	ID0230	ID0231		
Sampling Date		2013/10/14	2013/10/20	2013/10/26	2013/11/01	2013/10/14	2013/10/14		
	UNITS	RP 00896	RP 04236	RP 17833	RP 02877	BLANK	RP 054448	RDL	QC Batch

PM2.5/10									
Particulate Matter	ug/filter	134	233	161	84	10	194	3	7291169

RDL = Reportable Detection Limit

Maxxam ID		ID0232	ID0233	ID0234	ID0235	ID0236		
Sampling Date		2013/10/20	2013/10/26	2013/11/01	2013/11/07	2013/11/07		
	UNITS	RP 00862	RP 009904	RP 00876	RP 25519	RP 18911	RDL	QC Batch

PM2.5/10								
Particulate Matter	ug/filter	168	191	131	MISSING	177	3	7291169

RDL = Reportable Detection Limit



Maxxam Job #: B3A7089
Report Date: 2013/12/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

General Comments

Results relate only to the items tested.



DOMINION DIAMOND CORP.
Attention: DAVID BRUCE
Client Project #: BHP2504
P.O. #: 6200887065
Site Location: EKATI DIAMOND MINE

Quality Assurance Report

Maxxam Job Number: PB3A7089

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7291169 SS6	Calibration Check	Particulate Matter	2013/11/21		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.							

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

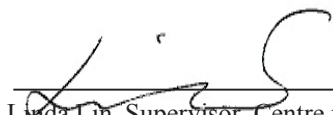
Validation Signature Page

Maxxam Job #: B3A7089

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", written over a horizontal line.

Darren Funnell, Analyst I

A handwritten signature in black ink, appearing to read "Linda Lim", written over a horizontal line.

Linda Lim, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your P.O. #: 6200887065
 Your Project #: BHP2504
 Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
 1102 - 4920 52 ST.
 YELLOWKNIFE, NT
 CANADA X1A 3T1

Report Date: 2013/12/23

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B3B6378

Received: 2013/12/18, 11:31

Sample Matrix: Filter
 # Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	12	N/A	2013/12/23	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
 Levi Manchak
 23 Dec 2013 14:43:44 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
 Levi Manchak, Customer Service
 Email: LManchak@maxxam.ca
 Phone# (780) 378-8500

=====

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Maxxam Job #: B3B6378
Report Date: 2013/12/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		II1712	II1713	II1714	II1715	II1716	II1717	II1718		
Sampling Date		2013/11/07	2013/11/13	2013/11/13	2013/11/19		2013/11/19	2013/11/25		
	Units	RP 25519	RP 17819	RP 84094	RP 93442	BLANK	RP 95651	RP 89952	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	142	139	109	62	<3	57	76	3	7333650
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RDL = Reportable Detection Limit

Maxxam ID		II1719	II1720	II1721	II1722	II1727		
Sampling Date		2013/11/25	2013/12/01	2013/12/01	2013/12/07	2013/12/07		
	Units	RP 874	RP 15522	RP 12409	RP 879	RP 16505	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	123	40	60	96	81	3	7333650
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RDL = Reportable Detection Limit



Maxxam Job #: B3B6378
Report Date: 2013/12/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

PM filter # 016505 received to the Lab wet. Waited to dry and then analyzed. SS

Results relate only to the items tested.

Maxxam Job #: B3B6378
Report Date: 2013/12/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

QUALITY ASSURANCE REPORT

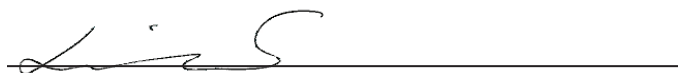
QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	Units	QC Limits
7333650	SS6	Calibration Check	Particulate Matter	2013/12/23		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.								

Maxxam Job #: B3B6378
Report Date: 2013/12/23

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Linda Lin", is written over a horizontal line.

Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your P.O. #: 6200887065
 Your Project #: BHP2504
 Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
 1102 - 4920 52 ST.
 YELLOWKNIFE, NT
 CANADA X1A 3T1

Report Date: 2014/02/05

Report #: R1510763

Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B407926

Received: 2014/01/31, 11:53

Sample Matrix: Filter
 # Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	17	N/A	2014/02/04	PTC SOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	2	N/A	2014/02/05	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
 Levi Manchak
 07 Feb 2014 12:55:56 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B407926
Report Date:

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		IO6842	IO6843	IO6844	IO6845	IO6847	IO6917	IO6918		
Sampling Date		2014/01/09	2014/01/09	2014/01/06	2014/01/06	2014/01/12	2014/01/12	2014/01/13		
	Units	RP 022213	RP 18848	RP 15521	RP 42025	RP 27284	RP 009931	RP 27587	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	29	26	86	70	118	157	90	3	7371380
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RDL = Reportable Detection Limit

Maxxam ID		IO6919	IO6920	IO6921	IO6922	IO6923	IO6931	IO6932		
Sampling Date		2014/01/13	2013/12/31	2013/12/31	2014/01/18	2014/01/18	2014/01/07	2014/01/07		
	Units	RP 15495	RP 14316	RP 092777	RP 022217	RP 00916	RP 46115	RP 51140	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	109	108	108	202	177	66	73	3	7371380
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RDL = Reportable Detection Limit

Maxxam ID		IO6933	IO6934	IO6935	IP6528	IP6529		
Sampling Date		2014/01/24	2014/01/24		2014/01/24	2014/01/24		
	Units	RP 015236	RP 099742	BLANK	RP 00893	RP 00878	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	241	77	7	104	94	3	7371380
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RDL = Reportable Detection Limit



Maxxam Job #: B407926
Report Date:

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B407926
Report Date:

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

QUALITY ASSURANCE REPORT

QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	Units	QC Limits
7371380	SS6	Calibration Check	Particulate Matter	2014/02/04		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.								

Maxxam Job #: B407926
Report Date:

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
 Your Project #: BHP2504
 Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
 1102 - 4920 52 ST.
 YELLOWKNIFE, NT
 CANADA X1A 3T1

Report Date: 2014/02/25
 Report #: R1522062
 Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B407926

Received: 2014/01/31, 11:53

Sample Matrix: Filter
 # Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	17	N/A	2014/02/04	PTC SOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	2	N/A	2014/02/05	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
 Levi Manchak
 25 Feb 2014 10:46:37 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
 Levi Manchak, Customer Service
 Email: LManchak@maxxam.ca
 Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B407926
Report Date: 2014/02/25

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		IO6842	IO6843	IO6844	IO6845	IO6847	IO6917	IO6918		
Sampling Date		2014/01/09	2014/01/09	2014/01/06	2014/01/06	2014/01/12	2014/01/12	2013/12/13		
	Units	RP 022213	RP 18848	RP 15521	RP 45025	RP 27284	RP 009931	RP 27587	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	29	26	86	70	118	157	90	3	7371380
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RDL = Reportable Detection Limit

Maxxam ID		IO6919	IO6920	IO6921	IO6922	IO6923	IO6931	IO6932		
Sampling Date		2013/12/13	2013/12/31	2013/12/31	2014/01/18	2014/01/18	2013/12/25	2013/12/25		
	Units	RP 15495	RP 14316	RP 092777	RP 022217	RP 00916	RP 46115	RP 51140	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	109	108	108	202	177	66	73	3	7371380
--------------------	-----------	-----	-----	-----	-----	-----	----	----	---	---------

RDL = Reportable Detection Limit

Maxxam ID		IO6933	IO6934	IO6935	IP6528	IP6529		
Sampling Date		2014/01/24	2014/01/24		2013/12/19	2013/12/19		
	Units	RP 015236	RP 099742	BLANK	RP 00893	RP 00878	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	241	77	7	104	94	3	7371380
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RDL = Reportable Detection Limit

Maxxam Job #: B407926
Report Date: 2014/02/25

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Samples RP 00893 (IP6528), RP 00878 (IP6529), RP 46115 (IO6931) and RP 51140 (IO6932) were not marked on COC. SS
Samples RP 16505 and RP 00879 (that are entered on COC) were already returned and analyzed in December. SS

Results relate only to the items tested.

Maxxam Job #: B407926
Report Date: 2014/02/25

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

QUALITY ASSURANCE REPORT

QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	Units	QC Limits
7371380	SS6	Calibration Check	Particulate Matter	2014/02/04		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.								

Maxxam Job #: B407926
Report Date: 2014/02/25

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/03/11

Report #: R1530678

Version: 1

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B417454****Received: 2014/03/05, 14:24**

Sample Matrix: Filter
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	11	N/A	2014/03/11	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
11 Mar 2014 14:40:27 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B417454
Report Date: 2014/03/11

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		IX5670	IX5671	IX5672	IX5673	IX5674	IX5675	IX5676		
Sampling Date		2014/01/30	2014/01/30	2014/02/05	2014/02/05	2014/02/11	2014/02/11	2014/02/17		
	Units	RP 15551	RP 22665	RP 16082	RP 17815	RP 10079	RP 22197	RP 15546	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	168	166	116	59	243	150	220	3	7410196
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RDL = Reportable Detection Limit

Maxxam ID		IX5677	IX5678	IX5679	IX5686		
Sampling Date		2014/02/17	2014/02/23	2014/02/23			
	Units	RP 090554	RP 15545	RP 27511	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	321	89	197	10	3	7410196
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RDL = Reportable Detection Limit

Maxxam Job #: B417454
Report Date: 2014/03/11

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B417454
Report Date: 2014/03/11

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

QUALITY ASSURANCE REPORT

QA/QC				Date				
Batch	Init	QC Type	Parameter	Analyzed	Value	Recovery	Units	QC Limits
7410196	SS6	Calibration Check	Particulate Matter	2014/03/11		100	%	N/A
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.								

Maxxam Job #: B417454
Report Date: 2014/03/11

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

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Darren Funnell, Analyst I

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Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Service Order # 45488

Report Date: 2014/04/28

Report #: R1558625

Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B431890

Received: 2014/04/23, 13:49

Sample Matrix: Filter
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	17	N/A	2014/04/28	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
29 Apr 2014 10:28:23 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B431890
Report Date: 2014/04/28

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		JL0845	JL0846	JL0847	JL0848	JL0849	JL0850	JL0851		
Sampling Date		2014/03/01	2014/03/01	2014/03/07	2014/03/07	2014/03/13	2014/03/13	2014/03/19		
	Units	RP 15510	RP 9936	RP 905	RP 892	RP 880	RP 906	RP 924	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	192	130	768	202	220	314	176	3	7466654
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RDL = Reportable Detection Limit

Maxxam ID		JL0852	JL0853	JL0854	JL0875	JL0876	JL0878	JL0879		
Sampling Date		2014/03/19	2014/03/25	2014/03/25	2014/03/31	2014/03/31	2014/04/06	2014/04/06		
	Units	RP 22212	RP 9948	RP 17816	RP 13102	RP 16555	RP 27271	RP 85916	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	151	158	130	52	179	317	294	3	7466654
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RDL = Reportable Detection Limit

Maxxam ID		JL0881	JL0882	JL0883		
Sampling Date		2014/04/12	2014/04/12			
	Units	RP 13776	RP 12410	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	171	164	9	3	7466654
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RDL = Reportable Detection Limit

Maxxam Job #: B431890
Report Date: 2014/04/28

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B431890
Report Date: 2014/04/28

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/06/04

Report #: R1578574

Version: 1

CERTIFICATE OF ANALYSIS**MAXXAM JOB #: B443971****Received: 2014/05/30, 14:02**

Sample Matrix: Filter
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	13	N/A	2014/06/04	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
04 Jun 2014 12:57:07 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B443971
Report Date: 2014/06/04

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		JS5011	JS5012	JS5013	JS5014	JS5015	JS5016	JS5017		
Sampling Date		2014/04/24	2014/04/24	2014/04/30	2014/04/30	2014/04/18	2014/04/18	2014/05/06		
	Units	RP 17828	RP 090254	RP 02881	RP 009926	RP 087498	RP 009911	RP 15066	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	161	679	316	361	495	283	203	3	7510684
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RDL = Reportable Detection Limit

Maxxam ID		JS5018	JS5019	JS5020	JS5021	JS5022	JS5027		
Sampling Date		2014/05/06	2014/05/12	2014/05/12	2014/05/18	2014/05/18			
	Units	RP 015518	RP 00881	RP 089969	RP 27285	RP 012407	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	891	602	162	664	441	<3	3	7510684
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RDL = Reportable Detection Limit

Maxxam Job #: B443971
Report Date: 2014/06/04

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B443971
Report Date: 2014/06/04

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Darren Funnell", is written over a horizontal line.

Darren Funnell, Analyst I

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your P.O. #: 6200887065
 Your Project #: BHP2504
 Site Location: EKATI DIAMOND MINE
 Service Order # 45559

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
 1102 - 4920 52 ST.
 YELLOWKNIFE, NT
 CANADA X1A 3T1

Report Date: 2014/08/08

Report #: R1617869

Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B464732

Received: 2014/07/29, 14:18

Sample Matrix: Filter
 # Samples Received: 23

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	22	N/A	2014/08/06	PTC SOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	1	N/A	2014/08/08	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
 Levi Manchak
 08 Aug 2014 15:53:46 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
 Levi Manchak, Customer Service
 Email: LManchak@maxxam.ca
 Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B464732
Report Date: 2014/08/08

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		KF3025	KF3026	KF3027	KF3028	KF3029	KF3030	KF3031		
Sampling Date		2014/05/24	2014/05/24	2014/05/30	2014/05/30	2014/06/05	2014/06/05	2014/06/11		
	Units	RP 071564	RP 17839	RP 17823	RP 14087	RP 00882	RP 092738	RP 22668	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	58	95	68	147	74	54	77	3	7590247
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RDL = Reportable Detection Limit

Maxxam ID		KF3032	KF3033	KF3034	KF3035	KF3036	KF3038	KF3039		
Sampling Date		2014/06/11	2014/06/17	2014/06/17	2014/06/23	2014/06/23	2014/06/29	2014/06/29		
	Units	RP 29710	RP 00839	RP 00902	RP 27287	RP 015507	RP 027511	RP 010349	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	85	1130	773	1000	519	187	111	3	7590247
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RDL = Reportable Detection Limit

Maxxam ID		KF3040	KF3041	KF3042	KF3044	KF3045	KF3046	KF3047		
Sampling Date		2014/07/05	2014/07/05	2014/07/11	2014/07/17	2014/07/17	2014/07/23	2014/07/23		
	Units	RP 51140	RP 010313	RP 022197	RP 20582	RP 092715	RP 15277	RP 027329	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	582	409	76	32	118	4260	3050	3	7590247
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RDL = Reportable Detection Limit

Maxxam ID		KF3049	KG6857		
Sampling Date			2014/07/23		
	Units	BLANK	RP 084123	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	10	8220	3	7590247
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RDL = Reportable Detection Limit

Maxxam Job #: B464732
Report Date: 2014/08/08

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Sample appears on COC, but not returned to lab.

Sample KG6857-01 : Sample does not appear on COC

Results relate only to the items tested.

Maxxam Job #: B464732
Report Date: 2014/08/08

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

A handwritten signature in black ink, appearing to read "Linda Lin", is written over a solid black horizontal line.

Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/09/17

Report #: R1643997

Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478481

Received: 2014/09/05, 14:23

Sample Matrix: Filter
Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	19	N/A	2014/09/15	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi**
Manchak Levi Manchak
17 Sep 2014 09:25:40 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B478481
Report Date: 2014/09/17

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		KN3404	KN3405	KN3406	KN3407	KN3408	KN3409	KN3410		
Sampling Date		2014/07/29	2014/07/29	2014/07/29	2014/08/05	2014/08/05	2014/08/05	2014/08/10		
	Units	RP 058034	RP 27278	RP 00916	RP 02877	RP 045025	RP 092396	RP 17822	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	3150	2220	2140	188	1060	809	2240	3	7638764
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RDL = Reportable Detection Limit

Maxxam ID		KN3411	KN3412	KN3413	KN3414	KN3415	KN3416	KN3417		
Sampling Date		2014/08/10	2014/08/10	2014/08/16	2014/08/16	2014/08/16	2014/08/22	2014/08/22		
	Units	RP 18674	RP 090013	RP 022220	RP 04238	RP 00862	RP 00932	RP 27276	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	2720	369	341	361	334	213	108	3	7638764
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RDL = Reportable Detection Limit

Maxxam ID		KN3418	KN3419	KN3420	KN3421	KN3426		
Sampling Date		2014/08/22	2014/08/28	2014/08/28	2014/08/28			
	Units	RP 00897	RP 093442	RP 15071	RP 02876	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	112	108	78	66	6	3	7638764
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RDL = Reportable Detection Limit

Maxxam Job #: B478481
Report Date: 2014/09/17

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Sample KN3404-01 : Sample (KN3404) visibly darker. JP

Sample KN3405-01 : Sample (KN3405) visibly darker. JP

Sample KN3406-01 : Sample (KN3406) visibly darker. JP

Sample KN3410-01 : Sample (KN3410) visibly darker. JP

Sample KN3411-01 : Sample (KN3411) visibly darker. JP

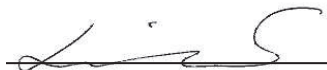
Results relate only to the items tested.

Maxxam Job #: B478481
Report Date: 2014/09/17

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/10/02

Report #: R1654774

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B485151

Received: 2014/09/24, 11:35

Sample Matrix: Filter
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	10	N/A	2014/10/02	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
03 Oct 2014 08:18:29 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B485151
Report Date: 2014/10/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		KR3577	KR3578	KR3579	KR3580	KR3581	KR3582	KR3583		
Sampling Date		2014/09/03	2014/09/03	2014/09/03	2014/09/09	2014/09/09	2014/09/09	2014/09/15		
	Units	RP 015505	RP 084123	RP 015486	RP 27518	RP 00868	RP 091293	RP 015511	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	324	95	<3	344	237	64	110	3	7662461
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RDL = Reportable Detection Limit

Maxxam ID		KR3584	KR3585	KR3595		
Sampling Date		2014/09/15	2014/09/15			
	Units	RP 038948	RP 015488	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	247	84	6	3	7662461
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RDL = Reportable Detection Limit

Maxxam Job #: B485151
Report Date: 2014/10/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

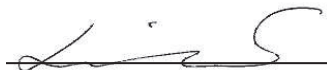
Results relate only to the items tested.

Maxxam Job #: B485151
Report Date: 2014/10/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/10/29
Report #: R1673520
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B495560

Received: 2014/10/22, 13:26

Sample Matrix: Filter
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	13	N/A	2014/10/27	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
29 Oct 2014 08:31:27 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B495560
Report Date: 2014/10/29

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		KX8783	KX8795	KX8796	KX8797	KX8798	KX8799		
Sampling Date		2014/09/21	2014/09/21	2014/09/21	2014/09/27	2014/09/27	2014/09/27		
	Units	TSP-RP83499	TSP-RP92734	PM2.5-RP16077	PM2.5-RP10067	TSP-RP14085	TSP-RP27277	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	92	94	58	105	355	140	3	7694826
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RDL = Reportable Detection Limit

Maxxam ID		KX8800	KX8801	KX8802	KX8803	KX8804	KX8805		
Sampling Date		2014/10/03	2014/10/03	2014/10/03	2014/10/09	2014/10/09	2014/10/09		
	Units	TSP-RP27288	TSP-RP82055	PM2.5-RP76199	TSP-RP15523	PM2.5-RP17839	TSP-RP92785	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	703	844	120	180	70	161	3	7694826
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RDL = Reportable Detection Limit

Maxxam ID		KX8806		
Sampling Date				
	Units	BLANK	RDL	QC Batch
PM2.5/10				
Particulate Matter	ug/filter	10	3	7694826
RDL = Reportable Detection Limit				

Maxxam Job #: B495560
Report Date: 2014/10/29

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

TSP-RP92785 (KX8805) and TSP-RP15523 (KX8803) were wet when received to the Lab. SS
TSP-RP82055 (KX8801) received to the Lab with visible dirt on filter. SS

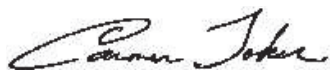
Results relate only to the items tested.

Maxxam Job #: B495560
Report Date: 2014/10/29

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Carmen Toker, CT, Manager Air Laboratory Services

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/11/05
Report #: R1677816
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B498195

Received: 2014/10/29, 12:13

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2014/10/31	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
05 Nov 2014 10:46:17 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B498195
Report Date: 2014/11/05

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		KZ7208	KZ7209	KZ7212	KZ7213	KZ7214	KZ7215		
Sampling Date		2014/10/15	2014/10/15	2014/10/15	2014/10/21	2014/10/21	2014/10/21		
	Units	TSP-RP022199	TSP-RP17875	PM2.5-RP20571	TSP-RP85916	TSP-RP00891	PM2.5-RP00864	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	2500	254	57	90	139	55	3	7702174
--------------------	-----------	------	-----	----	----	-----	----	---	---------

RDL = Reportable Detection Limit

Maxxam ID		KZ7220		
Sampling Date				
	Units	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	10	3	7702174
--------------------	-----------	----	---	---------

RDL = Reportable Detection Limit

Maxxam Job #: B498195
Report Date: 2014/11/05

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

TSP: RP022199 received wet to the Lab with some dirt on it. SS

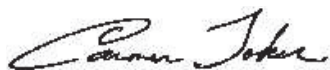
Results relate only to the items tested.

Maxxam Job #: B498195
Report Date: 2014/11/05

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Carmen Toker, CT, Manager Air Laboratory Services

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/11/21

Report #: R1687587

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4A2917

Received: 2014/11/12, 11:06

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2014/11/17	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
21 Nov 2014 10:25:09 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B4A2917
Report Date: 2014/11/21

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		LC8786	LC8787	LC8788	LC8789	LC8790	LC8791		
Sampling Date		2014/10/27	2014/11/02	2014/10/27	2014/11/02	2014/10/27	2014/11/02		
	Units	PM2.5-RP10072	PM2.5-RP02883	TSP-RP00890	TSP-RP29710	TSP-RP92738	TSP-RP15067	RDL	QC Batch
PM2.5/10									
Particulate Matter	ug/filter	44	84	183	275	229	172	3	7721689
RDL = Reportable Detection Limit									

Maxxam ID		LC8792		
Sampling Date				
	Units	BLANK	RDL	QC Batch
PM2.5/10				
Particulate Matter	ug/filter	10	3	7721689
RDL = Reportable Detection Limit				

Maxxam Job #: B4A2917
Report Date: 2014/11/21

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B4A2917
Report Date: 2014/11/21

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/12/02

Report #: R1695320

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4A7166

Received: 2014/11/25, 12:26

Sample Matrix: Filter
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	10	N/A	2014/11/27	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi
Manchak**
Levi Manchak
02 Dec 2014 14:30:54 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B4A7166
Report Date: 2014/12/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		LF6727	LF6728	LF6729	LF6730	LF6731	LF6732		
Sampling Date		2014/11/09	2014/11/09	2014/11/09	2014/11/15	2014/11/15	2014/11/15		
	Units	PM2.5-RP00910	TSP-RP71564	TSP-RP015238	PM2.5-RP20578	TSP-RP01574	TSP-RP19592	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	66	107	95	38	156	38	3	7734614
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RDL = Reportable Detection Limit

Maxxam ID		LF6826	LF6827	LF6828	LF6829		
Sampling Date		2014/11/21	2014/11/21	2014/11/21			
	Units	PM2.5-RP28687	TSP-RP00839	TSP-RP010329	BLANK	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	94	129	160	10	3	7734614
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RDL = Reportable Detection Limit

Maxxam Job #: B4A7166
Report Date: 2014/12/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B4A7166
Report Date: 2014/12/02

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention: DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2014/12/22

Report #: R1731399

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4B2874

Received: 2014/12/12, 12:26

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	7	N/A	2014/12/22	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Carmen Toker**
Carmen Toker
22 Dec 2014 12:57:34 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

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Maxxam Job #: B4B2874
Report Date: 2014/12/22

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		LJ1219	LJ1220	LJ1221	LJ1222	LJ1223		
Sampling Date		2014/11/27	2014/11/27	2014/11/27	2014/12/03	2014/12/03		
	Units	TSP-RP010313	TSP-RP089984	PM2.5-RP015528	TSP-RP026376	TSP-RP027514	RDL	QC Batch

PM2.5/10								
Particulate Matter	ug/filter	283	92	70	152	70	3	7761922
RDL = Reportable Detection Limit								

Maxxam ID		LJ1224	LJ1228		
Sampling Date		2014/12/03			
	Units	PM2.5-RP015157	BLANK	RDL	QC Batch

PM2.5/10					
Particulate Matter	ug/filter	90	10	3	7761922
RDL = Reportable Detection Limit					

Maxxam Job #: B4B2874
Report Date: 2014/12/22

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B4B2874
Report Date: 2014/12/22

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 6200887065
Your Project #: BHP2504
Site Location: EKATI DIAMOND MINE

Attention:DAVID BRUCE

DOMINION DIAMOND CORP.
1102 - 4920 52 ST.
YELLOWKNIFE, NT
CANADA X1A 3T1

Report Date: 2015/01/26

Report #: R1792917

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B504072

Received: 2015/01/19, 11:25

Sample Matrix: Filter
Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	16	N/A	2015/01/26	PTC SOP-00151	EPA 2.12 Monitoring

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key **Levi Manchak**
Levi Manchak
26 Jan 2015 14:14:09 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Levi Manchak, Customer Service

Email: LManchak@maxxam.ca

Phone# (780) 378-8500

=====

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Maxxam Job #: B504072
Report Date: 2015/01/26

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		LN4446	LN4447	LN4448	LN4449	LN4450		
Sampling Date		2014/12/08	2014/12/14	2014/12/26	2015/01/01	2014/12/08		
	Units	PM2.5-RP00878	PM2.5-RP044277	PM2.5-RP009945	PM2.5-RP04246	TSP-RP00884	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	86	137	147	68	94	3	7788040
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RDL = Reportable Detection Limit

Maxxam ID		LN4451	LN4473	LN4474	LN4475	LN4476	LN4477		
Sampling Date		2014/12/14	2014/12/20	2014/12/26	2015/01/01	2014/12/08	2014/12/14		
	Units	TSP-RP084367	TSP-RP15069	TSP-RP022214	TSP-RP020582	TSP-RP009902	TSP-RP009933	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	267	83	143	101	165	219	3	7788040
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RDL = Reportable Detection Limit

Maxxam ID		LN4478	LN4479	LN4480	LN4481	LO4793		
Sampling Date		2014/12/20	2014/12/26	2015/01/01		2014/12/20		
	Units	TSP-RP016554	TSP-RP0922	TSP-RP091117	BLANK	PM2.5-RP015495	RDL	QC Batch

PM2.5/10

Particulate Matter	ug/filter	92	131	75	10	83	3	7788040
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RDL = Reportable Detection Limit

Maxxam Job #: B504072
Report Date: 2015/01/26

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B504072
Report Date: 2015/01/26

DOMINION DIAMOND CORP.
Client Project #: BHP2504
Site Location: EKATI DIAMOND MINE
Your P.O. #: 6200887065

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Darren Funnell, Analyst I

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Appendix 6

*High Volume Air Sampling and Partisol Sampling Data Results
Summary, 2012 to 2014*

Appendix 6. High Volume Air Sampling and Partisol Sampling Results, 2012 to 2014

Sampling Date ¹	High Volume Air Sampling (HVAS) Stations, TSP ($\mu\text{g}/\text{m}^3$)		Partisol Stations ($\mu\text{g}/\text{m}^3$)		
	TSP-2	TSP-3	Grizzly (TSP)	Cell B (TSP)	CAMB (PM _{2.5})
4-Jan-12	0.9	-	-	-	-
14-Jan-12	7.8	-	-	-	-
20-Jan-12	6.4	8.0	-	-	-
1-Feb-12	3.4	3.8	-	-	-
7-Feb-12	6.1	-	-	-	-
14-Feb-12	7.7	4.2	-	-	-
19-Feb-12	5.0	9.4	-	-	-
23-Feb-12	3.1	-	-	-	-
25-Feb-12	2.8	3.9	-	-	-
2-Mar-12	3.1	-	-	-	-
3-Mar-12	-	5.3	-	-	-
8-Mar-12	6.5	10.8	-	-	-
27-Mar-12	7.6	4.0	-	-	-
2-Apr-12	6.8	-	-	-	-
7-Apr-12	-	28.3	-	-	-
13-Apr-12	5.1	5.7	-	-	-
3-May-12	3.9	11.0	-	-	-
9-May-12	1.7	1.7	-	-	-
13-May-12	1.4	1.7	-	-	-
19-May-12	4.9	36.6	-	-	-
25-May-12	17.1	20.0	-	-	-
2-Jun-12	-	15.1	-	-	-
13-Jun-12	17.2	18.0	-	-	-
22-Jun-12	8.6	7.3	-	-	-
27-Jun-12	-	1.6	3.1	32.3	-
3-Jul-12	2.6	2.1	8.1	3.2	-
7-Jul-12	18.9	17.1	15.2	13.3	-
13-Jul-12	6.6	32.5	3.9	-	-
20-Jul-12	11.8	-	2.4	-	-
26-Jul-12	15.0	5.6	10.1	4.2	-
31-Jul-12	4.0	15.3	2.0	-	-
6-Aug-12	4.1	4.0	3.2	-	-
12-Aug-12	8.3	4.0	-	-	-
18-Aug-12	13.8	20.0	-	-	-
25-Aug-12	5.3	12.5	-	-	-
30-Aug-12	2.9	2.4	-	-	-
5-Sep-12	10.9	145.6	-	-	-
11-Sep-12	-	6.5	-	-	-
17-Sep-12	5.8	1.7	-	-	-
23-Sep-12	4.1	16.9	-	-	-
30-Sep-12	1.9	-	-	-	-
6-Oct-12	1.9	2.6	-	-	-
12-Oct-12	1.7	3.3	-	-	-
17-Oct-12	8.6	3.6	-	-	-
23-Oct-12	0.6	0.9	-	-	-
29-Oct-12	-	4.3	-	-	-

Appendix 6. High Volume Air Sampling and Partisol Sampling Results, 2012 to 2014

Sampling Date ¹	High Volume Air Sampling (HVAS) Stations, TSP (µg/m ³)		Partisol Stations (µg/m ³)		
	TSP-2	TSP-3	Grizzly (TSP)	Cell B (TSP)	CAMB (PM _{2.5})
6-Nov-12	-	2.4	-	-	-
9-Nov-12	4.3	3.3	-	-	-
16-Nov-12	-	4.8	-	-	-
25-Nov-12	3.0	-	-	-	-
29-Nov-12	3.8	1.2	-	-	-
5-Dec-12	5.0	3.6	-	-	-
10-Dec-12	1.9	-	2.6	2.7	-
16-Dec-12	2.7	7.6	7.0	12.1	-
22-Dec-12	4.2	-	3.5	3.4	-
4-Jan-13	-	1.5	-	-	-
10-Jan-13	7.6	-	6.8	1.0	-
15-Jan-13	-	-	-	6.1	-
25-Jan-13	-	4.2	4.8	5.4	-
28-Jan-13	5.6	5.0	-	6.5	-
2-Feb-13	3.7	-	6.0	-	-
8-Feb-13	2.6	3.7	5.1	5.0	-
14-Feb-13	0.5	1.8	-	2.9	-
21-Feb-13	3.5	51.8	4.7	5.9	-
1-Mar-13	-	3.4	-	4.8	-
5-Mar-13	7.3	6.4	-	8.9	-
10-Mar-13	1.3	2.6	-	4.8	-
16-Mar-13	2.3	-	-	3.4	-
23-Mar-13	2.2	7.4	-	-	-
24-Mar-13	-	-	-	4.5	-
28-Mar-13	4.7	4.1	0.7	3.9	-
3-Apr-13	4.1	3.2	4.3	3.9	-
9-Apr-13	8.1	16.2	9.4	27.4	-
15-Apr-13	-	5.6	4.7	4.2	-
21-Apr-13	33.5	6.5	10.7	7.1	-
27-Apr-13	7.1	-	6.2	6.2	-
3-May-13	5.1	5.4	6.3	10.2	-
9-May-13	2.6	2.8	4.0	2.7	-
15-May-13	-	9.3	-	-	-
18-May-13	-	-	6.1	-	-
21-May-13	2.0	3.8	2.0	2.7	-
27-May-13	7.5	16.2	4.0	9.1	-
2-Jun-13	4.6	5.4	2.9	4.5	-
8-Jun-13	-	5.9	2.8	2.7	-
15-Jun-13	-	-	11.5	12.5	-
22-Jun-13	-	-	-	23.3	-
28-Jun-13	-	-	38.8	15.6	-
4-Jul-13	-	-	7.5	3.3	-
11-Jul-13	-	-	3.0	3.9	-
16-Jul-13	-	-	2.4	3.0	-
20-Jul-13	-	-	-	7.2	-
28-Jul-13	-	-	4.3	-	-

Appendix 6. High Volume Air Sampling and Partisol Sampling Results, 2012 to 2014

Sampling Date ¹	High Volume Air Sampling (HVAS) Stations, TSP (µg/m ³)		Partisol Stations (µg/m ³)		
	TSP-2	TSP-3	Grizzly (TSP)	Cell B (TSP)	CAMB (PM _{2.5})
3-Aug-13	-	-	52.1	11.2	-
9-Aug-13	-	-	21.8	31.9	-
15-Aug-13	-	-	-	30.8	-
21-Aug-13	-	-	8.4	11.3	-
23-Aug-13	-	-	1.8	2.0	-
27-Aug-13	-	-	2.6	1.3	-
2-Sep-13	-	-	3.8	2.9	-
8-Sep-13	-	-	6.5	3.3	-
14-Sep-13	-	-	-	4.2	-
20-Sep-13	-	-	10.2	9.0	-
26-Sep-13	-	-	3.5	4.5	-
2-Oct-13	-	-	2.9	2.6	-
8-Oct-13	-	-	4.6	5.7	-
14-Oct-13	-	-	7.9	5.4	-
20-Oct-13	-	-	-	9.7	-
26-Oct-13	-	-	7.3	6.1	-
1-Nov-13	-	-	5.2	3.3	-
7-Nov-13	-	-	5.5	6.9	-
13-Nov-13	-	-	5.3	-	-
19-Nov-13	-	-	2.3	2.1	-
25-Nov-13	-	-	2.8	5.4	-
1-Dec-13	-	-	1.5	2.2	-
7-Dec-13	-	-	3.6	3.0	-
13-Dec-13	-	-	3.1	3.8	-
19-Dec-13	-	-	-	3.6	-
25-Dec-13	-	-	2.4	2.6	-
31-Dec-13	-	-	3.8	3.8	-
6-Jan-14	-	-	3.0	2.4	-
12-Jan-14	-	-	5.7	4.3	-
18-Jan-14	-	-	6.2	7.1	-
30-Jan-14	-	-	6.4	6.3	-
5-Feb-14	-	-	4.4	2.2	-
11-Feb-14	-	-	8.7	5.8	-
17-Feb-14	-	-	8.1	11.9	-
23-Feb-14	-	-	7.0	3.1	-
1-Mar-14	-	-	6.7	4.5	-
7-Mar-14	-	-	28.1	7.4	-
13-Mar-14	-	-	7.9	11.3	-
19-Mar-14	-	-	6.4	5.5	-
25-Mar-14	-	-	5.9	4.8	-
31-Mar-14	-	-	1.9	6.7	-
6-Apr-14	-	-	11.6	10.7	-
12-Apr-14	-	-	6.3	6.0	-
18-Apr-14	-	-	19.6	11.2	-
24-Apr-14	-	-	6.1	24.8	-
30-Apr-14	-	-	12.8	14.7	-

Appendix 6. High Volume Air Sampling and Partisol Sampling Results, 2012 to 2014

Sampling Date ¹	High Volume Air Sampling (HVAS) Stations, TSP (µg/m ³)		Partisol Stations (µg/m ³)		
	TSP-2	TSP-3	Grizzly (TSP)	Cell B (TSP)	CAMB (PM _{2.5})
6-May-14	-	-	7.8	34.4	-
12-May-14	-	-	23.7	6.4	-
18-May-14	-	-	18.0	27.1	-
24-May-14	-	-	3.9	2.4	-
30-May-14	-	-	6.1	2.9	-
5-Jun-14	-	-	2.2	3.0	-
17-Jun-14	-	-	33.3	48.9	-
23-Jun-14	-	-	21.9	42.4	-
5-Jul-14	-	-	17.7	25.3	-
11-Jul-14	-	-	-	3.2	-
17-Jul-14	-	-	5.0	-	-
23-Jul-14	-	-	183.6	-	131.5
29-Jul-14	-	-	136.4	91.8	95.7
5-Aug-14	-	-	45.3	34.4	8.0
10-Aug-14	-	-	114.3	93.7	15.5
16-Aug-14	-	-	15.4	14.2	14.5
22-Aug-14	-	-	8.8	4.4	4.6
28-Aug-14	-	-	4.5	3.2	2.7
3-Sep-14	-	-	13.6	4.0	0.1
9-Sep-14	-	-	13.9	9.5	2.6
15-Sep-14	-	-	4.4	9.8	3.3
21-Sep-14	-	-	3.8	3.9	2.4
27-Sep-14	-	-	14.3	5.6	4.2
3-Oct-14	-	-	27.8	33.2	4.7
9-Oct-14	-	-	6.4	7.2	2.8
15-Oct-14	-	-	97.3	9.8	2.2
21-Oct-14	-	-	3.7	5.7	2.3
27-Oct-14	-	-	8.9	7.1	1.7
2-Nov-14	-	-	6.8	-	3.3
8-Nov-14	-	-	3.5	3.9	2.4
14-Nov-14	-	-	1.4	5.8	1.4
20-Nov-14	-	-	6.0	4.8	3.5
26-Nov-14	-	-	10.4	3.4	2.6
2-Dec-14	-	-	5.4	2.5	3.2
8-Dec-14	-	-	-	3.4	3.2
14-Dec-14	-	-	8.3	10.1	5.2
20-Dec-14	-	-	3.6	3.2	3.2
26-Dec-14	-	-	4.7	5.1	5.2

Note:

dash (-) = not available

¹ The majority of sampling dates occurred every 6 days.