Copper Fox Metals Inc.

SCHAFT CREEK PROJECT: 2008 AND 2009 METEOROLOGY AND AIR QUALITY BASELINE

Rescan™ Tahltan Environmental Consultants
Sixth Floor - 1111 West Hastings Street
Vancouver, BC Canada V6E 2J3
Tel: (604) 689-9460 Fax: (604) 687-4277

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SCHAFT CREEK PROJECT

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Prepared for:

Copper Fox Metals Inc.

Prepared by:

Rescan™ Tahltan Environmental Consultants

Executive Summary

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The Schaft Creek Project is a proposed copper, gold, molybdenum and silver project in northwest British Columbia. The Environmental Assessment Office of BC has confirmed that the Project requires an environmental assessment be conducted before the Project can advance into the permitting process. As part of the environmental assessment a meteorological and air quality baseline program is needed. A meteorological data collection programme was initiated in 2005 and is currently on going. This report presents meteorological and air quality data from 2008 and 2009.

Automated meteorological stations equipped with sensors for temperature, relative humidity, precipitation, solar radiation, snow depth, wind speed and wind direction were installed at three sites within the Schaft Creek Project area. Snow-water-equivalent (SWE) was measured at two snow survey locations on site. Eight dustfall monitoring locations were used to evaluate the baseline air quality.

Data collection is on-going at Schaft Creek Saddle, Mount LaCasse and Schaft Creek Camp RainWise automated meteorological stations. Schaft Creek Saddle meteorological station was installed in October 2005; the Mount LaCasse and Schaft Creek Camp meteorological station were installed in August 2006. This report covers data up to October 1, 2009. The Camp station is manufactured by RainWise Inc. while the other two are manufactured by Campbell Scientific Canada Corp. Snow surveys were conducted during February, April, and May 2008 at the Skeeter Lake Valley location and northeast of the exploration camp.

The average annual air temperature at the Saddle station (elevation 977 masl) was 0.5°C in 2008, with monthly average air temperatures ranging from -13.3°C in December 2008 to 11.1°C in August 2008. The hourly minimum temperature recorded in 2008 was -32.4°C (January). The average annual air temperature at the LaCasse station (elevation 1,440 masl) was -1.9°C in 2008, with monthly average air temperatures ranging from -13.4°C in December 2008 to 8.3°C in August 2008. The hourly minimum temperature recorded in 2008 was -34.1°C (February). The Schaft Creek Camp station did not report a continuous data set and is therefore not discussed in terms of average temperatures. A complete data set for 2009 was not available at the time of reporting.

Precipitation recorded at all three meteorological stations during 2008 and 2009 was not reliable due to the lack of maintenance and sensor malfunction. The variations in the seasonal trends of the regional stations within a 100 km radius of the Project indicate that local climatic conditions within the area are not homogeneous and are influenced by both large-scale regional factors such as mountain ranges and the Pacific Ocean, as well as smaller-scale factors such as local topography. A ClimateBC annual precipitation estimate of 1,047 mm was estimated for the Schaft Creek Camp station location.

At the Mount LaCasse station the annual average wind speed was 4.9 m/s during 2008, the monthly average wind speed ranged from 4.1 (August) to 5.8 m/s (October), and the maximum instantaneous wind speed was 22.7 m/s during 2008 (October 2, 2008 at 12:15 AM) and 26.3 m/s during 2009 (January 29, 2009 at 11:22 PM). In general, wind speeds measured at the LaCasse station were higher than at the Saddle station likely due to the exposed location and higher elevation (1,440 masl). The LaCasse station recorded calm wind conditions only 5% and 6% of the time in 2008 and 2009, respectively as compared to the Saddle station which recorded a much higher frequency of calms (i.e., 20% and 45%) for 2008 and

2009. At Mount LaCasse the dominant wind directions were from the south and southeast which combined occurred 64% and 55% of the time during 2008 and 2009, respectively.

The average annual solar radiation measured at Schaft Creek Saddle meteorological station in 2008 was 114 W/m^2 with monthly averages ranging from 11 (December) to 249 W/m^2 (June). The maximum hourly average solar radiation value recorded at the Saddle station during 2008 was 945 W/m^2 on June 9, 2008 at 1400 hours.

The peak snow depth at Saddle station was about 1.5 m in March of 2008 and 2.5 m in March of 2009. The ultrasonic snow depth sensor at LaCasse station malfunctioned during June 2008. Regional Environment Canada snow pillow data from 3 stations close to the Project (Kinaskan Lake, Tumeka Creek, and Wade Lake) also showed significantly higher snow-water-equivalents (SWE) in 2009 with comparison to 2008. Historical regional data show that in general, snow tends to accumulate from January to April or May and then begins to melt. At Wade Lake (4D14P) average SWE peaked at 358 mm in May while SWE at Kinaskan Lake (4D11P) and Tumeka Creek (4D10P) peaked in April at 391 mm and 588 mm, respectively.

Nuisance or fugitive dust from mining and mineral processing operations is potentially an issue for the surrounding environment. In preparation for the future environmental assessment, a baseline air quality monitoring study using dustfall collectors took place in the summer and fall of 2007 and 2008. Eight dustfall stations were established during June 2007. Samples were analyzed at a laboratory in Vancouver for total dustfall, sulphate, nitrate and total metals. All of the total dustfall results were below BC Pollution Control Objectives (1979). Sulphate and nitrate contributions towards potential acid deposition were found to be below critical load estimates for similar regions in Canada when calculated using maximum sulphate and nitrate depositions recorded during the period. Metal content in the dustfall were analyzed but were not interpreted as the majority of the values were below the detection limits. Based on these findings, the air quality at the Schaft Creek Project can be summarized as good since all measured parameters were below the applicable project objectives and guidelines.

Acknowledgements

Acknowledgements

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2008 and 2009 Meteorology and Air Quality Baseline

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1. Introduction

1. Introduction

Copper Fox Metals Inc. (Copper Fox)'s Schaft Creek Project is currently in the pre-Application phase of the British Columbia environmental assessment process. Baseline meteorology and air quality studies were undertaken by Copper Fox in preparation of an Environmental Assessment Application under the *B.C. Environmental Assessment Act*.

The meteorological baseline program for the Schaft Creek Project began in October 2005 with the installation and commissioning of an automated meteorology station at the Saddle area east of the Schaft Creek exploration camp and west of Mess Creek. Additional automated meteorology stations were installed in 2006 in the Project area. The automated meteorological measurements were augmented by manual snow surveys at selected locations. Below is a description of the methods that were used for the meteorological baseline program along with results from the 2008 and 2009 field studies. Data collected prior to 2008 was reported in the *Schaft Creek Project: 2007 Meteorology Baseline Report* (RTEC 2008) and the *Schaft Creek Project 2006 Meteorology Report* (RTEC 2007).

A baseline air quality monitoring study using dustfall collectors took place in the summer and fall of 2007 and 2008. This report presents a description of the methods that were used for the meteorology and air quality baseline program along with results from the 2008 and 2009 field studies.

1.1 PROJECT SUMMARY

Copper Fox is a Canadian mineral exploration and development company focused on developing the Schaft Creek deposit located in northwestern British Columbia, approximately 60 km south of the village of Telegraph Creek (Figure 1.1-1). The Schaft Creek deposit was discovered in 1957 and has since been investigated by prospecting, geological mapping, geophysical surveys as well as diamond and percussion drilling. The deposit is situated within the upper source regions of Schaft Creek, which drains northerly into Mess Creek and onwards into the Stikine River. The Stikine River is an international river that crosses the US/Canadian border near Wrangell, Alaska. The Schaft Creek deposit is a polymetallic (copper-gold-silver-molybdenum) deposit located in the Liard District of northwestern British Columbia (Latitude 57°22′42″; Longitude 130°58′48.9″). The property is comprised of 40 mineral claims covering an area totalling approximately 20,932 ha within the Cassiar Iskut-Stikine Land and Resource Management Plan (Figure 1.1-2).

The Schaft Creek Project is located within the traditional territory of the Tahltan Nation. Copper Fox has been in discussions with the Tahltan Central Council (TCC) and the Tahltan Heritage Resources Environmental Assessment Team (THREAT) since initiating exploration activities in 2005. Copper Fox will continue to work together with the Tahltan Nation as work on the Schaft Creek Project continues.

The Schaft Creek Project entered the British Columbia Environmental Assessment (EA) process in August 2006. Although a formal federal decision has not yet been made, the Project will likely require federal approval as per the *Canadian Environmental Assessment Act*. Copper Fox has targeted the third quarter of 2010 for submission of their Schaft Creek EA Application.

The current mine plan would see ore mined from an open pit at a rate of 100,000 tonnes per day. The mine plan includes 812 million tonnes of Measured and Indicated Mineable resources providing for an estimated 23-year mine life. The Project is estimated to generate up to 2,100 jobs during the construction phase and approximately 700 permanent jobs during mine operations.

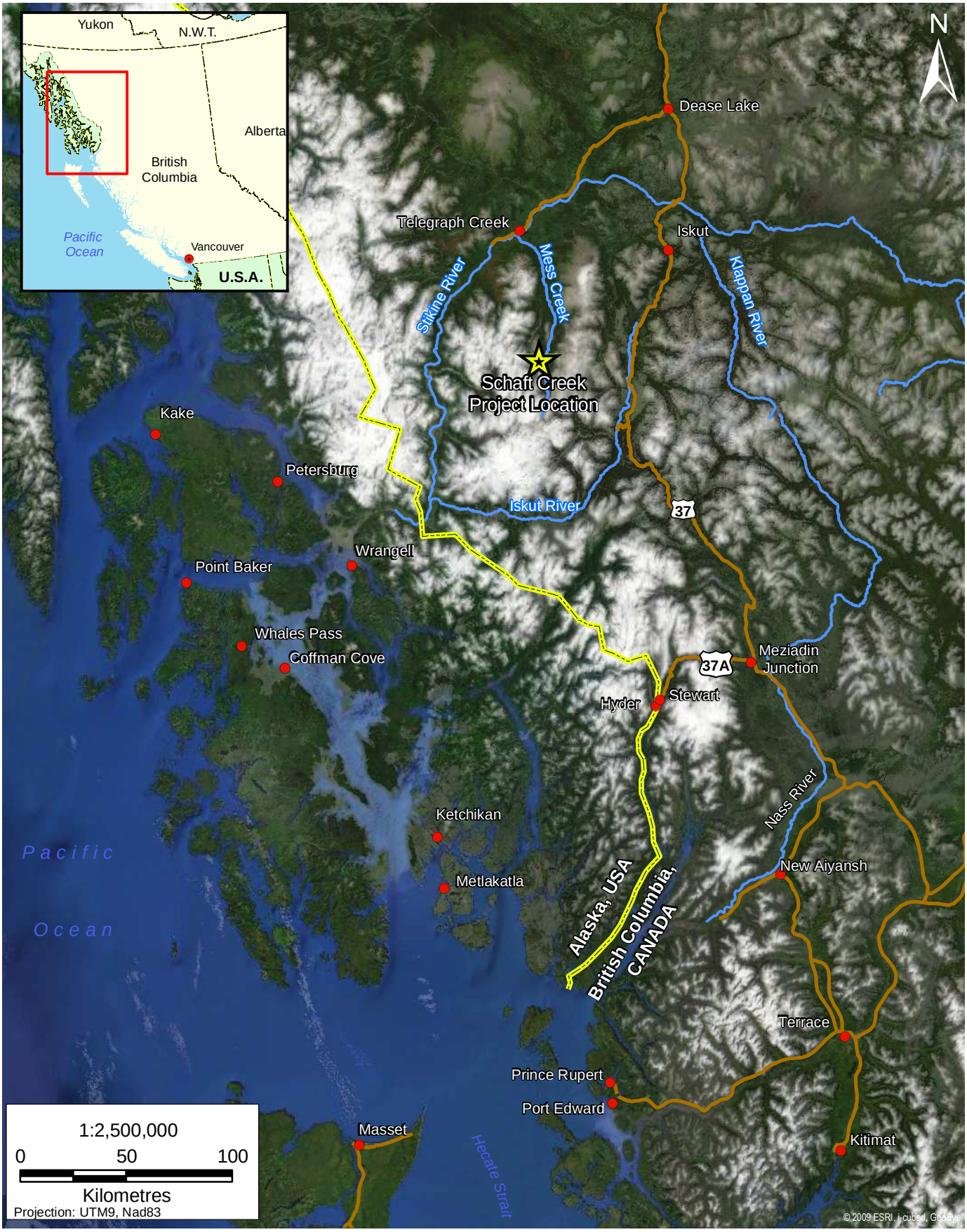
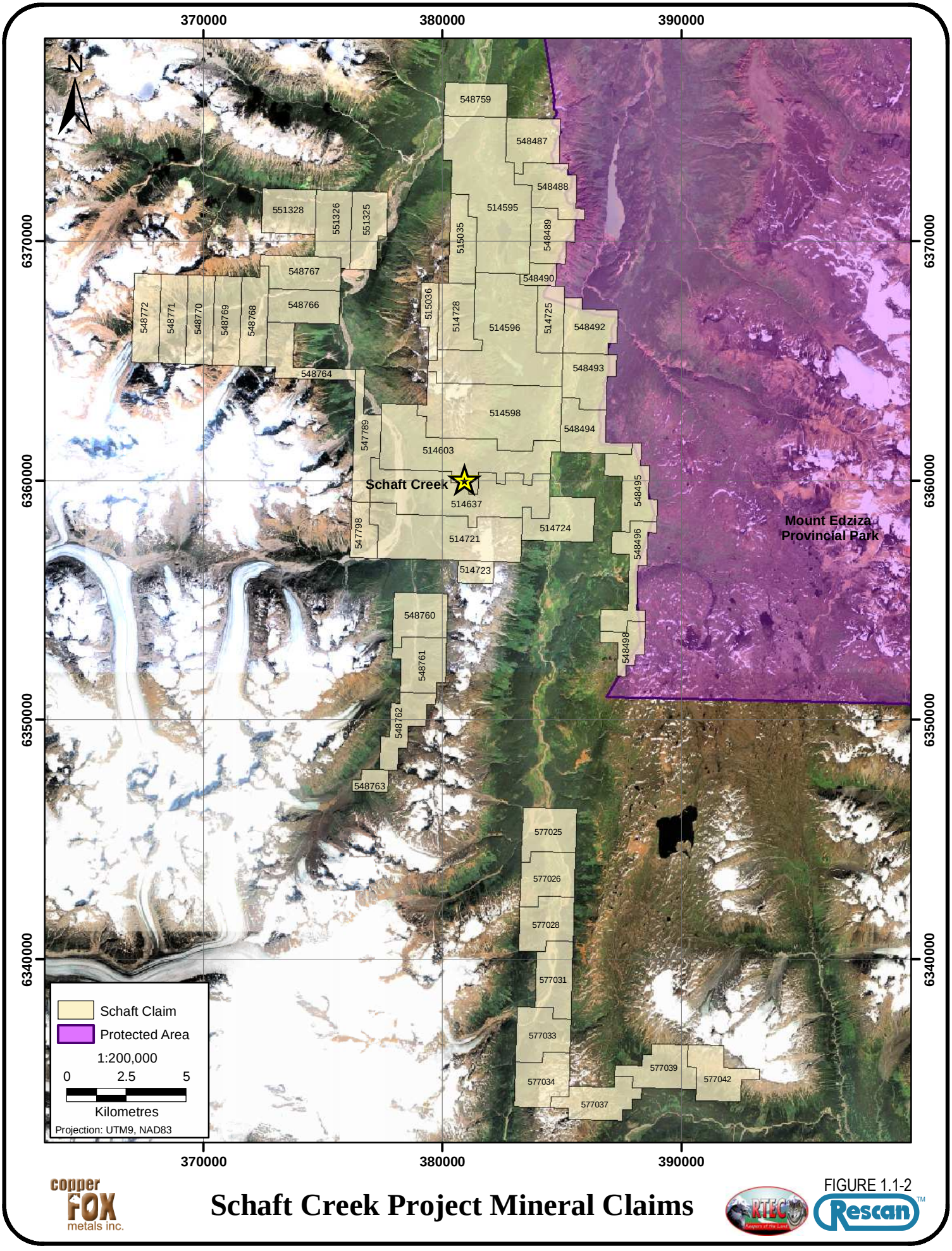


FIGURE 1.1-1

Location Map for Schaft Creek Project



Schaft Creek Project Mineral Claims

FIGURE 1.1-2

The deposit will be mined with large truck/shovel operations and typical drill and blast techniques. The ore will be crushed, milled, and filtered on site to produce separate copper and molybdenum concentrates. The Process Plant will include a typical comminution circuit (Semi-Autogenous Mill, Ball Mill, and Pebble Crusher) followed by a flotation circuit and a copper circuit with thickener, filtration and concentrate loadout and transportation. The Process Plant includes a designated molybdenum circuit with thickener, filtration, drying and bagging. A tailings thickener and water reclaim system will be used to recycle process water. The circuit will have a design capacity of 108,700 tonnes per day and a nominal capacity of 100,000 tonnes per day (36,000,000 tonnes per year). Approximately 293,000 tonnes of concentrates will be produced each year, which will be transported via truck to the port of Stewart, BC, for onward shipping to markets.

Copper Fox will construct an access road to the mine site (Schaft Creek Access Road; Schaft Road) to the 65.1 km point of the Galore Creek Access Road (Galore Road). The Schaft Road will cover a distance of 39.5 km from the Galore Road to the Schaft mine site (Figure 1.1-3). Both the Galore and Schaft roads will be gravel roads with a six-metre wide driving surface. Pullouts and radio controls will be used to manage two-way traffic on the road. The Schaft Road will be a private road used to service the Schaft Creek mine.

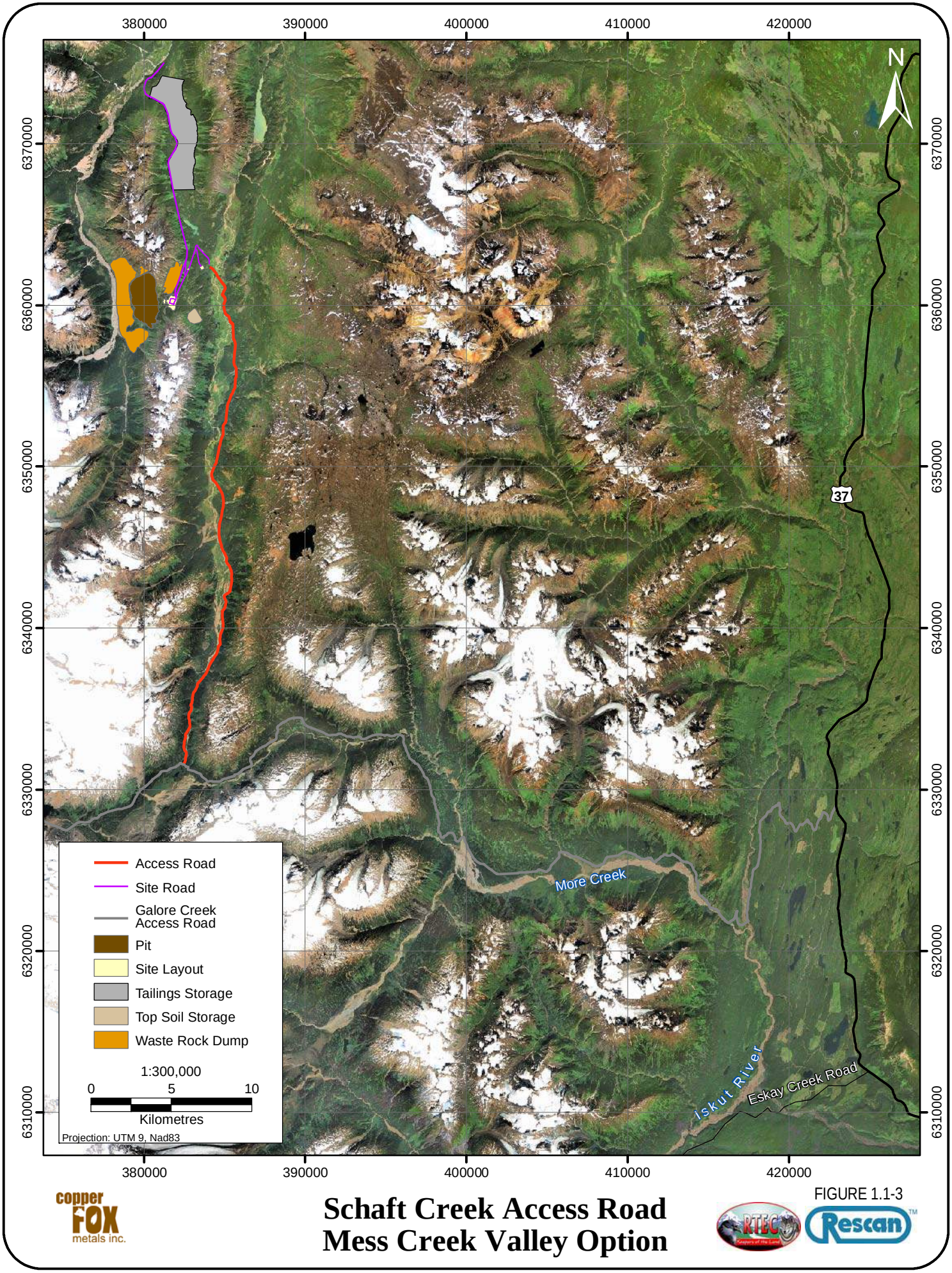
The Galore Road is a fully permitted multi-use road: British Columbia Ministry of Forests and Range Special Use Permit (S24637). Galore Creek Mining Corporation is constructing the Galore Road. Currently, Galore Creek Mining is only planning to construct the Galore Road to 40 km while they review the current Galore Creek Project for which the road was to service. Copper Fox will engage Galore Creek Mining with respect to the completion of the Galore Road, and if necessary, arrange to transfer the permit to Copper Fox as the Schaft Creek Project advances.

The Galore Road connects to Highway 37 near Bob Quinn Lake. The total road distance from the Schaft mine site to Highway 37 is 105 km. The majority of the 39.5 km Schaft Road is within the Mess Creek Watershed. In order to avoid geohazards along the Mess Creek valley, the Schaft Road will cross Mess Creek twice (Figure 1.1-3). Mess Creek is considered navigable per Transportation Canada criteria.

After crossing Mess Creek at the north end of the Schaft Road (32.5 km), the route rises up the side of Mount LaCasse crossing Shift Creek (10 m bridge) and Big B Creek (10 m bridge). The route terminates at Snipe Lake (39.5 km). Conventional 30-tonne trucks will be used to transport concentrate from the mine site to the Bob Quinn area along the Schaft and Galore roads. From Bob Quinn to Stewart, convention B-train commercial truck haulage can then be used along Highway 37 and 37A. There will be 30 concentrate trucks along this route over a 24-hour period, seven days per week.

Electrical power to the mine site will be provided via a 138 kV transmission line, extending from Bob Quinn Lake to the Project along the proposed corridor for the Galore and Schaft roads. The proposed transmission line assumes that electrical power will be supplied from British Columba Transmission Corporation's (BCTC) proposed new 287 kV Northwest Transmission Line from a point near Bob Quinn Lake.

The Schaft Pit will encompass an area of 4.9 km^2 at the end of the mine life (Figure 1.1-4). The Pit will extend 330 m below the current elevation (520 masl). An ore stockpile and crusher will be located between the Pit and Schaft Creek. Crushed ore will be conveyed to the Plant site on the saddle just east of the Pit. Tailings from the Process Plant will be piped to the Skeeter Tailings Storage Facility (TSF) as slurry (55% solids).



Schaft Creek Access Road
Mess Creek Valley Option

FIGURE 1.1-3

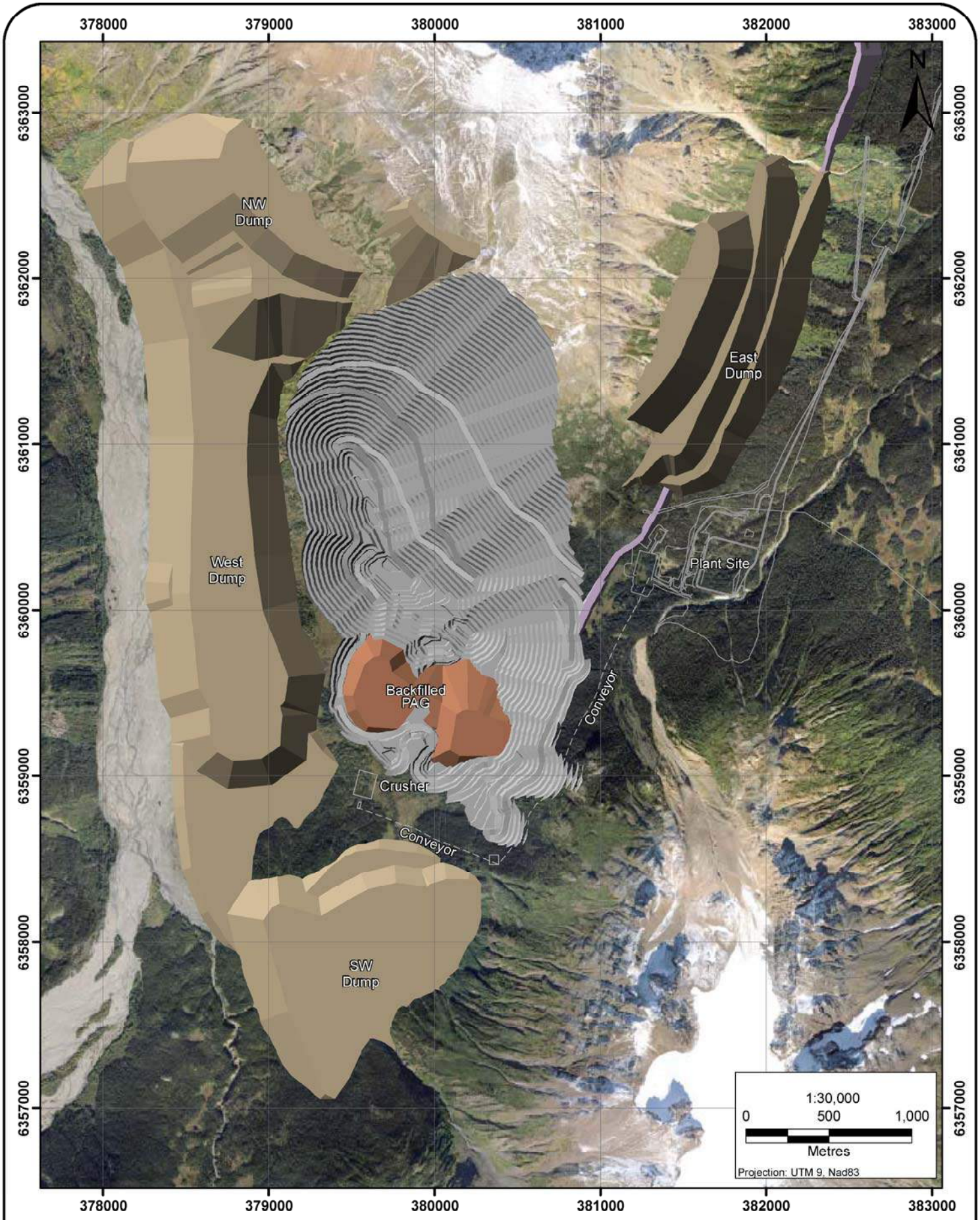


FIGURE 1.1-4

Schaft Creek Project Mine Site

Over the life of the mine, the Project will generate over 812 million tonnes of tailings, which will be managed in the Skeeter TSF. The TSF will not span the low relief watershed divide between Skeeter and Start watersheds. The Skeeter TSF will require three embankments to contain the tailings generated over the life of the mine (Figure 1.1-5). Based on average climatic conditions, the TSF will have a positive water balance. Discharge from the TSF will be to Skeeter Creek.

The Project will generate an estimated 1,547 million tonnes of waste rock. Waste rock dumps are proposed around the perimeter of the Schaft Pit, with the majority of the material being placed on the east side of Schaft Creek (Figure 1.1-4). The current plan assumes the waste rock will be non-acid generating and will not leach metals at or near neutral pH. The plan is subject to change as work progresses on the metal leaching and acid rock drainage program.

The Project will be a fly-in, fly-out operation, and a new airfield capable of handling a Boeing 737 will be constructed to the east of the Pit (Figure 1.1-3). The preliminary design includes a 1,600 m compacted gravel landing strip, terminal building, fuelling facilities, small maintenance facility and control and lighting systems.

A permanent camp will be constructed to support approximately 700 employees. Other facilities include a truck shop, warehouse, administration, maintenance laboratory, explosive storage, water treatment facilities, and potable water storage.

1.2 OBJECTIVES

The objective of the meteorological and air quality baseline study was to characterize the meteorological and air quality conditions at the Schaft Creek Project area prior to potential site development. Specific objectives include:

- Collect on-site meteorological station data to determine the 2008 and 2009:
  - precipitation;
  - temperature;
  - relative humidity;
  - wind speed and direction;
  - solar radiation; and
  - snow depth.
- Characterize snow accumulation using manual snow depth measurements (i.e., snow course surveys.
- Compare site specific data to regional meteorological data to evaluate the representativeness of the on-site data.

The objective of the air quality baseline study was to collect air quality baseline information for the purpose of characterizing the air quality conditions at the Schaft Creek Project area. Specific objectives included:

- Characterize particulate, sulphate, nitrate, and metals concentrations.
- Compare site specific data to applicable provincial guidelines and objectives.

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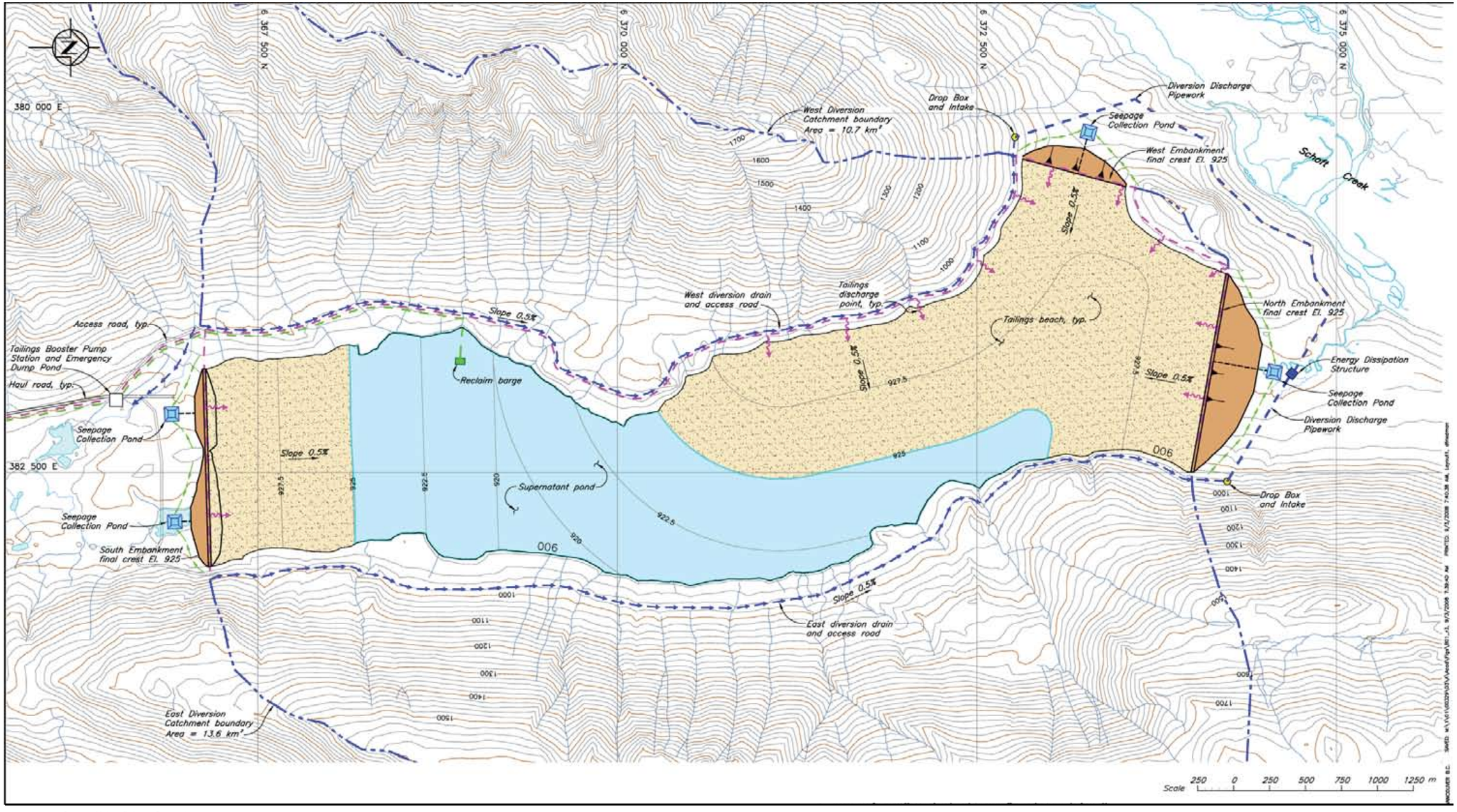


Source: Knight Piésold Consulting

Note: This layout represents the tailings storage facility in the final years of operation prior to closure. Several years before the end of operations and closure, the tailings deposition pattern will be modified to relocate the supernatant pond towards the north of the facility, where a permanent spillway will be constructed in the west abutment of the North Embankment.

FIGURE 1.1-5

Schaft Creek Project - Skeeter Tailings Storage Facility

2. Methods

2. Methods

Meteorological data were collected using a variety of methods including three automated meteorological stations, two manual snow surveys, and manual instruments.

Regional meteorological data was collected from four Environment Canada – Meteorological Services of Canada (MSC) meteorological stations within a 100 km radius of the Project (Environment Canada, 2002): Unuk River Eskay Creek, Bob Quinn, Iskut Ranch and Todagin Ranch. These stations all have over 10 years of climate data. Unfortunately, the latter three were decommissioned in the early 1990's. The station at Unuk River Eskay Creek has data from 1989 and is the only station that is currently operating.

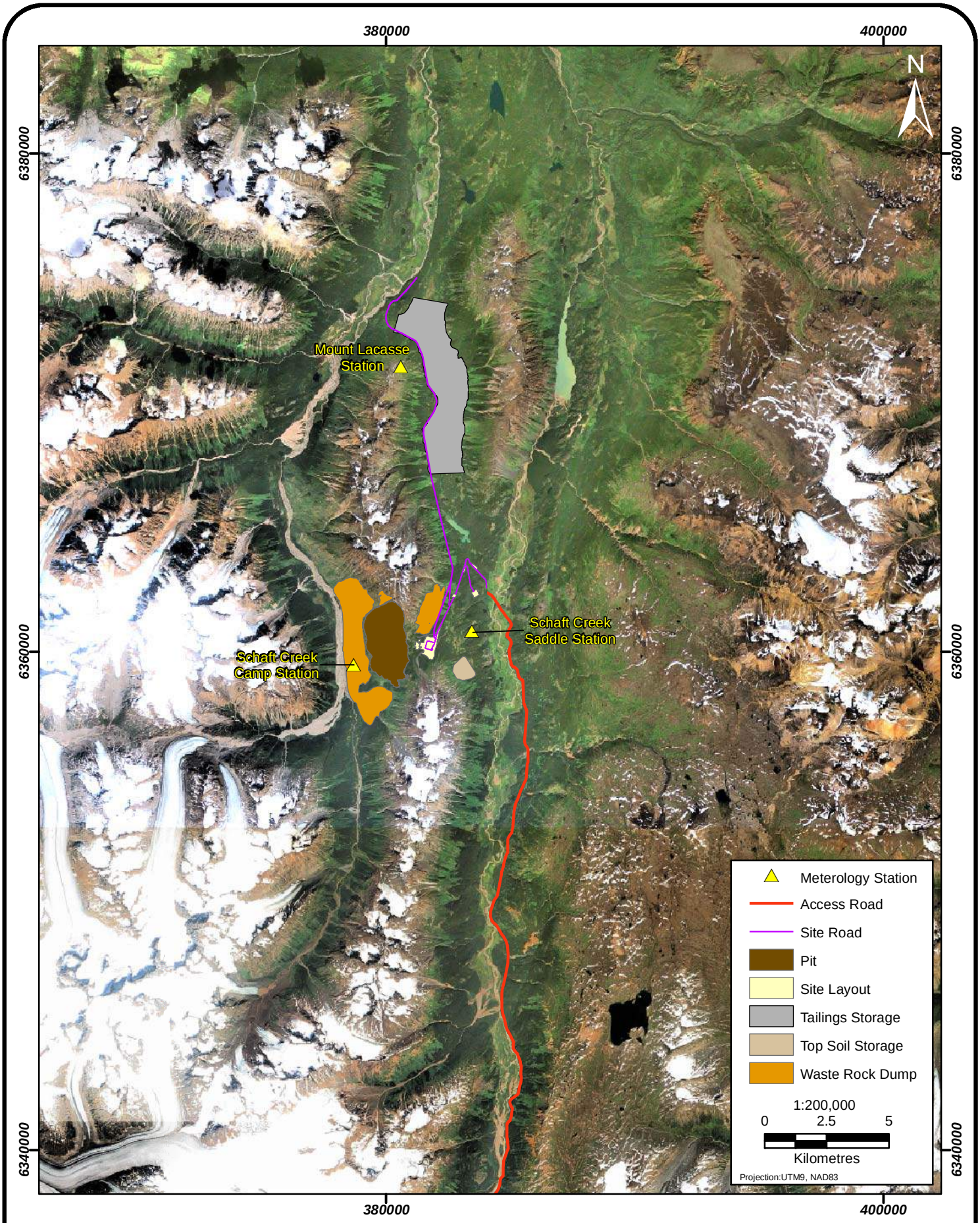
Eight dustfall monitoring stations were installed during June 2007 and maintained during the 2007 and 2008 summer and fall seasons. Particulate, nitrogen, sulphate, and metal deposition results were analyzed at an off-site accredited laboratory.

2.1 ON-SITE METEOROLOGICAL STATIONS

Three automated meteorological stations has been installed and commissioned for the Schaft Creek Project. The station locations are shown graphically in Figure 2.1-1. The location details are summarized below:

- *Schaft Creek Saddle Station:* A meteorological station with various sensors supplied by Campbell Scientific Canada Corp. was installed on October 31, 2005 in the topographical "saddle" between Mount LaCasse and Mess Creek (UTM 09, NAD83, 383441 m Easting, 6360853 m Northing, 977 masl elevation). The location was chosen because it is near the proposed camp, mill facilities and airstrip.
- *Mount LaCasse Station:* A meteorological station with various sensors supplied by Campbell Scientific Canada Corp. was installed on August 10, 2006 near one of the proposed waste rock and tailings management facilities, Option A (UTM 09, NAD83, 380572 m Easting, 6371467 m Northing, 1440 masl elevation).
- *Schaft Creek Camp Station:* A meteorological station manufactu red by RainWise was installed August 7, 2006 near the proposed pit location (UTM 09, NAD83, 378676 m Easting, 6359490 m Northing, 853 masl elevation).

When selecting an appropriate location for each of the meteorological stations the primary concerns were to avoid obstructions that would bias the wind speeds and directions and to avoid shaded areas that would bias solar radiation data (as well as limit full exposure of the solar power panel to the sunlight). The wind sensors were, where possible, located over open and level terrain, at a horizontal distance of at least ten times the height of any nearby building, tree or other obstruction. The wind sensor at the Mount LaCasse and Schaft Creek Camp stations meet these siting objectives. However, the wind sensor at the Saddle station does not because it is situated in a partially open area surrounded by trees that bias the wind data. No ideal locations were available for this station and the overall best available site was chosen.



Automated Meteorological Stations for the Schaft Creek Project

FIGURE 2.1-1

Sensors were protected from thermal radiation, and adequately ventilated. Because these stations are located in remote regions and unattended for long periods of time, consideration was also given to accessibility. The stations are powered with 12 volt rechargeable batteries and solar panels.

In order to ensure that the stations collect representative data the sensors were located according to guidelines set by Environment Canada (i.e., Meteorological Services of Canada (MSC) Guidelines for Co-operative Climatological Autostations, MSC 2004) when applicable. Environment Canada has adopted, and wherever possible, follows standards set by the World Meteorological Organization (WMO). The Environment Canada guidelines were established to promote standardization and describe practices, procedures and specifications for proper siting of instruments, precision and accuracy of measurements and archive formats.

2.1.1 Mount LaCasse and Saddle Meteorology Stations

The Mount LaCasse and Saddle stations were constructed using Campbell Scientific Canada Corp. instruments programmed to scan the sensors every 5 seconds and log the following meteorological data:

- Two minute wind speed, wind direction and standard deviation of wind direction
- Hourly average wind speed, wind direction and standard deviation of wind direction
- Hourly average air temperature
- Hourly average relative humidity
- Total precipitation for the last hour
- Hourly average global solar radiation
- Hourly sample of the snow depth
- Hourly average net radiation

Each day at midnight, the following data were also automatically recorded:

- Daily maximum and minimum air temperature
- Daily maximum wind speed, wind direction at maximum speed and time
- Total daily precipitation
- Diagnostic information

The sensors were mounted on a 10 m high tower that was rock-anchored at its base and strengthened with guy wires (Plate 2.1-1). Ten metre towers are the standard for collection of wind speed and wind direction data when the data will be used for air dispersion modelling. A certified wind sensor was was used to provide the data quality necessary for future air dispersion modelling. Wind speed is measured in metres per second (m/s) and wind direction in degrees from true north by a RM Young Model 05305 Air Quality wind sensor.

The temperature and relative humidity sensors are combined into one unit (Campbell Scientific Model HMP45C212). The combination sensor is mounted on the tower protected from direct radiation by a multi plate solar radiation shield. Air temperature is measured in degrees Celsius and relative humidity in percent. The solar radiation sensor (a silicon pyranometer) and net radiometer are also mounted on the tower. Solar radiation is measured in units of kilowatts per square meter using a Kipp & Zonen SP LITE sensor. Net radiation is measured in units of watts per square meter using a Kipp & Zonen NR LITE sensor.

Plate 2.1-1. Mount LaCasse Meteorology Station.

GEONOR Model T-200B all-season precipitation gauges are being used to measure rain and snow-water-equivalent (SWE) precipitation at each station. The GEONOR precipitation gauges are mounted on a 2.5 m pedestal to ensure the collection orifice is always above snow level. The GEONOR gauges are surrounded by Alter wind screens to increase the capture efficiency (Plate 2.1-1). Snow depths are monitored with a Campbell Scientific Model SR50 ultrasonic sensor that is mounted to the tower with a cross arm. The snow depth sensor was installed at least 0.5 m above the maximum expected snow depth. Tipping bucket rain gauges (Texas Electronics Model TE525M) were installed at the LaCasse and Saddle meteorological stations in 2006.

The sensors for the auto-station are connected to a Campbell Scientific CR10X datalogger that controls the operation of the station. The datalogger's program monitors the sensors every 5 seconds and generates hourly and daily averages. The hourly and daily averages are stored in a SM4M memory module connected to the CR10X datalogger. During routine maintenance the modules are changed out on a regular basis (i.e,. approximately every two months) and brought back to the office for downloading. The stations are powered with a 50 Watt solar panel and a 12 volt 93 Amp-hour deep cycle marine battery, with the entire station grounded to prevent lightning from damaging the electronics.

2.1.2 Camp Meteorology Station

The Schaft Creek Camp station was constructed using RainWise Inc. gauges programmed to provide the following automatically logged meteorological data in ten minute intervals:

- Air temperature
- Relative humidity

- Dew temperature
- Wind speed, wind direction and maximum wind direction
- Solar radiation and daily accumulation of solar energy
- Rainfall and snow depth
- Diagnostic information

The sensors are mounted on the RainWise Monopod Sensor Support System. The support system is anchored to 50 gallon drums at its base and stabilized with guy wires (Plate 2.1-2). Wind speed is measured in kilometres per hour (km/h) and wind direction in degrees from true north by a RainWise AerVane wind sensor.

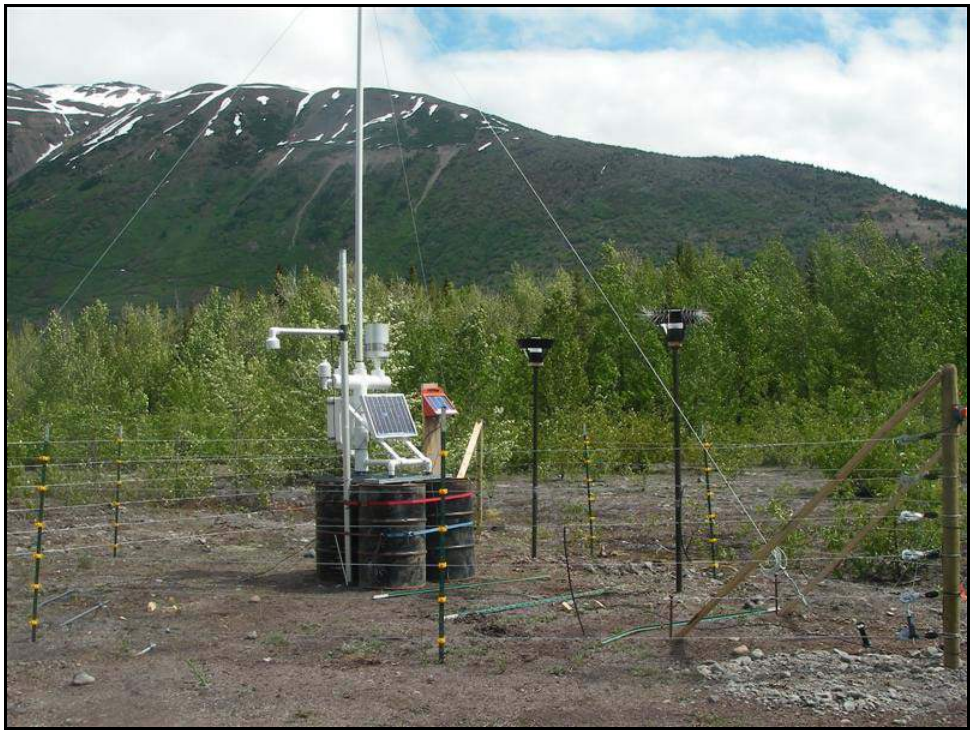


Plate 2.1-2. Schaft Creek Camp Meteorology Station.

The temperature and relative humidity sensors are combined into one unit (RainWise RH/T). The sensor is mounted on the Monopod tower. Air temperature is measured in degrees Celsius and relative humidity in percent. The solar radiation sensor (i.e., silicon pyranometer) is also mounted on the tower. Solar radiation is measured in units of kilowatts per square meter using a RainWise Pyranometer, which features a PIN silicon photo diode.

The RainWise Raingauge is being used to measure rain precipitation at the Schaft Creek Camp station. The precipitation gauge is mounted directly onto the Monopod tower (Plate 2.1-2). Snow depths are monitored with a RainWise ultrasonic sensor that is mounted to the tower. During the winter of 2006 and 2007, the RainWise station lost power repeatedly. It was suspected that the power draw by the ultrasonic snow sensor played a major role in depleting the batteries. Therefore, the snow depth sensor was disconnected in 2007 which relieved the problem and instead, snow depth was measured weekly at the station by Copper Fox staff on site.

The sensors for the auto-station are connected to a RainWise Electronic Datalogger (EDL) that controls the operation of the station. The datalogger is mounted in a weatherproof enclosure. Periodically, a laptop computer is brought to the station and used to download the data directly from the EDL using Weather Log Data Retrieval WL Com version 1.46 software. The RainWise stations are powered by four 6 volt batteries (8 Amp-hour) and a 20 Watt solar panel.

2.1.3 Estimating Annual Precipitation

Mean annual precipitation was estimated in two ways: by applying an orographic enhancement factor to the nearest station with a long-term record and by using ClimateBC PRISM (Parameter-elevation Regression on Independent Slopes Model) data available from Environment Canada.

Normally precipitation is assumed to increase exponentially with change in elevation. This increase is usually given as a percent change in precipitation for a 100 m elevation gain. For northwestern BC the normal rate of increase in precipitation is estimated to be 8% for 100 m increase in elevation. If for a station at elevation h_0 the mean annual precipitation is p_0, the mean annual precipitation (p_1) at a higher elevation (h_1) can be calculated as

$$p_1 = p_0(1+x)^{(h_1-h_0)/100}$$

where x is the precipitation gradient (% change for every 100 m change in elevation).

The ClimateBC PRISM data set incorporates climate data from meteorological stations throughout the Pacific and Yukon region and accounts for effects of elevation (PRISM Group, 2001). ClimateBC, climate data interpolation software, was used to extract monthly estimates of precipitation from the PRISM data set (Wang et al., 2006).

ClimateBC uses bi-linear interpolation of the original 4 x 4 km grid information provided in the PRISM data and then adjusts temperature estimates using a digital elevation model. Precipitation estimates were obtained for the point-location of the Schaft Creek Camp station.

2.1.4 Maintenance Work Conducted in 2008 and 2009

Routine maintenance was conducted on the Schaft Creek LaCasse and Saddle meteorology stations until the beginning of February 2008. The Camp meteorology station was visited routinely throughout the measurement period; however, it malfunctioned several times throughout 2008 and 2009 as a result of manufacturing defects. Although useful data was recorded throughout the two years at all stations, the quality of the data record suffered discontinuities and most sensors did not receive their manufacturer recommended calibration and/or repair.

2.2 SNOW SURVEYS

The baseline meteorology program included manual snow surveys conducted during the winter of 2008. Snow surveys determine the depth and the water content of the snow pack and can be used to estimate the amount of runoff from the mountain watersheds. Two types of traditional manual snow surveys were conducted in the study area: snow probing (to measure snowpack depth) and manual snow course surveys (to measure snowpack depth and snow-water-equivalent). Snow probing was conducted during 2006 and 2007; results and methodologies are presented in *Schaft Creek Project: 2007 Meteorology Baseline Report* (RTEC 2008). Snow probing was not conducted during 2008 or 2009.

Two snow courses were sampled at the beginning of February, April, and May 2008. Snow course SSCW1 is located in the Skeeter Lake Valley at an elevation of 854 masl, and snow course SSCW2 is located north-east of the camp at an elevation of 1436 masl (Figure 2.2-1). The snow courses were installed using procedures in the British Columbia Ministry of Environment Procedure Manual for Snow Surveys (Volume 6, Section 9), December 1982. Standard snow sampling procedures were followed in accordance with the British Columbia Ministry of Environment (Water Management Branch, Surface Water Section) Snow Survey Sampling Guide (document no SS13-81).

The standard snow sampling procedure was implemented at snow courses SSCW1 and SSCW2. Generally, the snow courses consists of 10 snow core samples collected over 300 m situated in small meadows protected from the wind. The snow core sampler consists of a strong, light-weight, graduated aluminum tube and a weighing scale. Snow depth is measured by pushing the tube down through the snowpack to the ground surface and extracting a core. To obtain an accurate snow core sample, the surveyor must verify that the tube has reached ground level by examining the base of the tube and finding mineral soil. After clearing out the soil from the bottom end of the tube, the surveyor determines the amount of water in the snowpack by weighing the tube with its snow core and subtracting the weight of the empty tube. An average of all the ten samples taken is calculated and used to represent the snow course.

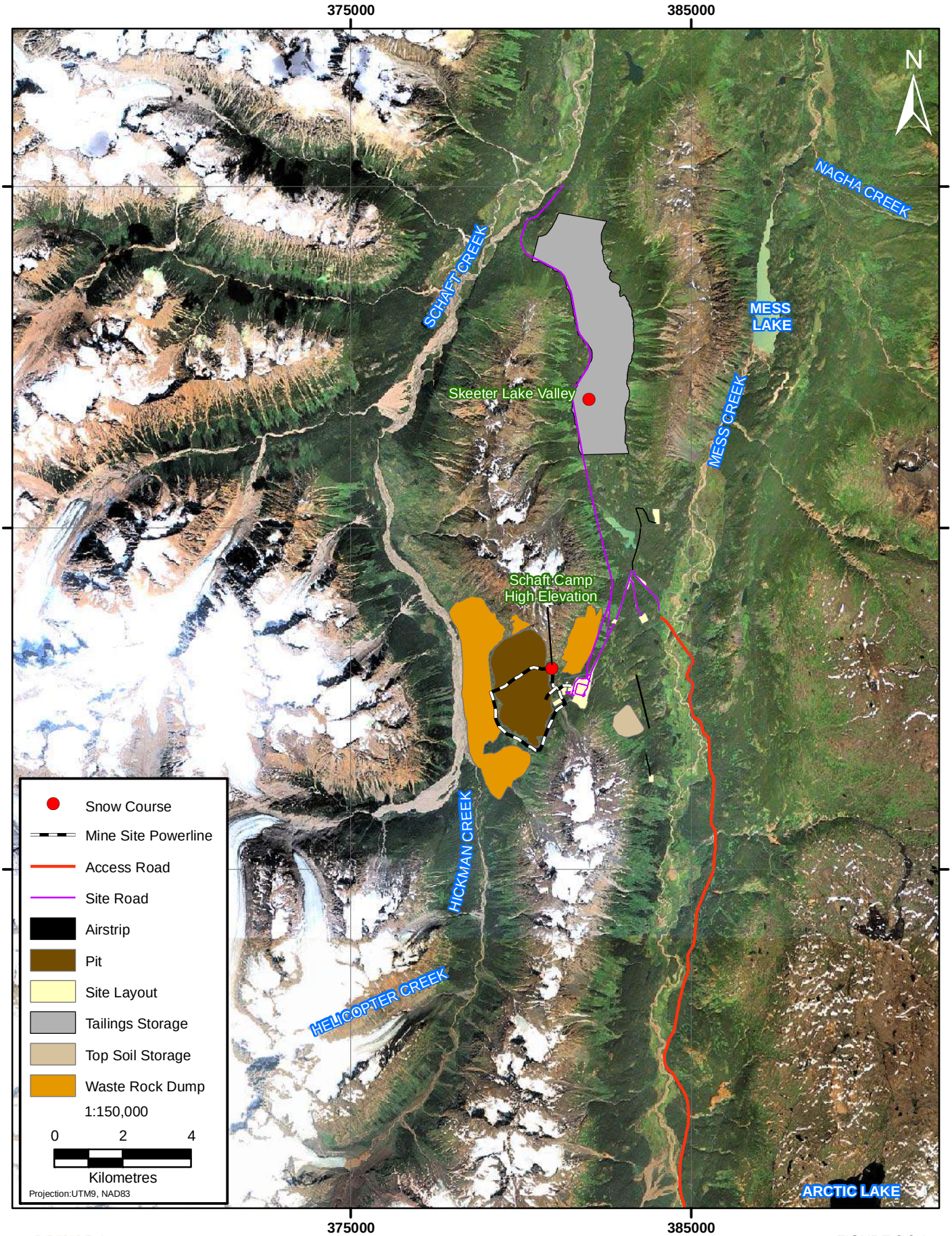
Data collected from the snow courses includes snow depth and snow-water-equivalent (SWE) precipitation based on ten samples from each station. This data can be used for the prediction of runoff data for the design of diversion ditches and impoundment water balances. The snow surveys were conducted at the beginning of the month for February to May. The Project's snow course data were compared with data from regional stations monitored by British Columbia Ministry of Environment (BCMOE) at Kinaskan Lake and Wade Lake in the previous baseline reports (RTEC 2007, 2008). In addition, a historical snow survey in the Schaft Creek Project area (4D07 – Schaft Creek) was monitored by the BCMOE during February 1982 to 1983 and April 1980 to 1990. Based on two years of data the mean snow depth, SWE, and snow density during February were 118 cm, 262 cm, and 22%, respectively. Results indicate that during the 10 years of record the mean snow depth, SWE, and snow density during April were 141 cm, 463 mm, and 32%, respectively. Because these data are limited it is not possible to predict snowpack trends for all winter months. However, these data indicate that snow depth, SWE, and snow density increase from February to April.

2.3 MANUALLY COLLECTED DATA

Measurements of morning (7:30 am) and afternoon (3:30 pm) temperatures and snow depth in Schaft Creek Camp, and snow depth at the Schaft Creek Camp meteorology station were logged daily by Copper Fox staff (Mr. Kenneth Cottrell). Temperatures were measured using a thermometer and snow depth was measured using staff gauges mounted on vertical supports made by two-by-fours. Cloud cover and wind speed were estimated. Measurements were taken from January 1 to 31, 2008 and October 5, 2008 to August 31, 2009. Manually logged data are summarized in Appendix 2.

2.4 HISTORICAL ON-SITE METEOROLOGICAL DATA

As part of the preliminary feasibility studies that were undertaken by Copper Fox Metals, some historical weather data was collected at the Schaft Creek Project site. These records are brief and not continuous, but they do provide valuable on-site meteorological data. Data collected includes: daily maximum and minimum temperatures, precipitation, snow and snow on ground.



Schaft Creek Project
Snow Course Survey Locations

FIGURE 2.2-1

A weather station was established at the Schaft Creek site in the summer of 1969. The weather station equipment was provided by the Victoria Regional Climate Data Centre of the Department of Transport Canada. The historical Schaft Creek weather station was equipped with one Stevenson screen and stand, one rain gauge, one rainfall graduate, two minimum thermometers, two maximum thermometers, and one snow ruler. The period of record encompassed June to September 1969, and March 1970 to February 1972.

2.5 REGIONAL METEOROLOGICAL DATA

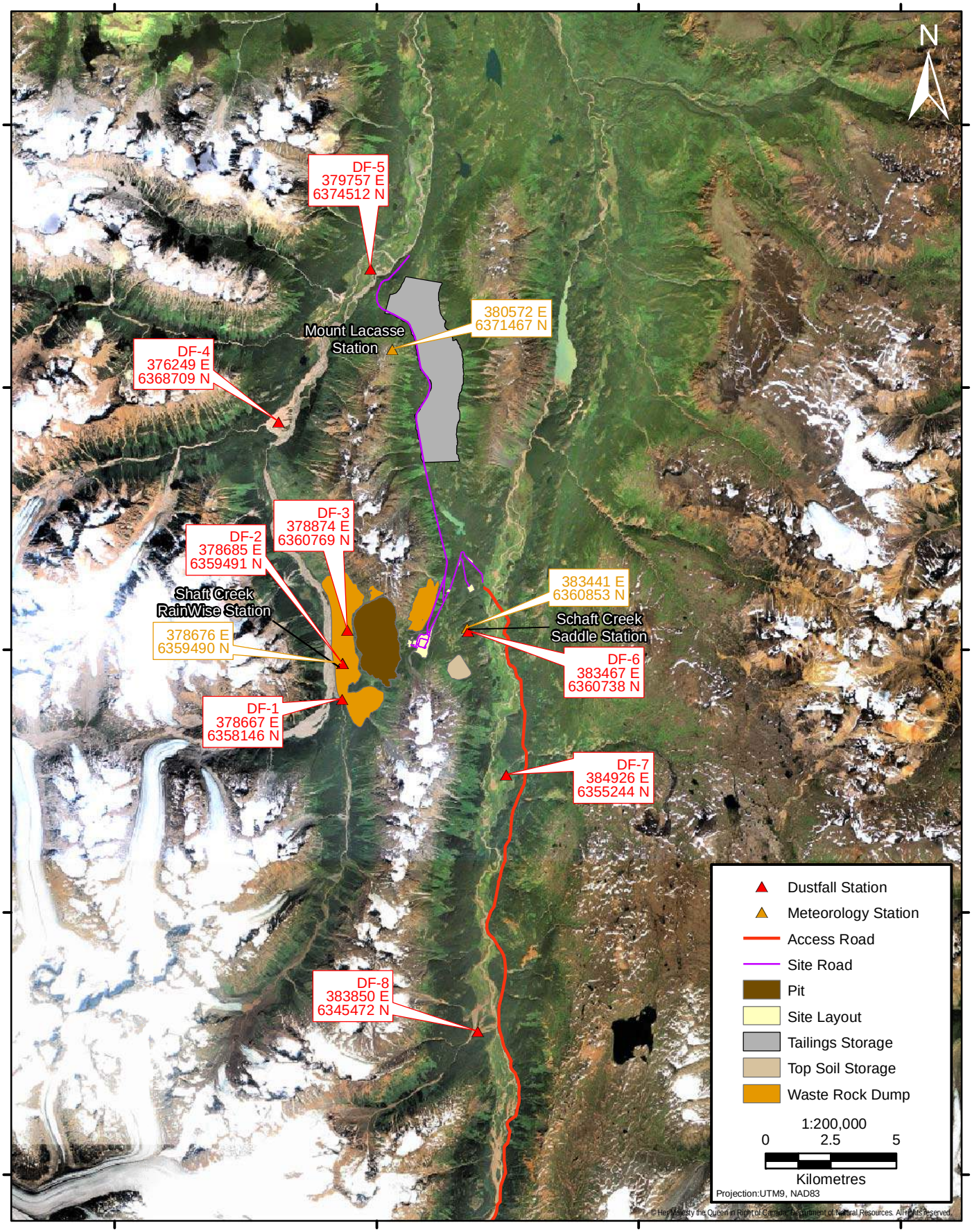
Regional meteorological data from four MSC stations (Environment Canada, 2002; Unuk River Eskay Creek, Bob Quinn, Iskut Ranch and Todagin Ranch) within a 100 km radius was used to further characterize climatic conditions on-site. All of these stations have more than 10 years of data; unfortunately, the latter three were decommissioned in the early 1990's. Bob Quinn has since been re-commissioned; however, data was not available past 1994. Unuk River Eskay Creek is the only regional MSC station that continues to operate.

2.6 DUSTFALL DATA

Eight dustfall monitoring stations were installed during June 2008 at the locations shown in Figure 2.6-1. Each dustfall monitoring station consists of two canisters placed within a black wind screen (Plate 2.6-1) mounted on a 2 m pole. Bird spikes were attached to the top of the wind screen to prevent contamination of the samples from bird feces. The canisters were charged with de-ionized water upon installation to avoid re-suspending dust after it deposits in the collectors. De-ionized water was added as necessary to prevent the canisters from drying out during the monitoring period. The two canisters collect the same data, but were analysed differently in the lab – the first for total particulate, soluble particulate, insoluble particulate, sulphate, and nitrate (anions) and the second for total metals. ALS Environmental Services in Vancouver analysed the dustfall samples.

The canisters were left open to the atmosphere for approximately 30 days (+/- 2 days), before being switched out, and submitted to the lab for analysis. Dustfall was monitored from July to October 2007 and June to November 2008. Each site required a monthly visit to exchange canisters and ensure the site has not been tampered with. The full dustfall methodology is contained in ASTM D 1739 – 98 (Reapproved 2004) Standard Test Method for Collection and Measurement of Dustfall (Settleable Particulate Matter).

Plate 2.6-1. Baseline dustfall monitoring station FD3, including two individual dustfall canisters (white) surrounded by a wind screen (black) and bird spikes (metal). Two containers are needed to collect a sufficient volume of sample for the list of parameters.



copper FOX metals inc.

Dustfall Monitoring Locations in the Schaft Creek Project Area

FIGURE 2.6-1

RTEC Keepers of the Land

Rescan™

3. Results

3. Results

Baseline meteorology data collected in 2008 and 2009 for air temperature, precipitation, wind speed and direction, solar radiation and snow depth measured at the on-site meteorological stations are presented below. Where possible, current baseline data were compared to historical records from the initial baseline work completed between 1969 and 1972. Current data was also compared to regional data from meteorological stations operated by Environment Canada – Meteorological Service of Canada (MSC).

On-site baseline air quality data collected in 2007 and 2008 for particulates, nitrate, sulphate, and metal concentrations are also presented below. Where possible, these baseline air quality data are compared to provincial guidelines and objectives.

3.1 CLIMATIC SETTING

The Schaft Creek Project is located on the eastern edge of the Boundary Ranges in the Coast Mountains. This is a high, rugged mountain range in north central British Columbia with the coastal mountains to the west and sub-boreal interior plateau to the east. The climate of the Project area is characterized by this coast/interior transition. The Coast Mountains with peaks over 3,000 m in elevation lead to lifting of moist air masses moving inland from the Pacific Ocean. Annual precipitation in the Coast Mountains is often above 3,000 mm, while temperatures are mild due to the proximity of the Pacific. The climate of the interior sub-boreal plateau, on the other hand, is continental with annual precipitations between 400 and 800 mm with very warm short summers and long cold winters.

Meteorological data collected at the Schaft Creek Saddle station is summarized in Tablex 3.1-1a (2008) and 3.1-1b (2009). Data from the Mount LaCasse station is summarized in Tables 3.1-2a (2008) and 3.1-2b (2009), and data from the Schaft Creek Camp station is summarized in Tables 3.1-3a (2008) and 3.1-3b (2009). Table 3.1-4 lists the mean monthly data available for the historical meteorological station at the Schaft Creek site. Monthly averages for four MSC stations within 100 km of the Project area are listed in Tables 3.1-5 to 3.1-8.

3.2 AIR TEMPERATURE

At the Saddle meteorological station, the monthly average air temperatures ranged from -13.3°C in December 2008 to 11.1°C in August 2008, and -8.9°C in February 2009 to 15.7°C in July 2009 (Table 3.1-1 and Figure 3.2-1). The extreme minimum temperature was -32.4°C in 2008 and -30.4°C in 2009 (January to September). In both instances, the extreme minimum occurred in January. The extreme maximum temperature was 25.7°C in 2008 and 31.4°C in 2009. In both instances, the extreme minimum occurred in July. The annual average air temperature was 0.5°C in 2008. The annual average air temperature for 2009 was not available because 3 months were missing from the dataset.

At the Mount LaCasse meteorological station, monthly average air temperatures ranged from -13.4°C in December 2008 to 8.3°C in August 2008, and -9.6°C in February 2009 to 12.9°C in July 2009 (Table 3.1-1 and Figure 3.2-1). The extreme minimum temperature was -34.1°C in 2008 and -31.9°C in 2009 (January to September). The extreme minimum occurred in February in 2008 and January in 2009. The extreme maximum temperature was 21.5°C in 2008 and 26.9°C in 2009. In both instances, the extreme minimum occurred in July. The annual average air temperature was -1.9°C in 2008. The annual average temperature for 2009 was not available because 3 months were missing from the dataset.

Table 3.1-1a. 2008 Summary of Meteorological Data from the Saddle Meteorological Station

Date	Average Temperature (°C)	Mean Daily Minimum Temperature (°C)	Mean Daily Maximum Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed[1] (m/s)	Maximum Instantaneous Windspeed[1] (m/s)	Time of Maximum Hourly Windspeed[1] (hour-minute)	Total Precipitation (TBRG)[2] (mm)	Total Precipitation (GEONOR)[2] (mm)	Average Solar Radiation (W/m^2)	Average Net Radiation (W/m^2)	Average Snow Depth (m)
Jan-08	-9.7	-12.7	-6.7	-32.4	3.9	82.9	n/a	n/a	n/a	4	28	14	-10.8	1.10
Feb-08	-7.8	-11.0	-4.2	-31.4	7.7	78.1	1.7	14.1	2320	35	36	37	-5.0	1.29
Mar-08	-3.4	-6.8	0.6	-12.1	5.9	72.0	1.7	13.8	1153	2	27	105	15.5	1.45
Apr-08	-1.0	-5.0	3.9	-12.2	9.2	60.5	1.8	15.0	1659	26	33	177	58.1	1.32
May-08	6.6	2.3	11.5	-2.4	20.6	59.1	1.9	14.2	1301	n/a	41	231	122.7	0.59
Jun-08	7.9	3.8	12.8	-1.4	19.6	57.2	1.7	11.5	638	n/a	13	249	148.6	0.00
Jul-08	10.3	6.6	15.1	3.3	25.7	62.1	2.3	13.2	1259	n/a	19	211	119.2	0.00
Aug-08	11.1	7.6	15.5	1.8	25.7	69.3	1.8	11.6	1301	n/a	93	158	76.4	0.00
Sep-08	7.8	4.6	12.0	-1.2	19.7	67.0	2.5	14.2	1301	n/a	21	110	38.4	0.00
Oct-08	0.7	-1.4	3.2	-7.6	16.2	79.8	3.0	17.2	1723	n/a	n/a	48	2.2	0.29
Nov-08	-3.5	-5.7	-1.0	-13.7	3.8	88.1	1.6	17.9	21	n/a	n/a	15	-11.6	0.85
Dec-08	-13.3	-16.5	-9.4	-27.1	2.9	81.6	n/a	n/a	n/a	n/a	n/a	11	-14.3	1.36
Annual Average	*0.5*	*-2.8*	*4.4*	-	-	*71.5*	*n/a*	*n/a*	-	*n/a*	*n/a*	*114*	*45.0*	-
Minimum	*-13.3*	*-16.5*	*-9.4*	*-32.4*	-	*57.2*	*1.6*	*11.5*	-	*n/a*	*n/a*	*11*	*-14.3*	*0.00*
Maximum	*11.1*	*7.6*	*15.5*	-	*25.7*	*88.1*	*3.0*	*17.9*	-	*n/a*	*n/a*	*249*	*148.6*	*1.45*
Annual Sum	-	-	-	-	-	-	-	-	-	*n/a*	*n/a*	-	-	-

Note:

n/a = not available.

[1] *The wind sensor froze from January 1 to February 6, 2008, November 8 to 12 and 16 to 20, 2008 and December 1 to 31, 2008. Data should be used with caution as it is not clear when during the period from February 2008 to October 2009 the wind sensor at Saddle station was damaged. It is also not clear the extent to which that damage may have affected the quality of data recorded.*

[2] *Maintenance was not conducted on the tipping bucket rain gauge (TBRG) or GEONOR precipitation gauges for the majority of the measurement period and therefore, This data should be considered with a high degree of caution.*

Table 3.1-1b. 2009 Summary of Meteorological Data from the Saddle Meteorological Station

Date	Average Temperature (°C)	Mean Daily Minimum Temperature (°C)	Mean Daily Maximum Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed[1] (m/s)	Maximum Instantaneous Windspeed[1] (m/s)	Time of Maximum Hourly Windspeed[1] (hour-minute)	Total Precipitation (TBRG)[2] (mm)	Total Precipitation (GEONOR)[2] (mm)	Average Solar Radiation (W/m^2)	Average Net Radiation (W/m^2)	Average Snow Depth (m)
Jan-09	-8.3	-12.1	-4.1	-30.4	11.5	72.8	2.5	17.0	2103	n/a	n/a	17	-17.2	1.51
Feb-09	-8.9	-12.1	-5.3	-22.1	-0.1	79.2	1.5	15.4	1753	n/a	n/a	60	-13.9	2.06
Mar-09	-6.9	-10.5	-2.5	-23.1	3.1	74.3	1.7	16.0	1351	n/a	n/a	97	8.7	2.08
Apr-09	0.7	-3.2	5.7	-11.5	15.9	59.7	1.4	15.4	1753	n/a	n/a	187	55.8	1.92
May-09	5.4	0.9	10.5	-3.0	17.7	55.0	1.4	12.0	1642	n/a	n/a	240	117.2	1.10
Jun-09	11.1	6.7	15.8	2.7	25.5	52.5	2.0	12.0	1642	n/a	n/a	247	145.0	0.00
Jul-09	15.7	10.6	21.5	4.9	31.4	52.1	1.4	11.0	155	n/a	n/a	232	133.0	0.00
Aug-09	12.1	8.6	16.7	4.5	26.3	62.3	1.8	12.9	1304	n/a	n/a	160	76.5	0.00
Sep-09	7.1	4.3	10.5	-1.3	19.7	75.7	1.9	15.8	2216	n/a	78	88	27.3	0.00
Oct-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nov-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dec-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Annual Average	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Minimum	*-8.9*	*-12.1*	*-5.3*	*-30.4*	-	*52.1*	*1.4*	*11.0*	-	n/a	n/a	*17*	*-17.2*	*0.0*
Maximum	*15.7*	*10.6*	*21.5*	-	*31.4*	*79.2*	*2.5*	*17.0*	-	n/a	n/a	*247*	*145.0*	*2.1*
Annual Sum	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note:

n/a = not available.

[1] *Data should be viewed with caution as it is not clear when during the period from February 2008 to October 2009 the wind sensor at Saddle station was damaged. It is also not clear the extent to which that damage may have affected the quality of data recorded.*

[2] *Maintenance was not conducted on the tipping bucket rain gauge (TBRG) or GEONOR precipitation gauges for the majority of the measurement period and therefore, data should be considered with a high degree of caution.*

Table 3.1-2a. 2008 Summary of Meteorological Data from the Mount LaCasse Meteorological Station

Date	Average Temperature (°C)	Mean Daily Minimum Temperature (°C)	Mean Daily Maximum Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed (m/s)	Maximum Instantaneous Windspeed (m/s)	Time of Maximum Hourly Windspeed (hour-minute)	Total Precipitation (TBRG)[1] (mm)	Total Precipitation (GEONOR)[1] (mm)	Average Solar Radiation (W/m^2)	Average Net Radiation (W/m^2)	Average Snow Depth (m)
Jan-08	-10.9	-13.6	-7.9	-33.3	5.2	81.4	4.9	21.9	747	3	17	19	-15.7	0.88
Feb-08	-9.5	-12.5	-6.4	-34.1	2.7	82.7	5.4	18.3	932	8	31	48	-14.8	1.06
Mar-08	-6.2	-9.1	-2.6	-15.3	4.7	76.9	4.9	20.2	830	27	17	117	-14.5	1.15
Apr-08	-4.5	-8.0	-0.1	-15.8	4.4	69.6	5.6	22.4	1715	20	16	195	-0.8	1.21
May-08	3.6	0.2	8.0	-4.9	16.6	66.1	4.6	19.9	1105	34	226	253	42.8	0.89
Jun-08	4.7	1.2	9.1	-2.3	14.9	67.3	4.4	17.2	1034	38	248	249	98.7	0.00
Jul-08	7.3	3.9	11.6	1.1	21.5	72.0	4.6	18.6	1116	42	12	211	86.7	0.00
Aug-08	8.3	5.6	11.6	1.3	21.2	76.2	4.1	19.6	1646	83	61	160	52.0	0.00
Sep-08	4.8	2.5	8.0	-1.9	13.5	76.0	4.2	18.0	2225	50	16	108	19.3	n/a
Oct-08	-2.2	-4.4	0.0	-11.0	11.9	88.5	5.8	22.7	15	42	33	50	-11.3	n/a
Nov-08	-5.3	-7.0	-3.2	-12.8	0.9	87.8	5.3	22.0	2357	16	67	22	-16.1	n/a
Dec-08	-13.4	-16.2	-9.9	-28.6	-0.2	74.6	4.6	19.6	1646	0	18	14	-21.1	n/a
Annual Average	*-1.9*	*-4.8*	*1.5*	-	-	*76.6*	*4.9*	*20.0*	-	*n/a*	*n/a*	*120*	*17.1*	-
Minimum	*-13.4*	*-16.2*	*-9.9*	*-34.1*	-	*66.1*	*4.1*	*17.2*	-	*n/a*	*n/a*	*14*	*-21.1*	*0.0*
Maximum	*8.3*	*5.6*	*11.6*	-	*21.5*	*88.5*	*5.8*	*22.7*	-	*n/a*	*n/a*	*253*	*98.7*	*1.2*
Annual Sum	-	-	-	-	-	-	-	-	-	*n/a*	*n/a*	-	-	-

Note:

n/a = not available

[1] *Maintenance was not conducted on the tipping bucket rain gauge (TBRG) or GEONOR precipitation gauges for the majority of the measurement period and therefore, data should be considered with a high degree of caution.*

Table 3.1-2b. 2009 Summary of Meteorological Data from the Mount LaCasse Meteorological Station

Date	Average Temperature (°C)	Mean Daily Minimum Temperature (°C)	Mean Daily Maximum Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed (m/s)	Maximum Instantaneous Windspeed (m/s)	Time of Maximum Hourly Windspeed (hour-minute)	Total Precipitation (TBRG)[1] (mm)	Total Precipitation (GEONOR)[1] (mm)	Average Solar Radiation (W/m^2)	Average Net Radiation (W/m^2)	Average Snow Depth (m)
Jan-09	-9.1	-12.4	-5.8	-31.9	8.4	73.6	5.5	26.3	2322	0	39	20	-22.8	n/a
Feb-09	-9.6	-12.7	-5.8	-21.3	0.1	72.7	4.1	17.1	2102	0	20	62	-29.8	n/a
Mar-09	-9.5	-12.7	-5.7	-24.2	-1.1	78.2	4.7	20.1	525	0	22	110	-12.8	n/a
Apr-09	-2.7	-6.0	1.5	-13.5	9.2	67.5	4.4	17.9	142	0	6	211	0.3	n/a
May-09	2.3	-1.3	6.9	-6.4	12.3	62.9	3.5	15.9	1832	9	13	275	36.7	n/a
Jun-09	8.2	4.7	12.3	-0.1	21.1	59.8	3.8	15.7	1149	19	3	277	93.0	n/a
Jul-09	12.9	9.0	17.6	3.0	26.9	58.9	3.5	16.4	1608	23	4	261	105.6	n/a
Aug-09	9.0	6.1	12.8	1.9	21.6	71.5	4.2	18.7	2010	52	5	166	54.3	n/a
Sep-09	4.3	2.1	7.1	-3.6	15.2	82.5	5.4	21.6	1306	140	0	91	16.3	n/a
Oct-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nov-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dec-09	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Annual Average	*n/a*	*n/a*	*n/a*	-	-	*n/a*	*n/a*	*n/a*	-	*n/a*	*n/a*	*n/a*	*n/a*	-
Minimum	*-9.6*	*-12.7*	*-5.8*	*-31.9*	-	*58.9*	*3.5*	*15.7*	-	*n/a*	*n/a*	*20*	*-29.8*	-
Maximum	*12.9*	*9.0*	*17.6*	-	*26.9*	*82.5*	*5.5*	*26.3*	-	*n/a*	*n/a*	*277*	*105.6*	-
Annual Sum	-	-	-	-	-	-	-	-	-	*n/a*	*n/a*	-	-	-

Note:

n/a = not available

[1] *Maintenance was not conducted on the tipping bucket or GEONOR rain gauges for the majority of the measurement period and therefore, data should be considered with a high degree of caution.*

Table 3.1-3a. Monthly Meteorological Conditions at Camp Meteorological Station

Date	Days of Record	Average Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed[1] (m/s)	Maximum Instantaneous Windspeed[1] (m/s)	Date of Maximum Instantaneous Windspeed[1]	Total Rainfall (mm)	Average Solar Radiation (W/m^2)	Average Snow Depth (mm)
Jan-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Feb-08	13	-3.8	-18.2	7.8	80.1	1.1	10.9	02/27/08	10	45	0.0
Mar-08	31	-5.0	-22.3	5.3	76.5	1.5	15.5	03/16/08	25	78	0.0
Apr-08	22	-2.5	-17.0	6.9	65.7	2.2	17.0	04/16/08	21	121	0.0
May-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Jun-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Jul-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aug-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sep-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oct-08	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nov-08	19	-6.4	-24.4	2.8	90.9	3.3	14.9	11/25/08	7	11	0.0
Dec-08	13	-25.0	-39.7	-7.6	100.0	1.1	5.8	12/27/08	0	10	958.1
Annual Average	-	-	-	-	-	-	-	-	-	*n/a*	*n/a*
Minimum	-	*-25.0*	*-39.7*	-	*65.7*	*1.1*	*5.8*	-	*0*	*n/a*	*n/a*
Maximum	-	*-2.5*	-	*7.8*	*100.0*	*3.3*	*17.0*	-	*25*	*n/a*	*n/a*
Annual Sum	*98*	-	-	-	-	-	-	-	-	*n/a*	*n/a*

Note:

n/a = not available

February, March, November and December were all incomplete data sets.

[1] *The wind direction sensor malfunctioned and it is not clear if the wind speed sensor also malfunctioned due to a lack of routine maintenance.*

Table 3.1-3b. Monthly Meteorological Conditions at Camp Meteorological Station

Date	Days of Record	Average Temperature (°C)	Extreme Minimum Temperature (°C)	Extreme Maximum Temperature (°C)	Average Relative Humidity (%)	Average Windspeed[1] (km/h)	Maximum Instantaneous Windspeed[1] (km/h)	Date of Maximum Instantaneous Windspeed[1]	Total Rainfall (mm)	Average Solar Radiation (W/m^2)	Average Snow Depth (mm)
Jan-09	1	-37.3	-40.0	-29.0	100	n/a	n/a	n/a	0	9	722
Feb-09	13	-16.1	-33.9	-0.8	94	0.6	9.6	2/22/2009	1	53	1085
Mar-09	31	-9.4	-34.3	8.3	84	1.3	24.3	3/12/2009	4	72	1162
Apr-09	30	-1.1	-21.9	17.6	70	1.5	20.2	4/24/2009	6	137	998
May-09	31	4.5	-8.6	18.8	63	1.9	21.5	5/30/2009	21	158	340
Jun-09	30	11.2	-2.9	29.5	57	2.0	15.4	6/25/2009	11	165	0
Jul-09	31	15.1	0.7	35.1	59	1.6	15.4	7/18/2009	5	150	0
Aug-09	24	12.0	-0.4	27.1	67	1.9	17.4	8/15/2009	16	104	0
Sep-09	15	8.4	-2.5	21.3	81	1.2	15.8	9/7/2009	40	78	0
Oct-09	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nov-09	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dec-09	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Annual Average	-	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Minimum	-	*-37.3*	*-40.0*	-	*57*	*0.6*	*9.6*	-	*0*	*n/a*	*n/a*
Maximum	-	*15.1*	-	*35.1*	*100*	*2.0*	*24.3*	-	*40*	*n/a*	*n/a*
Annual Sum	*206*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*

Notes:

n/a = not available

January, February, August and September were not complete data sets.

[1] *The wind direction sensor malfunctioned and it is not clear if the wind speed sensor also malfunctioned due to a lack of routine maintenance.*

Table 3.1-4. Average Monthly Data from the Historical Schaft Creek Camp Meteorological Station

	Mean Maximum Air Temperature (°C)	Mean Minimum Air Temperature (°C)	Total Precipitation (mm)		Mean Maximum Air Temperature (°C)	Mean Minimum Air Temperature (°C)	Total Precipitation (mm)
Jun* 1969	19.4	7.8	17	Jan-71	-14.7	-22.9	47
Jul	15.0	7.2	17	Feb*	0.6	-10.8	15
Aug	13.3	4.4	59	Mar	2.2	-12.2	129
Sep*	11.1	3.3	40	Apr	8.8	-7.9	45
Mar* 1970	4.4	-4.2	0	May	12.3	-2.0	12
Apr	5.4	-5.7	61	Jun	17.8	4.3	17
May	7.3	-0.2	19	Jul	20.7	7.2	28
Jun	11.1	3.1	56	Aug	17.4	6.7	56
Jul	11.4	5.3	21	Sep	11.6	2.8	43
Aug	15.3	5.1	54	Oct	4.1	-3.4	143
Sep	11.5	1.1	71	Nov	-1.9	-10.1	149
Oct	6.1	-2.9	124	Dec	-11.2	-20.2	51
Nov	-4.6	-13.8	50	Jan-72	-13.8	-23.3	38
Dec	-10.6	-18.4	92	Feb	-9.8	-18.8	74

** Not a complete month*

Table 3.1-5. Average Monthly Data from the Bob Quinn Meteorological Station (1977 to 1994)

Month	Mean Max Temp (°C)	Mean Temp (°C)	Mean Min Temp (°C)	Total Rain (mm)	Total Snow (cm)	Total Precip (mm)	Snow Depth Last Day (cm)
January	-5.2	-8.5	-11.7	19	41	60	46
February	-2.1	-6.4	-10.7	13	28	41	43
March	4.7	-0.3	-5.3	14	14	27	25
April	9.9	3.9	-2.2	18	7	25	1
May	14.8	8.2	1.5	28	1	29	0
June	18.5	11.9	5.3	34	0	34	0
July	20.4	14.1	7.8	57	0	57	0
August	19.7	13.4	7.1	50	0	50	0
September	14.4	9.3	4.2	86	0	86	0
October	7.5	4	0.4	94	8	102	1
November	-0.9	-3.7	-6.4	34	28	62	10
December	-5.3	-8.3	-11.3	18	53	71	34
Average	8.0	3.1	-1.8	n/a	n/a	n/a	n/a
Total	n/a	n/a	n/a	464	179	644	n/a

Note: n/a: this total or average is not required for this parameter

Table 3.1-6. Average Monthly Data from the Iskut Ranch Meteorological Station (1976 to 1994)

Month	Mean Max Temp (°C)	Mean Temp (°C)	Mean Min Temp (°C)	Total Rain (mm)	Total Snow (cm)	Total Precip (mm)	Snow Depth Last Day (cm)
January	-6.2	-11.4	-16.6	7	29	37	41
February	-2.8	-8.7	-14.5	6	13	19	26
March	2.6	-3.4	-9.3	2	13	15	12
April	7.7	1.3	-5.1	2	4	6	0
May	13.2	6.3	-0.7	24	2	26	0
June	17.3	10.1	2.9	44	0	44	0
July	19.1	12.1	5.1	66	0	66	0
August	18.3	11.3	4.3	58	0	58	0
September	13.1	7.2	1.2	50	1	50	0
October	6.3	2	-2.4	35	6	41	1
November	-1.3	-6.1	-10.8	8	20	28	13
December	-6.5	-11.7	-16.8	4	37	41	26
Average	6.7	0.8	-5.2	n/a	n/a	n/a	n/a
Total	n/a	n/a	n/a	306	125	431	n/a

Note: n/a: this total or average is not required for this parameter.

Table 3.1-7. Average Monthly Data from the Todagin Ranch Meteorological Station (1976 to 1992)

Month	Mean Max Temp (°C)	Mean Temp (°C)	Mean Min Temp (°C)	Total Rain (mm)	Total Snow (cm)	Total Precip (mm)	Snow Depth Last Day (cm)
January	-8	-13.3	-18.6	1	31	32	56
February	-3.4	-9.9	-16.3	1	16	17	56
March	2	-4.9	-11.8	1	16	17	51
April	7.3	0.5	-6.2	3	8	11	4
May	12.6	5.4	-1.8	21	3	24	0
June	17	9.4	1.7	37	0	37	0
July	18.8	11.6	4.3	54	0	54	0
August	18.3	11.1	3.8	49	0	49	0
September	13	6.9	0.7	53	1	54	0
October	5.6	1.2	-3.2	33	15	47	4
November	-3.6	-8.4	-13.2	5	31	35	25
December	-7.9	-12.8	-17.6	1	42	43	46
Average	6	-0.3	-6.5	n/a	n/a	n/a	n/a
Total	n/a	n/a	n/a	258	161	419	n/a

Note: n/a: this total or average is not required for this parameter.

Table 3.1-8. Average Monthly Data from the Unuk River Eskay Creek Meteorological Station (1989 to 2009)

Month	Mean Max Temp (°C)	Mean Temp (°C)	Mean Min Temp (°C)	Total Rain (mm)	Total Snow (cm)	Total Precipitation (mm)
January	-8.3	-5.4	-11.0	7	237	245
February	-5.9	-2.6	-9.2	5	206	212
March	-4.1	-0.5	-7.7	2	163	169
April	0.5	4.6	-3.7	19	74	93
May	4.1	8.6	-0.2	72	20	93
June	8.1	13.2	3.2	68	0	68
July	10.4	14.9	5.9	82	0	82
August	10.4	14.9	6.0	142	0	142
September	5.8	9.1	2.7	217	7	224
October	0.7	3.3	-1.9	144	99	243
November	-4.9	-2.4	-7.4	19	199	218
December	-6.7	-4.0	-9.4	1	259	260
Average	4.5	0.9	-2.7	n/a	n/a	n/a
Total	n/a	n/a	n/a	780	1,264	2,047

Note: n/a: this total or average is not required for this parameter.
May to December 2009 data were not available.

Due to lack of maintenance the Schaft Creek Camp meteorological station did not report a continuous data set and therefore, it was not possible to generate monthly average and annual air temperatures. The data that was collected is, however, presented in Table 3.1-1 and Figure 3.2-1. The extreme minimum temperature was -39.7°C in 2008 and -40.0°C in 2009 (January to September). The extreme minimum occurred in December in 2008 and January in 2009. The extreme maximum temperature was 35.1°C in 2009 and this occurred in July. Summer air temperature was not recorded at the Camp meteorological station during 2008and therefore no extreme maximum value is available.

The monthly averages of 2008 and 2009 at the stations follow similar seasonal trends as the four MSC weather stations at Unuk River Eskay Creek, Bob Quinn, Iskut Ranch and Todagin Ranch (Figure 3.2-1). It is not possible to compare the on-site station data to 2008 and 2009 regional data. Unfortunately, Bob Quinn, Iskut Ranch and Todagin Ranch stations are no longer in operation. Some data for 2008 and 2009 from Unuk River Eskay Creek was available at the time of writing. Bob Quinn station has higher air temperatures than the other stations due to its lower elevation. In the same respect, Creek Mount LaCasse station was the coldest.

In general, at the three Schaft Creek meteorology stations the summer of 2009 was warmer than the summer of 2008. Figure 3.2-2 shows that on-site monthly air temperatures measured in 2008 and 2009 tended to remain within the historical minimum and maximum values, with the exception of January which was warmer in 2008 and 2009 than the historical records.

3.3 PRECIPITATION

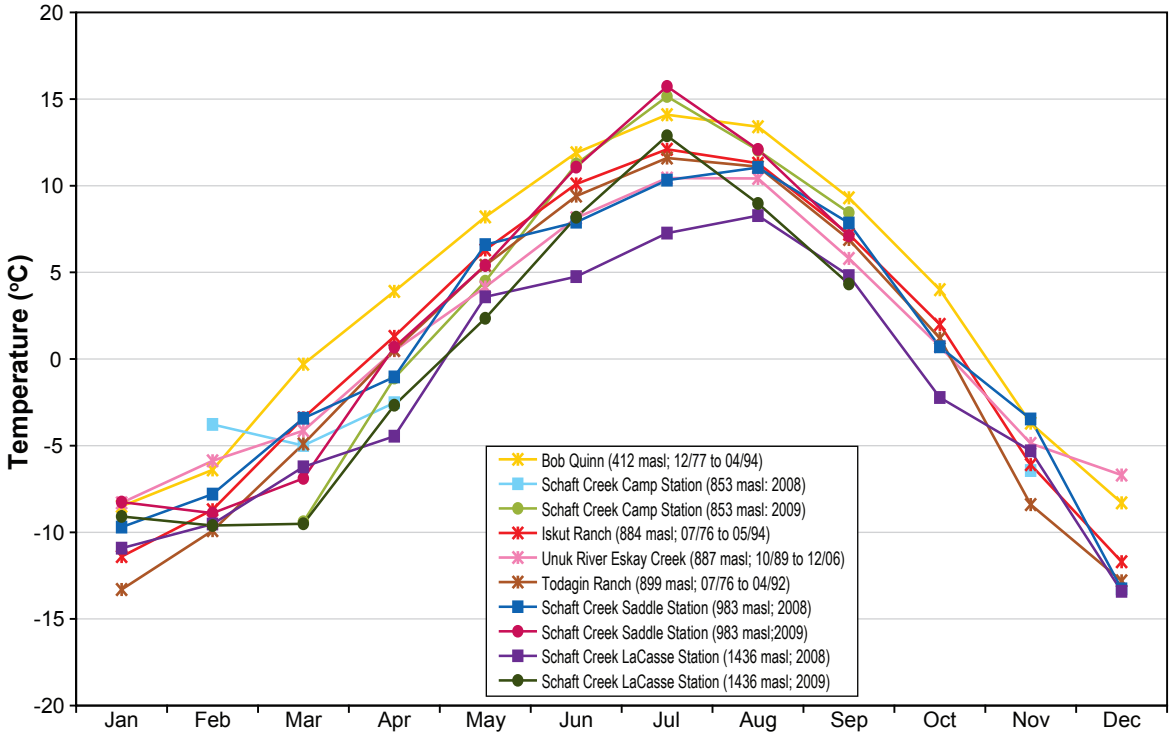
3.3.1 On-Site Data

Figure 3.3-1 and Table 3.3-1 summarize the total precipitation values for the Schaft Creek site specific and ClimateBC estimated precipitation (for the Shaft Creek Camp station location). ClimateBC is a software program that generates climate normal data for genecology and climate change studies in British Columbia. Genecology is a biological term for the study of plant and animal species and their environment.

Precipitation was measured by the three automated meteorological stations in the Project area. The Schaft Creek Saddle station and the Mount LaCasse station measured total precipitation using a GEONOR precipitation gauge, and rain using a tipping bucket rain gauge. The Schaft Creek Camp station measured rain using a tipping bucket gauge and records only rainfall values.

Precipitation data measured in 2008 and 2009 at the on-site stations are intermittent and highly suspect due to the lack of equipment maintenance. It is important that precipitation gauges be inspected regularly for emptying, cleaning, or installation/removal of the snowfall adapter kit. Because the Schaft Creek Saddle and LaCasse stations were not visited for nearly 20 months it is impossible to know which of the data collected are reliable; therefore, on-site values presented in Table 3.3-1 should be used with a high degree of caution. Precipitation trends and annual total precipitation for 2008 and 2009 cannot be accurately estimated because of these concerns.

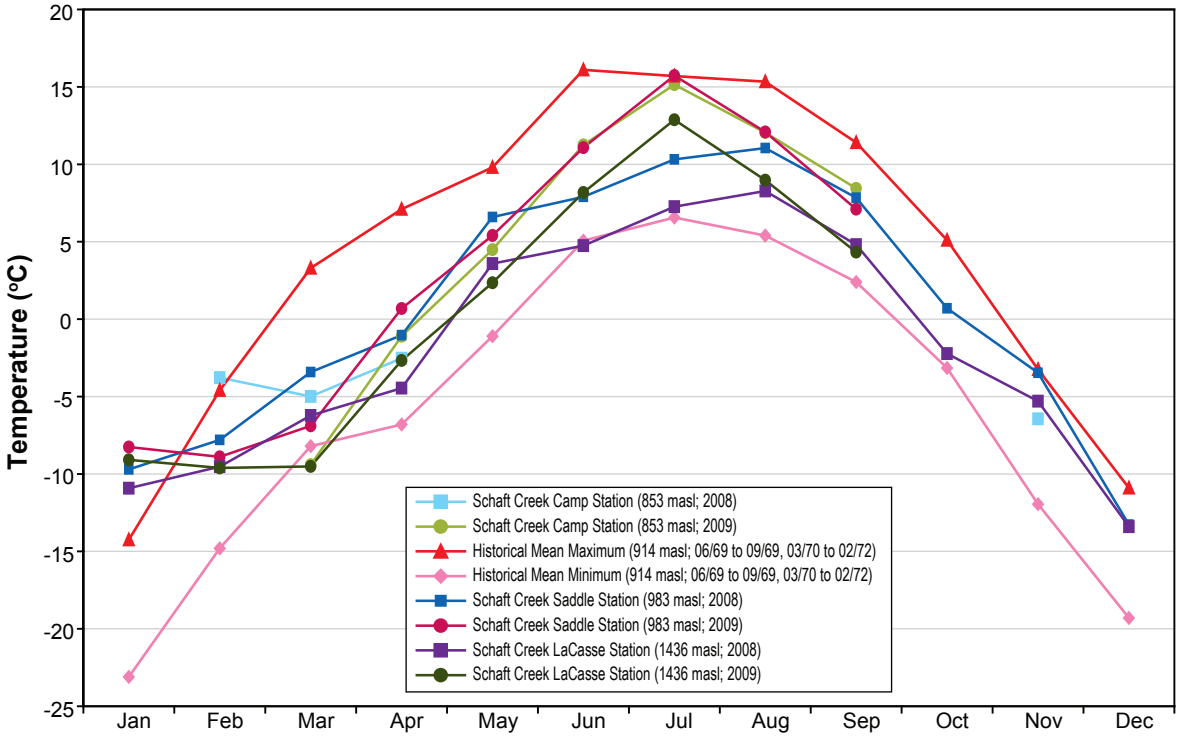
ClimateBC precipitation estimates based on 1971 to 2000 climate normal data show that the majority of precipitation in the area falls during the winter months, likely as snow. Total annual precipitation is estimated at 1,047 mm and this value should be used in preliminary engineering and feasibility studies until higher quality on-site data is collected.



Note: Only complete months of data were included.

FIGURE 3.2-1

Monthly Average Air Temperatures at the Schaft Creek Saddle, Mount La Casse and Regional Meteorological Stations



Note: Only complete months of data were included.

FIGURE 3.2-2

Monthly Average Air Temperatures at the Schaft Creek Saddle, Mount La Casse, Camp, and Historical Schaft Creek Meteorological Stations

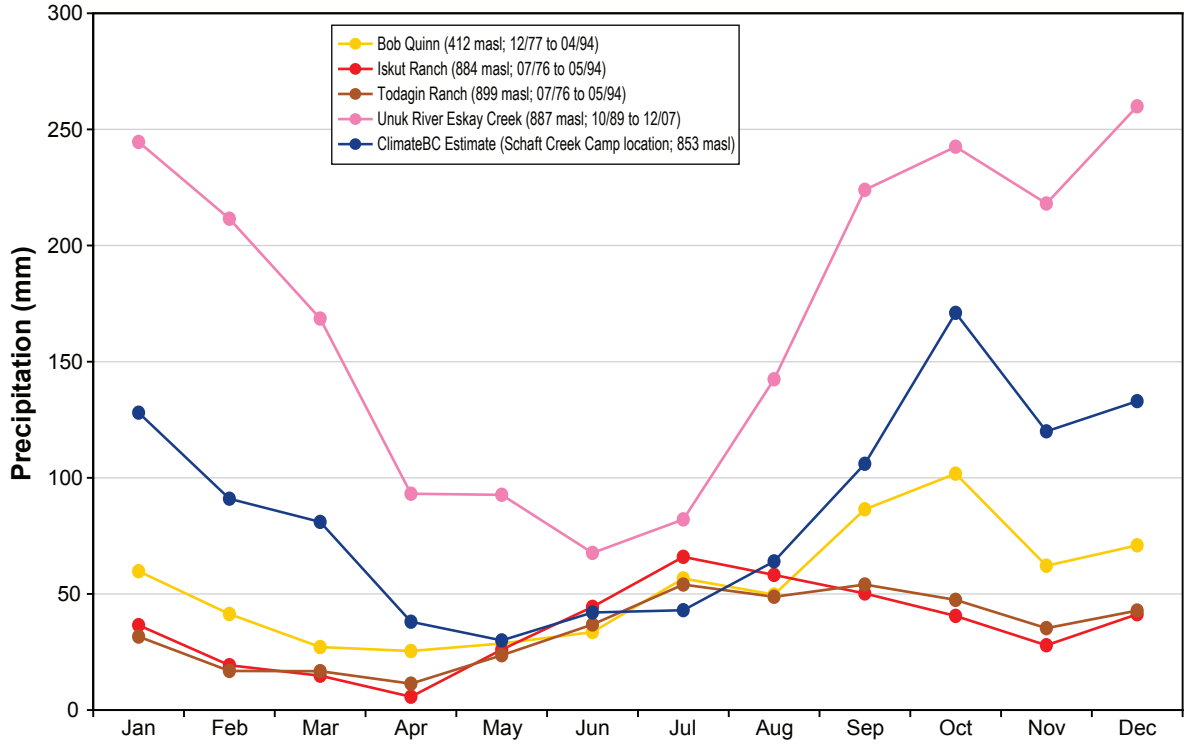


FIGURE 3.3-1

Summary of Regional Monthly Precipitation

Table 3.3-1. Monthly Observed and Estimated Precipitation from the Schaft Creek Meteorological Stations

	Saddle		Camp[1]	Mount LaCasse		ClimateBC
	GEONOR (mm)	Tipping Bucket (mm)	Tipping Bucket (mm)	GEONOR (mm)	Tipping Bucket (mm)	Estimate (mm)
Jan-08	28	n/a	4	17	3	128
Feb	36	45	35	31	8	91
Mar	27	78	2	17	27	81
Apr	33	121	26	16	20	38
May	41	n/a	n/a	226	34	30
Jun	13	n/a	n/a	248	38	42
Jul	19	n/a	n/a	12	42	43
Aug	93	n/a	n/a	61	83	64
Sep	21	n/a	n/a	16	50	106
Oct	n/a	n/a	n/a	33	42	171
Nov	n/a	11	n/a	67	16	120
Dec	n/a	10	n/a	18	0	133
2008 Total	**n/a**	**n/a**	**n/a**	**762**	**363**	**1,047**
Jan-09	n/a	0	n/a	39	0	128
Feb	n/a	1	n/a	20	0	91
Mar	n/a	4	n/a	22	0	81
Apr	n/a	6	n/a	6	0	38
May	n/a	21	n/a	13	9	30
Jun	n/a	11	n/a	3	19	42
Jul	n/a	5	n/a	4	23	43
Aug	n/a	16	n/a	5	52	64
Sep	78	40	n/a	0	140	106
Oct	n/a	n/a	n/a	n/a	n/a	171
Nov	n/a	n/a	n/a	n/a	n/a	120
Dec	n/a	n/a	n/a	n/a	n/a	133
2009 Total	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**1,047**

Notes: n/a – not available.
Maintenance was not conducted on the tipping bucket or GEONOR rain gauges for the majority of the measurement period and therefore, data should be considered with a high degree of caution.
[1]: Camp station precipitation gauge only measures rainfall; it does not include snowfall.

3.3.2 Regional Data

The precipitation at the three inactive regional stations shows a steady decrease in precipitation through the winter months, with the lowest average monthly precipitation occurring in April (Table 3.3-2; Figure 3.3-1). From April, the precipitation increases through the late spring/early summer such that the peak precipitation occurs in July at Iskut and Todagin Ranch, and in October at Bob Quinn.

The seasonal trends at Unuk River Eskay Creek station show the driest month being June and the wettest month being December. The variations in the seasonal trends of the regional stations within a 100 km radius of the Project indicate that local climatic conditions within the area are complex and are influenced by large-scale regional factors such as mountain ranges and the Pacific Ocean, as well as smaller-scale factors such as local topography.

Table 3.3-2. Environment Canada Meteorological Stations Near the Schaft Creek Project

Station	Period of Record	Location	Approx. Distance to Project [km]	Elevation [masl]	Observed Average Annual Precipitation [mm]	Adjusted Average Annual Precipitation[1] (mm)
Iskut Ranch	1976-1994	57°52′N; 131°10′W	57	854	435	435
Todagin Ranch	1973-1992	57°36′N; 130°04′W	62	899	419	402
Telegraph Creek	1979-present	57°54′N; 130°20′W	63	250	369	546
Bob Quinn	1977-1994	56°58′N; 130°15′W	65	610	642	767
Iskut River	1976-1994	56°43′58.80″N; 131°40′1.20″W	82	884	431	421
Unuk River-Eskay Creek	1989-2006	56°39′10.74″N; 130°26′45.54″W	87	887	2,047	1,996
Dease Lake	1944-present	58°25′N; 130°00′W	130	807	426	443

Notes:
[1]Scaled using orographic factor of 8% increase per 100 m rise in elevation (Coulson, 1991). Values scaled to elevation of the Schaft Creek Camp station (853 masl).
This likely over-predicts the annual precipitation.

Typically, total precipitation increases with increasing elevation in mountainous terrain. Regional data suggests an increase in precipitation of approximately 8% for every 100 m of elevation gain (Coulson, 1991). A summary of annual precipitation at the closest regional meteorological stations is presented in Table 3.3-2. Observed values have been adjusted, using the scaling factor above, to the elevation of the Schaft Creek Camp station (853 masl). Again, it is clear that regional precipitation varies widely in the Schaft Creek area. Based on the historical site record, it is suspected that the Schaft Creek precipitation levels are somewhere between those of Unuk River Eskay Creek and the other regional stations and likely close to the annual Climate BC prediction of 1,047 mm.

3.4 WIND SPEED AND DIRECTION

During the October 2009 field visit to Saddle station it was noted that the wind sensor had been damaged. Because of the lack of maintenance between February 2008 and October 2009 it is not clear when this damage occurred or the extent to which it may have affected the quality of the data; therefore, data collected from this sensor should be treated as suspect and utilized with caution.

The average annual wind speed measured at Schaft Creek Saddle meteorological station in 2008 was 2.0 m/s with monthly averages ranging from 1.6 m/s (November) to 3.0 m/s (October; Table 3.4-1). The maximum instantaneous wind speed was 17.9 m/s which was recorded at 12:21 AM on November 15, 2008. The station recorded calm wind conditions (i.e., hourly average wind speed less than 1.0 m/s) 22% and 43% of the time in 2008 and 2009 respectively. The dominant wind direction at Schaft Creek Saddle station in 2008 and 2009 was from the south (Figure 3.4-1 and Figure 3.4-2).

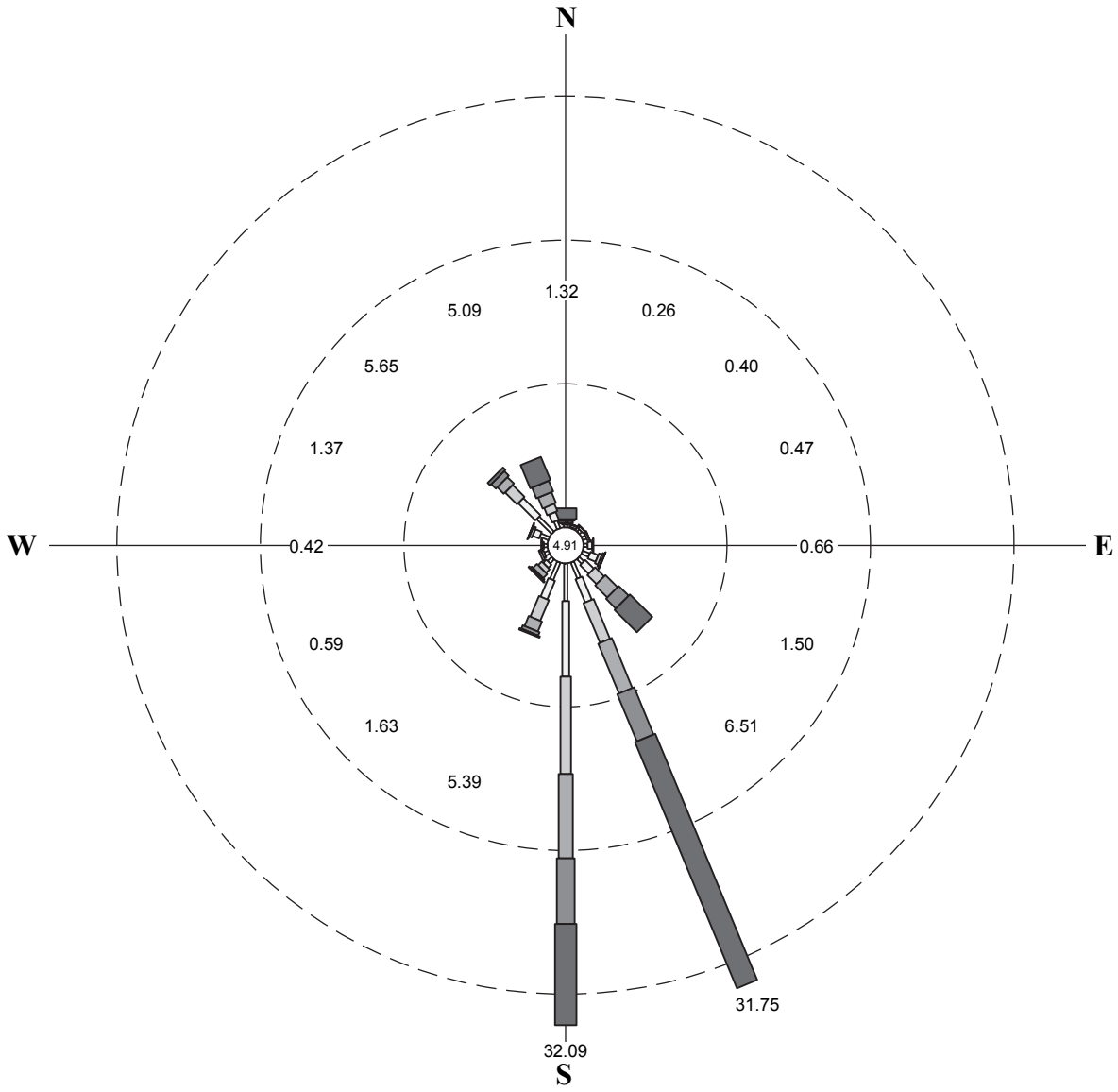
Table 3.4-1. Average Monthly Wind Speed (m/s)

Month	Schaft Creek Saddle Station[1]	Schaft Creek Mount LaCasse Station
2008		
Jan	n/a	4.9
Feb	1.7	5.4
Mar	1.7	4.9
Apr	1.8	5.6
May	1.9	4.6
Jun	1.7	4.4
Jul	2.3	4.6
Aug	1.8	4.1
Sep	2.5	4.2
Oct	3.0	5.8
Nov	1.6	5.3
Dec	n/a	4.6
2009		
Jan	2.5	5.5
Feb	1.5	4.1
Mar	1.7	4.7
Apr	1.4	4.4
May	1.4	3.5
Jun	2.0	3.8
Jul	1.4	3.5
Aug	1.8	4.2
Sep	1.9	5.4
Oct	n/a	n/a
Nov	n/a	n/a
Dec	n/a	n/a

Notes: n/a – not available.
[1] data should be viewed with caution as it is not clear when during the period from February 2008 to October 2009 the sensor at Saddle station was damaged. It is also not clear the extent to which that damage may have affected the quality of data recorded.

The annual average wind speed at the Mount LaCasse station was 4.9 m/s during 2008. The monthly average wind speed measured at the station ranged from 4.1 (August) to 5.8 m/s (October) (Table 3.4-1). The maximum instantaneous wind speed was 22.7 m/s during 2008 (October 2, 2008 at 12:15 AM) and 26.3 m/s during 2009 (January 29, 2009 at 11:22 PM). The elevated wind speeds measured at the LaCasse station (compared to the Saddle station) are due to a more exposed location and higher elevation (1,440 masl). The station recorded calm wind conditions only 5% and 6% of the time in 2008 and 2009, respectively. The dominant wind directions were from the south and southeast. The wind blew from these directions 64% and 55% of the time in 2008 and 2009, respectively (Figure 3.4-3 and Figure 3.4-4).

Wind data recorded at the Shaft Creek Camp station was not reliable and intermittent due to sensor malfunction and has therefore been omitted from the report.



Calms included at center.
Rings drawn at 10% intervals.
Wind flow is FROM the directions shown.
No observations were missing.

Note: Data should be viewed with caution as it is not clear when during the preiod from February 2008 to October 2009 the wind sensor at the Saddle station was damaged. It is also not clear the extent to which that damage may have affected the quality of data recorded. In addition, the Saddle wind sensor does not meet the MSC siting requirements.

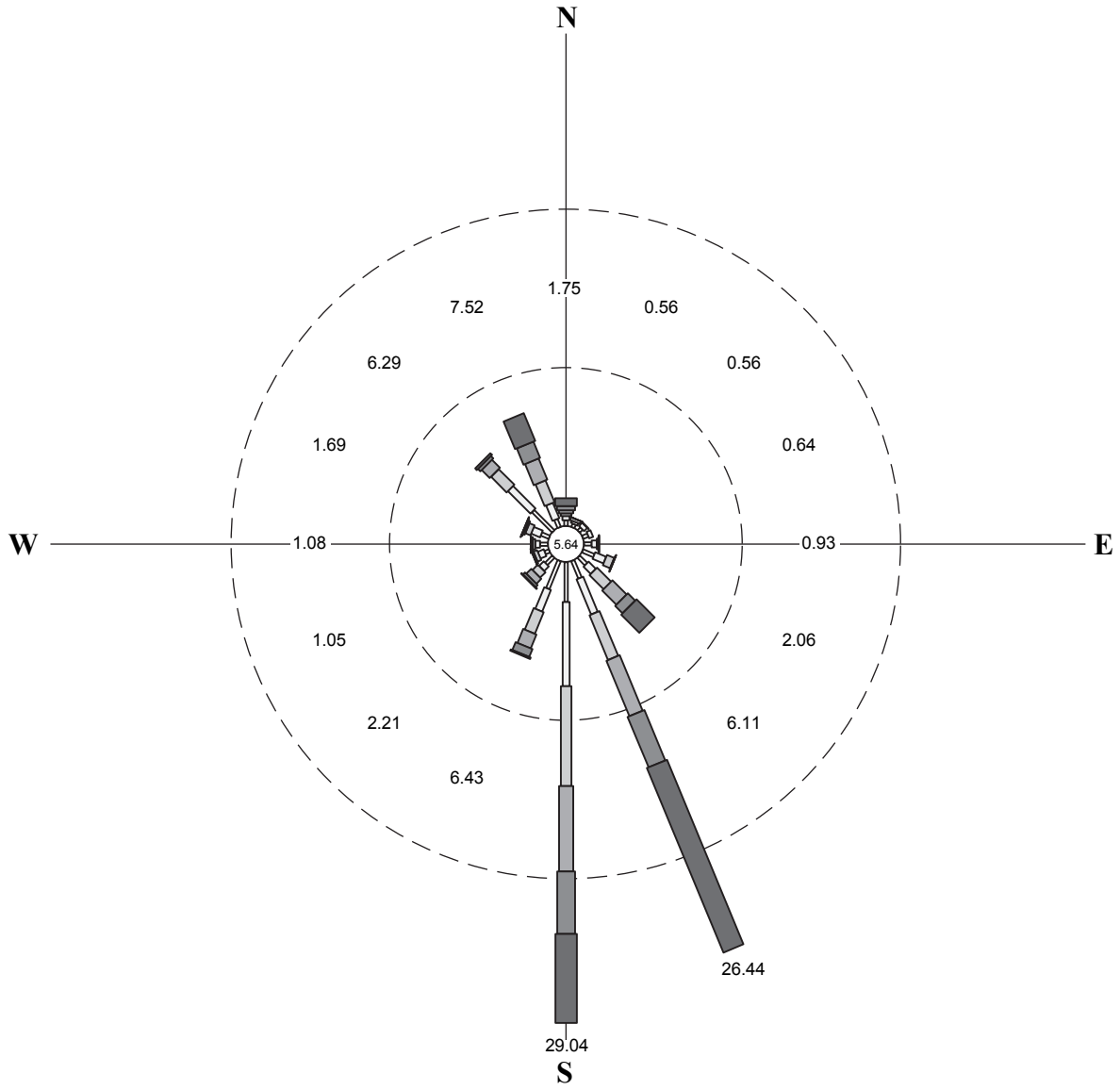
FIGURE 3.4-1

Wind Rose for Schaft Creek Saddle Meteorological Station (2008)

copper FOX metals inc.

Rescan™

RTEC

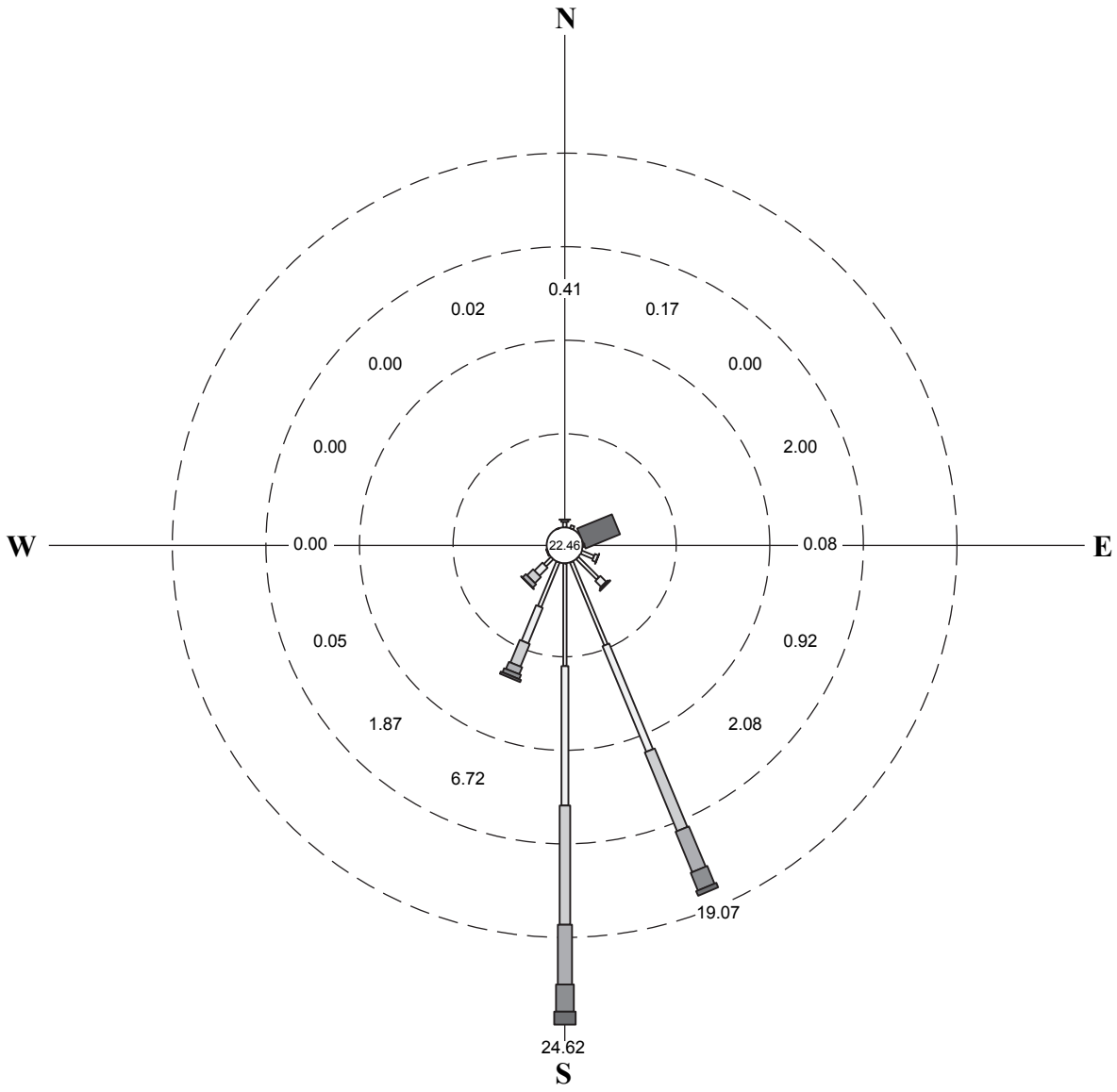


Calms included at center.
Rings drawn at 10% intervals.
Wind flow is FROM the directions shown.
No observations were missing.

Note: Data should be viewed with caution as it is not clear when during the preiod from February 2008 to October 2009 the wind sensor at the Saddle station was damaged. It is also not clear the extent to which that damage may have affected the quality of data recorded. In addition, the Saddle wind sensor does not meet the MSC siting requirements.

FIGURE 3.4-2

Wind Rose for Schaft Creek Saddle Meteorological Station (January to September, 2009)



Calms included at center.
Rings drawn at 5% intervals.
Wind flow is FROM the directions shown.
19.52% of observations were missing.

FIGURE 3.4-3

Wind Rose for Mount LaCasse Meteorological Station (2008)

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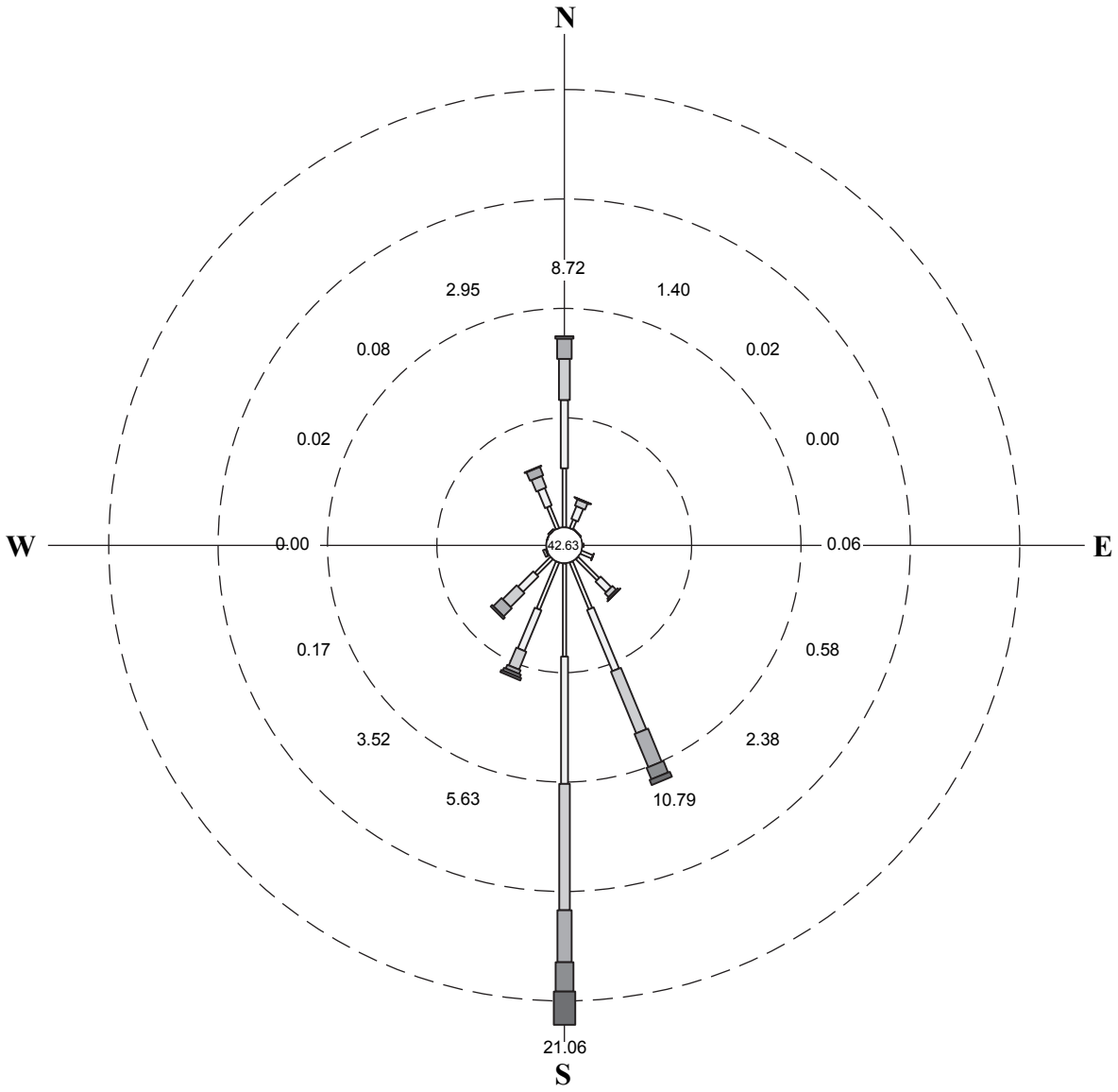
RTEC



Calms included at center.
Rings drawn at 5% intervals.
Wind flow is FROM the directions shown.
No observations were missing.

FIGURE 3.4-4

Wind Rose for Mount LaCasse Meteorological Station (January to September 2009)

3.5 SOLAR RADIATION

Solar radiation is electromagnetic energy from the sun. Solar energy accounts for 99% of the earth's energy budget. The solar radiation incident on top of the terrestrial atmosphere is called extraterrestrial solar radiation. Ninety seven percent of this radiation is confined to the spectral range of 0.29 to 3.0 microns and is referred to as short-wave radiation. A portion of the extraterrestrial solar radiation penetrates through the atmosphere to the earth's surface, while part of it is scattered and/or absorbed by gases, aerosol particles, cloud droplets and cloud crystals in the atmosphere.

Global solar radiation is monitored at two of the Schaft Creek meteorological stations using a silicone pyranometer. Global solar radiation is the total incoming direct and diffuse short-wave solar radiation received from the whole dome of the sky on a horizontal surface.

The average annual solar radiation measured at Schaft Creek Saddle meteorological station in 2008 was 114 W/m^2 with monthly averages ranging from 11 (December) to 249 W/m^2 (June). The maximum hourly average solar radiation value recorded at the Saddle station during 2008 was 945 W/m^2 on June 9, 2008 at 1400 hours. The lowest solar radiation values were recorded during winter months when the sun is at its lowest angle and there is a higher frequency of low cloud cover that scatters and absorbs the solar radiation. All of the hourly average solar radiation values recorded at night were 0 W/m^2. Observed solar radiation at all sites is summarized in Table 3.5-1. Figure 3.5-1 shows daily solar radiation at Schaft Creek Saddle and LaCasse stations. Generally the solar radiation values were higher at the Mount LaCasse station because it is at a higher elevation and less affected by persistent clouds that tend to accumulate in the valley bottoms.

3.6 SNOW

The baseline meteorology program included the following snow survey data collection:

- Snow depth was measured at the Schaft Creek Saddle station Mount LaCasse station on an hourly and daily basis and was also measured manually at the Schaft Creek Camp from January 1 to 31, 2008 and October 5, 2008 to May 5, 2009 (Section 2.3; Appendix 2); and
- Two snow courses were sampled February, April and May 2008 (SSCW1 and SSCW2).

3.6.1 Snow Depth

The snow depth data collected at the Schaft Creek Saddle meteorological station covers 22 months of data, and one full snow season (Figure 3.6-1). The ultrasonic snow sensor at the LaCasse station malfunctioned during June 2008; therefore, data was only available at that station for about 5.5 months. The peak snow depth at Saddle station was about 1.5 m in March of 2008 and 2.5 m in March of 2009. Regional Environment Canada snow pillow data from 3 stations close to the Project (Kinaskan Lake, Tumeka Creek, and Wade Lake) also showed significantly higher snow-water-equivalents (SWE) in 2009 with comparison to 2008. In the spring of 2008, snow began melting later at Schaft Creek LaCasse meteorological station (compared to Saddle station). This reflects the higher elevation of this station compared to Schaft Creek Saddle station. The monthly average air temperature for LaCasse station tends to be consistently lower than Saddle station which promotes early snow accumulation in the fall and late melting during the summer (Figure 3.2-1). Average monthly snow depths at Schaft Creek Camp meteorological station from January to April 2009 were similar to those recorded at Saddle station.

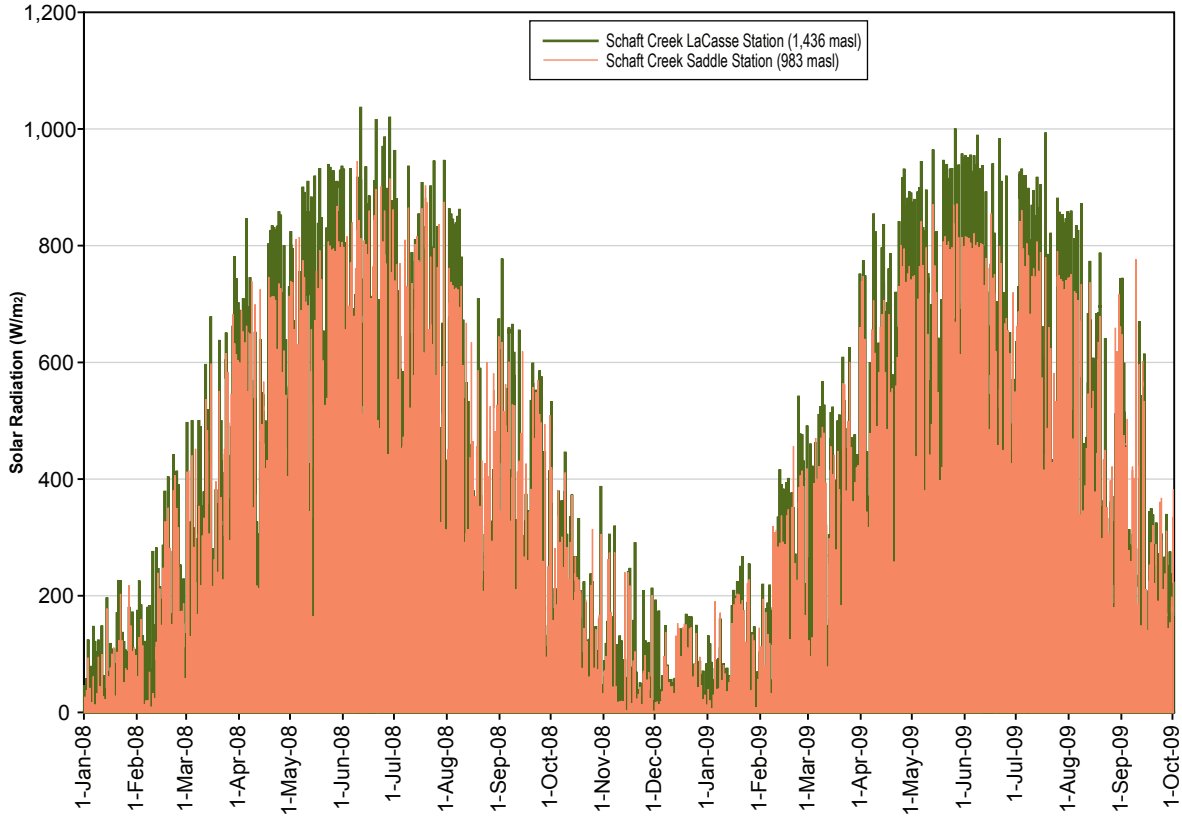
Table 3.5-1. Average Monthly Solar Radiation (W/m^2)

Month	Schaft Creek Saddle Station	Schaft Creek Mount LaCasse Station	Schaft Creek Camp Station
2008			
Jan	14	19	n/a
Feb	37	48	45[a]
Mar	105	117	78[a]
Apr	177	195	121
May	231	253	n/a
Jun	249	249	n/a
Jul	211	211	n/a
Aug	158	160	n/a
Sep	110	108	n/a
Oct	48	50	n/a
Nov	15	22	11[a]
Dec	11	14	10[a]
Annual Average	114	249	n/a
2009			
Jan	17	20	9[a]
Feb	60	62	53[a]
Mar	97	110	72
Apr	187	211	137
May	240	275	158
Jun	247	277	165
Jul	232	261	150
Aug	160	166	104[a]
Sep	88	91	78[a]
Oct	n/a	n/a	n/a
Nov	n/a	n/a	n/a
Dec	n/a	n/a	n/a

Notes: n/a – not available.
[a] = partial month, incomplete data set.

3.6.2 Snow Surveys

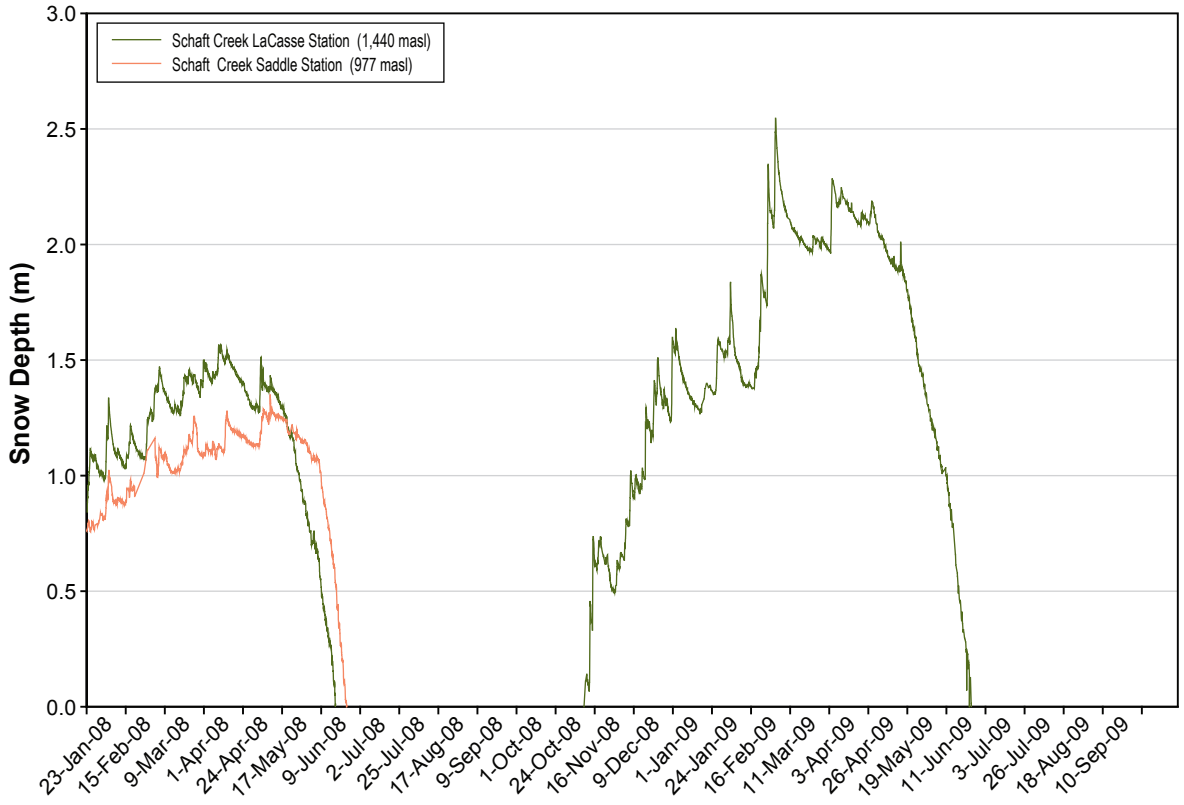
On-site snow survey measurements were taken at the beginning of February, April and May 2008 at Skeeter Lake Valley (SSCW1; 904 masl) and Schaft Creek High Elevation (SSCW2; 862 masl). The snow-water-equivalents (SWE) are summarized in Table 3.6-1 and snow survey field data sheets are presented in Appendix 1. Available data from regional Environment Canada snow pillows are also summarized in Table 3.6-1. Regional data from Kinaskan Lake (4D11P) and Wade Lake (4D14P) show that snow packs in 2009 were significantly deeper than those in 2008. Snow-water-equivalent was not measured at Tumeka Creek during 2008 but 2009 SWE was significantly higher than the 17-year average for that station. Historical regional data show that in general, snow tends to accumulate from January to April or May and then begins to melt. At Wade Lake (4D14P) average SWE peaked at 358 mm in May while SWE at Kinaskan Lake (4D11P) and Tumeka Creek (4D10P) peaked in April at 391 mm and 588 mm, respectively.



Note: The Schaft Creek Camp Station hourly average solar radiation data was excluded due to its intermittency.

FIGURE 3.5-1

Hourly Average Solar Radiation at Schaft Creek Meteorological Stations



Note: The snow sensor at Schaft Creek LaCasse station malfunctioned during June 2008.
Several of the measurements recorded by the data loggers at both stations were deemed 'poor quality' and removed from the data set.

FIGURE 3.6-1

Snow Depth at Schaft Creek Project Meteorological Stations

Table 3.6-1 Snow-Water-Equivalent (mm) for 2008 and 2009 Snow Surveys

	[1]Tumeka Creek (4D10P) Elevation = 1,220 masl			[1]Kinaskan Lake (4D11P) Elevation = 1,020 masl			[1]Wade Lake (4D14P) Elevation = 1,370			Skeeter Lake Valley (SSCW1) Elevation = 904 masl		Schaft Camp High Elevation (SSCW2) Elevation = 862 masl	
Date	**17 Year Average[2]**	**2008**	**2009**	**18 Year Average[2]**	**2008**	**2009**	**17 Year Average[2]**	**2008**	**2009**	**2008**	**2009**	**2008**	**2009**
1-Jan	333	n/a	406	191	127[a]	332	189	201[a]	279	n/a	n/a	n/a	n/a
1-Feb	444	n/a	570	277	189[a]	458	249	260[a]	397	195	n/a	379	n/a
1-Mar	517	n/a	n/a	329	243	n/a	289	385	n/a	n/a	n/a	n/a	n/a
1-Apr	588	n/a	704	391	285	587	348	339	461	283	n/a	478	n/a
1-May	568	n/a	735	347	316	602	358	307	479	218	n/a	518	n/a

n/a = not available

1: Source BCMOE 2007

2: Historical Data is available from 1967 onwards.

a: Sampling problems were encountered

3.7 DUSTFALL

The following section presents results of the 2007 and 2008 air quality monitoring program in the Schaft Creek Project area. In addition, detailed summaries of dustfall laboratory results are presented in Appendix 3.

3.7.1 Total Dustfall

Table 3.7-1 summarizes total dustfall results for July, August and September 2007 and June, July, August, and November 2008. All results were below the 1979 BC MOE Pollution Control Objectives for the Mining, Smelting and Related industries of BC (2.9 mg/dm^2/d). The highest total dustfall value was 2.50 mg/dm^2/day at FD1 during July 2008. This value was above several of the examples of dustfall criteria from other jurisdictions (including Alberta, Ontario, Australia, United Kingdom, and New York; Table 3.7-2). Most of these comparison criteria are for residential areas with the exception of the Australia criteria which are for new mines. A value of 2.50 mg/dm^2/day would require pro-rata compensation but not total compensation in Australia. During the measurement period the overall average total dustfall was 0.35 mg/dm^2/day and well below the BC Pollution Control Objective and the criteria presented for other jurisdictions. In general, average dustfall values are highest during the dry season when particulate matter can become airborne due to wind (Figure 3.7-1).

Table 3.7-1. Total Dustfall Results (mg/dm^2/day)

	Jul-07	Aug-07	Sep-07	Jun-08	Jul-08	Aug-08	Nov-08	Average
FD1	n/a	0.75	0.24	1.06	2.50	n/a	0.10	**0.93**
FD2	0.65	0.94	0.23	0.77	1.15	n/a	0.23	**0.66**
FD3	0.41	0.22	0.22	0.33	0.57	n/a	0.25	**0.33**
FD4	n/a	0.29	0.12	0.31	0.16	*<10*	0.16	**0.18**
FD5	n/a	0.23	0.11	0.50	0.36	*<10*	n/a	**0.25**
FD6	n/a	0.26	*<10*	0.14	0.17	*<10*	n/a	**0.13**
FD7	n/a	0.24	n/a	*<10*	0.19	0.11	n/a	**0.15**
FD8	n/a	0.87	*<10*	0.22	0.14	n/a	n/a	**0.32**
Average	**0.53**	**0.48**	**0.15**	**0.42**	**0.66**	**0.02**	**0.19**	***0.35***

Notes:
n/a = not available
The 1979 BC MOE Pollution Control Objectives for the Mining, Smelting and Related Industries of BC for dustfall is 1.7 to 2.9 mg/dm^2/d.
All italicized cells were below detection limit values. For calculation of the average it was assumed that the below detection limit values were equal to 1/2 of the detection limit.

3.7.2 Acid Deposition

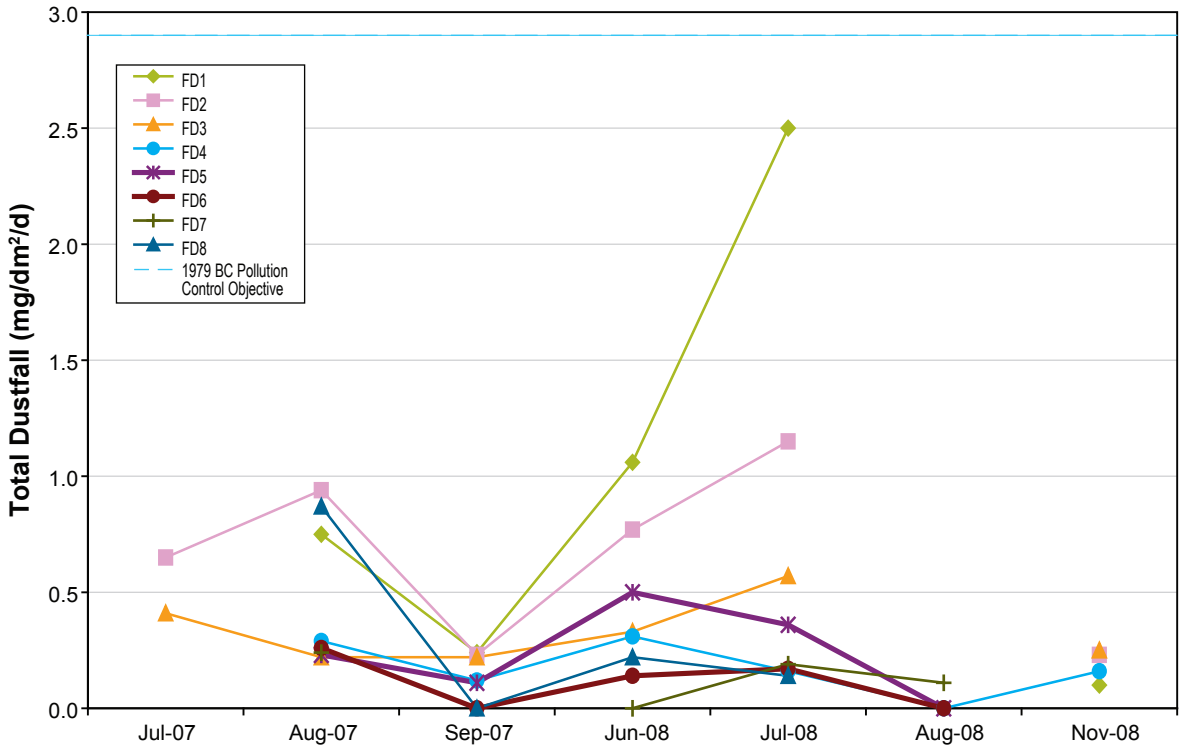
Acid deposition is primarily a result of SO_2 and NO_x emissions from industrial facilities. Since its emergence in the public conscience in the early eighties, Environment Canada has studied the sources and potential adverse effects of acid deposition on the Canadian environment (EC 2004).

Environment Canada measures acid deposition in terms of 'critical load', which is defined as the amount of acid deposition that a particular region can receive without being adversely affected. Chemical indicators of acid deposition are sulphate (SO_4^{2-}) and nitrate (NO_3^-) anions. The units commonly used to quantify acid deposition and critical loads are kg/ha/yr (kilograms per hectare per year of sulphate and/or nitrate) or eq/ha/yr (equivalent acid charge per hectare per year) (EC 2004). The unit used in this baseline report is kg/ha/yr.

Table 3.7-2. Examples of Dustfall Criteria Levels in Other Jurisdictions

Jurisdiction		Dustfall Criterion Level ($mg/dm^2/d$)	Comments
Alberta			
	residential and recreational areas	1.8	30 day averaging period
	commercial and industrial areas	5.3	31 day averaging period
Ontario		2.3	
Australia (new mines)		1.3	pro-rata compensation if level exceeded
		3.3	total compensation if level exceeded
United Kingdom			
	open country	1.0	95th percentile - complaints likely if exceeded
	residential areas	1.5	96th percentile - complaints likely if exceeded
	commercial areas	1.9	97th percentile - complaints likely if exceeded
New York			
	Level I	1.0	
	Level II	1.0	
	Level III	1.3	
	Level IV	2.0	

Source: Hrebenyck & Enns 2005



Note: values of zero indicate deposition was below the detection limit
Sampling did not take place during September or October 2008.
Sampling only took place at FD2 and FD3 during July 2007; sampling did not take place at FD7 during September 2007; sampling did not take place at FD1, 2, 3, or 8 during August 2008; sampling did not take place at FD5, 6, 7, or 8 during November 2008.

FIGURE 3.7-1

Summary of Total Dustfall for the Schaft Creek Project Area

Estimates of critical loads ranges have been established for both aquatic and terrestrial ecosystems for many areas of Canada. Terrestrial critical loads have yet to be developed for coastal British Columbia. Table 3.7-3 shows the range of established critical loads for forest soil in other Canadian jurisdictions (EC 2004).

Table 3.7-3. Forest Soil Critical Loads for Canadian Provinces

Province	Median (kg/ha/yr)[1]	5th Percentile
Newfoundland	28	12
Nova Scotia	39	13
Prince Edward Island	99	34
New Brunswick	56	27
Quebec	25	17
Ontario	26	19

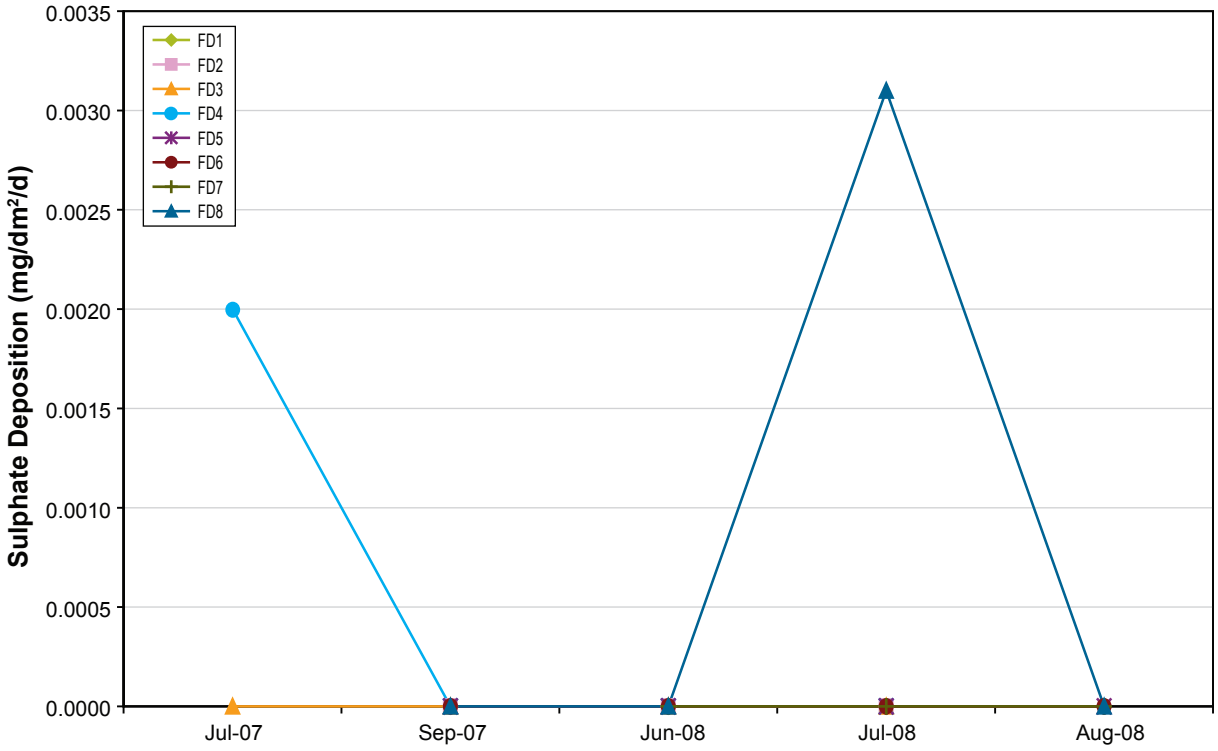
Note: [1]Assuming sulphate acid deposition.

Sulphate deposition was only detected twice while nitrate deposition was detected in several of the dustfall collectors during the measurement period (Table 3.7-4, Figures 3.7-2 and 3.7-3). The results showed that maximum acid deposition (1.78 kg/ha/yr) was well below median critical loads reported for different areas of Canada. The 1.78 kg/ha/yr value is the sum of the SO_4 potential deposition (0.0031 mg/dm^2/d or 1.13 kg/ha/yr) and the NO_2 potential deposition (0.0018 mg/dm^2/d or 0.65 kg/ha/yr). This potential deposition value was calculated from sulphate deposition at FD8 during July 2008 and nitrate deposition at FD6 during September 2007. It is important to note that this acid deposition neglects to take into consideration any neutralizing compounds found in the dustfall and soil. Therefore, actual loading is likely well below this prediction.

Table 3.7-4. Summary of Sulphate and Nitrate Deposition (mg/dm^2·day)

	Jul-07	Sep-07	Jun-08	Jul-08	Aug-08	Average
Sulphate						
FD1	n/a	*<0.01493*	*<0.0090*	*<0.0030*	n/a	**0.0045**
FD2	n/a	*<0.01493*	*<0.0070*	*<0.0030*	*n/a*	**0.0042**
FD3	*<0.002*	*<0.01493*	*<0.0070*	*<0.0040*	*n/a*	**0.0035**
FD4	0.0020	*<0.01493*	*<0.0070*	*<0.0050*	*n/a*	**0.0039**
FD5	n/a	*<0.01493*	*<0.0080*	*<0.0030*	*<0.0070*	**0.0041**
FD6	n/a	*<0.01493*	*<0.0080*	*<0.0080*	*<0.0080*	**0.0049**
FD7	n/a	n/a	*<0.0060*	*<0.0090*	*<0.0030*	**0.0030**
FD8	n/a	*<0.01493*	*<0.0060*	0.0031	*<0.0020*	**0.0036**
Average	**0.0015**	**0.0075**	**0.0036**	**0.0026**	**0.0025**	***0.0035***
Nitrate						
FD1	n/a	*<0.0001493*	0.00029	0.000650	n/a	**0.0003**
FD2	n/a	0.0004791	0.00051	0.000663	n/a	**0.0006**
FD3	0.000170	*<0.0001493*	0.00014	0.000659	n/a	**0.0003**
FD4	0.000340	0.0003755	0.0002	0.000512	n/a	**0.0004**
FD5	n/a	0.0004183	0.00037	0.000446	0.000497	**0.0004**
FD6	n/a	0.0017837	0.00053	*<0.000080*	0.000151	**0.0006**
FD7	n/a	0.0007548	0.0004	0.000608	0.00091	**0.0007**
FD8	n/a	0.0007548	0.00049	0.000620	0.00101	**0.0007**
Average	**0.0003**	**0.0006**	**0.0004**	**0.0005**	**0.0006**	***0.0005***

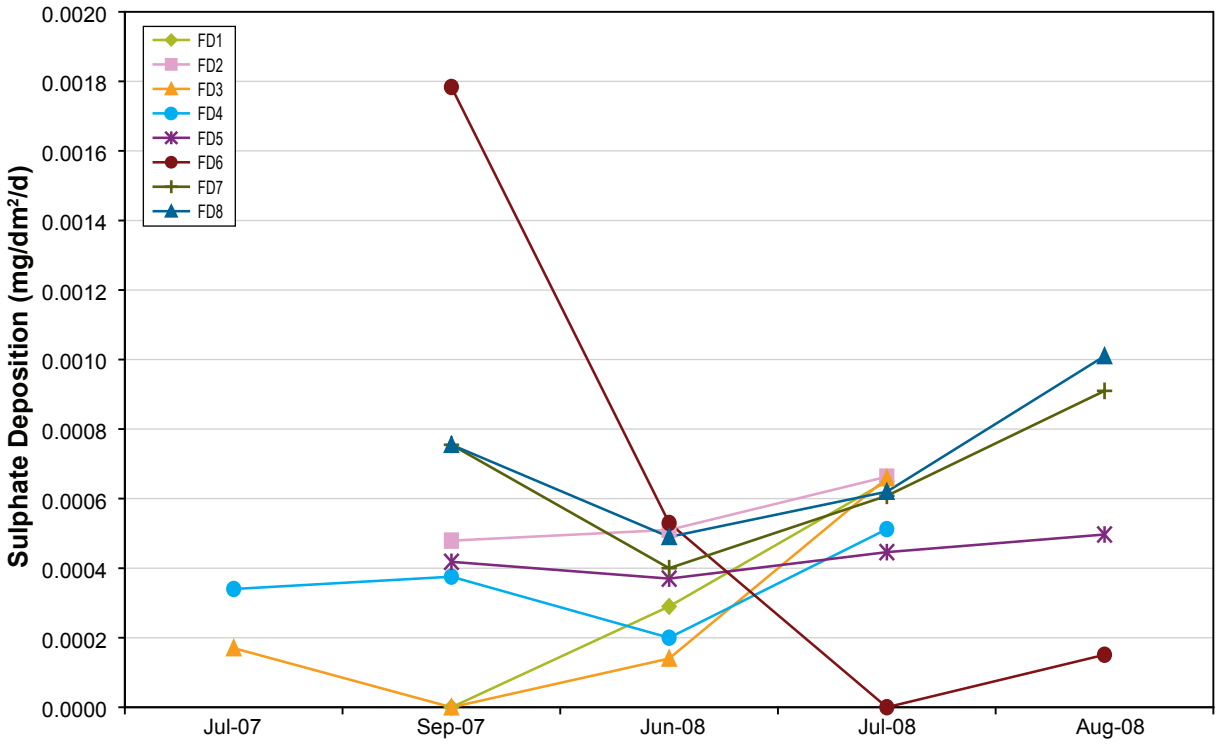
Note: n/a = not available
All italicized cells were below detection limit values. For calculation of the average it was assumed that the below detection limit values were 1/2 of the detection limit value.
Sampling did not take place during August 2007.



Note: values of zero indicate deposition was below the detection limit
Sulphate sampling did not take place during months not shown.
Sampling only took place at FD2 and FD3 during July 2007; sampling did not take place at FD7 during September 2007; sampling did not take place at FD1, 2, 3, or 8 during August 2008; sampling did not take place at FD5, 6, 7, or 8 during November 2008.

FIGURE 3.7-2

Summary of Sulphate Deposition for the Schaft Creek Project Area



Note: values of zero indicate deposition was below the detection limit
Nitrate sampling did not take place during months not shown.
Sampling only took place at FD2 and FD3 during July 2007; sampling did not take place at FD7 during September 2007; sampling did not take place at FD1, 2, 3, or 8 during August 2008; sampling did not take place at FD5, 6, 7, or 8 during November 2008.

FIGURE 3.7-3

Summary of Nitrate Deposition for the Schaft Creek Project Area

3.7.3 Metal Deposition

Maximum metal deposition values are summarized in Table 3.7-5. Maximum copper levels remained within the range of 0.0002 to 0.0130 mg/dm^2/day. The peak copper level during this measurement period occurred at FD4 during September 2007. Many of the total metal concentrations were at or below the detection limits.

Table 3.7-5. Summary of Maximum Metal Deposition (mg/dm^2/d)

Station	FD1	FD2	FD3	FD4	FD5	FD6	FD7	FD8	Maximum	Average
Aluminum (Al)-Total	0.006960	0.01150	0.00250	0.00110	0.00103	0.00057	0.00015	0.00084	0.01150	0.00308
Antimony (Sb)-Total	<	<	<	<	<	<	<	<	<	<
Arsenic (As)-Total	<	0.00001	<	<	<	<	<	<	0.00001	<
Barium (Ba)-Total	0.000152	0.00011	0.00006	0.00003	0.00003	0.00004	0.00002	0.00030	0.00030	0.00009
Beryllium (Be)-Total	<	<	<	<	<	<	<	<	<	<
Bismuth (Bi)-Total	<	<	<	<	<	<	<	<	<	<
Boron (B)-Total	<	<	<	<	<	<	<	<	<	<
Cadmium (Cd)-Total	<	<	<	<	<	<	<	<	<	<
Calcium (Ca)-Total	0.023500	0.01210	0.00686	0.04460	0.01370	0.00160	0.00136	0.01360	0.04460	0.01467
Chromium (Cr)-Total	0.000012	0.00004	<	<	<	<	<	<	0.00004	0.00002
Cobalt (Co)-Total	<	0.00001	<	<	<	0.00001	0.00001	<	0.00001	<
Copper (Cu)-Total	0.006320	0.00306	0.00157	0.01300	0.00749	0.00790	0.00748	0.00820	0.01300	0.00688
Iron (Fe)-Total	0.006550	0.01130	0.00241	0.00103	0.00078	<	<	0.00123	0.01130	0.00388
Lead (Pb)-Total	<	0.00001	<	0.00003	0.00001	0.00005	0.00004	0.00002	0.00005	0.00003
Lithium (Li)-Total	<	<	<	<	<	<	<	<	<	<
Magnesium (Mg)-Total	0.004500	0.01010	0.00150	0.00450	<	<	<	0.00280	0.01010	0.00468
Manganese (Mn)-Total	0.000297	0.00050	0.00017	0.00009	0.00008	0.00005	0.00005	0.00025	0.00050	0.00019
Mercury (Hg)-Total	<	<	<	<	<	<	<	<	<	<
Molybdenum (Mo)-Total	<	<	0.00001	0.00002	<	<	<	<	0.00002	<
Nickel (Ni)-Total	0.000011	0.00004	0.00001	<	<	0.00001	<	0.00001	0.00004	0.00002
Phosphorus (P)-Total	<	<	<	<	<	<	<	<	<	<
Potassium (K)-Total	<	<	<	<	<	<	<	<	<	<
Selenium (Se)-Total	<	<	<	<	<	<	<	<	<	<
Silicon (Si)-Total	0.011900	0.02030	0.00323	0.00159	0.00128	0.00190	<	0.00083	0.02030	0.00586
Silver (Ag)-Total	<	<	<	<	<	<	<	<	<	<
Sodium (Na)-Total	<	<	<	<	<	<	<	<	<	<
Strontium (Sr)-Total	0.000060	0.00005	0.00003	0.00004	0.00002	0.00002	0.00001	0.00003	0.00006	0.00003
Thallium (Tl)-Total	<	<	<	<	<	<	<	<	<	<
Tin (Sn)-Total	<	<	<	<	<	<	<	<	<	<
Titanium (Ti)-Total	0.000470	0.00066	0.00012	<	<	<	<	<	0.00066	0.00042
Uranium (U)-Total	<	<	<	<	<	<	<	<	<	<
Vanadium (V)-Total	0.000022	0.00004	<	<	<	<	<	<	0.00004	0.00003
Zinc (Zn)-Total	0.000118	0.00010	0.00010	0.00007	0.00008	0.00023	0.00015	0.00013	0.00023	0.00012

Note: Values of zero indicate deposition below detection limits

< = value below detection limit

4. Summary

4. Summary

Automated meteorological stations equipped with sensors for temperature, relative humidity, precipitation, solar radiation, snow depth, wind speed and wind direction were installed at three sites within the Schaft Creek Project area. Snow-water-equivalent was measured at two snow survey locations on site. Eight dustfall monitoring locations were used to evaluate the baseline air quality.

Data collection is on-going at Schaft Creek Saddle, Mount LaCasse and Schaft Creek Camp RainWise meteorological stations. Schaft Creek Saddle meteorological station was installed in October 2005; the Mount LaCasse and Schaft Creek Camp meteorological station were installed in August 2006. The Camp station is a RainWise Inc. station while the other two are Campbell Scientific Inc. stations. Snow surveys were conducted during February, April, and May 2008 at the Skeeter Lake Valley location and northeast of the camp.

The average annual air temperature at the Saddle station was 0.5°C in 2008, with monthly average air temperatures ranging from -13.3°C in December 2008 to 11.1°C in August 2008. The hourly minimum temperature recorded in 2008 was -32.4°C (January). The average annual air temperature at the LaCasse station was -1.9°C in 2008, with monthly average air temperatures ranging from -13.4°C in December 2008 to 8.3°C in August 2008. The hourly minimum temperature recorded in 2008 was -34.1°C (February). The Schaft Creek Camp station did not report a continuous data set and is therefore not discussed in terms of average temperatures. A complete data set for 2009 was not available at the time of reporting.

Precipitation recorded at all three meteorological stations during 2008 and 2009 was not reliable due to the lack of maintenance and sensor malfunction. Average annual precipitation estimated using ClimateBC/PRISM for the Camp station was 1,047 mm.

At the Mount LaCasse station the annual average wind speed was 4.9 m/s during 2008, the monthly average wind speed ranged from 4.1 (August) to 5.8 m/s (October), and the maximum instantaneous wind speed was 22.7 m/s during 2008 (October 2, 2008 at 12:15 AM). The dominant wind directions were from the south and southeast which combined occurred 64% and 55% of the time during 2008 and 2009, respectively.

The average annual solar radiation measured at Schaft Creek Saddle meteorological station in 2008 was 114 W/m^2 with monthly averages ranging from 11 (December) to 249 W/m^2 (June). The maximum hourly average solar radiation value recorded at the Saddle station during 2008 was 945 W/m^2 on June 9, 2008 at 1400 hours.

The peak snow depth at Saddle station was about 1.5 m in March of 2008 and 2.5 m in March of 2009. Regional Environment Canada snow pillow data from 3 stations close to the Project (Kinaskan Lake, Tumeka Creek, and Wade Lake) also showed significantly higher snow-water-equivalents (SWE) in 2009 with comparison to 2008.

In preparation for the future environmental assessment, a baseline air quality monitoring study using dustfall collectors took place in the summer and fall of 2007 and 2008. Eight dustfall stations were established during June 2007and monitored until November 2008. All total dustfall results were within BC Pollution Objectives (1979). Sulphate and nitrate contributions towards potential acid

deposition were found to be below critical load estimates for similar regions in Canada when calculated using maximum sulphate and nitrate depositions recorded during the period. Based on these findings, the air quality at the Schaft Creek Project can be summarized as good since all measured parameters fell well within applicable project objectives and guidelines.

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Appendix 1

Snow Survey Field Data Sheets

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek Project Environmental Baseline Study (Project no. 830-1) for CopperFox Metals

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW1		2008	FEB	2
			Year	Month	Day
Snow Course Name:	SKEETER LAKE VALLEY				
Observer's Name:	CHRIS DOUGHTY, DENNIS DAY, BILL OSTRICH (PWH)				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	Rickly DIGITAL
		No:			

Station Number	Snow Depth (cm)		Core Length (cm)	Weight of Tube and Core (kg)	Weight Tube Only Before Sampling (kg)	Snow-Water Equivalent (cm)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	99	97.5	76.5	2.27	2.02	18.7	24.4%
2	93.5	93	82	2.29	2.02	20.2	24.6%
3	96.5	96	78	2.27	2.02	18.7	24.0%
4	83	71.5	67.5	2.23	2.02	15.7	23.3%
5	93	91	78	2.28	2.02	19.4	24.9%
6	88.5	88	80	2.27	2.02	18.7	23.4%
7	88	87	73	2.27	2.00	20.2	27.6%
8	93	92	78	2.29	2.00	21.7	27.8%
9	93	91	80	2.28	2.00	20.9	26.2%
10	95	92	79	2.28	2.00	20.9	26.5%
Total		899.0				195.1	
Average		89.9				19.5	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1400 h ended 1600 h

A. Weather Conditions at Snow Course

	Freezing	x	Thawing		Temp	-12	˚C
	Blowing		Calm	x			
Skies:	Clear		Partly Cloudy	x	Overcast		
Precipitation:	None	x	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry	x			
	Soft	x	Crusted				
Support:	None		Person on skies/snowshoes	x	Person on foot		
Serious Drifting:	No	x	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*		No	x			

C. Sampling Conditions

	Easy		Moderately Difficult	x	Very Difficult		
Ground Reached on all Samples:	Yes	x	No*				
Ice Layers:	In snowpack		On ground	x			
Ground under snow:	Dry	x	Damp		Wet		Frozen x

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None	x	Sunny slopes		General		
Small streams:	Bridged with snow	x	Open		Clear		Muddy

*Describe fully under remarks

E. Remarks:

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek Project Environmental Baseline Study (Project no. 830-1) for CopperFox Metals

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW2		2008	FEB	2
			Year	Month	Day
Snow Course Name:	SCHAFT CREEK CAMP HIGH ELEVATION				
Observer's Name:	CHRIS DOUGHTY, DENNIS DAY				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	Rickly DIGITAL
		No:			

Station Number	Snow Depth (cm)		Core Length (cm)	Weight of Tube and Core (kg)	Weight Tube Only Before Sampling (kg)	Snow-Water Equivalent (cm)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	119	117	107	2.34	2.00	25.4	23.7%
2	129	124	120	2.44	2.00	32.9	27.4%
3	121	119	107	2.39	2.00	29.1	27.2%
4	173	171	167	2.7	2.00	52.3	31.3%
5	176	174	160	2.69	2.00	51.6	32.2%
6	165	154	139	2.54	2.00	40.4	29.0%
7	142	140	124	2.49	2.00	36.6	29.5%
8	162	158	149	2.6	2.00	44.8	30.1%
9	139	135	128	2.48	2.00	35.9	28.0%
10	138	133	114	2.4	2.00	29.9	26.2%
Total		1425.0				378.9	
Average		142.5				37.9	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1030 a.m. / p.m. ended 1300 a.m. / p.m.

A. Weather Conditions at Snow Course

	Freezing	x	Thawing		Temp	-12	˚C
	Blowing		Calm	x			
Skies:	Clear		Partly Cloudy	x	Overcast		
Precipitation:	None	x	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry	x			
	Soft	x	Crusted				
Support:	None		Person on skies/snowshoes	x	Person on foot		
Serious Drifting:	No	x	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*		No	x			

C. Sampling Conditions

	Easy		Moderately Difficult	x	Very Difficult		
Ground Reached on all Samples:	Yes	x	No*				
Ice Layers:	In snowpack		On ground	x			
Ground under snow:	Dry	x	Damp		Wet		Frozen x

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None	x	Sunny slopes		General		
Small streams:	Bridged with snow	x	Open		Clear		Muddy

*Describe fully under remarks

E. Remarks:

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek - Meteorology and Air Quality (Project no. 912-1)

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW1		2008	APR	1
			Year	Month	Day
Snow Course Name:	SKEETER LAKE VALLEY				
Observer's Name:	OD, DQ,				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	
		No:			

Station Number	Snow Depth (cm)		Core Length (cm)	Weight of Tube and Core (cm)	Weight Tube Only Before Sampling (cm)	Snow-Water Equivalent (cm)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	113	111	100	184.6	156.2	28.4	25.6
2	116	113	100	184.6	156.2	28.4	25.1
3	121	121	102	187.6	156.2	31.4	25.9
4	108	107	99	183.1	156.2	26.9	25.1
5	110	110	99	183.9	156.2	27.7	25.1
6	107	107	99	183.1	156.2	26.9	25.1
7	107	106	101	184.6	156.2	28.4	26.8
8	114	114	100	185.4	156.2	29.1	25.6
9	116	116	100	185.4	156.2	29.1	25.1
10	114	114	97	183.1	156.2	26.9	23.6
Total		1119				283.3	
Average		111.9				28.3	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1005 a.m. p.m. ended 1035 a.m. p.m.

A. Weather Conditions at Snow Course

	Freezing	X	Thawing		Temp	-7	˚C
	Blowing	X	Calm				
Skies:	Clear		Partly Cloudy	X	Overcast		
Precipitation:	None	X	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry				
	Soft		Crusted				
Support:	None		Person on skies/snowshoes	X	Person on foot		
Serious Drifting:	No	X	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*		No	X			

C. Sampling Conditions

	Easy	X	Moderately Difficult		Very Difficult			
Ground Reached on all Samples:	Yes	X	No*					
Ice Layers:	In snowpack	X	On ground					
Ground under snow:	Dry	X	Damp		Wet		Frozen	

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None	X	Sunny slopes		General			
Small streams:	Bridged with snow	X	Open		Clear		Muddy	

*Describe fully under remarks

E. Remarks:

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek - Meteorology and Air Quality (Project no. 912-1)

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW2		2008	APR	1
Snow Course Name:	SCHAFT CAMP		Year	Month	Day
Observer's Name:	OD, DQ,				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	
		No:			

Station Number	Snow Depth (cm)		Core Length (cm)	Weight of Tube and Core (cm)	Weight Tube Only Before Sampling (cm)	Snow-Water Equivalent (cm)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	164	163	153	202.5	156.2	46.3	28.4
2	153	150	152	201.8	156.2	45.6	30.4
3	150	150	140	201.1	156.2	44.8	29.9
4	176	176	176	213.8	156.2	57.5	32.7
5	193	193	172	266.1	214.5	51.6	26.7
6	165	163	157	256.4	214.5	41.9	25.7
7	192	190	187	266.1	214.5	51.6	27.1
8	191	191	174	266.1	214.5	51.6	27.0
9	163	161	157	257.1	214.5	42.6	26.5
10	171	170	159	259.3	214.5	44.8	26.4
Total		1707.0				478.3	
Average		170.7				47.8	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1100 a.m. / p.m. ended 1245 a.m. / p.m.

A. Weather Conditions at Snow Course

	Freezing	X	Thawing		Temp	-7	˚C
	Blowing		Calm	X			
Skies:	Clear		Partly Cloudy	X	Overcast		
Precipitation:	None	X	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry				
	Soft		Crusted				
Support:	None		Person on skies/snowshoes	X	Person on foot		
Serious Drifting:	No	X	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*	X	No				

C. Sampling Conditions

	Easy		Moderately Difficult		Very Difficult	X		
Ground Reached on all Samples:	Yes	X	No*					
Ice Layers:	In snowpack	X	On ground					
Ground under snow:	Dry		Damp		Wet	X	Frozen	

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None		Sunny slopes	X	General			
Small streams:	Bridged with snow	X	Open		Clear		Muddy	

*Describe fully under remarks

E. Remarks: ONE TRAIL WOLF

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek - Meteorology and Air Quality (Project no. 912-1)

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW1		2007	Apr	30
Snow Course Name:	SKEETER LAKE VALLEY		Year	Month	Day
Observer's Name:	OD, DQ,				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	20 Ft
		No:			

Station Number	Snow Depth (cm)		Core Length (cm)	Weight of Tube and Core (cm)	Weight Tube Only Before Sampling (cm)	Snow-Water Equivalent (cm)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	80	77	40	175.6	149.5	18.7	24.3
2	77	75	40	174.9	149.5	17.9	23.9
3	75	74	50	178.6	149.5	21.7	29.3
4	85	82	42	180.1	149.5	23.2	28.3
5	81	79	45	177.1	149.5	20.2	25.5
6	81	80	56	179.4	149.5	22.4	28.0
7	79	78	51	178.6	149.5	21.7	27.8
8	81	78	54	180.9	149.5	23.9	30.7
9	81	79	40	180.9	149.5	23.9	30.3
10	86	84	58	181.6	149.5	24.7	29.4
Total		786.0				218.2	
Average		78.6				21.8	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1415 a.m. / p.m. ended 1545 a.m. / p.m.

A. Weather Conditions at Snow Course

	Freezing		Thawing	X	Temp	0	˚C
	Blowing	X	Calm				
Skies:	Clear		Partly Cloudy	X	Overcast		
Precipitation:	None	X	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry				
	Soft		Crusted				
Support:	None		Person on skies/snowshoes		Person on foot	X	
Serious Drifting:	No	X	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*		No	X			

C. Sampling Conditions

	Easy		Moderately Difficult		Very Difficult	x	
Ground Reached on all Samples:	Yes	X	No*				
Ice Layers:	In snowpack	X	On ground				
Ground under snow:	Dry		Damp		Wet	x	Frozen

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None		Sunny slopes		General	X	
Small streams:	Bridged with snow		Open	X	Clear		Muddy

*Describe fully under remarks

E. Remarks:

British Columbia Ministry of Water, Land and Air Protection- Environmental Protection Division- Flood Hazard/River Forecast Centre

Schaft Creek - Meteorology and Air Quality (Project no. 912-1)

SNOW SURVEY FIELD DATA SHEET

Snow Course No.	SSCW2		2007	Apr	30
Snow Course Name:	Schaft Camp High Elevation		Year	Month	Day
Observer's Name:	OD, DQ,				
Number of Tubes Used:	2	Driving Wrench Used: Yes:	X	Scale No.:	20 Ft
		No:			

Station Number	Snow Depth (in)		Core Length (in)	Weight of Tube and Core (in)	Weight Tube Only Before Sampling (in)	Snow-Water Equivalent (in)	Density (%)
	With Dirt Plug	Without Dirt Plug					
1	165	162	164	204.8	151.0	53.8	33.2
2	152	149	143	195.8	151.0	44.8	30.1
3	141	140	117	191.3	151.0	40.4	28.8
4	190	189	185	217.5	151.0	66.5	35.2
5	175	175	174	268.3	210.0	58.3	33.3
6	185	183	168	266.1	210.0	56.1	30.6
7	176	176	151	259.3	210.0	49.3	28.0
8	162	162	156	263.8	210.0	53.8	33.2
9	151	151	138	260.1	210.0	50.1	33.2
10	149	146	112	254.9	210.0	44.8	30.7
Total		1633.0				517.9	
Average		163.3				51.8	

Please complete in field or as soon after snow sampling as possible.

Time sampling began 1205 a.m. / p.m. ended 1355 a.m. / p.m.

A. Weather Conditions at Snow Course

	Freezing		Thawing	X	Temp	0	˚C
	Blowing	X	Calm				
Skies:	Clear		Partly Cloudy	X	Overcast		
Precipitation:	None	X	Raining		Snowing		

B. Surface Snow Conditions at Snow Course

Fresh fallen snow depth 0 cm

	Wet		Dry				
	Soft		Crusted				
Support:	None		Person on skies/snowshoes		Person on foot	X	
Serious Drifting:	No	X	Yes*		Which Stations		
Evidence of oversnow traffic:	Yes*		No	X			

C. Sampling Conditions

	Easy		Moderately Difficult	x	Very Difficult		
Ground Reached on all Samples:	Yes	X	No*				
Ice Layers:	In snowpack	X	On ground				
Ground under snow:	Dry	x	Damp		Wet		Frozen	

D. General Condition en Route

Snow line elevation 0 metres

Thaw:	None		Sunny slopes		General	X	
Small streams:	Bridged with snow		Open	X	Clear		Muddy	

*Describe fully under remarks

E. Remarks:

Appendix 2

Manual Measurement Log

Legend

Rescan Met Stn = Rescan meteorology station
R= rain
S = snow
SH= rain showers
FL= snow flurries
Str = stratus clouds
Cir = cirrus clouds
Cu = cumulus cloud
Sl = sleet storm [rain/snow]
O/N = over night
O/D= over day
T = trace [T = <.25" of snow]
Cloud cover was observed during the morning (7:30 AM).
Snow depth readings for total snow fall are taken early am for 24 hr. period.

Appendix 2. Manual Measurement Log

Date	Snow on Ground: Camp (in)	Snow on Ground: Rescan Met Stn (in)	Precipitation Overnight (in)	Precipitation Over-day (in)	New Snow (in)	Accumulated Snow (in)	Wind Direction	Wind Speed	Cloud Cover	Temperature: Low (7:30 AM) (°C)	Temperature: High (3:30 PM) (°C)	Remarks
1-Jan-08	30	6.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-6.5	-4.7	
2-Jan-08	30	6.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-5.6	-2.5	
3-Jan-08	30	6.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-6.6	-6.2	
4-Jan-08	30	6.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-11.6	-7.8	
5-Jan-08	30	6.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-9.6	-6.4	
6-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-16.2	-14	
7-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-17.3	-13	
8-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-14	-8.9	
9-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-10.9	-3.3	
10-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-9.6	-6.4	
11-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-12	-5	
12-Jan-08	34	6.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-5.1	-1	
13-Jan-08	35	7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-6.5	-3.5	
14-Jan-08	36	7.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-11.1	-8.3	
15-Jan-08	36	7.5	n/a	n/a	n/a	n/a	n/a	high	n/a	-6.5	-0.5	
16-Jan-08	36	7.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.5	2.6	
17-Jan-08	36	7.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0	1.5	
18-Jan-08	32	6.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.9	3.6	
19-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-3.3	-1.6	
20-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-16.8	-10.6	
21-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-19.9	-12.2	
22-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-16.1	-8.8	
23-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-12.7	-7.5	
24-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-8.1	-4.4	
25-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-5.4	-1.5	
26-Jan-08	34	6.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-4.2	-9.2	
27-Jan-08	34	6.7	n/a	n/a	n/a	n/a	north	n/a	n/a	-24.9	-24.1	
28-Jan-08	34	6.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-37.6	-25.6	
29-Jan-08	34	6.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-26.3	-22.1	
30-Jan-08	34	6.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-26.3	-22.2	
31-Jan-08	34	6.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-33.4	-22.6	
						Missing February 1, 2008 to October 5, 2008.						
5-Oct-08	Snow level 5000 ft.	n/a	n/a	n/a	n/a	0	n/a	n/a	n/a	1.1	6.8	
6-Oct-08	Snow level 3000 ft.	n/a	Light r/s	Light r/s	n/a	0	n/a	n/a	n/a	0.1	7.4	
7-Oct-08	0.25	0.25	n/a	n/a	n/a	0.25	n/a	n/a	n/a	-0.6	6.1	
8-Oct-08	Snow level 4000 ft	n/a	n/a	s/fl	n/a	0.25	n/a	n/a	n/a	-3.5	3	
9-Oct-08	Snow level 4000 ft.	n/a	n/a	n/a	n/a	0.25	n/a	n/a	clear	-5.3	3	
10-Oct-08	Snow level 4000 ft.	n/a	n/a	n/a	n/a	0.25	n/a	n/a	str cir	-5.3	6.1	
11-Oct-08	Snow level 4500 ft.	n/a	r	r	n/a	0.25	n/a	n/a	n/a	2.6	7.1	
12-Oct-08	Snow level 5000 ft.	n/a	r/sl	sh	n/a	0.25	n/a	n/a	8str	-0.5	8.1	
13-Oct-08	0.25	0.25	n/a	n/a	n/a	0.5	n/a	n/a	1 str	-0.2	2.7	
14-Oct-08	n/a	n/a	n/a	n/a	n/a	0.5	n/a	n/a	10 str	-0.5	6	
15-Oct-08	n/a	n/a	r/sh	r/sh	n/a	0.5	n/a	n/a	10 str	3.2	7.1	
16-Oct-08	n/a	n/a	n/a	n/a	n/a	0.5	n/a	n/a	10 str	2	6	
17-Oct-08	3.5	3.5	n/a	n/a	n/a	4	n/a	n/a	4st/cir	-0.6	4.3	
18-Oct-08	1	1	n/a	n/a	n/a	5	n/a	n/a	9 str	-2.6	5.3	
19-Oct-08	T	T	T (s/fl)	r/sl	n/a	5	n/a	n/a	10 str	0.6	2.8	
20-Oct-08	T	T	r		n/a	5.25	n/a	n/a	10 str	0.3	4.6	
21-Oct-08	T	T	n/a	n/a	n/a	5.25	n/a	n/a	10 alto str	-0.7	4.3	
22-Oct-08	4.5	4.5	n/a	n/a	n/a	10.25	n/a	n/a	10 str	0.6	3.7	
23-Oct-08	2.5	2.5	r/sh	s/fl	n/a	10.25	n/a	n/a	10 str	-0.1	1.7	
24-Oct-08	8	8	s	r	n/a	17.25	n/a	n/a	10str	1.1	2.1	
25-Oct-08	6	4	s/fl	s/fl	n/a	18.75	n/a	n/a	10str	-4.6	-1.7	
26-Oct-08	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	-6.4	1.2	
27-Oct-08	7.25	4.25	sl	n/a	n/a	20.25	n/a	n/a	10 str	0.3	3.7	

(continued)

Appendix 2. Manual Measurement Log (continued)

Date	Snow on Ground		Precipitation	Precipitation Over-	New	Accumulated	Wind Direction	Wind Speed	Cloud Cover	Temperature		Remarks
	Camp (in)	Rescan Met Stn (in)	Overnight (in)	day (in)	Snow (in)	Snow (in)				Low (7:30 AM) (°C)	High (3:30 PM) (°C)	
28-Oct-08	6	4	sl	sh	n/a	21.25	n/a	n/a	10 str	0.6	4	
29-Oct-08	5	3	T	fl	n/a	21.25	n/a	n/a	10 str	-1.5	2.2	
30-Oct-08	5	3	n/a	n/a	n/a	21.25	n/a	n/a	9 str	-6.1	0.6	
31-Oct-08	5	3	s	fl	n/a	21.75	n/a	n/a	10 str	-7.9	-2.2	
1-Nov-08	6	4	fl	fl/r	n/a	23.5	n/a	n/a	10 str	-7.4	1.7	
2-Nov-08	5	3	sh	r/sl	n/a	23.5	n/a	n/a	10 str	0.4	2.5	
3-Nov-08	5	3	sh	n/a	n/a	23.5	n/a	n/a	10 str	0.4	2.5	
4-Nov-08	5	3	n/a	n/a	n/a	23.5	n/a	n/a	1 str	-8.4	1	
5-Nov-08	5	3	fl	T	n/a	23.5	n/a	n/a	6 str	-10.5	-2.1	
6-Nov-08	6.75	4.75	fl	fl	n/a	25.25	n/a	n/a	10 str	-3.4	1.2	
7-Nov-08	6.75	4.75	fl	fl	n/a	26	n/a	n/a	3 str	-0.6	4	
8-Nov-08	6.75	4.75	s	n/a	n/a	26.5	n/a	n/a	10 str	-2.2	-0.1	
9-Nov-08	10.25	8.25	n/a	n/a	n/a	30	n/a	n/a	10 str	-3.9	-2.7	
10-Nov-08	10.25	8.25	fl	fl	n/a	30	n/a	n/a	10 str	-8.7	-5.4	
11-Nov-08	14.75	12.75	s	s	n/a	34.5	n/a	n/a	10 str	-8	-3	
12-Nov-08	21.75	19.75	fl	fl	n/a	41.5	n/a	n/a	10 str	-4.2	2	
13-Nov-08	21.75	19.75	n/a	s	n/a	41.75	n/a	n/a	10 str	-2.9	2.7	
14-Nov-08	27.5	25.5	n/a	s	n/a	46.5	n/a	n/a	10 str	-4.3	-0.9	
15-Nov-08	20	15.7	fl	n/a	n/a	48	n/a	n/a	8 st	0.2	1.8	
16-Nov-08	20	15.7	n/a	n/a	n/a	48	n/a	n/a	clear	-14	-4.9	
17-Nov-08	22.5	18.2	fl	s	n/a	54	n/a	n/a	10 str	-8.5	-4.5	
18-Nov-08	26.5	22.2	s	n/a	n/a	58	n/a	n/a	clear	-15.3	-5.2	
19-Nov-08	26.5	22.2	n/a	n/a	n/a	58	n/a	n/a	10 str	-16.3	-9.7	
20-Nov-08	28.5	22.2	n/a	n/a	n/a	60	n/a	n/a	10 str	-9.9	-3.6	
21-Nov-08	34	25.7	T	s	n/a	63.5	n/a	n/a	10 str	-6.5	-3.8	
22-Nov-08	24	19.6	s	s	n/a	65.75	n/a	n/a	10 str	-3.5	0	
23-Nov-08	33.25	28.75	s	s	n/a	75	n/a	n/a	10 str	-2.3	-1.7	
24-Nov-08	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
25-Nov-08	28	23.5	1.5	0	1.5	79.5	pm warm south wind	10-15 mph	8 str	-2.4	0	
26-Nov-08	28	23.5	0	0	0	79.5	gusty south winds	10-20 mph	10 str	0	2.7	
27-Nov-08	27	24.5	2	T	2	81.5	light NE wind	fl	10 str	-1	1	
28-Nov-08	31.5	29	2.5	2	4.5	86	calm	0	10 str	0.3	1.7	snow
29-Nov-08	28	27	4	0	4	90	s wind	5 mph	9 str	-3.2	0.7	clearing
30-Nov-08	28	27	4	6	10	100	calm	n/a	10 str	-1.1	-0.3	snow
1-Dec-08	32	32.5	0.25	0	0.25	100.25	s wind	5-10 mph	clear	-10.6	-8.6	
2-Dec-08	32	32.5	0	0	0	100.25	east	0-1 mph	clear	-17.2	-11.2	
3-Dec-08	30	30.5	0	0	0	100.25	south	0-1 mph	6 str	-17.9	-12.4	
4-Dec-08	30	30.5	0	2.25	2.25	102.5	south	0-15 mph	10 str	-3	5.1	snow/rain
5-Dec-08	30	30.5	0	0.75	0.75	103.25	NE>S	0-2	10 str	-0.7	1	fog/fl
6-Dec-08	30	30.5	2.5	n/a	2.5	105.75	N>S	0-1	10 str	-1.8	2.6	
7-Dec-08	30	30.5	0	0	0	105.75	south	5-10 mph	1 str	-1.9	2.7	
8-Dec-08	29	29.5	0.5	n/a	0.5	106.25	south	1-5 mph	4str>10 str	-3.2	1	
9-Dec-08	34	32.5	7.75	T	7.75	114	NNE>S	2-5 mph	10 str	-9.5	-0.1	s/storm
10-Dec-08	34	32.5	1	0	1	115	S	0-1 mph	10 str	-1.8	0.5	
11-Dec-08	34.5	34	3	0.5	3.5	118.5	S	1-5 mph	10 str>7 str	-1.2	-0.5	snow
12-Dec-08	32	33.5	0.25	0	0.25	118.75	E>NE	5-10 mph	10 str	-10.6	-5.9	fl/o/n
13-Dec-08	32	33.5	0	0	0	118.75	N	5-15mph	2 str	-15.2	-14.8	gusty
14-Dec-08	32	33.5	0	0	0	118.75	S	0-5	clear	-26.3	-22	S drift
15-Dec-08	32	33.5	0	0	0	118.75	S	0-5	8 str/cir	-27.5	-20.4	drift
16-Dec-08	30	31.5	0	0.5	0.5	119.25	ENE	0-5 mph	10 str	-24.6	-10.6	drift/fl
17-Dec-08	30	31.5	0	0	0	119.25	NE>S	0-5 mph	3 str	-21.7	-16.4	drift
18-Dec-08	28	29.5	0	0	0	119.25	variable	0	clear	-29.9	-23.8	drift
19-Dec-08	28	29.5	0	0	0	119.25	S	1-3 mph	clear	-32.9	-26.6	drift
20-Dec-08	28	29.5	0	0	0	119.25	variable	0-3 mph	2 str	-33.8	-25.2	drift
21-Dec-08	28	29.5	0	0	0	119.25	variable	0	clear	-33.8	-28.3	drift
22-Dec-08	28	29.5	0	0	0	119.25	E	1-5 mph	clear	-31.7	-26.5	drift

(continued)

Appendix 2. Manual Measurement Log (continued)

Date	Snow on Ground		Precipitation	Precipitation Over-	New	Accumulated	Wind Direction	Wind Speed	Cloud Cover	Temperature		Remarks
	Camp (in)	Rescan Met Stn (in)	Overnight (in)	day (in)	Snow (in)	Snow (in)				Low (7:30 AM) (°C)	High (3:30 PM) (°C)	
23-Dec-08	28	29.5	0	0	0	119.25	S	1-5 mph	10 str	-28.1	-18	drift
24-Dec-08	28	29.5	0	0	0	119.25	N	2-5 mph	4 str	-22.2	-15.7	drift
25-Dec-08	28	29.5	0	0	0	119.25	S	2-5 mph	3 str	-23.7	-20.2	drift
26-Dec-08	28	29.5	0	2	2	121.25	ENE	1-3 mph	10 str	-16	-9.3	drift/fl
27-Dec-08	30	30	0.25	0	0.25	121.5	S	1-3 mph	9 str	-9.3	-6.3	drift/fl
28-Dec-08	30	30	2	0	2	123.5	S fl	0-3 mph	10 str	-11.1	-9.6	drift S o/n
29-Dec-08	30	30	2.25	0	2.25	125.75	N fl	0-3 mph	10 alto str	-17.7	-15.1	drift
30-Dec-08	30	30	0.25	0	0.25	126	N fl	0-3 mph	10 str	-22.4	-19.9	drift
31-Dec-08	32	32.5	0.75	0	0.75	126.75	N fl	0-3 mph	10 str	-22.4	-19.9	drift
1-Jan-09	32	32.5	0	0	0	126.75	S>N	0-3 mph	clear	-33.3	-26.6	drift
2-Jan-09	32	32.5	0	0	0	126.75	variable	0-3 mph	8 str	-34.1	-24.8	drift
3-Jan-09	32	32.5	1	0	1	127.75	ENE	2-5 mph	10.str	-30.1	-20	drift
4-Jan-09	32	32.5	2.25	3	5.25	133	SW S	1-5 mph	10 str	-16.4	-5.1	drift S o/n
5-Jan-09	32	32.5	4	0	4	137	calm	0-2 mph	10 str	-11.1	-12.2	drift
6-Jan-09	32	32.5	1	0.5	1.5	138.5	E S	0-2 mph	10 str	-18.1	-17.6	drift
7-Jan-09	32	32.5	0	0	0	138.5	E	0-2 mph	clear	-32.4	-24.6	drift
8-Jan-09	32	32.5	0	0	0	138.5	NE	2-5 mph	clear	-35.1	-24.6	drift
9-Jan-09	40	39.5	2	0	2	140.5	S	2-5 mph	8 str	-16.1	-11.6	drift
10-Jan-09	40	39.5	2	0	2	142.5	S	0-12 mph	8 str	-4.8	-1.4	gusty
11-Jan-09	40	39.5	4.25	0	4.25	146.75	S	0-3	10 str	-1.9	1.4	drift
12-Jan-09	40	39.5	4	rain/sn	4	150.75	S R	0-35 mph	10 str	-2	4.7	rain/snow
13-Jan-09	40	39.5	rain/sh	0	0	150.75	S fl/sh	0-15 mph	10 str	1.6	4.3	gusty
14-Jan-09	40	39.5	sh	sh	0	150.75	S sh	5-10 mph	10 str	3.3	5.9	warm
15-Jan-09	33	32.5	0	0	0	150.75	ENE>S	2-15 mph	8 str/cir	-6.4	5.9	gusty
16-Jan-09	33	32.5	0	0	0	150.75	S	2-5 mph	3 str	-6.9	-2.2	drift
17-Jan-09	33	32.5	0	0	0	150.75	E	1-3 mph	6 str/cir	-8.3	7.7	drift
18-Jan-09	33	32.5	0	0	0	150.75	ESE	1-10 mph	clear	-0.1	9	gusty
19-Jan-09	33	32.5	0	0	0	150.75	E>S	1-10 mph	clear	-3.8	6	moderate
20-Jan-09	33	35	0	0	0	150.75	E	1-5 mph	8 str/cir	-3.8	4.8	Light
21-Jan-09	33	35	0	0	0	150.75	S	5-15 mph	10 str fl	0	3.6	moderate
22-Jan-09	33	35	0.5	0	0.5	151.25	E	5-15 mph	8 str	-15.3	-15.3	moderate
23-Jan-09	33	35	0	0	0	151.25	E	3-5 mph	8 str	-20.6	-16.9	light
24-Jan-09	33	35	0	0	0	151.25	N	3-5 mph	clear	-27.1	-18.2	Light
25-Jan-09	33	35	0	0	0	151.25	variable	1-3 mph	clear	-31.6	-16.8	light
26-Jan-09	33	35	0	0	0	151.25	E fl	1-3 mph	10 str	-22.2	-7.9	light
27-Jan-09	33	35	4.75	0	4.75	156	S fl	1-3 mph	10 str	-10.7	-3.5	light
28-Jan-09	33	35	0.25	0	0.25	156.25	E>S	5-20 mph	10 str	-3.3	-0.6	gusty
29-Jan-09	33	35	0.25	0	0.25	156.5	S sl/rain	1-5 mph	10 str	1	3.4	light
30-Jan-09	33	35	1	1	2	158.5	S sl/rain	10-35 mph	10 str	-3.1	-2.7	gusty
31-Jan-09	33	35	0.5	0	0.5	159	S	5-20 mph	9 str	-6.4	-4.1	gusty
1-Feb-09	34	36.5	0	0	0	159	S	0-3 mph	10 alto str	-5.2	0.9	drift
2-Feb-09	34	36.5	0	0	0	159	S	5-15 mph	1 str	-3.2	0.7	mod/gusty
3-Feb-09	34	36.5	10.75	1	11.75	170.75	S sn	5-15 mph	10 str	0.9	1.9	gusty
4-Feb-09	40	42.5	0	0	0	170.75	S	1-5 mph	10 str	-6.4	-3.2	light
5-Feb-09	40	42.5	2.5	0	2.5	173.5	S fog/fl	1-5 mph	10 str	-8.2	-2.4	light
6-Feb-09	40	42.5	0.75	0	0.75	174.25	E>S	1-15 mph	9 str	-11	1.4	light>gust
7-Feb-09	40	42.5	4.25	8.75	13	187.25	S sn	5-20 mph	10 str	-0.3	1.4	gusty
8-Feb-09	40	42.5	2.5	0	2.5	189.75	S	1-5 mph	8 str	-5.2	1	drift
9-Feb-09	49	47	0.5	0	0.5	190.25	S	1-5 mph	2 str/cir	-12.7	-3.7	light
10-Feb-09	49	47	0	0	0	190.25	N	1-5 mph	clr>10 str	-21.3	-5.6	light
11-Feb-09	49	47	0	0	0	190.25	E>S	1-5 mph	3 str	-21.1	-3.2	light
12-Feb-09	49	47	0	0	0	190.25	E>S	1-5 mph	clear	-25.1	-6.7	light
13-Feb-09	49	47	0	0	0	190.25	S	1-5 mph	clear	-25.1	-7.9	light
14-Feb-09	49	47	0	0	0	190.25	S	1-5 mph	1 str	-26.6	-5.7	light
15-Feb-09	49	47	0	0	0	190.25	E	2-5 mph	2>8 str/cir	-23.2	-6.7	light
16-Feb-09	49	47	0	0	0	190.25	W	1-5 mph	1 str	-19.8	0.1	light
17-Feb-09	49	47	0	0	0	190.25	S	1-5 mph	6 str>clr	-17.2	1	light

(continued)

Appendix 2. Manual Measurement Log (continued)

Date	Snow on Ground		Precipitation	Precipitation Over-	New	Accumulated	Wind Direction	Wind Speed	Cloud Cover	Temperature		Remarks
	Camp (in)	Rescan Met Stn (in)	Overnight (in)	day (in)	Snow (in)	Snow (in)				Low (7:30 AM) (°C)	High (3:30 PM) (°C)	
18-Feb-09	49	47	0	0	0	190.25	SE	1-5 mph	10 str fl	-13.2	-1.5	light
19-Feb-09	46	44	1.25	0	1.25	191.5	E	1-5 mph	7 str	-12.6	2.2	light
20-Feb-09	46	44	0	0	0	191.5	SE	1-5 mph	4 str	-15.2	3.1	light
21-Feb-09	46	44	0	0	0	191.5	S fl	1-5 mph	10 str	-11.5	-1.1	light
22-Feb-09	46	44	1	0	1	192.5	E fl	5- 15 mph	10 str	-6.5	-4.2	gusty
23-Feb-09	46	44	0	0	0	192.5	S	1-5 mph	10>2 str	-15.1	-3.5	light
24-Feb-09	44	42	0	0	0	192.5	E	1-5 mph	clear	-24	-7	light
25-Feb-09	44	42	0	0	0	192.5	S	1-5 mph	clear	-26.7	-8.1	light
26-Feb-09	44	42	0	0	0	192.5	SW	1-5 mph	5 str	-23.4	-7.7	light
27-Feb-09	44	42	0	0	0	192.5	W fl	1-5 mph	10 str	-14.1	-6.1	light
28-Feb-09	44	42	0.75	0	0.75	193.25	S	1-5 mph	6 str	-19.1	2.1	light
1-Mar-09	44	44.5	0	0	0	193.25	E fl	1-5 mph	10 str	-15.1	-3.2	light
2-Mar-09	44	44.5	4.25	0	4.25	197.5	S	1-5 mph	8 str	-9	1	light
3-Mar-09	44	44.5	0	0	0	197.5	NW fl	1-5 mph	10 str	-10.4	3	light
4-Mar-09	44	44.5	0.5	0	0.5	198	E fl	1-5 mph	10>1 str	-6.4	2.7	light
5-Mar-09	44	44.5	0	0	0	198	E	1-5 mph	8 str	-18.1	0.9	light
6-Mar-09	44	44.5	0	0	0	198	S fl	5-25 mph	10 str	-12	5.1	mod/gusty
7-Mar-09	44	44.5	1	0	1	199	NE	5-15 mph	7 str	-11	-5.7	gusty
8-Mar-09	44	44.5	0	0	0	199	S	1-5 mph	3 str	-20.2	-5.5	light
9-Mar-09	44	44.5	0	0	0	199	SW	0-2 mph	clear	-26.7	-5.6	drift
10-Mar-09	44	44.5	0	0	0	199	SW	1-5 mph	10 str	-17	1.1	light
11-Mar-09	44	44.5	0	0	0	199	S	1>10 mph	10 str	-14.5	1.7	drift
12-Mar-09	46	46.5	2.75	2.5	5.25	204.25	S fl	1-5 mph	10 str	-5	2.3	light
13-Mar-09	50	50	2.5	0	2.5	206.75	S fl	1-5 mph	10 str	-2.9	2.7	light
14-Mar-09	50	50	0	0	0	206.75	S	1-5 mph	10 str	-12.1	3.7	light
15-Mar-09	50	50	1	0	1	207.75	S fl	1-5 mph	10 str	-7.4	2.7	light
16-Mar-09	50	50	0.75	0	0.75	208.5	S fl	1-5 mph	10>5 str	-13	-3.9	light
17-Mar-09	52	51.5	1.75	0	1.75	210.5	S FI	0- 3 mph	7 str	-14.1	-0.3	drift
18-Mar-09	52	51.5	1.75	1	2.75	213.25	E fl	1-30 mph	10 str	-6.9	1.1	gusty
19-Mar-09	52	51.5	0	0	0	213.25	S	1-5 mph	6 str	-13.4	2	light
20-Mar-09	52	51.5	2.75	0.5	3.5	216.5	E>S fl	1-5 mph	7>10 str	-8.1	6	light
21-Mar-09	52	51.5	0	0	0	216.5	S	1-5 mph	5 str	-16.2	0.1	light
22-Mar-09	52	51.5	0.5	0	0.5	217	W	1-5 mph	9 str	-13	4	light
23-Mar-09	52	51.5	0	0	0	217	W	1-15 mph	10 str	-6.9	4	gusty
24-Mar-09	52	51.5	0.25	0	0.25	217.25	S fl	1-5 mph	10 str	-3.3	3.4	light
25-Mar-09	52	51.5	0	0	0	217.25	S	1-5 mph	10 str	-5.4	9.4	light
26-Mar-09	52	51.25	0	0	0	217.25	S fl	5-15 mph	10 str	-1	4	gusty
27-Mar-09	52	51.25	0	0	0	217.25	SW	1-5 mph	10 str	-2.5	3.5	light
28-Mar-09	52	51.25	0	0	0	217.25	SE	3-10 mph	9>10 str	-5.5	2.4	light/gusty
29-Mar-09	52	51.25	0	0	0	217.25	E	1-5 mph	clr>10 str	-13.8	0.7	light
30-Mar-09	52	51.25	0.25	0	0.25	217.5	S fl	5-15 mph	10 str	-2.6	2.7	mod/gusty
31-Mar-09	52	51.25	0	0	0	217.5	S	5-15 mph	10>3 str	-9	1.7	mod/gusty
1-Apr-09	50	49	0.25	0	0.25	217.75	S	1-5 mph	10>4 str	-7.4	8	light
2-Apr-09	50	49	0	0	0	217.75	S	5-15 mph	7 str	-13.4	1.3	mod/gusty
3-Apr-09	50	49	0	0	0	217.75	S	0-5 mph	clear	-15	5	light
4-Apr-09	50	49	0	0	0	217.75	S fl	5-10 mph	10 str	-3.1	5.7	mod/gusty
5-Apr-09	50	49	0.25	0	0.25	218	S fl	1-5 mph	10 str	-0.3	7.1	light
6-Apr-09	50	49	0	0	0	218	S	5-15 mph	9 str	-0.8	6.2	MOD/gust
7-Apr-09	49	48	0	0	0	218	S	1-5 mph	10.str	-2.2	9.8	light
8-Apr-09	48	47	0	0	0	218	S	3-15 mph	9>6 str	-2.8	8	mod
9-Apr-09	48	47	0	0	0	218	NE>S	1-10 mph	9>4 str	-9	5.7	light
10-Apr-09	48	47	0	0	0	218	SE	2>10 mph	10 str	-5	5.7	mod
11-Apr-09	48	47	0	0	0	218	S	1-10 mph	10 str	-3.6	6.9	mod/gusty
12-Apr-09	48	47	0	0	0	218	S fl	1-3 mph	8 str	-4.3	10.3	light
13-Apr-09	47	46	0	0	0	218	SE	1-5 mph	10 str	-4.5	9.1	light
14-Apr-09	46	45	0	0	0	218	S	1-10 mph	2 str	-4.7	6.3	light
15-Apr-09	45	44	0	0	0	218	S	1-5 mph	10 str	-7.1	11.6	light
16-Apr-09	45	44	0	0	0	218	S sh	5- 10 mph	10 str	-2	9.1	mod

(continued)

Appendix 2. Manual Measurement Log (continued)

Date	Snow on Ground: Camp (in)	Snow on Ground: Rescan Met Stn (in)	Precipitation Overnight (in)	Precipitation Over-day (in)	New Snow (in)	Accumulated Snow (in)	Wind Direction	Wind Speed	Cloud Cover	Temperature: Low (7:30 AM) (°C)	Temperature: High (3:30 PM) (°C)	Remarks
17-Apr-09	45	44	0.75	0	0.75	218.75	S	1-5 mph	7 str	-0.3	12.3	light
18-Apr-09	44	43	0.75	0	0.75	219.5	S	1-5 mph	6 str	-3.8	8.5	light
19-Apr-09	44	43	0	0	0	219.5	S fl	1-5 mph	10 str	-3.3	10.2	light
20-Apr-09	43	42	0.25	0	0.25	219.75	SE fl/sh	1-5 mph	10 str	-3.3	6.1	light
21-Apr-09	43	42	0.75	0	0.75	220.5	S	5-15 mph	3>10 str	-1.1	4.9	mod/gusty
22-Apr-09	43	42	1.75	0	1.75	222.25	E	5-20 mph	7 str	-1.1	8.2	mod/gusty
23-Apr-09	43	42	0	0	0	222.25	S	1-5 mph	6 str	-7	9.8	light
24-Apr-09	43	42	0	0	0	222.25	S fl	1-30 mph	10 str	-2.7	5.6	gusty
25-Apr-09	42	41	0	0	0	222.25	E	1-5 mph	10>3 str	-4.1	7.7	light
26-Apr-09	41	40	0	0	0	222.25	S	1-5 mph	clear	-5.5	15.2	light
27-Apr-09	40	39	0	0	0	222.25	S	1-5 mph	clear	-4.6	16.3	light
28-Apr-09	39	39	0	0	0	222.25	N	1-5 mph	3 str	-2.6	19.4	light
29-Apr-09	38	38	0	0	0	222.25	S	1-5 mph	clear	-3.6	21.1	light
30-Apr-09	37	37	0	0	0	222.25	S	1-5 mph	clr>5 str	-3.7	21.6	light
1-May-09	35	35	0	0	0	222.25	S	1-5 mph	clear	-2.6	23.4	light
2-May-09	33	33	n/a	n/a	n/a	n/a	S	1-5 mph	clear	-1.6	21.5	light
3-May-09	31	31	n/a	n/a	n/a	n/a	S sh	5-20 mph	10 str	-0.1	9.8	gusty
4-May-09	29	29	sh/on	n/a	n/a	n/a	S	1-5 mph	10>4str/cir	1.3	16.4	light
5-May-09	27	27	n/a	n/a	n/a	n/a	S	1-5 mph	clear	-4.2	20.3	light
6-May-09	25	25	r/on	n/a	n/a	n/a	S	5-15 mph	10>6 str	3.8	10.7	mod
7-May-09	22	22	n/a	n/a	n/a	n/a	S	1-5 mph	10>3 str	1.1	11.4	light
8-May-09	19	19	n/a	n/a	n/a	n/a	S	5-10 mph	8 str	1.1	8.9	mod
9-May-09	17	17	n/a	n/a	n/a	n/a	S	1-5 mph	8 str	1.1	10.4	light
10-May-09	15	15	n/a	n/a	n/a	n/a	S	1-5 mph	3 str	-3.2	13.7	light
11-May-09	14	14	n/a	n/a	n/a	n/a	W>E	1-5 mph	10 str	0.1	12.5	light
12-May-09	12	12	n/a	n/a	n/a	n/a	E	1-5 mph	5 cir/ str	-2.3	11.2	light
13-May-09	0-11	16	n/a	n/a	n/a	n/a	E>S	5- 10 mph	clear	-3.4	11.3	mod
14-May-09	n/a	12.5	n/a	n/a	n/a	n/a	W	5-15 mph	2 str	-1	12.1	mod
15-May-09	n/a	11.5	n/a	n/a	n/a	n/a	S	5-10 mph	8 str/cir	-1	9.6	mod
16-May-09	n/a	0-9.5	sl/r	n/a	n/a	n/a	S	1-5 mph	10 str	0.3	12.5	light
17-May-09	n/a	0-9.5	sl	n/a	0.75	n/a	NE sn/r	5-10 mph	10 str	0.8	7.1	mod
18-May-09	patches grd	0-9	n/a	n/a	n/a	n/a	NE	5-10 mph	10 str	-0.3	12.2	mod
19-May-09	n/a	0-8	n/a	n/a	n/a	n/a	S	1-5 mph	3 str	-1.3	15.1	light
20-May-09	n/a	0-6	n/a	n/a	n/a	n/a	S	5-15 mph	10 str	0.3	14.8	mod
21-May-09	patches sn	0-3	n/a	n/a	n/a	n/a	SW	1-5 mph	3 str/cum	0.3	15.1	light
22-May-09	patches sn	n/a	n/a	n/a	n/a	n/a	S	1-5 mph	1 str	-1	20.1	light
23-May-09	main airstrip clear	n/a	n/a	n/a	n/a	n/a	SW	5-15 mph	4 str	2.3	14.7	mod
24-May-09	n/a	n/a	n/a	n/a	n/a	n/a	E	1-5 mph	9>1 str	1.4	20.4	light
25-May-09	n/a	n/a	sh	n/a	n/a	n/a	S	1-5 mph	10 str	2.3	20.3	light
26-May-09	n/a	n/a	r	n/a	n/a	n/a	S	5-20 mph	10 str	4	14.3	mod
27-May-09	n/a	n/a	n/a	n/a	n/a	n/a	S	5-20 mph	10 str	2.9	14.6	mod
28-May-09	n/a	n/a	n/a	n/a	n/a	n/a	S	1-5 mph	5 str	2.3	16.7	light
29-May-09	n/a	n/a	r	r	n/a	n/a	S	5-20 mph	10 str	3.7	10.5	mod
30-May-09	n/a	n/a	n/a	n/a	n/a	n/a	W	5-30 mph	9>5 str	4.3	11.7	mod
31-May-09	n/a	n/a	n/a	n/a	n/a	n/a	S	1-5 mph	clear	2.3	22.7	light
1-Jun-09	n/a	n/a	n/a	n/a	n/a	n/a	S	1-5 mph	4 str/cir	1.1	n/a	light
Missing June 2, 2009 to July 2, 2009.												
2-Jul-09	n/a	n/a	sh	n/a	n/a	n/a	light S		8 cum	5	21.5	
3-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lit S		1 cir	7	25.4	
4-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite S>E mod		2 cir>4cum	8.6	27.6	
5-Jul-09	n/a	n/a	sh	n/a	n/a	n/a	calm>lite W		7 str/cir>8 cum	9.3	27.3	
6-Jul-09	n/a	n/a	r	n/a	n/a	n/a	lite W>mod E pm		7 str>7cum/str	6.4	26.2	
7-Jul-09	n/a	n/a	r	n/a	n/a	n/a	lite W> lite N pm		1 str>10 str/cum pm	7.3	22.6	
8-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite >mod S		clear>4 str>10 str	7.4	26.4	
9-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite S>mod S		haze>8 str	12.2	25.6	
10-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	mod S		cl>8 cum/str	12	26.4	
11-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite W>mod W		5 str/cir>cl	11.2	26.4	
12-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite S>lite E		1 cum> 8 cum	7.4	28.2	
13-Jul-09	n/a	n/a	r	n/a	n/a	n/a	calm>lite N		10 str>8cum>4 cum	11.4	24.5	
14-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod W		7 str>7>10cum	10	24	

(continued)

Appendix 2. Manual Measurement Log (completed)

Date	Snow on Ground: Camp (in)	Snow on Ground: Rescan Met Stn (in)	Precipitation Overnight (in)	Precipitation Over-day (in)	New Snow (in)	Accumulated Snow (in)	Wind Direction	Wind Speed	Cloud Cover	Temperature: Low (7:30 AM) (°C)	Temperature: High (3:30 PM) (°C)	Remarks
15-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W gust high		cl>5 str	11.4	19.2	
16-Jul-09	n/a	n/a	sh	n/a	n/a	n/a	mod W		10 str>7 str	11	20.7	
17-Jul-09	n/a	n/a	sh	sh	n/a	n/a	calm		10 str	10.5	17.2	
18-Jul-09	n/a	n/a	n/a	sh	n/a	n/a	calm>mod W am		10 str>10/cum>4cum	9.1	19.9	
19-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W		2 str>8 cum/str	8.7	21.1	
20-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	liteW		10 str	10.8	16.6	
21-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite>mod W		9 str cir>10 str	9.1	19.9	
22-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W		10 str	11.1	17.2	
23-Jul-09	n/a	n/a	n/a	sh	n/a	n/a	calm>lite S		10.str	10	17.7	
24-Jul-09	n/a	n/a	sh	n/a	n/a	n/a	mod W		8>10 str	12	19.2	
25-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite S>mod S		3 cir/cum>1 str	8	24.2	
26-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite S>mod S		clear>2str	6.2	27	
27-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod W		3>1 str	10.2	28.8	
28-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	lite W>E		clear	8.2	33.1	
29-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>lite >mod W		clear	11	34	
30-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>lite>mod W		clear	13.5	33.5	
31-Jul-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod W		clear	13.7	n/a	
1-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod W		9 str/cir>clear	9.9	26.2	
2-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod W		clear	9	23.6	
3-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>mod E		8>10 str	8.7	22	
4-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm>lite W		clear>1 cum	8	30.3	
5-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm> mod W		clear	6.5	24.3	
6-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	lite> mod W		5 str/cir	9.2	24.3	
7-Aug-09	n/a	n/a	n/a	sh	n/a	n/a	mod W		10 str	14.2	20.2	
8-Aug-09	n/a	n/a	sh	sh	n/a	n/a	calm>mod W		10 str>4 cum	12.7	22.7	
9-Aug-09	n/a	n/a	n/a	light sh	n/a	n/a	lite W		10 str	9.2	16.2	
10-Aug-09	n/a	n/a	r	n/a	n/a	n/a	calm> mod W		9>10 str	6	16.2	
11-Aug-09	n/a	n/a	sh	sh	n/a	n/a	lite>mod W		10 str	8	14.7	
12-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	lite N> mod W		9 str>5 cum;2 str	6.7	18.9	
13-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	lite>mod W;gust high		1 str>5 cum	4.2	19.2	
14-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W; gust high		8 str-cir>10str	6	16.2	
15-Aug-09	n/a	n/a	n/a	sh	n/a	n/a	mod W; gust high		8>10 str>8str	10.4	18.5	
16-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W gusty		10 str	12.4	20.3	
17-Aug-09	n/a	n/a	n/a	sh	n/a	n/a	mod W		10 str	12.4	18.2	
18-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W gust high		6 str-cir>3str>10str	11.4	20	
19-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	lite>mod W		clear>9str-cir	7.1	23.8	
20-Aug-09	n/a	n/a	sh	rain (afternoon)	n/a	n/a	lite W		10 str	10.9	18.2	
21-Aug-09	n/a	n/a	rain	sh (afternoon)	n/a	n/a	lite>mod W gusty		9 str-cir>10 cum/str	11	14.7	
22-Aug-09	n/a	n/a	sh	sh (afternoon)	n/a	n/a	calm/fog>mod W		10 str	6.8	15.4	
23-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	mod W; gust high		10 str	8.1	12.4	
24-Aug-09	n/a	n/a	n/a	sh	n/a	n/a	lite W		10 str	4	11.6	
25-Aug-09	n/a	n/a	sh	rain (afternoon	n/a	n/a	lite W		10 str	5.2	12.3	
26-Aug-09	n/a	n/a	sh	n/a	n/a	n/a	calm>lite W		9 str	4.1	20.2	
27-Aug-09	n/a	n/a	sh	r	n/a	n/a	calm		10 str	5.1	13.3	
28-Aug-09	n/a	n/a	r	n/a	n/a	n/a	lite W		9 str	5.7	18.4	
29-Aug-09	n/a	n/a	r	n/a	n/a	n/a	lite>mod W		10>4 str>10 str	11.7	20	
30-Aug-09	n/a	n/a	r	n/a	n/a	n/a	lite W		4>7 str	6.5	16.2	
31-Aug-09	n/a	n/a	n/a	n/a	n/a	n/a	calm		10 str	6.5	n/a	

Appendix 3

Dustfall Laboratory Results

ANALYTICAL REPORT

RESCAN ENVIRONMENTAL SERVICES

ATTN: SOREN JENSEN

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Reported On: 12-SEP-07 04:30 PM
Revision: 1

Lab Work Order #: **L541139** **Date Received:** **13-AUG-07**

Project P.O. #:
Job Reference: SHAFT AIR QUALITY #830-2
Legal Site Desc:
CofC Numbers: 12 34 56 78

Other Information:

Comments:

T. G. Crowther

Timothy Guy Crowther
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

Amber Springer

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L541139-1	L541139-2	L541139-3		
		Description					
		Sampled Date	09-AUG-07	09-AUG-07			
		Sampled Time	14:30	14:30			
		Client ID	FD-2	FD-3	TRAVEL BLANK		
Grouping	**Analyte**						
DUSTFALL							
Particulates	Total Dustfall (mg/m2.day)		0.65	0.41	<0.10		
	Total Insoluble Dustfall (mg/m2.day)		0.61	0.36	<0.10		
	Total Soluble Dustfall (mg/m2.day)		<0.10	<0.10	<0.10		
Total Metals	Aluminum (Al)-Total (mg/dm2.day)		0.0054	0.0010	<0.0010		
	Antimony (Sb)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Arsenic (As)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Barium (Ba)-Total (mg/dm2.day)		0.000094	<0.000050	<0.000050		
	Beryllium (Be)-Total (mg/dm2.day)		<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Total (mg/dm2.day)		<0.00050	<0.00050	<0.00050		
	Boron (B)-Total (mg/dm2.day)		<0.010	<0.010	<0.010		
	Cadmium (Cd)-Total (mg/dm2.day)		<0.000050	<0.000050	<0.000050		
	Calcium (Ca)-Total (mg/dm2.day)		<0.050	<0.050	<0.050		
	Chromium (Cr)-Total (mg/dm2.day)		<0.00050	<0.00050	<0.00050		
	Cobalt (Co)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Copper (Cu)-Total (mg/dm2.day)		0.00024	<0.00010	0.00019		
	Iron (Fe)-Total (mg/dm2.day)		<0.030	<0.030	<0.030		
	Lead (Pb)-Total (mg/dm2.day)		<0.000050	<0.000050	<0.000050		
	Lithium (Li)-Total (mg/dm2.day)		<0.0050	<0.0050	<0.0050		
	Magnesium (Mg)-Total (mg/dm2.day)		<0.10	<0.10	<0.10		
	Manganese (Mn)-Total (mg/dm2.day)		0.000360	0.000091	<0.000050		
	Mercury (Hg)-Total (mg/dm2.day)		<0.00000020	<0.00000020	<0.00000050		
	Molybdenum (Mo)-Total (mg/dm2.day)		<0.000050	<0.000050	<0.000050		
	Nickel (Ni)-Total (mg/dm2.day)		<0.00050	<0.00050	<0.00050		
	Phosphorus (P)-Total (mg/dm2.day)		<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/dm2.day)		<2.0	<2.0	<2.0		
	Selenium (Se)-Total (mg/dm2.day)		<0.0010	<0.0010	<0.0010		
	Silicon (Si)-Total (mg/dm2.day)		<0.050	<0.050	<0.050		
	Silver (Ag)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Sodium (Na)-Total (mg/dm2.day)		<2.0	<2.0	<2.0		
	Strontium (Sr)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Thallium (Tl)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Titanium (Ti)-Total (mg/dm2.day)		<0.010	<0.010	<0.010		
	Uranium (U)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Vanadium (V)-Total (mg/dm2.day)		<0.0010	<0.0010	<0.0010		
	Zinc (Zn)-Total (mg/dm2.day)		<0.0010	<0.0010	<0.0010		

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L541139-1	L541139-2	L541139-3		
	Description					
	Sampled Date	09-AUG-07	09-AUG-07			
	Sampled Time	14:30	14:30			
	Client ID	FD-2	FD-3	TRAVEL BLANK		
Grouping	**Analyte**					
WATER						
Anions and Nutrients	Sulfate (SO4) (mg/L)	<0.002	0.002	<0.002		
	Nitrate (as N) (mg/L)	0.00017	0.00034	<0.00004		

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is 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". Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is 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". Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

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).

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

L541139

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 # 12 34 56 78

Page 1 of 1

Report to:		**Report Format / Distribution**	**Service Requested:**
Company:	Rescan Environmental Services	✓ Standard ☐ Other	✓ Regular Service (Default)
Contact:	Soren Jensen	✓ PDF ✓ Excel ☐ Fax	☐ Rush Service (2-3 Days)
Address:	6th floor - 1111 West Hastings Street, Vancouver, BC	Email 1: sjensen@rescan.com	☐ Priority Service (1 Day or ASAP)
		Email 2:	☐ Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604 689 9460 Fax: 604 687 4277		**Analysis Request**
Invoice To:	✓ Same as Report	Indicate Bottles Filtered / Preserved (F/P)	
Company:		**Client / Project Information:**	
Contact:		Job #: Shaft Air Quality #830-2	
Address:		PO/AFE:	
Sample		Legal Site Description:	
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		ALS Contact:	Sampler (Initials) SRJ/AL

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	Total Metals	Total Dustfall	Soluble Dustfall	Insoluble Dustfall	Sulphate	Nitrate	Hazardous?	Highly Contaminated?	Number of Containers
	~~FD-1~~			Other	X	X	X	X	X	X			1
	FD-2	09-Aug-07	14:30	Other	X	X	X	X	X	X			2
	FD-3	09-Aug-07	14:30	Other	X	X	X	X	X	X			2
	~~FD-4~~			Other	X	X	X	X	X	X			1
	~~FD-5~~			Other	X	X	X	X	X	X			1
	~~FD-6~~			Other	X	X	X	X	X	X			1
	~~FD-7~~			Other	X	X	X	X	X	X			1
	~~FD-8~~			Other	X	X	X	X	X	X			1
	Travel Blank			Other	X	X	X	X	X	X			2
													2

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 on the adjacent worksheet.

								Sample Condition (lab use only)	
Relinquished By:	A. Langmuir	Date & Time:	10-Aug-07 16:00 hrs	Received By:		Date & Time:		Temperature	Samples Received in Good Condition? Y / N (if no provided details)
Relinquished By:		Date & Time:		Received By:	Anna G	Date & Time:	Aug 13/07 10:00	16.8°C	

ANALYTICAL REPORT

RESCAN ENVIRONMENTAL SERVICES

ATTN: SOREN JENSEN

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Reported On: 09-NOV-07 07:21 PM
Revision: 3

Lab Work Order #: **L567323** **Date Received:** **17-OCT-07**

Project P.O. #:
Job Reference: SHAFT AIR QUALITY #830-2
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

Joyce Chow
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

GLENYSS WEEKS

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L567323-1	L567323-2	L567323-3	L567323-4	L567323-5
	Description					
	Sampled Date	09-OCT-07	09-OCT-07	09-OCT-07	09-OCT-07	09-OCT-07
	Sampled Time					
	Client ID	FD-1	FD-2	FD-3	FD-4	FD-5
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	0.24	0.23	0.22	0.12	0.11
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	<0.10	<0.10
	Total Soluble Dustfall (mg/dm2.day)	0.15	0.21	0.13	0.11	<0.10
Total Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000051	0.000317	0.000077	0.000167	
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000010	<0.00000090	<0.0000010	<0.00000050	
	Arsenic (As)-Total (mg/dm2.day)	<0.0000010	<0.00000090	<0.0000010	<0.00000050	
	Barium (Ba)-Total (mg/dm2.day)	0.0000118	0.0000243	0.0000203	0.0000115	
	Beryllium (Be)-Total (mg/dm2.day)	<0.0000050	<0.0000050	<0.0000060	<0.0000020	
	Bismuth (Bi)-Total (mg/dm2.day)	<0.0000050	<0.0000050	<0.0000060	<0.0000020	
	Boron (B)-Total (mg/dm2.day)	<0.00010	<0.000090	<0.00010	<0.000050	
	Cadmium (Cd)-Total (mg/dm2.day)	<0.00000050	<0.00000050	<0.00000060	<0.00000020	
	Calcium (Ca)-Total (mg/dm2.day)	0.00205	0.0106	0.00574	0.00105	
	Chromium (Cr)-Total (mg/dm2.day)	<0.0000050	0.0000081	<0.0000060	<0.0000020	
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000010	0.00000123	<0.0000010	<0.00000050	
	Copper (Cu)-Total (mg/dm2.day)	0.000423	0.000282	0.0000588	0.000433	
	Iron (Fe)-Total (mg/dm2.day)	<0.00030	0.00057	<0.00040	0.00016	
	Lead (Pb)-Total (mg/dm2.day)	0.00000078	0.00000161	0.00000082	0.00000154	
	Lithium (Li)-Total (mg/dm2.day)	<0.000050	<0.000050	<0.000060	<0.000020	
	Magnesium (Mg)-Total (mg/dm2.day)	<0.0010	<0.00090	<0.0010	<0.00050	
	Manganese (Mn)-Total (mg/dm2.day)	0.0000461	0.0000810	0.0000126	0.0000261	
	Mercury (Hg)-Total (mg/dm2.day)	<0.00000050	<0.00000050	<0.00000060	<0.00000020	
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.00000050	0.00000111	<0.00000060	0.00000034	
	Nickel (Ni)-Total (mg/dm2.day)	<0.0000050	0.0000129	<0.0000060	0.0000029	
	Phosphorus (P)-Total (mg/dm2.day)	<0.0030	<0.0030	<0.0040	<0.0010	
	Potassium (K)-Total (mg/dm2.day)	<0.020	<0.020	<0.020	<0.010	
	Selenium (Se)-Total (mg/dm2.day)	<0.000010	<0.0000090	<0.000010	<0.0000050	
	Silicon (Si)-Total (mg/dm2.day)	<0.00050	0.00077	<0.00060	0.00037	
	Silver (Ag)-Total (mg/dm2.day)	<0.00000010	0.000000539	0.00000020	<0.000000050	
	Sodium (Na)-Total (mg/dm2.day)	<0.020	<0.020	<0.020	<0.010	
	Strontium (Sr)-Total (mg/dm2.day)	0.0000051	0.0000145	0.0000093	0.00000335	
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000010	<0.00000090	<0.0000010	<0.00000050	
	Tin (Sn)-Total (mg/dm2.day)	<0.0000010	0.00000154	<0.0000010	0.00000054	
	Titanium (Ti)-Total (mg/dm2.day)	<0.00010	<0.000090	<0.00010	<0.000050	
	Uranium (U)-Total (mg/dm2.day)	<0.00000010	<0.000000090	<0.00000010	<0.000000050	
	Vanadium (V)-Total (mg/dm2.day)	<0.000010	<0.0000090	<0.000010	<0.0000050	
	Zinc (Zn)-Total (mg/dm2.day)	0.000037	0.0000785	0.000049	0.0000688	

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L567323-6	L567323-7			
	Description					
	Sampled Date	09-OCT-07	09-OCT-07			
	Sampled Time					
	Client ID	FD-6	FD-8			
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	<0.10	<0.10			
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10			
	Total Soluble Dustfall (mg/dm2.day)	<0.10	<0.10			
Total Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000565	0.000101			
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000020	<0.0000030			
	Arsenic (As)-Total (mg/dm2.day)	<0.0000020	<0.0000030			
	Barium (Ba)-Total (mg/dm2.day)	0.0000441	0.0000169			
	Beryllium (Be)-Total (mg/dm2.day)	<0.000010	<0.000010			
	Bismuth (Bi)-Total (mg/dm2.day)	<0.000010	<0.000010			
	Boron (B)-Total (mg/dm2.day)	<0.00020	<0.00030			
	Cadmium (Cd)-Total (mg/dm2.day)	<0.0000010	<0.0000010			
	Calcium (Ca)-Total (mg/dm2.day)	0.0016	0.0063			
	Chromium (Cr)-Total (mg/dm2.day)	<0.000010	<0.000010			
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000020	<0.0000030			
	Copper (Cu)-Total (mg/dm2.day)	0.000170	0.0000603			
	Iron (Fe)-Total (mg/dm2.day)	<0.00070	<0.00080			
	Lead (Pb)-Total (mg/dm2.day)	<0.0000010	0.0000046			
	Lithium (Li)-Total (mg/dm2.day)	<0.00010	<0.00010			
	Magnesium (Mg)-Total (mg/dm2.day)	<0.0020	<0.0030			
	Manganese (Mn)-Total (mg/dm2.day)	0.0000439	0.0000328			
	Mercury (Hg)-Total (mg/dm2.day)	<0.0000010	<0.0000010			
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.0000010	<0.0000010			
	Nickel (Ni)-Total (mg/dm2.day)	0.000013	<0.000010			
	Phosphorus (P)-Total (mg/dm2.day)	<0.0070	<0.0080			
	Potassium (K)-Total (mg/dm2.day)	<0.050	<0.050			
	Selenium (Se)-Total (mg/dm2.day)	<0.000020	<0.000030			
	Silicon (Si)-Total (mg/dm2.day)	0.0019	<0.0010			
	Silver (Ag)-Total (mg/dm2.day)	<0.00000020	<0.00000030			
	Sodium (Na)-Total (mg/dm2.day)	<0.050	<0.050			
	Strontium (Sr)-Total (mg/dm2.day)	0.0000075	0.0000108			
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000020	<0.0000030			
	Tin (Sn)-Total (mg/dm2.day)	<0.0000020	<0.0000030			
	Titanium (Ti)-Total (mg/dm2.day)	<0.00020	<0.00030			
	Uranium (U)-Total (mg/dm2.day)	<0.00000020	<0.00000030			
	Vanadium (V)-Total (mg/dm2.day)	<0.000020	<0.000030			
	Zinc (Zn)-Total (mg/dm2.day)	0.000225	0.000036			

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L567323-1	L567323-2	L567323-3	L567323-4	L567323-5
	Description					
	Sampled Date	09-OCT-07	09-OCT-07	09-OCT-07	09-OCT-07	09-OCT-07
	Sampled Time					
	Client ID	FD-1	FD-2	FD-3	FD-4	FD-5
Grouping	**Analyte**					
WATER						
Anions and Nutrients	Sulfate (SO4) (mg/m2.day)	<0.01493	<0.01493	<0.01493	<0.01493	<0.01493
	Nitrate (as N) (mg/m2.day)	<0.0001493	0.0004791	<0.0001493	0.0003755	0.0004183

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L567323-6	L567323-7		
		Description				
		Sampled Date	09-OCT-07	09-OCT-07		
		Sampled Time				
		Client ID	FD-6	FD-8		
Grouping	**Analyte**					
WATER						
Anions and Nutrients	Sulfate (SO4) (mg/m2.day)		<0.01493	<0.01493		
	Nitrate (as N) (mg/m2.day)		0.0017837	0.0007548		

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is 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". Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is 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". Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

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).

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

GLOSSARY OF REPORT TERMS
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The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

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 # 09102007

Page 1 of 1

Report to:		**Report Format / Distribution**		**Service Requested:**	
Company:	Rescan Environmental Services	☑ Standard ☐ Other		☑	Regular Service (Default)
Contact	Soren Jensen	✔ PDF ☑ Excel Fax		☐	Rush Service (2-3 Days)
Address:	6th floor - 1111 West Hastings Street, Vancouver, BC	Email 1: sjensen@rescan.com		☐	Priority Service (1 Day or ASAP)
		Email 2:		☐	Emergency Service (<1 Day / Wkend) - Contact ALS
Phone:	604 689 9460 Fax: 604 687 4277			**Analysis Request**	
Invoice To:	☑ Same as Report	Indicate Bottles: Filtered / Preserved (F/P) →			
Company:		**Client / Project Information:**			
Contact:		Job #: Shaft Air Quality #830-2			
Address:		PO/AFE:			
Sample		Legal Site Description:			
Phone:	Fax:	Quote #:			
Lab Work Order # (lab use only)	L567323	**ALS Contact:**	**Sampler** (Initials): SRJ/AL		

Sample #	Sample Identification (This description will appear on the report)	Date dd-mmm-yy	Time hh:mm	Sample Type (Select from drop-down list)	Total Metals	Total Dustfall	Soluble Dustfall	Insoluble Dustfall	Sulphate	Nitrate					Hazardous?	Highly Contaminated?	Number of Containers
	FD-1	09-Oct-07		Other	X	X	X	X	X	X							
	FD-2	09-Oct-07		Other	X	X	X	X	X	X							
	FD-3	09-Oct-07		Other	X	X	X	X	X	X							
	FD-4	09-Oct-07		Other	X	X	X	X	X	X							
	FD-5	09-Oct-07		Other		X	X	X	X	X							
	FD-6	09-Oct-07		Other	X	X	X	X	X	X							
	FD-8	09-Oct-07		Other	X	X	X	X	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 on the adjacent worksheet.

								Sample Condition (lab use only)	
Relinquished By:		Date & Time:		Received By:	Ray. B	Date & Time:	Oct 17 11:49	Temperature 8 oC	Samples Received in Good Condition? Y / N (if no provided details)
Relinquished By:		Date & Time:		Received By:		Date & Time:			

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

ANALYTICAL REPORT

RESCAN ENVIRONMENTAL SERVICES

ATTN: SOREN JENSEN

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Reported On: 09-OCT-07 04:12 PM
Revision: 2

Lab Work Order #:	**L551874**	**Date Received:**	**10-SEP-07**

Project P.O. #: SCHAFT CREEK
Job Reference: 830-2 SCHAFT CREEK AIR QUALITY
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

T. G. Crowther

Timothy Guy Crowther
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

GLENYSS WEEKS

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L551874-1	L551874-2	L551874-3	L551874-4	L551874-5
		Description					
		Sampled Date	01-SEP-07	01-SEP-07	01-SEP-07	01-SEP-07	01-SEP-07
		Sampled Time					
		Client ID	FD-1	FD-2	FD-3	FD-4	FD-5
Grouping	**Analyte**						
DUSTFALL							
Particulates	Total Dustfall (mg/dm2.day)		0.75	0.94	0.22	0.29	0.23
	Total Insoluble Dustfall (mg/dm2.day)		0.63	0.59	0.16	0.19	<0.10
	Total Soluble Dustfall (mg/dm2.day)		0.12	0.34	<0.10	0.10	0.14
Total Metals	Aluminum (Al)-Total (mg/dm2.day)		0.000640	0.000217	0.000259	0.000361	0.000146
	Antimony (Sb)-Total (mg/dm2.day)		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000010
	Arsenic (As)-Total (mg/dm2.day)		<0.0000020	<0.0000020	<0.0000020	0.0000024	0.0000017
	Barium (Ba)-Total (mg/dm2.day)		0.0000445	0.0000245	0.0000598	0.0000313	0.0000307
	Beryllium (Be)-Total (mg/dm2.day)		<0.0000090	<0.0000080	<0.000010	<0.0000080	<0.0000070
	Bismuth (Bi)-Total (mg/dm2.day)		<0.0000090	<0.0000080	<0.000010	<0.0000080	<0.0000070
	Boron (B)-Total (mg/dm2.day)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00010
	Cadmium (Cd)-Total (mg/dm2.day)		<0.00000090	<0.00000080	<0.0000010	<0.00000080	<0.00000070
	Calcium (Ca)-Total (mg/dm2.day)		0.00907	0.00370	0.0037	0.0446	0.0137
	Chromium (Cr)-Total (mg/dm2.day)		<0.0000090	<0.0000080	<0.000010	<0.0000080	<0.0000070
	Cobalt (Co)-Total (mg/dm2.day)		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000010
	Copper (Cu)-Total (mg/dm2.day)		0.00632	0.000375	0.000280	0.0130	0.00749
	Iron (Fe)-Total (mg/dm2.day)		<0.00050	<0.00050	<0.00070	<0.00050	<0.00040
	Lead (Pb)-Total (mg/dm2.day)		0.00000145	0.00000192	0.0000016	0.00000134	0.00000159
	Lithium (Li)-Total (mg/dm2.day)		<0.000090	<0.000080	<0.00010	<0.000080	<0.000070
	Magnesium (Mg)-Total (mg/dm2.day)		<0.0020	<0.0020	<0.0020	0.0045	<0.0010
	Manganese (Mn)-Total (mg/dm2.day)		0.000111	0.0000937	0.0000628	0.0000914	0.0000845
	Mercury (Hg)-Total (mg/dm2.day)		<0.00000090	<0.00000080	<0.0000010	<0.00000080	<0.00000070
	Molybdenum (Mo)-Total (mg/dm2.day)		<0.00000090	<0.00000080	<0.0000010	0.0000175	0.00000091
	Nickel (Ni)-Total (mg/dm2.day)		<0.0000090	<0.0000080	<0.000010	<0.0000080	<0.0000070
	Phosphorus (P)-Total (mg/dm2.day)		<0.0050	<0.0050	<0.0070	<0.0050	<0.0040
	Potassium (K)-Total (mg/dm2.day)		<0.040	<0.030	<0.050	<0.030	<0.030
	Selenium (Se)-Total (mg/dm2.day)		<0.000020	<0.000020	<0.000020	<0.000020	<0.000010
	Silicon (Si)-Total (mg/dm2.day)		0.00111	<0.00080	<0.0010	0.00089	<0.00070
	Silver (Ag)-Total (mg/dm2.day)		<0.00000020	<0.00000020	<0.00000020	<0.00000020	<0.00000010
	Sodium (Na)-Total (mg/dm2.day)		<0.040	<0.030	<0.050	<0.030	<0.030
	Strontium (Sr)-Total (mg/dm2.day)		0.0000240	0.0000124	0.0000333	0.0000403	0.0000159
	Thallium (Tl)-Total (mg/dm2.day)		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000010
	Tin (Sn)-Total (mg/dm2.day)		<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000025
	Titanium (Ti)-Total (mg/dm2.day)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00010
	Uranium (U)-Total (mg/dm2.day)		<0.00000020	<0.00000020	<0.00000020	0.00000028	<0.00000010
	Vanadium (V)-Total (mg/dm2.day)		<0.000020	<0.000020	<0.000020	<0.000020	<0.000010
	Zinc (Zn)-Total (mg/dm2.day)		0.000103	0.000038	0.000089	0.000067	0.000076

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L551874-6	L551874-7	L551874-8		
		Description					
		Sampled Date	01-SEP-07	01-SEP-07	01-SEP-07		
		Sampled Time					
		Client ID	FD-6	FD-7	FD-8		
Grouping	**Analyte**						
DUSTFALL							
Particulates	Total Dustfall (mg/dm2.day)		0.26	0.24	0.87		
	Total Insoluble Dustfall (mg/dm2.day)		0.12	0.14	0.70		
	Total Soluble Dustfall (mg/dm2.day)		0.13	<0.10	0.16		
Total Metals	Aluminum (Al)-Total (mg/dm2.day)		0.000082	0.000083	0.000322		
	Antimony (Sb)-Total (mg/dm2.day)		<0.0000020	<0.0000010	<0.0000020		
	Arsenic (As)-Total (mg/dm2.day)		<0.0000020	<0.0000010	0.0000024		
	Barium (Ba)-Total (mg/dm2.day)		0.0000119	0.0000205	0.000299		
	Beryllium (Be)-Total (mg/dm2.day)		<0.0000080	<0.0000070	<0.0000090		
	Bismuth (Bi)-Total (mg/dm2.day)		<0.0000080	<0.0000070	<0.0000090		
	Boron (B)-Total (mg/dm2.day)		<0.00020	<0.00010	<0.00020		
	Cadmium (Cd)-Total (mg/dm2.day)		<0.00000080	<0.00000070	<0.00000090		
	Calcium (Ca)-Total (mg/dm2.day)		0.00093	0.00136	0.0136		
	Chromium (Cr)-Total (mg/dm2.day)		<0.0000080	<0.0000070	<0.0000090		
	Cobalt (Co)-Total (mg/dm2.day)		<0.0000020	<0.0000010	<0.0000020		
	Copper (Cu)-Total (mg/dm2.day)		0.00790	0.00748	0.00820		
	Iron (Fe)-Total (mg/dm2.day)		<0.00050	<0.00040	0.00123		
	Lead (Pb)-Total (mg/dm2.day)		<0.00000080	0.00000144	0.0000213		
	Lithium (Li)-Total (mg/dm2.day)		<0.000080	<0.000070	<0.000090		
	Magnesium (Mg)-Total (mg/dm2.day)		<0.0020	<0.0010	0.0028		
	Manganese (Mn)-Total (mg/dm2.day)		0.0000502	0.0000489	0.000249		
	Mercury (Hg)-Total (mg/dm2.day)		<0.00000080	<0.00000070	<0.00000090		
	Molybdenum (Mo)-Total (mg/dm2.day)		<0.00000080	<0.00000070	<0.00000090		
	Nickel (Ni)-Total (mg/dm2.day)		<0.0000080	<0.0000070	0.0000124		
	Phosphorus (P)-Total (mg/dm2.day)		<0.0050	<0.0040	<0.0050		
	Potassium (K)-Total (mg/dm2.day)		<0.030	<0.030	<0.030		
	Selenium (Se)-Total (mg/dm2.day)		<0.000020	<0.000010	<0.000020		
	Silicon (Si)-Total (mg/dm2.day)		<0.00080	<0.00070	<0.00090		
	Silver (Ag)-Total (mg/dm2.day)		<0.00000020	<0.00000010	<0.00000020		
	Sodium (Na)-Total (mg/dm2.day)		<0.030	<0.030	<0.030		
	Strontium (Sr)-Total (mg/dm2.day)		0.0000028	0.0000038	0.0000285		
	Thallium (Tl)-Total (mg/dm2.day)		<0.0000020	<0.0000010	<0.0000020		
	Tin (Sn)-Total (mg/dm2.day)		<0.0000020	<0.0000010	<0.0000020		
	Titanium (Ti)-Total (mg/dm2.day)		<0.00020	<0.00010	<0.00020		
	Uranium (U)-Total (mg/dm2.day)		<0.00000020	<0.00000010	<0.00000020		
	Vanadium (V)-Total (mg/dm2.day)		<0.000020	<0.000010	<0.000020		
	Zinc (Zn)-Total (mg/dm2.day)		0.000043	0.000072	0.000125		

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
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).

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Environmental
excellence in analytical testing

1988 Triumph Street, Vancouver, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, Calgary, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8620 100th Street, Fort St. John, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
www.alsenviro.com

CHAIN OF CUSTODY FORM

L551874

SEND REPORT TO:

COMPANY:	Rescan Environmental Services, Ltd				
ADDRESS:	6th Floor, 1111 West Hastings Street				
CITY:	Vancouver	PROV:	BC	POSTAL CODE:	V6E 2J3
TEL:	(604) 689-9460	FAX:	(604) 687-4277	CONTACT:	S. Jensen
PROJECT NAME AND NO.:		830-2 Schaft Creek Air Quality		SAMPLER:	O. Dennis
QUOTE NO.:		PO NO.:		ALS CONTACT:	Amber Springer
REPORT FORMAT:	☑ HARDCOPY ☑ EMAIL - ADDRESS: sjensen@rescan.com ☐ FAX ☑ EXCEL ☐ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Total particulate, soluble particulat	insoluble particulate (Total Dustfall		Total Metals										NOTES (sample specific comments, due dates, etc.)
	FD-1	2007-09-01		dustfall	X			X										
	FD-2	2007-09-01		dustfall	X			X										
	FD-3	2007-09-01		dustfall	X			X										
	FD-4	2007-09-01		dustfall	X			X										

TURN AROUND REQUIRED: ◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☐ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)

INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX

SPECIAL INSTRUCTIONS:

-Always analyze with lowest detection limits possible, including cyanides and all metals.
Pleae send invoice to Rescan Accounting

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
S. Freeman	TIME: Sept-07-2007 11:30		TIME:
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: °C	Cooling Method?
Yes ☐ No ☐ N/A	Frozen? Yes ☐ No ☐	Icepacks ☐ Ice ☐ None

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1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
www.alsenviro.com

L551874

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Rescan Environmental Services, Ltd				
ADDRESS:	6th Floor, 1111 West Hastings Street				
CITY:	Vancouver	PROV:	BC	POSTAL CODE:	V6E 2J3
TEL:	(604) 689-9460	FAX:	(604) 687-4277	CONTACT:	S. Jensen
PROJECT NAME AND NO:		830-2 Schaft Creek Air Quality		SAMPLER:	O. Dennis
QUOTE NO.:		PO NO.:		ALS CONTACT:	Amber Springer

REPORT FORMAT: ☑ HARDCOPY ☑ EMAIL - ADDRESS: sjensen@rescan.com
☐ FAX ☑ EXCEL ☐ PDF ☐ OTHER:

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Total particulate, soluble particulat	insoluble particulate (Total Dustfall		Total Metals									NOTES (sample specific comments, due dates, etc.)
	FD-5	2007-09-01		dustfall	X			X									
	FD-6	2007-09-01		dustfall	X			X									
	FD-7	2007-09-01		dustfall	X			X									
	FD-8	2007-09-01		dustfall	X			X									

TURN AROUND REQUIRED: ◉ ROUTINE ○ RUSH SPECIFY DATE: (surcharge may apply)

SEND INVOICE TO: ☐ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)

INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
S. Freeman	TIME: 11:30	HD	TIME: 10:29
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

SPECIAL INSTRUCTIONS:
-Always analyze with lowest detection limits possible, including cyanides and all metals.
Pleae send invoice to Rescan Accounting.

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature:	Cooling Method?
___Yes ___No ___N/A	Frozen? ___Yes ___No	___Icepacks ___Ice ___None

ANALYTICAL REPORT

RESCAN ENVIRONMENTAL SERVICES

ATTN: RYAN BRANTLEY

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Reported On: 28-JUL-08 02:25 PM
Revision: 1

Lab Work Order #: **L654174** **Date Received:** **10-JUL-08**

Project P.O. #:
Job Reference: 912-1
Legal Site Desc: SCHAFT CREEK
CofC Numbers: C069986, C069988

Other Information:

Comments:

GLENYSS WEEKS
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L654174-1	L654174-2	L654174-3	L654174-4	L654174-5
	Description					
	Sampled Date	29-JUN-08	29-JUN-08	29-JUN-08	29-JUN-08	29-JUN-08
	Sampled Time	07:45	08:10	08:30	10:05	10:10
	Client ID	FD1 (MAY 27 - JUN 29)	FD2 (MAY 27 - JUN 29)	FD3 (MAY 27 - JUN 29)	FD4 (MAY 27 - JUN 29)	FD5 (MAY 27 - JUN 29)
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	1.06	0.77	0.33	0.31	0.50
	Total Insoluble Dustfall (mg/dm2.day)	0.96	0.70	0.31	0.27	0.43
	Total Soluble Dustfall (mg/dm2.day)	0.11	<0.10	<0.10	<0.10	<0.10
Anions and Nutrients	Nitrate (as N) (mg/dm2.day)	0.00029	0.00051	0.00014	0.00020	0.00037
	Sulfate (SO4) (mg/dm2.day)	<0.0090	<0.0070	<0.0070	<0.0070	<0.0080
Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000526	0.000697	0.000415	0.000105	0.000093
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
	Arsenic (As)-Total (mg/dm2.day)	<0.0000010	0.0000018	<0.0000010	<0.0000010	<0.0000010
	Barium (Ba)-Total (mg/dm2.day)	0.000152	0.0000630	0.0000317	0.0000157	0.0000150
	Beryllium (Be)-Total (mg/dm2.day)	<0.0000060	<0.0000060	<0.0000060	<0.0000060	<0.0000060
	Bismuth (Bi)-Total (mg/dm2.day)	<0.0000060	<0.0000060	<0.0000060	<0.0000060	<0.0000060
	Boron (B)-Total (mg/dm2.day)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Cadmium (Cd)-Total (mg/dm2.day)	<0.00000060	<0.00000060	<0.00000060	<0.00000060	<0.00000060
	Calcium (Ca)-Total (mg/dm2.day)	0.0235	0.00809	0.00686	0.00226	0.00350
	Chromium (Cr)-Total (mg/dm2.day)	<0.0000060	<0.0000060	<0.0000060	<0.0000060	<0.0000060
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
	Copper (Cu)-Total (mg/dm2.day)	0.000109	0.0000647	0.0000593	0.0000612	0.0000680
	Iron (Fe)-Total (mg/dm2.day)	0.00072	0.00108	0.00048	<0.00040	<0.00040
	Lead (Pb)-Total (mg/dm2.day)	0.00000119	0.00000294	0.00000081	<0.00000060	<0.00000060
	Lithium (Li)-Total (mg/dm2.day)	<0.000060	<0.000060	<0.000060	<0.000060	<0.000060
	Magnesium (Mg)-Total (mg/dm2.day)	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
	Manganese (Mn)-Total (mg/dm2.day)	0.0000956	0.0000704	0.0000288	0.0000153	0.0000111
	Mercury (Hg)-Total (mg/dm2.day)	<0.00000060	<0.00000060	<0.00000060	<0.00000060	<0.00000060
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.00000060	<0.00000060	0.00000122	<0.00000060	<0.00000060
	Nickel (Ni)-Total (mg/dm2.day)	<0.0000060	<0.0000060	<0.0000060	<0.0000060	<0.0000060
	Phosphorus (P)-Total (mg/dm2.day)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Potassium (K)-Total (mg/dm2.day)	<0.020	<0.020	<0.020	<0.020	<0.020
	Selenium (Se)-Total (mg/dm2.day)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Silicon (Si)-Total (mg/dm2.day)	0.00115	0.00128	0.00065	<0.00060	<0.00060
	Silver (Ag)-Total (mg/dm2.day)	<0.00000010	0.00000032	<0.00000010	<0.00000010	<0.00000010
	Sodium (Na)-Total (mg/dm2.day)	<0.020	<0.020	<0.020	<0.020	<0.020
	Strontium (Sr)-Total (mg/dm2.day)	0.0000466	0.0000175	0.0000129	0.0000043	0.0000089
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
	Tin (Sn)-Total (mg/dm2.day)	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
	Titanium (Ti)-Total (mg/dm2.day)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Uranium (U)-Total (mg/dm2.day)	<0.00000010	<0.00000010	<0.00000010	<0.00000010	<0.00000010
	Vanadium (V)-Total (mg/dm2.day)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Zinc (Zn)-Total (mg/dm2.day)	0.000077	0.000050	0.000025	0.000029	<0.000010

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L654174-6	L654174-7	L654174-8		
		Description					
		Sampled Date	29-JUN-08	29-JUN-08	29-JUN-08		
		Sampled Time	10:15	10:30	10:45		
		Client ID	FD6 (MAY 27 - JUN 29)	FD7 (MAY 27 - JUN 29)	FD8 (MAY 27 - JUN 29)		
Grouping	**Analyte**						
DUSTFALL							
Particulates	Total Dustfall (mg/dm2.day)		0.14	<0.10	0.22		
	Total Insoluble Dustfall (mg/dm2.day)		<0.10	<0.10	0.15		
	Total Soluble Dustfall (mg/dm2.day)		<0.10	<0.10	<0.10		
Anions and Nutrients	Nitrate (as N) (mg/dm2.day)		0.00053	0.00040	0.00049		
	Sulfate (SO4) (mg/dm2.day)		<0.0080	<0.0060	<0.0060		
Metals	Aluminum (Al)-Total (mg/dm2.day)		0.000188	0.000147	0.000228		
	Antimony (Sb)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Arsenic (As)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Barium (Ba)-Total (mg/dm2.day)		0.0000130	0.00000753	0.0000324		
	Beryllium (Be)-Total (mg/dm2.day)		<0.0000060	<0.0000060	<0.0000060		
	Bismuth (Bi)-Total (mg/dm2.day)		<0.0000060	<0.0000060	<0.0000060		
	Boron (B)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Cadmium (Cd)-Total (mg/dm2.day)		<0.00000060	<0.00000060	<0.00000060		
	Calcium (Ca)-Total (mg/dm2.day)		0.00141	0.00123	0.00380		
	Chromium (Cr)-Total (mg/dm2.day)		<0.0000060	<0.0000060	<0.0000060		
	Cobalt (Co)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Copper (Cu)-Total (mg/dm2.day)		0.0000917	0.000102	0.0000824		
	Iron (Fe)-Total (mg/dm2.day)		<0.00040	<0.00040	0.00058		
	Lead (Pb)-Total (mg/dm2.day)		0.00000152	0.00000066	0.00000070		
	Lithium (Li)-Total (mg/dm2.day)		<0.000060	<0.000060	<0.000060		
	Magnesium (Mg)-Total (mg/dm2.day)		<0.0010	<0.0010	<0.0010		
	Manganese (Mn)-Total (mg/dm2.day)		0.0000459	0.0000276	0.0000771		
	Mercury (Hg)-Total (mg/dm2.day)		<0.00000060	<0.00000060	<0.00000060		
	Molybdenum (Mo)-Total (mg/dm2.day)		<0.00000060	<0.00000060	<0.00000060		
	Nickel (Ni)-Total (mg/dm2.day)		<0.0000060	<0.0000060	<0.0000060		
	Phosphorus (P)-Total (mg/dm2.day)		<0.0040	<0.0040	<0.0040		
	Potassium (K)-Total (mg/dm2.day)		<0.020	<0.020	<0.020		
	Selenium (Se)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Silicon (Si)-Total (mg/dm2.day)		<0.00060	<0.00060	<0.00060		
	Silver (Ag)-Total (mg/dm2.day)		<0.00000010	<0.00000010	0.00000017		
	Sodium (Na)-Total (mg/dm2.day)		<0.020	<0.020	<0.020		
	Strontium (Sr)-Total (mg/dm2.day)		0.0000035	0.0000030	0.0000078		
	Thallium (Tl)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Tin (Sn)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Titanium (Ti)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Uranium (U)-Total (mg/dm2.day)		<0.00000010	<0.00000010	<0.00000010		
	Vanadium (V)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Zinc (Zn)-Total (mg/dm2.day)		0.000036	0.000017	0.000016		

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ANIONS-DUSTNO3-IC-VA	Dustfall	Dustfall nitrate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

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

ANIONS-DUSTSO4-IC-VA	Dustfall	Dustfall sulphate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

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

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

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 # C069988

REPORT TO:	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: RESCAN ENVIRONMENTAL	STANDARD ✓ OTHER ___	REGULAR SERVICE (DEFAULT)
CONTACT: RYAN BRANTLEY	PDF ✓ EXCEL ✓ CUSTOM ___ FAX ___	RUSH SERVICE (2-3 DAYS)
ADDRESS: 6th Floor, 111 W. Hastings Vancouver, BC	EMAIL 1: rbrantley@rescan.com	PRIORITY SERVICE (1 DAY or ASAP)
PHONE: 604-689-9460	EMAIL 2:	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? (YES) / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY:	CLIENT / PROJECT INFORMATION:	
CONTACT:	JOB #: 912-1	
ADDRESS:	PO /AFE:	
	Legal Site Description: Schaft Creek	
PHONE: FAX:	QUOTE #:	
Lab Work Order # (lab use only): L654174	SAMPLER (Initials): RB	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	Total Dustfall	Total Metals	Sulphate	Nitrate	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	FD1 TM	27 May 2008 / 29 June 2008	1130 / 745	Dustfall		✓	✓	✓			1
	FD1 TP	" "	1130 / 745	"	✓						1
	FD2 TM	" "	1400 / 810	"		✓	✓	✓			1
	FD2 TP	" "	1400 / 810	"	✓						1
	FD3 TM	" "	1320 / 830	"		✓	✓	✓			1
	FD3 TP	" "	1320 / 830	"	✓						1
	FD4 TM	" "	1620 / 1005	"		✓	✓	✓			1
	FD4 TP	" "	1620 / 1005	"	✓						1
	FD5 TM	" "	1645 / 1010	"		✓	✓	✓			1
	FD5 TP	" "	1645 / 1010	"	✓						1

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 on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
Ryan Brantley	5 July '08/0830		8/7/10
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:

SAMPLE CONDITION (lab use only)

TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
19	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

CANADA TOLL FREE 1-800-668-9878

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COC # C069986

REPORT TO:	
COMPANY: RESCAN ENVIRONMENTAL	
CONTACT: RYAN BRANTLEY	
ADDRESS: 1111 W. Hastings St. Vancouver, BC	
PHONE: 604-689-9460 FAX:	
INVOICE TO: SAME AS REPORT ? (YES) / NO	
COMPANY:	
CONTACT:	
ADDRESS:	
PHONE: FAX:	
Lab Work Order # (lab use only)	

REPORT FORMAT / DISTRIBUTION

STANDARD ____ OTHER ____

PDF ✓ EXCEL ✓ CUSTOM ____ FAX ____

EMAIL 1: rbrantley@rescan.com

EMAIL 2:

INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →

CLIENT / PROJECT INFORMATION:

JOB #: 912-1

PO /AFE:

Legal Site Description: Schaft Creek

QUOTE #:

SAMPLER (Initials): RB

SERVICE REQUESTED

- REGULAR SERVICE (DEFAULT)
- RUSH SERVICE (2-3 DAYS)
- PRIORITY SERVICE (1 DAY or ASAP)
- EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS

ANALYSIS REQUEST

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	Total Dust(Cal)	Total Metals	Sulphate	Nitrate	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	FD6 TM	27 May 2008 / 29 June 2008	1530/1015			✓	✓	✓			1
	FD6 TP	" / "	1530/1015		✓						1
	FD7 TM	" / "	1510/1030			✓	✓	✓			1
	FD7 TP	" / "	1510/1030		✓						1
	FD8 TM	27 May 2008 / 29 June 2008	1435/1045			✓	✓	✓			1
	FD8 TP	" / "	1435/1045		✓						1
											1
											1
											1
											1
											1

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 on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
Ryan Brantley	0530 / 5 July 08		
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:

SAMPLE CONDITION (lab use only)

TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
15	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

COPPER FOX METALS INC.
ATTN: SHANE UREN
1330, 1100 MELVILLE STREET
VANCOUVER BC V6E 4A6

Report Date: 02-NOV-09 11:44 (MT)
Version: FINAL REV. 2

Lab Work Order #: **L667230** **Date Received:** **11-AUG-08**

Project P.O. #:
Job Reference: 912-1
Legal Site Desc:
CofC Numbers: A010060, A010061

Other Information:

Comments: September 8/08- Volume filtered data has been revised for Anions and Particulates data on all samples. Metals data remains unchanged. Please contact ALS for further information.
Nov.2/09 - File re-sent.

Glenyss Weeks
Technical Sales Representative

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L667230-1	L667230-2	L667230-3	L667230-4	L667230-5
	Description					
	Sampled Date	02-AUG-08	02-AUG-08	02-AUG-08	02-AUG-08	02-AUG-08
	Sampled Time					
	Client ID	DF-6	DF-7	DF-8	DF-1	DF-2
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	0.17	0.19	0.14	2.50	1.15
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	2.43	1.09
	Total Soluble Dustfall (mg/dm2.day)	<0.10	0.13	<0.10	<0.10	<0.10
Anions and Nutrients	Nitrate (as N) (mg/dm2.day)	<0.000080	0.000608	0.000620	0.000650	0.000663
	Sulfate (SO4) (mg/dm2.day)	<0.0080	<0.0090	0.0031	<0.0030	<0.0030
Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000134	0.000087	0.000837	0.00696	0.0115
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.0000010	<0.0000010	<0.0000010
	Arsenic (As)-Total (mg/dm2.day)	0.0000015	<0.0000020	<0.0000010	0.0000026	0.0000073
	Barium (Ba)-Total (mg/dm2.day)	0.00000994	0.00000754	0.0000321	0.0000957	0.000113
	Beryllium (Be)-Total (mg/dm2.day)	<0.0000060	<0.0000090	<0.0000060	<0.0000050	<0.0000050
	Bismuth (Bi)-Total (mg/dm2.day)	<0.0000060	<0.0000090	<0.0000060	<0.0000050	<0.0000050
	Boron (B)-Total (mg/dm2.day)	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010
	Cadmium (Cd)-Total (mg/dm2.day)	<0.00000060	<0.00000090	<0.00000060	<0.00000050	<0.00000050
	Calcium (Ca)-Total (mg/dm2.day)	0.00131	0.00109	0.00366	0.0167	0.0121
	Chromium (Cr)-Total (mg/dm2.day)	<0.0000060	<0.0000090	<0.0000060	0.0000117	0.0000369
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000010	0.0000051	<0.0000010	0.0000051	0.0000116
	Copper (Cu)-Total (mg/dm2.day)	0.00405	0.00391	0.00109	0.000863	0.00306
	Iron (Fe)-Total (mg/dm2.day)	<0.00030	<0.00050	0.00065	0.00655	0.0113
	Lead (Pb)-Total (mg/dm2.day)	0.00000079	0.0000437	0.00000131	0.00000317	0.00000572
	Lithium (Li)-Total (mg/dm2.day)	<0.000060	<0.000090	<0.000060	<0.000050	<0.000050
	Magnesium (Mg)-Total (mg/dm2.day)	<0.0010	<0.0020	<0.0010	0.0045	0.0101
	Manganese (Mn)-Total (mg/dm2.day)	0.0000382	0.0000282	0.0000889	0.000297	0.000504
	Mercury (Hg)-Total (mg/dm2.day)	<0.00000060	<0.00000090	<0.00000060	<0.00000050	<0.00000050
	Molybdenum (Mo)-Total (mg/dm2.day)	0.00000234	0.00000096	0.00000075	0.00000084	0.00000087
	Nickel (Ni)-Total (mg/dm2.day)	<0.0000060	<0.0000090	0.0000063	0.0000109	0.0000424
	Phosphorus (P)-Total (mg/dm2.day)	<0.0030	<0.0050	<0.0030	<0.0030	<0.0030
	Potassium (K)-Total (mg/dm2.day)	<0.020	<0.040	<0.020	<0.020	<0.020
	Selenium (Se)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.000010	<0.000010	<0.000010
	Silicon (Si)-Total (mg/dm2.day)	<0.00060	<0.00090	0.00083	0.0119	0.0203
	Silver (Ag)-Total (mg/dm2.day)	<0.00000010	<0.00000020	0.00000017	<0.00000010	<0.00000010
	Sodium (Na)-Total (mg/dm2.day)	<0.020	<0.040	<0.020	<0.020	<0.020
	Strontium (Sr)-Total (mg/dm2.day)	0.0000192	0.0000052	0.0000086	0.0000599	0.0000511
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.0000010	<0.0000010	<0.0000010
	Tin (Sn)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.0000010	<0.0000010	<0.0000010
	Titanium (Ti)-Total (mg/dm2.day)	<0.00010	<0.00020	<0.00010	0.00047	0.00066
	Uranium (U)-Total (mg/dm2.day)	<0.00000010	<0.00000020	<0.00000010	0.00000034	0.00000024
	Vanadium (V)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.000010	0.000022	0.000037
	Zinc (Zn)-Total (mg/dm2.day)	0.000052	0.000154	0.000038	0.000043	0.000067

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L667230-6	L667230-7	L667230-8		
		Description					
		Sampled Date	02-AUG-08	02-AUG-08	02-AUG-08		
		Sampled Time					
		Client ID	DF-3	DF-4	DF-5		
Grouping	**Analyte**						
DUSTFALL							
Particulates	Total Dustfall (mg/dm2.day)		0.57	0.16	0.36		
	Total Insoluble Dustfall (mg/dm2.day)		0.47	<0.10	0.31		
	Total Soluble Dustfall (mg/dm2.day)		<0.10	<0.10	<0.10		
Anions and Nutrients	Nitrate (as N) (mg/dm2.day)		0.000659	0.000512	0.000446		
	Sulfate (SO4) (mg/dm2.day)		<0.0040	<0.0050	<0.0030		
Metals	Aluminum (Al)-Total (mg/dm2.day)		0.00250	0.00110	0.00103		
	Antimony (Sb)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Arsenic (As)-Total (mg/dm2.day)		0.0000015	<0.0000010	<0.0000010		
	Barium (Ba)-Total (mg/dm2.day)		0.0000390	0.0000199	0.0000173		
	Beryllium (Be)-Total (mg/dm2.day)		<0.0000050	<0.0000060	<0.0000060		
	Bismuth (Bi)-Total (mg/dm2.day)		<0.0000050	<0.0000060	<0.0000060		
	Boron (B)-Total (mg/dm2.day)		<0.00010	<0.00010	<0.00010		
	Cadmium (Cd)-Total (mg/dm2.day)		<0.00000050	<0.00000060	<0.00000060		
	Calcium (Ca)-Total (mg/dm2.day)		0.00537	0.00170	0.00130		
	Chromium (Cr)-Total (mg/dm2.day)		<0.0000050	<0.0000060	<0.0000060		
	Cobalt (Co)-Total (mg/dm2.day)		0.0000021	<0.0000010	<0.0000010		
	Copper (Cu)-Total (mg/dm2.day)		0.00157	0.00360	0.00203		
	Iron (Fe)-Total (mg/dm2.day)		0.00241	0.00103	0.00078		
	Lead (Pb)-Total (mg/dm2.day)		0.00000162	0.00000156	0.00000107		
	Lithium (Li)-Total (mg/dm2.day)		<0.000050	<0.000060	<0.000060		
	Magnesium (Mg)-Total (mg/dm2.day)		0.0015	<0.0010	<0.0010		
	Manganese (Mn)-Total (mg/dm2.day)		0.000167	0.0000628	0.0000428		
	Mercury (Hg)-Total (mg/dm2.day)		<0.00000050	<0.00000060	<0.00000060		
	Molybdenum (Mo)-Total (mg/dm2.day)		0.00000583	<0.00000060	<0.00000060		
	Nickel (Ni)-Total (mg/dm2.day)		0.0000073	<0.0000060	<0.0000060		
	Phosphorus (P)-Total (mg/dm2.day)		<0.0030	<0.0030	<0.0030		
	Potassium (K)-Total (mg/dm2.day)		<0.020	<0.020	<0.020		
	Selenium (Se)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Silicon (Si)-Total (mg/dm2.day)		0.00323	0.00159	0.00128		
	Silver (Ag)-Total (mg/dm2.day)		<0.00000010	0.00000038	<0.00000010		
	Sodium (Na)-Total (mg/dm2.day)		<0.020	<0.020	<0.020		
	Strontium (Sr)-Total (mg/dm2.day)		0.0000220	0.0000070	0.0000065		
	Thallium (Tl)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Tin (Sn)-Total (mg/dm2.day)		<0.0000010	<0.0000010	<0.0000010		
	Titanium (Ti)-Total (mg/dm2.day)		0.00012	<0.00010	<0.00010		
	Uranium (U)-Total (mg/dm2.day)		0.00000019	0.00000013	<0.00000010		
	Vanadium (V)-Total (mg/dm2.day)		<0.000010	<0.000010	<0.000010		
	Zinc (Zn)-Total (mg/dm2.day)		0.000057	0.000067	0.000027		

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ANIONS-DUSTNO3-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".

ANIONS-DUSTSO4-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".

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).

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

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COC # A010061

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Page 1 of 2

REPORT TO: Ryan Brantley	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: Rescan	STANDARD ✓ OTHER ____	REGULAR SERVICE (DEFAULT)
CONTACT: Ryan Brantley	PDF ✓ EXCEL ✓ CUSTOM ____ FAX ____	RUSH SERVICE (2-3 DAYS)
ADDRESS: 1111 West Hastings, 6th fl	EMAIL 1:	PRIORITY SERVICE (1 DAY or ASAP)
Vancouver, BC, V6E 2J3	EMAIL 2:	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
PHONE 604 689 9460 FAX:		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? YES / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY: Copper Fox	CLIENT / PROJECT INFORMATION:	
CONTACT: Shane Wren	JOB #: 912-1	
ADDRESS:	PO /AFE:	
	Legal Site Description:	
PHONE: 604-689-5080 FAX:	QUOTE #:	
Lab Work Order # (lab use only): L667230	SAMPLER (Initials):	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	DF-6	2-Aug-08		Dustfall			
	DF-6						
	DF-7						
	DF-7						
	DF-8						
	DF-8						

Dustfall → rate for Boron analysis request

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 on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	SAMPLE CONDITION (lab use only)	
			AUG 11 9:5	TEMPERATURE: 15°	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:		

REFER TO BACK PAGE FOR REGIONAL LOCATIONS AND SAMPLING INFORMATION

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

GENF14.00

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 # A010060

REPORT TO: Ryan Brantley	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: Roscan	STANDARD ✓ OTHER	REGULAR SERVICE (DEFAULT)
CONTACT: Ryan Brantley	PDF ✓ EXCEL ✓ CUSTOM FAX	RUSH SERVICE (2-3 DAYS)
ADDRESS: 1111 West Hastings, 6th Fl.	EMAIL 1:	PRIORITY SERVICE (1 DAY or ASAP)
Vancouver, BC V6E 2J3	EMAIL 2:	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
PHONE: 6046899460 FAX:		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? YES / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY: Copper Fox	CLIENT / PROJECT INFORMATION:	
CONTACT: Shane Uren	JOB #: 912-1	
ADDRESS:	PO /AFE:	
	Legal Site Description:	
PHONE: 604-689-5080 FAX:	QUOTE #:	
Lab Work Order # (lab use only)	SAMPLER (Initials): DF	

Dustfall - sent to Ryan for analysis as requested.

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	DF-1	4-Aug-08		Dustfall			
	DF-1						
	DF-2						
	DF-2						
	DF-3						
	DF-3						
	DF-4	2-Aug-08					
	DF-4						
	DF-5						
	DF-5						

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 on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:	SAMPLE CONDITION (lab use only)	
			Aug 11 9:55	TEMPERATURE 15°C	SAMPLES RECEIVED IN GOOD CONDITION? YES / NO (If no provide details)
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:		

Certificate of Analysis

COPPER FOX METALS INC.

ATTN: SHANE UREN

1330, 1100 MELVILLE STREET

VANCOUVER BC V6E 4A6

Reported On: 23-SEP-08 05:40 PM

Lab Work Order #: L682980 **Date Received:** 15-SEP-08

Project P.O. #: SCHAFT CREEK
Job Reference: 0912-001-02-01
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

GLENYSS WEEKS
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L682980-1	L682980-2	L682980-3	L682980-4	
	Description					
	Sampled Date	07-SEP-08	07-SEP-08	06-SEP-08	06-SEP-08	
	Sampled Time					
	Client ID	DF 7	DF 6	DF 4	DF 5	
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	0.11	<0.10	<0.10	<0.10	
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	<0.10	
	Total Soluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	<0.10	
Anions and Nutrients	Nitrate (as N) (mg/dm2.day)	0.00101	0.000910	0.000497	0.000151	
	Sulfate (SO4) (mg/dm2.day)	<0.0070	<0.0080	<0.0030	<0.0020	
Metals	Aluminum (Al)-Total (mg/dm2.day)	0.000052	0.000054	0.000035	0.000034	
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000010	<0.0000010	
	Arsenic (As)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000010	<0.0000010	
	Barium (Ba)-Total (mg/dm2.day)	0.0000039	0.0000054	0.00000216	0.00000104	
	Beryllium (Be)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.0000050	<0.0000050	
	Bismuth (Bi)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.0000050	<0.0000050	
	Boron (B)-Total (mg/dm2.day)	<0.00030	<0.00030	<0.00010	<0.00010	
	Cadmium (Cd)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.00000050	<0.00000050	
	Calcium (Ca)-Total (mg/dm2.day)	0.00082	<0.00080	0.00036	<0.00020	
	Chromium (Cr)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.0000050	<0.0000050	
	Cobalt (Co)-Total (mg/dm2.day)	0.0000068	0.0000065	0.0000015	<0.0000010	
	Copper (Cu)-Total (mg/dm2.day)	0.000775	0.000917	0.000813	0.000277	
	Iron (Fe)-Total (mg/dm2.day)	<0.00040	<0.00050	<0.00020	<0.00010	
	Lead (Pb)-Total (mg/dm2.day)	0.0000104	0.0000537	0.0000297	0.0000124	
	Lithium (Li)-Total (mg/dm2.day)	<0.00010	<0.00020	<0.000050	<0.000050	
	Magnesium (Mg)-Total (mg/dm2.day)	<0.0010	<0.0020	<0.00050	<0.00050	
	Manganese (Mn)-Total (mg/dm2.day)	0.0000153	0.0000128	0.00000819	0.00000429	
	Mercury (Hg)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.00000050	<0.00000050	
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.0000010	<0.0000020	<0.00000050	<0.00000050	
	Nickel (Ni)-Total (mg/dm2.day)	<0.000010	<0.000020	<0.0000050	<0.0000050	
	Phosphorus (P)-Total (mg/dm2.day)	<0.0040	<0.0050	<0.0020	<0.0010	
	Potassium (K)-Total (mg/dm2.day)	<0.030	<0.030	<0.010	<0.010	
	Selenium (Se)-Total (mg/dm2.day)	<0.000030	<0.000030	<0.000010	<0.000010	
	Silicon (Si)-Total (mg/dm2.day)	<0.00070	<0.00080	<0.00030	<0.00020	
	Silver (Ag)-Total (mg/dm2.day)	<0.00000030	<0.00000030	<0.00000010	<0.00000010	
	Sodium (Na)-Total (mg/dm2.day)	<0.030	<0.030	<0.010	<0.010	
	Strontium (Sr)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000010	<0.0000010	
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000010	<0.0000010	
	Tin (Sn)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000010	<0.0000010	
	Titanium (Ti)-Total (mg/dm2.day)	<0.00010	<0.00020	<0.000050	<0.000050	
	Uranium (U)-Total (mg/dm2.day)	<0.00000030	<0.00000030	<0.00000010	<0.00000010	
	Vanadium (V)-Total (mg/dm2.day)	<0.000030	<0.000030	<0.000010	<0.000010	
	Zinc (Zn)-Total (mg/dm2.day)	0.000092	0.000214	0.000074	0.000058	

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
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).

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".

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

Website: www.rescan.com
E-mail: rescan@rescan.com

Vancouver Office:
Rescan Environmental Services Ltd.
6th Floor, 1111 West Hastings Street
Vancouver, B.C. V6E 2J3
Tel: (604) 689-9460 Fax: (604) 687-4277

Yellowknife Office:
Rescan Northern Operations
Suite 908-5201 50th Avenue
Yellowknife, NT X1A 3S9
Tel: (867) 920-2090 Fax: (867) 920-2015

Seattle Office:
Rescan Consultants Inc.
Suite 3200,1001 Fourth Avenue Plaza
Seattle, WA 98154, USA
Tel: (206) 726-2145 Fax: (206) 382-9648

CHAIN OF CUSTODY RECORD

PROJECT NAME: Schaft Creek

PROJECT #: 0913-001-02-01

FIELD SCIENTISTS AND/OR ENGINEERS: (*Print Name and Sign*)
A. Longmuir
A. Longmuir 682980

Laboratory Contact: A Springer

Laboratory Address: ALS Triumph St. Vancouver, BC

Rescan Contact: Dan Jarrett

STATION NUMBER	DATE	TIME	COMP. SAMPLE	GRAB SAMPLE	SAMPLE IDENTIFICATION (DEPTH, REPLICATE)	NUMBER OF CONTAINERS:	Total Dissolved Hg
1 DF7	Sept 7			✓		2	X
2 DF6	↓			↓		↓	↓
3 DF4	Sept. 6			↓		↓	↓
4 DF5	↓			↓		↓	↓
5							
6							
7							
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16							
17							
18							
19							
20							
21							

Received by: Company: Name: (Print and Sign)	Date/Time D / M / Y / /	**Relinquished by:** Company: Name: (Print and Sign)	Date/Time D / M / Y / /	Routine Analysis: ☑ Rush Analysis: ☐	
Received by: Company: Name: (Print and Sign)	Date/Time D / M / Y / /	**Received for Laboratory by:** Company: Name: (Print and Sign)	Date/Time D / M / Y 15 / 9 / 12	Remarks:	**COURIER COPY**

Page 1 of 1

Certificate of Analysis

RESCAN ENVIRONMENTAL SERVICES

ATTN: DAN JARRATT

SIXTH FLOOR
1111 WEST HASTINGS STREET
VANCOUVER BC V6E 2J3

Reported On: 22-DEC-08 05:24 PM

Lab Work Order #: L715824 **Date Received:** 08-DEC-08

Project P.O. #:
Job Reference: SCHAFT AIR QUALITY 0912-001-02-01
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

Amber Springer
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L715824-1	L715824-2	L715824-3	L715824-4	
	Description					
	Sampled Date	28-NOV-08	28-NOV-08	27-NOV-08	28-NOV-08	
	Sampled Time					
	Client ID	FD-1	FD-2	FD-3	FD-4	
Grouping	**Analyte**					
DUSTFALL						
Particulates	Total Dustfall (mg/dm2.day)	0.10	0.23	0.25	0.16	
	Total Insoluble Dustfall (mg/dm2.day)	<0.10	<0.10	<0.10	<0.10	
	Total Soluble Dustfall (mg/dm2.day)	<0.10	0.18	0.18	0.13	
Metals	Aluminum (Al)-Total (mg/dm2.day)	<0.00010	<0.000080	<0.00010	<0.00010	
	Antimony (Sb)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000030	<0.0000060	
	Arsenic (As)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000030	<0.0000060	
	Barium (Ba)-Total (mg/dm2.day)	0.0000149	0.0000136	0.0000148	<0.000010	
	Beryllium (Be)-Total (mg/dm2.day)	<0.000020	<0.000010	<0.000010	<0.000030	
	Bismuth (Bi)-Total (mg/dm2.day)	<0.000020	<0.000010	<0.000010	<0.000030	
	Boron (B)-Total (mg/dm2.day)	<0.00030	<0.00030	<0.00030	<0.00060	
	Cadmium (Cd)-Total (mg/dm2.day)	<0.0000020	0.0000016	<0.0000010	<0.0000030	
	Calcium (Ca)-Total (mg/dm2.day)	0.0026	0.0023	0.0024	<0.0030	
	Chromium (Cr)-Total (mg/dm2.day)	<0.000020	<0.000010	<0.000010	<0.000030	
	Cobalt (Co)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000030	<0.0000060	
	Copper (Cu)-Total (mg/dm2.day)	0.0000803	0.000109	0.000154	0.000187	
	Iron (Fe)-Total (mg/dm2.day)	<0.00090	0.00095	0.00129	<0.0020	
	Lead (Pb)-Total (mg/dm2.day)	<0.0000020	<0.0000010	<0.0000010	<0.0000030	
	Lithium (Li)-Total (mg/dm2.day)	<0.00020	<0.00010	<0.00010	<0.00030	
	Magnesium (Mg)-Total (mg/dm2.day)	<0.0030	<0.0030	<0.0030	<0.0060	
	Manganese (Mn)-Total (mg/dm2.day)	0.0000720	0.0000535	0.0000682	0.0000369	
	Mercury (Hg)-Total (mg/dm2.day)	<0.0000020	<0.0000010	<0.0000010	<0.0000030	
	Molybdenum (Mo)-Total (mg/dm2.day)	<0.0000020	<0.0000010	<0.0000010	<0.0000030	
	Nickel (Ni)-Total (mg/dm2.day)	<0.000020	<0.000010	<0.000010	<0.000030	
	Phosphorus (P)-Total (mg/dm2.day)	<0.0090	<0.0080	<0.0090	<0.020	
	Potassium (K)-Total (mg/dm2.day)	<0.060	<0.060	<0.060	<0.10	
	Selenium (Se)-Total (mg/dm2.day)	<0.000030	<0.000030	<0.000030	<0.000060	
	Silicon (Si)-Total (mg/dm2.day)	<0.0020	0.0016	0.0020	<0.0030	
	Silver (Ag)-Total (mg/dm2.day)	<0.00000030	<0.00000030	<0.00000030	<0.00000060	
	Sodium (Na)-Total (mg/dm2.day)	<0.060	<0.060	<0.060	<0.10	
	Strontium (Sr)-Total (mg/dm2.day)	0.0000063	0.0000054	0.0000070	<0.0000060	
	Thallium (Tl)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000030	<0.0000060	
	Tin (Sn)-Total (mg/dm2.day)	<0.0000030	<0.0000030	<0.0000030	<0.0000060	
	Titanium (Ti)-Total (mg/dm2.day)	<0.00030	<0.00030	<0.00030	<0.00060	
	Uranium (U)-Total (mg/dm2.day)	<0.00000030	<0.00000030	<0.00000030	<0.00000060	
	Vanadium (V)-Total (mg/dm2.day)	<0.000030	<0.000030	<0.000030	<0.000060	
	Zinc (Zn)-Total (mg/dm2.day)	0.000118	0.000100	0.000095	0.000071	

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
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).

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

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

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
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.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Environmental *excellence in analytical testing*

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
www.alsenviro.com

L715824

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Rescan Environmental Services, Ltd				
ADDRESS:	6th Floor, 1111 West Hastings Street				
CITY:	Vancouver	PROV:	BC	POSTAL CODE:	V6E 2J3
TEL:	(604) 689-9460	FAX:	(604) 687-4277	CONTACT:	D. Jarratt
PROJECT NAME AND NO.:	Schaft Air Quality 0912-001-02-01			SAMPLER:	O. Dennis
QUOTE NO.:		PO NO.:		ALS CONTACT:	Amber Springer
REPORT FORMAT:	☑ HARDCOPY ☑ EMAIL - ADDRESS: djarratt@rescan.com				
	☐ FAX ☑ EXCEL ☐ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Total particulate, soluble particulate	insoluble particulate	Total Metals	NOTES (sample specific comments, due dates, etc.)
	FD-1-TP	2008-11-28		dustfall	X			
	FD-1-TM	2008-11-28		dustfall			X	
	FD-2-TP	2008-11-28		dustfall	X			
	FD-2-TM	2008-11-28		dustfall			X	
	FD-3-TP	2008-11-27		dustfall	X			
	FD-3-TM	2008-11-27		dustfall			X	
	FD-4-TP	2008-11-28		dustfall	X			
	FD-4-TM	2008-11-28		dustfall			X	

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: (surcharge may apply)	RELINQUISHED BY:	DATE:	Dec-05-2008	RECEIVED BY:	DATE:	Dec 8/08
		Shana Dennis	TIME:	11:30	VT	TIME:	10:00
SEND INVOICE TO:	☐ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:		RECEIVED BY:	DATE:	
INVOICE FORMAT:	☑ HARDCOPY ☐ PDF ☐ FAX		TIME:			TIME:	

SPECIAL INSTRUCTIONS:
-Always analyze with lowest detection limits possible, including cyanides and all metals.
Please send invoice to Rescan Accounting.

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: °C	Cooling Method?
Yes No N/A	Frozen? Yes No	Icepacks Ice None