Appendix V4-2C

Doris North Gold Mine Project: Air Quality Compliance Report Q3 and Q4, 2010

TMAC RESOURCES

Hope Bay Mining Limited

DORIS NORTH GOLD MINE PROJECT
Air Quality Compliance Report
Q3 and Q4, 2010

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NORTH AMERICA

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April 2011

DORIS NORTH GOLD MINE PROJECT

AIR QUALITY COMPLIANCE REPORT Q3 AND Q4, 2010

April 2011
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Prepared for:

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The Gold Company

Hope Bay Mining Limited

Prepared by:

Rescan™
Engineers and Scientists

Rescan™ Environmental Services Ltd.
Vancouver, British Columbia

Executive Summary

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Executive Summary

The following atmospheric monitoring requirements are outlined in the Doris North Gold Mine Project Certificate (NIRB No. 003, issued September 15, 2006; NIRB 2006):

1. *Section 4.0. Item 8. HBML will fund and install a weather station at the mine site to collect atmospheric data, including air temperature and precipitation. The design and location of this station shall be developed in consultation with Environment Canada officials.*
2. *Section 4.0. Item 30. HBML will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with Environment Canada and Health Canada air quality officials and focus on particulates of concern generated at the mine site. The results of air quality monitoring are to be reported every six months to NIRB through the Monitoring Officer, and from there to all of the parties.*
3. *Commentary: NIRB expects that Canada Wide Standards for Dioxins and Furans and the Canada Wide Standards for Mercury will apply and should be followed including stack testing of incinerators.*

This report is intended to meet the requirements outlined in bullet two above for the last six months of 2010 and to comply with comments received from the Nunavut Impact Review Board (NIRB) in December 2010. In addition annual air quality monitoring results for 2010 (Q1, Q2, Q3 and Q4) are reported as requested by NIRB. Separate reports were prepared for bullet one, above, in 2010 and bullet three, above, in 2009.

In order to comply with Item 30 in Section 4.0 of the Project Certificate, Hope Bay Mining Limited (HBML) along with Rescan Environmental Services (Rescan) conducted the following activities in Q3 and Q4 2010:

- Collected measurements of particulates of concern, including suspended particulate matter (by the use of a Partisol sampler which measured PM_{10}, $PM_{2.5}$ and TSP) and dustfall (four dustfall monitoring stations); and
- Collected measurements of ambient air quality, including sulphur dioxide, nitrogen dioxide, and ozone (SO_2, NO_2 and O_3; by the use of one Passive Air Monitoring Systems (PASS)).

The samples collected for particulate matter (PM_{10}, $PM_{2.5}$ and TSP), dustfall and SO_2, NO_2 and O_3 were analyzed at an accredited laboratory. All parameters were compared with the Nunavut Environmental Guideline for Air Quality, Canada Wide Standards and Canadian National Ambient Air Quality Objectives (NAAQOs) established under the Canadian Environmental Protection Act (CEPA). In addition, comparison was made to predictions presented in the Environmental Impact Statement (EIS) for the Doris North Gold Mine Project (MHBL 2005).

The PM_{10} and $PM_{2.5}$ concentrations were below the relevant guidelines for the July to December 2010 period as well as the full 2010 period and are considered typical of background concentrations for remote undisturbed areas in Canada. Compared to the predicted maximum concentrations reported in the EIS for the Doris North Gold Mine Project, PM_{10} concentrations were comparable to the predictions and $PM_{2.5}$ concentrations were well below predictions.

Total suspended particulate matter concentrations (PM_{10}, $PM_{2.5}$ and TSP), were well below the relevant standards for the July to December 2010 period and the full 2010 period. Compared to concentrations

predicted in the EIS for the Doris North Gold Mine Project, monitored concentrations were below or comparable to the predictions.

Overall, the dustfall rates were below the relevant standards, with the exception of dustfall rates measured at station DF2 (closest to Doris camp) in August 2010. This site is located close to construction activities that were taking place in 2010. Total dustfall was above the rate predicted in the EIS for the Doris North Gold Mine Project at DF1 (south of Roberts Bay) in July 2010, DF2 (south of Doris Camp) in August 2010 and DFA1 (south of Doris Camp) in May 2010 and for the July to September 2010 period. Total dustfall at all other stations and all other periods were below the predicted rate. The 2010 annual average total dustfall rate is comparable to the rate predicted in the EIS for the Doris North Gold Mine Project.

The passive ambient air quality monitoring program included monthly sampling for SO_2, NO_2 and O_3. Six-month average concentrations cannot be directly compared to standards. The 2010 annual average concentrations of SO_2 and NO_2 were well below the relevant annual standards and were also well below the maximum concentrations predicted in the EIS for the Doris North Gold Mine Project. The concentrations of SO_2 and NO_2 are considered representative of a remote undisturbed area. The 2010 annual average O_3 concentration was above the relevant annual standard. However concentrations were within the range of concentrations estimated by Health Canada for areas relatively unimpacted by anthropogenic pollution. Predictions of O_3 concentrations were not included in the EIS for the Doris North Gold Mine Project.

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DORIS NORTH GOLD MINE PROJECT
AIR QUALITY COMPLIANCE REPORT Q3 AND Q4, 2010

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Glossary and Abbreviations

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Glossary and Abbreviations

Terminology used in this document is defined where it is first used. The following list will assist readers who may choose to review only portions of the document.

Air Quality Standards	Objectives for maximum concentrations of criteria air contaminants in the atmosphere developed to ensure long-tern protection of public health and the environment.
Ambient Air Quality	The outdoor air quality at a particular site.
ASTM	American Society for Testing and Materials.
BC MoE	British Columbia Ministry of Environment.
CALA	Canadian Association for Laboratory Accreditation
CEPA	Canadian Environmental Protection Act
Criteria Air Contaminants (CAC)	Contaminants for which environmental regulatory agencies have established ambient air concentration limits.
CCME	Canadian Council of Ministers of the Environment
Dustfall	The settleable fraction of total particulate matter in ambient air.
EC	Environment Canada
EIS	Environmental Impact Statement
Fixed Dustfall	The residue remaining after ignition of a total dustfall sample.
Fugitive Dust	Particulate matter, often sand or mineral dust, released to the atmosphere by mechanical disruption of soil or by wind scouring.
Geometric Mean	The geometric mean is a type of mean or average, which indicates the central tendency or typical value of a set of numbers. The numbers in a data set are multiplied together and then the nth root (where n is the count of numbers in the set) of the resulting product is taken. The geometric mean of a data set is less than or equal to the data set's arithmetic mean/average.
GN	Government of Nunavut
HBML	Hope Bay Mining Limited
MHBL	Miramar Hope Bay Limited
NAAQO	National Ambient Air Quality Objective
NAPS	National Air Pollution Surveillance
NIRB	Nunavut Impact Review Board
NWT	North West Territories

Oxides of Nitrogen (NO_x)	NO_x gas primarily consists of nitrogen oxide (NO) and nitrogen dioxide (NO_2). The gases are emitted with exhaust from combustion engines and products from blasting operations. NO_x can be converted to nitric acid in the atmosphere and thus contribute to acid deposition.
Ozone (O_3)	A colourless, odourless reactive gas naturally found in the earth's stratosphere, where it absorbs the ultraviolet component of incoming solar radiation that could be harmful to life on earth. It is also found near earth's surface where pollutants emitted from human activities react in the presence of sunlight to form ozone. How sunny weather and stagnant conditions favour ozone formulation. The principal pollutants involved in these reactions are NO_x, volatile organic carbon (VOC) and carbon monoxide (CO).
PASS	Passive Air monitoring Sampling System
$PM_{2.5}$	Respirable particulate matter. $PM_{2.5}$ particles are a subset of PM_{10} and are defined as particles with a diameter less than 2.5 µm. These particles are small enough to enter deep into the respiratory system. The majority of PM emitted in diesel engine exhaust is $PM_{2.5}$.
PM_{10}	Inhalable particulate matter. PM_{10} particles are airborne particles that have a diameter of 10 µm or less and are thus a subset of total suspended particulate. The majority of PM_{10} particles are from fugitive dust sources. PM_{10} can enter the respiratory system and have been linked to health problems.
Sulphur Dioxide (SO_2)	Fossil fuel contains a small amount of organic compounds. During fuel combustion, the sulphur is oxidized and emitted as SO_2 gas with the engine exhaust. In the atmosphere, SO_2 can further oxidize to sulphate particles, which contribute to acid deposition.
Total Dustfall	The amount of particulate matter material remaining after evaporation and drying of a dustfall sample.
TSP	Total suspended particulates (TSP) are solid matter or liquid droplets from smoke, dust, fuel ash, or condensing vapours that can be suspended in the air.
US EPA	United States Environmental Protection Agency. The USEPA has promulgated a variety of guidelines, objectives, emission factors, air dispersion modelling procedures and statutes for the protection of ambient air quality.

1. Introduction

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1. Introduction

The following atmospheric monitoring requirements are outlined in the Doris North Gold Mine Project Certificate (NIRB No. 003, issued September 15, 2006: NIRB 2006):

1. *Section 4.0. Item 8. HBML will fund and install a weather station at the mine site to collect atmospheric data, including air temperature and precipitation. The design and location of this station shall be developed in consultation with Environment Canada (EC) officials.*
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3. *Commentary: NIRB expects that Canada Wide Standards for Dioxins and Furans and the Canada Wide Standards for Mercury will apply and should be followed including stack testing of incinerators.*

This report is intended to meet the requirements outlined in bullet two above for the last six months of 2010 and to comply with comments received from the Nunavut Impact Review Board (NIRB) in December 2010. In addition annual air quality monitoring results for 2010 (Q1, Q2, Q3 and Q4) are reported as requested by NIRB. Separate reports were prepared for bullet one, above, in 2010 and bullet three, above, in 2009.

In order to comply with Item 30 in Section 4.0 of the Project Certificate, Hope Bay Mining Limited (HBML) along with Rescan Environmental Services (Rescan) conducted the following activities in Q3 and Q4 2010:

- Collected measurements of particulates of concern, including both suspended particulate matter (by the use of Partisol samplers which measured PM_{10}, $PM_{2.5}$ and TSP) and dustfall (four dustfall monitoring stations); and
- Collected measurements of ambient air quality, including sulphur dioxide (SO_2), nitrogen dioxide (NO_2), and ozone (O_3), by the use of a Passive Air Monitoring Systems (PASS).

As required in the Project Certificate, the locations for the instruments used to measure the above parameters along with the monitoring objectives were reviewed with Mr. Dave Fox (Air Protection Management Analyst North, Environment Canada, Yellowknife).

Chapter 2 of this report provides the results from the particulate matter (both suspended particulate matter and dustfall) measurements, and Chapter 3 of this report provides the results from the passive ambient air quality samplers for SO_2, NO_2 and O_3. Chapter 4 provides a brief discussion of the results.

2. Particulate Matter

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2. Particulate Matter

Particulate matter is a criteria air quality contaminant (CAC) associated with mining and mineral processing operations. It is generated by mobile equipment, crushing, blasting, bulk handling and storage and other associated mineral processing and construction activities. As part of the ambient air quality compliance monitoring program, particulate matter was monitored in Q3 and Q4, 2010 at various locations for the concentration of suspended particulate matter and dustfall. Measured concentrations were compared to ambient air quality standards given in the 2011 update of the Air Quality Management Plan for the Doris North Gold Mine Project (Rescan 2011) and predictions in the EIS for the Doris North Gold Mine Project (MHBL 2005).

2.1 SUSPENDED PARTICULATE MATTER

Suspended particulate matter in ambient air is generally a complex, multi-phase system of all airborne solid and low vapour pressure liquid particles having aerodynamic particle sizes from 0.01 to 100 µm in diameter. Airborne suspended particulate matter concentrations were monitored using two Partisol samplers located on the butte near the Doris camp. The site selection, methods and results are presented below.

2.1.1 Site Selection

As with any type of ambient air monitoring study, the validity of conclusions depends on representativeness of the sample data. Therefore, the sampling location and the siting of the ambient air samplers are important.

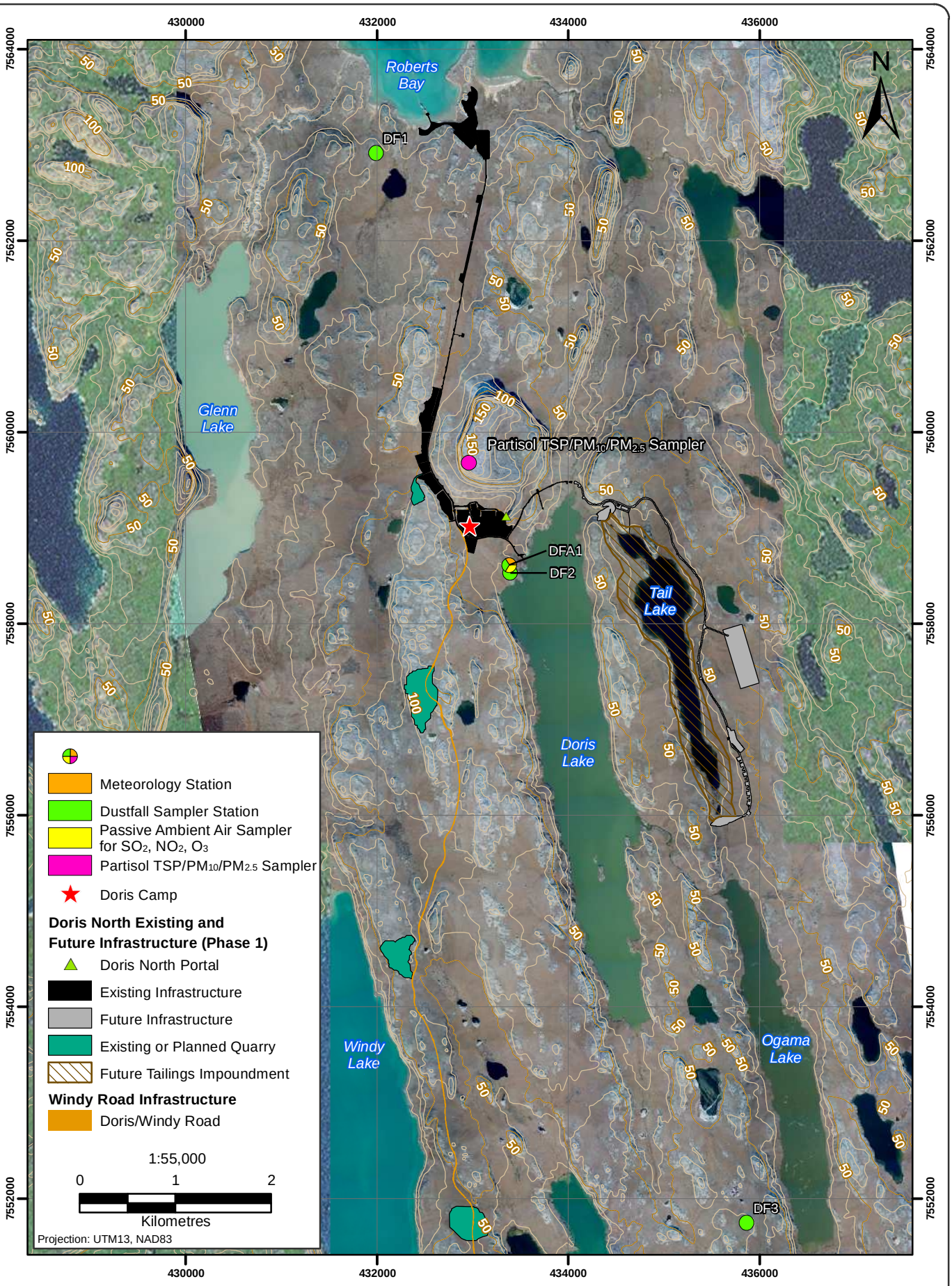
Nunavut does not have established siting requirements for ambient air samplers. Therefore, the siting criteria from the British Columbia Ministry of Environment (BC MoE 2009) and the US EPA (US EPA 2009 and US EPA 1999) were used.

Additional factors, not specified in standard site selection criteria, were also considered. Due to the very cold climate the Partisol samplers were installed inside a temperature controlled shelter. As a result interruptions to the sample schedule caused by cold weather, wet conditions and excess humidity, air leaks and pump malfunctioning were minimized. The Partisol air sampler location is free from obstructions and nearby pollutant sources that may cause interference in suspended particulate monitoring (Figure 2-1.1; Plates 2-1.1 and 2.1-2).

2.1.2 Monitoring Method

Suspended particulate matter is being monitored by the Partisol ambient air samplers in three forms; TSP, PM_{10} and $PM_{2.5}$. A Partisol plus model 2025 ambient air sampler monitors TSP and Partisol Sequential Dichotomous Model 2025D ambient air sampler monitors PM_{10} and $PM_{2.5}$ simultaneously (Plate 2.1-3). The Partisol instruments are widely used in Canada for compliance monitoring programs and are recognized as reference equivalent methods by the US EPA (US EPA 2009).

The Partisol ambient air samplers draw a particulate-laden ambient air stream through a size-selective inlet, and then through a 47 mm diameter filter. A built-in pump provides the vacuum required to pull the air flow through the sample filter and a volume flow controller monitors and automatically adjusts the flow rate (Figure 2.1-2). The filters, approved for use with the Partisol ambient air samplers, were the Pallflex TX40H120-WW teflon coated fibre glass type. The Partisol air sampler filters are pre and post weighted at a laboratory that is accredited by the Canadian Association for Laboratory Accreditation (CALA 2011). Maxxam Analytical Laboratory undertook analysis of filters for the duration of the 2010 survey.



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Doris North Gold Mine Project Ambient Air Quality Monitoring Program Stations

Figure 2.1-1

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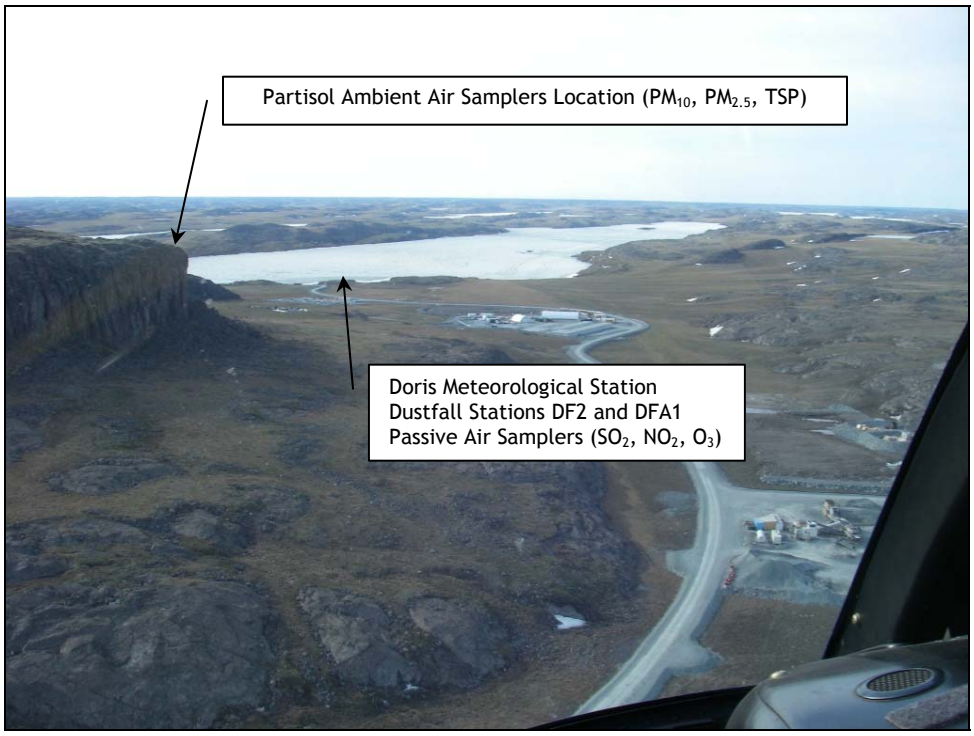


Plate 2.1-1. The Partisol ambient air samplers are located at the top of a butte that is approximately 660 m north of the Doris camp. Doris Lake is shown in the background of this photograph.

Plate 2.1-2. Temperature controlled shelter housing the Partisol ambient air samplers, early July 2010.

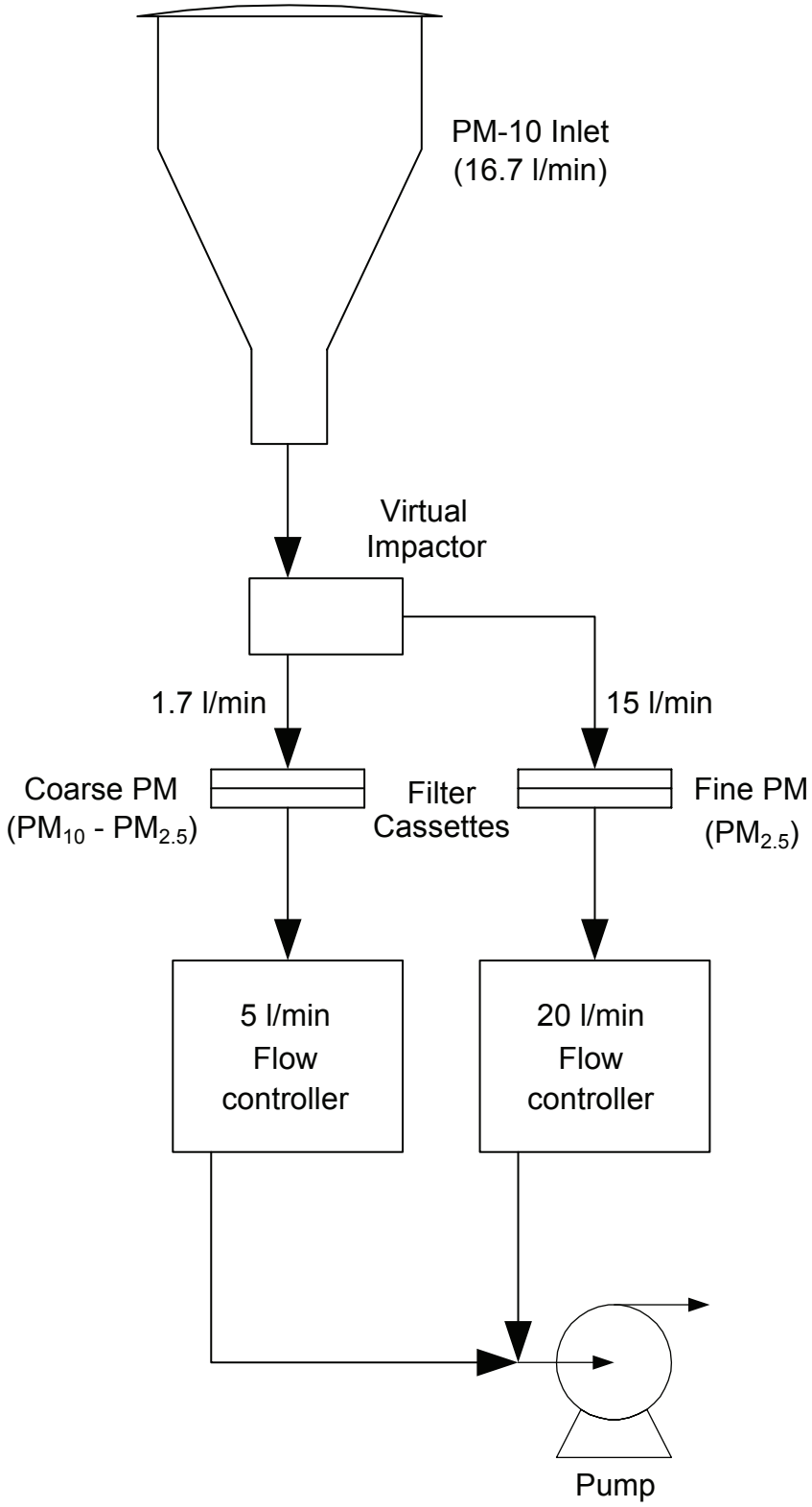
Plate 2.1-3. Inside the temperature controlled shelter the Partisol sampler for TSP is shown on the left and the $PM_{10}/PM_{2.5}$ sampler is on right.

The filter exchange is performed using pneumatic pressure from the sample pump, and does not involve any special electromechanical components, belts or motors. New filter cassettes from the supply magazine (left, Plate 2.1-4) are pushed up and rightward to the sampling position, while the previous cassette is moved to the storage magazine (right, Plate 2.1-4). The supply and storage magazines are covered to seal off the filter cassettes thereby protecting them from environmental interferences during sampling operations.

The Partisol Plus 2025 TSP sampler (the instrument on left in Plate 2.1-3) monitors only TSP therefore, the instrument does not split the incoming ambient air and all sampling air goes through one filter. The Partisol Plus 2025 $PM_{10}/PM_{2.5}$ sampler (the instrument on right in Plate 2.1-3) monitors splits the incoming ambient air and all sampling air goes through separate filters for PM_{10} and $PM_{2.5}$.

The Partisol ambient air samplers at the Doris North Gold Mine Project are programmed to follow Environment Canada's National Air Pollution Surveillance (NAPS) schedule (EC 2011). The NAPS program requires 24-hour sampling every six days for particulate matter monitoring.

Measured concentrations of TSP concentrations at the Doris North Gold Mine Project site have been lower than PM_{10} and $PM_{2.5}$ concentrations for many sample periods since the equipment was installed in summer 2009. PM_{10} and $PM_{2.5}$ are subsets of TSP; therefore, the TSP concentration should be equal or higher than PM_{10} concentration. This suggested that there may be a malfunction with the sampling equipment. A leak test and a flow audit were performed during the periodical site visit in fall 2010, but this indicated that the equipment passed the various tests and was performing to manufacturers guidelines. This issue is under further investigation. In addition, it is noted that PM_{10} and $PM_{2.5}$ concentrations were at the limit of detection for the majority of the period September to December 2010. When a periodical site visit was undertaken in February 2011 the inlet to the Partisol sampler was found to be damaged and partially blocked by ice. It is not known at when the damage occurred, but this may have affected the PM_{10} and $PM_{2.5}$ concentrations measured during this period.



Source: Thermo Fisher Scientific, 2007

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Simplified Diagram for the Partisol Sequential Dichotomous Model 2025D Ambient Air Sampler

Figure 2.1-2

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Plate 2.1-4. The Partisol air sampler filters are contained in a magazine on the left side of the unit. The filters laden with suspended particulate matter are contained in a magazine on the right side of the unit (PM_{10} at front and $PM_{2.5}$ at rear).

2.1.3 Results and Comparison

Table 2.1-1 summarizes ambient PM_{10} and $PM_{2.5}$ concentrations measured with the Partisol 2025 Dichotomous sampler. Full results for the 2010 period are presented in Appendix 1. The trend in concentrations is presented in Figure 2.1-3.

There are no ambient air quality standards in Nunavut for PM_{10} and $PM_{2.5}$ therefore results were compared to the British Columbia Ministry of Environment Level B Standard for PM_{10} (BC MoE 2011) and the Canada-Wide Standards for $PM_{2.5}$ (CCME 2000). In addition concentrations are compared to the predicted concentrations contained in the Environmental Impact Statement (EIS) for the Doris North Gold Mine Project (MHBL 2005).

The PM_{10} and $PM_{2.5}$ concentrations for the July 2010 to December 2010 reporting period were well below the relevant ambient air quality standards (Table 2.1-1). The average concentrations were comparable to the results for the January to June 2010 period, but it is noted that concentrations were around the limit of detection between September and December 2010. When a site visit was undertaken in February 2011, the inlet for the PM_{10} and $PM_{2.5}$ sampler was found to be partially iced up, which may have affected the monitored concentrations. The 2010 average concentrations were below the relevant ambient air quality standards. Figure 2.1-3 indicates that concentrations were generally higher during the summer months, although concentrations in the winter months may have been influenced by equipment malfunction.

Table 2.1-1. PM_{10} and $PM_{2.5}$ Results Summary, Doris North Gold Mine Project, 2010

	PM_{10} (µg/m^3) [a]	$PM_{2.5}$ (µg/m^3) [b]
Ambient Air Quality Standard	50 [c]	30 [d]
EIS Predictions (MHBL 2005)	61.9 (Maximum 24-hour concentration. 50 microgram/m^3 exceeded 2 days per year)	18.4 (24-hour 98th percentile concentration)
	8.0 (annual average concentration)	4.5 (annual average concentration)
Q1 Q2 Average [e]	**7.6**	**2.2**
Q1 Q2 Range	**<1.0 to 39.0**	**<0.1 to 13.7**
Q3 Q4 Average	**8.3**	**1.2**
Q3 Q4 Range	**<1.0 to 46.0**	**<0.1 to 4.6**
2010 Average	**8.0**	**1.7**

[a] Limit of detection for PM_{10} is 1.0 µg/m^3. For the purpose of calculating period averages, concentrations below the limit of detection were assumed to be the limit of detection.
[b] Limit of detection for $PM_{2.5}$ is 0.1 µg/m^3. For the purpose of calculating period averages concentration assumed to be the limit of detection.
[c] British Columbia Ministry of Environment Level B 24-hour Standard for PM_{10} used (BC MoE 2011) as there are no ambient air quality standards for PM_{10} set by Federal or Nunavut Territorial Governments
[d] Canada Wide Standard for 24-hour $PM_{2.5}$ (CCME 2000). There are no ambient air quality standards for $PM_{2.5}$ set by the Nunavut Territorial Government.
[e] Average concentrations different from Air Quality Compliance Report Q1 and Q2, 2010 (Rescan 2010) due to typographical errors in some of the values reported. These have been corrected and the averages recalculated.

The EIS for the Doris North Gold Mine Project predicted maximum concentrations of 61.5 micrograms per cubic metre (µg/m^3), with the PM_{10} 24-hour standard exceeded 2 days per year. This was predicted at 200 m from the proposed ore processing facility. PM_{10} concentrations monitored during 2010 were below this maximum predicted concentration. An annual average PM_{10} concentration of 8.0 µg/m^3 was predicted and the 2010 average PM_{10} concentration was equal to this. $PM_{2.5}$ concentrations for the Project were predicted to be 18.4 µg/m^3 based on 98th percentile of the 24-hour ambient measurement, averaged over 3 years and 4.5 µg/m^3 as an annual mean. Concentrations of $PM_{2.5}$ monitored during 2010 were below these predicted concentrations.

Table 2.1-2 summarizes ambient TSP concentrations measured with the Partisol Plus 2025 Dichotomous sampler. Full results for the 2010 period are presented in Appendix 1. The relevant standards for TSP are the National Ambient Air Quality Objective 24-hour TSP standard (EC 2011) and the Nunavut Territorial Government (GN 2002) 24-hour TSP standard. In addition the average 2010 concentration was compared to the predicted concentrations contained in the EIS for the Doris North Gold Mine Project (MHBL 2005).

The geometric mean 24 hour TSP concentrations and the individual results for each 24-hour period were well below relevant ambient air quality standards for the July to December 2010 period and the full 2010 period. The average 24-hour TSP concentration in the July to December 2010 period is lower than the January to June 2010 period. The EIS for the Doris North Gold Mine Project predicted maximum 24-hour TSP concentrations of 76.3 µg/m^3 and an annual mean concentration of 14.5 µg/m^3. TSP concentrations monitored during 2010 were well below the predicted concentrations.

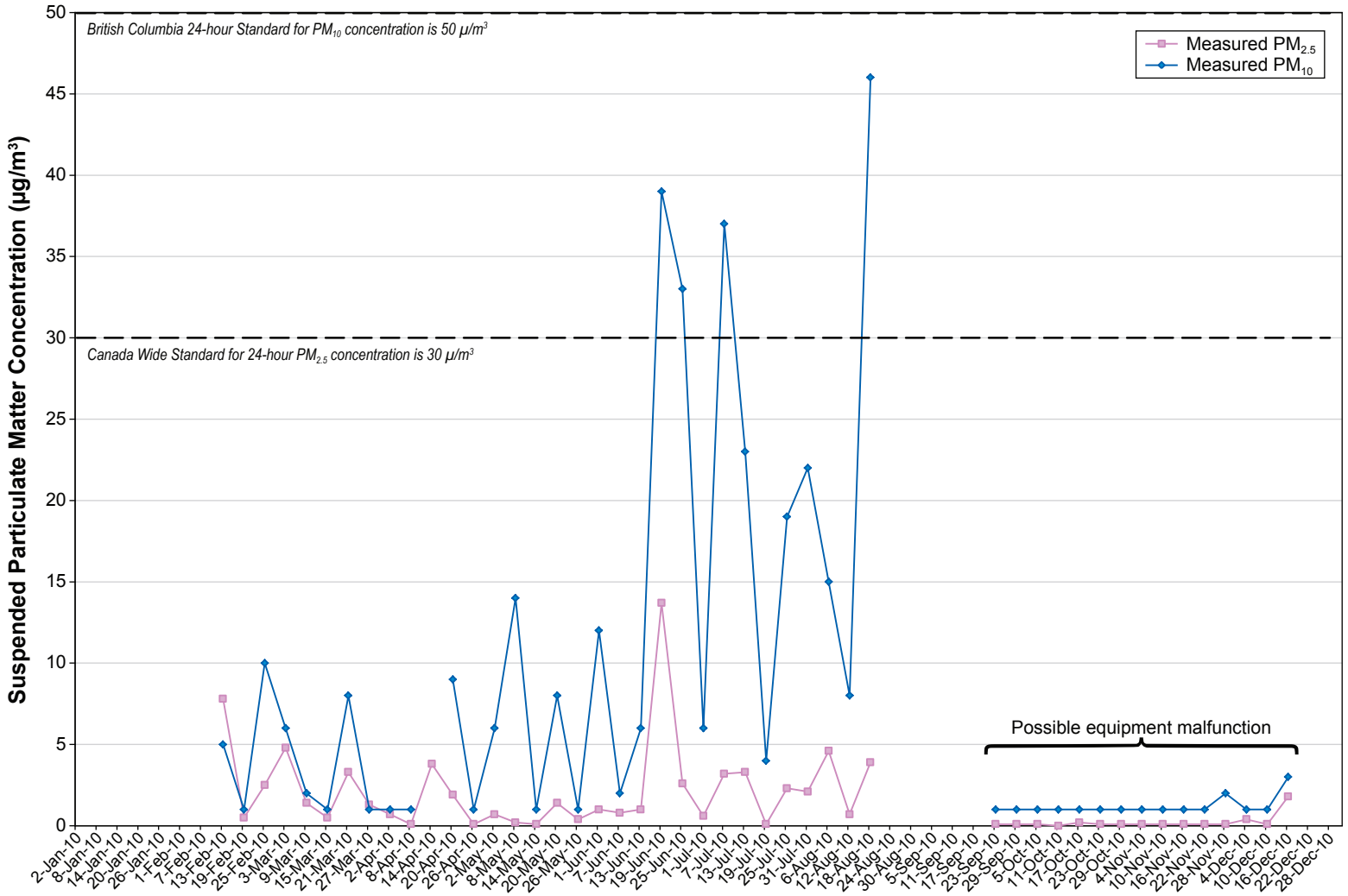

Figure 2.1-3

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PM_{10} and $PM_{2.5}$ Concentrations, Doris North Gold Mine Project, 2010

Figure 2.1-3

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Table 2.1-2. Total Suspended Particulate Results Summary, Doris North Gold Mine Project, 2010

	TSP (µg/m^3) [a]
Ambient Air Quality Standard	120 [b]
EIS Predictions (MHBL 2005)	76.3 (maximum 24-hour concentration) 14.5 (annual average concentration)
Q1 Q2 Average	**3.3**
Q1 Q2 Range	**0.2 to 13.9**
Q3 Q4 Average	**1.4**
Q3 Q4 Range	**0.1 to 5.1**
2010 Geometric mean	**1.0**
2010 Average	**2.3**

[a] Limit of detection for TSP_5 is 0.1 µg/m^3. For the purpose of calculating period averages concentration assumed to be the limit of detection.
[b] National Ambient Air Quality Objective (EC 2011) and Nunavut Territorial Government (GN 2002) 24-hour TSP Standard calculated as geometric mean.

It is noted that the TSP concentrations measured at the Project site were lower than PM_{10} and $PM_{2.5}$ concentrations for many sample periods. This has been an ongoing problem since the equipment was installed in the summer of 2009 and is under further investigation.

Environment Canada undertakes monitoring at various locations across Canada as part of the National Air Pollution Surveillance (NAPS) Network. The nearest NAPS suspended particulate matter monitoring station to the Project is Yellowknife, NWT station, and the PM_{10} and $PM_{2.5}$ annual averages were 6 and 3 µg/m^3 in 2006 (EC 2008), respectively, which was is the latest year of published data. The only suspended particulate matter monitoring station operated by NAPS in Nunavut is located in Iqaluit and this station monitors PM_{10} only. The annual average at Iqualit station for PM_{10} was 14 µg/m^3 in 2006 (EC 2008). During 2010, average PM_{10} and $PM_{2.5}$ concentrations at the Doris North Gold Mine Project site were similar to NAPS Yellowknife station and PM_{10} was lower than at NAPS Iqualit station. Monitoring of TSP concentrations by NAPS ceased in 2003. The latest regional data is from 2002 and an annual geometric mean of 27 µg/m^3 was reported at Yellowknife, NWT station (EC 2003).

2.2 DUSTFALL

The purpose of the dustfall monitoring program is to quantify the amount of dust deposition near the Doris North Gold Mine Project site and compare the results to the available standards and the predicted concentrations reported in the EIS for the Doris North Gold Mine Project (MHBL 2005).

Dustfall monitoring was undertaken at four locations during Q3 and Q4 of 2010. One dustfall station, co-located with Doris North meteorological station, uses an Alberta Environment sampling method (Alberta AMD 1989), and the other three stations use the ASTM D1739-98 sampling method (ASTM 2004).

2.2.1 Site Selection

Nunavut does not have established siting requirements for ambient air samplers. Therefore, the siting criteria from the British Columbia Ministry of Environment (BC MoE 2009) and the US EPA (US EPA 2009 and US EPA 1999) were used. The dustfall monitoring station which uses the Alberta Environment method is co-located at the Doris North meteorological station (DFA1). The other three dustfall stations followed the ASTM 2004 site selection recommendations (DF1, DF2 and DF3) (Figure 2.1-1). Dominant

wind directions as well as present and potential future project activities were considered during the site selection process. There are no obstructions or local sources of air pollutants near the stations. In addition, the relatively flat topography allows for the collection of representative data (Figure 2.1-1). The dustfall monitoring stations are in open areas that are free of structures higher than 1 m within a 20 m radius of the collection container.

2.2.2 Monitoring Method

The dustfall monitoring stations collect particles small enough to pass through a 1 mm screen and large enough to settle by virtue of their weight. This requires containers of a standard size and shape, which are partially filled with deionised water. The containers are installed on a 2 m pole, surrounded by a windscreen and bird spikes and are exposed to the atmosphere for approximately 30 days. The windscreen around the sample container improves the dustfall collection efficiency and bird spikes are used to minimize contaminants from bird faeces (Plate 2.2-1). Monthly samples are sent to a laboratory for analysis. Dustfall results are prorated by the laboratory to a 30-day average, so that they could be compared with standards.

Plate 2.2-1. Example of a dustfall monitoring station (DF1) near the Doris North Project site which uses the ASTM monitoring method.

Dustfall was monitored at the three stations (DF1, DF2 and DF3, Figure 2.1-1) using the ASTM D1739-98 sampling method (ASTM 2004). These stations have two dustfall collectors. One of the containers is analyzed for particulates (total, soluble and insoluble) and anions (sulphate, nitrate, chloride, and ammonia) and the other for total metals and various cations. Algae are an interference for dustfall measurements; therefore, the deionized water in the dustfall containers also contains algaecide. Analysis was undertaken by Maxxam Analytical Laboratory.

The fourth dustfall station, which is co-located with the Doris North meteorological station (DFA1, Figure 2.1-1), is operated in accordance with the Alberta Environment sampling method (Alberta AMD 1989). The station has one dustfall collector. Samples are analysed for total dustfall and total fixed

dustfall. Total dustfall is defined as the amount of material left after evaporation of a sample of dustfall and its subsequent drying. Total fixed dustfall is the residue that is left after ignition of the total dustfall sample (Alberta AMD 1989). Analysis was undertaken by ALS laboratory Group.

2.2.3 Results and Comparison

Table 2.2-1 summarizes the dustfall limits in various jurisdictions. The 2011 update of the Air Quality Management Plan for the Doris North Gold Mine Project (Rescan 2011) included the Alberta Environment Ambient Air Quality Standard for Dustfall (Alberta Environment 2010) as a guideline for comparison. However, other standards were included in the Doris North Gold Mine Project Air Quality Compliance Report Q1 and Q2, 2010 report (Rescan 2010) and are presented here for consistency. The dustfall results are summarized in Tables 2.2-2 for the ASTM method and 2.2-3 for the Alberta Environment method. A time series of dustfall results for the Alberta Environment method are summarized in Figure 2.2-1. Between July and December 2010 one batch of dustfall samples was collected per month for the months of July, August and September 2010 at the stations that followed the ASTM method (DF1, DF2 and DF3). Between July and December 2010 three batches of dustfall samples were collected at the DFA1 station using the Alberta Environment method. It was intended that one sample would be collected per month at this station but this was not possible due to site access restrictions.

Table 2.2-1. Dustfall Limits in Several Jurisdictions

Jurisdiction	Dustfall Criterion as given in Regulations (mg/m^2/30 days)	Comments	Equivalent Dustfall Criterion in mg/dm^2/day
Alberta (Alberta Environment 2010)	53 mg/m^2/30 days	Residential and recreational areas	1.75
	158 mg/m^2/30 days	Commercial and industrial areas	5.25
Ontario (Ontario Ministry of the Environment 2008)	7 g/m^2/30 days	-	2.3
Saskatchewan (Saskatchewan 1996)	2 mg/cm^2/30 days	-	6.67
British Columbia Pollution Control Objective (BC MOE 1979)	1.7 to 2.9 mg/dm^2/day	-	1.7 to 2.9

Table 2.2-2. Dustfall Results using the ASTM Method, Doris North Gold Mine Project, 2010 (mg/dm^2/day)

Dustfall	DF1	DF2	DF3
July 2010			
Total	0.44	0.19	0.15
Total Insoluble	0.25	<0.10	<0.10
Total Soluble	0.2	0.15	<0.10
August 2010			
Total	0.22	2.5	0.13
Total Insoluble	<0.10	1.49	<0.10
Total Soluble	0.19	1.01	0.11
September 2010			
Total	<0.10	0.11	0.14
Total Insoluble	<0.10	<0.10	<0.10
Total Soluble	<0.10	<0.10	0.14

Limit of Detection is 0.10 mg/dm^2/day.

Table 2.2-3. Dustfall Results using the Alberta Environment Method, Doris North Gold Mine Project, 2010

	Total Dustfall at Station DFA1 ($mg/dm^2/day$)	Fixed Dustfall at Station DFA1 ($mg/dm^2/day$)
Jan-2010	0.077	0.077
Feb-2010	0.080	0.040
Mar-2010	0.133	0.090
Apr-2010	0.137	0.087
May-2010 [a]	1.003	0.670
Jun-2010 [a]	0.420	0.273
Jul-2010 [b] to Sep-2010 [b]	1.027	0.323
Oct-2010	0.090	0.043
Nov-2010 [c] to Dec-2010 [c]	0.110	0.057
Q1 Q2 Average [a]	**0.308**	**0.206**
Q3 Q4 Average	**0.409**	**0.141**
2010 Average	**0.342**	**0.184**

Limit of Detection is 0.003 $mg/dm^2/day$.
[a] Average concentrations different from Q1Q2 Report (Rescan 2010) due to typographical errors in some of the values reported in the Q1Q2 compliance report. These have been corrected and the averages recalculated.
[b] Only one sample was collected with an exposure period from July to September 2010 due to site access restrictions. Therefore the result applies to the months July, August and September 2010.
[c] Only one sample was collected with an exposure period from November to December 2010 due to site access restrictions. Therefore the result applies to the months November and December 2010.

Dustfall rates below the limits are generally expected and indicate baseline levels for a typical undeveloped area. Overall, the dustfall results were below the limits listed in Table 2.2-1, with the exception of DF2 in August 2010. Total dustfall at DF2 exceeds the Alberta criterion for residential and recreational areas, the Ontario criterion and the British Columbia lower criterion level. A maximum annual deposition rate of 0.36 $mg/dm^2/day$ was predicted in the EIS for the Doris North Gold Mine Project at 20 m from the proposed mine portal (reported as 10.8 $mg/100\ cm^2/30$ days in the EIS). The monitoring stations are all located at a greater distance from the proposed mine portal. Total dustfall was above this predicted rate at DF1 in July 2010 and DF2 in August 2010 for stations using the ASTM method. For the station using the Alberta Environment method total dustfall was above the predicted rate in May 2010 and for the July to September 2010 period. Total dustfall at all other stations and all other periods were below this predicted rate. The 2010 annual average total dustfall rate for the station using the Alberta Environment method, DFA1, is comparable to the maximum annual deposition rate predicted in EIS for the Doris North Gold Mine Project.

The concentration of total metals in the dustfall samples was also analyzed and the laboratory results are summarized in Appendix 2. Most of the metal concentrations were below the detection limits and for all intents and purposes would be considered negligible. There are no specific criteria for metal concentrations in dustfall. However, there are workplace or occupational air quality standards (e.g., industrial hygiene) for metals that are of concern with respect to human health. The metals that are a concern for human health are cadmium, lead and arsenic and the concentrations of these metals in the collected dustfall samples were close to or below detection limits. There were no predictions of concentration of total metals in the dustfall within the EIS for the Doris North Gold Mine Project.

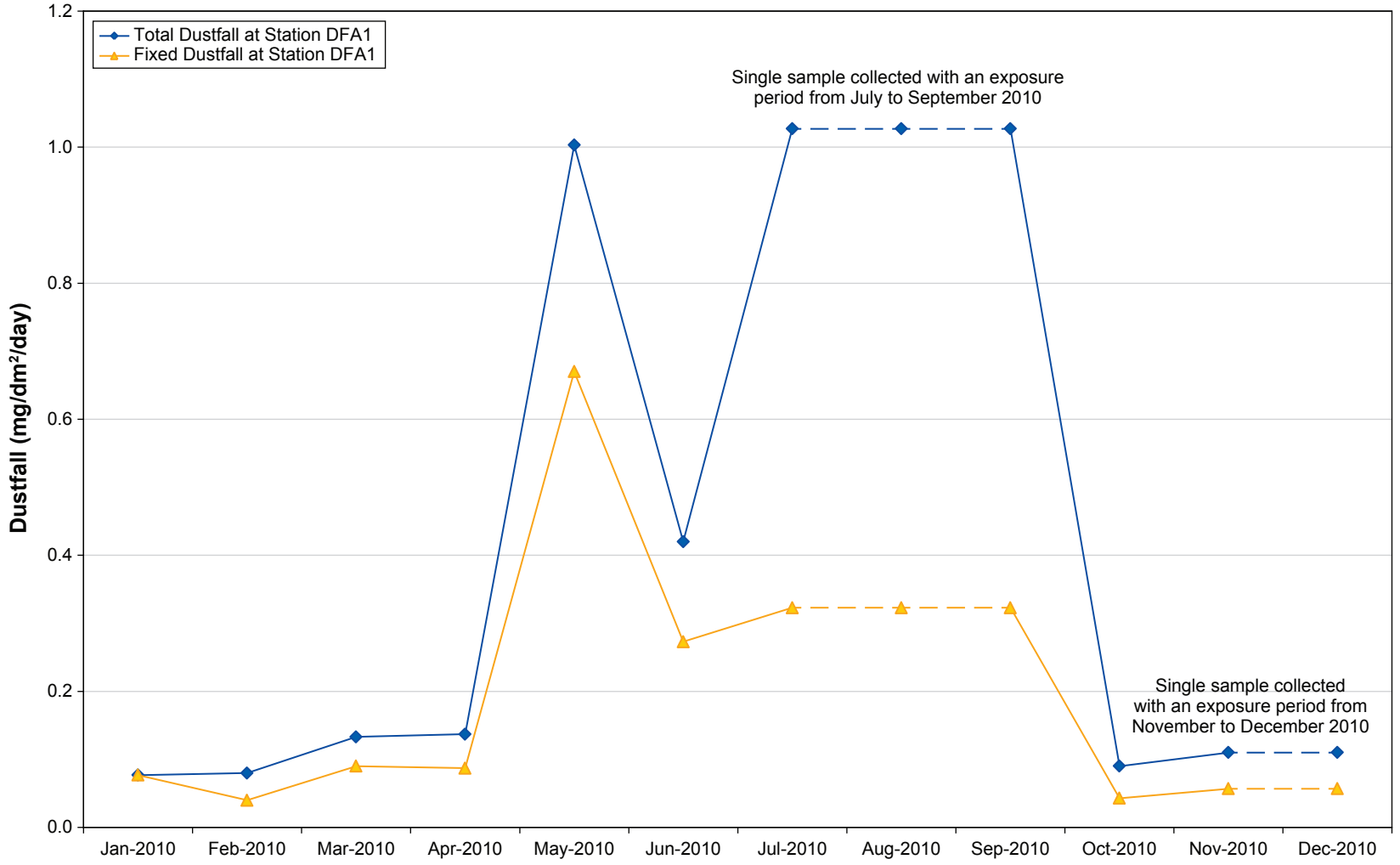

Figure 2.2-1

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Dustfall Results using the Alberta Environment Method, Doris North Gold Mine Project, 2010

Figure 2.2-1

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3. Ambient Air Quality Monitoring by Passive Samplers

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3. Ambient Air Quality Monitoring by Passive Samplers

As part of the ambient air quality compliance monitoring program, monthly average concentrations of criteria air contaminants were monitored at the Project site in Q3 and Q4, 2010. A Passive Air Sampling System (PASS) at the Doris North meteorological station was used to monitor SO_2, NO_2 and O_3 (Figure 2.2-1). Measured concentrations were compared to ambient air quality standards given in the 2011 update of the Air Quality Management Plan for the Doris North Gold Mine Project (Rescan 2011) and predictions in the EIS for the Doris North Gold Mine Project (MHBL 2005).

3.1 SITE SELECTION

Nunavut does not have established siting requirements for ambient air samplers. Therefore, the siting criteria from the British Columbia Ministry of Environment (BC MoE 2009) and the US EPA (US EPA 2009) were used. The samplers were placed in environmentally safe locations where they would not be affected by weather or damaged by wildlife. They were placed far from obstructions and there were no nearby roadways that could influence measurements.

3.2 MONITORING METHOD

Passive air sampling is a diffusive method which monitors gas or vapour pollutants from the atmosphere at a rate controlled by a physical process, such as diffusion through a static air layer or permeation through a membrane. The passive method does not involve the active movement of the air through the sampler; therefore no electric air moving pump is required. The number of days of contact between the ambient air and the permeation membrane is important. The local meteorological conditions are also used in the calculations. The meteorological parameters that are used in the PASS calculations are air temperature, wind speed and relative humidity.

The PASS provides low detection limits, is very easy to install and does not require power. The passive sampler is kept under a rain shelter (Plate 3.2-1) on a tripod beside the Doris meteorological station. Sampling was undertaken on a monthly basis and PASS samples were sent to Maxxam Analytical Laboratory for analysis following each sampling period.

3.3 RESULTS AND COMPARISON

The relevant ambient air quality standards are summarized in Table 3.3-1. Maximum predicted concentrations contained in the EIS for the Doris North Gold Mine Project (MHBL 2005) are presented in Table 3.3-2. PASS results are summarized in Table 3.3-3 and the original laboratory reports are presented in Appendix 3. The time series of concentrations are presented in Figures 3.3-1 to 3.3-3. Monitoring results were compared to the relevant ambient air quality standards and the predictions in the EIS for the Doris North Gold Mine Project.

The PASS results are expressed as monthly average concentrations; however Health Canada's National Ambient Air Quality Objectives (NAAQO) and the Nunavut Environmental Guideline for Air Quality have averaging periods of 1-hour, 24-hour and 1-year. Only the 2010 average concentrations can be directly compared to standards.

The 2010 annual average concentrations of SO_2 and NO_2 were well below the relevant annual standards. In addition the 2010 annual average concentrations were well below the maximum concentrations predicted in the EIS for the Doris North Gold Mine Project.

Plate 3.2-1. Passive air samplers under a rain shelter at Doris meteorological station.

Table 3.3-1. Ambient Air Quality Standards for SO_2, NO_2 and O_3

	Unit	Annual	Daily	1-Hour
SO_2 [a]	$\mu g/m^3$	30	150	450
NO_2 [b]	$\mu g/m^3$	100	200	400
O_3 [c]	$\mu g/m^3$	30	50	160

[a] National Ambient Air Quality Objective (EC 2011) and Nunavut Territorial Government (GN 2002) maximum desirable concentrations for SO_2.
[b] National Ambient Air Quality Objective (EC 2011) maximum acceptable concentrations for NO_2. Achievement of the annual and 1-hour standards is of most concern for Environment Canada.
[c] National Ambient Air Quality Objective (EC 2011) maximum acceptable concentration for O_3. Achievement of the 1-hour standard is of most concern for Environment Canada. Canada Wide Standard (CCME 2000) for O_3 has an 8-hour averaging period which cannot be compared with monthly results.

Table 3.3-2. Maximum Predicted Concentrations of SO_2, NO_2 and O_3 from the EIS for the Doris North Gold Mine Project (MHBL 2005)

	Unit	Annual	Daily	1-Hour
SO_2	$\mu g/m^3$	5.8	49.6	265.9
NO_2	$\mu g/m^3$	47.7	126.4	306.7
O_3	$\mu g/m^3$	n/a	n/a	n/a

Predictions of Ozone concentrations were not included in the EIS for the Doris North Gold Mine Project.

Table 3.3-3. Passive Ambient Air Quality Monitoring Results, Doris North Gold Mine Project, 2010

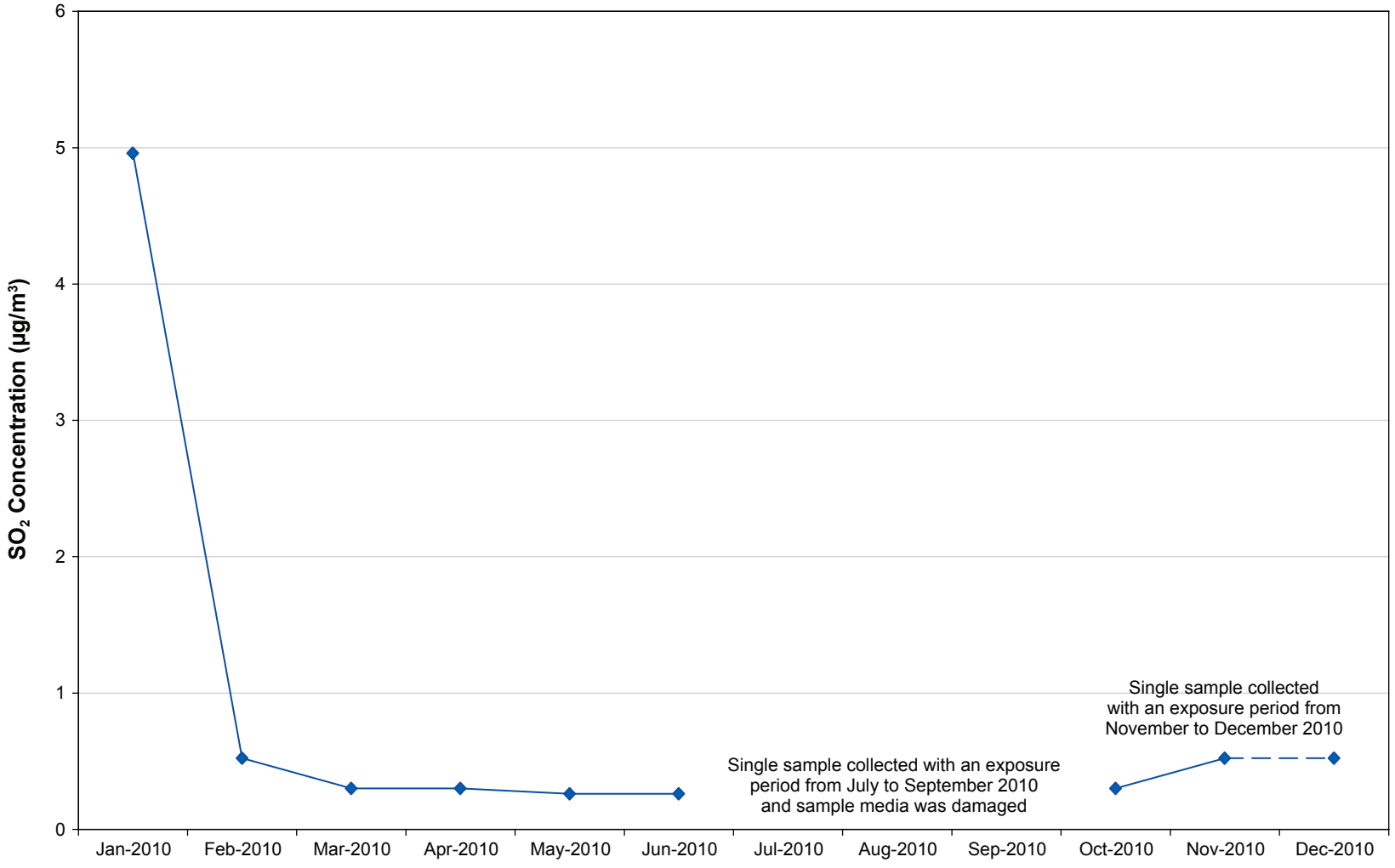
	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	O_3 ($\mu g/m^3$)
Jan-2010	5.0	9.6	62.1
Feb-2010	0.5	4.7	51.5
Mar-2010	0.3	1.5	69.8
Apr-2010	0.3	1.3	71.9
May-2010	0.3	0.2	69.8
Jun-2010	0.3	0.9	52.3
Jul-2010 [a] to Sep-2010 [a]	n/a [b]	n/a [b]	n/a [b]
Oct-2010	0.3	1.9	50.6
Nov-2010 [c] to Dec-2010 [c]	0.5	2.6	58.2
Ambient Air Quality Standard	30 [d]	100 [e]	30 [f]
EIS Predictions (MHBL 2005)	5.8 (maximum annual concentration)	47.7 (maximum annual concentration)	n/a [g]
Q1 Q2 Average [a]	**1.1**	**3.0**	**62.9**
Q3 Q4 Average	**0.4**	**2.3**	**54.4**
2010 Average	**0.9**	**2.8**	**60.8**

Laboratory results provided in ppb. Conversion factors for calculating $\mu g/m^3$ are 2.61 for SO_2, 1.88 for NO_2 and 1.96 for O_3 assuming conditions of 25°C and 101 kPA.
Limit of Detection is 0.3 $\mu g/m^3$ (0.1 ppb) for SO_2, 0.2 $\mu g/m^3$ (0.1 ppb) for NO_2 and 0.2 $\mu g/m^3$ (0.1 ppb) for O_3. For the purpose of calculating period averages concentration assumed to be the limit of detection.
[a] *Only one sample was collected with an exposure period from July to September 2010 due to site access restrictions.*
[b] *Sample media was found to be damaged on collection.*
[c] *Only one sample was collected with an exposure period from November to December 2010 due to site access restrictions.*
[d] *National Ambient Air Quality Objective (EC 2010) and Nunavut Territorial Government (GN 2002) maximum desirable annual average concentration for SO_2.*
[e] *National Ambient Air Quality Objective (EC 2010) maximum acceptable annual average concentration for NO_2.*
[f] *National Ambient Air Quality Objective (EC 2010) maximum acceptable annual average concentration for O_3.*
[g] *Predictions of Ozone concentrations were not included in the EIS for the Doris North Gold Mine Project.*

The 2010 annual average O_3 concentration is above the relevant annual standard. Predictions of O_3 concentrations were not included in the EIS for the Doris North Gold Mine Project. Health Canada recognises that the annual standard may not be achievable in remote locations and provides estimates of O_3 concentrations expected in areas that are not influenced by anthropogenic pollution (HC 1999). These guidelines are given for the May to September period, but it is stated that when all months of the year are included, values would be slightly lower. The guidelines are:

- Daily 1 hr. Maximum (May - Sept.) 69 to 94 $\mu g/m^3$ (reported as 35 to 48 ppb); and
- Monthly 1 hr. Average (May - Sept.) 49 to 78 $\mu g/m^3$ (reported as 25 - 40 ppb).

Remote locations may experience higher concentrations of ground level O_3 than urban locations due to the transport of O_3 from urban areas and the lower NO_2 concentrations, which scavenges O_3 from the air through chemical reactions. Monthly O_3 concentrations were within the range of concentrations estimated by Health Canada and are considered representative of concentrations in an area relatively unimpacted by anthropogenic pollution.



Note: The National Ambient Air Quality Objective and Nunavut Environmental Guideline for Air Quality for maximum desirable annual average SO_2 concentrations is 30 µg/m³.

Figure 3.3-1

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SO_2 Concentrations from the Passive Air Sampling System, Doris North Gold Mine Project, 2010

Figure 3.3-1

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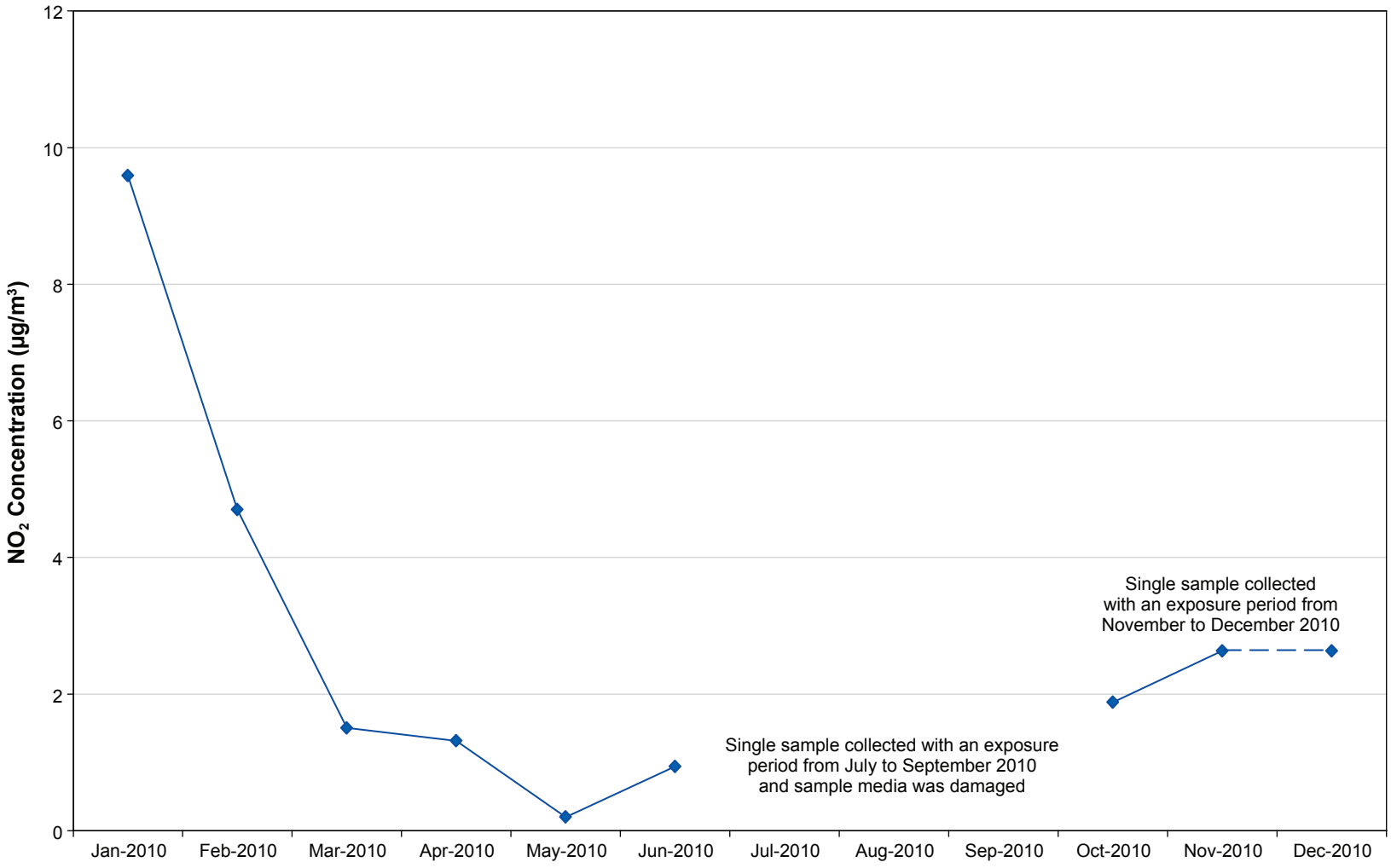

Note: The National Ambient Air Quality Objective for maximum desirable annual average NO_2 concentrations is 100 µg/m³.

Figure 3.3-2

NEWMONT NORTH AMERICA

NO_2 Concentrations from the Passive Air Sampling System, Doris North Gold Mine Project, 2010

Figure 3.3-2

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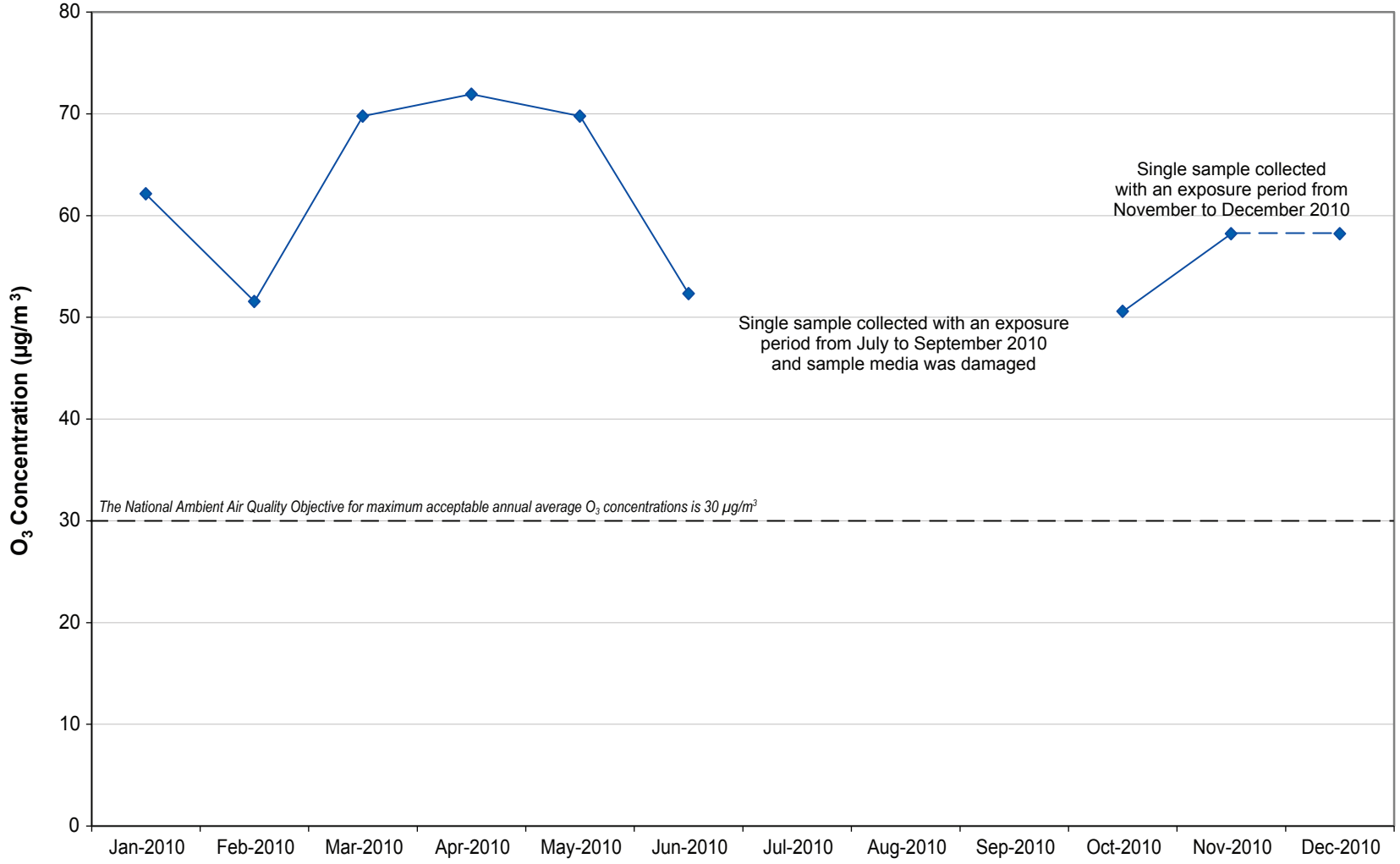

Figure 3.3-3

NEWMONT NORTH AMERICA

O_3 Concentrations from the Passive Air Sampling System, Doris North Gold Mine Project, 2010

Figure 3.3-3

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Environment Canada undertakes monitoring at various locations across Canada as part of the National Air Pollution Surveillance (NAPS) Network. The nearest NAPS monitoring station to the Project which measures SO_2, NO_2 and O_3 concentrations is Yellowknife, NWT station. Annual average concentrations of SO_2, NO_2 and O_3 were less than gag/m^3 (reported as 0 ppb), 8 µg/m^3 (reported as 4 ppb) and 51 µg/m^3 (reported as 26 ppb), respectively, for 2006 (EC 2008) which is the latest year of published data. During 2010, annual average SO_2 and NO_2 concentrations at the Doris North Gold Mine Project site were lower than the 2006 data for the NAPS Yellowknife station. O_3 concentrations at the Doris North Gold Mine Project in 2010 were higher than the NAPS Yellowknife station 2006 data. This is as expected as the Yellowknife station is located in a less remote location.

4. Results and Discussion

4. Results and Discussion

The ambient air quality monitoring program at the Doris North Gold Mine Project site was continued during the last six months of 2010. This included Partisol monitoring of particulate matter, dustfall monitoring and passive ambient air monitoring of concentrations of SO_2, NO_2 and O_3 throughout the reporting period.

The Partisol ambient air quality samplers and program follows the Environment Canada – National Air Pollutant Surveillance (NAPS) schedule and allows for collection of a 24-hr sample every six days for each parameter (TSP, PM_{10} and $PM_{2.5}$). The PM_{10} and $PM_{2.5}$ concentrations were below the relevant guidelines for the July to December 2010 period and the full 2010 period and are considered typical of background concentrations for remote undisturbed areas in Canada. Compared to the predicted maximum concentrations reported in the EIS for the Doris North Gold Mine Project, PM_{10} concentrations were comparable to the predictions and $PM_{2.5}$ concentrations were well below predictions. Total suspended particulate matter concentrations were well below the relevant standards and predicted concentrations in the EIS for the Doris North Gold Mine Project. It is noted that the total suspended particulate matter concentrations measured at the Project site were lower than PM_{10} and $PM_{2.5}$ concentrations for many sample periods. PM_{10} and $PM_{2.5}$ are subsets of TSP; therefore, the TSP concentration should be equal or higher than PM_{10} concentration. This has been an ongoing problem since the equipment was installed in the summer of 2009 and is under further investigation.

There were four dustfall stations that were actively monitoring in the last six months of 2010. Three dustfall stations (DF1, DF2 and DF3) were operated according to the ASTM 1739-98 sampling method (reapproved in 2004). The other dustfall station (DFA1) located at the Doris North meteorological station followed the 1985 Alberta Air Monitoring Directive Method. Overall, the dustfall rates were below the relevant standards, with the exception of results from station DF2 in August 2010. Total dustfall at station DF2 exceeds the Alberta criterion for residential and recreational areas, the Ontario criterion and the British Columbia lower criterion. This station is closest to Doris camp and the associated construction activities that took place in this area during 2010. Total dustfall was above the predicted rate in the EIS for the Doris North Gold Mine Project at DF1 in July 2010 and DF2 in August 2010 for stations using the ASTM method. For the station using the Alberta Environment method (station DFA1) total dustfall was above the predicted rate in the EIS for the Doris North Gold Mine Project in May 2010 and for the July to September 2010 period. This is likely to be due to construction activities taking place around Doris camp and in the Roberts Bay area during 2010. Total dustfall at all other stations and all other periods were below the predicted rate in the EIS for the Doris North Gold Mine Project. The 2010 annual average total dustfall rate for the station using the Alberta Environment method is comparable to the maximum annual deposition rate predicted in the EIS for the Doris North Gold Mine Project.

The passive ambient air quality monitoring program included monthly sampling for SO_2, NO_2 and O_3. The monthly and 6-month average concentrations cannot be directly compared to standards. The 2010 annual average concentrations of SO_2 and NO_2 were well below the relevant annual standards and were also well below the maximum concentrations predicted in the EIS for the Doris North Gold Mine Project. The concentrations of SO_2 and NO_2 are considered representative of a remote undisturbed area.

The 2010 annual average O_3 concentration was above the relevant annual standard. Predictions of O_3 concentrations were not included in the EIS for the Doris North Gold Mine Project. However concentrations were within the range of concentrations estimated by Health Canada for areas relatively unimpacted by anthropogenic pollution.

The ambient air quality monitoring program for the Doris North Gold Mine Project will continue during the 2011 period and include sampling of TSP, PM_{10} and $PM_{2.5}$, monthly dustfall monitoring and passive air sampling for SO_2, NO_2 and O_3.

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Appendix 1

Suspended Particulate Matter Results (TSP, PM_{10} and $PM_{2.5}$)

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Appendix 1.1

PM_{10} and $PM_{2.5}$ Results

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1.1 PM_{10} AND $PM_{2.5}$ RESULTS

Table 1.1-1. Doris North Gold Mine Project 2010 PM_{10} and $PM_{2.5}$ Results

Quarter	Day	Sample Date	Measured PM_{10} at Doris (microgram/m^3) [a]	Measured $PM_{2.5}$ at Doris (microgram/m^3) [b]
Q1	Saturday	2-Jan-2010	n/a	n/a
Q1	Friday	8-Jan-2010	n/a	n/a
Q1	Thursday	14-Jan-2010	n/a	n/a
Q1	Wednesday	20-Jan-2010	n/a	n/a
Q1	Tuesday	26-Jan-2010	n/a	n/a
Q1	Monday	1-Feb-2010	n/a	n/a
Q1	Sunday	7-Feb-2010	n/a	n/a
Q1	Saturday	13-Feb-2010	5.0	7.8
Q1	Friday	19-Feb-2010	<1.0	0.5
Q1	Thursday	25-Feb-2010	10.0	2.5
Q1	Wednesday	3-Mar-2010	6.0	4.8
Q1	Tuesday	9-Mar-2010	2.0	1.4
Q1	Monday	15-Mar-2010	<1.0	0.5
Q1	Sunday	21-Mar-2010	8.0	3.3
Q1	Saturday	27-Mar-2010	<1.0	1.3
Q2	Friday	2-Apr-2010	<1.0	0.7
Q2	Thursday	8-Apr-2010	<1.0	<0.1
Q2	Wednesday	14-Apr-2010	Invalid (145.0)	3.8
Q2	Tuesday	20-Apr-2010	9.0	1.9
Q2	Monday	26-Apr-2010	<1.0	<0.1
Q2	Sunday	2-May-2010	6.0	0.7
Q2	Saturday	8-May-2010	14.0	0.2
Q2	Friday	14-May-2010	<1.0	<0.1
Q2	Thursday	20-May-2010	8.0	1.4
Q2	Wednesday	26-May-2010	<1.0	0.4
Q2	Tuesday	1-Jun-2010	12.0	1.0
Q2	Monday	7-Jun-2010	2.0	0.8
Q2	Sunday	13-Jun-2010	6.0	1.0
Q2	Saturday	19-Jun-2010	39.0	13.7
Q2	Friday	25-Jun-2010	33.0	2.6

(continued)

Table 1.1-1. Doris North Gold Mine Project 2010 PM_{10} and $PM_{2.5}$ Results (completed)

Quarter	Day	Sample Date	Measured PM_{10} at Doris (microgram/m^3) [a]	Measured $PM_{2.5}$ at Doris (microgram/m^3) [b]
Q3	Thursday	1-Jul-2010	6.0	0.6
Q3	Wednesday	7-Jul-2010	37.0	3.2
Q3	Tuesday	13-Jul-2010	23.0	3.3
Q3	Monday	19-Jul-2010	4.0	<0.1
Q3	Sunday	25-Jul-2010	19.0	2.3
Q3	Saturday	31-Jul-2010	22.0	2.1
Q3	Friday	6-Aug-2010	15.0	4.6
Q3	Thursday	12-Aug-2010	8.0	0.7
Q3	Wednesday	18-Aug-2010	46.0	3.9
Q3	Tuesday	24-Aug-2010	n/a	n/a
Q3	Monday	30-Aug-2010	n/a	n/a
Q3	Sunday	5-Sep-2010	n/a	n/a
Q3	Saturday	11-Sep-2010	n/a	n/a
Q3	Friday	17-Sep-2010	n/a	n/a
Q3	Thursday	23-Sep-2010	<1.0	<0.1
Q3	Wednesday	29-Sep-2010	<1.0	<0.1
Q4	Tuesday	5-Oct-2010	<1.0	<0.1
Q4	Monday	11-Oct-2010	<1.0	3.9
Q4	Sunday	17-Oct-2010	<1.0	0.2
Q4	Saturday	23-Oct-2010	<1.0	<0.1
Q4	Friday	29-Oct-2010	<1.0	<0.1
Q4	Thursday	4-Nov-2010	<1.0	<0.1
Q4	Wednesday	10-Nov-2010	<1.0	<0.1
Q4	Tuesday	16-Nov-2010	<1.0	<0.1
Q4	Monday	22-Nov-2010	<1.0	<0.1
Q4	Sunday	28-Nov-2010	2.0	<0.1
Q4	Saturday	4-Dec-2010	<1.0	0.4
Q4	Friday	10-Dec-2010	<1.0	<0.1
Q4	Thursday	16-Dec-2010	3.0	1.8
Q4	Wednesday	22-Dec-2010	n/a	n/a
Q4	Tuesday	28-Dec-2010	n/a	n/a

n/a= not available. The Partisol ambient air samplers on top of the Doris butte were not safely accessible during winter months. Samples lost by laboratory for period August 24, 2010 to September 17, 2010.

.[a] Limit of detection for PM_{10} is 1.0. For the purpose of calculating period averages concentration assumed to be the limit of detection.

[b] Limit of detection for $PM_{2.5}$ is 0.1. For the purpose of calculating period averages concentration assumed to be the limit of detection.

It is noted that $PM_{2.5}$ concentrations for 13-Feb-2010 and 11-Oct-2010 are greater than PM_{10} concentrations for the same periods. This may be a result of the differing limits of detection. Periodic maintenance is undertaken to ensure that the sampler operates in accordance with manufactures guidelines.

Appendix 1.2
TSP Results

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1.2 TSP RESULTS

Table 1.2-1. Doris North Gold Mine Project 2010 Total Suspended Particulate Results

Quarter	Day	Sample Date	Measured TSP at Doris (microgram/m^3) [a]
Q1	Saturday	2-Jan-2010	n/a
Q1	Friday	8-Jan-2010	n/a
Q1	Thursday	14-Jan-2010	n/a
Q1	Wednesday	20-Jan-2010	n/a
Q1	Tuesday	26-Jan-2010	n/a
Q1	Monday	1-Feb-2010	n/a
Q1	Sunday	7-Feb-2010	n/a
Q1	Saturday	13-Feb-2010	2.5
Q1	Friday	19-Feb-2010	1.7
Q1	Thursday	25-Feb-2010	6.8
Q1	Wednesday	3-Mar-2010	7.3
Q1	Tuesday	9-Mar-2010	2.4
Q1	Monday	15-Mar-2010	4.5
Q1	Sunday	21-Mar-2010	3.7
Q1	Saturday	27-Mar-2010	1.3
Q2	Friday	2-Apr-2010	1.5
Q2	Thursday	8-Apr-2010	0.5
Q2	Wednesday	14-Apr-2010	10.9
Q2	Tuesday	20-Apr-2010	1.4
Q2	Monday	26-Apr-2010	0.2
Q2	Sunday	2-May-2010	2.9
Q2	Saturday	8-May-2010	4.1
Q2	Friday	14-May-2010	1.1
Q2	Thursday	20-May-2010	2.5
Q2	Wednesday	26-May-2010	1.1
Q2	Tuesday	1-Jun-2010	0.4
Q2	Monday	7-Jun-2010	0.9
Q2	Sunday	13-Jun-2010	1.5
Q2	Saturday	19-Jun-2010	13.9
Q2	Friday	25-Jun-2010	2.3
Q3	Thursday	1-Jul-2010	1.3
Q3	Wednesday	7-Jul-2010	2.0
Q3	Tuesday	13-Jul-2010	2.4
Q3	Monday	19-Jul-2010	0.2
Q3	Sunday	25-Jul-2010	2.8
Q3	Saturday	31-Jul-2010	3.1

(continued)

Table 1.2-1. Doris North Gold Mine Project 2010 Total Suspended Particulate Results (completed)

Quarter	Day	Sample Date	Measured TSP at Doris (microgram/m^3) [a]
Q3	Friday	6-Aug-2010	5.1
Q3	Thursday	12-Aug-2010	0.7
Q3	Wednesday	18-Aug-2010	4.9
Q3	Tuesday	24-Aug-2010	n/a
Q3	Monday	30-Aug-2010	n/a
Q3	Sunday	5-Sep-2010	n/a
Q3	Saturday	11-Sep-2010	n/a
Q3	Friday	17-Sep-2010	n/a
Q3	Thursday	23-Sep-2010	0.7
Q3	Wednesday	29-Sep-2010	<0.1
Q4	Tuesday	5-Oct-2010	0.2
Q4	Monday	11-Oct-2010	4.1
Q4	Sunday	17-Oct-2010	1.1
Q4	Saturday	23-Oct-2010	<0.1
Q4	Friday	29-Oct-2010	1.6
Q4	Thursday	4-Nov-2010	<0.1
Q4	Wednesday	10-Nov-2010	<0.1
Q4	Tuesday	16-Nov-2010	1.1
Q4	Monday	22-Nov-2010	0.3
Q4	Sunday	28-Nov-2010	<0.1
Q4	Saturday	4-Dec-2010	<0.1
Q4	Friday	10-Dec-2010	<0.1
Q4	Thursday	16-Dec-2010	<0.1
Q4	Wednesday	22-Dec-2010	n/a
Q4	Tuesday	28-Dec-2010	n/a

n/a= not available. The Partisol ambient air samplers on top of the Doris butte were not safely accessible during winter months. Samples lost by laboratory for period August 24, 2010 to September 17, 2010.
[a] Limit of detection forTSP_5 is 0.1. For the purpose of calculating period averages concentration assumed to be the limit of detection.

Appendix 1.3

Q1 and Q2 Laboratory Reports

Rescan™
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1.3 Q1 AND Q2 LABORATORY REPORTS

Note: Sample dates were incorrect on the laboratory report dated: 2010/07/29

Your Project #: 1009-C02-02
Site: HOPE BAY, NUNAVUT - BASELINE

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/06/29

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B029757
Received: 2010/06/08, 13:29

Sample Matrix: Filter
Samples Received: 49

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination (ug/filter)	49	N/A	2010/06/28	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination (ug/m³) (1)	48	N/A	2010/06/29	EINDSOP-00151	EPA 2.12 Monitoring
Volume	48	N/A	2010/06/28	N/A	see departement

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

(1) As per method, results are blank subtracted.

Encryption Key

Levi Manchak
29 Jun 2010 15:02:17 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

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Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B029757
Report Date: 2010/06/29

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		U62843	U62844		U62845		U62846	U62847		
SamplingDate		2010/02/13	2010/02/13		2010/02/13		2010/02/19	2010/02/19		
	Units	**TSP: 0017779**	**PM2.5: 017778**	**RDL**	**PM10: 0084087**	**RDL**	**TSP: 0017839**	**PM2.5: 0017824**	**RDL**	**QC Batch**
.										
Volume	m3	25.30	27.70	0.01	2.50	0.01	25.40	22.70	0.01	4064518
PM2.5/10										
ParticulateMatter	ug/m3	2.5	7.8	0.1	5	1	1.7	1.0	0.1	4064516
ParticulateMatter	ug/filter	64	215	3	13	3	43	23	3	4064514

RDL = Reportable Detection Limit

MaxxamID		U62848		U62849	U62850		U62851		U62852		
SamplingDate		2010/02/19		2010/02/25	2010/02/25		2010/02/25		2010/03/03		
	Units	**PM10: 0017846**	**RDL**	**TSP: 0017830**	**PM2.5: 0027586**	**RDL**	**PM10: 0045025**	**RDL**	**TSP: 0020570**	**RDL**	**QC Batch**
.											
Volume	m3	2.50	0.01	25.40	22.70	0.01	2.50	0.01	25.40	0.01	4064518
PM2.5/10											
ParticulateMatter	ug/m3	<1	1	6.8	2.5	0.1	10	1	7.3	0.1	4064516
ParticulateMatter	ug/filter	<3	3	172	57	3	24	3	185	3	4064514

RDL = Reportable Detection Limit

MaxxamID		U62853		U62854		U62855	U62856		U62857		
SamplingDate		2010/03/03		2010/03/03		2010/03/09	2010/03/09		2010/03/09		
	Units	**PM2.5: 0027589**	**RDL**	**PM10: 0017825**	**RDL**	**TSP: 0025066**	**PM2.5: 0013260**	**RDL**	**PM10: 0024935**	**RDL**	**QC Batch**
.											
Volume	m3	22.70	0.01	2.50	0.01	25.40	22.70	0.01	2.50	0.01	4064518
PM2.5/10											
ParticulateMatter	ug/m3	4.8	0.1	6	1	2.4	1.4	0.1	2	1	4064516
ParticulateMatter	ug/filter	109	3	15	3	60	31	3	5	3	4064514

RDL = Reportable Detection Limit

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		U62858	U62859		U62860		U62861	U62862		
SamplingDate		2010/03/15	2010/03/15		2010/03/15		2010/03/21	2010/03/21		
	Units	**TSP: 0076987**	**PM2.5: 0017777**	**RDL**	**PM10: 0017840**	**RDL**	**TSP: 01775**	**PM2.5: 0017836**	**RDL**	**QC Batch**
.										
Volume	m3	25.40	22.70	0.01	2.50	0.01	25.40	22.70	0.01	4064518
PM2.5/10										
ParticulateMatter	ug/m3	4.5	0.5	0.1	<1	1	3.7	3.3	0.1	4064516
ParticulateMatter	ug/filter	114	11	3	<3	3	95	74	3	4064514

RDL = Reportable Detection Limit

MaxxamID		U62863		U62880	U62881		U62882		U62883		
SamplingDate		2010/03/21		2010/03/27	2010/03/27		2010/03/27		2010/04/02		
	Units	**PM10: 0017832**	**RDL**	**TSP: 0027804**	**PM2.5: 0017833**	**RDL**	**PM10: 0017817**	**RDL**	**TSP: 0027580**	**RDL**	**QC Batch**
.											
Volume	m3	2.50	0.01	25.40	22.70	0.01	2.50	0.01	25.30	0.01	4064518
PM2.5/10											
ParticulateMatter	ug/m3	8	1	1.3	1.3	0.1	<1	1	1.5	0.1	4064516
ParticulateMatter	ug/filter	20	3	33	29	3	<3	3	37	3	4064514

RDL = Reportable Detection Limit

MaxxamID		U62884		U62885		U62886	U62887		U62888		
SamplingDate		2010/04/02		2010/04/02		2010/04/08	2010/04/08		2010/04/08		
	Units	**PM2.5: 0017831**	**RDL**	**PM10: 0027575**	**RDL**	**TSP: 0017842**	**PM2.5: 0017844**	**RDL**	**PM10: 0017822**	**RDL**	**QC Batch**
.											
Volume	m3	22.70	0.01	2.50	0.01	25.40	22.70	0.01	2.50	0.01	4064518
PM2.5/10											
ParticulateMatter	ug/m3	0.7	0.1	<1	1	0.5	<0.1	0.1	<1	1	4064516
ParticulateMatter	ug/filter	15	3	<3	3	12	<3	3	<3	3	4064514

RDL = Reportable Detection Limit

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		U62889	U62890		U62891		U62892	U62893		
SamplingDate		2010/04/14	2010/04/14		2010/04/14		2010/04/20	2010/04/20		
	Units	**TSP: 0017820**	**PM2.5: 0017874**	**RDL**	**PM10: 0017845**	**RDL**	**TSP: 0076155**	**PM2.5: 0025443**	**RDL**	**QC Batch**
.										
Volume	m3	25.40	22.80	0.01	2.50	0.01	25.40	22.70	0.01	4064519
PM2.5/10										
ParticulateMatter	ug/m3	10.9	3.8	0.1	145	1	1.4	1.9	0.1	4064517
ParticulateMatter	ug/filter	276	86	3	363	3	36	44	3	4064515

RDL = Reportable Detection Limit

MaxxamID		U62894		U62895	U62896		U62897		U62898		
SamplingDate		2010/04/20		2010/04/26	2010/04/26		2010/04/26		2010/05/02		
	Units	**PM10: 0017828**	**RDL**	**TSP: 0025064**	**PM2.5: 0027432**	**RDL**	**PM10: 0017815**	**RDL**	**TSP: 0020635**	**RDL**	**QC Batch**
.											
Volume	m3	2.50	0.01	25.30	22.70	0.01	2.50	0.01	25.40	0.01	4064519
PM2.5/10											
ParticulateMatter	ug/m3	9	1	0.2	<0.1	0.1	<1	1	2.9	0.1	4064517
ParticulateMatter	ug/filter	23	3	4	<3	3	<3	3	74	3	4064515

RDL = Reportable Detection Limit

MaxxamID		U62899		U62921		U62922	U62923		U62924		
SamplingDate		2010/05/02		2010/05/02		2010/05/08	2010/05/08		2010/05/08		
	Units	**PM2.5: 0017880**	**RDL**	**PM10: 0017878**	**RDL**	**TSP: 0085916**	**PM2.5: 0084367**	**RDL**	**PM10: 0017811**	**RDL**	**QC Batch**
.											
Volume	m3	22.80	0.01	2.50	0.01	25.30	22.70	0.01	2.50	0.01	4064519
PM2.5/10											
ParticulateMatter	ug/m3	0.7	0.1	6	1	4.1	0.2	0.1	14	1	4064517
ParticulateMatter	ug/filter	15	3	15	3	104	5	3	34	3	4064515

RDL = Reportable Detection Limit

Maxxam Analytics

Maxxam Job #: B029757
Report Date: 2010/06/29

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		U62925		U62926	U62927	U62935		
SamplingDate		2009/10/04		2009/10/04	2009/10/04			
	Units	**TSP: 014350**	**RDL**	**PM2.5: 15542**	**PM10: 15543**	**BLANK**	**RDL**	**QC Batch**
.								
Volume	m3	25.40	0.01	MISSING	MISSING		0.01	4064519
PM2.5/10								
ParticulateMatter	ug/m3	2.4	0.1	29	<3		3	4064517
ParticulateMatter	ug/filter	62	3	29	<3	<3	3	4064515

RDL = Reportable Detection Limit

General Comments

Sample U62926-01: There is no sample volume for this sample. Linda Lin

Sample U62927-01: There is no sample volume for this sample. Linda Lin

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-C02-02
P.O. #:
Site Reference: HOPE BAY, NUNAVUT - BASELINE

Quality Assurance Report

Maxxam Job Number: PB029757

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4064515	LL	CalibrationCheck	ParticulateMatter	2010/06/28		100	%	N/A

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

Validation Signature Page

Maxxam Job #: B029757

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

DARREN FUNNELL,

==========

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 Project #: 1009-C02-02
Site: HOPE BAY, NUNAVUT - BASELINE

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/07/29

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B058541
Received: 2010/07/16, 15:42

Sample Matrix: Filter
Samples Received: 34

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination (ug/filter)	34	N/A	2010/07/29	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination (ug/m³) (1)	33	N/A	2010/07/29	EINDSOP-00151	EPA 2.12 Monitoring
Volume	33	N/A	2010/07/29	N/A	see departement

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

(1) As per method, results are blank subtracted.

Encryption Key

Levi Manchak
29 Jul 2010 15:42:06 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

Total cover pages: 1

Maxxam Analytics

Maxxam Job #: B058541
Report Date: 2010/07/29

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		V50474		V79267	V79268	V79269	V79270	V79271		
SamplingDate		2010/05/14		2010/05/20	2010/05/26	2010/06/01	2010/06/07	2010/06/13		
	Units	**TSP: 13270**	**QC Batch**	**TSP: 15479**	**TSP: 089982**	**TSP: 090584**	**TSP: 027324**	**TSP: 054431**	**RDL**	**QC Batch**
.										
Volume	m3	25.30	4141150	25.30	25.30	25.40	25.30	25.40	0.01	4141151
PM2.5/10										
ParticulateMatter	ug/m3	1.1	4141149	2.5	1.1	0.4	0.9	1.5	0.1	4141149
ParticulateMatter	ug/filter	29	4141147	63	28	11	24	37	3	4141147

RDL = Reportable Detection Limit

MaxxamID		V79272	V79273	V79274	V79275	V79276	V79277		
SamplingDate		2010/06/19	2010/06/25	2010/07/01	2010/07/07	2010/07/13	2010/05/14		
	Units	**TSP: 098266**	**TSP: 091292**	**TSP: 091297**	**TSP: 058034**	**TSP: 089946**	**PM2.5: 20700**	**RDL**	**QC Batch**
.									
Volume	m3	25.30	25.40	25.30	25.30	25.30	22.80	0.01	4141151
PM2.5/10									
ParticulateMatter	ug/m3	13.9	2.3	1.3	2.0	2.4	<0.1	0.1	4141149
ParticulateMatter	ug/filter	352	59	32	50	61	<3	3	4141147

RDL = Reportable Detection Limit

MaxxamID		V79278	V79279	V79280	V79281	V79282	V79283		
SamplingDate		2010/05/20	2010/05/26	2010/06/01	2010/06/07	2010/06/13	2010/06/19		
	Units	**PM2.5: 13293**	**PM2.5: 076152**	**PM2.5: 090549**	**PM2.5: 14316**	**PM2.5: 084094**	**PM2.5: 20606**	**RDL**	**QC Batch**
.									
Volume	m3	22.80	22.70	22.80	22.80	22.80	22.80	0.01	4141151
PM2.5/10									
ParticulateMatter	ug/m3	1.4	0.4	1.0	0.8	1.0	13.7	0.1	4141149
ParticulateMatter	ug/filter	32	8	22	19	23	312	3	4141147

RDL = Reportable Detection Limit

Maxxam Analytics

Maxxam Job #: B058541
Report Date: 2010/07/29

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		V79284	V79285	V79286		V79287		V79288		
SamplingDate		2010/06/25	2010/07/01	2010/07/07		2010/07/13		2010/05/14		
	Units	**PM2.5: 15072**	**PM2.5: 14087**	**PM2.5: 20636**	**QC Batch**	**PM2.5: 46850**	**RDL**	**PM10: 27802**	**RDL**	**QC Batch**
.										
Volume	m3	22.70	22.80	22.80	4141151	22.80	0.01	2.50	0.01	4141150
PM2.5/10										
ParticulateMatter	ug/m3	2.6	0.6	3.2	4141149	3.3	0.1	<1	1	4141148
ParticulateMatter	ug/filter	59	14	73	4141147	75	3	<3	3	4141146
RDL = Reportable Detection Limit										

MaxxamID		V79289	V79290	V79291	V79292	V79293	V79294		
SamplingDate		2010/05/20	2010/05/26	2010/06/01	2010/06/07	2010/06/13	2010/06/19		
	Units	**PM10: 24945**	**PM10: 098000**	**PM10: 076204**	**PM10: 053122**	**PM10: 058030**	**PM10: 076324**	**RDL**	**QC Batch**
.									
Volume	m3	2.50	2.50	2.50	2.50	2.50	2.50	0.01	4141150
PM2.5/10									
ParticulateMatter	ug/m3	8	<1	12	2	6	39	1	4141148
ParticulateMatter	ug/filter	19	<3	31	5	14	98	3	4141146
RDL = Reportable Detection Limit									

MaxxamID		V79295	V79318	V79320	V79321	V79322		
SamplingDate		2010/06/25	2010/07/01	2010/07/07	2010/07/13			
	Units	**PM10: 027820**	**PM10: 20619**	**PM10: 083499**	**PM10: 090554**	**BLANK**	**RDL**	**QC Batch**
.								
Volume	m3	2.50	2.50	2.50	2.50		0.01	4141150
PM2.5/10								
ParticulateMatter	ug/m3	33	6	37	23		1	4141148
ParticulateMatter	ug/filter	82	16	92	57	6	3	4141146
RDL = Reportable Detection Limit								

General Comments

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-C02-02
P.O. #:
Site Reference: HOPE BAY, NUNAVUT - BASELINE

Quality Assurance Report

Maxxam Job Number: PB058541

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4141146	LL	CalibrationCheck	ParticulateMatter	2010/07/29		100	%	N/A
4141147	LL	CalibrationCheck	ParticulateMatter	2010/07/29		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 #: B058541

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

DARREN FUNNELL,

==========

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.

Appendix 1.4

Q3 and Q4 Laboratory Reports

Rescan™
Engineers and Scientists

Your Project #: 1009-C02-02
Site: HOPE BAY, NUNAVUT - BASELINE

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/10/08

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B090225
Received: 2010/09/22, 14:44

Sample Matrix: Filter
Samples Received: 19

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination (ug/filter)	19	N/A	2010/10/08	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination (ug/m³) (1)	18	N/A	2010/10/08	EINDSOP-00151	EPA 2.12 Monitoring
Volume	18	N/A	2010/10/08	N/A	see departement

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

(1) As per method, results are blank subtracted.

Encryption Key

Levi Manchak
08 Oct 2010 12:56:15 -06:00

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

LEVI MANCHAK,
Email:
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 Analytics

Maxxam Job #: B090225
Report Date: 2010/10/08

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		X14337	X14338	X14339	X14340	X14341	X14342		
SamplingDate		2010/07/07	2010/07/13	2010/07/19	2010/07/25	2010/07/31	2010/08/06		
	Units	**PM2.5: RP071616**	**PM2.5: 27716**	**PM2.5: 17821**	**PM2.5: 27518**	**PM2.5: 27280**	**PM2.5: RP079489**	**RDL**	**QC Batch**
.									
Volume	m3	22.80	22.80	22.80	22.80	22.80	22.80	0.01	4324909
PM2.5/10									
ParticulateMatter	ug/m3	<0.1	2.3	2.1	4.6	0.7	3.9	0.1	4324908
ParticulateMatter	ug/filter	<3	53	47	106	17	90	3	4324907

RDL = Reportable Detection Limit

MaxxamID		X14349	X14350	X14351	X14352	X14353	X14354		
SamplingDate		2010/06/25	2010/07/01	2010/07/07	2010/07/13	2010/07/19	2010/07/25		
	Units	**TSP: 13278**	**TSP: 15563**	**TSP: 20505**	**TSP: RP084088**	**TSP: RP085949**	**TSP: 17873**	**RDL**	**QC Batch**
.									
Volume	m3	25.30	25.30	25.40	25.40	25.40	25.20	0.01	4324909
PM2.5/10									
ParticulateMatter	ug/m3	0.2	2.8	3.1	5.1	0.7	4.9	0.1	4324908
ParticulateMatter	ug/filter	4	72	79	129	17	123	3	4324907

RDL = Reportable Detection Limit

MaxxamID		X14483	X14484	X14485	X14486	X14487	X14488		
SamplingDate		2010/07/07	2010/07/13	2010/07/19	2010/07/25	2010/07/31	2010/08/06		
	Units	**PM10: RP090551**	**PM10: 14339**	**PM10: 25059**	**PM10: RP026268**	**PM10: RP089937**	**PM10: RP091294**	**RDL**	**QC Batch**
.									
Volume	m3	2.50	2.50	2.50	2.50	2.50	2.50	0.01	4324909
PM2.5/10									
ParticulateMatter	ug/m3	4	19	22	15	8	46	1	4324908
ParticulateMatter	ug/filter	9	47	55	38	19	115	3	4324907

RDL = Reportable Detection Limit

RESULTS OF CHEMICAL ANALYSES OF FILTER

MaxxamID		X14503		
SamplingDate				
	Units	**BLANK**	**RDL**	**QC Batch**
PM2.5/10				
ParticulateMatter	ug/filter	17	3	4324907

RDL = Reportable Detection Limit

General Comments

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-C02-02
P.O. #:
Site Reference: HOPE BAY, NUNAVUT - BASELINE

Quality Assurance Report

Maxxam Job Number: PB090225

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4324907	SS6	CalibrationCheck	ParticulateMatter	2010/10/08		100	%	N/A

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

Validation Signature Page

Maxxam Job #: B090225

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

DARREN FUNNELL,

==========

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 Project #: 1009-C02-02
Site: HOPE BAY, NUNAVUT - BASELINE

Attention: TOLGA OLCAY
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2011/02/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B112385
Received: 2011/02/16, 12:14

Sample Matrix: Filter
Samples Received: 46

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mass Determination(ug/filter)	45	N/A	2011/02/17	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination(ug/filter)	1	N/A	2011/02/18	EINDSOP-00151	EPA 2.12 Monitoring
Mass Determination (ug/m³) (1)	45	N/A	2011/02/18	EINDSOP-00151	EPA 2.12 Monitoring
Volume	45	N/A	2011/02/17	N/A	see departement

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

(1) As per method, results are blank subtracted.

Encryption Key

Levi Manchak
18 Feb 2011 10:34:56 -07:00

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

LEVI MANCHAK,
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 #: B112385
Report Date: 2011/02/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		Z92415	Z92416	Z92417	Z92418	Z92419	Z92420		
Sampling Date		2010/09/23	2010/09/29	2010/10/05	2010/10/11	2010/10/17	2010/10/23		
	Units	**PM2.5: 81337**	**PM2.5: 58034**	**PM2.5: 46850**	**PM2.5: 15547**	**PM2.5: 27801**	**PM2.5: 27820**	**RDL**	**QC Batch**
.									
Volume	m3	22.80	22.80	20.60	22.80	22.80	22.80	0.01	4644056
PM2.5/10									
Particulate Matter	ug/m3	<0.1	<0.1	<0.1	3.9	0.2	<0.1	0.1	4644054
Particulate Matter	ug/filter	<3	<3	<3	90	4	<3	3	4644052

RDL = Reportable Detection Limit

Maxxam ID		Z92421	Z92422		Z92423	Z92424	Z92425	Z92426		
Sampling Date		2010/10/29	2010/11/04		2010/09/23	2010/09/29	2010/10/05	2010/10/11		
	Units	**PM2.5: 76152**	**PM2.5: 82053**	**RDL**	**PM10: 87499**	**PM10: 27270**	**PM10: 20636**	**PM10: 15551**	**RDL**	**QC Batch**
.										
Volume	m3	22.80	22.80	0.01	2.30	2.50	2.30	2.50	0.01	4644056
PM2.5/10										
Particulate Matter	ug/m3	<0.1	<0.1	0.1	<1	<1	<1	<1	1	4644054
Particulate Matter	ug/filter	<3	<3	3	<3	<3	<3	<3	3	4644052

RDL = Reportable Detection Limit

Maxxam ID		Z92427	Z92428	Z92429	Z92430		Z92431	Z92432		
Sampling Date		2010/10/17	2010/10/23	2010/10/29	2010/11/04		2010/09/23	2010/09/29		
	Units	**PM10: 85905**	**PM10: 20571**	**PM10: 13293**	**PM10: 43978**	**RDL**	**TSP: 76324**	**TSP: 13783**	**RDL**	**QC Batch**
.										
Volume	m3	2.50	2.50	2.50	2.50	0.01	25.30	25.40	0.01	4644056
PM2.5/10										
Particulate Matter	ug/m3	<1	<1	<1	<1	1	0.7	<0.1	0.1	4644054
Particulate Matter	ug/filter	<3	<3	<3	<3	3	17	<3	3	4644052

RDL = Reportable Detection Limit

Maxxam Job #: B112385
Report Date: 2011/02/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		Z92585	Z92586	Z92587	Z92588	Z92589	Z92590		
Sampling Date		2010/10/05	2010/10/11	2010/10/17	2010/10/23	2010/10/29	2010/11/10		
	Units	**TSP: 27278**	**TSP: 20579**	**TSP: 98266**	**TSP: 20562**	**TSP: 13776**	**PM2.5: 90584**	**RDL**	**QC Batch**
.									
Volume	m3	23.00	25.40	25.30	25.40	25.40	22.80	0.01	4644056
PM2.5/10									
Particulate Matter	ug/m3	0.2	4.1	1.1	<0.1	1.6	<0.1	0.1	4644054
Particulate Matter	ug/filter	5	105	29	<3	41	<3	3	4644052

RDL = Reportable Detection Limit

Maxxam ID		Z92594	Z92595	Z92596	Z92597	Z92598	Z92599		
Sampling Date		2010/11/16	2010/11/22	2010/11/28	2010/12/04	2010/12/10	2010/12/16		
	Units	**PM2.5: 53122**	**PM2.5: 20677**	**PM2.5: 27281**	**PM2.5: 20582**	**PM2.5: 20619**	**PM2.5: 22667**	**RDL**	**QC Batch**
.									
Volume	m3	22.80	22.80	22.80	22.80	22.80	22.80	0.01	4644056
PM2.5/10									
Particulate Matter	ug/m3	<0.1	<0.1	<0.1	0.4	<0.1	1.8	0.1	4644054
Particulate Matter	ug/filter	<3	<3	<3	10	<3	40	3	4644052

RDL = Reportable Detection Limit

Maxxam ID		Z92600	Z92602	Z92603	Z92604	Z92605	Z92606		
Sampling Date		2010/11/10	2010/11/16	2010/11/22	2010/11/28	2010/12/04	2010/12/10		
	Units	**PM10: 14087**	**PM10: 25444**	**PM10: 76199**	**PM10: 36940**	**PM10: 20578**	**PM10: 90554**	**RDL**	**QC Batch**
.									
Volume	m3	2.50	2.50	2.50	2.50	2.50	2.50	0.01	4644057
PM2.5/10									
Particulate Matter	ug/m3	<1	<1	<1	2	<1	<1	1	4644055
Particulate Matter	ug/filter	<3	<3	<3	4	<3	<3	3	4644053

RDL = Reportable Detection Limit

Maxxam Job #: B112385
Report Date: 2011/02/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-C02-02
Site Reference: HOPE BAY, NUNAVUT - BASELINE

RESULTS OF CHEMICAL ANALYSES OF FILTER

Maxxam ID		Z92607		Z92608	Z92610	Z92611	Z92612	Z92613		
Sampling Date		2010/12/16		2010/11/10	2010/11/16	2010/11/22	2010/11/28	2010/12/04		
	Units	**PM10: 20606**	**RDL**	**TSP: 13069**	**TSP: 13305**	**TSP: 13326**	**TSP: 13060**	**TSP: 18911**	**RDL**	**QC Batch**
.										
Volume	m3	2.50	0.01	25.40	25.40	25.40	25.30	25.30	0.01	4644057
PM2.5/10										
Particulate Matter	ug/m3	3	1	<0.1	1.1	0.3	<0.1	<0.1	0.1	4644055
Particulate Matter	ug/filter	7	3	<3	28	8	<3	<3	3	4644053
RDL = Reportable Detection Limit										

Maxxam ID		Z92614	Z92615	Z92619	Z95326		
Sampling Date		2010/12/10	2010/12/16		2010/11/04		
	Units	**TSP: 13102**	**TSP: 70432**	**BLANK**	**TSP: 91297**	**RDL**	**QC Batch**
.							
Volume	m3	25.40	25.40		25.40	0.01	4644057
PM2.5/10							
Particulate Matter	ug/m3	<0.1	<0.1		<0.1	0.1	4644055
Particulate Matter	ug/filter	<3	<3	11	<3	3	4644053
RDL = Reportable Detection Limit							

General Comments

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: TOLGA OLCAY
Client Project #: 1009-C02-02
P.O. #:
Site Reference: HOPE BAY, NUNAVUT - BASELINE

Quality Assurance Report

Maxxam Job Number: PB112385

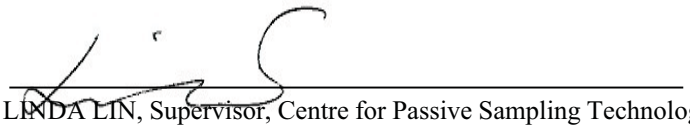
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4644053	SS6	Calibration Check	Particulate Matter	2011/02/17		100	%	N/A

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

Validation Signature Page

Maxxam Job #: B112385

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.

Appendix 2
Dustfall Analysis Results

Rescan™
Engineers and Scientists

Appendix 2.1

Q1 and Q2 Laboratory Reports

Rescan™
Engineers and Scientists

Appendix 2.1.1
ASTM Method

Rescan™
Engineers and Scientists

2.1.1 ASTM method

No samples undertaken with this method in Q1 and Q2.

Appendix 2.1.2
Alberta Environment Method

Rescan™
Engineers and Scientists

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/02/24

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B009099
Received: 2010/02/18, 13:43

Sample Matrix: Air
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	1	2010/02/21	2010/02/21	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	1	2010/02/21	2010/02/21		see departement
Exposure (Number of days)	1	2010/02/21	2010/02/21		see department

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

Encryption Key

Levi Manchak
24 Feb 2010 13:40:02 -07:00

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

LEVI MANCHAK,
Email:
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. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: B009099
Report Date: 2010/02/24

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		S86109		
Sampling Date		2010/01/14		
	Units	**10DORISDF-010**	**RDL**	**QC Batch**
Industrial				
Exposure	days	29	1	3759899
Dustfall Determination				
Total Dustfall	mg	2	1	3759896
Total Dustfall (30 day)	mg/cm2/30day	0.023	0.001	3759897
Total Fixed Dustfall	mg	2	1	3759896
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.023	0.001	3759897

RDL = Reportable Detection Limit

General Comments

Exposure Dates: 2010/01/14 - 2010/02/12

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB009099

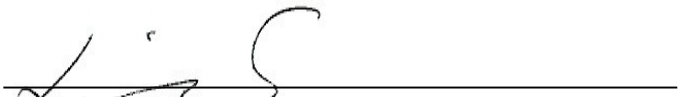
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3759896	OZ	Calibration Check	Total Dustfall	2010/02/21		102	%	N/A
		Method Blank	Total Dustfall	2010/02/21	<1		mg	
			Total Fixed Dustfall	2010/02/21	<1		mg	
		RPD [S86109-01]	Total Dustfall	2010/02/21	NC		%	N/A
			Total Fixed Dustfall	2010/02/21	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B009099

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. SCC and CALA have approved this reporting process and electronic report format.

RESCAN ENVIRONMENTAL SERVICES LTD.

Maxxam Job #: B009099
Report Date: 2010/02/24

Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		S86109		
Sampling Date		01/14/2010		
	Units	**10DORISDF-010**	**RDL**	**QC Batch**
Industrial				
Exposure	days	29	1	3759899
Dustfall Determination				
Total Dustfall	mg	2	1	3759896
Total Dustfall (30 day)	mg/cm2/30day	0.023	0.001	3759897
Total Dustfall (day)	mg/100cm2/day	0.077	0.003	
Total Fixed Dustfall	mg	2	1	3759896
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.023	0.001	3759897
Total Fixed Dustfall (day)	mg/100cm2/day	0.077	0.003	

RDL = Reportable Detection Limit

General Comments
Exposure Dates: 2010/01/14 - 2010/02/12

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report
Maxxam Job Number: PB009099

QA/QC Batch Num	Init	QC Type	Date Analyzed Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits
3759896	OZ	Calibration Check	Total Dustfall	02/21/2010		102	%	N/A
		Method Blank	Total Dustfall	02/21/2010	<1		mg	
			Total Fixed Dustfall	02/21/2010	<1		mg	
		RPD	Total Dustfall	02/21/2010	NC		%	N/A
			Total Fixed Dustfall	02/21/2010	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/03/19

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B015110
Received: 2010/03/16, 10:51

Sample Matrix: Air
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	1	2010/03/19	2010/03/19	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	1	2010/03/19	2010/03/19		see departement
Exposure (Number of days)	1	2010/03/19	2010/03/19		see department

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

Encryption Key

Levi Manchak
22 Mar 2010 09:55:52 -06:00

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

LEVI MANCHAK,
Email:
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. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: B015110
Report Date: 2010/03/19

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		T22244		
Sampling Date		2010/02/11		
	Units	**10DORISDF-002**	**RDL**	**QC Batch**
Industrial				
Exposure	days	18	1	3825288
Dustfall Determination				
Total Dustfall	mg	1	1	3825285
Total Dustfall (30 day)	mg/cm2/30day	0.024	0.001	3825286
Total Fixed Dustfall	mg	<1	1	3825285
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.012	0.001	3825286

RDL = Reportable Detection Limit

Maxxam Job #: B015110
Report Date: 2010/03/19

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB015110

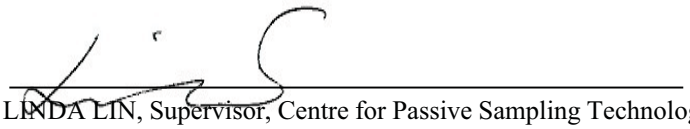
QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3825285 OZ	Calibration Check	Total Dustfall	2010/03/19		104	%	N/A
	Method Blank	Total Dustfall	2010/03/19	<1		mg	
		Total Fixed Dustfall	2010/03/19	<1		mg	
	RPD [T22244-01]	Total Dustfall	2010/03/19	NC		%	N/A
		Total Fixed Dustfall	2010/03/19	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B015110

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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RESCAN ENVIRONMENTAL SERVICES LTD.

Maxxam Job #: B015110
Report Date: 2010/03/19

Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		T22244		
Sampling Date		02/11/2010		
	Units	**10DORISDF-002**	**RDL**	**QC Batch**
Industrial				
Exposure	days	18	1	3825288
Dustfall Determination				
Total Dustfall	mg	1	1	3825285
Total Dustfall (30 day)	mg/cm2/30day	0.024	0.001	3825286
Total Dustfall (day)	mg/100cm2/day	0.08	0.003	3825286
Total Fixed Dustfall	mg	<1	1	3825285
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.012	0.001	3825286
Total Fixed Dustfall (day)	mg/100cm2/day	0.04	0.003	3825286

RDL = Reportable Detection Limit
EDL = Estimated Detection Limit

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report
Maxxam Job Number: PB015110

QA/QC Batch Num	Init	QC Type	Date Analyzed Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits
3825285	OZ	Calibration Check	Total Dustfall	03/19/2010		104	%	N/A
		Method Blank	Total Dustfall	03/19/2010	<1		mg	
			Total Fixed Dustfall	03/19/2010	<1		mg	
		RPD	Total Dustfall	03/19/2010	NC		%	N/A
			Total Fixed Dustfall	03/19/2010	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/05/07
This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B027675
Received: 2010/04/30, 10:37

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	2	2010/05/05	2010/05/06	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	2	2010/05/05	2010/05/06		see departement
Exposure (Number of days)	2	2010/05/05	2010/05/05		see department

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

Encryption Key

Levi Manchak
07 May 2010 09:42:16 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B027675
Report Date: 2010/05/07

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		T86858	T86859		
Sampling Date		2010/03/01	2009/10/22		
	Units	**10DORISDF-003**	**09BOSTONDF-010**	**RDL**	**QC Batch**
Industrial					
Exposure	days	33	150	1	3932298
Dustfall Determination					
Total Dustfall	mg	4	10	1	3932295
Total Dustfall (30 day)	mg/cm2/30day	0.040	0.024	0.001	3932296
Total Fixed Dustfall	mg	2	8	1	3932295
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.027	0.020	0.001	3932296

RDL = Reportable Detection Limit

Maxxam Job #: B027675
Report Date: 2010/05/07

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Exposure Dates:
10DorisDF-003: 2010/03/03 - 2010/04/03
09BostonDF-010: 2009/10/22 - 2010/03/21

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB027675

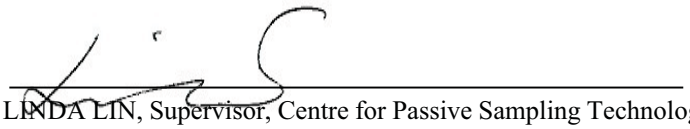
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3932295	OZ	Calibration Check	Total Dustfall	2010/05/06		102	%	N/A
		Method Blank	Total Dustfall	2010/05/06	<1		mg	
			Total Fixed Dustfall	2010/05/06	<1		mg	
		RPD [T86858-01]	Total Dustfall	2010/05/06	NC		%	N/A
			Total Fixed Dustfall	2010/05/06	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B027675

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/08/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B065899
Received: 2010/08/04, 08:53

Sample Matrix: Air
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	6	2010/08/12	2010/08/12	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	6	2010/08/12	2010/08/12		see departement
Exposure (Number of days)	6	2010/08/12	2010/08/12		see department
NO2 Passive Analysis (1)	9	2010/08/10	2010/08/18	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	9	2010/08/11	2010/08/18	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	9	2010/08/09	2010/08/18	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
18 Aug 2010 08:36:20 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B065899
Report Date: 2010/08/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		V92056		V92089		V92090	V92091		
Sampling Date		2010/04/03		2010/05/16		2010/06/02	2010/03/21		
	Units	**10DORIS-004**	**RDL**	**10DORIS-005**	**RDL**	**10DORIS-006**	**10BOSTON-003**	**RDL**	**QC Batch**
Industrial									
Exposure	days	43	1	17	1	35	57	1	4175872
Dustfall Determination									
Total Dustfall	mg	5	1	14	3	12	2	1	4173361
Total Dustfall (30 day)	mg/cm2/30day	0.041	0.001	0.301	0.003	0.126	0.015	0.001	4173362
Total Fixed Dustfall	mg	3	1	9	3	8	2	1	4173361
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.026	0.001	0.201	0.003	0.082	0.012	0.001	4173362
Passive Monitoring									
Calculated NO2	ppb	0.7	0.1	<0.1	0.1	0.5	<0.1	0.1	4166901
Calculated O3	ppb	36.7	0.1	35.6	0.1	26.7	34.6	0.1	4172168
Calculated SO2	ppb	<0.1	0.1	0.1	0.1	0.1	DAMAGED	0.1	4162847

RDL = Reportable Detection Limit

Maxxam ID		V92092		V92184		V92185		
Sampling Date		2010/03/21		2010/05/17		2010/06/10		
	Units	**10BOSTON-003DUP**	**RDL**	**10BOSTON-005**	**RDL**	**10BOSTON-006**	**RDL**	**QC Batch**
Industrial								
Exposure	days		1	24	1	21	1	4175872
Dustfall Determination								
Total Dustfall	mg		1	9	2	11	1	4173361
Total Dustfall (30 day)	mg/cm2/30day		0.001	0.139	0.002	0.199	0.001	4173362
Total Fixed Dustfall	mg		1	8	2	5	1	4173361
Total Fixed Dustfall (30 day)	mg/cm2/30day		0.001	0.119	0.002	0.094	0.001	4173362
Passive Monitoring								
Calculated NO2	ppb	<0.1	0.1	<0.1	0.1	1.6	0.1	4166901
Calculated O3	ppb	35.3	0.1	33.0	0.1	25.7	0.1	4172168
Calculated SO2	ppb	<0.1	0.1	0.1	0.1	0.1	0.1	4162847

RDL = Reportable Detection Limit

Maxxam Job #: B065899
Report Date: 2010/08/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		V92249	V92250		
Sampling Date		2010/05/17	2010/06/10		
	Units	**10BOSTON-005 (DUP)**	**10BOSTON-006 (DUP)**	**RDL**	**QC Batch**
Passive Monitoring					
Calculated NO2	ppb	<0.1	1.9	0.1	4166901
Calculated O3	ppb	29.5	25.7	0.1	4172168
Calculated SO2	ppb	0.1	0.2	0.1	4162847

RDL = Reportable Detection Limit

General Comments

Sample Exposure Dates are as follows:
10Doris004: 2010/04/03 - 2010/05/16
10Doris005: 2010/05/16 - 2010/06/02
10Doris006: 2010/06/02 - 2010/07/07

10Boston002: 2010/03/02 - 2010/05/17
10Boston003: 2010/03/02 - 2010/05/17
10Boston005: 2010/05/17 - 2010/06/10
10Boston006: 2010/06/10 - 2010/07/01
10Boston005 (DUP): 2010/05/17 - 2010/06/10
10Boston006 (DUP): 2010/06/10 - 2010/07/01

Sample: V92091 was returned to the lab missing barrier. - DF

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB065899

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4162847	DF4	Calibration Check	Calculated SO2	2010/08/09		100	%	95 - 105
		Spiked Blank	Calculated SO2	2010/08/09		103	%	N/A
		Method Blank	Calculated SO2	2010/08/09	<0.1		ppb	
4166901	DF4	Calibration Check	Calculated NO2	2010/08/10		99	%	76 - 118
		Spiked Blank	Calculated NO2	2010/08/10		96	%	N/A
		Method Blank	Calculated NO2	2010/08/10	<0.1		ppb	
4172168	OZ	Calibration Check	Calculated O3	2010/08/12		102	%	91 - 107
		Spiked Blank	Calculated O3	2010/08/12		99	%	N/A
		Method Blank	Calculated O3	2010/08/12	<0.1		ppb	
4173361	OZ	Calibration Check	Total Dustfall	2010/08/12		102	%	N/A
		Method Blank	Total Dustfall	2010/08/12	<1		mg	
			Total Fixed Dustfall	2010/08/12	<1		mg	
		RPD [V92056-01]	Total Dustfall	2010/08/12	NC		%	N/A
			Total Fixed Dustfall	2010/08/12	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B065899

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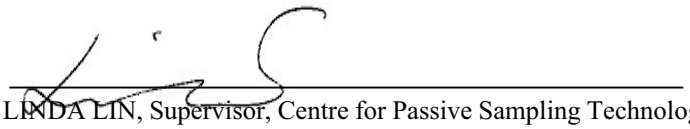

LINDA LIN, Supervisor, Centre for Passive Sampling Technology

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Appendix 2.2

Q3 and Q4 Laboratory Reports

Rescan™
Engineers and Scientists

Appendix 2.2.1
ASTM Method

Rescan™
Engineers and Scientists

Certificate of Analysis

RESCAN ENVIRONMENTAL SERVICES
ATTN: DAN JARRATT

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Report Date: 23-AUG-10 12:41 (MT)
Version: FINAL

Lab Work Order #: **L917373** **Date Received:** **06-AUG-10**

Project P.O. #: NOT SUBMITTED
Job Reference: 100-002-02
Legal Site Desc:
CofC Numbers: 10-044439

Other Information:

Comments:

Amber Springer
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L917373-1 26-JUL-10 10:30 DF-1-TM	L917373-2 26-JUL-10 10:30 DF-1-TP	L917373-3 27-JUL-10 11:00 DF-2-TM	L917373-4 27-JUL-10 11:00 DF-2-TP	L917373-5 26-JUL-10 10:15 DF-3-TM
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)		0.44		0.19	
	Total Insoluble Dustfall (mg/dm2.day)		0.24		<0.10	
	Total Soluble Dustfall (mg/dm2.day)		0.20		0.15	
Anions and Nutrients	Ammonia as N (mg/dm2.day)		0.00587		0.00359	
	Chloride (Cl) (mg/dm2.day)		<0.0060		<0.0050	
	Nitrate (as N) (mg/dm2.day)		0.00170		0.00265	
	Sulfate (SO4) (mg/dm2.day)		<0.0060		0.0072	
Metals	Aluminum (Al)-Total (mg/dm2.day)	0.00120		0.000464		0.000329
	Antimony (Sb)-Total (mg/dm2.day)	<0.00000080		<0.00000090		<0.0000020
	Arsenic (As)-Total (mg/dm2.day)	<0.00000080		<0.00000090		<0.0000020
	Barium (Ba)-Total (mg/dm2.day)	0.0000166		0.0000294		0.0000195
	Beryllium (Be)-Total (mg/dm2.day)	<0.0000040		<0.0000050		<0.0000090
	Bismuth (Bi)-Total (mg/dm2.day)	<0.0000040		<0.0000050		<0.0000090
	Boron (B)-Total (mg/dm2.day)	<0.000080		<0.000090		<0.00020
	Cadmium (Cd)-Total (mg/dm2.day)	<0.00000040		0.00000059		<0.00000090
	Calcium (Ca)-Total (mg/dm2.day)	0.00533		0.00340		0.00324
	Chromium (Cr)-Total (mg/dm2.day)	0.0000083		0.0000135		<0.0000090
	Cobalt (Co)-Total (mg/dm2.day)	0.00000127		<0.00000090		<0.0000020
	Copper (Cu)-Total (mg/dm2.day)	0.0000834		0.000266		0.0000727
	Iron (Fe)-Total (mg/dm2.day)	0.00194		0.00048		<0.00060
	Lead (Pb)-Total (mg/dm2.day)	0.00000161		0.00000598		0.00000691
	Lithium (Li)-Total (mg/dm2.day)	<0.000040		<0.000050		<0.000090
	Magnesium (Mg)-Total (mg/dm2.day)	0.00174		<0.00090		<0.0020
	Manganese (Mn)-Total (mg/dm2.day)	0.0000846		0.0000845		0.0000993
	Mercury (Hg)-Total (mg/dm2.day)	<0.00000040		<0.00000050		<0.00000090
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.00000040		<0.00000050		<0.00000090
	Nickel (Ni)-Total (mg/dm2.day)	0.0000082		0.0000141		0.0000235
	Phosphorus (P)-Total (mg/dm2.day)	<0.0030		<0.0030		<0.0060
	Potassium (K)-Total (mg/dm2.day)	<0.020		<0.020		<0.040
	Selenium (Se)-Total (mg/dm2.day)	<0.0000080		<0.0000090		<0.000020
	Silicon (Si)-Total (mg/dm2.day)	0.00187		0.00080		<0.00090
	Silver (Ag)-Total (mg/dm2.day)	<0.000000080		<0.000000090		<0.00000020
	Sodium (Na)-Total (mg/dm2.day)	<0.020		<0.020		<0.040
	Strontium (Sr)-Total (mg/dm2.day)	0.00000766		0.00000918		0.0000146
	Thallium (Tl)-Total (mg/dm2.day)	<0.00000080		<0.00000090		<0.0000020
	Tin (Sn)-Total (mg/dm2.day)	<0.00000080		<0.00000090		0.0000023
	Titanium (Ti)-Total (mg/dm2.day)	<0.000080		<0.000090		<0.00020

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L917373-6	L917373-7	L917373-8	L917373-9	L917373-10
Description					
Sampled Date	26-JUL-10	26-JUL-10	26-JUL-10	26-JUL-10	26-JUL-10
Sampled Time	10:15	10:00	10:00	09:45	09:45
Client ID	DF-3-TP	DF-4-TM	DF-4-TP	DF-5-TM	DF-5-TP
Grouping / **Analyte**					
DUSTFALL					
Particulates					
Total Dustfall (mg/dm2.day)	0.15		0.20		<0.10
Total Insoluble Dustfall (mg/dm2.day)	<0.10		<0.10		<0.10
Total Soluble Dustfall (mg/dm2.day)	<0.10		0.16		<0.10
Anions and Nutrients					
Ammonia as N (mg/dm2.day)	0.00152		0.00377		0.00287
Chloride (Cl) (mg/dm2.day)	0.0050		<0.0040		0.0570
Nitrate (as N) (mg/dm2.day)	0.00158		0.00247		0.00185
Sulfate (SO4) (mg/dm2.day)	0.0044		0.0077		<0.0060
Metals					
Aluminum (Al)-Total (mg/dm2.day)		0.00178		0.000421	
Antimony (Sb)-Total (mg/dm2.day)		<0.00000080		<0.00000080	
Arsenic (As)-Total (mg/dm2.day)		<0.00000080		<0.00000080	
Barium (Ba)-Total (mg/dm2.day)		0.00000905		0.0000176	
Beryllium (Be)-Total (mg/dm2.day)		<0.0000040		<0.0000040	
Bismuth (Bi)-Total (mg/dm2.day)		<0.0000040		<0.0000040	
Boron (B)-Total (mg/dm2.day)		<0.000080		<0.000080	
Cadmium (Cd)-Total (mg/dm2.day)		0.00000080		0.00000088	
Calcium (Ca)-Total (mg/dm2.day)		0.00813		0.00175	
Chromium (Cr)-Total (mg/dm2.day)		0.0000311		0.0000274	
Cobalt (Co)-Total (mg/dm2.day)		0.00000213		<0.00000080	
Copper (Cu)-Total (mg/dm2.day)		0.000206		0.000121	
Iron (Fe)-Total (mg/dm2.day)		0.00284		0.00049	
Lead (Pb)-Total (mg/dm2.day)		0.00000480		0.00000280	
Lithium (Li)-Total (mg/dm2.day)		<0.000040		<0.000040	
Magnesium (Mg)-Total (mg/dm2.day)		0.00192		<0.00080	
Manganese (Mn)-Total (mg/dm2.day)		0.0000905		0.0000784	
Mercury (Hg)-Total (mg/dm2.day)		<0.00000040		<0.00000040	
Molybdenum (Mo)-Total (mg/dm2.day)		0.00000086		0.00000050	
Nickel (Ni)-Total (mg/dm2.day)		0.0000327		0.0000173	
Phosphorus (P)-Total (mg/dm2.day)		<0.0020		<0.0030	
Potassium (K)-Total (mg/dm2.day)		<0.020		<0.020	
Selenium (Se)-Total (mg/dm2.day)		<0.0000080		<0.0000080	
Silicon (Si)-Total (mg/dm2.day)		0.00235		0.00064	
Silver (Ag)-Total (mg/dm2.day)		<0.000000080		<0.000000080	
Sodium (Na)-Total (mg/dm2.day)		<0.020		<0.020	
Strontium (Sr)-Total (mg/dm2.day)		0.00000825		0.00000591	
Thallium (Tl)-Total (mg/dm2.day)		<0.00000080		<0.00000080	
Tin (Sn)-Total (mg/dm2.day)		0.00000098		<0.00000080	
Titanium (Ti)-Total (mg/dm2.day)		<0.000080		<0.000080	

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L917373-1	L917373-2	L917373-3	L917373-4	L917373-5
	Description					
	Sampled Date	26-JUL-10	26-JUL-10	27-JUL-10	27-JUL-10	26-JUL-10
	Sampled Time	10:30	10:30	11:00	11:00	10:15
	Client ID	DF-1-TM	DF-1-TP	DF-2-TM	DF-2-TP	DF-3-TM
Grouping	**Analyte**					
DUSTFALL						
Metals	Uranium (U)-Total (mg/dm2.day)	<0.000000080		<0.000000090		<0.00000020
	Vanadium (V)-Total (mg/dm2.day)	<0.0000080		<0.0000090		<0.000020
	Zinc (Zn)-Total (mg/dm2.day)	0.0000307		0.0000776		0.000128

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L917373-6	L917373-7	L917373-8	L917373-9	L917373-10
	Description					
	Sampled Date	26-JUL-10	26-JUL-10	26-JUL-10	26-JUL-10	26-JUL-10
	Sampled Time	10:15	10:00	10:00	09:45	09:45
	Client ID	DF-3-TP	DF-4-TM	DF-4-TP	DF-5-TM	DF-5-TP
Grouping	**Analyte**					
DUSTFALL						
Metals	Uranium (U)-Total (mg/dm2.day)		0.000000102		<0.000000080	
	Vanadium (V)-Total (mg/dm2.day)		<0.0000080		<0.0000080	
	Zinc (Zn)-Total (mg/dm2.day)		0.0000652		0.0000519	

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-VA	Dustfall	Dustfall Chloride by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The chloride analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

DUSTFALLS-COM-DM2-VA	Dustfall	Combined Dustfalls-Total, soluble, insol	BCMOE DUSTFALLS

Dustfall analysis is carried out in accordance with procedures published by the B.C. Ministry of Environment Laboratory.

HG-DUST(DM2-CVAFS-VA	Dustfall	Total Mercury in Dustfalls by CVAFS	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DUST(DM2)-ICP-VA	Dustfall	Total Metals in Dustfalls by ICPOES	EPA 6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DUST(DM2)-MS-VA	Dustfall	Total Metals in Dustfalls by ICPMS	EPA 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA	Dustfall	Dustfall Ammonia by Colour	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The ammonia analysis is specifcially carried out using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NO3-IC-VA	Dustfall	Dustfall Nitrate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The nitrate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

SO4-IC-VA	Dustfall	Dustfall Sulphate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The sulphate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

10-044439

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Laboratory G
ANALYTICAL CHEMISTRY & TESTING SERVICE

Environmental Division

Short Holding Time

Rush Processing

hain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

10-044439

Page ____ of ____

Report To	rt Format / Distribution	Service Requested: (Rush subject to availability)
Company: Rescan Environmental Services Ltd.	Standard: ✓ Other (specify):	Regular (Standard Turnaround Times))
Contact: Dan Jarratt	Select: PDF ✓ Excel ✓ Digital Fax	Priority, Date Req'd: _____ (Surcharges apply)
Address: 6th Floor, 1111 West Hastings St. Vancouver, BC V6E 2J3	Email 1: djarratt@rescan.com	Emergency (1 Business Day) - 100% Surcharge
	Email 2: tolcay@rescan.com	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: Fax:		**Analysis Request**
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) (Yes) or No	Job #: 1009-002-02	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
	ALS Contact: **Sampler:**	

Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total, Soluble, Insoluble Particles	Cl, SO_4, NO_3, NH_3	Total Mg, Ca, K										Number of Containers
DF-1-TM	26/Jul/10	10:30 am	Water			X										
DF-1-TP	26/Jul/10	10:30 am	"	X	X											
DF-2-TM	27/Jul/10	11:00 am	"			X										
DF-2-TP	27/Jul/10	11:00 am	"	X	X											
DF-3-TM	26/Jul/10	10:15 am	"			X										
DF-3-TP	26/Jul/10	10:15 am	"	X	X											
DF-4-TM	26/Jul/10	10:00 am	"			X										
DF-4-TP	26/Jul/10	10:09 am	"	X	X											
DF-5-TM	26/Jul/10	09:45 am	"			X										
DF-5-TP	26/Jul/10	09:45 am	"	X	X											

Special Instructions / Regulations / Hazardous Details

Some jars were empty when retrieved, see notes on jars. Due to evaporation

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			BR	8/6	12:05	21 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

GENF 18.01 Front

RESCAN ENVIRONMENTAL SERVICES
ATTN: DEAN JANSEN
6TH FLOOR 1111 WEST HASTINGS ST
VANCOUVER BC V6E 2J3
Phone: 604-689-9460

Date Received: 07-SEP-10
Report Date: 01-MAR-11 14:24 (MT)
Version: FINAL REV. 2

Certificate of Analysis

Lab Work Order #: L928677
Project P.O. #: NOT SUBMITTED
Job Reference: 1009-002-02
Legal Site Desc:
C of C Numbers: 08-028121

Dean Watt
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	L928677-1	L928677-2	L928677-3	L928677-4	L928677-5
Sample ID		L928677-1	L928677-2	L928677-3	L928677-4	L928677-5
Description						
Sampled Date		29-AUG-10	29-AUG-10	29-AUG-10	29-AUG-10	29-AUG-10
Sampled Time						
Client ID		DF1	DF2	DF3	DF4	DF5
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	0.22	2.50	0.13	<0.10	0.10
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	1.49	<0.10	<0.10	<0.10
	Total Soluble Dustfall (mg/dm2.day)	0.19	1.01	0.11	<0.10	<0.10
Anions and Nutrients	Ammonia as N (mg/dm2.day)	0.00079	0.0328	0.00183	0.00093	0.00054
	Chloride (Cl) (mg/dm2.day)	0.0505	0.0655	0.0376	0.0375	0.0371
	Nitrate (as N) (mg/dm2.day)	0.00452	0.0326	0.00151	0.00140	0.00113
	Sulfate (SO4) (mg/dm2.day)	<0.0069	<0.0083	<0.0073	<0.0079	<0.0069
Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000627	0.00589	0.000227	0.000190	<0.00012 DLB
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000014	<0.0000016	<0.0000015	<0.0000014	<0.0000014
	Arsenic (As)-Total (mg/dm2.day)	<0.0000014	0.0000019	<0.0000015	<0.0000014	<0.0000014
	Barium (Ba)-Total (mg/dm2.day)	0.00000615	0.000195	<0.0000044 DLB	<0.0000035 DLB	<0.0000042 DLB
	Beryllium (Be)-Total (mg/dm2.day)	<0.0000069	<0.0000082	<0.0000074	<0.0000069	<0.0000069
	Bismuth (Bi)-Total (mg/dm2.day)	<0.0000069	<0.0000082	0.0000087	0.0000077	<0.0000069
	Boron (B)-Total (mg/dm2.day)	<0.00014	<0.00016	<0.00015	<0.00014	<0.00014
	Cadmium (Cd)-Total (mg/dm2.day)	0.00000093	<0.00000082	<0.00000074	0.00000091	<0.00000069
	Calcium (Ca)-Total (mg/dm2.day)	0.00337	0.0180	0.00151	0.00136	0.00081
	Chromium (Cr)-Total (mg/dm2.day)	0.0000109	0.0000384	<0.0000074	<0.0000069	<0.0000069
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000014	0.0000064	<0.0000015	<0.0000014	<0.0000014
	Copper (Cu)-Total (mg/dm2.day)	0.0000407	0.000123	0.0000226	0.0000322	0.0000300
	Iron (Fe)-Total (mg/dm2.day)	0.00107	0.0126	<0.00044	<0.00042	<0.00042
	Lead (Pb)-Total (mg/dm2.day)	0.00000146	0.00000676	<0.00000074	0.00000101	0.00000117
	Lithium (Li)-Total (mg/dm2.day)	<0.000069	<0.000082	<0.000074	<0.000069	<0.000069
	Magnesium (Mg)-Total (mg/dm2.day)	0.0018	0.0095	<0.0015	<0.0014	<0.0014
	Manganese (Mn)-Total (mg/dm2.day)	0.0000399	0.000291	0.0000186	0.0000188	0.0000166
	Mercury (Hg)-Total (mg/dm2.day)	<0.00000069	<0.00000082	<0.00000074	<0.00000069	<0.00000069
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.00000069	0.00000159	<0.00000074	<0.00000069	<0.00000069
	Nickel (Ni)-Total (mg/dm2.day)	0.0000117	0.0000226	<0.0000074	<0.0000069	0.0000080
	Phosphorus (P)-Total (mg/dm2.day)	<0.0042	0.0281	<0.0044	<0.0042	<0.0042
	Potassium (K)-Total (mg/dm2.day)	<0.028	0.039	<0.030	<0.028	<0.028
	Selenium (Se)-Total (mg/dm2.day)	<0.000014	<0.000016	<0.000015	<0.000014	<0.000014
	Silicon (Si)-Total (mg/dm2.day)	0.00086	0.00828	<0.00074	<0.00069	<0.00069
	Silver (Ag)-Total (mg/dm2.day)	<0.00000014	0.00000097	<0.00000015	<0.00000014	<0.00000014
	Sodium (Na)-Total (mg/dm2.day)	<0.028	<0.033	<0.030	<0.028	<0.028
	Strontium (Sr)-Total (mg/dm2.day)	0.0000093	0.0000196	0.0000047	0.0000037	0.0000024
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000014	<0.0000016	<0.0000015	<0.0000014	<0.0000014
	Tin (Sn)-Total (mg/dm2.day)	<0.0000014	<0.0000016	<0.0000015	<0.0000014	<0.0000014
	Titanium (Ti)-Total (mg/dm2.day)	<0.00014	<0.00016	<0.00015	<0.00014	<0.00014

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L928677-1 29-AUG-10 DF1	L928677-2 29-AUG-10 DF2	L928677-3 29-AUG-10 DF3	L928677-4 29-AUG-10 DF4	L928677-5 29-AUG-10 DF5
DUSTFALL							
Metals	Uranium (U)-Total (mg/dm2.day)		<0.00000014	<0.00000016	<0.00000015	<0.00000014	<0.00000014
	Vanadium (V)-Total (mg/dm2.day)		<0.000014	0.000024	<0.000015	<0.000014	<0.000014
	Zinc (Zn)-Total (mg/dm2.day)		<0.000069 DLB	0.000548	0.000049	<0.000097 DLB	<0.000083 DLB

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLB	Detection limit was raised due to detection of analyte at comparable level in Method Blank.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-VA	Dustfall	Dustfall Chloride by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The chloride analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

DUSTFALLS-COM-DM2-VA	Dustfall	Combined Dustfalls-Total, soluble, insol	BCMOE DUSTFALLS

Dustfall analysis is carried out in accordance with procedures published by the B.C. Ministry of Environment Laboratory.

HG-DUST(DM2-CVAFS-VA	Dustfall	Total Mercury in Dustfalls by CVAFS	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DUST(DM2)-ICP-VA	Dustfall	Total Metals in Dustfalls by ICPOES	EPA 6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DUST(DM2)-MS-VA	Dustfall	Total Metals in Dustfalls by ICPMS	EPA 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA	Dustfall	Dustfall Ammonia by Colour	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The ammonia analysis is specifcially carried out using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NO3-IC-VA	Dustfall	Dustfall Nitrate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The nitrate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

SO4-IC-VA	Dustfall	Dustfall Sulphate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The sulphate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

08-028121

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # 08-028121

Page 1 of 1

Report to:	Report Format / Distribution	Service Requested: (rush - subject to availability)
Company: Rescan	Standard: ✓ Other:	✓ Regular (Default)
Contact: Dean Jansen	Select: PDF ✓ Excel Digital	Priority (2-3 Business Days) - 50% Surcharge
Address: 1111 W. Hastings	Email 1: jansen@rescan.com	Emergency (1 Business Day) - 100% Surcharge
Vancouver, BC	Email 2:	For Emergency < 1 Day, ASAP or Weekend - Contact ALS
Phone: 604 689-9460 Fax:		
Invoice To: Same as Report ? Yes / No ?	**Client / Project Information:**	**Analysis Request**
Company:	Job #: 1009-002-02	(Indicate Filtered or Preserved, F/P)
Contact: Accounts Payable	PO / AFE:	
Address:	Legal Site Description:	
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only): L928677	ALS Contact:	Sampler: Chris Martin, Dean Jansen

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	Dust traps	Number of Containers
DF 1	particulate	Aug 29 2010		Dustfall	X	1
DF 1	metals				X	1
DF 2	particulate				X	1
DF 2	metals				X	1
DF 3	particulate				X	1
DF 3	metal				X	1
DF 4	particulate				X	1
DF 4	metals				X	1
DF 5	particulate				X	1
DF 5	metals				X	1

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by:	Date & Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date & Time:	Observations: Yes / No ? If Yes attach SIF
	Sept. 1, 2010	RC	7/Sept	12:35	16.4			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - REPORT COPY, PINK - FILE COPY, YELLOW - CLIENT COPY

GENF 18.00 Front

RESCAN ENVIRONMENTAL SERVICES
ATTN: DAN JARRATT
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3
Phone: 604-689-9460

Date Received: 14-OCT-10
Report Date: 27-OCT-10 14:37 (MT)
Version: FINAL

Certificate of Analysis

Lab Work Order #: L943294
Project P.O. #: NOT SUBMITTED
Job Reference: 1009-002-02
Legal Site Desc:
C of C Numbers: 1

Amber Springer
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample ID	L943294-1	L943294-2	L943294-3	L943294-4	L943294-5
Description					
Sampled Date	05-OCT-10	05-OCT-10	05-OCT-10	05-OCT-10	05-OCT-10
Sampled Time	13:30	14:30	13:45	14:00	14:15
Client ID	DF-1	DF-2	DF-3	DF-4	DF-5
Grouping / **Analyte**					
DUSTFALL					
Particulates					
Total Dustfall (mg/dm2.day)	<0.10	0.11	0.14	<0.10	<0.10
Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	<0.10	<0.10
Total Soluble Dustfall (mg/dm2.day)	<0.10	<0.10	0.14	<0.10	<0.10
Anions and Nutrients					
Ammonia as N (mg/dm2.day)	<0.0025	<0.0028	<0.0028	<0.0028	<0.0032
Chloride (Cl) (mg/dm2.day)	0.0106	0.0079	<0.0070	<0.0069	<0.0080
Nitrate (as N) (mg/dm2.day)	0.000358	0.000646	0.0101	0.00412	0.00124
Sulfate (SO4) (mg/dm2.day)	<0.0064	<0.0069	<0.0070	<0.0069	<0.0080
Metals					
Aluminum (Al)-Total (mg/dm2.day)	0.000210	0.00504	0.000556	0.000229	0.000279
Antimony (Sb)-Total (mg/dm2.day)	<0.0000014	<0.0000015	<0.0000016	<0.0000015	<0.0000015
Arsenic (As)-Total (mg/dm2.day)	<0.0000014	<0.0000015	<0.0000016	<0.0000015	<0.0000015
Barium (Ba)-Total (mg/dm2.day)	0.00000439	0.0000389	0.00000825	0.00000430	0.00000667
Beryllium (Be)-Total (mg/dm2.day)	<0.0000071	<0.0000076	<0.0000079	<0.0000076	<0.0000075
Bismuth (Bi)-Total (mg/dm2.day)	<0.0000071	<0.0000076	<0.0000079	<0.0000076	<0.0000075
Boron (B)-Total (mg/dm2.day)	<0.00014	<0.00015	<0.00016	<0.00015	<0.00015
Cadmium (Cd)-Total (mg/dm2.day)	<0.00000071	0.00000081	<0.00000079	<0.00000076	0.00000099
Calcium (Ca)-Total (mg/dm2.day)	0.00443	0.0343	0.00155	0.00142	<0.00075
Chromium (Cr)-Total (mg/dm2.day)	<0.0000071	0.0000498	<0.0000079	<0.0000076	0.0000314
Cobalt (Co)-Total (mg/dm2.day)	<0.0000014	0.0000061	<0.0000016	<0.0000015	<0.0000015
Copper (Cu)-Total (mg/dm2.day)	0.0000582	0.000219	0.000179	0.000119	0.000156
Iron (Fe)-Total (mg/dm2.day)	<0.00043	0.00930	0.00067	<0.00046	<0.00045
Lead (Pb)-Total (mg/dm2.day)	0.00000140	0.00000366	0.00000845	0.00000511	0.00000143
Lithium (Li)-Total (mg/dm2.day)	<0.000071	<0.000076	<0.000079	<0.000076	<0.000075
Magnesium (Mg)-Total (mg/dm2.day)	0.0023	0.0067	<0.0016	<0.0015	<0.0015
Manganese (Mn)-Total (mg/dm2.day)	0.0000300	0.000320	0.0000565	0.0000139	0.0000115
Mercury (Hg)-Total (mg/dm2.day)	<0.00000071	<0.00000076	<0.00000079	<0.00000076	<0.00000075
Molybdenum (Mo)-Total (mg/dm2.day)	<0.00000071	<0.00000076	<0.00000079	<0.00000076	<0.00000075
Nickel (Ni)-Total (mg/dm2.day)	<0.0000071	0.000203	0.000148	<0.0000076	0.0000230
Phosphorus (P)-Total (mg/dm2.day)	<0.0043	<0.0046	<0.0047	<0.0046	<0.0045
Potassium (K)-Total (mg/dm2.day)	<0.028	<0.031	<0.031	<0.031	<0.030
Selenium (Se)-Total (mg/dm2.day)	<0.000014	<0.000015	<0.000016	<0.000015	<0.000015
Silicon (Si)-Total (mg/dm2.day)	<0.00071	0.00796	0.00120	<0.00076	<0.00075
Silver (Ag)-Total (mg/dm2.day)	<0.00000014	<0.00000015	<0.00000016	<0.00000015	<0.00000015
Sodium (Na)-Total (mg/dm2.day)	<0.028	<0.031	<0.031	<0.031	<0.030
Strontium (Sr)-Total (mg/dm2.day)	0.0000130	0.0000245	0.0000078	0.0000053	0.0000037
Thallium (Tl)-Total (mg/dm2.day)	<0.0000014	<0.0000015	<0.0000016	<0.0000015	<0.0000015
Tin (Sn)-Total (mg/dm2.day)	<0.0000014	<0.0000015	<0.0000016	<0.0000015	<0.0000015
Titanium (Ti)-Total (mg/dm2.day)	<0.00014	0.00031	<0.00016	<0.00015	<0.00015

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L943294-1	L943294-2	L943294-3	L943294-4	L943294-5
	Description					
	Sampled Date	05-OCT-10	05-OCT-10	05-OCT-10	05-OCT-10	05-OCT-10
	Sampled Time	13:30	14:30	13:45	14:00	14:15
	Client ID	DF-1	DF-2	DF-3	DF-4	DF-5
Grouping	**Analyte**					
DUSTFALL						
Metals	Uranium (U)-Total (mg/dm2.day)	<0.00000014	<0.00000015	<0.00000016	<0.00000015	<0.00000015
	Vanadium (V)-Total (mg/dm2.day)	<0.000014	0.000021	<0.000016	<0.000015	<0.000015
	Zinc (Zn)-Total (mg/dm2.day)	0.000029	0.000140	0.000096	0.000051	0.000046

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-IC-VA	Dustfall	Dustfall Chloride by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The chloride analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

DUSTFALLS-COM-DM2-VA	Dustfall	Combined Dustfalls-Total, soluble, insol	BCMOE DUSTFALLS

Dustfall analysis is carried out in accordance with procedures published by the B.C. Ministry of Environment Laboratory.

HG-DUST(DM2-CVAFS-VA	Dustfall	Total Mercury in Dustfalls by CVAFS	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DUST(DM2)-ICP-VA	Dustfall	Total Metals in Dustfalls by ICPOES	EPA 6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-DUST(DM2)-MS-VA	Dustfall	Total Metals in Dustfalls by ICPMS	EPA 6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

NH3-COL-VA	Dustfall	Dustfall Ammonia by Colour	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The ammonia analysis is specifcially carried out using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using the phenate colourimetric method.

NO3-IC-VA	Dustfall	Dustfall Nitrate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The nitrate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

SO4-IC-VA	Dustfall	Dustfall Sulphate by Ion Chromatography	BC LAB MAN. - PART. - SOLUBLE - ANIONS

The Dustfall analysis is carried out in accordance with the B.C. Laboratory Manual method 'Particulate - Total' and 'Particulate - Soluble - Anions and Cations by Ion Chromatography'. The sulphate analysis is specifcially carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

1

GLOSSARY OF REPORT TERMS

Surrogate A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg milligrams per kilogram based on dry weight of sample.
mg/kg wwt milligrams per kilogram based on wet weight of sample.
mg/kg lwt milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L milligrams per litre.
< - Less than.
D.L. The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as receieved by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

L943294-COFC

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

CANADA TOLL FREE 1-800-668-9878

www.alsenviro.com

COC # L943294

REPORT TO:		REPORT FORMAT / DISTRIBUTION	
COMPANY:	Rescan Environmental Services Ltd.	HARDCOPY:	STANDARD
CONTACT:	Dan Jarratt	ELECTRONIC	PDF and EXCEL
ADDRESS:	6th Flr, 1111 West Hastings Street	EMAIL 1:	djarratt@rescan.com
CITY/ PROV	Vancouver, BC V6E 2J3	EMAIL 2:	tolcay@rescan.com
PHONE:	604-689-9460		604-689-4277

SERVICE REQUESTED	
REGULAR SERVICE (DEFAULT)	
PRIORITY SERVICE (2-3 DAYS)	X
EMERGENCY SERVICE (1-2 DAY / WEEKEND)	
OTHER (<1 DAY / WEEKEND) - CONTACT ALS	

INVOICE TO: SAME AS REPORT ? YES / NO		CLIENT / PROJECT INFORMATION:	
COMPANY:	SAME AS ABOVE	JOB #:	1009-002-02
CONTACT:		PO /AFE:	
ADDRESS:		Legal Site Description:	
CITY/ PROV		QUOTE #:	
PHONE:	FAX	ALS CONTACT	
Lab Work Order # (lab use only)			

ANALYSIS REQUEST

Please indicate below Filtered. Preserved or both (F, P, F/P)

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE (dd-mmm-yy)	TIME (hh:mm)	SAMPLE TYPE	Total, Soluble, Insoluble Partic	Cl, SO4, NO3, NH3	Total Mg, Ca, K	NUMBER OF CONTAINERS
1	DF-1-TM	5-Oct-2010	13:30	Water			X	
	DF-1-TP	5-Oct-2010	13:30	Water	X	X		
2	DF-2-TM	5-Oct-2010	14:30	Water			X	
	DF-2-TP	5-Oct-2010	14:30	Water	X	X		
3	DF-3-TM	5-Oct-2010	13:45	Water			X	
	DF-3-TP	5-Oct-2010	13:45	Water	X	X		
4	DF-4-TM	5-Oct-2010	14:00	Water			X	
	DF-4-TP	5-Oct-2010	14:00	Water	X	X		
5	DF-5-TM	5-Oct-2010	14:15	Water			X	
	DF-5-TP	5-Oct-2010	14:15	Water	X	X		

GUIDELINES / REGULATIONS	SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS

Failure to complete all portions of this form may delay analysis. Please fill in this form *LEGIBLY*. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified below.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
Craig Hatt Craig Hatt	Oct 5, 2010 / 8:21	J. Paa. Oct. 14. 10	6:00pm
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:

SAMPLE CONDITION (lab use only)	
TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ?
14°C	
	If NO, Explain

Appendix 2.2.2
Alberta Environment Method

Rescan™
Engineers and Scientists

Maxxam

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/11/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A9462
Received: 2010/11/09, 14:18

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	4	2010/11/17	2010/11/17	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	4	2010/11/17	2010/11/17		see departement
Exposure (Number of days)	4	2010/11/11	2010/11/11		see department
NO2 Passive Analysis (1)	6	2010/11/12	2010/11/18	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	6	2010/11/15	2010/11/18	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	6	2010/11/17	2010/11/18	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
18 Nov 2010 10:50:56 -07:00

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

LEVI MANCHAK,
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B0A9462
Report Date: 2010/11/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Y32072		Y32073		Y32075		
Sampling Date		2010/07/07 09:30		2010/10/01 16:30		2010/07/01 13:00		
	Units	**10DORIS-007**	**RDL**	**10DORIS-010**	**RDL**	**10BOSTON-007**	**RDL**	**QC Batch**
Industrial								
Exposure	days	86	1	33	1	58	1	4419880
Dustfall Determination								
Total Dustfall	mg	72	1	2	2	10	1	4434452
Total Dustfall (30 day)	mg/cm2/30day	0.308	0.001	0.027	0.002	0.065	0.001	4434453
Total Fixed Dustfall	mg	23	1	<2	2	9	1	4434452
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.097	0.001	0.013	0.002	0.057	0.001	4434453
Passive Monitoring								
Calculated NO2	ppb	DAMAGED	0.1	1.0	0.1	1.0	0.1	4422254
Calculated O3	ppb	DAMAGED	0.1	25.8	0.1	17.6	0.1	4425990
Calculated SO2	ppb	DAMAGED	0.1	<0.1	0.1	<0.1	0.1	4432693

RDL = Reportable Detection Limit

Maxxam ID		Y32076	Y32077	Y32079		
Sampling Date		2010/07/01 13:00	2010/08/28 16:30	2010/08/28 16:30		
	Units	**10BOSTON-007DUP**	**10BOSTON-009**	**10BOSTON-009 (DUP)**	**RDL**	**QC Batch**
Industrial						
Exposure	days		65		1	4419880
Dustfall Determination						
Total Dustfall	mg		2		1	4434452
Total Dustfall (30 day)	mg/cm2/30day		0.014		0.001	4434453
Total Fixed Dustfall	mg		2		1	4434452
Total Fixed Dustfall (30 day)	mg/cm2/30day		0.010		0.001	4434453
Passive Monitoring						
Calculated NO2	ppb	1.0	2.0	2.2	0.1	4422254
Calculated O3	ppb	18.1	23.8	24.3	0.1	4425990
Calculated SO2	ppb	<0.1	<0.1	<0.1	0.1	4432693

RDL = Reportable Detection Limit

Maxxam Job #: B0A9462
Report Date: 2010/11/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Sample: Y32072 for all parameters was returned to the lab damaged. - DF
Samples : Y32072, Y32075, Y32077 have the Copper (II) Sulphate solution and Y32073 has the Propanol solution.

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB0A9462

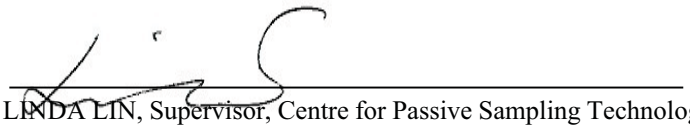
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4422254	DF4	Calibration Check	Calculated NO2	2010/11/12		100	%	76 - 118
		Spiked Blank	Calculated NO2	2010/11/12		98	%	N/A
		Method Blank	Calculated NO2	2010/11/12	<0.1		ppb	
4425990	OZ	Calibration Check	Calculated O3	2010/11/15		99	%	91 - 107
		Spiked Blank	Calculated O3	2010/11/15		99	%	N/A
		Method Blank	Calculated O3	2010/11/15	<0.1		ppb	
4432693	DF4	Calibration Check	Calculated SO2	2010/11/17		101	%	95 - 105
		Spiked Blank	Calculated SO2	2010/11/17		103	%	N/A
		Method Blank	Calculated SO2	2010/11/17	<0.1		ppb	
4434452	OZ	Calibration Check	Total Dustfall	2010/11/17		100	%	N/A
		Method Blank	Total Dustfall	2010/11/17	<1		mg	
			Total Fixed Dustfall	2010/11/17	<1		mg	
		RPD [Y32072-01]	Total Dustfall	2010/11/17	0		%	N/A
			Total Fixed Dustfall	2010/11/17	0		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B0A9462

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: TOLGA OLCAY
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2011/02/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B109415
Received: 2011/02/07, 10:41

Sample Matrix: Air
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total & Fixed Dustfall	2	2011/02/15	2011/02/15	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	2	2011/02/15	2011/02/15		see departement
Dustfall Weight Requirments	1	2011/02/15	2011/02/15		see departement
Exposure (Number of days)	2	2011/02/09	2011/02/09		see department
NO2 Passive Analysis (1)	3	2011/02/14	2011/02/15	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	3	2011/02/10	2011/02/15	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	3	2011/02/14	2011/02/15	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
16 Feb 2011 13:47:10 -07:00

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

LEVI MANCHAK,
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B109415
Report Date: 2011/02/16

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z75844	Z75846		Z75847	Z80303		
Sampling Date		2010/11/04 15:00	2010/11/04 15:00		2010/11/02 15:00	2010/11/02 15:00		
	Units	**10DORIS-011**	**10DORIS-001**	**RDL**	**10BOSTON-010**	**10BOSTOND-010**	**RDL**	**QC Batch**
Industrial								
Exposure	days	66		1	69		1	4623084
Dustfall Determination								
Total Dustfall	mg	6		1	4		2	4636207
Total Dustfall (30 day)	mg/cm2/30day	0.033		0.001	0.022		0.002	4636208
Weight - Initial	mg				67483.6		0.1	4636209
Total Fixed Dustfall	mg	3		1	<2		2	4636207
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.017		0.001	0.007		0.002	4636208
Weight - Post Evaporation	mg				67483.9		0.1	4636209
Weight - Post Ignition	mg				67483.7		0.1	4636209
Passive Monitoring								
Calculated NO2	ppb	1.4		0.1	3.4	2.2	0.1	4631541
Calculated O3	ppb	29.7		0.1	32.0	30.9	0.1	4626967
Calculated SO2	ppb		0.2	0.1	0.1	0.1	0.1	4631564

RDL = Reportable Detection Limit

Maxxam Job #: B109415
Report Date: 2011/02/16

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Sample labels differ from sample names indicated on COC. Sample labels used for sample ID on report.
Boston/Duplicate samples unlabelled, sample IDs determined through calculated results.

Sample exposure dates:
10Doris011: Nov. 4/10 - Jan. 10/11
10Boston011: Nov. 2/10 - Jan. 11/11
10Boston011DUP: Nov. 2/10 - Jan. 11/11

All DUSTFALL samples with the Propanol solution.

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: TOLGA OLCAY
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB109415

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4626967	OZ	Calibration Check	Calculated O3	2011/02/11		101	%	91 - 107
		Spiked Blank	Calculated O3	2011/02/11		99	%	N/A
		Method Blank	Calculated O3	2011/02/11	<0.1		ppb	
4631541	DF4	Calibration Check	Calculated NO2	2011/02/14		99	%	76 - 118
		Spiked Blank	Calculated NO2	2011/02/14		99	%	N/A
		Method Blank	Calculated NO2	2011/02/14	<0.1		ppb	
4631564	DF4	Calibration Check	Calculated SO2	2011/02/14		99	%	95 - 105
		Spiked Blank	Calculated SO2	2011/02/14		100	%	N/A
		Method Blank	Calculated SO2	2011/02/14	<0.1		ppb	
4636207	OZ	Calibration Check	Total Dustfall	2011/02/15		102	%	N/A
		Method Blank	Total Dustfall	2011/02/15	<1		mg	
			Total Fixed Dustfall	2011/02/15	<1		mg	
		RPD [Z75844-01]	Total Dustfall	2011/02/15	0		%	N/A
			Total Fixed Dustfall	2011/02/15	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B109415

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

DARREN FUNNELL,

LINDA LIN, Supervisor, Centre for Passive Sampling Technology

==========

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Appendix 3

Passive Ambient Air Quality Results

Rescan™
Engineers and Scientists

Appendix 3.1

Q1 and Q2 Laboratory Reports

Rescan™
Engineers and Scientists

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORRIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/02/24

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B009095
Received: 2010/02/18, 13:40

Sample Matrix: Air
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis (1)	1	2010/02/23	2010/02/24	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	1	2010/02/20	2010/02/20	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	1	2010/02/21	2010/02/24	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
24 Feb 2010 13:44:33 -07:00

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

LEVI MANCHAK,
Email:
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. SCC and CALA have approved this reporting process and electronic report format.

For Service Group specific validation please refer to the Validation Signature Page

Total cover pages: 1

Maxxam Job #: B009095
Report Date: 2010/02/24

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORRIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		S86094		
Sampling Date		2010/01/14		
	Units	**10DORIS-001**	**RDL**	**QC Batch**
Passive Monitoring				
Calculated NO2	ppb	5.1	0.1	3764128
Calculated O3	ppb	31.7	0.1	3759736
Calculated SO2	ppb	1.9	0.1	3759864

RDL = Reportable Detection Limit

Maxxam Job #: B009095
Report Date: 2010/02/24

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORRIS)
Sampler Initials: JT

General Comments

Sample Exposure Dates: 2010/01/14 - 2010/02/12

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORRIS)

Quality Assurance Report

Maxxam Job Number: PB009095

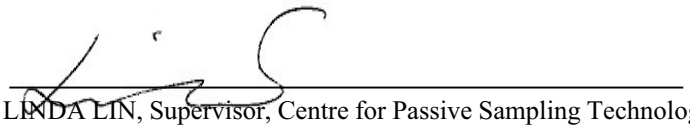
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3759736	OZ	Calibration Check	Calculated O3	2010/02/20		97	%	91 - 107
		Spiked Blank	Calculated O3	2010/02/20		102	%	N/A
		Method Blank	Calculated O3	2010/02/20	<0.1		ppb	
3759864	OZ	Calibration Check	Calculated SO2	2010/02/21		101	%	95 - 105
		Spiked Blank	Calculated SO2	2010/02/21		100	%	N/A
		Method Blank	Calculated SO2	2010/02/21	<0.1		ppb	
3764128	OZ	Calibration Check	Calculated NO2	2010/02/23		99	%	76 - 118
		Spiked Blank	Calculated NO2	2010/02/23		100	%	N/A
		Method Blank	Calculated NO2	2010/02/23	<0.1		ppb	

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B009095

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/03/24

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B015112
Received: 2010/03/16, 10:54

Sample Matrix: Air
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis (1)	1	2010/03/23	2010/03/24	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	1	2010/03/24	2010/03/24	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	1	2010/03/19	2010/03/24	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
24 Mar 2010 15:34:23 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B015112
Report Date: 2010/03/24

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		T22248		
Sampling Date		2010/02/11		
	Units	**10DORIS-002**	**RDL**	**QC Batch**
Passive Monitoring				
Calculated NO2	ppb	2.5	0.1	3832690
Calculated O3	ppb	26.3	0.1	3837340
Calculated SO2	ppb	0.2	0.1	3824807

RDL = Reportable Detection Limit

General Comments

Meteorological data from Cambridge Bay, NT station utilized.

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB015112

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3824807	DF4	Calibration Check	Calculated SO2	2010/03/19		98	%	95 - 105
		Spiked Blank	Calculated SO2	2010/03/19		100	%	N/A
		Method Blank	Calculated SO2	2010/03/19	<0.1		ppb	
3832690	DF4	Calibration Check	Calculated NO2	2010/03/23		102	%	76 - 118
		Spiked Blank	Calculated NO2	2010/03/23		101	%	N/A
		Method Blank	Calculated NO2	2010/03/23	<0.1		ppb	
3837340	OZ	Calibration Check	Calculated O3	2010/03/24		100	%	91 - 107
		Spiked Blank	Calculated O3	2010/03/24		102	%	N/A
		Method Blank	Calculated O3	2010/03/24	<0.1		ppb	

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B015112

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

==========

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/05/05

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B026701
Received: 2010/04/28, 09:39

Sample Matrix: Air
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis (1)	3	2010/05/05	2010/05/05	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	3	2010/05/05	2010/05/05	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	3	2010/04/29	2010/05/05	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
05 May 2010 14:36:28 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B026701
Report Date: 2010/05/05

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		T82500	T82502	T82503		
Sampling Date		2010/03/01 14:00	2009/10/22 12:00	2009/10/22 12:00		
	Units	**10DORIS-003**	**09BOSTON-010**	**09BOSTON-010 DUP**	**RDL**	**QC Batch**
Passive Monitoring						
Calculated NO2	ppb	0.8	<0.1	<0.1	0.1	3931920
Calculated O3	ppb	35.6	29.9	25.3	0.1	3932278
Calculated SO2	ppb	<0.1	0.1	0.1	0.1	3921887

RDL = Reportable Detection Limit

Maxxam Job #: B026701
Report Date: 2010/05/05

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Doris Sample Dates: 2010/03/01 - 204/04/03
Boston Sample Dates: 2009/10/22 - 2010/03/21

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB026701

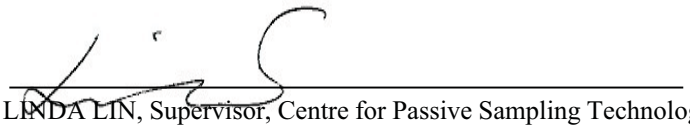
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3921887	DF4	Calibration Check	Calculated SO2	2010/04/29		99	%	95 - 105
		Spiked Blank	Calculated SO2	2010/04/29		98	%	N/A
		Method Blank	Calculated SO2	2010/04/29	<0.1		ppb	
3931920	DF4	Calibration Check	Calculated NO2	2010/05/05		101	%	76 - 118
		Spiked Blank	Calculated NO2	2010/05/05		98	%	N/A
		Method Blank	Calculated NO2	2010/05/05	<0.1		ppb	
3932278	OZ	Calibration Check	Calculated O3	2010/05/05		98	%	91 - 107
		Spiked Blank	Calculated O3	2010/05/05		100	%	N/A
		Method Blank	Calculated O3	2010/05/05	<0.1		ppb	

Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B026701

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/08/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B065899
Received: 2010/08/04, 08:53

Sample Matrix: Air
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	6	2010/08/12	2010/08/12	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	6	2010/08/12	2010/08/12		see departement
Exposure (Number of days)	6	2010/08/12	2010/08/12		see department
NO2 Passive Analysis (1)	9	2010/08/10	2010/08/18	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	9	2010/08/11	2010/08/18	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	9	2010/08/09	2010/08/18	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
18 Aug 2010 08:36:20 -06:00

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

LEVI MANCHAK,
Email:
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B065899
Report Date: 2010/08/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		V92056		V92089		V92090	V92091		
Sampling Date		2010/04/03		2010/05/16		2010/06/02	2010/03/21		
	Units	**10DORIS-004**	**RDL**	**10DORIS-005**	**RDL**	**10DORIS-006**	**10BOSTON-003**	**RDL**	**QC Batch**
Industrial									
Exposure	days	43	1	17	1	35	57	1	4175872
Dustfall Determination									
Total Dustfall	mg	5	1	14	3	12	2	1	4173361
Total Dustfall (30 day)	mg/cm2/30day	0.041	0.001	0.301	0.003	0.126	0.015	0.001	4173362
Total Fixed Dustfall	mg	3	1	9	3	8	2	1	4173361
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.026	0.001	0.201	0.003	0.082	0.012	0.001	4173362
Passive Monitoring									
Calculated NO2	ppb	0.7	0.1	<0.1	0.1	0.5	<0.1	0.1	4166901
Calculated O3	ppb	36.7	0.1	35.6	0.1	26.7	34.6	0.1	4172168
Calculated SO2	ppb	<0.1	0.1	0.1	0.1	0.1	DAMAGED	0.1	4162847

RDL = Reportable Detection Limit

Maxxam ID		V92092		V92184		V92185		
Sampling Date		2010/03/21		2010/05/17		2010/06/10		
	Units	**10BOSTON-003DUP**	**RDL**	**10BOSTON-005**	**RDL**	**10BOSTON-006**	**RDL**	**QC Batch**
Industrial								
Exposure	days		1	24	1	21	1	4175872
Dustfall Determination								
Total Dustfall	mg		1	9	2	11	1	4173361
Total Dustfall (30 day)	mg/cm2/30day		0.001	0.139	0.002	0.199	0.001	4173362
Total Fixed Dustfall	mg		1	8	2	5	1	4173361
Total Fixed Dustfall (30 day)	mg/cm2/30day		0.001	0.119	0.002	0.094	0.001	4173362
Passive Monitoring								
Calculated NO2	ppb	<0.1	0.1	<0.1	0.1	1.6	0.1	4166901
Calculated O3	ppb	35.3	0.1	33.0	0.1	25.7	0.1	4172168
Calculated SO2	ppb	<0.1	0.1	0.1	0.1	0.1	0.1	4162847

RDL = Reportable Detection Limit

Maxxam Job #: B065899
Report Date: 2010/08/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		V92249	V92250		
Sampling Date		2010/05/17	2010/06/10		
	Units	**10BOSTON-005 (DUP)**	**10BOSTON-006 (DUP)**	**RDL**	**QC Batch**
Passive Monitoring					
Calculated NO2	ppb	<0.1	1.9	0.1	4166901
Calculated O3	ppb	29.5	25.7	0.1	4172168
Calculated SO2	ppb	0.1	0.2	0.1	4162847

RDL = Reportable Detection Limit

General Comments

Sample Exposure Dates are as follows:
10Doris004: 2010/04/03 - 2010/05/16
10Doris005: 2010/05/16 - 2010/06/02
10Doris006: 2010/06/02 - 2010/07/07

10Boston002: 2010/03/02 - 2010/05/17
10Boston003: 2010/03/02 - 2010/05/17
10Boston005: 2010/05/17 - 2010/06/10
10Boston006: 2010/06/10 - 2010/07/01
10Boston005 (DUP): 2010/05/17 - 2010/06/10
10Boston006 (DUP): 2010/06/10 - 2010/07/01

Sample: V92091 was returned to the lab missing barrier. - DF

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB065899

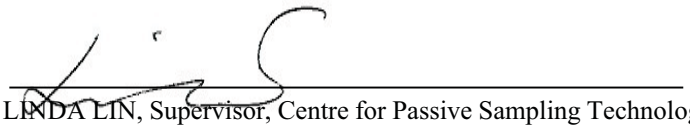
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4162847	DF4	Calibration Check	Calculated SO2	2010/08/09		100	%	95 - 105
		Spiked Blank	Calculated SO2	2010/08/09		103	%	N/A
		Method Blank	Calculated SO2	2010/08/09	<0.1		ppb	
4166901	DF4	Calibration Check	Calculated NO2	2010/08/10		99	%	76 - 118
		Spiked Blank	Calculated NO2	2010/08/10		96	%	N/A
		Method Blank	Calculated NO2	2010/08/10	<0.1		ppb	
4172168	OZ	Calibration Check	Calculated O3	2010/08/12		102	%	91 - 107
		Spiked Blank	Calculated O3	2010/08/12		99	%	N/A
		Method Blank	Calculated O3	2010/08/12	<0.1		ppb	
4173361	OZ	Calibration Check	Total Dustfall	2010/08/12		102	%	N/A
		Method Blank	Total Dustfall	2010/08/12	<1		mg	
			Total Fixed Dustfall	2010/08/12	<1		mg	
		RPD [V92056-01]	Total Dustfall	2010/08/12	NC		%	N/A
			Total Fixed Dustfall	2010/08/12	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B065899

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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Appendix 3.2

Q3 and Q4 Laboratory Reports

Rescan™
Engineers and Scientists

Maxxam

Your Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: DAN JARRATT
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2010/11/18

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0A9462
Received: 2010/11/09, 14:18

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Determination of Dustfall	4	2010/11/17	2010/11/17	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	4	2010/11/17	2010/11/17		see departement
Exposure (Number of days)	4	2010/11/11	2010/11/11		see department
NO2 Passive Analysis (1)	6	2010/11/12	2010/11/18	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	6	2010/11/15	2010/11/18	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	6	2010/11/17	2010/11/18	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
18 Nov 2010 10:50:56 -07:00

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

LEVI MANCHAK,
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B0A9462
Report Date: 2010/11/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Y32072		Y32073		Y32075		
Sampling Date		2010/07/07 09:30		2010/10/01 16:30		2010/07/01 13:00		
	Units	**10DORIS-007**	**RDL**	**10DORIS-010**	**RDL**	**10BOSTON-007**	**RDL**	**QC Batch**
Industrial								
Exposure	days	86	1	33	1	58	1	4419880
Dustfall Determination								
Total Dustfall	mg	72	1	2	2	10	1	4434452
Total Dustfall (30 day)	mg/cm2/30day	0.308	0.001	0.027	0.002	0.065	0.001	4434453
Total Fixed Dustfall	mg	23	1	<2	2	9	1	4434452
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.097	0.001	0.013	0.002	0.057	0.001	4434453
Passive Monitoring								
Calculated NO2	ppb	DAMAGED	0.1	1.0	0.1	1.0	0.1	4422254
Calculated O3	ppb	DAMAGED	0.1	25.8	0.1	17.6	0.1	4425990
Calculated SO2	ppb	DAMAGED	0.1	<0.1	0.1	<0.1	0.1	4432693

RDL = Reportable Detection Limit

Maxxam ID		Y32076	Y32077	Y32079		
Sampling Date		2010/07/01 13:00	2010/08/28 16:30	2010/08/28 16:30		
	Units	**10BOSTON-007DUP**	**10BOSTON-009**	**10BOSTON-009 (DUP)**	**RDL**	**QC Batch**
Industrial						
Exposure	days		65		1	4419880
Dustfall Determination						
Total Dustfall	mg		2		1	4434452
Total Dustfall (30 day)	mg/cm2/30day		0.014		0.001	4434453
Total Fixed Dustfall	mg		2		1	4434452
Total Fixed Dustfall (30 day)	mg/cm2/30day		0.010		0.001	4434453
Passive Monitoring						
Calculated NO2	ppb	1.0	2.0	2.2	0.1	4422254
Calculated O3	ppb	18.1	23.8	24.3	0.1	4425990
Calculated SO2	ppb	<0.1	<0.1	<0.1	0.1	4432693

RDL = Reportable Detection Limit

Maxxam Job #: B0A9462
Report Date: 2010/11/18

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Sample: Y32072 for all parameters was returned to the lab damaged. - DF
Samples : Y32072, Y32075, Y32077 have the Copper (II) Sulphate solution and Y32073 has the Propanol solution.

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: DAN JARRATT
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB0A9462

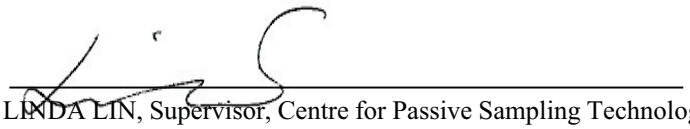
QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4422254	DF4	Calibration Check	Calculated NO2	2010/11/12		100	%	76 - 118
		Spiked Blank	Calculated NO2	2010/11/12		98	%	N/A
		Method Blank	Calculated NO2	2010/11/12	<0.1		ppb	
4425990	OZ	Calibration Check	Calculated O3	2010/11/15		99	%	91 - 107
		Spiked Blank	Calculated O3	2010/11/15		99	%	N/A
		Method Blank	Calculated O3	2010/11/15	<0.1		ppb	
4432693	DF4	Calibration Check	Calculated SO2	2010/11/17		101	%	95 - 105
		Spiked Blank	Calculated SO2	2010/11/17		103	%	N/A
		Method Blank	Calculated SO2	2010/11/17	<0.1		ppb	
4434452	OZ	Calibration Check	Total Dustfall	2010/11/17		100	%	N/A
		Method Blank	Total Dustfall	2010/11/17	<1		mg	
			Total Fixed Dustfall	2010/11/17	<1		mg	
		RPD [Y32072-01]	Total Dustfall	2010/11/17	0		%	N/A
			Total Fixed Dustfall	2010/11/17	0		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Validation Signature Page

Maxxam Job #: B0A9462

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 Project #: 1009-002-02
Site: HOPE BAY (BOSTON/DORIS)

Attention: TOLGA OLCAY
RESCAN ENVIRONMENTAL SERVICES LTD.
SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER, BC
CANADA V6E 2J3

Report Date: 2011/02/16

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B109415
Received: 2011/02/07, 10:41

Sample Matrix: Air
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total & Fixed Dustfall	2	2011/02/15	2011/02/15	EINDSOP-00180	AMD 32020
Determination of Dustfall-mg/cm2/30 days	2	2011/02/15	2011/02/15		see departement
Dustfall Weight Requirments	1	2011/02/15	2011/02/15		see departement
Exposure (Number of days)	2	2011/02/09	2011/02/09		see department
NO2 Passive Analysis (1)	3	2011/02/14	2011/02/15	EINDSOP-00148	Tang Passive NO2 in
O3 Passive Analysis (1)	3	2011/02/10	2011/02/15	EINDSOP-00197	EPA 300 R2.1
SO2 Passive Analysis (1)	3	2011/02/14	2011/02/15	EINDSOP-00149	Tang Passive SO2 in

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

(1) The detection limit is based on a 30 day sampling period.

Encryption Key

Levi Manchak
16 Feb 2011 13:47:10 -07:00

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

LEVI MANCHAK,
Email: LManchak@maxxam.ca
Phone# (780) 378-8500

==========

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Total cover pages: 1

Maxxam Job #: B109415
Report Date: 2011/02/16

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

RESULTS OF CHEMICAL ANALYSES OF AIR

Maxxam ID		Z75844	Z75846		Z75847	Z80303		
Sampling Date		2010/11/04 15:00	2010/11/04 15:00		2010/11/02 15:00	2010/11/02 15:00		
	Units	**10DORIS-011**	**10DORIS-001**	**RDL**	**10BOSTON-010**	**10BOSTOND-010**	**RDL**	**QC Batch**
Industrial								
Exposure	days	66		1	69		1	4623084
Dustfall Determination								
Total Dustfall	mg	6		1	4		2	4636207
Total Dustfall (30 day)	mg/cm2/30day	0.033		0.001	0.022		0.002	4636208
Weight - Initial	mg				67483.6		0.1	4636209
Total Fixed Dustfall	mg	3		1	<2		2	4636207
Total Fixed Dustfall (30 day)	mg/cm2/30day	0.017		0.001	0.007		0.002	4636208
Weight - Post Evaporation	mg				67483.9		0.1	4636209
Weight - Post Ignition	mg				67483.7		0.1	4636209
Passive Monitoring								
Calculated NO2	ppb	1.4		0.1	3.4	2.2	0.1	4631541
Calculated O3	ppb	29.7		0.1	32.0	30.9	0.1	4626967
Calculated SO2	ppb		0.2	0.1	0.1	0.1	0.1	4631564

RDL = Reportable Detection Limit

Maxxam Job #: B109415
Report Date: 2011/02/16

RESCAN ENVIRONMENTAL SERVICES LTD.
Client Project #: 1009-002-02
Site Reference: HOPE BAY (BOSTON/DORIS)
Sampler Initials: JT

General Comments

Sample labels differ from sample names indicated on COC. Sample labels used for sample ID on report.
Boston/Duplicate samples unlabelled, sample IDs determined through calculated results.

Sample exposure dates:
10Doris011: Nov. 4/10 - Jan. 10/11
10Boston011: Nov. 2/10 - Jan. 11/11
10Boston011DUP: Nov. 2/10 - Jan. 11/11

All DUSTFALL samples with the Propanol solution.

Results relate only to the items tested.

RESCAN ENVIRONMENTAL SERVICES LTD.
Attention: TOLGA OLCAY
Client Project #: 1009-002-02
P.O. #:
Site Reference: HOPE BAY (BOSTON/DORIS)

Quality Assurance Report

Maxxam Job Number: PB109415

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
4626967	OZ	Calibration Check	Calculated O3	2011/02/11		101	%	91 - 107
		Spiked Blank	Calculated O3	2011/02/11		99	%	N/A
		Method Blank	Calculated O3	2011/02/11	<0.1		ppb	
4631541	DF4	Calibration Check	Calculated NO2	2011/02/14		99	%	76 - 118
		Spiked Blank	Calculated NO2	2011/02/14		99	%	N/A
		Method Blank	Calculated NO2	2011/02/14	<0.1		ppb	
4631564	DF4	Calibration Check	Calculated SO2	2011/02/14		99	%	95 - 105
		Spiked Blank	Calculated SO2	2011/02/14		100	%	N/A
		Method Blank	Calculated SO2	2011/02/14	<0.1		ppb	
4636207	OZ	Calibration Check	Total Dustfall	2011/02/15		102	%	N/A
		Method Blank	Total Dustfall	2011/02/15	<1		mg	
			Total Fixed Dustfall	2011/02/15	<1		mg	
		RPD [Z75844-01]	Total Dustfall	2011/02/15	0		%	N/A
			Total Fixed Dustfall	2011/02/15	NC		%	N/A

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Calibration Check: A calibration standard analyzed at different times to evaluate on-going calibration accuracy.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B109415

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

DARREN FUNNELL,

LINDA LIN, Supervisor, Centre for Passive Sampling Technology

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Appendix 4
Correspondence with NIRB

Rescan™
Engineers and Scientists

NIRB File No.: 05MN047

December 2, 2010

Doris North Project Distribution List

Sent Via Email

Re: Comments Request regarding HBML's *2010 Q1&Q2 Air Quality Report*

Dear Parties,

On November 23, 2010 the Nunavut Impact Review Board (NIRB) received Hope Bay Mining Ltd.'s (HBML) *2010 Q1&Q2 Air Quality Report* for the Doris North Gold Mine Project (the Project). This semi-annual report is a requirement of Condition 30 of the NIRB Project Certificate (No. 003), issued on September 15, 2006 which states:

Air Quality:

30. *MHBL will install and fund an atmospheric monitoring station. This station and its location shall be developed in consultation with EC and HC air quality officials and focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported every six (6) months to NIRB through the Monitoring Officer, and from there to all of the parties.*

    Commentary: NIRB expects the Canada Wide Standards for Dioxins and Furans and the Canada Wide Standards for Mercury will apply and should be followed including stack testing of incinerators.

This report can be accessed from NIRB's ftp site at:
http://ftp.nirb.ca/03-MONITORING/05MN047-DORIS%20NORTH%20GOLD%20MINE/02-MONITORING%20AND%20MANAGEMENT%20PLANS/AIR%20QUALITY%20PLAN/04-SEMI%20ANNUL%20REPORT/2010/.

A document entitled *B3 Air Quality Assessment Methods.pdf* contained in the Final Environment Impact Statement (FEIS) submission during review process for the Project can be accessed from the NIRB's ftp site at:
http://ftp.nirb.ca/02-REVIEWS/COMPLETED%20REVIEWS/05MN047-DORIS%20NORTH%20GOLD%20MINE%202006/2-REVIEW/09-FINAL_EIS/103.%20FEIS/Supporting%20Documents/A3%20-%20B3/

The NIRB has completed a preliminary review of HBML's *2010 Q1&Q2 Air Quality Report* and finds that it generally meets the requirements of the Condition 30. However, the NIRB notes the following items which will require attention and/or further clarification in future report by HBML:

1. The measured concentrations of Total Suspended Particulates (TSP) are lower than that of combined concentrations of $PM_{2.5}$ and PM_{10}, and it is noted that a leak test and flow audit was being performed to identify the causes. The NIRB requests that the audit results and associated measures for improvement be included in the forthcoming Q3 and Q4 air quality report.
2. Dust fall and ambient air quality monitoring were performed within the Hope Bay Belt, including at Doris North, over the first six months of 2010. While the NIRB expects that the monitoring of sites outside of Doris North will provide useful baseline data in support of potential future development along the Hope Bay belt, the Board recommends that reporting for the purpose of compliance with the Doris North Project Certificate be limited to results in the scope of the Doris North Project.
3. Ambient air quality, in terms of average concentrations of SO_2, NO_2 and O_3, was monitored by using a Passive Sampling method at the Doris North and Boston sites on a monthly basis. The monitoring results (monthly average) could not be compared with, nor evaluated directly by, the associated thresholds included in the referenced guidelines. The NIRB expects HBML to incorporate the respective data collected from Q1 and Q2 into the report for Q3 and Q4, making a direct comparison of this data against the annual criteria in the adopted guidelines and the predicted values contained in the FEIS for the Project (*Doris Project Air Quality Assessment Methods*, September 2005). Any inconsistencies between assessment, predictions and monitoring methods and reporting should also be addressed.
4. It is indicated in the report that the results from Q3 and Q4 would be included in the 2010 annual report. The NIRB reminds HBML that the Doris North Project Certificate requires the results of air quality monitoring to be reported every 6 months. The inclusion of a summary of air quality as part of HBML's Annual Report, as indicated in Appendix D of the Project Certificate does not exempt HBML from the requirement to report full air quality monitoring results on a semi-annual basis.
5. A comparative analysis should have been included within the report in order to assess the accuracy of the air quality predictions contained in the FEIS. HBML should include a comparative analysis of this information in its next report as well as further information regarding the data averaging period and reference criteria between impact assessments, predicted values in the FEIS and current monitoring results.

As required by Project Certificate No. 003, the NIRB hereby distributes the report to parties, and requests that parties with jurisdictional authority and/or expertise with air quality review the report and provide comments directly to the NIRB by **December 23, 2010**. Following the receipt of comments, the NIRB will provide further direction to HBML as necessary.

Please forward all forthcoming submissions to the attention of the NIRB at info@nirb.ca or via fax to (867)-983-2594.

If you have any questions or require additional clarification, please contact the undersigned at (867) 983-4606 or lwan@nirb.ca.

Sincerely,

Li Wan
Technical Advisor
Monitoring Officer for the Doris North Gold Mine Project
Nunavut Impact Review Board

cc: Chris Hanks, HBML (Chris.Hanks@Newmont.com)
Paula Smith, Environment Canada (paula.c.smith@ec.gc.ca)
Kelly Senkiw, Health Canada (Kelly_Senkiw@hc-sc.gc.ca)

P.O. Box 360
Kugluktuk, NU X0B 0E0
Telephone: (867) 982-3310
Fax: (867) 982-3311
www.kitia.ca

December 16, 2010

Li Wan
Technical Advisor
Nunavut Impact Review Board
Cambridge Bay, Nu
X0B 0C0

Via Email: info@nirb.ca

Re: NIRB 05MN047: Comments Request Regarding HBML's 2010 Q1 & Q2 Air Quality Report

Dear Li Wan,

The Kitikmeot Inuit Association (KIA) has reviewed the submitted documents and information regarding HBML's 2010 Q1 & Q2 Air Quality Report. Although KIA has no comment on the report, the KIA supports the five clarifications requested by NIRB (document 101202-05MN047-NIRB Re HBML 2010 Air Quality Report-OT1E) requiring further attention and/or clarification by HBML.

The KIA would like to thank the NIRB for the opportunity to comment on this file. Please contact us if you have any questions.

Sincerely,

Wynter Kuliktana
Lands & Environment Officer
Kitikmeot Inuit Association
Dep't of Lands, Environment & Resources
P.O. Box 360
Kugluktuk, Nu, X0B 0E0
Phone: (867) 982-3310
Fax: (867) 982-3311

Environment Canada Environnement Canada

Environmental Protection Operations
Qimugjuk Building 969 P.O. Box 1870
Iqaluit, NU X0A 0H0
Tel: (867) 975-4631
Fax: (867) 975-4645

17 December 2010

EC File: 4703 003 013
NIRB File: 05MN047

Aliza Weller
Environmental Administrator
Nunavut Impact Review Board
29 Mitik, PO Box 1360
Cambridge Bay, NU X0B 0C0

Via email: info@nirb.ca

RE: Comment Request for HBML's 2010 Q1&Q2 Air Quality Report for the Doris North Gold Mine Project

Environment Canada (EC) has reviewed the Q1&Q2 Air Quality Report for the Doris North Gold Mine Project as submitted to the Nunavut Impact Review Board (NIRB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

EC provides the following comments and recommendations for the NIRB's consideration:

Emissions

- Annual air emissions of criteria air contaminants and greenhouse gases, and fuel consumption should be tracked by source in the air quality report.

Location of Partisol monitors

- The Partisol monitors are located on top of a steep cliff north of the main Doris North facility. The cliff would have a tendency to deflect any air flows from the mine away from the monitoring station. The wind roses provided in the Air Quality Assessment Methods, indicate that the predominant winds are from the northwest and southeast with little wind flowing to the north where the Partisol monitors are located. Considering the wind roses and the elevation of the monitoring station, it would appear an unlikely location to capture air quality impacts of particulate emissions from the mine. The rationale for locating the Partisol monitors should be reviewed.

TSP

- The report indicates that inconsistencies in particulate measurements are being investigated. Although PM10 and PM2.5 are subsets of TSP, the TSP measurements are lower than the smaller size fractions. EC encourages Newmont to quickly resolve the particulate monitoring inconsistencies so that valid data can be collected.

If there are any changes in the project EC should be notified as further review may be necessary. Please do not hesitate to contact the undersigned with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at Paula.C.Smith@ec.gc.ca

Yours truly,

Paula C. Smith
Environmental Assessment Coordinator

cc: Carey Ogilvie (Head, Environmental Assessment-North, EPO, EC, Yellowknife, NT)
Dave Fox (Air Issues Specialist, EPO, EC, Yellowknife, NT)
Anne Wilson (Water Pollution Specialist, EPO, EC, Yellowknife, NT)
Allison Dunn (Sr. Environmental Assessment Coordinator, EPO, EC, Iqaluit, NU)

Hope Bay Mining Ltd.
Suite 300
889 Harbourside Drive
North Vancouver, BC
V7P 3S1
T 604.985.2572
F 604.980.0731
www.newmont.com

05 April 2011

Li Wan
Technical Advisor
Monitoring Officer for the Doris North Gold Mine Project
Nunavut Impact Review Board
(867) 983-4606

RE: Hope Bay Mining Ltd. (HBML) Doris North 2010 Q1 & Q2 Air Quality Compliance Report

Dear Li Wan,

This letter is in response to the Nunavut Impact Review Board (NIRB) letter of December 2, 2010. The NIRB completed a preliminary review of HBML's Q1 and Q2 2010 Air Quality Compliance Report in December 2010 and provided comments regarding items which required attention and/or further clarification in future reports by HBML. The comments have been reviewed and incorporated into the Q3 and Q4 2010 Air Quality Compliance Report. Responses to the individual items listed in the NIRB letter are provided below for completeness:

1. *The measured concentrations of Total Suspended Particulates (TSP) are lower than that of combined concentrations of $PM_{2.5}$ and PM_{10}, and it is noted that a leak test and flow audit was being performed to identify the causes. The NIRB requests that the audit results and associated measures for improvement be included in the forthcoming Q3 and Q4 air quality report.*

During the Q3 and Q4 period of 2010 TSP concentrations measured at the Project site continued to be lower than PM_{10} and $PM_{2.5}$ concentrations for many sample periods. This has been an ongoing problem since the equipment was installed in the summer 2009. PM_{10} and $PM_{2.5}$ are subsets of TSP; therefore, the TSP concentration should be equal or higher than PM_{10} concentration. This suggested than there may be a malfunction with the sampling equipment. A leak test and a flow audit were performed during the periodical site visit in fall 2010, but this indicated that the equipment passed the various tests and was performing to manufacturers guidelines. This issue is under further investigation. A more extensive maintenance visit is planned for summer 2011. This is the earliest opportunity that the maintenance works can be undertaken as sufficient ambient temperatures are required for the planned maintenance and testing. This maintenance visit will include replacement of the sampler inlets, replacement of rubber seals, replacement of storage magazines and further leak tests and flow audits. In addition, options for relocating the sampling equipment to a more accessible location closer to the Doris North camp will be investigated to allow more frequent checks of the equipment to be undertaken.

2. *Dust fall and ambient air quality monitoring were performed within the Hope Bay Belt, including at Doris North, over the first six months of 2010. While the NIRB expects that the monitoring of sites outside of Doris North will provide useful baseline data in support of potential future development along the Hope Bay Belt, the Board recommends that reporting for the purpose of compliance with the Doris North Project Certificate be limited to results in the scope of the Doris North Project.*

The Q3 and Q4 2010 Air Quality Compliance Report for the Doris North Gold Mine Project only includes results from monitoring stations that are relevant to Doris North, as shown in Figure 2.1-1 of the Q3 and Q4, 2010 Air Quality Compliance Report for the Doris North Gold Mine Project. Future compliance reporting will only be for monitoring stations relevant to Doris North.

3. *Ambient air quality, in terms of average concentrations of SO_2, NO_2 and O_3, was monitored by using a Passive Sampling method at the Doris North and Boston sites on a monthly basis. The monitoring results (monthly average) could not be compared with, nor evaluated directly by, the associated thresholds included in the referenced guidelines. The NIRB expects HBML to incorporate the respective data collected from Q1 and Q2 into the report for Q3 and Q4, making a direct comparison of this data against the annual criteria in the adopted guidelines and the predicted values contained in the FEIS for the Project (Doris Project Air Quality Assessment Methods, September 2005). Any inconsistencies between assessment, predictions and monitoring methods and reporting should also be addressed.*

The Q3 and Q4 2010 Air Quality Compliance Report for the Doris North Gold Mine Project presents the monitoring results for the period July to December of the relevant year, as well as reproducing the results for the Q1 and Q2 period. Statistics for the full 2010 calendar year are calculated and presented in the report (see section 2.1.3 for TSP, PM_{10} and $PM_{2.5}$, section 2.2.3 for dustfall and section 3.3 for SO_2, NO_2 and O_3). These statistics are directly compared to the relevant annual criteria in the adopted guidelines and also the predicted values contained in the Environmental Impact Statement for the Project.

4. *It is indicated in the report that the results from Q3 and Q4 would be included in the 2010 annual report. The NIRB reminds HBML that the Doris North Project Certificate requires the results of air quality monitoring to be reported every 6 months. The inclusion of a summary of air quality as part of HBML's Annual Report, as indicated in Appendix D of the Project Certificate does not exempt HBML from the requirement to report full air quality monitoring results on a semi-annual basis.*

Air Quality Compliance Reports for the Doris North Gold Mine Project will be completed every six months. The Q1 and Q2 Report will present results for the period January to June of the relevant year. The Q3 and Q4 Report will present monitoring results for the period July to December of the relevant year. In addition results for the Q1 and Q2 period will be reproduced and statistics for the full calendar year will be reported. A summary of the full calendar year results will be included in HBML's Annual Report.

5. *A comparative analysis should have been included within the report in order to assess the accuracy of the air quality predictions contained in the FEIS. HBML should include a comparative analysis of this information in its next report as well as further information regarding the data averaging period and reference criteria between impact assessments, predicted values in the FEIS and current monitoring results.*

The Q3 and Q4 2010 Air Quality Compliance Report for the Doris North Gold Mine Project presents monitoring data statistics comparable to the relevant criteria in the adopted guidelines and the predictions contained in the Environmental Impact Statement for the Project. A discussion of the comparison for each of the monitored parameters is also included in the report (see section 2.1.3 for TSP, PM_{10} and $PM_{2.5}$, section 2.2.3 for dustfall and section 3.3 for SO_2, NO_2 and O_3 and section 4.0 for an overall summary of all monitored parameters). All future compliance reports will make comparisons to relevant criteria and predictions made in the Environmental Impact Statement for the Project.

As required by the Project Certificate for the Doris North Gold Mine Project (NIRB No. 003, issued September 15, 2006) NIRB distributed HBML's Q1 and Q2 2010 Air Quality Compliance Report to other interested parties with jurisdictional authority and/or expertise with air quality for review and comment. HBML has not been formally notified by NIRB of any comments received from other interested parties, but has reviewed the comments received from Kitikmeot Inuit Association (letter of December 16, 2010) and Environment Canada (EC) (letter of December 17, 2010) on NIRB's ftp site at: ftp://ftp.nirb.ca/03-MONITORING/05MN047-DORIS%20NORTH%20GOLD%20MINE/02-MONITORING%20AND%20MANAGEMENT%20PLANS/AIR%20QUALITY%20PLAN/04-SEMI%20ANNUL%20REPORT/2010/02-COMMENTS/.

Kitikmeot Inuit Association supports the items listed in NIRB's letter of December 2, 2010, but makes no additional comments. Environment Canada provides three additional comments/recommendations for consideration. HBML has prepared the following responses to the Environment Canada comments/recommendations:

- ***Emissions****: Annual air emissions of criteria air contaminants and greenhouse gases, and fuel consumption should be tracked by source in the air quality report.*

It is HBML understands that the Project Certificate for the Doris North Gold Mine Project does not require the inclusion of annual air emission and fuel consumption data in the half yearly Air Quality Compliance Reports. HBML requests clarification from NIRB regarding the need to report annual air emissions and fuel consumption.

- ***Location of Partisol monitors****: The Partisol monitors are located on top of a steep cliff north of the main Doris North facility. The cliff would have a tendency to deflect any air flows from the mine away from the monitoring station. The wind roses are provided in the Air Quality Assessments Methods, indicate that the predominant winds are from the northwest and southeast with little wind flowing north to where the Partisol monitors are located. Considering the wind roses and the elevation of the monitoring station, it would appear an unlikely location to capture air quality impacts of particulate emissions from the mine. The rationale for locating the Partisol monitors should be reviewed.*

The monitoring station locations and objectives for the monitoring program were reviewed with Mr. Dave Fox (Air Issues Specialist, EPO, Environment Canada, Yellowknife, NT) in 2009 prior to installation of the monitoring equipment. The site for the Partisol monitors was selected based on the following:

- A stable 120 VAC power source was available (the on-site communications system is located on the butte which includes a power supply);
- The sampler was not in an area of future infrastructure development;
- The sampler inlet could be mounted at height of 2 to 15 m above ground level;
- The sampler would be free from wind interference; and
- The sampler would be away from structures, vegetation and topographic features, that may create a local microclimate.

HBML is currently assessing options for relocating the Partisol monitors to allow easier access to the equipment and to provide for representative measurements of particulate matter concentrations as the construction of the Doris North Gold Mine Project progresses.

- ***TSP****: The report indicates that inconsistencies in particulate measurements are being investigated. Although PM_{10} and $PM_{2.5}$ are subsets of TSP, the TSP measurements are lower than the smaller size fractions. EC encourages Newmont to quickly resolve the particulate monitoring for inconsistencies so that valid data can be collected.*

HBML has recognized this as an ongoing problem since the Partisol monitors were installed in summer 2009. A leak test and a flow audit were performed during the periodical site visit in fall 2010, but this indicated that the equipment passed the various tests and was performing to manufacturers guidelines. HMBL is planning a more extensive maintenance visit for summer 2011. This is the earliest opportunity that the maintenance works can be undertaken as sufficient ambient temperatures are required for the planned maintenance and testing. This maintenance visit will include replacement of the sampler inlets, replacement of rubber seals, replacement of storage magazines and further leak tests and flow audits. In addition, HBML is investigating options for relocating the sampling equipment to a more accessible location to allow more frequent checks of the equipment to be undertaken.

Should you have any questions or concerns regarding this letter, please contact me at Chris.Hanks@Newmont.ca.

Yours Sincerely,

Chris Hanks

Digitally signed by Chris Hanks
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