GOVERNMENT OF YUKON
DEPARTMENT OF COMMUNITY SERVICES

HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

REPORT

APRIL 2011
ISSUED FOR USE
EBA FILE: W23101317.007

creating & delivering | BETTER SOLUTIONS

eba
A TETRA TECH COMPANY

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the Government of Yukon and their agents. EBA, A Tetra Tech Company, does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the Government of Yukon, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in EBA's General Conditions which are provided in Appendix A of this report.

EBA, A Tetra Tech Company
Calcite Business Centre, Unit 6, 151 Industrial Road
Whitehorse, YT Y1A 2V3 CANADA
p. 867.668.3068 f. 867.668.4349

EXECUTIVE SUMMARY

The Government of Yukon (Department of Community Services) engaged EBA Engineering Consultants Ltd. to install a groundwater monitoring well network, undertake a groundwater monitoring event and prepare a hydrogeological assessment of the Haines Junction Waste Disposal Facility.

EBA directed and supervised the drilling and installation of three monitoring wells in October 2010 and undertook a groundwater monitoring event in December 2010. This report has been prepared in accordance with the agreed scope of work and presents conclusions and recommendations based on the hydrogeological conditions encountered during the fall 2010 field works.

The following conclusions are made based on the findings of the 2011 hydrogeological assessment:

- Three monitoring wells HJ-MW01, HJ-MW02, and HJ-MW03 were installed in October 2010 in areas north and south of the waste disposal facility to establish a groundwater monitoring network at the Site. HJ-MW01 was completed in a silty sand unit and HJ-MW02 and HJ-MW03 were completed in a sand and gravel unit, with a slotted section at each well base to allow groundwater entry;
- Based on groundwater elevation data, monitoring wells HJ-MW02 and HJ-MW03 appear to be down-gradient of the Site and HJ-MW01 up-gradient; however, additional groundwater elevation data are necessary to identify potential seasonal changes and confirm the conceptual hydrogeological model;
- No monitoring or sampling of groundwater is believed to have been conducted at site prior to the fall/winter 2010 field program;
- The hydrogeological conceptual model indicates that there is recharge to the quaternary aquifers from either adjacent bedrock or alluvial fans on the slopes of the surrounding ranges. There is expected to be very little infiltration of water through the thick till sequence underlying the site to the water table. Groundwater flow downgradient of the site is expected to be predominantly to the south towards Dezadeash River where groundwater would be expected to discharge.
- Analysis of the hydraulic response test results shows that the hydraulic conductivity of the sandy silt unit is about 4.4×10^{-7} m/s whilst the hydraulic conductivity of the sand and gravel unit is about 1.7×10^{-6} m/s. The estimated average linear groundwater velocity, given a worst case scenario using the maximum calculated hydraulic conductivity, is approximately 3.1 m/year;
- The concentrations of sodium at monitoring well HJ-MW02 exceeds the CSR-DW (aesthetic) criteria;
- Concentrations of sulphate at all three monitoring wells exceed the CSR-DW (aesthetic) criteria and CSR-LW criteria;
- Concentrations of boron, manganese and molybdenum exceed the CSR-IW criteria at least one monitoring location each;
- Concentrations of magnesium and manganese exceed the CSR-DW (aesthetic) criteria at all three monitoring locations;
- Antimony exceeds the CSR-DW criteria at HJ-MW01;
- All other analytes were below the applicable guideline criteria;

- All organic analytes reported concentrations below the laboratory method detection limit with the exception of the naphthalene concentration at HJ-MW01. The source of the naphthalene could not be determined and should be investigated further if subsequent sampling rounds confirm the presence of this analyte;
- Dissolved Organic Carbon (DOC) concentrations were consistent at each monitoring well and below concentrations that would be expected to indicate impact from landfill leachate;
- Sulphate, a potential indicator of landfill impact on groundwater, was reported in all monitoring wells at concentrations considered to be well in excess of concentrations found in landfill leachate. Considering the wells are screened below approximately 20 to 30 m of silt, it is unlikely that these elevated concentrations are a result of landfilling activities;
- Ammonia, a potential indicator of leachate contamination, was detected in all monitoring wells. The concentrations reported are considered representative of background conditions given the highest detectable concentration was reported at background well HJ-MW01;
- When compared against typical leachate chemical composition, the proportions of sulphate and ammonia present do not indicate impact on groundwater from landfill leachate. Sulphate concentrations in leachate are typically significantly lower than that reported in all three wells whilst when sulphate is present in leachate, ammonia concentrations are typically in the hundreds to thousands of mg/L (Fetter, 1993);
- Metals displayed relatively consistent concentrations in all three wells across the site with no well indicating impact from landfilling operations;
- A preliminary review of groundwater monitoring results indicates that while groundwater at all monitoring wells reported concentrations of analytes typically associated with impact from landfill leachate, these analytes are, however, considered to be representative of background concentrations in the area of the Site. Infiltration of leachate to the SQA is expected to be restricted due to the thick sequence of silt underlying the site and the confinement of the SQA. In the unlikely event that contaminants infiltrate to the top of the confining layer noted at HJ-MW02 and HJ-MW03, the upward hydraulic gradient and low permeability of this unit would limit the flow of contaminants into the SQA. Any movement of contaminants would be through the process of diffusion which would severely limit any impact upon the aquifer;

The following recommendations are made based on the findings of this 2011 Hydrogeological Assessment report:

- As required by the Site's Waste Disposal Facility Permit, future monitoring programs should be completed once during the spring freshet when the most significant groundwater recharge occurs and once in late summer,
- HJ-MW01, HJ-MW02 and HJ-MW03 should be surveyed by a professional surveyor for location and elevation prior to the next monitoring round. Elevations from the top of the PVC casing and from ground level immediately adjacent to the well should be reported.

- Following the survey of the monitoring wells and the next two rounds of sampling in 2011, data should be reviewed by a qualified hydrogeologist and the need for additional up-gradient and downgradient monitoring wells assessed.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

EBA, A Tetra Tech Company (EBA) have been retained by the Government of Yukon (YTG), Department of Community Services, to design and install a groundwater monitoring network, undertake a groundwater monitoring event and prepare a Hydrogeological Assessment Report at the Haines Junction Waste Disposal Facility (the "Site").

1.2 PURPOSE AND OBJECTIVES

The purpose of this study is to assess the impact of waste disposal at the Site upon local groundwater quality.

The specific objectives of this study were to:

- Design and install a monitoring well network sufficient to provide an assessment of the Site's impact on groundwater quality;
- Assess groundwater quality against relevant Yukon water quality standards;
- Recommend further works to be completed as necessary to more comprehensively assess the impact to groundwater quality.

1.3 SCOPE AND SEQUENCE OF WORK

The following scope of work was proposed to develop the hydrogeological conceptual model for the site. This work was performed in accordance with the Site's Waste Disposal Facility Permit (Permit No: 80-002, Effective January 1, 2010 to December 31, 2011), relevant Environment Yukon Protocols and in accordance with the Yukon Environmental & Socioeconomic Assessment Act (YESAA) Decision Document issued for the Site (YESAA File Number: 2008-0246). A copy of the current Waste Disposal Facility Permit is provided in Appendix B.

In summary, the proposed scope of work included a preliminary "desktop study", followed by a field investigation program consisting of the installation of a groundwater monitoring network, water level monitoring, aquifer testing, groundwater sampling and analysis from the monitoring well network, followed by interpretation of results to provide a Hydrogeological Assessment Report detailing the impact to groundwater quality and risk to downgradient receptors. This work was undertaken in general accordance with relevant Yukon Contaminated Sites Regulation (YCSR) regulations.

To complete the scope of work, EBA completed the following tasks:

- Background data compilation and review;
- Installation of a monitoring well network;
- Development of monitoring wells;
- Sampling and testing of groundwater;

- Aquifer testing (hydraulic conductivity);
- Data review and interpretation of results;
- Reporting.

Table 1-1 summarizes the tasks and sequence of events to arrive at this report.

Table 1-1: Site Assessment and Task Sequence

Date	Activity
8 May 2010	EBA formally appointed by YTG to undertake the work.
3 July 2010	Site inspection by Adam Seeley of EBA.
9 - 19 October 2010	Groundwater monitoring wells installed by Geotech Drilling under the supervision of EBA. Development of groundwater monitoring wells undertaken by EBA.
6 – 7 December 2010	Groundwater monitoring event and slug testing of monitoring wells undertaken by EBA.
2 March 2011	Report Issued For Review.

1.4 QUALIFICATIONS OF ASSESSORS

Mr. Adam Seeley conducted the initial site inspection, coordinated drilling works, and prepared this assessment report. Mr. Seeley is a Hydrogeologist with EBA's Whitehorse Environment Group, with 9 years experience in the environmental and hydrogeological fields and has been involved in groundwater monitoring and reporting programs at over 50 sites in Australia and the Yukon.

Ms Breanne Waggott supervised drilling works, undertook the groundwater monitoring and aquifer testing event and assisted in the preparation of this assessment report. Ms Waggott is a Junior Hydrogeologist with EBA's Whitehorse Environmental Group, with 1 year experience in the environmental hydrogeology field. Throughout her time at EBA she has assisted multiple field and desktop based hydrogeological assessments.

Ms. Tamra Reynolds, senior reviewed this report. Ms. Reynolds is a Senior Contaminant Hydrogeologist with EBA's Whitehorse Environment Group, with 15 years of experience in the environmental and hydrogeological fields. She has conducted over 100 Environmental Site Assessments, hydrogeological evaluations, and remediations at sites across Canada including Yukon. She has been registered as a Professional Geoscientist with APEG BC since 2001.

1.5 AUTHORIZATION

Written authorization and a signed contract to proceed with the works detailed in EBA's proposal (Doc. Ref. PW23101317) dated February 2010 were received from Bill Brown via email on May 19, 2010.

EBA received verbal authorization from Government of Yukon, Department of Community Services on June 21, 2010 to proceed with the work outlined in EBA's Technical Memo dated April 29 2010. A Change Order signed by both Mr. Marc Perreault, a Director at YTG, and an EBA representative authorising additional tasks to complete water sampling and hydrogeological assessments at the project site was received by EBA on July 9, 2010.

2.0 SITE DESCRIPTION AND HISTORY

2.1 LOCATION OF STUDY AREA

Haines Junction Solid Waste Disposal Facility (SWDF) is located 175 km west of Whitehorse, approximately 200 m off the Alaska Highway at a latitude of 60° 46' 12" N and longitude of 137° 30' 53" W. The Site is approximately 2 km north of the center of the Haines Junction community and 800 m north of the nearest residential development.

The Dezadeash River and Pine Lake are the closest major water bodies, 2.5 km south and 3.7 km northeast respectively. The site is located at about 630 m asl on a slight topographic high between Pine Lake and the town of Haines Junction on relatively flat terrain with the natural land form only minimally altered from waste deposition activities. In general, the land slopes to the south towards Haines Junction and the Dezadeash River. The site location, surrounding features and local elevation contours are shown in Figure 1.

Photo 1 shows a view across the former waste deposition area, which has been covered and semi-rehabilitated with grasses and weeds growing on the capped surface. The Kluane Ranges are visible in the background, approximately 10 km away.

2.2 SITE HISTORY

The Haines Junction SWDF is believed to have commenced receiving waste in the mid to late 1980's, although permits for the receival and deposition of Special Waste and Solid Waste were not issued to the Village of Haines Junction (VHJ) until December 21, 2000 and March 31, 2001, respectively. The facility is owned and managed by the Village of Haines Junction, who oversee compliance with permit requirements. The site is currently maintained by a site supervisor with access controlled by a lockable gate, an electrified 'Texas gate' livestock grate and an electric fence around the operational area perimeter. The potential exists that access to the site was formally unrestricted, potentially resulting in the uncontrolled deposition of waste.

Over its operational life, the site has received waste streams including domestic waste, recyclables, household hazardous wastes and special waste such as oil and batteries, asbestos, clean wood wastes, clean soil, compost, tires, scrap metals, automobiles, white metals, white goods with refrigerant gases, and euthanized animals. Given the years of operation of the site prior to the issue of a permit, there is a high potential that hazardous items such as batteries, waste oil, and other chemical waste that are now stockpiled and appropriately disposed of, were formally buried with general domestic waste.

Photo 1: Haines Junction Waste Disposal Facility – Area 1, July 2010 (view southwest)

Prior to around 1996, domestic waste was typically incinerated with burned waste deposited in burial pits excavated below ground level. From 1996 onwards, domestic waste has been buried in excavated trenches or placed in bermed above ground "cells". Construction and grubbing waste has been deposited on top of the natural land surface and periodically covered with soil. Photo 2, below shows the current above ground domestic waste deposition cell.

Two site plans were provided to EBA which show the location of the various disposal areas across the site. One plan is dated September 2002 (YES) whilst the other plan is un-dated and has no author shown. The completeness of the maps in regards to the locations and number of former waste burial areas could not be verified. Locations of current disposal areas were obtained through interviews with site personnel during the field works conducted in 2010.

The site is currently divided into three separate waste disposal and stockpile areas, Areas 1, 2 and 3. Waste is segregated into appropriate areas and either stockpiled and stored, recycled or buried at the locations indicated in the site plan shown in Figure 2.

Photo 2: Haines Junction Domestic Waste Disposal, Area 1 – July 2010 (view east)

Domestic waste had historically been burned and buried in pits in the western and central portions of Area 1. Burning of domestic waste has been restricted since 1996, although some burning was reported to have continued due to public users lighting fires. Burning no longer occurs on site (Ken Gilbert, pers. comm.), which complies with the permit requirement to phase out burning by January 1, 2012. The eastern end of Area 1 has been excavated to approximately 4 m below ground level, with unburned domestic waste being placed in "cells" separated by soil berms and covered. Putrescible domestic waste is currently being disposed of in above ground bermed cells at the eastern end of Area 1, as shown in Photo 2. Batteries, oils and other hazardous wastes had been stored in a plastic lined area approximately halfway along the southern boundary of Area 1 prior to being moved to its current location, in a shed closer to the site entrance. When the former storage facility was removed, there was no evidence of leakage though the plastic lining (Martin Jones pers. comm.).

Area 2 has been raised approximately 3.0 to 3.7 m (10 to 12 ft) towards the east from the natural ground elevation with the deposition and burial of building material such as steel and timber. While this area was typically used for construction debris and grubbing waste, domestic waste was also often buried along with building waste (Martin Jones pers. comm.). A pit approximately 3 m (12 ft) below ground level was excavated within Area 2 for the disposal of asbestos. Animal carcasses are buried to a depth of 3.0 to 3.7 m (10 to 12 ft) around midway along the southern extent of the deposition area.

Empty fuel, oil and septic drums and tanks are stockpiled on the northern boundary of Area 3. There are believed to be buried fuel and oil drums and tanks beneath the current stockpile area. Anecdotal information provided to an EBA employee during the October 2010 drilling works suggests that as recently as 2009, drums containing significant amounts of oil were being placed in pits in Area 3 and compacted,

potentially resulting in oil being released into the pit prior to the pit being backfilled. Derelict cars are stockpiled at the eastern end of Area 3 and it is believed that there are cars buried beneath the stockpile (Martin Jones pers. comm.). White goods and miscellaneous metal is stockpiled up to 3 m high along the southern side of Area 3 (Photo 3).

Photo 3: White Goods and Metal Stockpile, Area 3 – July 2010 (view east)

Soil containing elevated hydrocarbon concentrations has been stockpiled at the western end of Area 1 and north-west corner of Area 3. The stockpiled soil at Area 1 was established and permitted in 2008 to Mr. Martin Eckervogt for the remediation of contaminated soil from the Glacier View Inn property. The stockpile is approximately 50 m x 50 m x 1.2 m and surrounded by a small soil berm. This soil is required to be regularly turned over to aid in remediation, although the stockpiles are not believed to have been turned for some time (Martin Jones pers. comm.)

The source of the soil in Area 3 and the nature of contamination are unknown. The contaminated soil was regularly turned over, fertilised, and is believed to have been remediated (Martin Jones pers. comm.). Further information in regards to the soil was unable to be obtained by EBA for this assessment.

The sites Solid Waste Management Plan (SWMP) details a procedure for the compaction, covering and capping of domestic waste at the Site. Compaction of the garbage is required to be conducted immediately after the deposition of waste and then immediately followed by the placement of a minimum of 100 mm of cover material. For the trench method of waste landfilling historically used at the site, the native material excavated from the trench, a clayey-silt and fine sandy-silt, was considered to be an appropriate intermediate cover and capping material. Inspection of the current domestic waste deposition cell in July 2010 indicated that deposited waste had not been compacted or covered for possibly a significant period of time. Photo 2 shows the current cell and accumulation of uncovered waste.

The SWMP details that a minimum of 0.6 m of final cover of clayey-silt or silty-clay type soil is to be placed over the surface of the landfill to help shed rainwater. The final cover is also to be crowned and sloped to ensure surface runoff. A minimum of 150 mm of topsoil is then to be placed over the low permeability soil as a final surface cover for the landfill. The topsoil is to be seeded with grass which is suitable for the local climate and keeps with the surrounding natural environment. Surface water is to be diverted away from the landfill site with appropriate ditching.

The SWMP does not outline the lining of the bases of the waste disposal cells landfill deposition areas with engineered low permeability membranes, although as reported in the SWMP, the accumulation of water in the disposal trenches indicates the native soils have a low permeability that may assist in reducing leachate infiltration.

3.0 METHODOLOGY

3.1 PRELIMINARY HYDROGEOLOGICAL ASSESSMENT

The preliminary hydrogeological assessment methodology involved an assessment of existing information and an inspection of the SWDF and surrounding area on July 3, 2010.

This component included the following tasks:

- Collation of background information;
- Assessment of the available groundwater data, borehole logs and related hydrogeological information;
- Development of a Conceptual Hydrogeological Model.

3.1.1 Data Sources

Data used to complete the hydrogeological assessment was obtained from the following sources:

- Site inspections and interview with site operational personnel;
- Topographic and Geological maps;
- EBA internal database search and review of past EBA assessment reports and maps;
- Operational permits issued by Environment Yukon for the Haines Junction WDF site;
- Review of the Haines Junction Solid Waste Management Plan (June 2003);
- Groundwater Assessment Reports provided by Village of Haines Junction;
- Environment Canada Climate Normals (1971 – 2000) (http://www.climate.weatheroffice.gc.ca/climate_normals/index_e.html);
- Yukon Water Well Registry, Department of Environment, Government of Yukon (http://www.environmentyukon.gov.yk.ca/pdf/YukonWaterWellsSummary.pdf)
- Contaminated Site Registry records at Yukon Environment; and,
- Interview with Yukon Government - Community Operator Supervisors.

3.1.2 Site inspection

A site inspection was undertaken by EBA personnel on July 3, 2010. The purpose of this visit was to review the site location, layout and types of waste, confirm the expected geology and topography, to note aspects of geological and hydrogeological significance and to ascertain drill rig access for the proposed groundwater monitoring well locations.

3.1.3 Background Geological Information

Geological information was obtained through site visits, review of topographic and geological maps (from the Canadian and Yukon Geological Surveys) and geotechnical reports and maps. Additional subsurface information was gathered through an internal database search of EBA records for boreholes, test pits, monitoring wells, and soil tests completed at or in the vicinity of each site.

3.1.4 Contaminant Sites Registry

Since 2002, when the Contaminated Site Regulation came into effect, Environment Yukon has been maintaining records of documented spills and reported contaminated sites throughout the Yukon. This database is known as the Contaminated Site Registry. A request was made to Environment Yukon for a Contaminated Sites Registry search at the Haines Junction Waste Disposal Facility.

It was reported that a spill of 100 gallons of diesel fuel had occurred at the metal and wood area of the SWDF on May 30, 2000 (Matthew Nefstead, pers. comm.). The soil was to be excavated and placed in a "soil treatment area of the SWDF". The date of the spill predated the requirement for land treatment facilities to have permits, so it is unclear if removal and treatment actions were taken.

No other spills or contaminated sites have been recorded in the vicinity of the site since electronic records began in 2001. Spills documented prior to 2001 can be found through a request from Access to Information & Protection of Privacy Act (ATIP). Such a search was not within the scope of this project. It is noted that there remains a possibility of unreported or un-assessed contamination sources within the vicinity of the Site.

3.1.5 Interviews with Waste Disposal Facility Personnel

EBA representatives met with Yukon Government Community Operations Supervisors Mr. Peter Zurachenko and Mr. Jason Doucet on June 23, 2010 to discuss information pertaining to the Haines Junction Waste Disposal Facility. Information obtained from this interview included:

- Brief site history;
- Historical waste deposition inventory and anecdotal information;
- Most up to date site plans;
- Special waste deposition/storage areas.

3.1.6 Review of Waste Disposal Facility Permit and Waste Management Plan

The Site's Waste Disposal Facility Permit (Permit No: 80-002) and Solid Waste Management Plan were reviewed and used in conjunction with relevant background information to assess accepted and potential waste streams, to aid in the assessment of potential contaminant transport mechanisms, to confirm monitoring requirements and develop a monitoring network in compliance with the permit. A summary of the main requirements of the permit in regards to this hydrogeological assessment are outlined in Table 3-1.

Table 3-1: Summary of Current Permit Groundwater Monitoring Requirements

Site	Waste Disposal Facility Permit No.	Solid Waste Management Plan	Permit Requires Groundwater Monitoring	Permit Specifies Groundwater Analysis List	Monitoring Schedule
Haines Junction Waste Disposal Facility	80-002	Yes (Access, et al, 2001)	Yes	Yes	Twice per year (Spring and late Summer)

3.1.7 Review of Groundwater Assessment Reports

Michael Riseborough (Village of Haines Junction Chief Administrative Officer) provided two reports, (Hydrogeological Consultants, 1990 and J. Gibson Env. Consulting, 2008) to EBA for background review.

3.1.8 Review of Environment Yukon Information

EBA representatives visited the Yukon Department of Environment on June 18th 2008 to conduct a preliminary review of information pertaining to the Haines Junction Solid Waste Disposal Facility. Information provided by Yukon Department of Environment (Matthew Nefstead, Contaminated Sites Analyst) for review included:

- Current waste disposal facility permits (which included accepted waste streams and acceptance of special waste);
- Historical site reports, site plans, site inspection reports;
- Recorded spills on sites or neighboring contaminated sites; and,
- Other miscellaneous information related to each site.

3.1.9 Review of EBA Internal Database

EBA retains a database of previous reports, which was reviewed for information pertaining to the Haines Junction Waste Disposal Facility. Relevant information was used to assess geological and hydrogeological conditions and assist in the determination of potential drill sites.

Lithological logs and limited geochemical analytical data was reviewed from five Village of Haines Junction water supply wells located approximately 1.3 to 2.5 km to the south of the Site and detailed in EBA (2003).

EBA (2003) also lists another 10 private wells in the Haines Junction region and provides limited well information for review.

3.2 FIELD INVESTIGATIONS

3.2.1 Scope of Field Investigations

The scope of the hydrogeological assessment field investigation was as follows:

- Adam Seeley (EBA) conducted an inspection of the Haines Junction SWDF on 3 July 2010;
- Three on-site groundwater wells were drilled by Geotech Drilling under the supervision of EBA from October 9 to 18, 2010. Wells were developed immediately following the completion of the well installation.
- The three on-site groundwater wells were sampled by EBA on December 6 and 7, 2010. The water levels at each location were measured prior to purging and sampling and physiochemical parameters were tested at each monitoring well during sampling. Groundwater samples were sent to analytical laboratories accredited as conforming to ISO/IEC 17025 for analysis;
- Hydraulic response tests were conducted on the three monitoring wells on December 6 and 7, 2010 in order to estimate the hydraulic conductivity of the aquifer;
- Field and laboratory results were summarized, interpreted and are presented in this report.

3.2.2 Groundwater Monitoring Well Network

Three (3) groundwater monitoring wells were proposed to be installed at the Site to assess potential groundwater contamination sourced from the waste disposal facility. HJ-MW01 was targeted to characterize up-gradient groundwater conditions while HJ-MW02 and HJ-MW03 were aimed to assess any impact to the groundwater quality sourced from the landfill. The three monitoring wells were installed in October 2010 under the direction of EBA to establish a groundwater monitoring network.

Locations of the monitoring wells were selected based on aerial photography, review of geological and topographical information, review of site history and a site inspection. A site plan showing the approximate monitoring well locations and key site features is provided in Figure 2. Note that these wells have not been surveyed for location and are only approximate.

The drilling and monitoring well installation was completed by Geotech Drilling of Prince George, British Columbia under the direction of EBA on October 9 to 18, 2010. HJ-MW01 and HJ-MW02 were both advanced to approximately 40 m below grade (mbg) using an air rotary drilling technique. HJ-MW03, was advanced to 47 mbg also using an air rotary technique.

Grab samples of the drilling returns were collected on regular intervals to log the sediments. The borehole logs indicating observed lithology and monitoring well completion details are included in Appendix C, with a summary of well completion details presented in Table 3-2. Groundwater was encountered in HJ-MW01 and HJ-MW03 at approximately 38 to 39 mbg and at HJ-MW02 at approximately 45 mbg. Groundwater was encountered in HJ-MW02 and HJ-MW03 in a primarily sand and gravel unit and HJ-MW01 in a sandy silt unit.

The lithology encountered was similar at all three locations and consistent with mapped lithological interpretations. Each borehole profile generally consisted primarily of silt with sand layers and some gravels to the maximum depth investigated (47.2 m).

Monitoring wells were installed in all three drilled boreholes. Installation details are included on the borehole logs in Appendix C. Typical completion details are:

- HJ-MW01 was completed in a sandy silt unit, HJ-MW02 and HJ-MW03 were completed in a gravelly sand unit;
- All three wells were drilled and screens placed aiming to intersect the water table;
- Monitoring wells were completed with 50 mm PVC Schedule 40 PVC pipes;
- A 3 m long well screen (0.010-slot) was installed at all monitoring wells with the intent that the observed groundwater table would be approximately 1 m below the top of the well screen;
- A solid un-slotted PVC pipe was installed above the well screen to about 0.9 m above grade;
- A silica sand pack was placed in the annulus between the well screen and the borehole wall. The sand pack was extended from the base of the borehole to about 0.6 m above the well screen;
- Approximately 1 m of bentonite was placed in the annulus directly above the sand pack. Additional bentonite seals were placed at various depths within each borehole to act as a safeguard against infiltration of contaminants to the underlying aquifer. The remainder of the annulus was filled with native cuttings to around 1.0 mbg.
- A surface seal consisting of approximately 1 m of bentonite and concrete was then installed to bring the borehole to ground level and limit surface water infiltration.
- Each well was capped with a PVC end-cap and the well PVC-standpipe protected and secured with a lockable steel protective casing.
- Each well was developed by removing a minimum of 3 well volumes using a dedicated disposable bailer. Development logs are provided in Appendix D.

Table 3-2: Well Construction Details

Well ID	Drilled Depth (mbg)	Aquifer Unit Monitored	Casing Diameter (mm)	Screened Interval (mbg)	Filter Pack Interval (mbg)
HJ-MW01	38.4	Silt with Fine Sand	50	35.4 – 38.4	34.7 – 38.4
HJ-MW02	41.9	Gravelly Sand (with some silt)	50	38.9 – 41.9	38.3 – 41.9
HJ-MW03	47.2	Gravelly Sand (with some silt)	50	44.2 – 47.2	43.6 – 47.2

3.2.3 Monitoring Well Surveying

EBA surveyed the vertical elevation of the top of the well PVC standpipe at each of the well locations on October 18, 2010. Elevations were surveyed relative to a local benchmark assigned an elevation of 100 m. The monitoring wells were not surveyed for location and it is recommended by EBA that this task be undertaken at all wells prior to the next monitoring round.

Table 3-3 presents survey data and water level measurements.

Table 3-3: Well Survey and Water Level Data

Well ID	Top of PVC Casing Elevation (m)	Standing Water Level (m b TOC) 12/6/2010	Groundwater Elevation (m) 12/6/2010
HJ-MW01	107.024	35.78	71.2
HJ-MW02	106.285	38.65	67.6
HJ-MW-03	100.549	32.63	67.9

3.2.4 Groundwater Monitoring Event

Groundwater monitoring wells HJ-MW01, HJ-MW02 and HJ-MW03 were sampled by EBA on December 6 and 7, 2010 using methods in accordance with Contaminated Sites Regulation Protocol No. 7: Groundwater Monitoring Well Installation and Sampling. Wells were sampled over one month after the completion of drilling, installation and development, allowing sufficient recovery of the water levels and to allow for the groundwater in the monitoring well to reach equilibrium with the aquifer.

Prior to sampling, the standing water level (SWL) was measured in each well, using an electric measuring tape. Each well was purged of three well volumes using dedicated tubing with a "Waterra" non-return foot valve installed prior to a sample being obtained. During purging, physio-chemical parameters (pH, temperature, EC and DO) were measured and recorded. Groundwater Purge and Sampling Field Sheets are provided in Appendix E.

Each sample bottle was labeled with the location ID, project number and date. Sample containers and appropriate preservatives for each suite of tests were provided by the primary laboratory. Samples for dissolved metals analysis were field filtered using new, clean 0.45 µm filters and preserved with nitric acid. All samples were stored in coolers containing ice-bricks and delivered to the analytical laboratories (Exova and Maxxam) under Chain of Custody and within appropriate holding times. Both laboratories are certified by the Canadian Association for Laboratory Accreditation and are accredited as conforming to ISO/IEC 17025 for analysis.

3.2.5 Rising Head and Falling Head Hydraulic Response Tests

A falling head test or rising head test was performed on each of the monitoring wells at the Site to estimate hydraulic conductivity of the aquifer at the specific well locations. Falling head tests were performed at wells where polyethylene bailers could not remove 10% of the monitoring wells holding volume rapidly enough for a rising head test to be performed accurately. Falling head tests were undertaken at the

downgradient wells HJ-MW02 and HJ-MW03 by fully submerging a 3 m PVC solid slug filled with sand equivalent to 2.85 L. The rising head test was performed at HJ-MW01 by rapidly removing 2 liters of water from the well using 50.8 mm diameter dedicated polyethylene bailers. The recovery response in each well was monitored using the electronic water level sounder until the water level had recovered to at least 80% of its static water level. In addition to the manual data, a Solinst Levelogger® was deployed in the well to automatically record the water level data at one second intervals.

3.3 LABORATORY TESTING

The laboratory testing completed for the submitted groundwater samples collected on December 6 and 7, 2010 is summarized in Table 3-4. This analysis list is in compliance with the requirements of the site's Waste Disposal Facility Permit (Permit No. 80-009).

Table 3-4: Laboratory Testing Program – December 2010

Sample ID	Ca, Mg, Na, K, Cl, SO4, NO3, NO2, PO4	Dissolved Metals, Hg, Hardness	Alkalinity, CO3, HCO3, pH, TDS, NH3, DOC	VOCs, COD, TKN, EPHw10-19	VHw6-10, BTEX, PAHs
HJ-MW01	✓	✓	✓	✓	✓
HJ-MW02	✓	✓	✓	✓	✓
HJ-MW03	✓	✓	✓	✓	✓

3.4 QUALITY CONTROL/QUALITY ASSURANCE

This section describes the Quality Assurance (QA) and Quality Control (QC) procedures undertaken to ensure sample integrity and representativeness and the reliability and accuracy of analysis results.

A RPD data validation spreadsheet is provided in Table 2. Data validation is summarized in Table 3-5.

Table 3-5: Review of QA/QC

QA/QC Aspect	Evidence and Evaluation
Data Representativeness	
Sample integrity	All samples were received by the laboratory within appropriate holding times
Background Samples	HJ-MW01 is considered to be hydraulically up gradient of the Site and the groundwater samples from this location can be considered to be representative of background conditions.
Field Procedures	Monitoring wells were developed and sampled using dedicated tubing with "Waterra" non-return foot valves installed on the end of the tubing. All equipment that was used in multiple wells was decontaminated using a three stage wash procedure (detergent, tap water, distilled water).

Table 3-5: Review of QA/QC

QA/QC Aspect	Evidence and Evaluation
Calibration of Field Equipment	Calibration of field equipment was undertaken prior to each day of field work.
Data Precision and Accuracy	
Blind Duplicates	One blind duplicate sample was collected from HJ-MW03 during the December 2010 groundwater monitoring event. Of the 40 analyte pairs tested, RPD values could not be calculated for 13 pairs as both values were below the laboratory method detection limit (MDL). Of the remaining analyte pairs tested, 2 analytes (copper and zinc) exceeded the RPD acceptance criteria of +/-30%. These exceedences are considered to be generally minor and related to the poor reproducibility of the analytical methods at low analyte concentrations. RPD calculations are presented in Table 2.
Split Duplicates	One split duplicate sample was collected from HJ-MW03 during the December 2010 groundwater monitoring event and sent to Maxxam Laboratories. This sample was incorrectly labeled as MJ-MW03 on the Maxxam report. Of the 45 analytes tested, RPD values could not be calculated for 24 pairs as both values were below the laboratory MDL. Of the remaining analyte pairs tested, 5 analytes (copper, iron, nickel, selenium and titanium) exceeded the RPD criteria of +/- 30%. Exceedences for copper, iron, nickel and selenium are considered to be generally minor and related to the poor reproducibility of the analytical methods at low analyte concentrations. Titanium reported an RPD of 136% with results checked and confirmed by both laboratories. Although this RPD significantly exceeds the acceptable criteria, titanium is not considered a contaminant of concern and this result does not impact the validity of the entire data set. RPD calculations are presented in Table 2.
Trip Blanks	One trip blank was collected during the December 2010 groundwater monitoring event and placed on hold at the laboratory. Following the receipt and interpretation of results it was not considered necessary to undertake any analysis on this sample.
Laboratory Internal QA/QC	Laboratory internal QA/QC is detailed within the primary and secondary laboratories reports (Appendix F). Overall, both labs showed acceptable testing frequency and results for method blanks, laboratory duplicates and matrix spikes.
Holding Times	Holding times for samples were in conformance with applicable ASTM and laboratory requirements.

Table 3-5: Review of QA/QC

QA/QC Aspect	Evidence and Evaluation
Laboratory Detection Limit	Laboratory reports indicate that the method detection limits were lower than the respective assessment criteria.
Completeness of test program	The scope of work undertaken was generally consistent with that required to characterize the site and meet the study objective.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection or analysis process for groundwater and therefore, the data set used as the basis for the groundwater assessment is considered valid and complete.

3.5 Application of Applicable Water Quality Standards

The *Contaminated Sites Regulation (CSR) (Environment Act)* provides standards for the assessment and remediation of contaminated sites in Yukon. The water quality standards applying to the assessment of groundwater contamination in Yukon are those specified in Schedule 3 of the CSR. The four types of water uses outlined in the CSR, the relevant water quality standards and their applicability to the assessment are presented in Table 3-6.

Table 3-6: Applicable Water Quality Standards

Water Use	Applicable Water Quality Standard	Applicable Plume Radius (km)	Applicability to Assessment[1]
Aquatic Life	Schedule 3 – Contaminated Sites Regulation (O.I.C. 2002/171)	1	Not Applicable
Drinking Water	Schedule 3 – Contaminated Sites Regulation (O.I.C. 2002/171)	1.5	Applicable
Irrigation	Schedule 3 – Contaminated Sites Regulation (O.I.C. 2002/171)	1.5	Applicable
Livestock	Schedule 3 – Contaminated Sites Regulation (O.I.C. 2002/171)	1.5	Applicable

The following presents an assessment of the applicability of each water use detailed above to this assessment.

Aquatic Life

There are no identified potential Aquatic Life receptors (surface water discharge locations such as wetlands, lakes or rivers) within 1 km downgradient of the site. Therefore, this water use is considered to be **not applicable**.

Drinking Water

A review of the Yukon Water Well Registry by EBA on January 6, 2011 and review of the EBA well database shows there are potentially wells within a 1.5 km radius of the Haines Junction waste disposal facility that may be used for drinking water. It is noted that Yukon Water Well Registry database is not complete and does not provide accurate well locations and it is possible that there are more wells than that recorded on the registry in the local vicinity.

Three wells were identified within 1.5 km downgradient of the SWDF, although there may be additional wells within this distance. Haines Junction Community Well #5 is located approximately 1.5 km to the south, although this well is screened at almost 400 m bgl and is unlikely to be hydraulically connected with the upper most aquifer. Haines Junction Community Well #4 (currently offline) is 1.4 km to the south, although this well is screened at almost 250 m bgl and is also unlikely to be hydraulically connected with the upper aquifer. There is a well of unknown use identified 1.25 km to the south of the site. The well is identified as "Esso" and may be a monitoring well associated with a gas station on the Alaska Hwy.

Based on a review of Google Earth images (2005) and the Yukon Mining and Lands Viewer surveyed land parcels map viewer, the nearest downgradient domestic developments to the SWDF are located within the Haines Junction community, approximately 0.8 km to the south. It is inferred that there are domestic developments within the Haines Junction community that utilize drinking water wells.

As there are domestic developments that are located within the allotted distances for drinking water use (1.5 km) and there are a number of wells on the water well database listed for domestic use without an exact location specified, this water use is considered to be **applicable.**

Irrigation

The Yukon Water Well Registry compiled by the Department of the Environment was review by EBA on January 6, 2011. The registry does not list the use of the wells in the vicinity of the waste disposal facility as being for Irrigation use. It is noted that this database is not a complete record of all wells drilled and it is possible that there are irrigation wells in the local vicinity not captured on the registry.

Figure 7 shows that an area to the east and southeast of the Site and potentially within 1.5 km of the boundary was identified as having an "*Agricultural Application"* tenure. Therefore, the potential for Irrigation Water use downgradient of the site exists and this water use is considered **applicable**.

Livestock

The Yukon Water Well Registry compiled by the Department of the Environment was review by EBA on January 6, 2011. The registry does not list the use of the wells in the vicinity of the waste disposal facility as being for Livestock use. It is noted that this database is not a complete record of all wells drilled and it is possible that there are wells in the local vicinity not captured on the registry used for Livestock Use.

Figure 7 shows that an area to the east and southeast of the Site and potentially within 1.5 km of the boundary was identified as having an "*Agricultural Application"* tenure. Therefore, potential for Livestock Water use downgradient of the site exists and this water use is considered **applicable**.

4.0 CONCEPTUAL HYDROGEOLOGICAL MODEL

4.1 SETTING

The Site is located approximately 2 km north of the centre of the Haines Junction community and approximately 200 m east of the Alaska Highway. The closest residential development is approximately 800 m to the south of the Site. The Site is roughly trapezoidal with western and eastern boundary lengths of 460 m and 230 m respectively. The northern boundary has a length of 332 m and the southern boundary is approximately 422 m wide. A site plan is presented in Figure 2.

On a regional scale, the land generally slopes to the south towards the Dezadeash River approximately 2.5 km to the south of the Site. Regional topographical elevation contours are shown on Figure 1. The site is located at an elevation of about 630 m asl on a topographic high between Pine Lake and the town of Haines Junction. The Site topography is generally flat, with a slight fall in elevation from north to south. Portions of the land surface of Area 1 and Area 2 has been raised up to 3 m above the natural surface elevation through the deposition and subsequent covering of waste.

Approximately half the site has been cleared of vegetation with cleared areas used as waste deposition and stockpile areas (Areas 1, 2 and 3). The area surrounding the Site has a medium to heavy cover of native vegetation. A satellite photograph of the site from 2005 showing cleared waste deposition and burial areas along with remaining native vegetation is shown in Figure 3. The site layout during the fall assessment period was very similar to that shown in this image. The domestic waste cell, which appears empty in the 2005 image, was noted to be close to being filled during the July 2010 site visit.

4.2 CLIMATE

Climatic data is not recorded in the Haines Junction area. Data from the Burwash A station (the closest weather station, 100 km northwest of Haines Junction), indicates 280 mm of annual precipitation with the majority of precipitation falling as rain between May and September. The average annual temperature at the Burwash A station airport is -3.8°C with the warmest average monthly temperature being July (12.8°C), and the coldest month generally being January with an average temperature of -22.0°C. The average daily temperature is above 0°C in the months from May through to September (Environment Canada, Burwash A, 1971 to 2000). From this information it can be concluded that groundwater recharge through surface water infiltration will be highest from May to September.

4.3 GEOLOGY AND HYDROGEOLOGY

4.3.1 Geological Framework

Figure 4 illustrates the regional surface geology (Geological Survey of Canada, 1992). Haines Junction is located within the physiographic region of the Shakwak Valley between the mountains of the Kluane Ranges, the Dezadeash Range and the Ruby Range. The region is transected with an interconnecting network of valleys that drain into larger river systems such as the Dezadeash River. Near the community of Haines Junction the Shakwak Valley is about 13 km wide and extends from Pine Like south west to the Auriol Range. The Site is located approximately midway across this valley (Figure 4).

Within the Haines Junction region, the geology consists of Quaternary aged sand, silt, clay and till deposits within the valleys, and partial to well exposed bedrock outcrops within the mountain ranges.

The primary geological formations in the Haines Junction region are described below:

4.3.1.1 Yukon Group

The Precambrian aged Yukon Group is primarily located in the Yukon Plateau and Ruby and Dezadeash Ranges within the Haines Junction region. This group generally consists of Precambrian quartz-mica schists, gneiss, slate, quartzite, crystalline limestone, greenstone, and chlorite and garnetiferous schists.

4.3.1.2 Dezadeash Group

The Dezadeash Group forms most of the Auriol Range. The group is Lower Cretaceous in age and consists mainly of a sequence of dull, dark grey to black, argillite and greywacke. The Dezadeash Group occurs in the axial zones of synclines, probably complicated by faults of the Kluane Range and commonly exhibits strong internal folding.

4.3.1.3 Tertiary Volcanics

Tertiary aged volcanics are exposed west and southwest of the Auriol Range and to the north of Haines Junction in the Pine lake region. These volcanic consist of volcanic breccia, tuff, rhyolite, dacite, andesite, and basalt. Some sandstone has been associated with these volcanic deposits.

4.3.1.4 Quaternary Deposits

Quaternary aged deposits exist within river, mountain and glacial valleys and depressions. The community of Haines Junction is situated within a lacustrine plain, just north of the fluvial floodplain of the Dezadeash River (Muller, 1967). Surrounding Haines Junction, and along the valleys to the northeast, northwest and southeast of the community, the surficial deposits consist of glaciofluvial outwash gravels. Southwest of Haines Junction, towards the Auriol Range, the surficial deposits consist of diamicton ground moraine at the Auriol foothills, and a mixture of gravelly glacial kame deposits, till covered slopes and gravelly glaciofluvial or fluvial fans on the slopes of the mountains. At least three major glaciers have advanced through the Shakwak Valley, covering what is now the Haines Junction community. These glaciers deposited clay rich tills upon retreating. There have also been several episodes in which the Haines Junction region has been covered by lakes (Glacial Lake Champagne and Lake Alsek) that deposited further thick sequences of clay and silt.

A review of available groundwater supply well drilling logs in the vicinity of the Site indicated that the materials encountered during drilling correlate to the expected deposits from the geological history described. Deposits beneath the site consist of an alternating sequence of clayey tills and fine grained glaciolacustrine deposits consisting of silt and clay with occasional sand and gravel lenses to a depth of at least 370 m bgl. Underlying these quaternary sequences is inferred to be bedrock of unknown type.

Cross-section A-A', shown as Figure 5, illustrates the interpreted conceptual geological and hydrogeological model of the region while cross section B-B', shown as Figure 6, shows the localized conceptual geological and hydrogeological model.

4.3.2 Principal Aquifers

Groundwater below the site occurs within the alternating sequences of clayey tills, fine grained silt and clay glaciolacustrine deposits and occasional sand and gravel and boulder lenses in the quaternary aged deposits and in the bedrock underlying these deposits.

The principal aquifers of interest to this assessment inferred to exist below the site and their type are summarized in Table 4-1. For ease of reference, these aquifers have been named the Shallow Quaternary Aquifer (SQA), the Intermediate Quaternary Aquifer (IQA), the Deep Quaternary Aquifer (DQA) and the Bedrock Aquifer (BRA). The approximate vertical extents of these aquifers are also illustrated in Figure 5.

Table 4-1: Principal Aquifers

Aquifer Name	Location	Aquifer Type	Comment
Shallow Quaternary Aquifer (SQA)	• Mapped as underlying and surrounding the site	• Intergranular, porous media	• Principal aquifer of interest to this assessment. • Potential direct hydraulic connection to the Dezadeash River. • Sand and gravel, with sand lenses. • Uppermost water bearing unit. • Artesian conditions encountered in shallow wells drilled to the north of the Site near Pine Lake.
Intermediate Quaternary Aquifers (IQA)	• Mapped as underlying and surrounding the site	• Intergranular, porous media	• Multiple aquifers with varying extent, hydraulic properties, interconnections and degrees of confinement. • Artesian conditions encountered at 150 m bgl.
Deep Quaternary Aquifer (DQA)	• Mapped as underlying and surrounding the site	• Intergranular, porous media	• Approximately 350 – 400 m deep. • Confined, artesian conditions with potentiometric elevation above ground level. • Village of Haines Junction water supply well Well #5 screened in this aquifer
Bedrock Aquifer (BRA)	• Underlies the quaternary aged deposits	• Fractured rock	• Potentially a source of lateral and vertical recharge to the Quaternary Aquifers

4.4 GROUNDWATER FLOW SYSTEMS

Groundwater occurrence and flow can generally be described by a series of interconnected flow systems on a regional, intermediate and local scale with flow from areas of recharge to areas of discharge.

4.4.1 Regional and Intermediate Groundwater Flow

EBA (2003) outlined two conceptualized regional groundwater flow systems providing recharge to the Quaternary Aquifers. It is considered that groundwater recharge to the Shallow, Intermediate and Deep Quaternary Aquifers occurs from either:

- Infiltration of rainfall and surface water to alluvial fans and/or deltas that have formed off the slopes of the ranges surrounding the site and that sit adjacent to the Shallow, Intermediate and Deep Quaternary Aquifers; or
- Recharge to the bedrock aquifer, primarily through infiltration of surface water and rainfall in outcrop areas, moving into the deeper bedrock flow systems and subsequently flowing into the adjacent and overlying Quaternary Aquifers.

The potentiometric elevations of several wells in the DQA and IQA (Well 4, Well#5, Brewster's Well) are above the potentiometric elevations in wells screened in the SQA, with deeper wells showing a potentiometric elevation above ground level. This indicates an upwards vertical gradient and potential flow of groundwater through the Quaternary Aquifers towards the surface. The upwards flow of groundwater would be limited by the conductivity of overlying layers and the degree of interconnection between the various depositional layers.

At the surface, groundwater would be expected to discharge to the major regional water features such as the Dezadeash River and Dezadeash Lake.

4.4.2 Local Groundwater Flow

Local groundwater flow in the vicinity of the Site is expected to be in the SQA towards the Dezadeash River to the south, where groundwater is expected to discharge. Groundwater recharge to the SQA is expected to be primarily from lateral inflow from adjacent alluvial fans and/or bedrock where bedrock outcrops. There is potentially a component of recharge from upwards vertical flow of groundwater from the underlying IQA. Vertical leakage from the IQA would be limited by the conductivity of overlying layers and the degree of interconnection between the various depositional layers. Infiltration of surface water and rainfall to the SQA would be expected to be extremely limited by the approximately 20 m or more of clay and silt till that underlies the site.

As shown on Figure 5, lithological logs show a silt/sand and gravel layer between 30 to 60 mbg both in wells on site and in offsite wells to the south. The upper most water bearing formation was identified in this layer in HJ-MW02 and HJ-MW03 during the monitoring well installation program at the Site. While correlation between the well logs is difficult due to the depositional environment of the sediments, the sand and gravel layer has been inferred as extending up to 1.4 km to the south of the site and there is the possibility that this layer extends continuously to Well #2, where a gravel layer was logged at a similar elevation. If this layer is continuous it may indicate a preferential flow path for groundwater in the SQA to the Dezadeash River.

4.4.3 Groundwater Elevations, Flow Direction, Gradient

Each groundwater monitoring well was completed with the screen installed across the interval where the moisture content of the formation appeared to be transitioning from moist to wet/saturated. Groundwater elevations were measured in each monitoring well during the December 2010 sampling program. At each well the groundwater elevation, post completion, rose above the screened interval and above that logged as being wet/saturated indicating either that the well screens were installed below the water table or that there may be a degree of confinement of the aquifer.

Logs at HJ-MW02 and HJ-MW03 noted a stiff layer immediately above the transition from moist to saturated water content. This layer was noted by the driller to be very hard (rock like) and returns were a fine powder. This hard layer is considered to be acting as a confining unit with the groundwater elevation in HJ-MW02 and HJ-MW03, both screened in a sand and gravel unit immediately below the hard layer, rising to well above the screened interval. The logs of HJ-MW01 did not note a hard layer and there does not appear to be confinement of the aquifer at this location.

EBA used the groundwater depth data from December 2010 and well survey elevation information from October 2010 to calculate the groundwater elevation at each monitoring well. Water level measurements and groundwater elevations as of December 2010 are presented in Table 3-3.

Figure 8 presents the groundwater elevations and inferred groundwater contours from December 6, 2010. The groundwater elevation contours indicate flow to the southeast. This is generally consistent with the expected flow direction towards the Dezadeash River as well as the interpreted local groundwater flow direction discussed in Section 4.4.2. Using the data presented in Figure 8, the horizontal hydraulic gradient has been calculated to be approximately 0.018 m/m towards the southeast.

Figure 8 indicates that HJ-MW01 is located upgradient of the landfilling area and can be considered representative of background conditions. HJ-MW02 is located downgradient of waste deposition areas 1, 2 and 3 while HJ-MW03 is inferred to be downgradient of the current waste oil and special waste storage shed.

4.5 RISING HEAD TEST RESULTS

EBA analyzed one rising head test result (HJ-MW01) and two falling head test result (HJ-MW02 and HJ-MW03) using Hvorslev (1951) and Bouwer & Rice (1976) analysis methods implemented in the AquiferTest™ (ver. 3.0) software.

The hydraulic conductivity test results and plots are attached in Appendix G. The estimated hydraulic conductivities for each well using the two analysis methods are presented in Table 4-2.

Table 4-2: Estimated Hydraulic Conductivity

Monitoring Well ID	Hvorslev Estimate (m/s)	Bouwer & Rice (m/s)	Hydrogeological Unit	Geometric mean Hydraulic Conductivity (m/s)
	Logger Data	Logger Data		
HJ-MW01	4.7E-07	4.1E-07	Sandy Silt	1.0E-06
HJ-MW02	2.2E-06	1.8E-06	Sand and Gravel	
HJ-MW03	1.3E-06	1.3E-06	Sand and Gravel	

As shown in Table 4-2, the estimated hydraulic conductivity using the two analysis methods ranged from 4.7×10^{-7} to 2.2×10^{-6} m/s. The data showed a geometric mean hydraulic conductivity of 1.0×10^{-6} with the hydraulic conductivity of the sandy silt unit approximately an order of magnitude lower than the sand and gravel unit.

4.6 ESTIMATED AVERAGE LINEAR GROUNDWATER VELOCITY

As described above, the geometric mean hydraulic conductivity of the aquifer between the three locations measured is $1.0x10^{-6}$ m/s with a maximum of $2.2x10^{-6}$ m/s. The observed hydraulic gradient across the property was 0.018 m/m towards to the southeast. Average linear groundwater velocity is calculated using the following equation:

$$V = (K\ i) / n$$

Where: V : is groundwater velocity in metres per second (m/s);

K : is hydraulic conductivity in metres per second (m/s) determined from the site specific slug tests;

i : is horizontal hydraulic gradient in metres/metres (m/m); and,

n : is porosity (%) estimated to be 0.25 (Freeze & Cherry, 1979) in all onsite wells.

Using the geometric mean hydraulic conductivity ($1.0x10^{-6}$ m/s), the estimated average groundwater velocity was determined to be approximately 1.4 m per year. Using the maximum determined hydraulic conductivity ($2.2x10^{-6}$ m/s), which estimates a worst case scenario, the average groundwater velocity was determined to be approximately 3.1 m per year. However, groundwater may travel much faster or slower through the subsurface depending on the permeability of the unit and degree of interconnectivity between permeable units.

4.7 POTENTIAL FOR CONTAMINATION OF GROUNDWATER AND TRANSPORT MECHANISMS

The following identified potential sources of groundwater contamination are based on site history and inspection, anecdotal information and processes governing the generation and transport of leachate in landfills. Potential sources identified include:

- Leachate sourced from the domestic waste disposal trenches and other decomposable matter that may have been historically dumped at the site (e.g. treated wood, plant matter). These contaminants include heavy metals, nutrients (NH3, NO3), organic hydrocarbons (fuels, PAHs, chlorinated hydrocarbons) and salts;
- Leakage and spillage of hydrocarbons from onsite special waste storage areas;
- Petroleum hydrocarbons and other organic compounds from stockpiled and buried vehicles;
- Hydrocarbons from storage drums that were stockpiled and/or crushed and buried;
- Hydrocarbons from contaminated soil that was “remediated” on site;
- There were no off-site sources of pollution identified which could be considered to have impacted upon the groundwater flowing beneath the site.

The main pathways for the transport of contaminants from the sources identified above to groundwater and downgradient receptors are:

- Percolation of contaminants through underlying soils to the Shallow Quaternary Aquifer. If dense non-aqueous phase liquids (DNAPL) were disposed of at the site, there is the potential that these liquids may move through the Shallow Quaternary Aquifer and into the deeper Quaternary Aquifers. Given the thick sequence of clay till beneath the site, it is considered extremely unlikely that significant volumes of leachate or organic contaminants would move through this low conductivity unit to the SQA.
- Assuming infiltration of contaminants to the SQA occurs, transport of contaminants within the Shallow and deeper Quaternary Aquifer's towards downgradient discharge locations may occur.

5.0 GROUNDWATER IMPACT ASSESSMENT

5.1 REVIEW OF GROUNDWATER CHEMISTRY

One round of groundwater sampling was conducted as discussed in section 3.2.3. Copies of original laboratory reports and Chain of Custody documentation are included in Appendix F. Tabulated laboratory results are presented in Table 1. Table 5-1 summarizes some of the key water quality results from lab testing.

Table 5-1: Key Groundwater Chemistry Results

Monitoring Well ID	TDS (mg/L)	Ammonia (as N) (mg/L)	Sulphate (mg/L)	Dissolved Organic Carbon (mg/L)	Naphthalene (mg/L)	HEPH (mg/L)	LEPHw (mg/L)	Benzene (mg/L)	Uranium (mg/L)
HJ-MW01	2,930	0.94	1,890	3.8	0.0003	< 0.1	<0.1	<0.001	0.0061
HJ-MW02	5,020	0.44	3,230	3.6	< 0.0001	< 0.1	< 0.1	< 0.001	0.003
HJ-MW03	3,420	0.37	2,060	3.3	< 0.0001	< 0.1	< 0.1	< 0.001	0.003
WTH #1-89[1]	1,129	-	685	-	-	-	-	-	-
Well #5[2]	188	-	15.7	-	-	-	-	-	-

[1]Offsite water test well, sampled May 1989 [2] Offsite water supply well, sampled May 2008

Table 5-2 details analytes which exceed the most stringent CSR Schedule criteria for each the applicable Water Uses. Laboratory test results from groundwater samples collected during December 2010 have been used in assessing against applicable guideline values. Table 1 presents all laboratory analytical results and compares them against the applicable guidelines. Copies of the laboratory reports are included in Appendix F.

Table 5-2: Groundwater Results Exceeding Most Stringent CSR Schedule 3 Criteria[1]

Parameter	Guideline Value	Water Use	Well ID		
			HJ-MW01	HJ-MW02	HJ-MW03
Antimony	0.006	Drinking Water	**0.0112**	NE	NE
Boron	0.5	Irrigation Water	NE	**0.559**	**0.503**
Manganese	0.05	Drinking Water	**0.443**	**0.34**	**0.179**
Magnesium	100	Drinking Water	**206**	**526**	**400**
Molybdenum	0.01	Irrigation Water	**0.1138**	**0.0124**	**0.0179**
Sodium	200	Drinking Water	NE	**235**	NE
Sulphate	500	Drinking Water	**1,890**	**3,230**	**2,060**

[1]All results in mg/L NE – Guideline Value Not Exceeded

A discussion of key groundwater parameters that potentially indicate impact to groundwater from the waste disposal facility and exceedences of relevant water quality guideline criteria are presented below.

Dissolved Organic Carbon

Dissolved Organic Carbon (DOC) concentrations can indicate organic matter sourced from a landfill impacting on groundwater. If a monitoring well is impacted by landfill leachate, DOC concentrations would be expected to show an increase to concentrations potentially in the hundreds or thousands of mg/L. DOC concentrations were consistent at each monitoring well, with concentrations ranging from 3.3 mg/L to 3.8 mg/L, indicating no impact from landfill leachate.

Total Dissolved Solids

Total Dissolved Solids (TDS) can indicate groundwater contamination from a waste disposal facility, with dissolved constituents of the degradation of organic waste (typically NO_3, NH_3, Na, K, Mg, Ca, SO_4, Cl, HCO_3) contributing to an increase in TDS concentration. The TDS of the monitoring wells ranged from a minimum of 2,930 mg/L (HJ-MW01) to a maximum concentration of 5,020 mg/L (HJ-MW02). The only offsite geochemical data available to EBA that is comparable to the samples obtained from the wells on the site is from a test well drilled approximately 1.3 km to the south in 1989 (WTH #1-89). A water sample obtained during drilling from a gravel layer 61 mbg reported a TDS of 1129 mg/L.

HJ-MW02, which is inferred to be a downgradient well, reported a concentration over 2,000 mg/L higher than upgradient well HJ-MW01, which is considered to be representative of background conditions in the

SQA. HJ-MW03 reported a concentration comparable to the HJ-MW01. The higher TDS concentration at HJ-MW02, which is directly down-gradient of the former waste burning and deposition areas, indicates that groundwater quality is potentially impacted by landfilling activities, although the transport mechanism to the SQA is not known. Alternatively, TDS concentrations may be naturally variable across the site and these concentrations are representative of natural conditions.

Sulphate

Sulphate concentrations are typically elevated in landfill leachate and can range from < 0.5 mg/L to 1850 mg/L (Fetter, 1993).

Sulphate concentrations are variable across the site from 1,890 mg/L (HJ-MW01) to 3,230 mg/L (HJ-MW02). Concentrations reported at all three wells exceed the aesthetic water standard for Drinking Water, Livestock Water Use and Irrigation Water Use.

EBA (2003) identified groundwater in the IQA as sulphate type and a review of sulphate concentrations in water supply wells in the Haines Junction region showed a range from 15.7 mg/L (Well #5, 365 mbg) to 685 mg/L (Test Hole No. 1-89, 61 mbg), with concentrations decreasing with depth.

The concentrations reported in all three wells on Site are well in excess of sulphate concentrations typically exhibited in landfill leachate. Given the concentrations shown in offsite wells, the depth to groundwater at each well (approximately 30 mbg through clay till) and the elevated concentrations reported at all three wells, it is not considered feasible for contamination from the landfill to have impacted upon both upgradient and downgradient wells at these elevated concentrations. Concentrations are believed representative of background conditions at all wells and the applicable water uses are not precluded due to sulphate sourced from the Site.

Ammonia

Ammonia is a typical constituent of landfill leachate and an indicator of contamination sourced from a landfill. Ammonia was reported at detectable concentrations at all three monitoring wells, although concentrations were below the applicable guideline criteria. There was no water quality data from local drinking wells which included ammonia concentrations made available to EBA.

The concentration at background well HJ-MW01 (0.94 mg/L) is elevated when compared to downgradient wells HJ-MW02 (0.44 mg/L) and HJ-MW03 (0.44 mg/L). Given that HJ-MW01, which reported the highest ammonia concentration, is over 100 m upgradient of a possible contaminant source, these concentrations are considered to be representative of background conditions and it is considered that the detectable ammonia concentrations are not the result of landfilling operations.

Further, when compared against typical leachate chemical composition, the proportions of sulphate and ammonia present do not indicate impact on groundwater from landfill leachate. Sulphate concentrations in leachate are typically significantly lower than that reported in all three wells, whilst when sulphate is present in leachate, ammonia concentrations are typically in the hundreds to thousands of mg/L.

Metals

Analyzed metals displayed relatively consistent concentrations in all three wells across the site.

Iron was reported above the MDL (0.005 mg/L) at all wells although the concentrations were below all applicable standards. The concentrations reported were consistent with those reported in drinking wells and test wells in the region.

Uranium was detected in all monitoring wells at concentrations below the applicable guidelines. The reported concentrations are considered to be naturally occurring, with uranium typically detected in groundwater in other locations in Yukon (Champagne, Copper Ridge, Deep Creek). Uranium in groundwater is often sourced from magmatic rock. The bedrock mapped in the region is described as being constituted of multiple rock types, including volcanic, and the presence of uranium in the till aquifer indicates a component of recharge to the quaternary aquifer beneath the site from the bedrock.

Antimony, boron, manganese, magnesium, molybdenum and sodium all exceed guideline criteria for one or more of the applicable water uses. Each of these elements exhibit generally consistent concentrations in both up-gradient and down-gradient wells and it is not considered that the wells show impact from the landfilling activities. Concentrations of these metals are believed representative of background conditions at all wells and the applicable water uses are not precluded due to contamination sourced from the Site.

Organics

Chlorinated and Halogenated Hydrocarbons, LEPHw, HEPH, VPHs, MTBE, Styrene and BTEX were reported at concentrations below the laboratory MDL at all tested wells.

All PAHs were reported at concentrations below the laboratory MDL except naphthalene concentrations measured at low concentrations, just above the MDL in HJ-MW01. The detectable naphthalene result was checked and confirmed by the primary laboratory. The CSR Schedule 3 groundwater criteria does not indicate a guideline value for naphthalene, either does the US-EPA National Primary Drinking Water Regulations, which were also consulted. Naphthalene has been found as a component of fuel oil and wood preserving chemicals. Trace amount of naphthalene are also produced by some plant and animal species. The source of the naphthalene in HJ-MW01 could not be determined and requires further assessment and review following confirmation of the detection in subsequent monitoring rounds.

5.2 INTERPRETATION OF GROUNDWATER CHEMISTRY

A comparison of groundwater chemistry for major ions for each well is displayed in the Schoeller Plot (Figure 9) and Piper Diagram (Figure 10). Stiff Diagrams provide a plot of major ions that can be easily interpreted in terms of relative percentages of cations and anions. Stiff Diagrams for each of the sample locations are presented in plan format as Figure 11, as an aid to the interpretation of the spatial distribution of groundwater chemistry.

Groundwater from HJ-MW02 and HJ-MW03 can be characterized as magnesium-calcium-sulphate type waters, whilst HJ-MW01 can be characterized as high magnesium-calcium-sulphate-bicarbonate groundwater. The Piper Plot and Stiff diagrams indicate that HJ-MW02 and HJ-MW03 have very similar chemistry whilst HJ-MW01, inferred to be located upgradient of the landfill area, displays a different

chemical composition. This is confirmed by the Schoeller diagram in Figure 9, with relative proportions of major ions in HJ-MW02 and HJ-MW03 closely matching and the higher concentration of bicarbonate and reduced magnesium evident at HJ-MW01. The different chemical composition shown at upgradient well HJ-MW01 may be due to this well being screened in a sandy silt unit whereas HJ-MW02 and HJ-MW03 were screened in a sand and gravel unit.

Concentrations of TDS, ammonia and sulphate are elevated in one or more monitoring wells, which can potentially indicate impact to groundwater from landfilling activities. It is considered that concentrations of these analytes detected in the wells are associated with background concentrations, not impact from contamination sourced from the site on the following grounds:

- Sulphate concentrations in landfill leachate typically exhibit a range of from < 0.5 mg/L to 1850 mg/L (Fetter, 1993). It is not considered feasible that contamination from landfilling operations on site would result in concentrations in the till aquifer, which is around 30 mbg, being significantly higher than that reported in leachate samples obtained directly from landfills.
- Where sulphate concentrations in leachate are elevated, in EBA's experience this is normally accompanied by an increase in ammonia concentration to at least several hundred mg/L. Ammonia concentrations in all three wells have remained below 1 mg/L despite the very high sulphate concentrations.
- The TDS is proportional to the concentrations of the major ions reported in each groundwater sample. The higher TDS reported in downgradient well HJ-MW02 is resultant of the elevated concentration of sulphate at this well.

Whilst groundwater chemistry at downgradient wells HJ-MW02 and HJ-MW03 shows some differences to that at up-gradient well HJ-MW01, it is not considered due to impact from landfilling operations on site. The variable concentrations in sulphate and ammonia, typical indicators of landfill leachate impact, are considered to be representative of background concentrations given the concentrations reported at each well and the proportional concentrations of each analyte when compared against typical landfill leachate analysis.

Uranium, believed to be most likely sourced from the Bedrock Aquifer, was detected in all wells, which indicates a component of recharge to the SQA from the Bedrock Aquifer.

Heavy metals (including antimony, boron, manganese and molybdenum) concentrations in groundwater are considered to be background given the consistent concentrations reported across the site.

6.0 CONCLUSIONS

The field work for the 2010 Monitoring Well Program at the Haines Junction Waste Disposal Facility was completed between 3 July, 2010 and December 7, 2010. The current water sampling network includes three groundwater monitoring wells.

The following conclusions are made based on the findings of the 2011 hydrogeological assessment:

- Three monitoring wells HJ-MW01, HJ-MW02 and HJ-MW03 were installed in October 2010 in areas north and south of the waste disposal facility to establish a groundwater monitoring network at the

Site. HJ-MW01 was completed in a silty sand unit and HJ-MW02 and HJ-MW03 were completed in a sand and gravel unit, with a slotted section at each well base to allow groundwater entry;

- Based on groundwater elevation data, monitoring wells HJ-MW02 and HJ-MW03 appear to be down-gradient of the Site and HJ-MW01 up-gradient; however, additional groundwater elevation data are necessary to identify potential seasonal changes and confirm the conceptual hydrogeological model;
- No monitoring or sampling of groundwater is believed to have been conducted at site prior to the fall/winter 2010 field program;
- The hydrogeological conceptual model indicates that there is recharge to the quaternary aquifers from either adjacent bedrock or alluvial fans on the slopes of the surrounding ranges. There is expected to be very little local infiltration of water through the thick till sequence underlying the site to the water table. Groundwater flow in the SQA downgradient of the site is expected to be predominately to the south towards Dezadeash where groundwater would be expected to discharge.
- Analysis of the hydraulic response test results show that the hydraulic conductivity of the sandy silt unit is about 4.4×10^{-7} m/s whilst the hydraulic conductivity of the sand and gravel unit is about 1.7×10^{-6} m/s. The estimated average linear groundwater velocity, given a worst case scenario using the maximum calculated hydraulic conductivity, is approximately 3.1 m/year;
- The concentrations of sodium at monitoring well HJ-MW02 exceeds the CSR-DW (aesthetic) criteria;
- Concentrations of sulphate at all three monitoring wells exceeds the CSR-DW (aesthetic) criteria and CSR-LW criteria;
- Concentrations of boron, manganese and molybdenum exceed the CSR-IW criteria at least one monitoring location each;
- Concentrations of magnesium and manganese exceed the CSR-DW (aesthetic) criteria at all three monitoring locations;
- Antimony exceeds the CSR-DW criteria at HJ-MW01;
- All other analytes were below the applicable guideline criteria;
- All organic analytes reported concentrations below the laboratory MDL with the exception of the naphthalene concentration at HJ-MW01. The source of the naphthalene could not be determined and should be investigated further if subsequent sampling rounds confirm the presence of this analyte;
- Dissolved Organic Carbon (DOC) concentrations were consistent at each monitoring well and below concentrations that would be expected to indicate impact from landfill leachate;
- Sulphate, an indicator of landfill impact on groundwater, was reported in all monitoring wells at concentrations considered to be well in excess of concentrations found in landfill leachate. Considering the wells are screened below approximately 20 to 30 m of silt, it is unlikely that these elevated concentrations are a result of landfilling activities;

- Ammonia, an indicator of leachate contamination, was detected in all monitoring wells. The concentrations reported are considered representative of background conditions given the highest detectable concentration was reported at background well HJ-MW01;
- When compared against typical leachate chemical composition, the proportions of sulphate and ammonia present do not indicate impact on groundwater from landfill leachate. Sulphate concentrations in leachate are typically significantly lower than that reported in all three wells whilst when sulphate is present in leachate, ammonia concentrations are typically in the hundreds to thousands of mg/L;
- Metals displayed relatively consistent concentrations in all three wells across the site with no well indicating impact from landfilling operations;
- A preliminary review of groundwater monitoring results indicates that while groundwater at all monitoring wells reported concentrations of analytes typically associated with impact from landfill leachate, these analytes are considered to be representative of background concentrations. Infiltration of leachate to the SQA is expected to be restricted due to the thick sequence of silt underlying the site and the confinement of the SQA. In the unlikely event that contaminants infiltrate to the top of the confining layer noted at HJ-MW02 and HJ-MW03, the upward hydraulic gradient and low permeability of this unit would limit the flow of contaminants into the SQA. Any movement of contaminants would be through the process of diffusion which would severely limit any impact upon the aquifer;

7.0 RECOMMENDATIONS

The following recommendations are made based on the findings of the 2011 hydrogeological assessment:

- As required by the Site's Waste Disposal Facility Permit, future monitoring programs should be completed once during the spring freshet when the most significant groundwater recharge occurs and once in late summer,
- HJ-MW01, HJ-MW02 and HJ-MW03 should be surveyed by a professional surveyor for location and elevation prior to the next monitoring round. Elevations from the top of the PVC casing and from ground level immediately adjacent to the well should be reported.
- Following the survey of the monitoring wells and the next two rounds of sampling in 2011, data should be reviewed by a qualified hydrogeologist and the need for potential additional up-gradient and downgradient monitoring wells assessed.

8.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,
EBA, A Tetra Tech Company

Adam Seeley, B.Sc., M.Hyd.
Intermediate Hydrogeologist
Environmental Practice
Direct Line: 876.668.2071 x243
aseeley@eba.ca

Tamra Reynolds, M.Sc., P.Geo.
Senior Hydrogeologist
Environmental Practice
Direct Line: 876.668.2071 x241
tareynolds@eba.ca

REFERENCES

1. Contaminated Sites Regulation (2002) Yukon. O.I.C. 2002/171. September 2002.
2. Yukon Department of Environment (2002). O.I.C. 2002/171. Schedule 3 – Generic Numerical Water Standards for Protection of Freshwater Aquatic Life, Drinking Water, Irrigation Water and Livestock Water. September 2002.
3. Yukon Department of Environment (2010). Waste Disposal Facility – Permit No: 80-002. 2010.
4. Yukon Department of Environment (2007). Protocol No. 2: Analysis of Samples Taken in Relation to the *Contaminated Sites Regulation.* December 2007.
5. Yukon Department of Environment (2008). Protocol No. 5: Petroleum Hydrocarbon Analytical Methods and Standards. March 2008.
6. Yukon Department of Environment (2007). Protocol No. 6: Water Quality Standards .November 2007.
7. Yukon Department of Environment (2008). Protocol No. 7: Groundwater Monitoring Well Installation and Sampling. March 2008.
8. Yukon Department of Environment (2007). Protocol No. 10: Determining Background Groundwater Quality. November 2007.
9. Yukon Government (2009). Yukon Environmental & Socioeconomic Assessment Act Decision Document – Haines Junction Municipal Landfill (File Number: 2008-0246). February 2009.
10. Environment Canada – Climate Normal Data – website.
11. Geological Survey of Canada (1992). Geology of SW Dezadeash Map Area (115A), Yukon Territory.
12. Geological Survey of Canada, Department of Mines and Technical Surveys. Geological Series Map 1019A, Dezadeash, Yukon Territory.
13. Access, et al. (2001). Supporting Documentation, Solid Waste Management Plan, Village of Haines Junction. November 2001.
14. EBA, (2003). Resource Assessment for Heat Potential Study, Village of Haines Junction, YT. October 2003
15. Muller, J.E., 1967. Kluane Lake Map-Area, Yukon Territory (115G, 115F E1/2). Geological Survey of Canada, pp. 137, 2 maps
16. R. Allan Freeze, John A. Cherry, 'Groundwater', Prentice Hall, 1979

TABLES

LocCode	HJ-MW01	HJ-MW02	HJ-MW03	HJ-MW03	HJ-MW03
SampleCode	778356-1	778356-2	778356-3	778356-4	B0B9368_2010/12/08_MJ MW03 DUPLICATE
Sampled_Date-Time	12/6/2010	12/7/2010	12/6/2010	12/6/2010	12/6/2010
Lab_Report_Number	1394453	1394453	1394453	1394453	B0B9368

Chem_Group	ChemName	Units	EQL	CSR Schedule 3 - DW	CSR Schedule 3 - IW	CSR Schedule 3 - LW					
	Dissolved Organic Carbon	mg/L	0.5				3.8	3.6	3.3	-	-
	Ortho Phosphorus (as P)	mg/L	0.01				0.05	0.11	0.09	-	-
	tellurium	µg/L	0.1				<0.1	<0.1	<0.1	<0.1	-
BTEX	Benzene	µg/L	0.4	5			<1	<1	<1	-	<0.4
	Ethylbenzene	µg/L	0.4	2.4			<1	<1	<1	-	<0.4
	Toluene	µg/L	0.4	24			<1	<1	<1	-	<0.4
	Xylene (m & p)	µg/L	0.4				<1	<1	<1	-	<0.4
	Xylene (o)	µg/L	0.4				<1	<1	<1	-	<0.4
	Xylene Total	µg/L	0.4	300			<1	<1	<1	-	<0.4
Chlorinated Hydrocarbor	1,1,1-trichloroethane	µg/L	1				<1	<1	<1	-	-
	1,1,2,2-tetrachloroethane	µg/L	1				<1	<1	<1	-	-
	1,1-dichloroethane	µg/L	1				<1	<1	<1	-	-
	1,1-dichloroethene	µg/L	1	14			<1	<1	<1	-	-
	1,2-dichloroethane	µg/L	1	5		**5**	<1	<1	<1	-	-
	1,2-dichloropropane	µg/L	1				<1	<1	<1	-	-
	Bromodichloromethane	µg/L	1			**100**	<1	<1	<1	-	-
	Bromoform	µg/L	1			**100**	<1	<1	<1	-	-
	Carbon tetrachloride	µg/L	1	5		**5**	<1	<1	<1	-	-
	Chlorodibromomethane	µg/L	1			**100**	<1	<1	<1	-	-
	Chloroethane	µg/L	10				<10	<10	<10	-	-
	Chloroform	µg/L	1	100		**100**	<1	<1	<1	-	-
	Chloromethane	µg/L	10				<10	<10	<10	-	-
	cis-1,2-dichloroethene	µg/L	1				<1	<1	<1	-	-
	cis-1,3-dichloropropene	µg/L	1				<1	<1	<1	-	-
	Dichloromethane	µg/L	5	50		**50**	<5	<5	<5	-	-
	Trichloroethene	µg/L	1	50		**50**	<1	<1	<1	-	-
	Tetrachloroethene	µg/L	1	30			<1	<1	<1	-	-
	trans-1,2-dichloroethene	µg/L	1				<1	<1	<1	-	-
	trans-1,3-dichloropropene	µg/L	1				<1	<1	<1	-	-
	Vinyl chloride	µg/L	2	2			<2	<2	<2	-	-
Halogenated Benzenes	1,2-dichlorobenzene	µg/L	1	3			<1	<1	<1	-	-
	1,3-dichlorobenzene	µg/L	1				<1	<1	<1	-	-
	1,4-dichlorobenzene	µg/L	1	1			<1	<1	<1	-	-
	Chlorobenzene	µg/L	1	30			<1	<1	<1	-	-
Halogenated Hydrocarbo	Bromomethane	µg/L	10				<10	<10	<10	-	-
	Trichlorofluoromethane	µg/L	1				<1	<1	<1	-	-
Inorganics	Alkalinity (Bicarbonate)	mg/L	5				910	100	140	-	-
	Alkalinity (Hydroxide) as CaCO	µg/L	5000				<5,000	<5,000	<5,000	-	-
	Alkalinity (total) as CaCO3	mg/L	5				744	88	118	-	-
	Ammonia	mg/L	0.005				-	-	-	-	0.44
	Ammonia as N	µg/L	10				940	440	370	340	-
	Chloride	mg/L	0.02	250	100		5.8	5	3.8	-	-
	Kjeldahl Nitrogen Total	mg/L	0.06				9.5	0.74	0.6	-	-
	Nitrate (as N)	mg/L	0.01	10		**100**	<0.05	<0.05	<0.05	<0.01	-
	Nitrate (as NO3-)	mg/L	0.02				-	-	-	-	<0.02
	Nitrite (as N)	mg/L	0.005	3.2		**10**	<0.02	<0.02	<0.02	-	-
	Nitrite (as NO2-)	mg/L	0.005				-	-	-	-	<0.005
	Nitrogen (Total Oxidised)	mg/L	0.01	10		**100**	<0.07	<0.07	<0.07	-	<0.02
	Sodium	mg/L	0.05	200			181	235	144	137	132
	Sulphate	mg/L	0.05	500		**1000**	**1,890**	**3,230**	**2,060**	-	-
	Sulphur as S	mg/L	0.2				632	1,060	737	686	744
	Thorium	µg/L	0.4				<0.4	<0.4	<0.4	<0.4	-
	Hardness as CaCO3	mg/L	0.5				1,640	3,010	2,190	2,030	1,990
	Total Solids	mg/L	5				2,930	5,020	3,420	-	-
Lead	Lead	mg/L	0.0001	0.01	0.2	**0.1**	<0.0001	<0.0001	0.0002	<0.0001	<0.0002
MAH	Styrene	µg/L	0.4				<1	<1	<1	-	<0.4

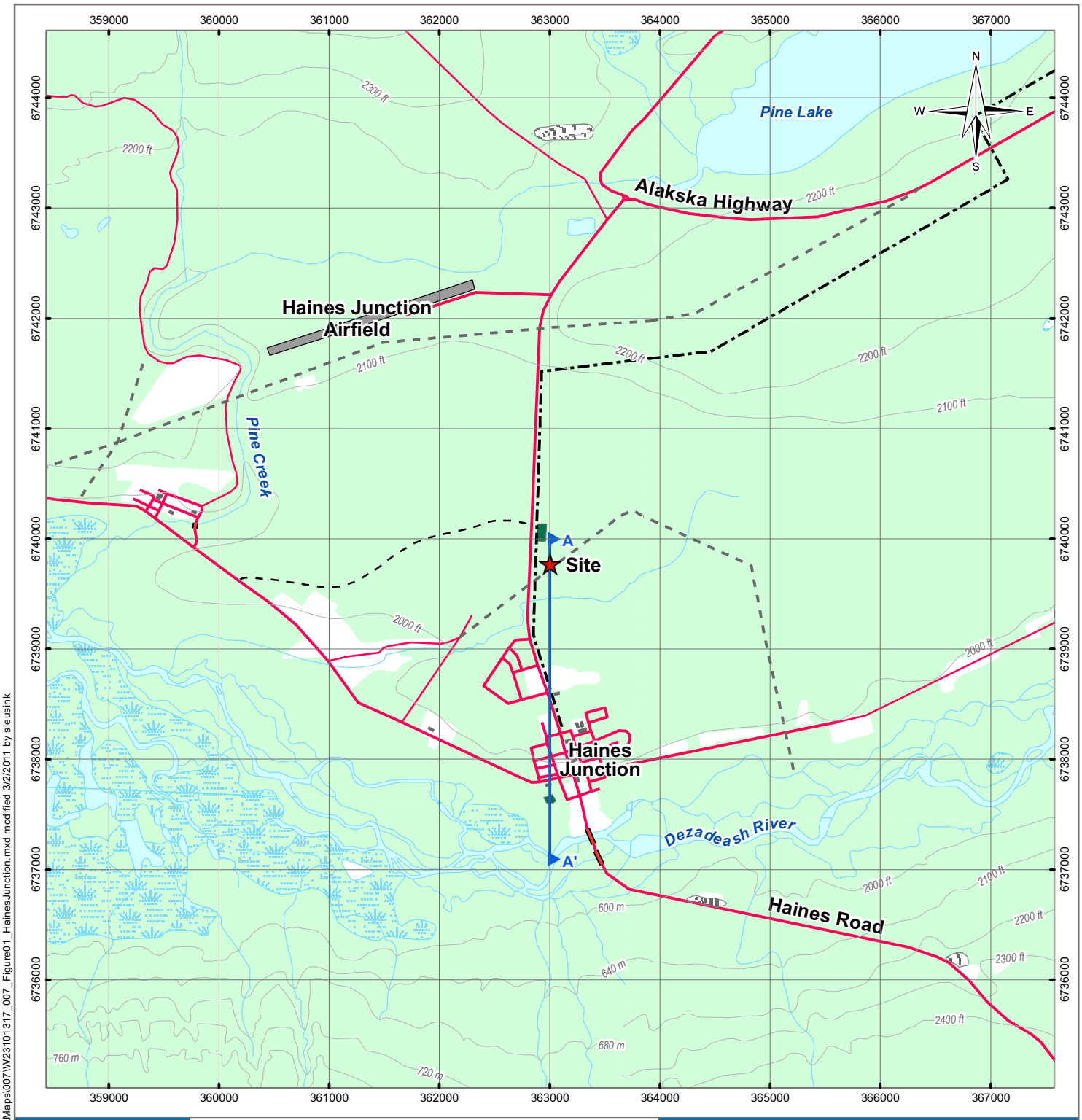
LocCode	HJ-MW01	HJ-MW02	HJ-MW03	HJ-MW03	HJ-MW03
SampleCode	778356-1	778356-2	778356-3	778356-4	B0B9368_2010/12/08_MJ MW03 DUPLICATE
Sampled_Date-Time	12/6/2010	12/7/2010	12/6/2010	12/6/2010	12/6/2010
Lab_Report_Number	1394453	1394453	1394453	1394453	B0B9368

Chem_Group	ChemName	Units	EQL	CSR Schedule 3 - DW	CSR Schedule 3 - IW	CSR Schedule 3 - LW					
Metals	Aluminium	mg/L	0.003	0.2	5	**5**	<0.005	<0.005	<0.005	<0.005	0.004
	Antimony	mg/L	0.0002	0.006			0.0112	<0.0002	0.0007	0.0006	0.0008
	Arsenic	mg/L	0.0001	0.025	0.1	**0.025**	0.0064	0.003	0.0028	0.0024	0.0024
	Barium	mg/L	0.001	1			0.015	0.01	0.011	0.011	0.012
	Beryllium	mg/L	0.00004		0.1	**0.1**	<0.00004	<0.00004	<0.00004	<0.00004	<0.0001
	Bismuth	mg/L	0.001				<0.001	<0.001	<0.001	<0.001	<0.001
	Boron	mg/L	0.004	5	0.5	**5**	0.285	0.559	0.503	0.5	0.53
	Cadmium	mg/L	0.00001	0.005	0.005	**0.08**	0.0001	0.00005	0.00004	0.00004	0.00003
	Calcium	mg/L	0.05			**1000**	319	339	218	203	211
	Chromium (III+VI)	mg/L	0.0004	0.05			<0.0004	0.0005	0.0006	0.0007	<0.001
	Cobalt	mg/L	0.00002		0.05	**1**	0.00137	0.00094	0.00084	0.00077	0.0007
	Copper	mg/L	0.0002	1	0.2	**0.3**	0.001	0.004	0.002	0.001	0.001
	Iron	mg/L	0.005	0.3	5		0.017	0.099	0.005	0.007	0.009
	Lithium	mg/L	0.001		2.5	**5**	0.006	0.004	0.004	0.004	<0.005
	Magnesium	mg/L	0.05	100			206	526	400	370	355
	Manganese	mg/L	0.001	0.05	0.2		0.443	0.34	0.175	0.167	0.179
	Mercury	mg/L	0.00001	0.001	0.001	**0.002**	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
	Molybdenum	mg/L	0.0001	0.25	0.01	**0.05**	**0.1138**	0.0124	0.0179	0.017	0.016
	Nickel	mg/L	0.001		0.2	**1**	0.01	0.005	0.004	0.004	0.002
	Phosphorus	mg/L	0.01				0.01 - 109	<0.01 - 0.93	0.02 - 0.41	<0.01	-
	Potassium	mg/L	0.05				12.9	17.6	14.6	13.7	14.3
	Selenium	mg/L	0.0001	0.01	0.02	**0.05**	0.0015	0.0012	0.0011	0.001	0.0003
	Silicon	µg/L	50				3,320	6,940	6,730	6,400	7,100
	Silver	mg/L	0.00001				<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
	Strontium	mg/L	0.001				3.544	5.888	3.927	3.704	2.99
	Thallium	mg/L	0.00001				<0.00001	0.00001	0.00003	0.00003	<0.00005
	Tin	mg/L	0.0001				0.0002	0.0012	0.0004	<0.0001	<0.005
	Titanium	mg/L	0.0004				0.0186	0.0351	0.0263	0.0262	<0.005
	Uranium	µg/L	0.1	100	10	**200**	6.1	3	3	3	3
	Vanadium	mg/L	0.0001		0.1	**0.1**	0.0005	0.001	0.0014	0.0013	<0.005
	Zinc	mg/L	0.001	5	1	**2**	0.002	0.004	0.004	0.002	<0.005
	Zirconium	µg/L	0.1				<0.1	<0.1	<0.1	<0.1	<0.5
Organic	Alkalinity (Carbonate)	mg/L	6				<6	<6	<6	-	-
PAH	Acridine	mg/L	0.00005				<0.00005	<0.00005	<0.00005	-	-
	Quinoline	µg/L	3.4				<3.4	<3.4	<3.4	-	-
PAH/Phenols	Acenaphthene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Acenaphthylene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Anthracene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Benz(a)anthracene	µg/L	0.01				<0.01	<0.01	<0.01	-	-
	Benzo(a) pyrene	µg/L	0.01	0.01			<0.01	<0.01	<0.01	-	-
	Benzo(b)fluoranthene	µg/L	0.01				<0.01	<0.01	<0.01	-	-
	Benzo(g,h,i)perylene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Benzo(k)fluoranthene	µg/L	0.02				<0.02	<0.02	<0.02	-	-
	Chrysene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Dibenz(a,h)anthracene	µg/L	0.01				<0.01	<0.01	<0.01	-	-
	Fluoranthene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Fluorene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Indeno(1,2,3-c,d)pyrene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Naphthalene	µg/L	0.1				0.3	<0.1	<0.1	-	-
	Phenanthrene	µg/L	0.1				<0.1	<0.1	<0.1	-	-
	Pyrene	µg/L	0.02				<0.02	<0.02	<0.02	-	-
Solvents	Methyl Tertiary Butyl Ether	mg/L	0.004				-	-	-	-	<0.004
TPH	HEPH	µg/L	100				<100	<100	<100	-	-
	LEPHw	µg/L	100				<100	<100	<100	-	-
	VPH C6-C10	µg/L	50	15000	15000	**15000**	<50	<50	<50	<50	<300
	VPHw	µg/L	50				<50	<50	<50	<50	<300
VOCs	2-Chloroethylvinyl ether	mg/L	0.001				<0.001	<0.001	<0.001	-	-
	Trihalomethanes	mg/L					<0.004	<0.004	<0.004	-	-

			SDG	12/6/2010	12/6/2010		12/6/2010	Interlab_D		
			Field_ID	HJ-MW03	QC01	**RPD**	HJ-MW03	HJ-MW03 DUPLICATE	**RPD**	
			Sampled_Date-Time	12/6/2010	12/6/2010		12/6/2010	12/6/2010		
Method_Type	**ChemName**	**Units**	**EQL**							
Metals Dissolved	Sulphur as S	mg/l	0.2 (Primary): 3 (Interlab)	737.0	686.0	7	737.0	744.0	1	
Routine Water	Calcium	mg/l	0.1 (Primary): 0.05 (Interlab)	218.0	203.0	7	218.0	211.0	3	
	Magnesium	mg/l	0.1 (Primary): 0.05 (Interlab)	400.0	370.0	8	400.0	355.0	12	
	Nitrogen (Total Oxidised)	mg/l	0.01 (Primary): 0.02 (Interlab)	<0.07			<0.07	<0.02	0	
	Phosphorus	mg/l	0.01	0.02	<0.01	67	0.02			
	Potassium	mg/l	0.1 (Primary): 0.05 (Interlab)	14.6	13.7	6	14.6	14.3	2	
	Silicon	µg/l	50 (Primary): 100 (Interlab)	6730.0	6400.0	5	6730.0	7100.0	5	
	Sodium	mg/l	0.1 (Primary): 0.05 (Interlab)	144.0	137.0	5	144.0	132.0	9	
	Hardness as CaCO3	mg/l	5 (Primary): 0.5 (Interlab)	2190.0	2030.0	8	2190.0	1990.0	10	
Trace Metals Dissolved	Aluminium	mg/l	0.005 (Primary): 0.003 (Interlab)	<0.005	<0.005	0	<0.005	0.004	0	
	Antimony	mg/l	0.0002 (Primary): 0.0005 (Interlab)	0.0007	0.0006	15	0.0007	0.0008	13	
	Arsenic	mg/l	0.0002 (Primary): 0.0001 (Interlab)	0.0028	0.0024	15	0.0028	0.0024	15	
	Barium	mg/l	0.001	0.011	0.011	0	0.011	0.012	9	
	Beryllium	mg/l	0.00004 (Primary): 0.0001 (Interlab)	<0.0	<0.0	0	<0.0	<0.0001	0	
	Bismuth	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0	
	Boron	mg/l	0.004 (Primary): 0.05 (Interlab)	0.503	0.5	1	0.503	0.53	5	
	Cadmium	mg/l	0.00001	0.0	0.0	0	0.0	0.0	29	
	Chromium (III+VI)	mg/l	0.0004 (Primary): 0.001 (Interlab)	0.0006	0.0007	15	0.0006	<0.001	0	
	Cobalt	mg/l	0.00002 (Primary): 0.0005 (Interlab)	0.0008	0.0008	9	0.0008	0.0007	18	
	Copper	mg/l	0.001 (Primary): 0.0002 (Interlab)	0.002	0.001	67	0.002	0.001	67	
	Iron	mg/l	0.01 (Primary): 0.005 (Interlab)	0.005	0.007	33	0.005	0.009	57	
	Lead	mg/l	0.0001 (Primary): 0.0002 (Interlab)	0.0002	<0.0001	67	0.0002	<0.0002	0	
	Lithium	mg/l	0.001 (Primary): 0.005 (Interlab)	0.004	0.004	0	0.004	<0.005	0	
	Manganese	mg/l	0.005 (Primary): 0.001 (Interlab)	0.175	0.167	5	0.175	0.179	2	
	Mercury	mg/l	0.00001 (Primary): 0.00002 (Interlab)	<0.0	<0.0	0	<0.0	<0.0	0	
	Molybdenum	mg/l	0.0001 (Primary): 0.001 (Interlab)	0.0179	0.017	5	0.0179	0.016	11	
	Nickel	mg/l	0.001	0.004	0.004	0	0.004	0.002	67	
	Selenium	mg/l	0.0006 (Primary): 0.0001 (Interlab)	0.0011	0.001	10	0.0011	0.0003	114	
	Silver	mg/l	0.00001 (Primary): 0.00002 (Interlab)	<0.0	<0.0	0	<0.0	<0.0	0	
	Strontium	mg/l	0.001	3.927	3.704	6	3.927	2.99	27	
	tellurium	µg/L	0.1	<0.1	<0.1	0	<0.1			
	Thallium	mg/l	0.00001 (Primary): 0.00005 (Interlab)	0.0	0.0	0	0.0	<0.0001	0	
	Thorium	µg/L	0.4	<0.4	<0.4	0	<0.4			
	Tin	mg/l	0.0001 (Primary): 0.005 (Interlab)	0.0004	<0.0001	120	0.0004	<0.005	0	
	Titanium	mg/l	0.0004 (Primary): 0.005 (Interlab)	0.0263	0.0262	0	**0.0263**	**<0.005**	**136**	
	Uranium	µg/L	0.4 (Primary): 0.1 (Interlab)	3.0	3.0	0	3.0	3.0	0	
	Vanadium	mg/l	0.0001 (Primary): 0.005 (Interlab)	0.0014	0.0013	7	0.0014	<0.005	0	
	Zinc	mg/l	0.001 (Primary): 0.005 (Interlab)	0.004	0.002	67	0.004	<0.005	0	
	Zirconium	µg/L	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0	
VOC Screen - Water	Benzene	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Ethylbenzene	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Styrene	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Toluene	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Xylene (m & p)	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Xylene (o)	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
	Xylene Total	µg/L	1 (Primary): 0.4 (Interlab)	<1.0			<1.0	<0.4	0	
Volatile Petroleum Hydrocarbons - Water	VPH C6-C10	µg/L	50 (Primary): 300 (Interlab)	<50.0	<50.0	0	<50.0	<300.0	0	
	VPHw	µg/L	50 (Primary): 300 (Interlab)	<50.0	<50.0	0	<50.0	<300.0	0	

*RPDs have only been considered where a concentration is greater than 5 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (5-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

FIGURES



LEGEND

- Site Location
- Cross Section Alignment A - A'
- Contour (100 ft & 40m)
- Transmission Line
- Cut Line
- Bridge
- Trail
- Limited Use Road
- Road
- Building
- Runway
- Dump
- Mining Area
- Watercourse
- Waterbody
- Wetland
- Vegetation

NOTES
Base data source:
NTS 1:50,000 (Sheets 115A11, 115A12, 115A13, & 115A14)

STATUS
ISSUED FOR USE

HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

Site Location

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Yukon Government

Scale: 1:50,000
1 0.5 0 1
Kilometres

FILE NO. W23101317_007_Figure01_HainesJunction.mxd

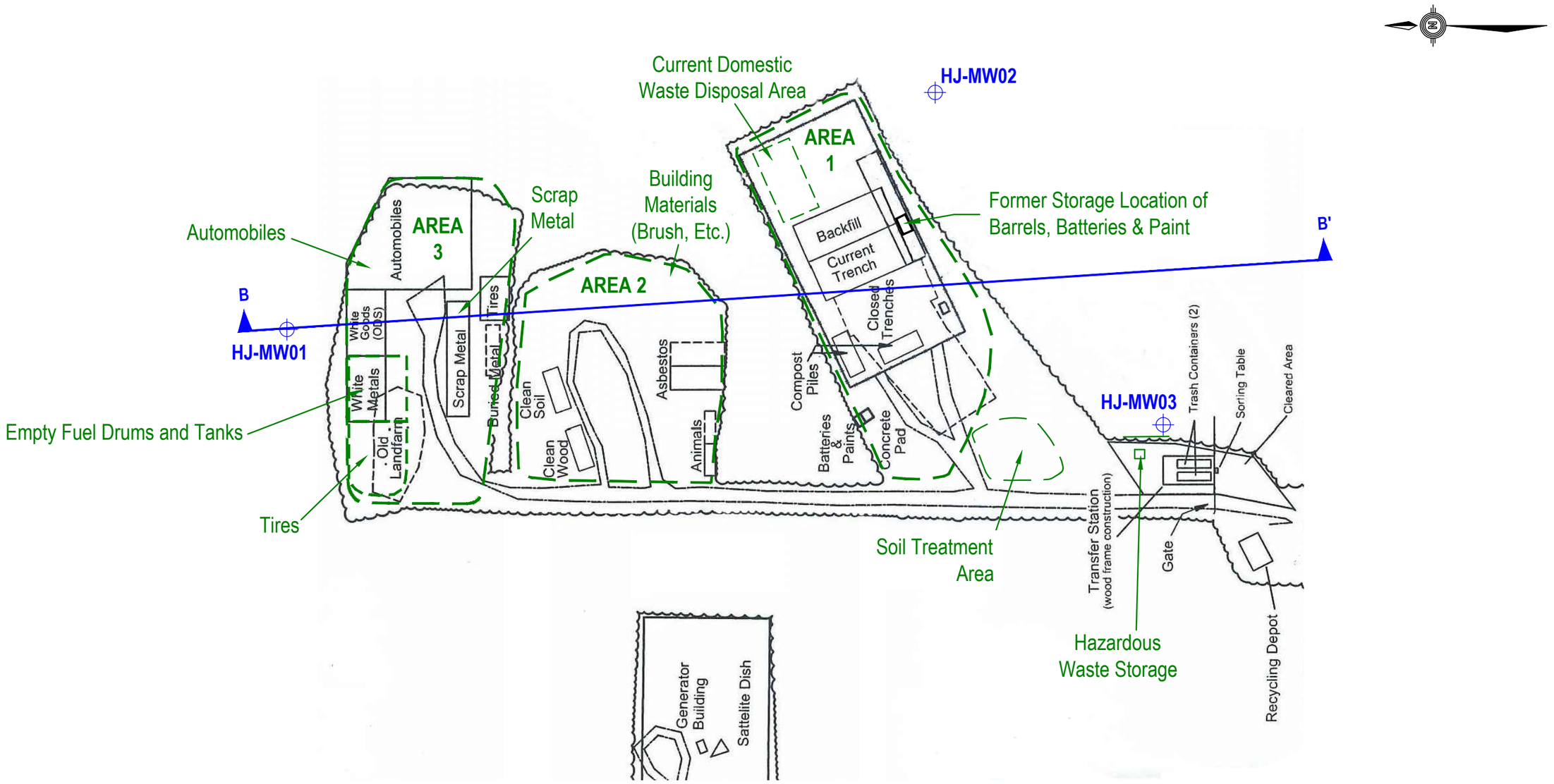
PROJECT NO.	DWN	CKD	APVD	REV
W23101317.007	SL	CB	CB	0

OFFICE	DATE
EBA-VANC	March 2, 2011

eba A TETRA TECH COMPANY

Figure 1

Q:\Vancouver\GIS\ENVIRONMENTAL\W23\W23101317_MWProgram\Maps\007\W23101317_007_Figure01_HainesJunction.mxd modified 3/2/2011 by sleusink



LEGEND

- GROUNDWATER MONITORING WELL LOCATION
- CROSS SECTION ALIGNMENT B - B' (SHOWN BLUE)
- CURRENT WASTE STORAGE LOCATIONS (SHOWN GREEN)
- 2001 WASTE STORAGE LOCATIONS (SHOWN BLACK)

NOTES :

THE INFORMATION CONTAINED ON THIS PLAN WAS PROVIDED BY THE VILLAGE OF HAINES JUNCTION IN JUNE 2010 AND IS PRESENTED FOR INFORMATION PURPOSES ONLY. ALL WELL LOCATIONS AND CURRENT WASTE STORAGE LOCATIONS WERE ADDED BY EBA AND ARE SHOWN IN COLOR.

CLIENT

Yukon Government Community Services

eba A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT HAINES JUNCTION WASTE DISPOSAL FACILITY

SITE PLAN AND CROSS-SECTION B - B' ALIGNMENT

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 24, 2011

Figure 2

LEGEND

- GROUNDWATER MONITORING WELL LOCATION (SHOWN WHITE)

AREA 1 - WASTE DEPOSITION AREAS (SHOWN WHITE)

0 200

Scale: 1: 4 000 (metres)

CLIENT

Yukon Government
Department of Community Services

eba
A TETRATECH COMPANY

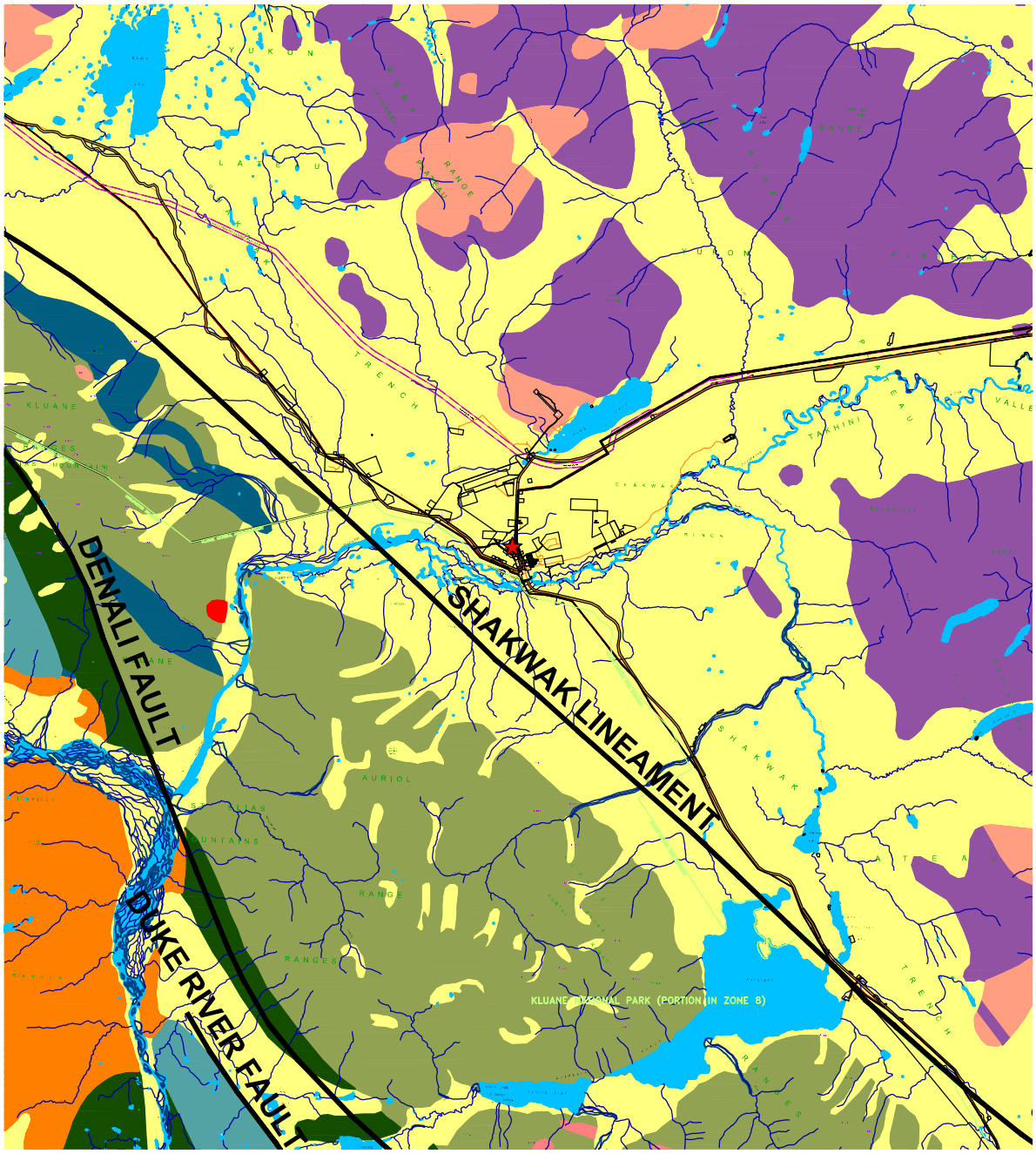
HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

SITE AERIAL IMAGE

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 23, 2011

Figure 3



LEGEND:

- QUATERNARY — MAINLY TILL AND STRATIFIED SILTS; GLACIAL OUTWASH; SAND AND GRAVEL; TERMINAL MORAINE; ALPINE MORAINE; FLUVIATILE GRAVEL, SAND, AND SILT
- TERTIARY — VOLCANIC BRECCIA, TUFF, RHYOLITE, DACITE, ANDESITE, BASALT; SOME SANDSTONE
- CRETACEOUS - COAST INTRUSIONS — MAINLY GRANODIORITE; GRANITE; PORPHYRITIC GRANITE; DIORITE; AUGEN-GNEISS
- GABBRO
- FAULT
- APPROXIMATE SITE LOCATION
- PERIDOTITE, SERPENTINE; DUNITE
- DEZADEASH GROUP — CONGLOMERATE, SHALE, SANDSTONE, TUFF, ARGILLITE, CHERT, GREYWACKE, COAL
- TRIASSIC AND JURASSIC - MUSH LAKE GROUP — ANDESITE, BASALT, RHYOLITE, VOLCANIC BRECCIA, TUFF, ARGILLITE, SLATE, LIMESTONE
- PRECMBRIAN - YUKON GROUP — QUARTZ-MICA SCHISTS, GNEISS, SLATE, QUARTZITE, CRYSTALLINE LIMESTONE, GREENSTONE, CHLORITE AND GARNETIFEROUS SCHISTS

REFERENCES:

1) DEZADEASH, YUKON TERRITORY. GEOLOGICAL SERIES MAP 1019A, GEOLOGICAL SURVEY OF CANADA, DEPT. OF MIES AND TECHNICAL SERVICES.
2) DODDS, C.J. AND R.B. CAMBELL, 1992. GEOLOGY OF SW DEZADEASH MAP AREA (115A), YUKON TERRITORY, GEOLOGICAL SURVEY OF CANADA OPEN FILE 2190, 1:250,000 SCALE MAP.

0 10 000

Scale: 1: 200 000 (metres)

CLIENT: Yukon Government, Department of Community Services

eba A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

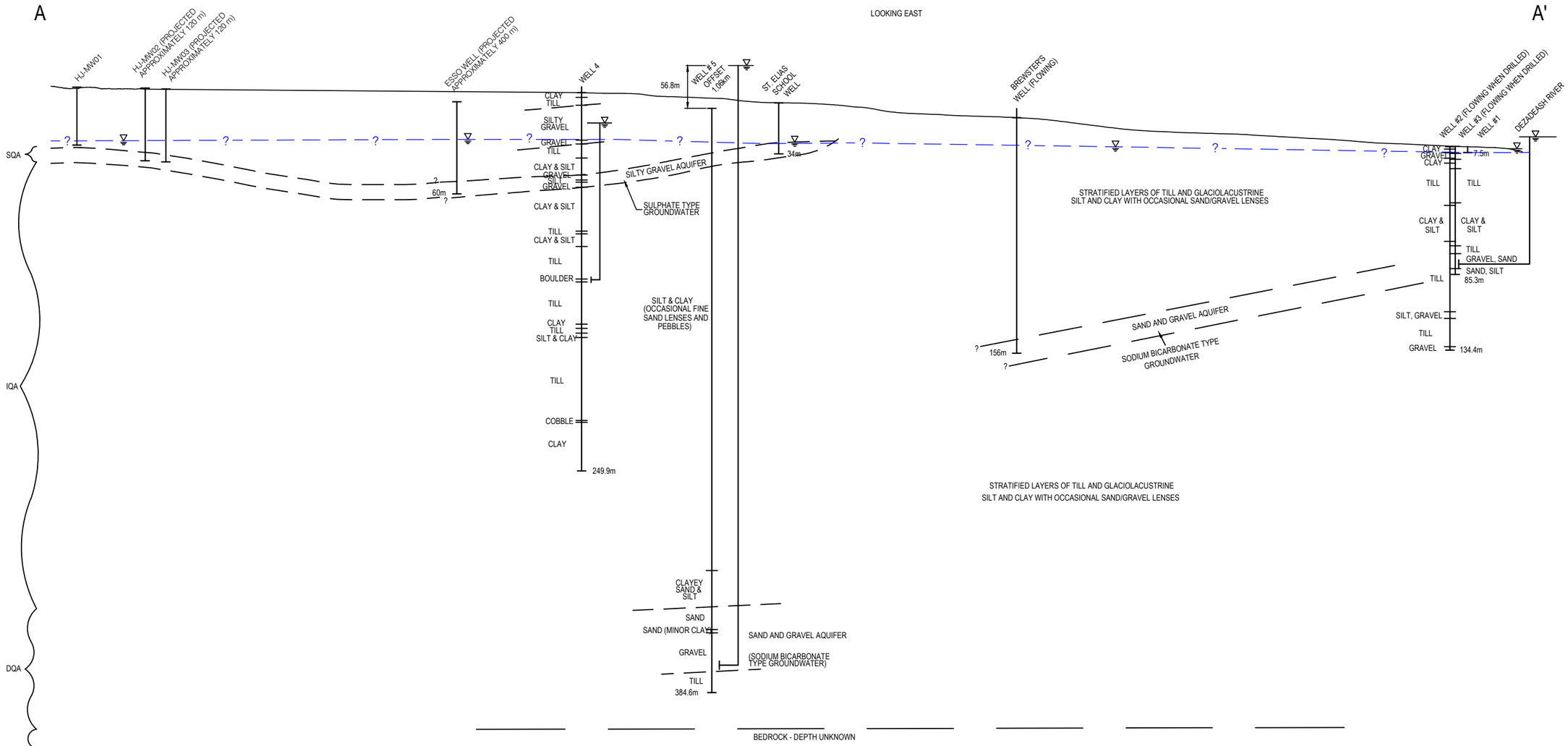
REGIONAL SURFACE GEOLOGY

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE: EBA-WHSE

DATE: March 1, 2011

Figure 4



LEGEND

SQA - SHALLOW QUATERNARY AQUIFER

IQA - INTERMEDIATE QUATERNARY AQUIFER

DQA - QUATERNARY AQUIFER

BRA - BEDROCK AQUIFER

NOTE :
THE INFORMATION CONTAINED ON THIS PLAN WAS DERIVED FROM EBA PROJECT # 1240049 DATED SEPTEMBER 2003.

CLIENT
Yukon Government
Department of Community Services

eba
A TETRA TECH COMPANY

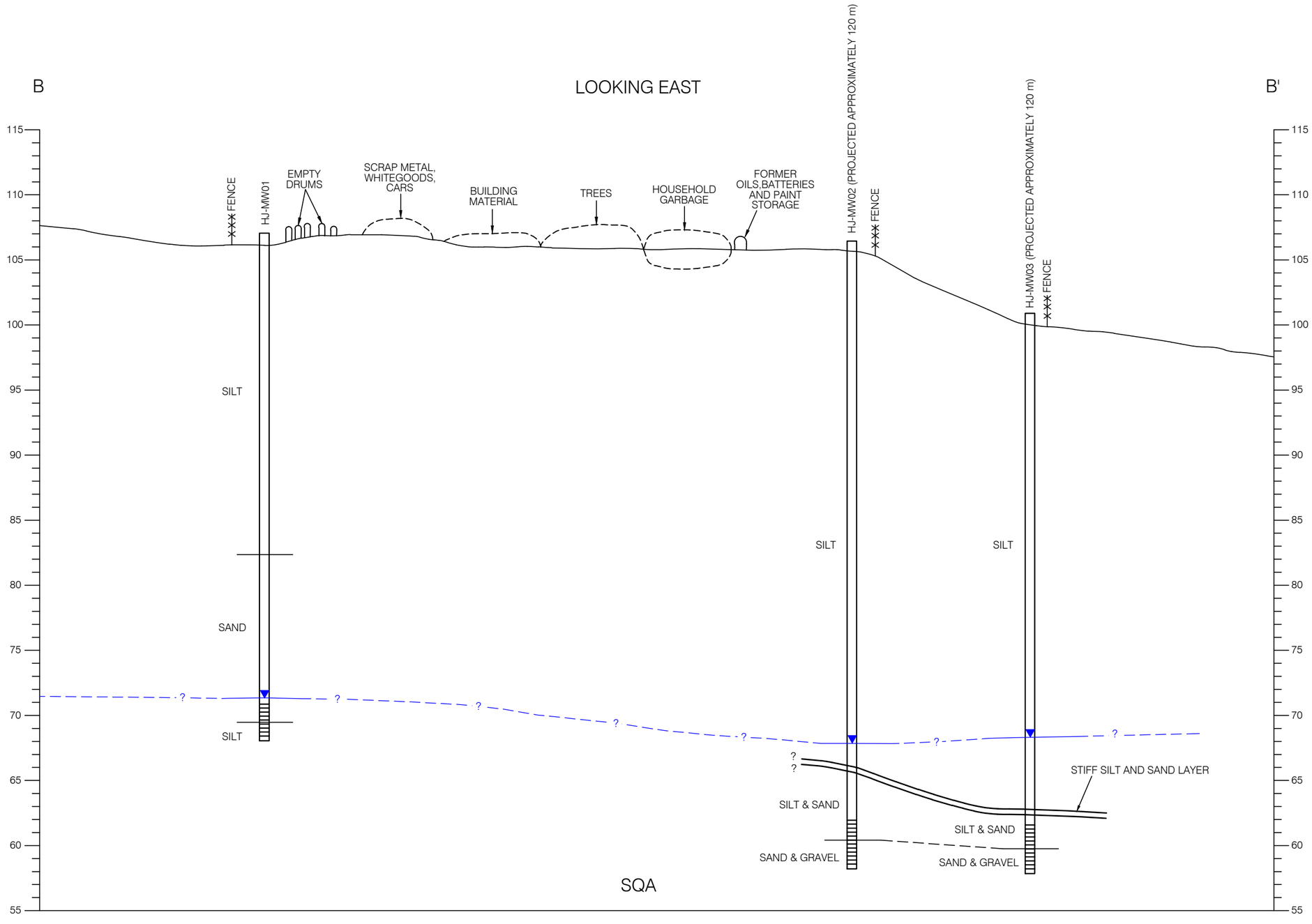
HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

REGIONAL CONCEPTUAL HYDROGEOLOGICAL CROSS-SECTION A - A'

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	March 1, 2011

Figure 5



LEGEND

- MONITORING WELL

- - - GROUNDWATER ELEVATION

CLIENT

Yukon Government
Department of Community Services

eba
A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

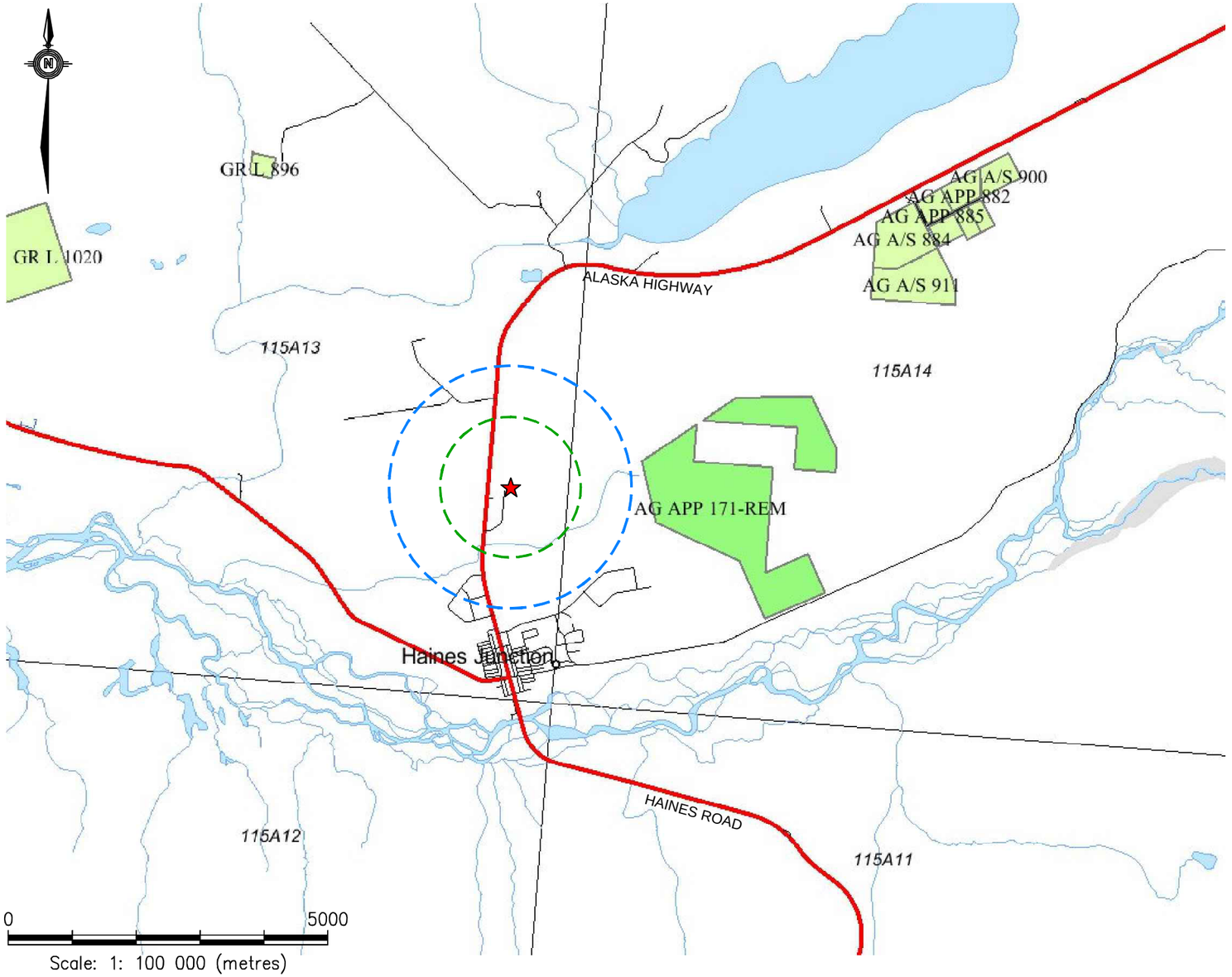
LOCAL CONCEPTUAL HYDROGEOLOGICAL CROSS SECTION B - B'

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 23, 2011

Figure 6

Q:\Whitehorse\Data\0201drawings\Haines Junction\W23101317.007 Hydro Assessment\W23101317.007 Fig.7_R0.dwg [FIGURE 7] March 02, 2011 - 3:47:55 pm (BY: BUCHAN, CAMERON)



Legend

- Yukon Border - Surveyed
- National Road Network - All Roads
- Expressway / Highway
- Arterial
- Collector
- Ramp
- Resource / Recreation
- Local / Street
- Local / Strata
- Local / Unknown
- Alley or Service Lane
- Service Lane
- Winter
- Waterbodies (50k)
- Dry river bed
- Navigable canal
- Sand
- Water disturbance
- Waterbody
- Waterbody
- Places (All)
- City
- Town
- Municipality
- Village
- Community
- Settlement
- Native Settle
- Hamlet
- Historic Site
- Land Application - Denied
- Land Application (CSW)
- Agricultural Disposition (CSW)
- Agricultural Applications (CSW)

LEGEND

- ★ - APPROXIMATE SITE LOCATION
- - REGIONAL DRAINAGE LINES
- - CSR AQUATIC LIFE APPLICABLE RADIUS (1.0 km)
- - CSR DRINKING, IRRIGATION AND LIVESTOCK WATER USE APPLICABLE RADIUS (1.5 km)

CLIENT

Yukon Government
Department of Community Services

eba
A TETRATECH COMPANY

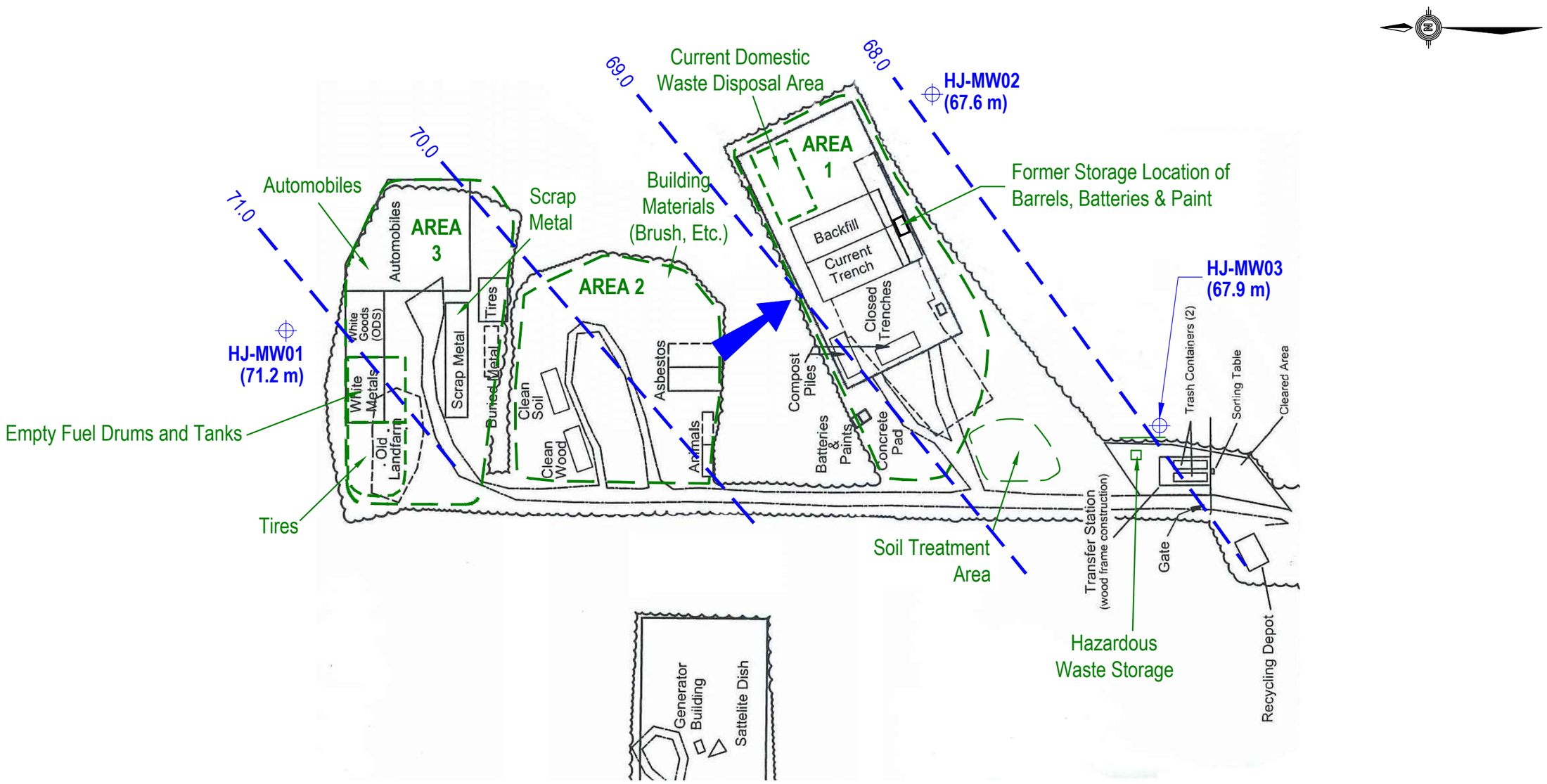
HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

REGIONAL DRAINAGE AND LAND ZONING

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 23, 2011

Figure 7



0 100

Approximate Scale: 1: 2 000 (metres)

NOTES :

THE INFORMATION CONTAINED ON THIS PLAN WAS PROVIDED BY THE VILLAGE OF HAINES JUNCTION IN JUNE 2010 AND IS PRESENTED FOR INFORMATION PURPOSES ONLY. ALL WELL LOCATIONS, CURRENT WASTE STORAGE LOCATIONS AND EXPECTED GROUNDWATER FLOW DIRECTIONS WERE ADDED BY EBA AND ARE SHOWN IN COLOR.

LEGEND

- ⊕ - GROUNDWATER MONITORING WELL LOCATION
- 71.2 - GROUNDWATER ELEVATION CONTOUR (m RL)
- ➡ - INFERRED GROUNDWATER FLOW DIRECTION
- (71.2 m) - GROUNDWATER ELEVATION (m RL) (DECEMBER 2010)
- ——— - 2001 WASTE STORAGE LOCATIONS (SHOWN BLACK)
- – – – - CURRENT WASTE STORAGE LOCATIONS (SHOWN GREEN)

CLIENT

Yukon Government Community Services

eba A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT HAINES JUNCTION WASTE DISPOSAL FACILITY

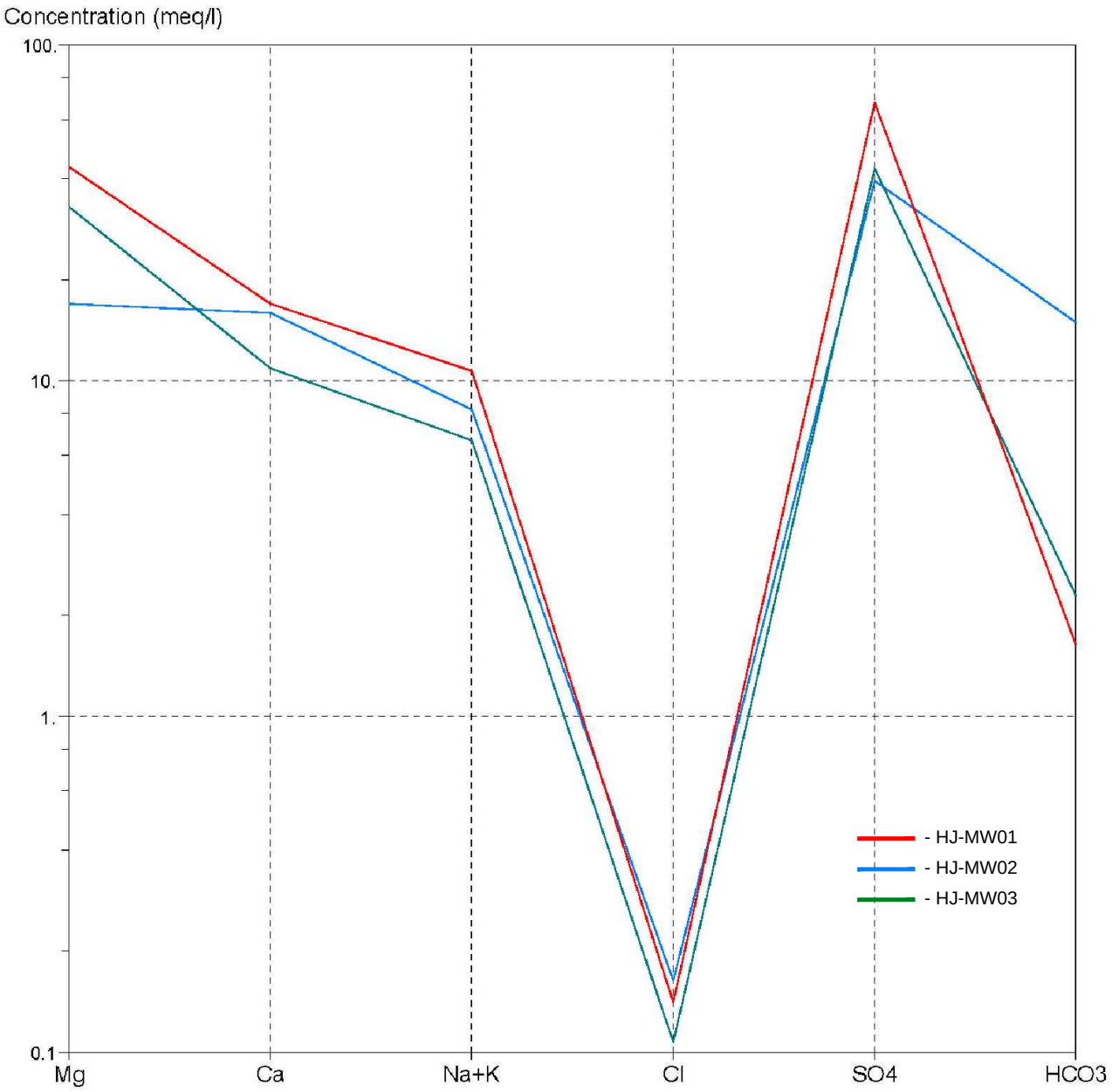
GROUNDWATER ELEVATION CONTOURS (DECEMBER 2010)

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE: EBA-WHSE

DATE: February 24, 2011

Figure 8



LEGEND

- HJ-MW01
- HJ-MW02
- HJ-MW03

CLIENT

Yukon Government Community Services

eba A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

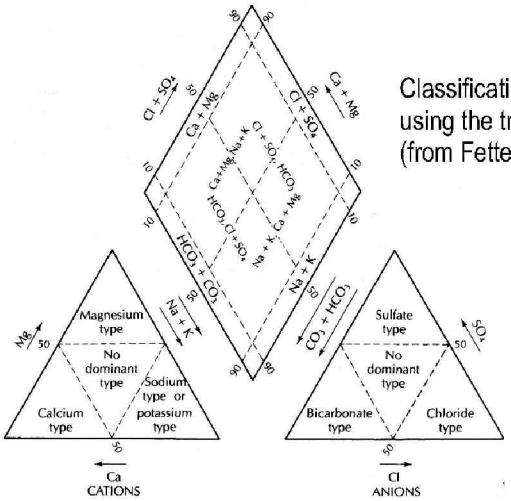
SCHOELLOR PLOT

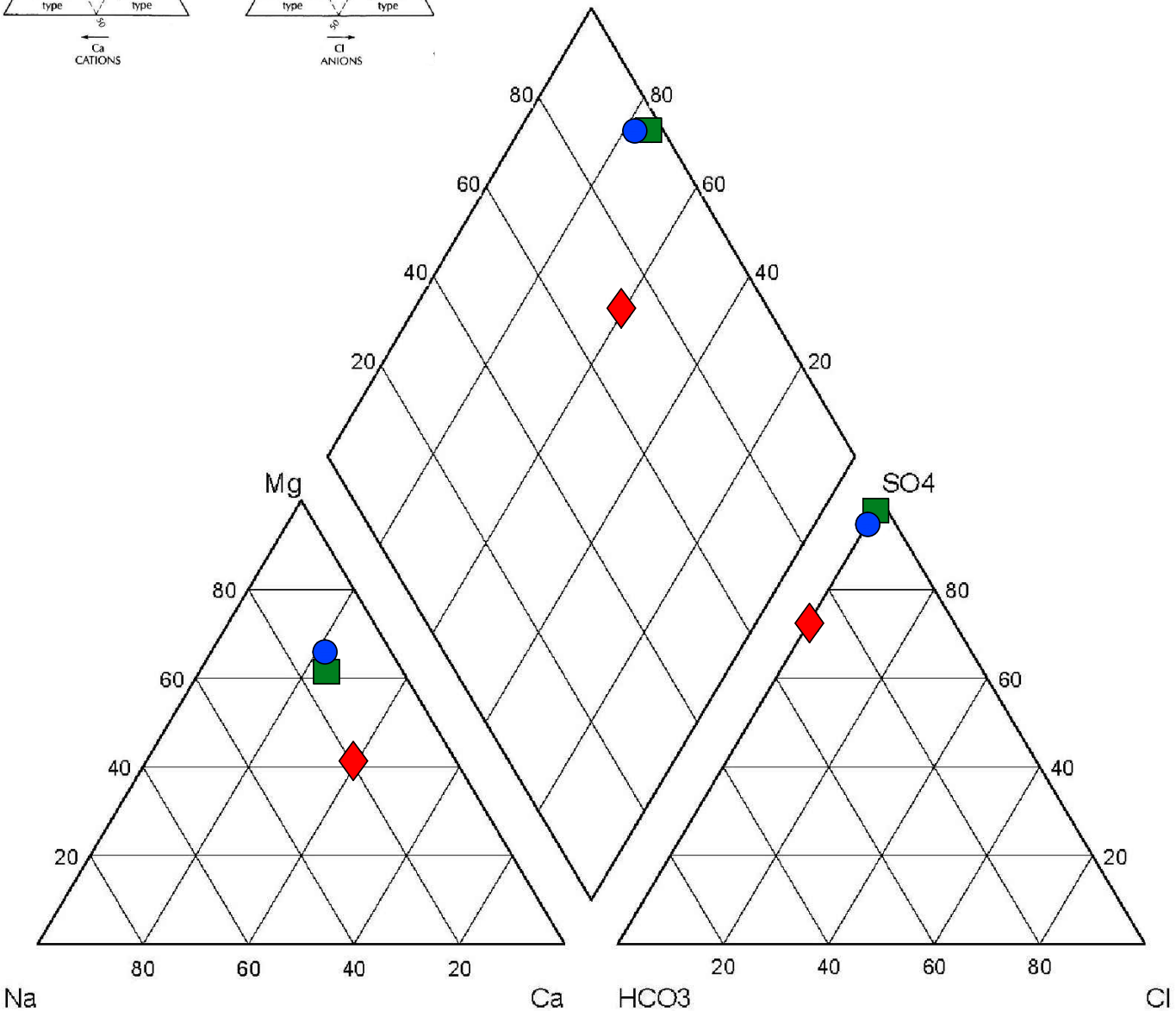
PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 23, 2011

Figure 9

Classification of hydrogeochemical water types
using the trilinear Piper diagram
(from Fetter, 2001)





LEGEND

- HJ-MW01
- HJ-MW02
- HJ-MW03

CLIENT

Yukon Government
Department of Community Services

eba
A TETRA TECH COMPANY

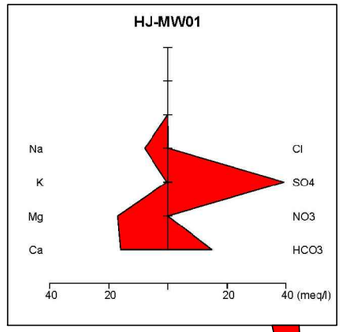
HYDROGEOLOGICAL ASSESSMENT
HAINES JUNCTION WASTE DISPOSAL FACILITY

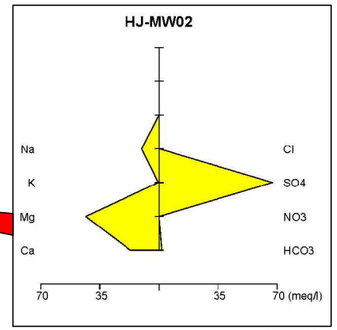
PIPER DIAGRAM

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 23, 2011

Figure 10





HJ-MW01

HJ-MW02

HJ-MW03

Current Domestic Waste Disposal Area

Automobiles

Scrap Metal

Building Materials (Brush, Etc.)

Former Storage Location of Barrels, Batteries & Paint

Empty Fuel Drums and Tanks

Tires

Soil Treatment Area

Hazardous Waste Storage

AREA 1

AREA 2

AREA 3

Automobiles

White Goods (ODS)

White Metals

Old Landfarm

Scrap Metal

Tires

Buried Metal

Clean Soil

Clean Wood

Asbestos

Animals

Compost Piles

Batteries & Paints

Backfill

Current Trench

Closed Trenches

Concrete Pad

Trash Containers (2)

Sorting Table

Cleared Area

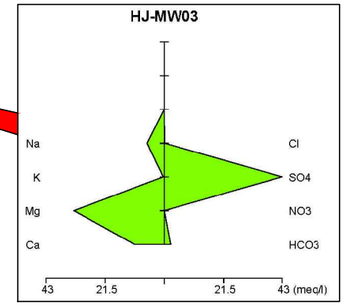
Transfer Station (wood frame construction)

Gate

Recycling Depot

Generator Building

Sattelite Dish



0 100

Approximate Scale: 1: 2 000 (metres)

LEGEND

- GROUNDWATER MONITORING WELL LOCATION
- CROSS SECTION ALIGNMENT B - B' (SHOWN BLUE)
- CURRENT WASTE STORAGE LOCATIONS (SHOWN GREEN)
- 2001 WASTE STORAGE LOCATIONS (SHOWN BLACK)

NOTES :

THE INFORMATION CONTAINED ON THIS PLAN WAS PROVIDED BY THE VILLAGE OF HAINES JUNCTION IN JUNE 2010 AND IS PRESENTED FOR INFORMATION PURPOSES ONLY. ALL WELL LOCATIONS AND CURRENT WASTE STORAGE LOCATIONS WERE ADDED BY EBA AND ARE SHOWN IN COLOR.

CLIENT

Yukon Government Community Services

A TETRA TECH COMPANY

HYDROGEOLOGICAL ASSESSMENT HAINES JUNCTION WASTE DISPOSAL FACILITY

STIFF DIAGRAMS

PROJECT NO.	DWN	CKD	REV
W23101317.007	CB	AJS	0

OFFICE	DATE
EBA-WHSE	February 24, 2011

Figure 11

APPENDIX A

APPENDIX A EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEO-ENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA’s client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B

APPENDIX B HAINES JUNCTION WASTE DISPOSAL FACILITY PERMIT

Yukon
Environment

Permit No: 80-002

WASTE DISPOSAL FACILITY PERMIT

Issued for the Operation of a Waste Disposal Facility Pursuant to
Part 6 of the *Environment Act*, s. 8 of the *Solid Waste Regulations*, s. 12 of the
Air Emissions Regulations, and s. 8 of the *Special Waste Regulations*

Permittee: Village of Haines Junction

Mailing Address: Box 5339, Haines Junction, YT, Y0B 1L0

Site Location: Village of Haines Junction Solid Waste Disposal Facility
Near km 1630 Alaska Highway

Phone/Fax: (867) 634-7100 / (867) 634-2008

Authorized Representative: Michael Riseborough

Email: cao-vhj@yknet.ca

Effective Date: January 1, 2010

Expiry Date: December 31, 2011

Scope of Authorization: In accordance with your application, you are authorized to:

a. operate a waste disposal facility;
b. operate a special waste management facility for the acceptance, storage and transportation of special waste generated by households, waste oil, waste batteries, waste paints, waste solvents, and waste fuels; and
c. open burn solid waste in an amount greater than 5 kilograms per day

at the above site location (the "site"), as set out in the terms and conditions of this permit.

Dated this 21st day of MARCH, 2010

Director, Environmental Programs Branch
Environment Yukon

PART 1. GENERAL PROVISIONS

1.1 DEFINITIONS

1. In this permit,

   "Act" means the *Environment Act*, R.S.Y. 2002, c. 76;

   "approved plan" means a plan that is submitted by the permittee and approved by an environmental protection officer under this permit and includes any terms and conditions specified by the environmental protection officer in the approval;

   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "cell" means a discrete area of a facility into which solid waste is deposited for permanent disposal and includes such areas that are no longer used for that purpose;

   "facility" means the waste disposal facility and special waste management facility located at the site;

   "groundwater receptor" means a well or receiving water body into which groundwater flows;

   "head office" means the office of the permittee located in Yukon;

   "listed special waste" means special waste generated by households, waste oil, waste batteries, waste paints, waste solvents, and waste fuels;

   "Regulations" means the *Air Emissions Regulations*, O.I.C. 1998/207, the *Solid Waste Regulations*, O.I.C. 2000/11, and the *Special Waste Regulations*, O.I.C. 1995/047;

   "service area" means the population that is anticipated to be served by a facility;

   "texas gate" means an electrified metal grid on the ground that can be passed over by vehicles but will prevent entry by animals;

   "vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

   "waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection officer.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

1.2 PLANS

1. The permittee shall develop and maintain a fire safety/emergency plan which includes notification procedures and a list of emergency phone numbers relevant to the facility. All associated personnel involved with the handling or management of any wastes covered by this permit shall be familiar with this plan.

2. The permittee shall submit for approval an open burning transition plan no later than March 31, 2010, which plan shall detail how the permittee will phase out open burning as soon as possible or by January 1, 2012 at the latest.

3. The permittee shall submit for approval a spill response plan for the facility no later than June 30, 2010.

4. The permittee shall submit for approval, no later than December 31, 2010, a hydrogeological assessment of the facility that determines the potential impact to nearby surface water and groundwater.

5. Prior to constructing a new cell, the permittee shall submit a new cell plan for approval.

6. No later than six months prior to the planned closure of the facility the permittee shall submit a facility closure plan for approval.

7. Prior to undertaking any work toward the partial or full closure of a cell, including progressive capping and reclamation of active cells, the permittee shall submit a cell closure plan for approval.

8. When the permittee is required to submit a plan under this permit, the permittee shall:
   a) ensure the plan meets the requirements for that type of plan as directed by an environmental protection officer from the Branch in writing;
   b) submit the plan in writing to an environmental protection officer from the Branch;
   c) not undertake any of the activities described in the plan until the plan is approved in writing by an environmental protection officer from the Branch; and
   d) implement the plan as of the date it is approved in writing by an environmental protection officer from the Branch.

9. If the permittee wants to amend an approved plan, the permittee shall submit the proposed amendment to an environmental protection officer from the Branch as if the amendment were a plan under paragraph 1.2.8 of this permit.

10. If an environmental protection officer from the Branch directs in writing and with reasons that an approved plan be amended, the permittee must prepare the required amendment and submit it as if it were a plan referred to in paragraph 1.2.8 of this permit.

1.3 INSPECTIONS

1. The permittee shall conduct weekly inspections of all electric fences and shall maintain them as necessary during periods of activation as specified in paragraph 2.3.2 to ensure that:
   a) the fence is sufficiently charged to deter wildlife; and
   b) there is no vegetation or windblown litter or other items along the perimeter of the fence, or contacting the fence, that may act as a ground.

2. The permittee shall conduct weekly visual site inspections to verify correct segregation of wastes and shall transfer all identified improperly segregated wastes to their appropriate segregation areas, except that the permittee is not required to pick items out of the putrescible waste disposal area.

3. The permittee shall ensure that surface water run-off is inspected during spring melt and as required by an environmental protection officer. Such inspections shall include, but not be limited to, qualitative observations regarding flow rate, general flow direction, and any noticeable effects the run-off is having on the facility.

1.4 RECORDS

1. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.

2. The permittee shall keep the following records at the head office:
   a) a copy of each plan submitted under this permit, and any amendments to and approvals of each plan;
   b) all inspections carried out under this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
   c) results of leachate, surface water and groundwater testing conducted at the site, where applicable (including interpretations of monitoring results to determine trends in contaminant levels over time);
   d) results of hydrogeological assessments undertaken at the site;
   e) any spills or leaks occurring at the facility, including substance involved, estimated quantity, date of observation of the spill or leak, and clean-up procedures implemented;
   f) the types of special wastes segregated at the facility, their estimated volumes, and their storage location(s) at the facility;
   g) any and all deficiencies remedied in accordance with paragraph 1.5.4, and how and when they were remedied; and
   h) a copy of any waste manifests used to transport special wastes to or from the facility.

3. The permittee shall permanently retain at the head office an updated, detailed site plan showing the locations of all active and closed cells and segregation areas at the facility and shall produce this site plan upon request for inspection by an environmental protection officer.

1.5 OTHER

1. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and

c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

2. The permittee shall provide notice in writing to an environmental protection officer from the Branch prior to any significant change of circumstances at the site, including without limitation:
   a) closure of the facility;
   b) change of ownership of the site;
   c) the opening of a new cell;
   d) changing from a burn to a no-burn or from a no-burn to a burn operation; and
   e) change to the mailing address or phone number of the permittee.

3. Where conflicts exist between this permit, the permit application or any plans, this permit shall prevail.

4. If an inspection reveals that the facility is in any way not in compliance with this permit or approved plans, or that surface water run-off is negatively affecting the structure or physical integrity of the facility, the permittee shall repair the damage or take other actions as required to bring the facility into compliance.

PART 2. SOLID WASTE

2.1 OPERATIONS

1. The permittee shall not operate a facility for a service area greater than 13,000 people.

2. The permittee shall ensure that all solid waste left at the facility that is not separated for recycling or transfer off-site is deposited into a cell.

3. The permittee shall divert surface water run-off away from any area of the facility where waste is stored or deposited.

4. The permittee shall ensure that animal carcasses and animal parts are buried at least 2 metres below the surface of the land.

2.2 SIGNAGE AND SEGREGATION

1. The permittee shall install and maintain signs at the facility containing the following information:
   a) entrance and exit location(s) for the facility; and
   b) telephone contact numbers for the facility manager, the local fire protection services, and the district conservation officer.

2. The permittee shall:
   a) establish and maintain separate areas for the deposit of each type of solid waste accepted at the facility;

b) install and maintain appropriate signs identifying each of these areas; and
c) ensure that the facility is maintained to enable vehicles to access each of these areas.

2.3 FENCING AND SECURITY

1. The permittee shall install and maintain, in accordance with the manufacturer's operating and maintenance instructions and recommendations, an electric exclusion fence(s) and gates that encompass the putrescibile waste disposal areas at the facility and any other areas of the facility that become or may become an attractant to animals. The fence and gates shall be adequate to prevent animals from entering the encompassed areas of the facility.

2. The fences and gates referenced in paragraph 2.3.1 above must be:
   a) activated continuously from May 1 to October 31 of each year;
   b) activated between November 1 and April 30 of each year if there are any tracks or other signs of animals visiting the area; and
   c) activated upon the written request of an environmental protection officer.

3. If the facility is open to the public when staff are not on site, the permittee shall install and maintain a texas gate at each entrance and exit of each facility.

4. If the facility is closed to the public when staff are not on site, the permittee shall install and maintain either a texas gate or an electrified rigid swinging gate at each entrance and exit of each facility. Any rigid swinging gates are to be closed and secured every time staff leave the facility.

5. The permittee shall install and maintain fencing or other comparable measures to prevent the release of solid waste from the facility.

6. The permittee shall install and maintain signs marking the areas, if any, of the facility that are not to be accessed by the public and erect or construct fencing, gates or other similar structures to prevent public access to these areas.

2.4 WASTE COVER

1. At any facility where solid waste is burned, the permittee shall cover burned solid waste:
   a) every month if the facility has a service area of 100 or more people; or
   b) every two months if the facility has a service area of less than 100 people,

   with soil or other comparable material to a depth of 0.1 metres, or any other depth that an environmental protection officer considers necessary to prevent windblown solid waste and attraction of birds. In the case of solid waste burned in a burning vessel, the permittee shall remove the waste from the vessel after burning and place it in a cell at the facility before applying cover material.

2. At any facility where solid waste will not be burned or transferred off-site, the permittee shall cover any exposed solid waste with soil or other comparable material to a depth of 0.1 metres or any other depth that an environmental protection officer considers necessary to prevent windblown solid waste and attraction of birds:
   a) every day the facility is used if the facility has a service area of more than 5,000 people;
   b) every seven days if the facility has a service area of 500 to 5,000 people;
   c) every 21 days if the facility has a service area of less than 500 people; or
   d) after every 0.5 metres of solid waste is deposited,

   whichever occurs first.

3. Paragraphs 2.4.1 and 2.4.2 do not apply between November 15 and April 15 of each year if soil or other comparable cover material cannot reasonably be obtained.

2.5 Open Burning Of Solid Waste

1. The permittee shall:
   a) ensure, to the extent practicable, that solid waste to be open burned is dry and shall only burn wet solid waste when to delay such burning may result in attraction of animals or creation of a fire hazard;
   b) prior to open burning the solid waste, separate combustible solid waste from any underlying grass or peat layer;
   c) not allow solid waste to smoulder (burn and smoke without flame) during an open burn;
   d) not use waste oil, tires or aviation gasoline to assist with the incineration of solid waste during an open burn;
   e) not use any waste petroleum products to assist with the open burning of solid waste without prior approval to do so in writing by an environmental protection officer from the Branch;
   f) prevent runoff water from entering the active open burning area; and
   g) not open burn tires or treated wood products, including wood products that have been treated with creosote, chromium copper arsenate (CCA), pentachlorophenol (PCP), or any type of paint.

2.6 Monitoring

GW (1) The permittee shall ensure that samples are taken from all active groundwater monitoring wells at the facility in accordance with protocols for groundwater sampling approved by the Branch. The water level in all monitoring wells shall be recorded at each sampling event. Samples shall be taken twice each year the permit is in effect, once in the spring and once in the late summer, or as otherwise directed in writing by an environmental protection officer.

SW (2) The permittee shall ensure that samples are taken from all downgradient surface water bodies within 1 km of the facility using generally-accepted sampling practice. Samples shall be taken concurrently with each groundwater sampling event or as otherwise directed in writing by an environmental protection officer.

3. All groundwater samples shall be analyzed for the following parameters:
   - Major ions (Calcium, Magnesium, Sodium, Potassium, Chloride, Sulphate, Nitrate Nitrogen, Nitrite Nitrogen, Phosphate)
   - Dissolved metals
   - Mercury
   - Hardness
   - Alkalinity
   - Carbonate
   - Bicarbonate
   - pH
   - Total dissolved solids
   - Ammonia
   - Dissolved organic carbon
   - Volatile organic compounds
   - Chemical oxygen demand
   - Total Kjeldahl nitrogen
   - EPH_{W10-19} (Extractable Petroleum Hydrocarbons in Water, C10-C19)
   - VH_{W6-10} (Volatile Petroleum Hydrocarbons in Water, C6-C10)
   - BTEX (Benzene, Toluene, Ethylbenzene, and Total Xylenes)
   - PAHs (Polycyclic Aromatic Hydrocarbons)
   - Faecal coliforms (for those sites at which biosolids or liquids are deposited)

4. All surface water samples shall be analyzed for the following parameters:
   - Major ions (Calcium, Magnesium, Sodium, Potassium, Chloride, Sulphate, Nitrate Nitrogen, Nitrite Nitrogen, Phosphate)
   - Total metals
   - Mercury
   - Hardness
   - Alkalinity
   - Carbonate
   - Bicarbonate
   - pH
   - Total dissolved solids
   - Ammonia
   - Dissolved organic carbon
   - Chemical oxygen demand
   - Biochemical oxygen demand
   - Total Kjeldahl nitrogen
   - EPH_{W10-19} (Extractable Petroleum Hydrocarbons in Water, C10-C19)
   - VH_{W6-10} (Volatile Petroleum Hydrocarbons in Water, C6-C10)
   - BTEX (Benzene, Toluene, Ethylbenzene, and Total Xylenes)
   - PAHs (Polycyclic Aromatic Hydrocarbons)
   - Faecal coliforms (for those sites at which biosolids or liquids are deposited)

5. All water samples required by this permit shall be analyzed at a laboratory that is accredited as conforming to ISO/IEC 17025 by an accrediting body that conforms to ISO/IEC 17011.

6. The results of the analyses required under sections 2.6.3 and 2.6.4 shall be submitted to the Branch by January 31st of the year following that in which the samples were taken.

7. If water quality monitoring reveals that surface or groundwater downgradient of the facility contains contaminants in excess of the standards in the *Contaminated Sites Regulation*, the permittee shall conduct additional monitoring or develop and implement an adaptive management plan to address the contamination, as directed in writing by an environmental protection officer.

PART 3. SPECIAL WASTE

3.1 STORAGE AND HANDLING

1. The permittee shall not handle special wastes other than listed special wastes.

2. The permittee shall not discard, destroy, treat, process, incinerate, or recycle special wastes, except for mixing or dilution authorized by an environmental protection officer pursuant to section 3.1.3(k) below.

3. The permittee shall:
   a) cover or store out of inclement weather all drums and other portable containers containing special wastes;
   b) store all drums and other portable containers containing special wastes off the ground;
   c) immediately remove all special wastes stored in leaking containers or transfer them to intact containers;
   d) to the extent practicable, handle and store special wastes separately from solid waste;
   e) store special wastes in a manner that will prevent incompatible substances from reacting adversely with each other;
   f) post signs identifying examples of common special wastes and phone number(s) and/or website(s) with information on appropriate disposal options for those materials, whether or not those materials are collected onsite;
   g) ensure that all containers used for the storage of special waste are clearly marked to identify what special waste the container is intended to hold;
   h) ensure that containers used for the storage of special waste are made of materials that will not adversely react with the special waste;
   i) not allow any residue at the bottom of a container used for the storage of special wastes to be released to the environment. Such residue shall be collected by the permittee, separated from other waste and treated as a special waste until proven by testing to not be special waste;

j) not mix waste oil from piston engine aircraft with other waste oil;
k) only mix or dilute a special waste with any other material where such mixing or dilution is authorized by an environmental protection officer from the Branch as an acceptable treatment/disposal option for the special waste;
l) keep all containers used to store special waste closed at all times during storage and shall not open, handle or store the container in a manner which may cause it to leak or rupture; and
m) shall have every closed container that
    (i) has a capacity of more than 230 litres;
    (ii) is designed to be installed in a fixed location; and
    (iii) will contain special waste
certified by a testing agency recognized by the Standards Council of Canada prior to putting special waste in the container.

3.2 TRANSPORT AND TRANSFER

1. The permittee shall complete a waste manifest documenting each shipment of special wastes from the site. The permittee shall distribute copies of the waste manifest in the manner described thereon.

2. The permittee shall ensure that special wastes are transported to a permitted special waste management facility in the Yukon or another jurisdiction by a carrier permitted in the Yukon to receive and transport the special wastes.

3. The permittee shall ensure that all vehicles operated by the permittee and carrying any special wastes are secured to prevent access by unauthorized persons.

I, **Michael Riseborough**, certify that I am an authorized representative of the **Village of Haines Junction**, and that I have read and understood the terms and conditions of this permit.

Michael Riseborough, Authorized Representative
Village of Haines Junction

100311
Date

APPENDIX C

APPENDIX C MONITORING WELL LOGS

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW01
Haines Junction, YT	6740207N; 363116E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
0	SILT - some sand, trace clay, fine to medium grained sand, moist, firm, brown		G1			0
1			G2			5
2	- some to trace clay, trace fine sand, moist to wet		G3			
	- some clay					
3	- some sand, some gravel, no clay, very fine to medium grained sand, gravel is 5-20 mm, subrounded to angular		G4			10
4						
5						15
6			G5			20
	- medium brown					
7			G6			25
8						
9			G7			30
10						
11	- very fine to coarse grained sand, moist, dark brown					35
	- trace clay, damp		G8			
12						40
13	- trace gravel					
14			G9			45
15						50
16						
			G10			55
17						
18						60
	- dark greyish brown, damp to moist		G11			
19						
20						65
21	- some sand to sandy, no clay, gravel is 5-15 mm, damp					69

EBA Engineering Consultants Ltd.

LOGGED BY: BW	COMPLETION DEPTH: 38.4m
REVIEWED BY: RMM	COMPLETE: 10/15/2010
DRAWING NO:	Page 1 of 2

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW01
Haines Junction, YT	6740207N; 363116E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
21			G12			70
22						
23						75
24	SAND - some gravel, some silt, well graded sand, gravel is 5-20 mm, subangular to angular, damp, light grey		G13			80
25	SAND and GRAVEL - some silt, very fine to coarse grained sand, gravel is 5-20 mm, subangular to angular, damp, light grey		G14			
26						85
27						
28	SAND - silty, some gravel, very fine to coarse grained sand, gravel is 5-20 mm, subangular to angular, damp, light grey		G15			90
29	- trace gravel, gravel is 5 mm, moist, dark brown		G16			95
30	SAND and GRAVEL - fine to very coarse grained sand, gravel is 5-10 mm, wet, dark brown					
31	SAND - trace gravel, fine to very coarse grained sand, gravel is 5-10 mm, wet, dark brown		G17			100
32	SAND - some silt, very fine to medium grained sand, wet, grey					105
33			G18			
34	- silty					110
35			G19			
36	- sandy, very fine to fine grained sand, grey SILT - sandy, very fine to fine grained sand, wet, dark grey		G20			115
37						120
38			G21			
39	- saturated END OF BOREHOLE @ 38.4 m					125
40	*NOTE: These logs refect disturbed material recovered from drill return. Particle sizes and shapes (particularly gravel) are affected by drilling process. Cobbles and boulders if present are not indicated through this drilling method. Moisture content is effected by the use of air to recover drill material.*					130
41						135
42						138

EBA Engineering Consultants Ltd.	LOGGED BY: BW	COMPLETION DEPTH: 38.4m
	REVIEWED BY: RMM	COMPLETE: 10/15/2010
	DRAWING NO:	Page 2 of 2

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW02
Haines Junction, YT	6739945N; 363298E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
0	SILT - some to trace clay, moist, stiff, organics, medium brown		G1			0
1	- some sand, trace gravel, trace clay, very fine to coarse grained sand, gravel is 5-10 mm, subangular to angular, dry to damp, firm, light brown		G2			
2			G3			5
3	- dark brown - some gravel, very fine to coarse grained sand, gravel is 5-15 mm, damp					10
4						
5	SAND and GRAVEL - some silt, well graded sand, gravel is 5-30 mm, dry, light grey		G4 G5			15
6	SAND and SILT - some gravel, well graded sand, gravel is 5-15 mm, subrounded to angular, damp, yellow brown		G6			20
7	SILT - sandy, some gravel, well graded sand, gravel is 5-15 mm, subrounded to angular, damp, yellow brown		G7			
8	- trace gravel, gravel is 5 mm		G8			25
9	- some sand, some gravel, very fine to coarse grained sand, gravel is 5-20 mm, medium brown					30
10			G9			
11						35
12						
13						40
14			G10			45
15						
16	- trace sand, trace clay, trace gravel, damp, dark brown		G11			50
17	- some sand, some gravel, no clay, very fine to coarse grained sand, gravel is 5-10 mm, damp to moist, medium brown - some to trace sand					55
18						
19			G12			60
20			G13			65
21						
22						70
23			G14			75
24						
25	- trace clay		G15			80
26						85
27						89

EBA Engineering Consultants Ltd.

LOGGED BY: BW	COMPLETION DEPTH: 47.2m
REVIEWED BY: RMM	COMPLETE: 10/17/2010
DRAWING NO:	Page 1 of 2

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW02
Haines Junction, YT	6739945N; 363298E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
27						90
28			G16			
29	- no clay					95
30						
31			G17			100
32						
33						105
34			G18			
35						110
36						
37			G19			115
38						
39			G20			120
40	SILT and SAND - some gravel, very fine to medium grained sand, gravel is 5-10 mm, subangular to angular, moist, stiff, light grey		G21			125
41						
42	- firm		G22			130
43						
44			G23			135
45						
46	SAND and GRAVEL - silty to some silt, very fine to coarse grained sand, saturated		G24 G25			140
47						
48	END OF BOREHOLE @ 47.5 m					145
49	*NOTE: These logs refect disturbed material recovered from drill return. Particle sizes and shapes (particularly gravel) are affected by drilling process. Cobbles and boulders if present are not indicated through this drilling method. Moisture content is effected by the use of air to recover drill material.*					150
50						
51						155
52						
53						160
54						
						165
						170
						175
						177

EBA Engineering Consultants Ltd.

LOGGED BY: BW	COMPLETION DEPTH: 47.2m
REVIEWED BY: RMM	COMPLETE: 10/17/2010
DRAWING NO:	Page 2 of 2

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW03
Haines Junction, YT	6739803N; 363094E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
0	SILT - some sand, poorly graded, wet, firm, brown		G1			0
1	SAND - uniformly graded, fine grained sand, moist, yellow brown		G2			
2	- trace gravel, gravel is 5-25 mm, angular, very loose		G3			5
3	SILT - some gravel, some sand, well graded sand, gravel is 5-20 mm, subrounded, angular, moist, brown		G4			10
4	SAND and SILT - trace to some gravel, well graded sand, gravel is 5-15 mm, subrounded, angular, moist, brown		G5			
5	SILT - sandy, some gravel, well graded sand, gravel is 5-15 mm, subangular to angular, damp, brown		G6			15
6	- damp		G7			20
7	- trace sand					
8	- some sand, fine to medium grained sand, gravel is 5-10 mm, subrounded to angular		G8			25
9						30
10			G9			
11						35
12			G10			40
13						
14	- moist to wet, grey brown		G11			45
15						50
16			G12			
17						55
18						60
19			G13			
20			G14			65
21						70
22						
23			G15			75
24						80
25						82

EBA Engineering Consultants Ltd.

LOGGED BY: BW	COMPLETION DEPTH: 41.9m
REVIEWED BY: RMM	COMPLETE: 10/13/2010
DRAWING NO:	Page 1 of 2

2010 Monitoring Well Program	CLIENT: YG - Department of Community Services	PROJECT NO. - BOREHOLE NO.
Haines Junction Landfill	DRILL: Geotech MST-Odex	W23101317-HJ-MW03
Haines Junction, YT	6739803N; 363094E; Zone 8	

SAMPLE TYPE: DISTURBED | NO RECOVERY | SPT | A-CASING | SHELBY TUBE | CORE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

Depth (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	NOTES & COMMENTS	Monitoring well	Depth (ft)
25						
26	- trace gravel, well graded sand, gravel is 5-20 mm, moist, grey		G16			85
27	- some gravel		G17			
28						90
29						95
30						
31						100
32	- dark grey		G18			105
33						
34			G19			110
35						115
36						
37						120
38	GRAVEL - some sand, fine to coarse grained sand, gravel is 5-20 mm, moist, grey		G20			125
39	SILT and SAND - some gravel, fine to medium grained sand, gravel is 5-15 mm, subangular, stiff, moist, light grey		G21			
40	SILT - some gravel, some sand, fine to coarse grained sand, gravel is 5-20 mm, moist, dark grey		G22			130
41	SILT and SAND - some gravel, well graded sand, gravel is 5-15 mm, subrounded to angular, moist, dark grey		G23			135
42	SAND and GRAVEL - some silt, well graded sand, gravel is 5-25 mm, subangular to angular, saturated, medium grey		G24			
43	END OF BOREHOLE @ 41.9 m *NOTE: These logs refect disturbed material recovered from drill return. Particle sizes and shapes (particularly gravel) are affected by drilling process. Cobbles and boulders if present are not indicated through this drilling method. Moisture content is effected by the use of air to recover drill material.*					140
44						
45						145
46						
47						150
48						155
49						
50						160
						164

APPENDIX D

APPENDIX D GROUNDWATER WELL DEVELOPMENT LOGS

Groundwater Development and Purging/Sampling Sheet

☑ Development
☐ Purge/Sample

WELL NO.: HJ-MW03
LOCATION: Haines Junction
WEATHER: sun + cloud.
TEMPERATURE: -2

JOB NO.: W2310317.007
COMPLETED BY: Breanne
DATE: Oct 17, 2010
TIME: 1pm

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 32.53 (metres)
Depth to Bottom of Well Below Top of Casing: B 42.8 (metres)
Diameter Standpipe: C 2" (mm)

One well volume: 10 2 5
(B-A)*2.0 = 46.2 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = — litres -for a 38mm (1.5 inch) diameter well
Product Thickness: — (by probe or paste?)

EQUIPMENT LIST

problems calibrating, wouldn calibrate #

pH and Temp. Meter: Model EBA Hana I Serial No. — Calibration Buffers: ☐ 4 ☐ 7 ☐ 10
Conductivity Meter: Model — Serial No. — Calibration Solutions: — and —
Dissolved Oxygen Meter: Model EBA Oakton I Serial No. —
Turbidity Meter: Model — Serial No. —

Pump:	☐	none	☐	Waterra	☐	Peristaltic	☐	Submersible
Bailer:	☐	none	☐	Stainless Steel	☐	Teflon	☑	PVC polyethylene bailer
Filter:	☐	none	☐	Waterra in-line	☐	Vacuum (disposal)	☐	Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 volumes = 138 litres Method: Hand bailer
Flow Rate — L/min Volume: — Start: — Finish: —

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.02 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
1:02	1L		2.2	7.28	3225		1.43	clear
1:20	15L		1.8	8.47	3294		1.5	"
1:36	30L		2.0	9.25	3451		1.7	"
1:52	45L	|	1.8	7.12	3456		1.98	"
2:10	65L	|	1.6	7.12	3372		2.07	"

Comments (Recovery rate, etc.):

SAMPLING

Water Odour: ☐ no ☐ yes (describe) — Sheen ☐ no ☐ yes (describe) —
Turbidity: — NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other:
NAPL Information (odour, colour, etc.)

BOTTLE					Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
2	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
3	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
4	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
5	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
6	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
7	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	
8	☐	Plastic	☐	Glass		—	—	—	—	—	—	—	☐ Yes	☐ No	

Groundwater Development and Purging/Sampling Sheet

☑ Development
☐ Purge/Sample

WELL NO.: HJ-MW01
LOCATION: Haines Junction
WEATHER: sun + clouds
TEMPERATURE: -2

JOB NO.: W2310317.004
COMPLETED BY: Breanne
DATE: Oct 17, 2010
TIME: 10am

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 3.474 (metres)
Depth to Bottom of Well Below Top of Casing: B 39.3 (metres)
Diameter Standpipe: C 2" (mm)

One well volume:
(B-A)*2.0 = 4.8 - 3.5 = 21 L litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = ~ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model EBA Hand Serial No. – Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model – Serial No. – Calibration Solutions: – and –
Dissolved Oxygen Meter: Model EBA Oakton Serial No. –
Turbidity Meter: Model – Serial No. –

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☑ PVC polyethylene
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 21 3 volumes = 63 litres Method: Hand bailer
Flow Rate – L/min Volume: – Start: – Finish: –

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.02 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
10:10	1L		1.9	7.85	1478		2.73	Brown, murky
10:25	10L		1.8	7.6	1728		2.88	very brown
10:36	20L		1.8	7.88	1399		2.68	"
10:50	30L		2.1	7.93	2143		2.64	"
~~10~~ 11:03	40L		1.8	8.01	2460		2.45	"
11:15	50L		1.8	8.01	2470		2.41	"

Comments (Recovery rate, etc.):

SAMPLING Water Odour: ☐ no ☐ yes (describe) _____ Sheen ☐ no ☐ yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other:
NAPL Information (odour, colour, etc.)

BOTTLE					Size: 40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	☐	Plastic	☐	Glass								☐ Yes	☐ No	
2	☐	Plastic	☐	Glass								☐ Yes	☐ No	
3	☐	Plastic	☐	Glass								☐ Yes	☐ No	
4	☐	Plastic	☐	Glass								☐ Yes	☐ No	
5	☐	Plastic	☐	Glass								☐ Yes	☐ No	
6	☐	Plastic	☐	Glass								☐ Yes	☐ No	
7	☐	Plastic	☐	Glass								☐ Yes	☐ No	
8	☐	Plastic	☐	Glass								☐ Yes	☐ No	

Groundwater Development and Purging/Sampling Sheet

☑ Development
☐ Purge/Sample

WELL NO.: HJ-MW02
LOCATION: Haines Junction
WEATHER: Sunny
TEMPERATURE: -5

JOB NO.: W2301317.004
COMPLETED BY: Breanne
DATE: Oct 19
TIME: 8:00am

155 ÷ 3.282 = 47.24

MONITORING WELL INFORMATION

One well volume:

Depth to Water Below Top of Casing: A 38.305 (metres)
Depth to Bottom of Well Below Top of Casing: B 48.69 (metres)
Diameter Standpipe: C 2" (mm)

(B-A) 9.5, 4.5 = 43L litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = ~~(B-A)*1.1 =~~ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: – (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model EBA Hanna Serial No. – Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model – Serial No. – Calibration Solutions: – and –
Dissolved Oxygen Meter: Model EBA Oakton Serial No. –
Turbidity Meter: Model – Serial No. –

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☑ PVC polyethylene
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 43 3 volumes = 128 litres Method: Hand bailer
Flow Rate – L/min Volume: – Start: – Finish: –

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.02 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
8:03	1L		1.80	8.73	2814		1.78	clear
8:25	15L		1.90	7.12	3995		1.51	"
8:46	30L		2.1	7.12	3999		0.7	slightly murky
9:01	45L		2.0	7.12	3999		0.62	very murky

Comments (Recovery rate, etc.):

SAMPLING

Water Odour: ☐ no ☐ yes (describe) _____ Sheen ☐ no ☐ yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other:
NAPL Information (odour, colour, etc.)

BOTTLE				Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	☐	Plastic	☐ Glass									☐ Yes	☐ No	
2	☐	Plastic	☐ Glass									☐ Yes	☐ No	
3	☐	Plastic	☐ Glass									☐ Yes	☐ No	
4	☐	Plastic	☐ Glass									☐ Yes	☐ No	
5	☐	Plastic	☐ Glass									☐ Yes	☐ No	
6	☐	Plastic	☐ Glass									☐ Yes	☐ No	
7	☐	Plastic	☐ Glass									☐ Yes	☐ No	
8	☐	Plastic	☐ Glass									☐ Yes	☐ No	

APPENDIX E

APPENDIX E GROUNDWATER SAMPLING FIELD SHEETS

Groundwater Development and Purging/Sampling Sheet

☐ Development
☑ Purge/Sample

WELL NO.: HJ - MW09 | JOB NO.: W2310317.007
LOCATION: Haines Junction | COMPLETED BY: Breanne Kristen
WEATHER: - cloudy | DATE: Dec 6, 2023
TEMPERATURE: -10 | TIME: 10:15

from installation report: 38.4 mbgs + SU = 84.7 = 39.24

MONITORING WELL INFORMATION

One well volume: 4.5

Depth to Water Below Top of Casing:	A	~~38.76~~ 35.78 (metres)	(B-A)*2.0 =	15.57 litres	-for a 51mm (2.0 inch) diameter well
Depth to Bottom of Well Below Top of Casing:	B	39.24 (metres)	~~(B-A)*1.1~~ =	— litres	-for a 38mm (1.5 inch) diameter well
Diameter Standpipe:	C	2" (mm)	Product Thickness:	—	(by probe or paste?)

B-A = 3.46 m

EQUIPMENT LIST

pH and Temp. Meter: Model Hanna #2 Serial No. EBA Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model — Serial No. — Calibration Solutions: — and —
Dissolved Oxygen Meter: Model Oakton #2 Serial No. EBA
Turbidity Meter: Model Hanna #2 Serial No. EBA

Pump:	☐	none	☑	Waterra	☐	Peristaltic	☐	Submersible
Bailer:	☐	none	☐	Stainless Steel	☐	Teflon	☐	PVC
Filter:	☐	none	☐	Waterra in-line	☐	Vacuum (disposal)	☐	Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 15.57 x 3 volumes = 46 litres Method: waterra pump
Flow Rate — L/min Volume: — Start: 12:20 pm Finish: 1:30 pm

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.02 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
12:20	1L	869	0	7.86	1847	too turbid.	4.3	dark brown
12:35	15L	605	0.1	7.98	1400	"	6.0	"
12:50	30L	108	0.4	8.11	220	"	7.9	"
	40L	14 CA	0.7	8.22	~~2000~~ 2818	"	16.7	" water coming out very slowly
		Note: slow						
		freezing.						

Comments (Recovery rate, etc.):

SAMPLING

Water Odour: ☑ no ☐ yes (describe) _____ Sheen ☑ no ☐ yes (describe) _____
Turbidity: — NTU → error Clear: 1 2 3 4 5 6 7 8 9 (10) Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: very turbid, sample bottles filled ½ w/ sediment
NAPL Information (odour, colour, etc.) – samples bubbled when HCl or H_2SO_4 was added

BOTTLE					Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
BTEX	1	☐	Plastic	☑	Glass	3	—	—	—	—	—	—	☐ Yes	☑ No	BTEX
	2	☐	Plastic	☑	Glass	—	—	—	—	1	— broken put into 500mL Bottle	—	☐ Yes	☑ No	unpreserved
	3	☑	Plastic	☐	Glass	—	—	—	1	—	—	—	☐ Yes	☑ No	unpreserv
DOC	4	☑	Plastic	☐	Glass	—	—	1	—	—	—	—	☐ Yes	☑ No	unpres
TKN COD	5	☑	Plastic	☐	Glass	—	—	1	—	—	—	—	☑ Yes	☐ No	H_2SO_4
NH4	6	☑	Plastic	☐	Glass	—	~~25~~ 9	1	—	—	—	—	☑ Yes	☑ No	H_2SO_4
NH4	7	☑	Plastic	☐	Glass	—	—	1	—	—	—	—	☐ Yes	☑ No	HCl
Metals	8	☑	Plastic	☐	Glass	—	—	1	—	—	—	—	☐ Yes	☐ No	

when HCl + H_2SO_4 added bubbled.

taken 125 mL filtered off Nitric acid

Groundwater Development and Purging/Sampling Sheet

☐ Development
☑ Purge/Sample

WELL NO.: HJMW02
LOCATION: Haines Junction
WEATHER: cloudy
TEMPERATURE: -10

JOB NO.: W2310317.007
COMPLETED BY: Breanne / Kristen
DATE: Dec 6 + Dec 7 am
TIME: 5:10 pm

47.2 mbgs
diesel

MONITORING WELL INFORMATION

One well volume: 3.5

Depth to Water Below Top of Casing: A 38.65 (metres)
Depth to Bottom of Well Below Top of Casing: B 48.04 (metres)
Diameter Standpipe: 2" (mm)
B - A = 9.39 m

(B-A)*2.8 = 42 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = — litres -for a 38mm (1.5 inch) diameter well
Product Thickness: — (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model Hanna #2 Serial No. EBA Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model — Serial No. — Calibration Solutions: — and —
Dissolved Oxygen Meter: Model Dakton #2 Serial No. EBA
Turbidity Meter: Model Hanna #2 Serial No. EBA

Pump:	☐	none	☑	Waterra	☐	Peristaltic	☐	Submersible
Bailer:	☐	none	☐	Stainless Steel	☐	Teflon	☐	PVC
Filter:	☐	none	☐	Waterra in-line	☐	Vacuum (disposal)	☐	Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol (42) x ~~4~~ 3 volumes = 127 L litres Method: Waterra pump
Flow Rate — L/min Volume: — Start: Dec 6 5:10 Finish: 7 pm
Dec 7 9:00

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.02 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
5pm	1L	7007	0	7.92	1463	Error	44.3	clear
9:37	40	2000	0.1	8.11	3Gaq	"	10.6	clear, slight grey
9:45	80	2000	0.9	8.04	3Gaq	"	7.8	" "
9:55	120	2000	1.4	8.23	3Gaq	"	7.7	" "
								" "
	recover too fast to take water level after each holding							
	volume							

Comments (Recovery rate, etc.):

SAMPLING

Water Odour: ☑ no ☐ yes (describe) _____ Sheen ☑ no ☐ yes (describe) _____
Turbidity: — NTU
or 1 – 10 relative scale (circle as appropriate): Clear: 1 2 3 (4) 5 6 7 8 9 10 Very Silty
Other:
NAPL Information (odour, colour, etc.)

BOTTLE					Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
BTEX 1	☐	Plastic	☑	Glass		3	—	—	—	—	—	—	☐ Yes	☑ No	BTEX
2	☐	Plastic	☑	Glass		—	—	—	—	1	—	—	☐ Yes	☑ No	—
3	☑	Plastic	☐	Glass		—	—	—	1	—	—	—	☐ Yes	☑ No	—
DOC 4	☑	Plastic	☐	Glass		—	—	1	—	—	—	—	☐ Yes	☑ No	UN.
Nut 5	☑	Plastic	☐	Glass		—	—	1	—	—	—	—	☐ Yes	☑ No	HCl
Nut 6	☑	Plastic	☐	Glass		—	—	1	—	—	—	—	☐ Yes	☑ No	H_2SO_4
COD 7	☑	Plastic	☐	Glass		—	—	1	—	—	—	—	☐ Yes	☐ No	H_2SO_4
Metals 8	☑	Plastic	☐	Glass		—	—	1	—	—	—	—	☑ Yes	☐ No	HNO_3

↳ after filter in 125m

Groundwater Development and Purging/Sampling Sheet

☐ Development
☑ Purge/Sample

WELL NO.: HJ-MW03 (paint shed) | JOB NO.: W2301317.007
LOCATION: Haines Junction | COMPLETED BY: Breanne + Kristen
WEATHER: Cloudy | DATE: Dec 6
TEMPERATURE: -10 | TIME: 2:30

42.41 bgs + BS 34 = 42.75

MONITORING WELL INFORMATION

One well volume:

Depth to Water Below Top of Casing: A 32.63 (metres) (B-A)*2.0 = 45.4 litres -for a 51mm (2.0 inch) diameter well
Depth to Bottom of Well Below Top of Casing: B 42.75 (metres) (B-A)*1.1 = ____ litres -for a 38mm (1.5 inch) diameter well
Diameter Standpipe: C ____ (mm) Product Thickness: ____ (by probe or paste?)
B-A = 10.12 m

EQUIPMENT LIST

pH and Temp. Meter: Model Hanna #2 Serial No. EBA Calibration Buffers: ☑ 4 ☑ 7 ☐ 10
Conductivity Meter: Model – Serial No. – Calibration Solutions: – and –
Dissolved Oxygen Meter: Model Oakton #2 Serial No. EBA
Turbidity Meter: Model Hanna #2 Serial No. EBA

Pump:	☐ none	☑ Waterra	☐ Peristaltic	☐ Submersible		
Bailer:	☐ none	☐ Stainless Steel	☐ Teflon	☐ PVC		
Filter:	☐ none	☐ Waterra in-line	☐ Vacuum (disposal)	☐ Vacuum (re-usable)		

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 volumes = 136 litres Method: Waterra pump
Flow Rate – L/min Volume: – Start: 2 Finish: 5
(2 a error)

TIME	VOLUME REMOVED (L)	ORG. VAP. (PPM)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TURBIDITY (NTU)	DIS.O2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
3:20	1L	1690	0	8.9	3159	–	16.2	dark brown, murky
3:35	40L	1669	0.8	8.1	3345	error	3.7	slightly milky
3:50	80L	1672	0.9	8.16	3339	error	8	clear - murky
4:04	120L	1681	1.2	8.12	3330	error	14.8	" "

Comments (Recovery rate, etc.):

SAMPLING Water Odour: ☑ no ☐ yes (describe) ____ Sheen ☑ no ☐ yes (describe) ____
Turbidity: – NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: QC01 (to exova), QC02 (to maxxam)
NAPL Information (odour, colour, etc.) QC01 - trip blank (filled up w/ DI water in lab

BOTTLE				Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	☐ Plastic	☑ Glass			3							☐ Yes	☑ No	4
2	☐ Plastic	☑ Glass							1			☐ Yes	☑ No	
DOC 3	☑ Plastic	☐ Glass					1					☐ Yes	☑ No	4
COD 4	☑ Plastic	☐ Glass					1					☐ Yes	☑ No	H_2SO_3
Nut 5	☑ Plastic	☐ Glass					1					☐ Yes	☑ No	HCl
Nut 6	☑ Plastic	☐ Glass					1					☐ Yes	☑ No	H_2SO_3
Met 7 125ml	☑ Plastic	☐ Glass					1	- in lab filter into 125 mL + HNO_3				☑ Yes	☐ No	HNO_3
Cooling 8	☑ Plastic	☐ Glass						1				☐ Yes	☑ No	

filter.

QC01 - Field split to exova - Nutrients, Metals, DOC, COD
QC02 - Inter lab - Maxxam " " unp. HCl, H_2SO_4, filter + HNO_3

APPENDIX F

APPENDIX F LABORATORY ANALYTICAL RESULTS

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Report Transmission Cover Page

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID: **778356**
Control Number:
Date Received: Dec 8, 2010
Date Reported: Jan 10, 2011
Report Number: 1400028

Contact & Affiliation	Address	Delivery Commitments
Adam Seeley EBA Engineering Consultants Ltd -	Unit 6, 151 Industrial Road Whitehorse, Yukon Territory Y1A 2V3 Phone: (867) 668-3068 Fax: (867) 668-4349 Email: aseeley@eba.ca	On [Lot Verification] send (COA) by Email - Merge Reports On [Report Approval] send (Test Report) by Email - Multiple Reports On [Report Approval] send (COC, Test Report) by Email - Merge Reports On [Report Approval] send (Test Report) by Email - Single Report On [Report Approval] send (Test Report) by Email - Multiple Reports On [Report Approval] send (Test Report) by Email - Multiple Reports On [Report Approval] send (COC, Test Report) by Email - Merge Reports On [Report Approval] send (Test Report) by Email - Single Report On [Report Approval] send (Test Report) by Email - Multiple Reports On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Merge Reports

Notes To Clients:

- Report was re-issued to correct the titanium result on 778356-1 to 4 previously reported on Test Report 1394453. Report 1400028 replaces report 1394453.
- 778356-1 to 4: the repeated result for titanium analysis analysis differs significantly from the original. The cause of the difference is matrix interferences, repeat results reported from a different method.
- pH analysis was performed past the recommended holding time of 15 minutes from sample collection.

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Sample Custody

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Sample Disposal Date: March 15, 2011

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the top of this page.

☐ Extend Sample Storage Until _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for an additional 30 days	$ 2.50 per sample
Storage for an additional 60 days	$ 5.00 per sample
Storage for an additional 90 days	$ 7.50 per sample

☐ Return Sample, collect, to the address below via:

- ☐ Greyhound
- ☐ DHL
- ☐ Purolator
- ☐ Other (specify) _____

Name _____
Company _____
Address _____
_____
Phone _____
Fax _____

Signature _____

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Reference Number	778356-1	778356-2	778356-3	
Sample Date	Dec 06, 2010	Dec 07, 2010	Dec 06, 2010	
Sample Time	NA	NA	NA	
Sample Location				
Sample Description	HJ-MW01	HJ-MW02	HJ-MW03	
Matrix	Water	Water	Water	
Analyte	**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Aggregate Organic Constituents					
Chemical Oxygen Demand	mg O2/L	120	30	60	10
Inorganic Nonmetallic Parameters					
Ammonium - N	mg/L	0.94	0.44	0.37	0.05
Kjeldahl Nitrogen Total	mg/L	9.5	0.74	0.60	0.06
Phosphorus Total	mg/L	109	0.93	0.41	0.05
Orthophosphate-P Dissolved	mg/L	0.05	0.11	0.09	0.01
Organic Carbon Dissolved Nonpurgeable	mg/L	3.8	3.6	3.3	0.5
Metals Dissolved					
Sulfur Dissolved	mg/L	632	1060	737	0.2
Physical and Aggregate Properties					
Solids Total Dissolved	mg/L	2930	5020	3420	5
Routine Water					
Nitrate - N	mg/L	<0.05	<0.05	<0.05	0.01
Nitrite - N	mg/L	<0.02	<0.02	<0.02	0.005
Nitrate and Nitrite - N	mg/L	<0.07	<0.07	<0.07	0.01
pH @ 25 °C		7.87	7.74	7.86	
Calcium Dissolved	mg/L	319	339	218	0.1
Magnesium Dissolved	mg/L	206	526	400	0.1
Phosphorus Dissolved	mg/L	0.01	<0.01	0.02	0.01
Potassium Dissolved	mg/L	12.9	17.6	14.6	0.1
Silicon Dissolved	mg/L	3.32	6.94	6.73	0.05
Sodium Dissolved	mg/L	181	235	144	0.1
Bicarbonate	mg/L	910	100	140	5
Carbonate	mg/L	<6	<6	<6	6
Hydroxide	mg/L	<5	<5	<5	5
T-Alkalinity as CaCO3	mg/L	744	88	118	5
Chloride Dissolved	mg/L	5.8	5.0	3.8	0.02
Sulfate (SO4) Dissolved	mg/L	1890	3230	2060	0.05
Hardness as CaCO3	mg/L	1640	3010	2190	5
Salinity Dissolved	g/L	0.457	0.592	0.364	0.0001
Volatile Petroleum Hydrocarbons - Water					
VHw6-10	ug/L	<50	<50	<50	50
VPHw (VHw6-10 minus BTEX)	ug/L	<50	<50	<50	50
Extractable Petroleum Hydrocarbons - Water					
LEPHw	ug/L	<100	<100	<100	100
HEPHw	ug/L	<100	<100	<100	100

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Reference Number		778356-1	778356-2	778356-3	
Sample Date		Dec 06, 2010	Dec 07, 2010	Dec 06, 2010	
Sample Time		NA	NA	NA	
Sample Location					
Sample Description		HJ-MW01	HJ-MW02	HJ-MW03	
Matrix		Water	Water	Water	
Analyte	**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Polycyclic Aromatic Hydrocarbons - Water					
Acenaphthene	ug/L	<0.1	<0.1	<0.1	0.1
Acenaphthylene	ug/L	<0.1	<0.1	<0.1	0.1
Acridine	ug/L	<0.05	<0.05	<0.05	0.05
Anthracene	ug/L	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	ug/L	<0.01	<0.01	<0.01	0.01
Benzo(a)pyrene	ug/L	<0.01	<0.01	<0.01	0.01
Benzo(b)fluoranthene	ug/L	<0.01	<0.01	<0.01	0.01
Benzo(g,h,i)perylene	ug/L	<0.1	<0.1	<0.1	0.1
Benzo(k)fluoranthene	ug/L	<0.02	<0.02	<0.02	0.02
Chrysene	ug/L	<0.1	<0.1	<0.1	0.1
Dibenzo(a,h)anthracene	ug/L	<0.01	<0.01	<0.01	0.01
Fluoranthene	ug/L	<0.1	<0.1	<0.1	0.1
Fluorene	ug/L	<0.1	<0.1	<0.1	0.1
Indeno(1,2,3-c,d)pyrene	ug/L	<0.1	<0.1	<0.1	0.1
Naphthalene	ug/L	0.3	<0.1	<0.1	0.1
Phenanthrene	ug/L	<0.1	<0.1	<0.1	0.1
Pyrene	ug/L	<0.02	<0.02	<0.02	0.02
Quinoline	ug/L	<3.4	<3.4	<3.4	3.4
PAH - Water - Surrogate Recovery					
2-Fluorobiphenyl PAH - Surrogate	%	80	68	79	30-130
Nitrobenzene-d5 PAH - Surrogate	%	93	68	76	23-130
p-Terphenyl-d14 PAH - Surrogate	%	81	50	73	18-137
VOC Screen - Water					
Benzene	ug/L	<1	<1	<1	1
Bromodichloromethane	ug/L	<1	<1	<1	1
Bromoform	ug/L	<1	<1	<1	1
Bromomethane	ug/L	<10	<10	<10	10
Carbon Tetrachloride	ug/L	<1	<1	<1	1
Chlorobenzene	ug/L	<1	<1	<1	1
Chloroethane	ug/L	<10	<10	<10	10
2-Chloroethyl Vinyl Ether	ug/L	<1	<1	<1	1
Chloroform	ug/L	<1	<1	<1	1
Chloromethane	ug/L	<10	<10	<10	10
Dibromochloromethane	ug/L	<1	<1	<1	1
1,2-Dichlorobenzene	ug/L	<1	<1	<1	1
1,3-Dichlorobenzene	ug/L	<1	<1	<1	1

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Reference Number		778356-1	778356-2	778356-3	
Sample Date		Dec 06, 2010	Dec 07, 2010	Dec 06, 2010	
Sample Time		NA	NA	NA	
Sample Location					
Sample Description		HJ-MW01	HJ-MW02	HJ-MW03	
Matrix		Water	Water	Water	
Analyte	**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
VOC Screen - Water - Continued					
1,4-Dichlorobenzene	ug/L	<1	<1	<1	1
1,1-Dichloroethane	ug/L	<1	<1	<1	1
1,2-Dichloroethane	ug/L	<1	<1	<1	1
1,1-Dichloroethene	ug/L	<1	<1	<1	1
1,2-Dichloroethene(cis)	ug/L	<1	<1	<1	1
1,2-Dichloroethene(trans)	ug/L	<1	<1	<1	1
1,2-Dichloropropane	ug/L	<1	<1	<1	1
1,3-Dichloropropene(cis)	ug/L	<1	<1	<1	1
1,3-Dichloropropene(trans)	ug/L	<1	<1	<1	1
Ethylbenzene	ug/L	<1	<1	<1	1
Methylene Chloride	ug/L	<5	<5	<5	5
Styrene	ug/L	<1	<1	<1	1
1,1,2,2-Tetrachloroethane	ug/L	<1	<1	<1	1
Tetrachloroethene	ug/L	<1	<1	<1	1
Toluene	ug/L	<1	<1	<1	1
1,1,1-Trichloroethane	ug/L	<1	<1	<1	1
1,1,2-Trichloroethane	ug/L	<1	<1	<1	1
Trichloroethene	ug/L	<1	<1	<1	1
Trichlorofluoromethane	ug/L	<1	<1	<1	1
Vinyl Chloride	ug/L	<2	<2	<2	2
Xylene-m&p	ug/L	<1	<1	<1	1
Xylene-o	ug/L	<1	<1	<1	1
Total Xylenes (m,p,o)	ug/L	<1	<1	<1	1
VOC - Water - Surrogate Recovery					
Dibromofluoromethane EPA Surrogate	%	102	113	111	86-118
Toluene-d8 EPA Surrogate	%	101	102	102	85-115
Bromofluorobenzene EPA Surrogate	%	92	93	91	86-115
Trace Metals Dissolved					
Aluminum Dissolved	µg/L	<5	<5	<5	5
Antimony Dissolved	µg/L	11.2	<0.2	0.7	0.2
Arsenic Dissolved	µg/L	6.4	3.0	2.8	0.2
Barium Dissolved	µg/L	15	10	11	1
Beryllium Dissolved	µg/L	<0.04	<0.04	<0.04	0.04
Bismuth Dissolved	µg/L	<1	<1	<1	1
Boron Dissolved	µg/L	285	559	503	4
Cadmium Dissolved	µg/L	0.10	0.05	0.04	0.01

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Analytical Report

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

	Reference Number	778356-1	778356-2	778356-3	
	Sample Date	Dec 06, 2010	Dec 07, 2010	Dec 06, 2010	
	Sample Time	NA	NA	NA	
	Sample Location				
	Sample Description	HJ-MW01	HJ-MW02	HJ-MW03	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Trace Metals Dissolved - Continued						
Chromium	Dissolved	µg/L	<0.4	0.5	0.6	0.4
Cobalt	Dissolved	µg/L	1.37	0.94	0.84	0.02
Copper	Dissolved	µg/L	1	4	2	1
Iron	Dissolved	ug/L	17	99	5	10
Lead	Dissolved	µg/L	<0.1	<0.1	0.2	0.1
Lithium	Dissolved	µg/L	6	4	4	1
Manganese	Dissolved	ug/L	443	340	175	5
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Molybdenum	Dissolved	µg/L	113.8	12.4	17.9	0.1
Nickel	Dissolved	µg/L	10	5	4	1
Selenium	Dissolved	µg/L	1.5	1.2	1.1	0.6
Silver	Dissolved	µg/L	<0.01	<0.01	<0.01	0.01
Strontium	Dissolved	µg/L	3544	5888	3927	1.0
Tellurium	Dissolved	µg/L	<0.1	<0.1	<0.1	0.1
Thallium	Dissolved	µg/L	<0.01	0.01	0.03	0.01
Thorium	Dissolved	µg/L	<0.4	<0.4	<0.4	0.4
Tin	Dissolved	µg/L	0.2	1.2	0.4	0.1
Titanium	Dissolved	ug/L	<10	<10	<10	10
Uranium	Dissolved	µg/L	6.1	3.0	3.0	0.4
Vanadium	Dissolved	µg/L	0.5	1	1.4	0.1
Zinc	Dissolved	µg/L	2	4	4	1
Zirconium	Dissolved	µg/L	<0.1	<0.1	<0.1	0.1

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Reference Number	778356-4
Sample Date	Dec 06, 2010
Sample Time	NA
Sample Location	
Sample Description	QC01
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N		mg/L	0.34			
Nitrate - N		mg/L	<0.01			0.01
Metals Dissolved						
Sulfur	Dissolved	mg/L	686			0.2
Routine Water						
pH	@ 25 °C		7.87			
Calcium	Dissolved	mg/L	203			0.1
Magnesium	Dissolved	mg/L	370			0.1
Phosphorus	Dissolved	mg/L	<0.01			0.01
Potassium	Dissolved	mg/L	13.7			0.1
Silicon	Dissolved	mg/L	6.40			0.05
Sodium	Dissolved	mg/L	137			0.1
Hardness	as CaCO3	mg/L	2030			5
Salinity	Dissolved	g/L	0.346			0.0001
Volatile Petroleum Hydrocarbons - Water						
VHw6-10		ug/L	<50			50
VPHw (VHw6-10 minus BTEX)		ug/L	<50			50
Trace Metals Dissolved						
Aluminum	Dissolved	µg/L	<5			5
Antimony	Dissolved	µg/L	0.6			0.2
Arsenic	Dissolved	µg/L	2.4			0.2
Barium	Dissolved	µg/L	11			1
Beryllium	Dissolved	µg/L	<0.04			0.04
Bismuth	Dissolved	µg/L	<1			1
Boron	Dissolved	µg/L	500			4
Cadmium	Dissolved	µg/L	0.04			0.01
Chromium	Dissolved	µg/L	0.7			0.4
Cobalt	Dissolved	µg/L	0.77			0.02
Copper	Dissolved	µg/L	1			1
Iron	Dissolved	ug/L	7			10
Lead	Dissolved	µg/L	<0.1			0.1
Lithium	Dissolved	µg/L	4			1
Manganese	Dissolved	ug/L	167			5
Mercury	Total Dissolved	ug/L	<0.01			0.01
Molybdenum	Dissolved	µg/L	17.0			0.1
Nickel	Dissolved	µg/L	4			1

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Reference Number	778356-4
Sample Date	Dec 06, 2010
Sample Time	NA
Sample Location	
Sample Description	QC01
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Trace Metals Dissolved - Continued						
Selenium	Dissolved	µg/L	1			0.6
Silver	Dissolved	µg/L	<0.01			0.01
Strontium	Dissolved	µg/L	3704			1.0
Tellurium	Dissolved	µg/L	<0.1			0.1
Thallium	Dissolved	µg/L	0.03			0.01
Thorium	Dissolved	µg/L	<0.4			0.4
Tin	Dissolved	µg/L	<0.1			0.1
Titanium	Dissolved	ug/L	<10			10
Uranium	Dissolved	µg/L	3.0			0.4
Vanadium	Dissolved	µg/L	1.3			0.1
Zinc	Dissolved	µg/L	2			1
Zirconium	Dissolved	µg/L	<0.1			0.1

Approved by:

Andrew Garrard, BSc
General Manager

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Aggregate Organic Constituents

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Chemical Oxygen Demand	mg/L	0	-5	6	yes
Date Acquired: December 09, 2010					

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Chemical Oxygen Demand	mg/L	100.48	95	107	yes
Date Acquired: December 09, 2010					
Chemical Oxygen Demand	mg/L	100.28	70	130	yes
Date Acquired: December 09, 2010					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Chemical Oxygen Demand	mg O2/L	40	36	27	45	yes
Date Acquired: December 09, 2010						

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Chemical Oxygen Demand	mg O2/L	<10	10	30	50	yes
Date Acquired: December 09, 2010						

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Ammonium - N	ug/L	-66.957	-110.00	10.00	yes
Date Acquired: December 10, 2010					
Ammonium - N	mg/L	0	-0.05	0.05	yes
Nitrogen	mg/L	0.03375	-0.06	0.06	yes
Phosphorus	mg/L	-0.008	-0.05	0.05	yes
Orthophosphate-P	mg/L	0.004	-0.05	0.05	yes
Organic Carbon	mg/L	-0.45	-0.5	0.5	yes
Date Acquired: December 13, 2010					

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Ammonium - N	ug/L	99.98	85	115	yes
Date Acquired: December 10, 2010					
Ammonium - N	ug/L	101.26	70	130	yes
Date Acquired: December 10, 2010					
Nitrite - N	mg/L	96.00	90	110	yes
Nitrate and Nitrite - N	mg/L	92.27	90	110	yes
Date Acquired: December 09, 2010					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonia - N	mg/L	0.6		0.00	0.00	yes
Ammonium - N	mg/L	0.60	0.62	0.52	0.72	yes
Nitrate - N	mg/L	0.62	0.65	0.55	0.75	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID: **778356**
Control Number:
Date Received: Dec 8, 2010
Date Reported: Jan 10, 2011
Report Number: 1400028

Inorganic Nonmetallic Parameters - Continued

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Nitrate and Nitrite - N	mg/L	0.63	0.65	0.55	0.75	yes
Date Acquired: December 09, 2010						
Nitrate - N	mg/L	0.15	0.00	-0.15	0.15	yes
Nitrite - N	mg/L	1.20	1.192	1.040	1.340	yes
Nitrate and Nitrite - N	mg/L	1.35	1.19	0.89	1.49	yes
Date Acquired: December 09, 2010						

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonium - N	mg/L	5950	5970	10	0.10	yes
Nitrogen	mg/L	6.54	6.44	10	0.06	yes
Phosphorus	mg/L	4.67	4.27	10	0.20	yes
Orthophosphate-P	mg/L	1.38	1.34	10	0.05	yes
Organic Carbon	mg/L	2.5	2.5	10	1.0	yes
Date Acquired: December 13, 2010						
Ammonia - N	mg/L	6.5	6.5	20	0.50	yes
Nitrate - N	mg/L	1.30	1.30	15	0.05	yes
Nitrite - N	mg/L	0.028	0.022	10	0.030	yes
Nitrate and Nitrite - N	mg/L	1.32	1.33	10	0.05	yes
Date Acquired: December 09, 2010						

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/L	0.01	-0.01	0.02	yes
Nitrite - N	mg/L	<0.005	-0.004	0.006	yes
Nitrate and Nitrite - N	mg/L	0.01	0.00	0.01	yes
Date Acquired: December 09, 2010					
Ammonium - N	mg/L	2.98	2.77	3.19	yes
Nitrogen	mg/L	125	103.98	137.82	yes
Phosphorus	mg/L	8.27	7.64	8.36	yes
Organic Carbon	mg/L	116	102.8	128.8	yes
Date Acquired: December 13, 2010					
Ammonium - N	mg/L	0.83	0.73	0.85	yes
Nitrogen	mg/L	15.2	12.99	16.41	yes
Phosphorus	mg/L	2.08	1.92	2.16	yes
Orthophosphate-P	mg/L	0.38	0.37	0.42	yes
Organic Carbon	mg/L	15.1	13.3	16.7	yes
Date Acquired: December 13, 2010					
Nitrogen	mg/L	0.98	0.81	1.23	yes
Orthophosphate-P	mg/L	0.07	0.07	0.09	yes
Organic Carbon	mg/L	2.8	2.5	3.8	yes
Date Acquired: December 13, 2010					

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Quality Control

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Inorganic Nonmetallic Parameters - Continued

Metals Dissolved

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Aluminum	mg/L	0.066	0.060	0.052	0.068	yes
Antimony	mg/L	0.0144	0.0150	0.0110	0.0190	yes
Arsenic	mg/L	0.0104	0.0109	0.0089	0.0131	yes
Barium	mg/L	0.066	0.070	0.063	0.077	yes
Beryllium	mg/L	0.0118	0.01200	0.01029	0.01371	yes
Boron	mg/L	0.087	0.075	0.050	0.110	yes
Cadmium	mg/L	0.01650	0.01790	0.01533	0.02067	yes
Chromium	mg/L	0.0683	0.0677	0.0563	0.0797	yes
Cobalt	mg/L	0.0813	0.07980	0.07010	0.08990	yes
Copper	mg/L	0.063	0.065	0.060	0.070	yes
Lead	mg/L	0.0512	0.0531	0.0451	0.0610	yes
Molybdenum	mg/L	0.0725	0.07390	0.06161	0.08639	yes
Nickel	mg/L	0.063	0.063	0.057	0.069	yes
Selenium	mg/L	0.0202	0.0190	0.0147	0.0234	yes
Silver	mg/L	0.01150	0.01250	0.01041	0.01359	yes
Strontium	mg/L	0.044	0.043	0.037	0.049	yes
Thallium	mg/L	0.00946	0.00996	-0.01370	0.03370	yes
Vanadium	mg/L	0.0558	0.05390	0.04740	0.06060	yes
Zinc	mg/L	0.066	0.067	0.059	0.075	yes
Date Acquired:	December 09, 2010					

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Sulfur	mg/L	0.5	0.5	30	3.0	yes
Titanium	mg/L	<0.01	<0.01	30	0.012	yes
Date Acquired:	December 09, 2010					

Physical and Aggregate Properties

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Solids	mg/L	278	276	30	25	yes
Date Acquired:	December 10, 2010					

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Solids	mg/L	580	471	619	yes
Date Acquired:	December 10, 2010				
Solids	mg/L	28	19	34	yes
Date Acquired:	December 10, 2010				
Solids	mg/L	<5	-5	5	yes
Date Acquired:	December 10, 2010				

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Physical and Aggregate Properties - Continued

Routine Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	-0.0135	-0.05	0.05	yes
Iron	mg/L	0.0175	-0.031	0.029	yes
Magnesium	mg/L	0.0073	-0.05	0.07	yes
Manganese	mg/L	-0.0049	-0.007	0.001	yes
Phosphorus	mg/L	-0.0021	-0.04	0.04	yes
Potassium	mg/L	0.0178	-0.4	0.4	yes
Silicon	mg/L	-0.0052	-0.20	0.25	yes
Sodium	mg/L	0.0023	-0.2	0.2	yes
Date Acquired:	December 09, 2010				
Calcium	mg/L	<0.1	-0.13	0.16	yes
Iron	mg/L	<0.005	-0.024	0.025	yes
Magnesium	mg/L	<0.1	-0.07	0.08	yes
Manganese	mg/L	<0.001	-0.009	0.002	yes
Phosphorus	mg/L	<0.01	-0.14	0.16	yes
Potassium	mg/L	<0.1	-0.8	0.8	yes
Silicon	mg/L	<0.05	-1.76	2.02	yes
Sodium	mg/L	<0.1	-0.3	0.4	yes
Date Acquired:	December 09, 2010				
Nitrate - N	mg/L	0	-0.01	0.01	yes
Nitrite - N	mg/L	0	-0.005	0.005	yes
Date Acquired:	December 09, 2010				
Chloride	mg/L	0	-0.20	0.20	yes
Sulfate (SO4)	mg/L	0.697	-0.99	0.99	yes
Date Acquired:	December 09, 2010				

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
pH	pH	100.21	98	101	yes
Date Acquired:	December 08, 2010				
Calcium	mg/L	95.57	91	109	yes
Iron	mg/L	114.60	0	0	yes
Magnesium	mg/L	96.71	91	109	yes
Manganese	mg/L	96.50	90	110	yes
Phosphorus	mg/L	95.62	90	110	yes
Potassium	mg/L	89.36	85	115	yes
Silicon	mg/L	88.44	80	120	yes
Sodium	mg/L	91.79	90	110	yes
Date Acquired:	December 09, 2010				
Chloride	mg/L	117.02	85	115	yes
Sulfate (SO4)	mg/L	96.18	85	115	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Routine Water - Continued

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit		Passed QC
Date Acquired:	December 09, 2010					
Chloride	mg/L	97.04	90	110		yes
Sulfate (SO4)	mg/L	97.04	90	110		yes
Date Acquired:	December 09, 2010					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
T-Alkalinity	mg/L	10	10	8	11	yes
Date Acquired:	December 08, 2010					
Calcium	mg/L	13.6	14.85	11.55	18.25	yes
Magnesium	mg/L	8.8	9.07	6.88	11.26	yes
Manganese	mg/L	0.070	0.078	0.072	0.084	yes
Potassium	mg/L	7.6	8.6	6.4	10.8	yes
Sodium	mg/L	13.1	14.2	11.7	16.7	yes
Date Acquired:	December 09, 2010					

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Nitrate - N	mg/L	0.03	0.03	10	0.01	yes
Nitrite - N	mg/L	<0.005	<0.005	10	0.010	yes
Date Acquired:	December 09, 2010					
Calcium	mg/L	2.0	2.0	30	1.00	yes
Iron	mg/L	0.023	0.020	30	0.060	yes
Magnesium	mg/L	0.6	0.6	30	1.00	yes
Manganese	mg/L	<0.001	<0.001	30	0.015	yes
Phosphorus	mg/L	0.14	0.14	30	0.10	yes
Potassium	mg/L	0.6	0.7	30	1.0	yes
Silicon	mg/L	2.99	3.00	30	0.15	yes
Sodium	mg/L	280	278	30	1.0	yes
Date Acquired:	December 09, 2010					
pH		8.09	8.17	2		yes
Electrical Conductivity	dS/m at 25 C	0.198	0.200	10	0.005	yes
Bicarbonate	mg/L	120	130	10	10	yes
Carbonate	mg/L	<6	<6	10	10	yes
Hydroxide	mg/L	<5	<5	10	10	yes
P-Alkalinity	mg/L	<5	<5	10	5	yes
T-Alkalinity	mg/L	102	104	10	5	yes
Chloride	mg/L	11.2	11.3	15	0.25	yes
Sulfate (SO4)	mg/L	7.96	8.09	15	0.50	yes
Date Acquired:	December 09, 2010					

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Chloride	mg/L	0.81	0.82	6	0.01	yes
Sulfate (SO4)	mg/L	4.26	4.57	6	0.01	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Quality Control

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Routine Water - Continued

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Date Acquired:	December 09, 2010					

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
pH		9.99	9.08	10.92	yes
Electrical Conductivity	µS/cm at 25 C	206	165	243	yes
P-Alkalinity	mg/L	36	9	53	yes
T-Alkalinity	mg/L	97	90	101	yes
Date Acquired:	December 08, 2010				
Electrical Conductivity	µS/cm at 25 C	1420	1330	1510	yes
Date Acquired:	December 08, 2010				
Electrical Conductivity	µS/cm at 25 C	<1	-2	2	yes
Date Acquired:	December 08, 2010				
Nitrate - N	mg/L	9.90	9.51	10.49	yes
Nitrite - N	mg/L	9.86	9.510	10.530	yes
Nitrate and Nitrite - N	mg/L	20.0	18.09	22.11	yes
Date Acquired:	December 09, 2010				
Nitrate - N	mg/L	0.48	0.45	0.55	yes
Nitrite - N	mg/L	0.480	0.452	0.548	yes
Nitrate and Nitrite - N	mg/L	0.96	0.79	1.19	yes
Date Acquired:	December 09, 2010				

Extractable Petroleum Hydrocarbons - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
EPHw10-19	ug/mL	84.12	-100	100	yes
EPHw19-32	ug/mL	49.32	-100	100	yes
Date Acquired:	December 13, 2010				

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
EPHw10-19	ug/mL	104.52	85	115	yes
EPHw19-32	ug/mL	104.52	85	115	yes
Date Acquired:	December 13, 2010				

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
EPHw10-19	ug/L	400	400	60	500	yes
EPHw19-32	ug/L	400	400	60	500	yes
Date Acquired:	December 13, 2010					

Matrix Spike	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
EPHw10-19	ug/L	91	79	128	yes
EPHw19-32	ug/L	90	81	136	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:		Lot ID:	**778356**
Report To:	EBA Engineering Consultants	ID:	W23101317	Control Number:	
	Unit 6, 151 Industrial Road	Name:		Date Received:	Dec 8, 2010
	Whitehorse, YT, Canada	Location:	Haines Junction	Date Reported:	Jan 10, 2011
	Y1A 2V3	LSD:		Report Number:	1400028
Attn:	Adam Seeley	P.O.:			
Sampled By:	Breanne Waggott	Acct code:			
Company:	EBA				

Extractable Petroleum Hydrocarbons - Water - Continued

Matrix Spike	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Date Acquired: December 13, 2010					

Polycyclic Aromatic Hydrocarbons - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Acenaphthene	ng/mL	0.00059	-0.1	0.1	yes
Acenaphthylene	ng/mL	0.00066	-0.1	0.1	yes
Acridine	ng/mL	0.00057	-0.05	0.05	yes
Anthracene	ng/mL	0.00045	-0.1	0.1	yes
Benzo(a)anthracene	ng/mL	0.00024	-0.01	0.01	yes
Benzo(a)pyrene	ng/mL	0	-0.01	0.01	yes
Benzo(b)fluoranthene	ng/mL	0	-0.01	0.01	yes
Benzo(g,h,i)perylene	ng/mL	0.00047	-0.1	0.1	yes
Benzo(k)fluoranthene	ng/mL	0	-0.01	0.01	yes
Chrysene	ng/mL	0.00033	-0.1	0.1	yes
Dibenzo(a,h)anthracene	ng/mL	0.00039	-0.01	0.01	yes
Fluoranthene	ng/mL	0.00093	-0.1	0.1	yes
Fluorene	ng/mL	0.00098	-0.1	0.1	yes
Indeno(1,2,3-c,d)pyrene	ng/mL	0.00047	-0.1	0.1	yes
Naphthalene	ng/mL	0.02898	-0.1	0.1	yes
Phenanthrene	ng/mL	0.00644	-0.1	0.1	yes
Pyrene	ng/mL	0.0047	-0.02	0.02	yes
Quinoline	ng/mL	0	-3.4	3.4	yes
Date Acquired: December 13, 2010					

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Acenaphthene	ng/mL	99.09	80	120	yes
Acenaphthylene	ng/mL	98.62	80	120	yes
Acridine	ng/mL	98.68	80	120	yes
Anthracene	ng/mL	98.72	80	120	yes
Benzo(a)anthracene	ng/mL	98.50	80	120	yes
Benzo(a)pyrene	ng/mL	98.09	80	120	yes
Benzo(b)fluoranthene	ng/mL	96.90	80	120	yes
Benzo(g,h,i)perylene	ng/mL	100.21	80	120	yes
Benzo(k)fluoranthene	ng/mL	100.14	80	120	yes
Chrysene	ng/mL	98.42	80	120	yes
Dibenzo(a,h)anthracene	ng/mL	97.64	80	120	yes
Fluoranthene	ng/mL	98.44	80	120	yes
Fluorene	ng/mL	99.40	80	120	yes
Indeno(1,2,3-c,d)pyrene	ng/mL	97.63	80	120	yes
Naphthalene	ng/mL	98.38	80	120	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Polycyclic Aromatic Hydrocarbons - Water - Continued

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Phenanthrene	ng/mL	98.92	80	120	yes
Pyrene	ng/mL	98.30	80	120	yes
Quinoline	ng/mL	98.19	80	120	yes

Date Acquired: December 13, 2010

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Acenaphthene	ug/L	99.5	96.5	60	0.5	yes
Acenaphthylene	ug/L	95.3	93.7	60	0.5	yes
Acridine	ug/L	92.7	90.3	60	0.25	yes
Anthracene	ug/L	91.1	94.7	60	0.5	yes
Benzo(a)anthracene	ug/L	96.0	94.2	60	0.05	yes
Benzo(a)pyrene	ug/L	92.6	90.9	60	0.05	yes
Benzo(b)fluoranthene	ug/L	97.2	97.8	60	0.05	yes
Benzo(g,h,i)perylene	ug/L	91.7	89.8	60	0.5	yes
Benzo(k)fluoranthene	ug/L	96.4	93.4	60	0.05	yes
Chrysene	ug/L	97.5	96.8	60	0.5	yes
Dibenzo(a,h)anthracene	ug/L	83.7	79.6	60	0.05	yes
Fluoranthene	ug/L	97.9	96.1	60	0.5	yes
Fluorene	ug/L	97.5	102	60	0.5	yes
Indeno(1,2,3-c,d)pyrene	ug/L	86.5	84.7	60	0.5	yes
Naphthalene	ug/L	113	111	60	0.5	yes
Phenanthrene	ug/L	106	99.2	60	0.5	yes
Pyrene	ug/L	101	101	60	0.10	yes
Quinoline	ug/L	99.9	98.5	60	17.0	yes

Date Acquired: December 13, 2010

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Acenaphthene	ug/L	99.5	50.0	130.0	yes
Acenaphthylene	ug/L	95.3	50.0	130.0	yes
Acridine	ug/L	92.7	50.01	129.99	yes
Anthracene	ug/L	91.1	50.0	130.0	yes
Benzo(a)anthracene	ug/L	96.0	50.01	129.99	yes
Benzo(a)pyrene	ug/L	92.6	50.01	129.99	yes
Benzo(b)fluoranthene	ug/L	97.2	50.01	129.99	yes
Benzo(g,h,i)perylene	ug/L	91.7	50.0	130.0	yes
Benzo(k)fluoranthene	ug/L	96.4	50.01	129.99	yes
Chrysene	ug/L	97.5	50.0	130.0	yes
Dibenzo(a,h)anthracene	ug/L	83.7	50.01	129.99	yes
Fluoranthene	ug/L	97.9	50.0	130.0	yes
Fluorene	ug/L	97.5	50.0	130.0	yes
Indeno(1,2,3-c,d)pyrene	ug/L	86.5	50.0	130.0	yes
Naphthalene	ug/L	113	50.0	130.0	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Polycyclic Aromatic Hydrocarbons - Water - Continued

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Phenanthrene	ug/L	106	50.0	130.0	yes
Pyrene	ug/L	101	50.01	129.99	yes
Quinoline	ug/L	99.9	50.0	130.0	yes

Date Acquired: December 13, 2010

PAH - Water - Surrogate Recovery

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
2-Fluorobiphenyl	%	99.76	80	120	yes
Nitrobenzene-d5	%	98.58	80	120	yes
p-Terphenyl-d14	%	98.42	80	120	yes

Date Acquired: December 13, 2010

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
2-Fluorobiphenyl	%	99	101	60	0	yes
Nitrobenzene-d5	%	110	111	60	0	yes
p-Terphenyl-d14	%	96	97	60	0	yes

Date Acquired: December 13, 2010

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
2-Fluorobiphenyl	%	99	40	130	yes
Nitrobenzene-d5	%	110	40	130	yes
p-Terphenyl-d14	%	96	40	130	yes

Date Acquired: December 13, 2010

VOC Screen - Water

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Benzene	ng	0	-2	2	yes
Bromodichloromethane	ng	0	-2	2	yes
Bromoform	ng	0	-2	2	yes
Bromomethane	ng	0	-15	15	yes
Carbon Tetrachloride	ng	0	-2	2	yes
Chlorobenzene	ng	0	-2	2	yes
Chloroethane	ng	0	-15	15	yes
2-Chloroethyl Vinyl Ether	ng	0	-2	2	yes
Chloroform	ng	0	-2	2	yes
Chloromethane	ng	0	-15	15	yes
Dibromochloromethane	ng	0	-2	2	yes
1,2-Dichlorobenzene	ng	0	-2	2	yes
1,3-Dichlorobenzene	ng	0	-2	2	yes
1,4-Dichlorobenzene	ng	0	-2	2	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

VOC Screen - Water - Continued

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
1,1-Dichloroethane	ng	0	-2	2	yes
1,2-Dichloroethane	ng	0	-2	2	yes
1,1-Dichloroethene	ng	0	-2	2	yes
1,2-Dichloroethene(cis)	ng	0	-2	2	yes
1,2-Dichloroethene(trans)	ng	0	-2	2	yes
1,2-Dichloropropane	ng	0	-2	2	yes
1,3-Dichloropropene(cis)	ng	0	-2	2	yes
1,3-Dichloropropene(trans)	ng	0	-2	2	yes
Ethylbenzene	ng	0	-2	2	yes
Methylene Chloride	ng	0	-15	15	yes
Styrene	ng	0	-2	2	yes
1,1,2,2-Tetrachloroethane	ng	0	-2	2	yes
Tetrachloroethene	ng	0	-2	2	yes
Toluene	ng	0	-2	2	yes
1,1,1-Trichloroethane	ng	0	-2	2	yes
1,1,2-Trichloroethane	ng	0	-2	2	yes
Trichloroethene	ng	0	-2	2	yes
Trichlorofluoromethane	ng	0	-2	2	yes
Vinyl Chloride	ng	0	-15	15	yes
Xylene-m&p	ng	0	0	0	yes
Xylene-o	ng	0	0	0	yes
Total Xylenes (m,p,o)	ng	0	-2	2	yes

Date Acquired: December 10, 2010

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Benzene	ng	101.76	78	122	yes
Bromodichloromethane	ng	88.92	78	122	yes
Bromoform	ng	91.12	78	122	yes
Bromomethane	ng	104.12	78	122	yes
Carbon Tetrachloride	ng	98.54	78	122	yes
Chlorobenzene	ng	107.66	78	122	yes
Chloroethane	ng	103.44	78	122	yes
2-Chloroethyl Vinyl Ether	ng		78	122	yes
Chloroform	ng	106.80	78	122	yes
Chloromethane	ng	90.26	78	122	yes
Dibromochloromethane	ng	93.80	78	122	yes
1,2-Dichlorobenzene	ng	106.18	78	122	yes
1,3-Dichlorobenzene	ng	103.54	78	122	yes
1,4-Dichlorobenzene	ng	97.44	78	122	yes
1,1-Dichloroethane	ng	110.60	78	122	yes
1,2-Dichloroethane	ng	97.60	78	122	yes
1,1-Dichloroethene	ng	110.58	78	122	yes
1,2-Dichloroethene(cis)	ng	110.80	78	122	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID: **778356**
Control Number:
Date Received: Dec 8, 2010
Date Reported: Jan 10, 2011
Report Number: 1400028

VOC Screen - Water - Continued

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
1,2-Dichloroethene(trans)	ng	105.40	78	122	yes
1,2-Dichloropropane	ng	100.76	78	122	yes
1,3-Dichloropropene(cis)	ng	95.81	78	122	yes
1,3-Dichloropropene(trans)	ng	89.61	78	122	yes
Ethylbenzene	ng	104.00	78	122	yes
Methylene Chloride	ng		78	122	yes
Styrene	ng	103.03	78	122	yes
1,1,2,2-Tetrachloroethane	ng	109.40	78	122	yes
Tetrachloroethene	ng	107.30	78	122	yes
Toluene	ng	102.87	78	122	yes
1,1,1-Trichloroethane	ng	100.20	78	122	yes
1,1,2-Trichloroethane	ng	104.02	78	122	yes
Trichloroethene	ng	95.68	78	122	yes
Trichlorofluoromethane	ng	102.42	78	122	yes
Vinyl Chloride	ng	101.58	78	122	yes
Xylene-m&p	ng	110.55	78	122	yes
Xylene-o	ng	106.06	78	122	yes
Total Xylenes (m,p,o)	ng	109.05	78	122	yes

Date Acquired: December 10, 2010

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Benzene	ug/L	3	3	15	2	yes
Bromodichloromethane	ug/L	<1	<1	15	2	yes
Bromoform	ug/L	<1	<1	15	2	yes
Bromomethane	ug/L	<10	<10	15	20	yes
Carbon Tetrachloride	ug/L	<1	<1	15	2	yes
Chlorobenzene	ug/L	<1	<1	15	2	yes
Chloroethane	ug/L	<10	<10	15	20	yes
2-Chloroethyl Vinyl Ether	ug/L	<1	<1	15	2	yes
Chloroform	ug/L	<1	<1	15	2	yes
Chloromethane	ug/L	<10	<10	15	20	yes
Dibromochloromethane	ug/L	<1	<1	15	2	yes
1,2-Dichlorobenzene	ug/L	<1	<1	15	2	yes
1,3-Dichlorobenzene	ug/L	<1	<1	15	2	yes
1,4-Dichlorobenzene	ug/L	<1	<1	15	2	yes
1,1-Dichloroethane	ug/L	<1	<1	15	2	yes
1,2-Dichloroethane	ug/L	<1	<1	15	2	yes
1,1-Dichloroethene	ug/L	<1	<1	15	2	yes
1,2-Dichloroethene(cis)	ug/L	<1	<1	15	2	yes
1,2-Dichloroethene(trans)	ug/L	<1	<1	15	2	yes
1,2-Dichloropropane	ug/L	<1	<1	15	2	yes
1,3-Dichloropropene(cis)	ug/L	<1	<1	15	2	yes
1,3-Dichloropropene(trans)	ug/L	<1	<1	15	2	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID: **778356**
Control Number:
Date Received: Dec 8, 2010
Date Reported: Jan 10, 2011
Report Number: 1400028

VOC Screen - Water - Continued

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Ethylbenzene	ug/L	<1	<1	15	2	yes
Methylene Chloride	ug/L	<5	<5	30	20	yes
Styrene	ug/L	<1	<1	15	2	yes
1,1,2,2-Tetrachloroethane	ug/L	<1	<1	15	2	yes
Tetrachloroethene	ug/L	<1	<1	15	2	yes
Toluene	ug/L	<1	<1	15	2	yes
1,1,1-Trichloroethane	ug/L	<1	<1	15	2	yes
1,1,2-Trichloroethane	ug/L	<1	<1	15	2	yes
Trichloroethene	ug/L	<1	<1	15	2	yes
Trichlorofluoromethane	ug/L	<1	<1	15	2	yes
Vinyl Chloride	ug/L	<2	<2	15	20	yes
Xylene-m&p	ug/L	<1	<1	15	2	yes
Xylene-o	ug/L	<1	<1	15	2	yes
Total Xylenes (m,p,o)	ug/L	<1	<1	15	2	yes

Date Acquired: December 10, 2010

VOC - Water - Surrogate Recovery

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Dibromofluoromethane	%	99.93	85	115	yes
Toluene-d8	%	100.38	85	115	yes
Bromofluorobenzene	%	91.91	85	115	yes

Date Acquired: December 10, 2010

Trace Metals Dissolved

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Aluminum	µg/L	0.54	-10	10	yes
Antimony	µg/L	0.01	-0.4	0.2	yes
Arsenic	µg/L	-0.007	-0.5	0.5	yes
Barium	µg/L	0.005	-0	0	yes
Beryllium	µg/L	-0.008	-0.10	0.10	yes
Bismuth	µg/L	0.043	-1.0	1.0	yes
Boron	µg/L	-0.251	-6	5	yes
Cadmium	µg/L	0.004	-0.03	0.03	yes
Chromium	µg/L	0.042	-0.1	0.2	yes
Cobalt	µg/L	-0.006	-0.07	0.07	yes
Copper	µg/L	-0.217	-1	1	yes
Lead	µg/L	-0.002	-0.1	0.1	yes
Lithium	µg/L	-0.034	-1	1	yes
Molybdenum	µg/L	0.025	-0.31	0.29	yes
Nickel	µg/L	-0.11	-1	1	yes
Selenium	µg/L	0.166	-1.7	1.3	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Trace Metals Dissolved - Continued

Blanks	Units	Measured	Lower Limit	Upper Limit	Passed QC
Silver	µg/L	-0.025	-0.05	0.05	yes
Strontium	µg/L	-0.005	-0	0	yes
Tellurium	µg/L	-0.061	-0.7	0.7	yes
Thallium	µg/L	-0.002	-0.03	0.03	yes
Thorium	µg/L	-1.03	-1.5	1.5	yes
Tin	µg/L	0.018	-3.0	3.0	yes
Titanium	µg/L	-0.152	-0.2	0.2	yes
Uranium	µg/L	-0.007	-0.03	0.03	yes
Vanadium	µg/L	0.028	-0.35	0.35	yes
Zinc	µg/L	0.226	-2	4	yes
Zirconium	µg/L	0.019	-0.1	0.1	yes
Date Acquired:	December 09, 2010				
Aluminum	µg/L	-1.191	-6	6	yes
Antimony	µg/L	0.008	-0.4	0.3	yes
Arsenic	µg/L	0.029	-0.4	0.3	yes
Barium	µg/L	-0.003	-0	1	yes
Beryllium	µg/L	-0.02	-0.10	0.10	yes
Bismuth	µg/L	-0.003	0.0	0.0	yes
Boron	µg/L	10.63	-18	19	yes
Cadmium	µg/L	0	-0.03	0.03	yes
Chromium	µg/L	0.08	-0.1	0.2	yes
Cobalt	µg/L	-0.003	-0.30	0.30	yes
Copper	µg/L	-0.192	-1	1	yes
Lead	µg/L	-0.018	-0.3	0.4	yes
Lithium	µg/L	-0.056	-0	0	yes
Molybdenum	µg/L	0.108	-0.95	0.85	yes
Nickel	µg/L	-0.135	-1	1	yes
Selenium	µg/L	0.254	-1.7	1.7	yes
Silver	µg/L	-0.03	-0.67	0.47	yes
Strontium	µg/L	0.087	-2	4	yes
Tellurium	µg/L	-0.104	-0.7	0.7	yes
Thallium	µg/L	0	-0.06	0.06	yes
Thorium	µg/L	-1.136	-0.7	0.5	yes
Tin	µg/L	-0.02	-3.8	4.0	yes
Titanium	µg/L	-0.112	-0.3	0.2	yes
Uranium	µg/L	-0.006	-0.04	0.02	yes
Vanadium	µg/L	0.047	-0.30	0.30	yes
Zinc	µg/L	0.377	-11	19	yes
Zirconium	µg/L	0.005	-0.0	0.0	yes
Date Acquired:	December 09, 2010				
Mercury	ug/L	<0.01	-9.99	9.99	yes
Date Acquired:	December 13, 2010				

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Trace Metals Dissolved - Continued

Calibration Check	Units	% Recovery	Lower Limit	Upper Limit	Passed QC
Mercury	ng/L	103.80	85	115	yes
Date Acquired:	December 13, 2010				
Aluminum	µg/L	101.24	70	130	yes
Antimony	µg/L	91.48	85	115	yes
Arsenic	µg/L	95.80	90	110	yes
Barium	µg/L	93.28	90	110	yes
Beryllium	µg/L	96.96	90	110	yes
Bismuth	µg/L	99.28	90	110	yes
Boron	µg/L	95.56	70	130	yes
Cadmium	µg/L	99.40	90	110	yes
Chromium	µg/L	94.66	90	110	yes
Cobalt	µg/L	94.48	90	110	yes
Copper	µg/L	92.02	90	110	yes
Lead	µg/L	99.16	90	110	yes
Lithium	µg/L	95.26	90	110	yes
Molybdenum	µg/L	92.96	90	110	yes
Nickel	µg/L	93.24	90	110	yes
Selenium	µg/L	100.52	90	110	yes
Silver	µg/L	0.06	0	0	yes
Strontium	µg/L	97.52	90	110	yes
Thallium	µg/L	95.92	90	110	yes
Tin	µg/L	96.00	90	110	yes
Titanium	µg/L	95.96	90	110	yes
Uranium	µg/L	102.86	85	115	yes
Vanadium	µg/L	94.28	90	110	yes
Zinc	µg/L	94.54	90	110	yes
Zirconium	µg/L	102.08	90	110	yes
Date Acquired:	December 09, 2010				

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	µg/L	27	28	20	20	yes
Antimony	µg/L	0.4	0.5	20	1.0	yes
Arsenic	µg/L	1	1.0	20	1.0	yes
Barium	µg/L	102	102	20	5	yes
Beryllium	µg/L	<0.04	<0.04	20	1.00	yes
Boron	µg/L	377	389	20	5	yes
Cadmium	µg/L	0.02	0.02	20	0.50	yes
Chromium	µg/L	0.8	0.8	20	5.0	yes
Cobalt	µg/L	0.08	0.07	20	0.50	yes
Copper	µg/L	2	2	20	5	yes
Lead	µg/L	<0.1	<0.1	20	0.5	yes
Lithium	µg/L	8	8	20	5	yes

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Quality Control

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Trace Metals Dissolved - Continued

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Molybdenum	µg/L	2.6	2.6	20	0.50	yes
Nickel	µg/L	1	1	20	5	yes
Selenium	µg/L	<0.6	<0.6	20	0.5	yes
Silver	µg/L	<0.01	<0.01	20	0.50	yes
Strontium	µg/L	89	91	20	0	yes
Tellurium	µg/L	0.2	0.2	20	0.5	yes
Thallium	µg/L	0.01	0.02	20	0.10	yes
Thorium	µg/L	<0.4	<0.4	10	0.1	yes
Tin	µg/L	1.8	1.9	20	0.5	yes
Titanium	µg/L	3.0	2.6	20	0.5	yes
Uranium	µg/L	<0.4	<0.4	20	0.10	yes
Vanadium	µg/L	1.3	1.4	20	0.50	yes
Zinc	µg/L	<1	1	20	5	yes
Zirconium	µg/L	0.2	0.2	20	0.5	yes
Date Acquired:	December 09, 2010					
Mercury	ug/L	<0.01	<0.01	20	0.05	yes
Date Acquired:	December 13, 2010					

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Methodology and Notes

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water	APHA	*	Alkalinity - Titration Method, 2320 B	08-Dec-10	Exova Surrey
Alk, pH, EC, Turb in water	APHA	*	pH - Electrometric Method, 4500-H+ B	08-Dec-10	Exova Surrey
Ammonia-N in Water	APHA	*	Titrametric, 4500-NH3 C	10-Dec-10	Exova Surrey
Ammonium-N in Water	APHA	*	Automated Phenate Method, 4500-NH3 G	09-Dec-10	Exova Edmonton
Anions (Routine) by Ion Chromatography	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	09-Dec-10	Exova Edmonton
Anions by IEC in water (Surrey)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	09-Dec-10	Exova Surrey
BTEX-VPH - Water	BCELM	*	Volatile Hydrocarbons in Water by GC/FID, VH Water	09-Dec-10	Exova Surrey
Carbon Organic (Dissolved) in water (DOC)	APHA		High-Temperature Combustion Method, 5310 B	13-Dec-10	Exova Edmonton
Chemical Oxygen Demand (water-Surrey)	APHA	*	Closed Reflux, Colorimetric Method, 5220 D	09-Dec-10	Exova Surrey
EPH - Water	BCELM	*	Extractable Petroleum Hydrocarbons (EPH) in Water by GC/FID, EPH Water	13-Dec-10	Exova Surrey
Mercury Low Level (Total) in water	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	09-Dec-10	Exova Surrey
Metals SemiTrace (Dissolved) in water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	09-Dec-10	Exova Surrey
Nitrogen - nitrite+nitrate-N	APHA	*	Automated Cadmium Reduction Method, 4500-NO3- F	09-Dec-10	Exova Surrey
Orthophosphate-P in Water	APHA	*	Automated Ascorbic Acid Reduction Method, 4500-P F	09-Dec-10	Exova Edmonton
PAH - Water (Surrey)	BCELM	*	Polycyclic Aromatic Hydrocarbons in Water by GC/MS - PBM, PAH Water	13-Dec-10	Exova Surrey
Phosphorus - Total in Water	APHA	*	Automated Ascorbic Acid Reduction Method, 4500-P F	10-Dec-10	Exova Edmonton
Solids Dissolved (Total, Fixed and Volatile)2	APHA	*	Total Dissolved Solids Dried at 180 C, 2540 C	10-Dec-10	Exova Surrey
Total and Kjeldahl Nitrogen (Total) in Water	ISO	*	Water Quality - Determination of nitrogen, ISO/TR 11905-2	10-Dec-10	Exova Edmonton
VOC - Water	US EPA	*	US EPA method, 8260B/5030B	10-Dec-10	Exova Calgary

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
B.C.M.O.E	B.C. Ministry of Environment
BCELM	B.C. Environmental Laboratory Manual
EPA	Environmental Protection Agency Test Methods - US
ISO	International Organization for Standardization

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Methodology and Notes

Bill To:	EBA Engineering Consultants	Project:	
Report To:	EBA Engineering Consultants	ID:	W23101317
	Unit 6, 151 Industrial Road	Name:	
	Whitehorse, YT, Canada	Location:	Haines Junction
	Y1A 2V3	LSD:	
Attn:	Adam Seeley	P.O.:	
Sampled By:	Breanne Waggott	Acct code:	
Company:	EBA		

Lot ID:	**778356**
Control Number:	
Date Received:	Dec 8, 2010
Date Reported:	Jan 10, 2011
Report Number:	1400028

US EPA	US Environmental Protection Agency Test Methods

Comments:

- Report was re-issued to correct the titanium result on 778356-1 to 4 previously reported on Test Report 1394453. Report 1400028 replaces report 1394453.
- 778356-1 to 4: the repeated result for titanium analysis analysis differs significantly from the original. The cause of the difference is matrix interferences, repeat results reported from a different method.
- pH analysis was performed past the recommended holding time of 15 minutes from sample collection.

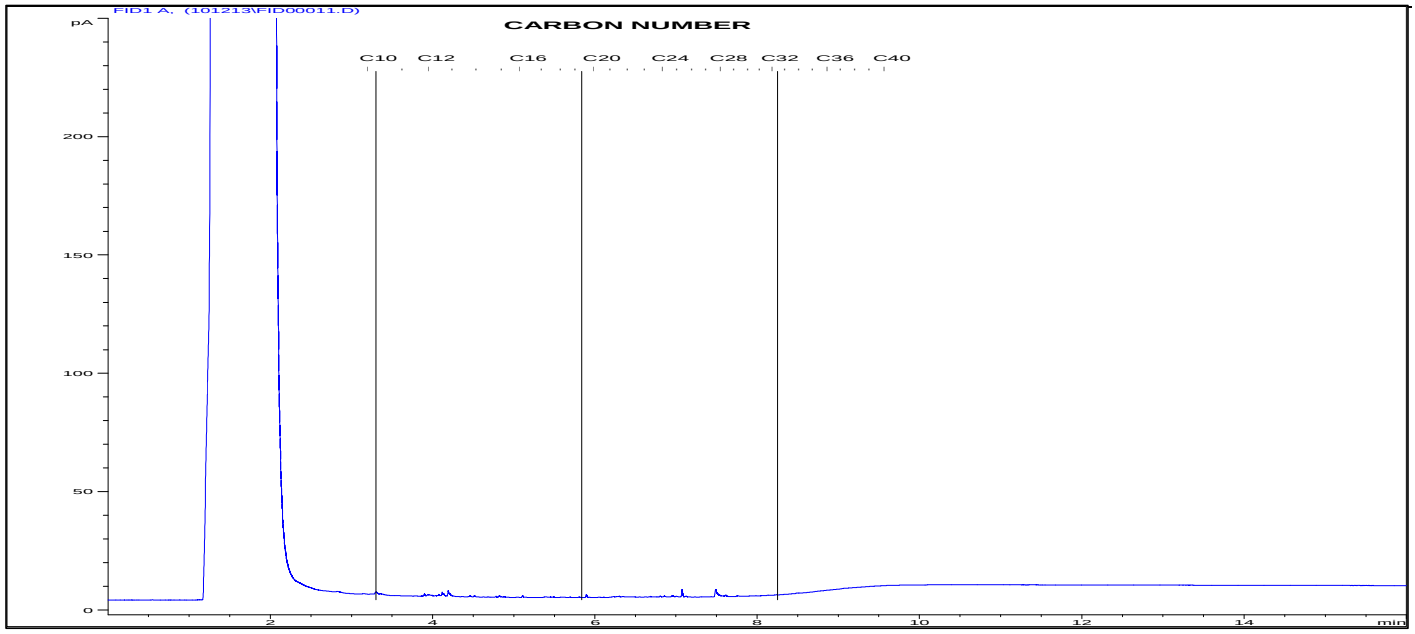
Exova
#104, 19575 - 55A Avenue
Surrey, B.C.
V3S-8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: NWL-Surrey@exova.com
W: www.exova.com

Hydrocarbon Chromatogram

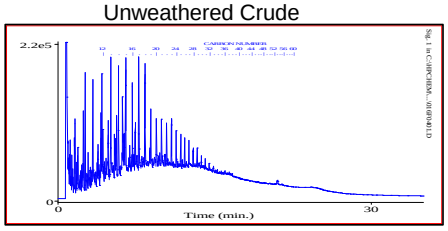
Bill To:	EBA Engineering Consultants Lt	Project ID:	W23101317	Lot ID:	**778356**
Report To:	EBA Engineering Consultants Lt	Name:		Control Number:	
		Location:	Haines Junction	Date Received:	Dec 8, 2010
	Unit 6, 151 Industrial Road	LSD:		Date Reported:	Dec 14, 2010
	Whitehorse, YT, Canada	P.O.:		Report Number:	1394453
	Y1A 2V3				
Attn:	Adam Seeley				
Sampled by:	Breanne Waggott				
Company:	EBA				

Exova Number: 778356-1 Sample Description: HJ-MW01
Sample Date: Dec 6, 2010

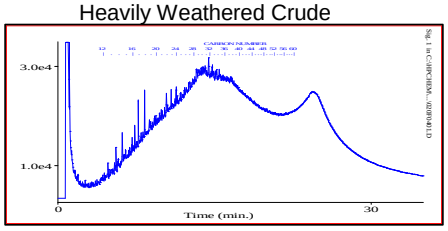


TYPICAL PRODUCT CHROMATOGRAMS

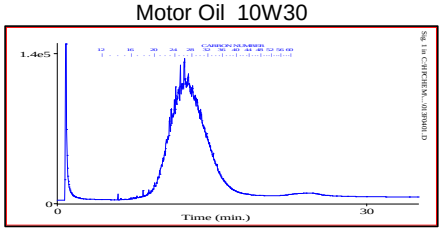
Unweathered Crude



Heavily Weathered Crude



Motor Oil 10W30



Product Carbon Number Ranges

Gasoline	C4-C12	Kerosene	C7-C16	Lubricating Oils	C20-C40
Varsol	C8-C12	Diesel	C8-C22	Crude Oils	C3-C60+

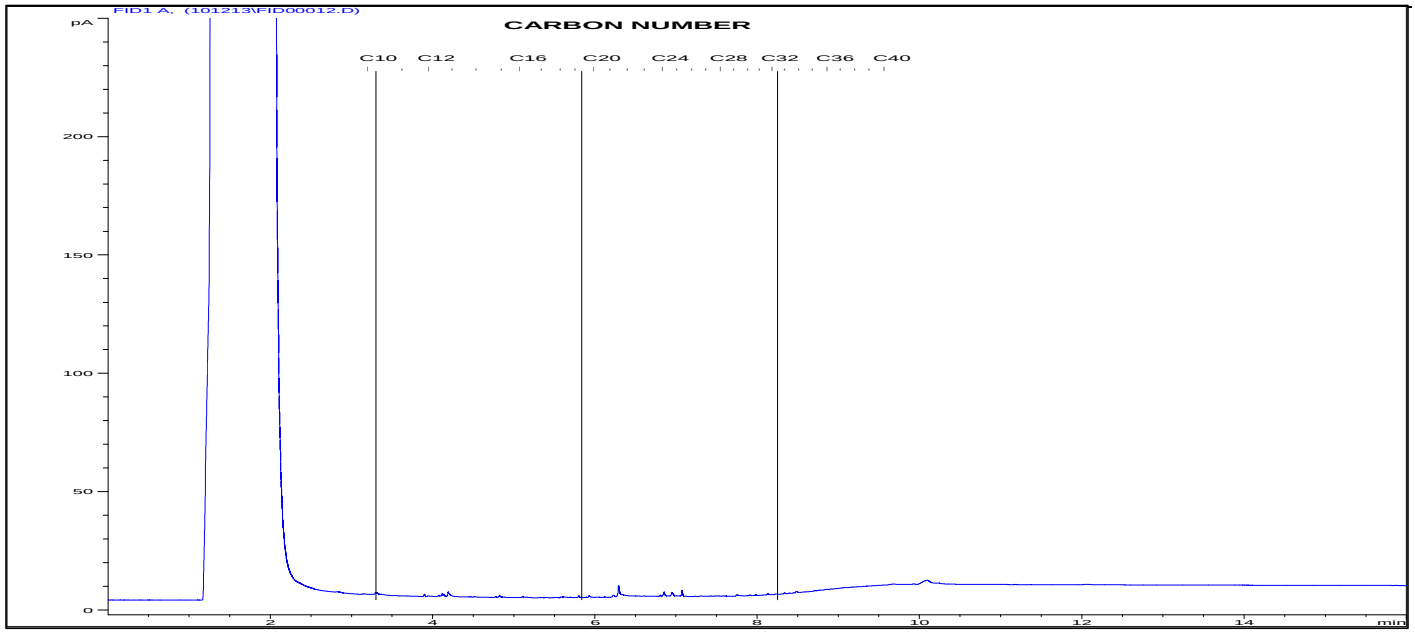
Exova
#104, 19575 - 55A Avenue
Surrey, B.C.
V3S-8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: NWL-Surrey@exova.com
W: www.exova.com

Hydrocarbon Chromatogram

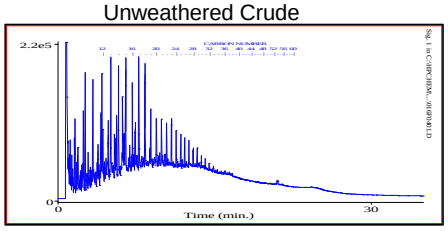
Bill To:	EBA Engineering Consultants Lt	Project ID:	W23101317	Lot ID:	**778356**
Report To:	EBA Engineering Consultants Lt	Name:		Control Number:	
		Location:	Haines Junction	Date Received:	Dec 8, 2010
	Unit 6, 151 Industrial Road	LSD:		Date Reported:	Dec 14, 2010
	Whitehorse, YT, Canada	P.O.:		Report Number:	1394453
	Y1A 2V3				
Attn:	Adam Seeley				
Sampled by:	Breanne Waggott				
Company:	EBA				

Exova Number: 778356-2 Sample Description: HJ-MW02
Sample Date: Dec 7, 2010

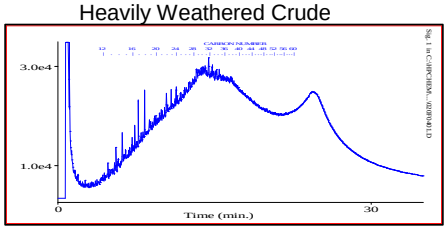


TYPICAL PRODUCT CHROMATOGRAMS

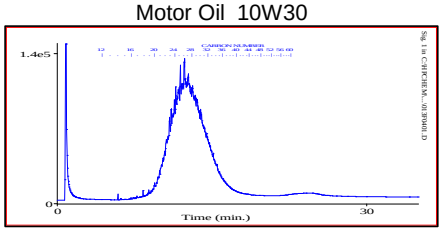
Unweathered Crude



Heavily Weathered Crude



Motor Oil 10W30



Product Carbon Number Ranges

Gasoline	C4-C12	Kerosene	C7-C16	Lubricating Oils	C20-C40
Varsol	C8-C12	Diesel	C8-C22	Crude Oils	C3-C60+

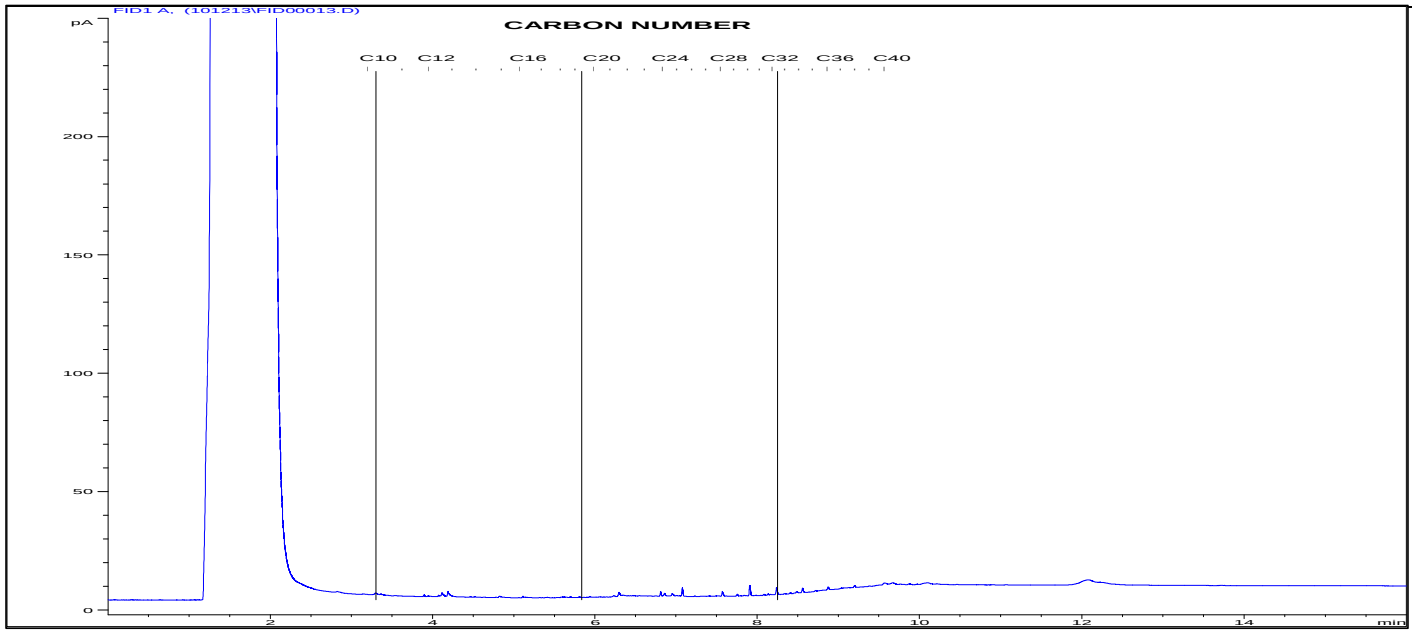
Exova
#104, 19575 - 55A Avenue
Surrey, B.C.
V3S-8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: NWL-Surrey@exova.com
W: www.exova.com

Hydrocarbon Chromatogram

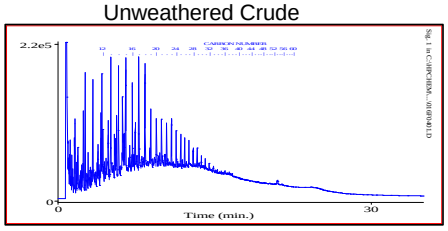
Bill To:	EBA Engineering Consultants Lt	Project ID:	W23101317	Lot ID:	**778356**
Report To:	EBA Engineering Consultants Lt	Name:		Control Number:	
		Location:	Haines Junction	Date Received:	Dec 8, 2010
	Unit 6, 151 Industrial Road	LSD:		Date Reported:	Dec 14, 2010
	Whitehorse, YT, Canada	P.O.:		Report Number:	1394453
	Y1A 2V3				
Attn:	Adam Seeley				
Sampled by:	Breanne Waggott				
Company:	EBA				

Exova Number: 778356-3 Sample Description: HJ-MW03
Sample Date: Dec 6, 2010

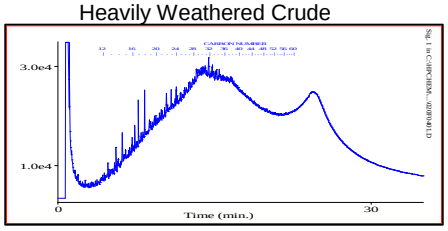


TYPICAL PRODUCT CHROMATOGRAMS

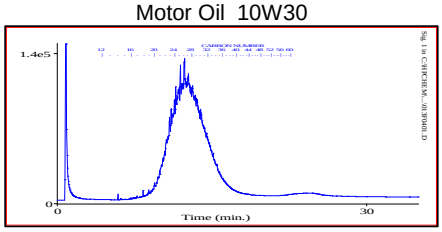
Unweathered Crude



Heavily Weathered Crude



Motor Oil 10W30



Product Carbon Number Ranges

Gasoline	C4-C12	Kerosene	C7-C16	Lubricating Oils	C20-C40
Varsol	C8-C12	Diesel	C8-C22	Crude Oils	C3-C60+

Bodycote TESTING GROUP

778356

LOT: _____ Control Number _____

Environmental Sample Information Sheet

Note: Proper completion of this form is required in order to proceed with analysis

See reverse for your nearest Bodycote location and proper sampling protocol

Billing Address:

Company: EBA Engineering Consulting Ltd.
Address: Unit 6, 151 Industrial Rd
Whitehorse, YT
Y1A 2V3

QA/QC Report [x]

Attention: Adam Seeley
Phone: 867-668-3068
Fax: 867-668-4349
Cell:
e-mail: aseeley@eba.ca

Report Result:
Fax [ ]
Mail [x]
Courier [ ]
e-mail [x]
e-Service [ ]

Copy of Report To:

Company: EBA Engineering Consulting Ltd.
Address: Unit 6, 151 Industrial Rd
Whitehorse, YT
Y1A 2V3

Copy of invoice: [ ]
Mail invoice to this address for approval [ ]

Attention: Adam Seeley
Phone: 867-668-3068
Fax: 867-668-4349
Cell:
e-mail: aseeley@eba.ca

Report Result:
Fax [ ]
Mail [x]
Courier [ ]
e-mail [x]
e-Service [ ]

Information to be included on Report and Invoice

Project ID: W23101317
Project Name:
Project Location: Haines Junction
Legal Location:
PO#:
Proj. Acct. Code:
Agreement ID:

RUSH **Please contact the laboratory to confirm rush dates and times before submitting samples.**

Upon filling out this section, client accepts that surcharges will be attached to this analysis

RUSH required on: All Analysis [ ] or As indicated [ ]
Date Required: Regular TAT
Signature: _____
Bodycote Authorization: _____

Sample Custody (Please Print)
Sampled by: Breanne Waggott
Company EBA Signature

I authorize Bodycote to proceed with the work work indicated on this form:
Date: 6-Dec Initial:

Received by: | Sample Temp.
Waybill #: | Date
Company | Time

Special Instructions / Comments

FOR LAB USE ONLY
Condiftion of containers/coolers upon arrival at lab

[ ] Check here if Bodycote is required to report results directly to a regulatory body (Please include contact information)

[ ] Check here if you are testing POTABLE WATER for **HUMAN CONSUMPTION**

Please indicate which regulations you are required to meet: CCME Aquatic Life

	Sample Identification	Location	Depth IN CM M	Date/Time Sampled	Matrix	Sampling Method	Number of Containers	W38BC	NUTR	ICSO, ALK, ICCL, TDS	DOC	COD	CTEH6	VOW2BC	CVPH3	N3 and NH3-N	HOLD
							↓	Enter tests above (✓ relevant samples below)									
1	HJ-MW01	HJ-MW01		06-Dec-10	Water		10	X	X	X	X	X	X	X	X		
2	HJ-MW02	HJ-MW02		07-Dec-10	Water		10	X	X	X	X	X	X	X	X		
3	HJ-MW03	HJ-MW03		06-Dec-10	Water		10	X	X	X	X	X	X	X	X		
4	QC01	QCo1		06-Dec-10	Water		7	X							X	X	
5	QCO3	QCO3		06-Dec-10	Water		7										X
6																	
7																	
8																	
10																	
11																	
12																	
13																	
14																	
15																	

NOTE: All hazardous samples must be labelled according to WHIMIS guidelines.

Your Project #: W23101317.007
Your C.O.C. #: F92322

Attention: Adam Seeley
EBA ENGINEERING CONSULTANTS LTD.
WHITEHORSE - Rebate
CALCITE BUSINESS CENTRE
UNIT 6, 151 INDUSTRIAL ROAD
WHITEHORSE, YT
CANADA Y1A 2V3

Report Date: 2010/12/14

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B9368
Received: 2010/12/08, 13:15

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH, VH, F1 SIM/MS	1	2010/12/09	2010/12/10	BBY8-SOP-00010	Based on EPA 8260C
Hardness (calculated as CaCO3)	1	N/A	2010/12/11		
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2010/12/11	BRN SOP-00206	Based on EPA 200.8
Elements by CRC ICPMS (dissolved)	1	N/A	2010/12/10	BRN SOP-00206	Based on EPA 200.8
Ammonia-N	1	N/A	2010/12/09	BBY6SOP-00044	Based on EPA 350.1
Nitrate + Nitrite (N)	1	N/A	2010/12/09		Based on USEPA 353.2
Nitrite (N) by CFA	1	N/A	2010/12/09	BRN SOP-00233 R1.0	EPA 353.2
Nitrogen - Nitrate (as N)	1	N/A	2010/12/10	BBY6SOP-00010	Based on EPA 353.2
Filter and HNO3 Preserve for Metals	1	N/A	2010/12/08	BRN WI-00006 R1.0	Based on EPA 200.2
Volatile HC-BTEX	1	N/A	2010/12/10		

* Results relate only to the items tested.

Encryption Key

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

Amanda Hart, Burnaby Customer Service
Email: AHart@maxxam.ca
Phone# (604) 639-2605

==========

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

Total cover pages: 1

Maxxam Job #: B0B9368
Report Date: 2010/12/14

EBA ENGINEERING CONSULTANTS LTD.
Client Project #: W23101317.007

Sampler Initials: BW

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		Y92593		
Sampling Date		2010/12/06 17:00		
	Units	**MJ MW03 DUPLICATE**	**RDL**	**QC Batch**
ANIONS				
Nitrite (N)	mg/L	<0.005	0.005	4491629
Calculated Parameters				
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE
Nitrate (N)	mg/L	<0.02	0.02	4487848
Nutrients				
Ammonia (N)	mg/L	0.44	0.005	4491627
Nitrate plus Nitrite (N)	mg/L	<0.02	0.02	4491623

BCCSR BTEX/VPH IN WATER (WATER)

Maxxam ID		Y92593		
Sampling Date		2010/12/06 17:00		
	Units	**MJ MW03 DUPLICATE**	**RDL**	**QC Batch**
Volatiles				
VPH (VH6 to 10 - BTEX)	ug/L	<300	300	4486522
Methyl-tert-butylether (MTBE)	ug/L	<4	4	4491618
Benzene	ug/L	<0.4	0.4	4491618
Toluene	ug/L	<0.4	0.4	4491618
Ethylbenzene	ug/L	<0.4	0.4	4491618
m & p-Xylene	ug/L	<0.4	0.4	4491618
o-Xylene	ug/L	<0.4	0.4	4491618
Styrene	ug/L	<0.4	0.4	4491618
Xylenes (Total)	ug/L	<0.4	0.4	4491618
VH C6-C10	ug/L	<300	300	4491618
Surrogate Recovery (%)				
4-BROMOFLUOROBENZENE (sur.)	%	90		4491618
D4-1,2-DICHLOROETHANE (sur.)	%	102		4491618
D8-TOLUENE (sur.)	%	100		4491618

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B0B9368
Report Date: 2010/12/14

EBA ENGINEERING CONSULTANTS LTD.
Client Project #: W23101317.007

Sampler Initials: BW

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		Y92593		
Sampling Date		2010/12/06 17:00		
	Units	**MJ MW03 DUPLICATE**	**RDL**	**QC Batch**
Misc. Inorganics				
Dissolved Hardness (CaCO3)	mg/L	1990	0.5	4489651
Dissolved Metals by ICPMS				
Dissolved Aluminum (Al)	mg/L	0.004	0.003	4491528
Dissolved Antimony (Sb)	mg/L	0.0008	0.0005	4491528
Dissolved Arsenic (As)	mg/L	0.0024	0.0001	4491528
Dissolved Barium (Ba)	mg/L	0.012	0.001	4491528
Dissolved Beryllium (Be)	mg/L	<0.0001	0.0001	4491528
Dissolved Bismuth (Bi)	mg/L	<0.001	0.001	4491528
Dissolved Boron (B)	mg/L	0.53	0.05	4491528
Dissolved Cadmium (Cd)	mg/L	0.00003	0.00001	4491528
Dissolved Chromium (Cr)	mg/L	<0.001	0.001	4491528
Dissolved Cobalt (Co)	mg/L	0.0007	0.0005	4491528
Dissolved Copper (Cu)	mg/L	0.0010	0.0002	4491528
Dissolved Iron (Fe)	mg/L	0.009	0.005	4491528
Dissolved Lead (Pb)	mg/L	<0.0002	0.0002	4491528
Dissolved Lithium (Li)	mg/L	<0.005	0.005	4491528
Dissolved Manganese (Mn)	mg/L	0.179	0.001	4491528
Dissolved Mercury (Hg)	mg/L	<0.00002	0.00002	4491528
Dissolved Molybdenum (Mo)	mg/L	0.016	0.001	4491528
Dissolved Nickel (Ni)	mg/L	0.002	0.001	4491528
Dissolved Selenium (Se)	mg/L	0.0003	0.0001	4491528
Dissolved Silicon (Si)	mg/L	7.1	0.1	4491528
Dissolved Silver (Ag)	mg/L	<0.00002	0.00002	4491528
Dissolved Strontium (Sr)	mg/L	2.99	0.001	4491528
Dissolved Thallium (Tl)	mg/L	<0.00005	0.00005	4491528
Dissolved Tin (Sn)	mg/L	<0.005	0.005	4491528
Dissolved Titanium (Ti)	mg/L	<0.005	0.005	4491528
Dissolved Uranium (U)	mg/L	0.0030	0.0001	4491528
Dissolved Vanadium (V)	mg/L	<0.005	0.005	4491528
Dissolved Zinc (Zn)	mg/L	<0.005	0.005	4491528
Dissolved Zirconium (Zr)	mg/L	<0.0005	0.0005	4491528
Dissolved Calcium (Ca)	mg/L	211	0.05	4486630
Dissolved Magnesium (Mg)	mg/L	355	0.05	4486630
Dissolved Potassium (K)	mg/L	14.3	0.05	4486630
Dissolved Sodium (Na)	mg/L	132	0.05	4486630
Dissolved Sulphur (S)	mg/L	744	3	4486630

RDL = Reportable Detection Limit

Maxxam Job #: B0B9368
Report Date: 2010/12/14

EBA ENGINEERING CONSULTANTS LTD.
Client Project #: W23101317.007

Sampler Initials: BW

Package 1	7.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Maxxam Job #: B0B9368
Report Date: 2010/12/14

EBA ENGINEERING CONSULTANTS LTD.
Client Project #: W23101317.007

Sampler Initials: BW

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4491528	Dissolved Arsenic (As)	2010/12/10	100	80 - 120	101	80 - 120	<0.0001	mg/L	NC	20		
4491528	Dissolved Beryllium (Be)	2010/12/10	108	80 - 120	107	80 - 120	<0.0001	mg/L	NC	20		
4491528	Dissolved Cadmium (Cd)	2010/12/10	103	80 - 120	101	80 - 120	<0.00001	mg/L	NC	20		
4491528	Dissolved Chromium (Cr)	2010/12/10	101	80 - 120	101	80 - 120	<0.001	mg/L	NC	20		
4491528	Dissolved Cobalt (Co)	2010/12/10	99	80 - 120	103	80 - 120	<0.0005	mg/L	NC	20		
4491528	Dissolved Copper (Cu)	2010/12/10	98	80 - 120	110	80 - 120	<0.0002	mg/L	NC	20		
4491528	Dissolved Lead (Pb)	2010/12/10	102	80 - 120	105	80 - 120	<0.0002	mg/L	NC	20		
4491528	Dissolved Lithium (Li)	2010/12/10	NC	80 - 120	109	80 - 120	<0.005	mg/L	NC	20		
4491528	Dissolved Nickel (Ni)	2010/12/10	99	80 - 120	101	80 - 120	<0.001	mg/L	NC	20		
4491528	Dissolved Selenium (Se)	2010/12/10	105	80 - 120	105	80 - 120	<0.0001	mg/L	NC	20		
4491528	Dissolved Uranium (U)	2010/12/10	109	80 - 120	105	80 - 120	<0.0001	mg/L	NC	20		
4491528	Dissolved Vanadium (V)	2010/12/10	101	80 - 120	100	80 - 120	<0.005	mg/L	NC	20		
4491528	Dissolved Zinc (Zn)	2010/12/10	108	80 - 120	102	80 - 120	<0.005	mg/L	NC	20		
4491528	Dissolved Aluminum (Al)	2010/12/10					<0.003	mg/L	NC	20		
4491528	Dissolved Antimony (Sb)	2010/12/10					<0.0005	mg/L	NC	20		
4491528	Dissolved Barium (Ba)	2010/12/10					<0.001	mg/L	0.2	20		
4491528	Dissolved Bismuth (Bi)	2010/12/10					<0.001	mg/L	NC	20		
4491528	Dissolved Boron (B)	2010/12/10					<0.05	mg/L	NC	20		
4491528	Dissolved Iron (Fe)	2010/12/10					<0.005	mg/L	NC	20		
4491528	Dissolved Manganese (Mn)	2010/12/10					<0.001	mg/L	0.8	20		
4491528	Dissolved Mercury (Hg)	2010/12/10					<0.00002	mg/L	NC	20		
4491528	Dissolved Molybdenum (Mo)	2010/12/10					<0.001	mg/L	NC	20		
4491528	Dissolved Silicon (Si)	2010/12/10					<0.1	mg/L	0.8	20		
4491528	Dissolved Silver (Ag)	2010/12/10					<0.00002	mg/L	NC	20		
4491528	Dissolved Strontium (Sr)	2010/12/10					<0.001	mg/L	0.7	20		
4491528	Dissolved Thallium (Tl)	2010/12/10					<0.00005	mg/L	NC	20		
4491528	Dissolved Tin (Sn)	2010/12/10					<0.005	mg/L	NC	20		
4491528	Dissolved Titanium (Ti)	2010/12/10					<0.005	mg/L	NC	20		
4491528	Dissolved Zirconium (Zr)	2010/12/10					<0.0005	mg/L	NC	20		
4491618	4-BROMOFLUOROBENZENE (sur.)	2010/12/10	90	70 - 130	93	70 - 130	88	%			92	70 - 130
4491618	D4-1,2-DICHLOROETHANE (sur.)	2010/12/10	101	70 - 130	103	70 - 130	99	%			98	70 - 130
4491618	D8-TOLUENE (sur.)	2010/12/10	99	70 - 130	98	70 - 130	90	%			101	70 - 130
4491618	Methyl-tert-butylether(MTBE)	2010/12/10	98	70 - 130	108	70 - 130	<4	ug/L				
4491618	Benzene	2010/12/10	97	70 - 130	107	70 - 130	<0.4	ug/L	NC	30		
4491618	Toluene	2010/12/10	98	70 - 130	108	70 - 130	<0.4	ug/L	NC	30		
4491618	Ethylbenzene	2010/12/10	98	70 - 130	107	70 - 130	<0.4	ug/L	NC	30		
4491618	m & p-Xylene	2010/12/10	94	70 - 130	103	70 - 130	<0.4	ug/L	NC	30		
4491618	o-Xylene	2010/12/10	96	70 - 130	105	70 - 130	<0.4	ug/L	NC	30		
4491618	Styrene	2010/12/10	109	70 - 130	120	70 - 130	<0.4	ug/L				
4491618	VH C6-C10	2010/12/10					<300	ug/L			80	70 - 130

Maxxam Job #: B0B9368
Report Date: 2010/12/14

EBA ENGINEERING CONSULTANTS LTD.
Client Project #: W23101317.007

Sampler Initials: BW

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4491618	Xylenes (Total)	2010/12/10					<0.4	ug/L	NC	30		
4491623	Nitrate plus Nitrite (N)	2010/12/09	95	80 - 120	97	80 - 120	<0.02	mg/L	NC	25		
4491627	Ammonia (N)	2010/12/09	84	80 - 120	95	80 - 120	<0.005	mg/L	4.9	20		
4491629	Nitrite (N)	2010/12/09	96	80 - 120	101	80 - 120	<0.005	mg/L	NC	20		

N/A = Not Applicable
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics Inc

8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com

Phone: (604) 444-4808
Fax: (604) 444-4511
Toll Free: 1-800-440-4808

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

PAGE ___ OF ___

B089368

ANALYSIS REQUEST F 92322

COMPANY NAME: EBA Engineering

PH. #: 867 668 2071 x243
E-mail: aseeley@eba.ca
FAX #:

COMPANY ADDRESS: 6-151 Industrial Rd. Whitehorse, YT. Y1A 2V3

CLIENT PROJECT ID: (#)

SAMPLER NAME (PRINT): Breanne Waggott

PROJECT MANAGER: Adam Seeley

FIELD SAMPLE ID	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE DD/MM/YY	SAMPLING: TIME	SAMPLING: HEADSPACE VAPOUR	Dissolved metals	NO3	NH3	BTEX
1 MJ MW03 Duplica	✓				7	06/12/10	5:00pm		✓	✓	✓	✓
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

TAT (Turnaround Time)

<5 DAY TAT MUST HAVE PRIOR APPROVAL

*some exceptions apply please contact lab

STANDARD 5 BUSINESS DAYS ☐
RUSH 3 BUSINESS DAYS ☐
RUSH 2 BUSINESS DAYS ☐
URGENT 1 BUSINESS DAY ☐

OTHER BUSINESS DAYS ____

CUSTODY RECORD

P.O. NUMBER / QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

☐ CCME
☐ CSR
☐ ALBERTA TIER 1
☐ OTHER

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

JARS USED:

ARRIVAL TEMPERATURE °C: 7/7/7

DUE DATE:

LOG IN CHECK:

RELINQUISHED BY SAMPLER:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY: Breanne Waggott	DATE: DD/MM/YY 07/12/10	TIME: 3:45	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY 8/12/10	TIME: 1315	RECEIVED BY LABORATORY:

COCFORM - BC - 06/06

ORIGINAL - MAXXAM YELLOW - MAXXAM PINK - CLIENT

APPENDIX G

APPENDIX G HYDRAULIC RESPONSE TEST DATA AND ANALYSIS

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:01:52	1.9231	0	0.96854	11:02:47	2.5449	55	0.34674	11:03:42	2.61733	110	0.27431
11:01:53	2.08821	1	0.80343	11:02:48	2.5472	56	0.34444	11:03:43	2.62045	111	0.27119
11:01:54	2.1085	2	0.78314	11:02:49	2.54872	57	0.34292	11:03:44	2.61848	112	0.27316
11:01:55	2.13596	3	0.75568	11:02:50	2.55063	58	0.34101	11:03:45	2.6225	113	0.26914
11:01:56	2.15829	4	0.73335	11:02:51	2.55255	59	0.33909	11:03:46	2.62128	114	0.27036
11:01:57	2.1816	5	0.71004	11:02:52	2.55419	60	0.33745	11:03:47	2.62379	115	0.26785
11:01:58	2.19979	6	0.69185	11:02:53	2.55623	61	0.33541	11:03:48	2.62341	116	0.26823
11:01:59	2.21999	7	0.67165	11:02:54	2.5569	62	0.33474	11:03:49	2.62454	117	0.2671
11:02:00	2.24687	8	0.64477	11:02:55	2.55907	63	0.33257	11:03:50	2.62492	118	0.26672
11:02:01	2.25821	9	0.63343	11:02:56	2.56076	64	0.33088	11:03:51	2.62566	119	0.26598
11:02:02	2.27332	10	0.61832	11:02:57	2.56213	65	0.32951	11:03:52	2.62668	120	0.26496
11:02:03	2.29604	11	0.5956	11:02:58	2.56354	66	0.3281	11:03:53	2.6271	121	0.26454
11:02:04	2.31402	12	0.57762	11:02:59	2.56504	67	0.3266	11:03:54	2.62781	122	0.26383
11:02:05	2.31531	13	0.57633	11:03:00	2.56757	68	0.32407	11:03:55	2.63018	123	0.26146
11:02:06	2.3358	14	0.55584	11:03:01	2.56857	69	0.32307	11:03:56	2.63185	124	0.25979
11:02:07	2.35086	15	0.54078	11:03:02	2.5707	70	0.32094	11:03:57	2.63301	125	0.25863
11:02:08	2.36604	16	0.5256	11:03:03	2.57225	71	0.31939	11:03:58	2.63367	126	0.25797
11:02:09	2.36388	17	0.52776	11:03:04	2.57478	72	0.31686	11:03:59	2.63445	127	0.25719
11:02:10	2.39093	18	0.50071	11:03:05	2.57549	73	0.31615	11:04:00	2.63551	128	0.25613
11:02:11	2.39941	19	0.49223	11:03:06	2.5943	74	0.29734	11:04:01	2.63645	129	0.25519
11:02:12	2.41327	20	0.47837	11:03:07	2.58217	75	0.30947	11:04:02	2.63772	130	0.25392
11:02:13	2.40829	21	0.48335	11:03:08	2.58068	76	0.31096	11:04:03	2.63935	131	0.25229
11:02:14	2.42799	22	0.46365	11:03:09	2.58155	77	0.31009	11:04:04	2.6367	132	0.25494
11:02:15	2.43705	23	0.45459	11:03:10	2.58339	78	0.30825	11:04:05	2.63752	133	0.25412
11:02:16	2.44156	24	0.45008	11:03:11	2.58345	79	0.30819	11:04:06	2.64011	134	0.25153
11:02:17	2.44953	25	0.44211	11:03:12	2.58555	80	0.30609	11:04:07	2.64247	135	0.24917
11:02:18	2.44809	26	0.44355	11:03:13	2.5865	81	0.30514	11:04:08	2.64444	136	0.2472
11:02:19	2.18028	27	0.71136	11:03:14	2.58744	82	0.3042	11:04:09	2.646	137	0.24564
11:02:20	2.39294	28	0.4987	11:03:15	2.58896	83	0.30268	11:04:10	2.63999	138	0.25165
11:02:21	2.37516	29	0.51648	11:03:16	2.59105	84	0.30059	11:04:11	2.64111	139	0.25053
11:02:22	2.35449	30	0.53715	11:03:17	2.59213	85	0.29951	11:04:12	2.64148	140	0.25016
11:02:23	2.33076	31	0.56088	11:03:18	2.59272	86	0.29892	11:04:13	2.6423	141	0.24934
11:02:24	2.33341	32	0.55823	11:03:19	2.59347	87	0.29817	11:04:14	2.6459	142	0.24574
11:02:25	2.33729	33	0.55435	11:03:20	2.59569	88	0.29595	11:04:15	2.64444	143	0.2472
11:02:26	2.34862	34	0.54302	11:03:21	2.59742	89	0.29422	11:04:16	2.64797	144	0.24367
11:02:27	2.37066	35	0.52098	11:03:22	2.59779	90	0.29385	11:04:17	2.64713	145	0.24451
11:02:28	2.42634	36	0.4653	11:03:23	2.59851	91	0.29313	11:04:18	2.647	146	0.24464
11:02:29	2.44858	37	0.44306	11:03:24	2.5992	92	0.29244	11:04:19	2.6481	147	0.24354
11:02:30	2.49814	38	0.3935	11:03:25	2.60025	93	0.29139	11:04:20	2.647	148	0.24464
11:02:31	2.50997	39	0.38167	11:03:26	2.60098	94	0.29066	11:04:21	2.64817	149	0.24347
11:02:32	2.51007	40	0.38157	11:03:27	2.60185	95	0.28979	11:04:22	2.64898	150	0.24266
11:02:33	2.51211	41	0.37953	11:03:28	2.60307	96	0.28857	11:04:23	2.65255	151	0.23909
11:02:34	2.51489	42	0.37675	11:03:29	2.60371	97	0.28793	11:04:24	2.65037	152	0.24127
11:02:35	2.51726	43	0.37438	11:03:30	2.60437	98	0.28727	11:04:25	2.6506	153	0.24104
11:02:36	2.51909	44	0.37255	11:03:31	2.60546	99	0.28618	11:04:26	2.65082	154	0.24082
11:02:37	2.52275	45	0.36889	11:03:32	2.60709	100	0.28455	11:04:27	2.6523	155	0.23934
11:02:38	2.52483	46	0.36681	11:03:33	2.60754	101	0.2841	11:04:28	2.65332	156	0.23832
11:02:39	2.52831	47	0.36333	11:03:34	2.60867	102	0.28297	11:04:29	2.65357	157	0.23807
11:02:40	2.53068	48	0.36096	11:03:35	2.61116	103	0.28048	11:04:30	2.65413	158	0.23751
11:02:41	2.53211	49	0.35953	11:03:36	2.6136	104	0.27804	11:04:31	2.65468	159	0.23696
11:02:42	2.53388	50	0.35776	11:03:37	2.61291	105	0.27873	11:04:32	2.65713	160	0.23451
11:02:43	2.53632	51	0.35532	11:03:38	2.61459	106	0.27705	11:04:33	2.65834	161	0.2333
11:02:44	2.53875	52	0.35289	11:03:39	2.61683	107	0.27481	11:04:34	2.65944	162	0.2322
11:02:45	2.54066	53	0.35098	11:03:40	2.61823	108	0.27341	11:04:35	2.65931	163	0.23233
11:02:46	2.54257	54	0.34907	11:03:41	2.61831	109	0.27333	11:04:36	2.65993	164	0.23171

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:04:37	2.66127	165	0.23037	11:05:32	2.69061	220	0.20103	11:06:27	2.71577	275	0.17587
11:04:38	2.66122	166	0.23042	11:05:33	2.69041	221	0.20123	11:06:28	2.71683	276	0.17481
11:04:39	2.66168	167	0.22996	11:05:34	2.69249	222	0.19915	11:06:29	2.71728	277	0.17436
11:04:40	2.66293	168	0.22871	11:05:35	2.69363	223	0.19801	11:06:30	2.71765	278	0.17399
11:04:41	2.66274	169	0.2289	11:05:36	2.69414	224	0.1975	11:06:31	2.7177	279	0.17394
11:04:42	2.66419	170	0.22745	11:05:37	2.6949	225	0.19674	11:06:32	2.71864	280	0.173
11:04:43	2.66416	171	0.22748	11:05:38	2.69505	226	0.19659	11:06:33	2.71917	281	0.17247
11:04:44	2.66507	172	0.22657	11:05:39	2.69559	227	0.19605	11:06:34	2.72039	282	0.17125
11:04:45	2.66569	173	0.22595	11:05:40	2.69636	228	0.19528	11:06:35	2.72092	283	0.17072
11:04:46	2.66703	174	0.22461	11:05:41	2.69647	229	0.19517	11:06:36	2.72726	284	0.16438
11:04:47	2.66708	175	0.22456	11:05:42	2.6969	230	0.19474	11:06:37	2.72648	285	0.16516
11:04:48	2.66823	176	0.22341	11:05:43	2.6975	231	0.19414	11:06:38	2.72836	286	0.16328
11:04:49	2.66601	177	0.22563	11:05:44	2.69809	232	0.19355	11:06:39	2.72006	287	0.17158
11:04:50	2.66906	178	0.22258	11:05:45	2.69851	233	0.19313	11:06:40	2.72286	288	0.16878
11:04:51	2.67006	179	0.22158	11:05:46	2.6992	234	0.19244	11:06:41	2.72382	289	0.16782
11:04:52	2.66834	180	0.2233	11:05:47	2.69989	235	0.19175	11:06:42	2.72431	290	0.16733
11:04:53	2.67011	181	0.22153	11:05:48	2.70041	236	0.19123	11:06:43	2.72415	291	0.16749
11:04:54	2.66977	182	0.22187	11:05:49	2.70133	237	0.19031	11:06:44	2.72406	292	0.16758
11:04:55	2.67019	183	0.22145	11:05:50	2.70146	238	0.19018	11:06:45	2.72473	293	0.16691
11:04:56	2.67054	184	0.2211	11:05:51	2.70225	239	0.18939	11:06:46	2.72422	294	0.16742
11:04:57	2.67129	185	0.22035	11:05:52	2.70032	240	0.19132	11:06:47	2.72593	295	0.16571
11:04:58	2.67161	186	0.22003	11:05:53	2.70209	241	0.18955	11:06:48	2.72447	296	0.16717
11:04:59	2.67367	187	0.21797	11:05:54	2.7032	242	0.18844	11:06:49	2.72701	297	0.16463
11:05:00	2.67448	188	0.21716	11:05:55	2.70161	243	0.19003	11:06:50	2.72461	298	0.16703
11:05:01	2.67529	189	0.21635	11:05:56	2.70363	244	0.18801	11:06:51	2.72573	299	0.16591
11:05:02	2.67603	190	0.21561	11:05:57	2.70408	245	0.18756	11:06:52	2.72678	300	0.16486
11:05:03	2.67711	191	0.21453	11:05:58	2.70375	246	0.18789	11:06:53	2.72833	301	0.16331
11:05:04	2.67786	192	0.21378	11:05:59	2.70395	247	0.18769	11:06:54	2.72868	302	0.16296
11:05:05	2.67785	193	0.21379	11:06:00	2.70459	248	0.18705	11:06:55	2.72762	303	0.16402
11:05:06	2.67854	194	0.2131	11:06:01	2.70363	249	0.18801	11:06:56	2.728	304	0.16364
11:05:07	2.67899	195	0.21265	11:06:02	2.70376	250	0.18788	11:06:57	2.72894	305	0.1627
11:05:08	2.67928	196	0.21236	11:06:03	2.70453	251	0.18711	11:06:58	2.72946	306	0.16218
11:05:09	2.67945	197	0.21219	11:06:04	2.70632	252	0.18532	11:06:59	2.72958	307	0.16206
11:05:10	2.68094	198	0.2107	11:06:05	2.70605	253	0.18559	11:07:00	2.73011	308	0.16153
11:05:11	2.68109	199	0.21055	11:06:06	2.70684	254	0.1848	11:07:01	2.73104	309	0.1606
11:05:12	2.68176	200	0.20988	11:06:07	2.70741	255	0.18423	11:07:02	2.73205	310	0.15959
11:05:13	2.68229	201	0.20935	11:06:08	2.70817	256	0.18347	11:07:03	2.73238	311	0.15926
11:05:14	2.68126	202	0.21038	11:06:09	2.70849	257	0.18315	11:07:04	2.73224	312	0.1594
11:05:15	2.68128	203	0.21036	11:06:10	2.70904	258	0.1826	11:07:05	2.7328	313	0.15884
11:05:16	2.68322	204	0.20842	11:06:11	2.70878	259	0.18286	11:07:06	2.73344	314	0.1582
11:05:17	2.68423	205	0.20741	11:06:12	2.70971	260	0.18193	11:07:07	2.73251	315	0.15913
11:05:18	2.68513	206	0.20651	11:06:13	2.70987	261	0.18177	11:07:08	2.73253	316	0.15911
11:05:19	2.68534	207	0.2063	11:06:14	2.71072	262	0.18092	11:07:09	2.73241	317	0.15923
11:05:20	2.68609	208	0.20555	11:06:15	2.71129	263	0.18035	11:07:10	2.7325	318	0.15914
11:05:21	2.68524	209	0.2064	11:06:16	2.71148	264	0.18016	11:07:11	2.73376	319	0.15788
11:05:22	2.6854	210	0.20624	11:06:17	2.71156	265	0.18008	11:07:12	2.7349	320	0.15674
11:05:23	2.68484	211	0.2068	11:06:18	2.71224	266	0.1794	11:07:13	2.73447	321	0.15717
11:05:24	2.68656	212	0.20508	11:06:19	2.71318	267	0.17846	11:07:14	2.73583	322	0.15581
11:05:25	2.68822	213	0.20342	11:06:20	2.71347	268	0.17817	11:07:15	2.73588	323	0.15576
11:05:26	2.68883	214	0.20281	11:06:21	2.71354	269	0.1781	11:07:16	2.73583	324	0.15581
11:05:27	2.69023	215	0.20141	11:06:22	2.71489	270	0.17675	11:07:17	2.73659	325	0.15505
11:05:28	2.69064	216	0.201	11:06:23	2.71453	271	0.17711	11:07:18	2.73683	326	0.15481
11:05:29	2.69127	217	0.20037	11:06:24	2.71532	272	0.17632	11:07:19	2.73749	327	0.15415
11:05:30	2.6911	218	0.20054	11:06:25	2.71512	273	0.17652	11:07:20	2.73756	328	0.15408
11:05:31	2.69	219	0.20164	11:06:26	2.71615	274	0.17549	11:07:21	2.738	329	0.15364

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:07:22	2.73836	330	0.15328	11:08:17	2.7535	385	0.13814	11:09:12	2.77155	440	0.12009
11:07:23	2.73856	331	0.15308	11:08:18	2.75445	386	0.13719	11:09:13	2.7717	441	0.11994
11:07:24	2.73897	332	0.15267	11:08:19	2.75432	387	0.13732	11:09:14	2.77282	442	0.11882
11:07:25	2.7394	333	0.15224	11:08:20	2.75478	388	0.13686	11:09:15	2.76989	443	0.12175
11:07:26	2.73947	334	0.15217	11:08:21	2.7548	389	0.13684	11:09:16	2.76688	444	0.12476
11:07:27	2.73999	335	0.15165	11:08:22	2.75546	390	0.13618	11:09:17	2.76953	445	0.12211
11:07:28	2.74068	336	0.15096	11:08:23	2.75452	391	0.13712	11:09:18	2.76775	446	0.12389
11:07:29	2.74073	337	0.15091	11:08:24	2.75647	392	0.13517	11:09:19	2.76727	447	0.12437
11:07:30	2.74105	338	0.15059	11:08:25	2.7574	393	0.13424	11:09:20	2.76812	448	0.12352
11:07:31	2.74131	339	0.15033	11:08:26	2.75681	394	0.13483	11:09:21	2.76944	449	0.1222
11:07:32	2.74164	340	0.15	11:08:27	2.75777	395	0.13387	11:09:22	2.77022	450	0.12142
11:07:33	2.74212	341	0.14952	11:08:28	2.75792	396	0.13372	11:09:23	2.77069	451	0.12095
11:07:34	2.74193	342	0.14971	11:08:29	2.75827	397	0.13337	11:09:24	2.77047	452	0.12117
11:07:35	2.74272	343	0.14892	11:08:30	2.75838	398	0.13326	11:09:25	2.77125	453	0.12039
11:07:36	2.74282	344	0.14882	11:08:31	2.75902	399	0.13262	11:09:26	2.77139	454	0.12025
11:07:37	2.74307	345	0.14857	11:08:32	2.75753	400	0.13411	11:09:27	2.77139	455	0.12025
11:07:38	2.74368	346	0.14796	11:08:33	2.75846	401	0.13318	11:09:28	2.77171	456	0.11993
11:07:39	2.74219	347	0.14945	11:08:34	2.75962	402	0.13202	11:09:29	2.77186	457	0.11978
11:07:40	2.74341	348	0.14823	11:08:35	2.75788	403	0.13376	11:09:30	2.77228	458	0.11936
11:07:41	2.74389	349	0.14775	11:08:36	2.75941	404	0.13223	11:09:31	2.77189	459	0.11975
11:07:42	2.74474	350	0.1469	11:08:37	2.76029	405	0.13135	11:09:32	2.77309	460	0.11855
11:07:43	2.74387	351	0.14777	11:08:38	2.76031	406	0.13133	11:09:33	2.77298	461	0.11866
11:07:44	2.7448	352	0.14684	11:08:39	2.76032	407	0.13132	11:09:34	2.77329	462	0.11835
11:07:45	2.74425	353	0.14739	11:08:40	2.7604	408	0.13124	11:09:35	2.77322	463	0.11842
11:07:46	2.74477	354	0.14687	11:08:41	2.76138	409	0.13026	11:09:36	2.77332	464	0.11832
11:07:47	2.74551	355	0.14613	11:08:42	2.76127	410	0.13037	11:09:37	2.77367	465	0.11797
11:07:48	2.74476	356	0.14688	11:08:43	2.76135	411	0.13029	11:09:38	2.7741	466	0.11754
11:07:49	2.74588	357	0.14576	11:08:44	2.76093	412	0.13071	11:09:39	2.7745	467	0.11714
11:07:50	2.74733	358	0.14431	11:08:45	2.76199	413	0.12965	11:09:40	2.77442	468	0.11722
11:07:51	2.74707	359	0.14457	11:08:46	2.76226	414	0.12938	11:09:41	2.77476	469	0.11688
11:07:52	2.74766	360	0.14398	11:08:47	2.76216	415	0.12948	11:09:42	2.77507	470	0.11657
11:07:53	2.74788	361	0.14376	11:08:48	2.76252	416	0.12912	11:09:43	2.7752	471	0.11644
11:07:54	2.74746	362	0.14418	11:08:49	2.76294	417	0.1287	11:09:44	2.77572	472	0.11592
11:07:55	2.74778	363	0.14386	11:08:50	2.76318	418	0.12846	11:09:45	2.77597	473	0.11567
11:07:56	2.74778	364	0.14386	11:08:51	2.76401	419	0.12763	11:09:46	2.77568	474	0.11596
11:07:57	2.74801	365	0.14363	11:08:52	2.7639	420	0.12774	11:09:47	2.77588	475	0.11576
11:07:58	2.7481	366	0.14354	11:08:53	2.76355	421	0.12809	11:09:48	2.77613	476	0.11551
11:07:59	2.74867	367	0.14297	11:08:54	2.76484	422	0.1268	11:09:49	2.77673	477	0.11491
11:08:00	2.74852	368	0.14312	11:08:55	2.76445	423	0.12719	11:09:50	2.77704	478	0.1146
11:08:01	2.74882	369	0.14282	11:08:56	2.76497	424	0.12667	11:09:51	2.77721	479	0.11443
11:08:02	2.74928	370	0.14236	11:08:57	2.76546	425	0.12618	11:09:52	2.77744	480	0.1142
11:08:03	2.74962	371	0.14202	11:08:58	2.76539	426	0.12625	11:09:53	2.7776	481	0.11404
11:08:04	2.75018	372	0.14146	11:08:59	2.76569	427	0.12595	11:09:54	2.77763	482	0.11401
11:08:05	2.75045	373	0.14119	11:09:00	2.76571	428	0.12593	11:09:55	2.77756	483	0.11408
11:08:06	2.75031	374	0.14133	11:09:01	2.76627	429	0.12537	11:09:56	2.77769	484	0.11395
11:08:07	2.75077	375	0.14087	11:09:02	2.76669	430	0.12495	11:09:57	2.77821	485	0.11343
11:08:08	2.75109	376	0.14055	11:09:03	2.76607	431	0.12557	11:09:58	2.7787	486	0.11294
11:08:09	2.75121	377	0.14043	11:09:04	2.76711	432	0.12453	11:09:59	2.77873	487	0.11291
11:08:10	2.75141	378	0.14023	11:09:05	2.76791	433	0.12373	11:10:00	2.7789	488	0.11274
11:08:11	2.75131	379	0.14033	11:09:06	2.76905	434	0.12259	11:10:01	2.77871	489	0.11293
11:08:12	2.7518	380	0.13984	11:09:07	2.76919	435	0.12245	11:10:02	2.77967	490	0.11197
11:08:13	2.75231	381	0.13933	11:09:08	2.77016	436	0.12148	11:10:03	2.77954	491	0.1121
11:08:14	2.75276	382	0.13888	11:09:09	2.76961	437	0.12203	11:10:04	2.78001	492	0.11163
11:08:15	2.75303	383	0.13861	11:09:10	2.77083	438	0.12081	11:10:05	2.7796	493	0.11204
11:08:16	2.75368	384	0.13796	11:09:11	2.77104	439	0.1206	11:10:06	2.77966	494	0.11198

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:10:07	2.77987	495	0.11177	11:11:02	2.79004	550	0.1016	11:11:57	2.79907	605	0.09257
11:10:08	2.78035	496	0.11129	11:11:03	2.78994	551	0.1017	11:11:58	2.79944	606	0.0922
11:10:09	2.78128	497	0.11036	11:11:04	2.78962	552	0.10202	11:11:59	2.80002	607	0.09162
11:10:10	2.78083	498	0.11081	11:11:05	2.78991	553	0.10173	11:12:00	2.7997	608	0.09194
11:10:11	2.78147	499	0.11017	11:11:06	2.7897	554	0.10194	11:12:01	2.79991	609	0.09173
11:10:12	2.78123	500	0.11041	11:11:07	2.79041	555	0.10123	11:12:02	2.79941	610	0.09223
11:10:13	2.78183	501	0.10981	11:11:08	2.78986	556	0.10178	11:12:03	2.79987	611	0.09177
11:10:14	2.78164	502	0.11	11:11:09	2.79051	557	0.10113	11:12:04	2.80018	612	0.09146
11:10:15	2.78174	503	0.1099	11:11:10	2.78977	558	0.10187	11:12:05	2.8001	613	0.09154
11:10:16	2.78198	504	0.10966	11:11:11	2.79137	559	0.10027	11:12:06	2.80006	614	0.09158
11:10:17	2.78251	505	0.10913	11:11:12	2.79048	560	0.10116	11:12:07	2.80049	615	0.09115
11:10:18	2.78236	506	0.10928	11:11:13	2.79093	561	0.10071	11:12:08	2.80056	616	0.09108
11:10:19	2.78301	507	0.10863	11:11:14	2.791	562	0.10064	11:12:09	2.80075	617	0.09089
11:10:20	2.78323	508	0.10841	11:11:15	2.79096	563	0.10068	11:12:10	2.80072	618	0.09092
11:10:21	2.78346	509	0.10818	11:11:16	2.79146	564	0.10018	11:12:11	2.80143	619	0.09021
11:10:22	2.78333	510	0.10831	11:11:17	2.791	565	0.10064	11:12:12	2.80187	620	0.08977
11:10:23	2.78381	511	0.10783	11:11:18	2.79124	566	0.1004	11:12:13	2.80187	621	0.08977
11:10:24	2.78392	512	0.10772	11:11:19	2.79126	567	0.10038	11:12:14	2.80206	622	0.08958
11:10:25	2.78365	513	0.10799	11:11:20	2.79169	568	0.09995	11:12:15	2.80326	623	0.08838
11:10:26	2.78407	514	0.10757	11:11:21	2.79243	569	0.09921	11:12:16	2.80391	624	0.08773
11:10:27	2.78404	515	0.1076	11:11:22	2.79551	570	0.09613	11:12:17	2.8009	625	0.09074
11:10:28	2.78407	516	0.10757	11:11:23	2.79299	571	0.09865	11:12:18	2.80253	626	0.08911
11:10:29	2.78867	517	0.10297	11:11:24	2.79281	572	0.09883	11:12:19	2.80184	627	0.0898
11:10:30	2.79343	518	0.09821	11:11:25	2.79352	573	0.09812	11:12:20	2.80149	628	0.09015
11:10:31	2.7866	519	0.10504	11:11:26	2.79375	574	0.09789	11:12:21	2.80253	629	0.08911
11:10:32	2.78638	520	0.10526	11:11:27	2.79349	575	0.09815	11:12:22	2.80165	630	0.08999
11:10:33	2.78864	521	0.103	11:11:28	2.794	576	0.09764	11:12:23	2.80253	631	0.08911
11:10:34	2.78439	522	0.10725	11:11:29	2.79293	577	0.09871	11:12:24	2.80257	632	0.08907
11:10:35	2.78481	523	0.10683	11:11:30	2.79334	578	0.0983	11:12:25	2.80308	633	0.08856
11:10:36	2.78589	524	0.10575	11:11:31	2.79398	579	0.09766	11:12:26	2.80336	634	0.08828
11:10:37	2.78618	525	0.10546	11:11:32	2.79417	580	0.09747	11:12:27	2.80349	635	0.08815
11:10:38	2.7874	526	0.10424	11:11:33	2.79424	581	0.0974	11:12:28	2.80382	636	0.08782
11:10:39	2.78572	527	0.10592	11:11:34	2.79443	582	0.09721	11:12:29	2.80349	637	0.08815
11:10:40	2.78439	528	0.10725	11:11:35	2.79493	583	0.09671	11:12:30	2.80378	638	0.08786
11:10:41	2.78695	529	0.10469	11:11:36	2.79543	584	0.09621	11:12:31	2.8045	639	0.08714
11:10:42	2.78527	530	0.10637	11:11:37	2.79531	585	0.09633	11:12:32	2.80407	640	0.08757
11:10:43	2.78714	531	0.1045	11:11:38	2.79602	586	0.09562	11:12:33	2.80457	641	0.08707
11:10:44	2.78529	532	0.10635	11:11:39	2.79644	587	0.0952	11:12:34	2.80479	642	0.08685
11:10:45	2.78685	533	0.10479	11:11:40	2.7968	588	0.09484	11:12:35	2.80512	643	0.08652
11:10:46	2.78705	534	0.10459	11:11:41	2.79662	589	0.09502	11:12:36	2.80479	644	0.08685
11:10:47	2.78526	535	0.10638	11:11:42	2.79741	590	0.09423	11:12:37	2.80518	645	0.08646
11:10:48	2.78708	536	0.10456	11:11:43	2.79703	591	0.09461	11:12:38	2.80583	646	0.08581
11:10:49	2.78711	537	0.10453	11:11:44	2.79721	592	0.09443	11:12:39	2.80592	647	0.08572
11:10:50	2.78861	538	0.10303	11:11:45	2.79763	593	0.09401	11:12:40	2.80551	648	0.08613
11:10:51	2.78876	539	0.10288	11:11:46	2.79782	594	0.09382	11:12:41	2.80554	649	0.0861
11:10:52	2.78845	540	0.10319	11:11:47	2.79724	595	0.0944	11:12:42	2.80629	650	0.08535
11:10:53	2.78887	541	0.10277	11:11:48	2.79805	596	0.09359	11:12:43	2.80621	651	0.08543
11:10:54	2.78942	542	0.10222	11:11:49	2.79783	597	0.09381	11:12:44	2.80641	652	0.08523
11:10:55	2.78776	543	0.10388	11:11:50	2.79834	598	0.0933	11:12:45	2.80648	653	0.08516
11:10:56	2.78936	544	0.10228	11:11:51	2.79874	599	0.0929	11:12:46	2.80622	654	0.08542
11:10:57	2.78776	545	0.10388	11:11:52	2.79821	600	0.09343	11:12:47	2.80654	655	0.0851
11:10:58	2.7887	546	0.10294	11:11:53	2.79827	601	0.09337	11:12:48	2.80715	656	0.08449
11:10:59	2.78968	547	0.10196	11:11:54	2.79894	602	0.0927	11:12:49	2.80708	657	0.08456
11:11:00	2.78993	548	0.10171	11:11:55	2.799	603	0.09264	11:12:50	2.80719	658	0.08445
11:11:01	2.78955	549	0.10209	11:11:56	2.79935	604	0.09229	11:12:51	2.8074	659	0.08424

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:12:52	2.80764	660	0.084	11:13:47	2.81411	715	0.07753	11:14:42	2.82071	770	0.07093
11:12:53	2.80769	661	0.08395	11:13:48	2.81431	716	0.07733	11:14:43	2.82032	771	0.07132
11:12:54	2.8076	662	0.08404	11:13:49	2.81438	717	0.07726	11:14:44	2.82086	772	0.07078
11:12:55	2.80769	663	0.08395	11:13:50	2.81446	718	0.07718	11:14:45	2.82055	773	0.07109
11:12:56	2.80686	664	0.08478	11:13:51	2.8145	719	0.07714	11:14:46	2.82056	774	0.07108
11:12:57	2.8074	665	0.08424	11:13:52	2.81447	720	0.07717	11:14:47	2.82076	775	0.07088
11:12:58	2.80753	666	0.08411	11:13:53	2.81473	721	0.07691	11:14:48	2.82149	776	0.07015
11:12:59	2.80713	667	0.08451	11:13:54	2.81526	722	0.07638	11:14:49	2.82098	777	0.07066
11:13:00	2.8079	668	0.08374	11:13:55	2.81504	723	0.0766	11:14:50	2.82131	778	0.07033
11:13:01	2.80842	669	0.08322	11:13:56	2.81584	724	0.0758	11:14:51	2.82124	779	0.0704
11:13:02	2.80791	670	0.08373	11:13:57	2.81539	725	0.07625	11:14:52	2.8216	780	0.07004
11:13:03	2.80848	671	0.08316	11:13:58	2.81603	726	0.07561	11:14:53	2.82173	781	0.06991
11:13:04	2.80839	672	0.08325	11:13:59	2.81547	727	0.07617	11:14:54	2.8217	782	0.06994
11:13:05	2.80841	673	0.08323	11:14:00	2.8156	728	0.07604	11:14:55	2.82163	783	0.07001
11:13:06	2.80862	674	0.08302	11:14:01	2.81587	729	0.07577	11:14:56	2.82202	784	0.06962
11:13:07	2.80871	675	0.08293	11:14:02	2.81593	730	0.07571	11:14:57	2.82234	785	0.0693
11:13:08	2.80897	676	0.08267	11:14:03	2.81584	731	0.0758	11:14:58	2.82266	786	0.06898
11:13:09	2.80891	677	0.08273	11:14:04	2.81658	732	0.07506	11:14:59	2.82165	787	0.06999
11:13:10	2.80933	678	0.08231	11:14:05	2.81658	733	0.07506	11:15:00	2.82296	788	0.06868
11:13:11	2.80886	679	0.08278	11:14:06	2.81671	734	0.07493	11:15:01	2.82298	789	0.06866
11:13:12	2.809	680	0.08264	11:14:07	2.81642	735	0.07522	11:15:02	2.82337	790	0.06827
11:13:13	2.80974	681	0.0819	11:14:08	2.81723	736	0.07441	11:15:03	2.82321	791	0.06843
11:13:14	2.80987	682	0.08177	11:14:09	2.8168	737	0.07484	11:15:04	2.82166	792	0.06998
11:13:15	2.80972	683	0.08192	11:14:10	2.81687	738	0.07477	11:15:05	2.82324	793	0.0684
11:13:16	2.80864	684	0.083	11:14:11	2.81707	739	0.07457	11:15:06	2.82226	794	0.06938
11:13:17	2.81033	685	0.08131	11:14:12	2.81628	740	0.07536	11:15:07	2.82286	795	0.06878
11:13:18	2.81004	686	0.0816	11:14:13	2.81583	741	0.07581	11:15:08	2.82172	796	0.06992
11:13:19	2.81011	687	0.08153	11:14:14	2.81622	742	0.07542	11:15:09	2.82231	797	0.06933
11:13:20	2.81042	688	0.08122	11:14:15	2.81743	743	0.07421	11:15:10	2.82259	798	0.06905
11:13:21	2.81003	689	0.08161	11:14:16	2.81754	744	0.0741	11:15:11	2.82324	799	0.0684
11:13:22	2.80995	690	0.08169	11:14:17	2.81813	745	0.07351	11:15:12	2.82395	800	0.06769
11:13:23	2.81097	691	0.08067	11:14:18	2.81807	746	0.07357	11:15:13	2.82393	801	0.06771
11:13:24	2.81135	692	0.08029	11:14:19	2.8181	747	0.07354	11:15:14	2.82445	802	0.06719
11:13:25	2.81154	693	0.0801	11:14:20	2.81751	748	0.07413	11:15:15	2.82414	803	0.0675
11:13:26	2.81059	694	0.08105	11:14:21	2.81794	749	0.0737	11:15:16	2.82467	804	0.06697
11:13:27	2.8111	695	0.08054	11:14:22	2.81838	750	0.07326	11:15:17	2.82476	805	0.06688
11:13:28	2.81127	696	0.08037	11:14:23	2.81815	751	0.07349	11:15:18	2.82493	806	0.06671
11:13:29	2.81202	697	0.07962	11:14:24	2.81833	752	0.07331	11:15:19	2.82531	807	0.06633
11:13:30	2.81169	698	0.07995	11:14:25	2.81887	753	0.07277	11:15:20	2.8248	808	0.06684
11:13:31	2.81181	699	0.07983	11:14:26	2.81838	754	0.07326	11:15:21	2.82526	809	0.06638
11:13:32	2.81199	700	0.07965	11:14:27	2.81865	755	0.07299	11:15:22	2.82513	810	0.06651
11:13:33	2.8124	701	0.07924	11:14:28	2.81921	756	0.07243	11:15:23	2.82513	811	0.06651
11:13:34	2.81249	702	0.07915	11:14:29	2.81952	757	0.07212	11:15:24	2.82579	812	0.06585
11:13:35	2.81234	703	0.0793	11:14:30	2.81961	758	0.07203	11:15:25	2.82505	813	0.06659
11:13:36	2.81323	704	0.07841	11:14:31	2.819	759	0.07264	11:15:26	2.82558	814	0.06606
11:13:37	2.81252	705	0.07912	11:14:32	2.81961	760	0.07203	11:15:27	2.82563	815	0.06601
11:13:38	2.81348	706	0.07816	11:14:33	2.81988	761	0.07176	11:15:28	2.82568	816	0.06596
11:13:39	2.81297	707	0.07867	11:14:34	2.81974	762	0.0719	11:15:29	2.82547	817	0.06617
11:13:40	2.8132	708	0.07844	11:14:35	2.81953	763	0.07211	11:15:30	2.82615	818	0.06549
11:13:41	2.81347	709	0.07817	11:14:36	2.81974	764	0.0719	11:15:31	2.82554	819	0.0661
11:13:42	2.81377	710	0.07787	11:14:37	2.81965	765	0.07199	11:15:32	2.82589	820	0.06575
11:13:43	2.81337	711	0.07827	11:14:38	2.82003	766	0.07161	11:15:33	2.82649	821	0.06515
11:13:44	2.81366	712	0.07798	11:14:39	2.82068	767	0.07096	11:15:34	2.82628	822	0.06536
11:13:45	2.81415	713	0.07749	11:14:40	2.81982	768	0.07182	11:15:35	2.82636	823	0.06528
11:13:46	2.81353	714	0.07811	11:14:41	2.82064	769	0.071	11:15:36	2.82658	824	0.06506

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:15:37	2.82615	825	0.06549	11:16:32	2.83089	880	0.06075	11:17:27	2.83522	935	0.05642
11:15:38	2.82638	826	0.06526	11:16:33	2.83124	881	0.0604	11:17:28	2.83593	936	0.05571
11:15:39	2.82643	827	0.06521	11:16:34	2.83101	882	0.06063	11:17:29	2.83603	937	0.05561
11:15:40	2.82719	828	0.06445	11:16:35	2.83104	883	0.0606	11:17:30	2.83696	938	0.05468
11:15:41	2.82709	829	0.06455	11:16:36	2.83157	884	0.06007	11:17:31	2.83694	939	0.0547
11:15:42	2.82728	830	0.06436	11:16:37	2.83057	885	0.06107	11:17:32	2.83707	940	0.05457
11:15:43	2.82726	831	0.06438	11:16:38	2.83101	886	0.06063	11:17:33	2.83788	941	0.05376
11:15:44	2.82719	832	0.06445	11:16:39	2.83157	887	0.06007	11:17:34	2.83859	942	0.05305
11:15:45	2.82699	833	0.06465	11:16:40	2.83152	888	0.06012	11:17:35	2.83782	943	0.05382
11:15:46	2.82774	834	0.0639	11:16:41	2.83124	889	0.0604	11:17:36	2.83794	944	0.0537
11:15:47	2.82781	835	0.06383	11:16:42	2.83206	890	0.05958	11:17:37	2.83646	945	0.05518
11:15:48	2.82741	836	0.06423	11:16:43	2.83168	891	0.05996	11:17:38	2.83626	946	0.05538
11:15:49	2.82834	837	0.0633	11:16:44	2.83165	892	0.05999	11:17:39	2.83683	947	0.05481
11:15:50	2.82775	838	0.06389	11:16:45	2.83196	893	0.05968	11:17:40	2.83635	948	0.05529
11:15:51	2.82725	839	0.06439	11:16:46	2.83218	894	0.05946	11:17:41	2.83661	949	0.05503
11:15:52	2.82777	840	0.06387	11:16:47	2.83152	895	0.06012	11:17:42	2.83651	950	0.05513
11:15:53	2.82788	841	0.06376	11:16:48	2.83243	896	0.05921	11:17:43	2.83706	951	0.05458
11:15:54	2.82821	842	0.06343	11:16:49	2.83245	897	0.05919	11:17:44	2.83565	952	0.05599
11:15:55	2.82824	843	0.0634	11:16:50	2.83238	898	0.05926	11:17:45	2.83632	953	0.05532
11:15:56	2.8282	844	0.06344	11:16:51	2.8328	899	0.05884	11:17:46	2.83661	954	0.05503
11:15:57	2.82859	845	0.06305	11:16:52	2.83253	900	0.05911	11:17:47	2.83633	955	0.05531
11:15:58	2.82869	846	0.06295	11:16:53	2.83225	901	0.05939	11:17:48	2.83769	956	0.05395
11:15:59	2.82814	847	0.0635	11:16:54	2.83306	902	0.05858	11:17:49	2.83729	957	0.05435
11:16:00	2.82924	848	0.0624	11:16:55	2.83286	903	0.05878	11:17:50	2.83662	958	0.05502
11:16:01	2.82862	849	0.06302	11:16:56	2.83356	904	0.05808	11:17:51	2.83726	959	0.05438
11:16:02	2.82913	850	0.06251	11:16:57	2.83461	905	0.05703	11:17:52	2.8371	960	0.05454
11:16:03	2.82897	851	0.06267	11:16:58	2.83399	906	0.05765	11:17:53	2.83707	961	0.05457
11:16:04	2.82911	852	0.06253	11:16:59	2.83492	907	0.05672	11:17:54	2.83704	962	0.0546
11:16:05	2.82971	853	0.06193	11:17:00	2.83508	908	0.05656	11:17:55	2.83697	963	0.05467
11:16:06	2.82907	854	0.06257	11:17:01	2.83525	909	0.05639	11:17:56	2.83688	964	0.05476
11:16:07	2.82962	855	0.06202	11:17:02	2.83505	910	0.05659	11:17:57	2.83772	965	0.05392
11:16:08	2.82978	856	0.06186	11:17:03	2.83525	911	0.05639	11:17:58	2.83732	966	0.05432
11:16:09	2.82937	857	0.06227	11:17:04	2.83487	912	0.05677	11:17:59	2.83765	967	0.05399
11:16:10	2.82991	858	0.06173	11:17:05	2.83581	913	0.05583	11:18:00	2.83779	968	0.05385
11:16:11	2.83021	859	0.06143	11:17:06	2.83387	914	0.05777	11:18:01	2.83798	969	0.05366
11:16:12	2.83036	860	0.06128	11:17:07	2.83386	915	0.05778	11:18:02	2.83779	970	0.05385
11:16:13	2.83025	861	0.06139	11:17:08	2.83364	916	0.058	11:18:03	2.83807	971	0.05357
11:16:14	2.83017	862	0.06147	11:17:09	2.83444	917	0.0572	11:18:04	2.83811	972	0.05353
11:16:15	2.83005	863	0.06159	11:17:10	2.83561	918	0.05603	11:18:05	2.83801	973	0.05363
11:16:16	2.83072	864	0.06092	11:17:11	2.83601	919	0.05563	11:18:06	2.83827	974	0.05337
11:16:17	2.83041	865	0.06123	11:17:12	2.83622	920	0.05542	11:18:07	2.83813	975	0.05351
11:16:18	2.83085	866	0.06079	11:17:13	2.83667	921	0.05497	11:18:08	2.83842	976	0.05322
11:16:19	2.8307	867	0.06094	11:17:14	2.83609	922	0.05555	11:18:09	2.83862	977	0.05302
11:16:20	2.83014	868	0.0615	11:17:15	2.83452	923	0.05712	11:18:10	2.83853	978	0.05311
11:16:21	2.83099	869	0.06065	11:17:16	2.83461	924	0.05703	11:18:11	2.8383	979	0.05334
11:16:22	2.83099	870	0.06065	11:17:17	2.83483	925	0.05681	11:18:12	2.83832	980	0.05332
11:16:23	2.83137	871	0.06027	11:17:18	2.83486	926	0.05678	11:18:13	2.83827	981	0.05337
11:16:24	2.8305	872	0.06114	11:17:19	2.83457	927	0.05707	11:18:14	2.83879	982	0.05285
11:16:25	2.83147	873	0.06017	11:17:20	2.83468	928	0.05696	11:18:15	2.8391	983	0.05254
11:16:26	2.83136	874	0.06028	11:17:21	2.83508	929	0.05656	11:18:16	2.83911	984	0.05253
11:16:27	2.83128	875	0.06036	11:17:22	2.83515	930	0.05649	11:18:17	2.83903	985	0.05261
11:16:28	2.83155	876	0.06009	11:17:23	2.83476	931	0.05688	11:18:18	2.83872	986	0.05292
11:16:29	2.83114	877	0.0605	11:17:24	2.83476	932	0.05688	11:18:19	2.83894	987	0.0527
11:16:30	2.83224	878	0.0594	11:17:25	2.83545	933	0.05619	11:18:20	2.83919	988	0.05245
11:16:31	2.83066	879	0.06098	11:17:26	2.83521	934	0.05643	11:18:21	2.83908	989	0.05256

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW01

Channel 1 Identification

Static (m btoc) 2.89

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
11:18:22	2.83906	990	0.05258	11:19:17	2.84527	1045	0.04637	11:20:12	2.84711	1100	0.04453
11:18:23	2.83963	991	0.05201	11:19:18	2.84455	1046	0.04709	11:20:13	2.84716	1101	0.04448
11:18:24	2.83927	992	0.05237	11:19:19	2.8441	1047	0.04754	11:20:14	2.84704	1102	0.0446
11:18:25	2.83934	993	0.0523	11:19:20	2.8451	1048	0.04654	11:20:15	2.84765	1103	0.04399
11:18:26	2.83962	994	0.05202	11:19:21	2.84458	1049	0.04706	11:20:16	2.84788	1104	0.04376
11:18:27	2.83928	995	0.05236	11:19:22	2.84439	1050	0.04725	11:20:17	2.84787	1105	0.04377
11:18:28	2.83947	996	0.05217	11:19:23	2.84419	1051	0.04745	11:20:18	2.84772	1106	0.04392
11:18:29	2.83947	997	0.05217	11:19:24	2.84494	1052	0.0467	11:20:19	2.84778	1107	0.04386
11:18:30	2.83969	998	0.05195	11:19:25	2.84479	1053	0.04685	11:20:20	2.84743	1108	0.04421
11:18:31	2.83986	999	0.05178	11:19:26	2.84484	1054	0.0468	11:20:21	2.84788	1109	0.04376
11:18:32	2.83999	1000	0.05165	11:19:27	2.84471	1055	0.04693	11:20:22	2.848	1110	0.04364
11:18:33	2.8394	1001	0.05224	11:19:28	2.84419	1056	0.04745	11:20:23	2.84755	1111	0.04409
11:18:34	2.83949	1002	0.05215	11:19:29	2.84513	1057	0.04651	11:20:24	2.84797	1112	0.04367
11:18:35	2.83999	1003	0.05165	11:19:30	2.84533	1058	0.04631	11:20:25	2.84816	1113	0.04348
11:18:36	2.83975	1004	0.05189	11:19:31	2.84532	1059	0.04632	11:20:26	2.84849	1114	0.04315
11:18:37	2.84039	1005	0.05125	11:19:32	2.8448	1060	0.04684	11:20:27	2.84768	1115	0.04396
11:18:38	2.83998	1006	0.05166	11:19:33	2.84525	1061	0.04639	11:20:28	2.84836	1116	0.04328
11:18:39	2.84073	1007	0.05091	11:19:34	2.84535	1062	0.04629	11:20:29	2.84843	1117	0.04321
11:18:40	2.84028	1008	0.05136	11:19:35	2.8448	1063	0.04684	11:20:30	2.84798	1118	0.04366
11:18:41	2.84183	1009	0.04981	11:19:36	2.84519	1064	0.04645	11:20:31	2.8479	1119	0.04374
11:18:42	2.84282	1010	0.04882	11:19:37	2.84538	1065	0.04626	11:20:32	2.84854	1120	0.0431
11:18:43	2.8427	1011	0.04894	11:19:38	2.84501	1066	0.04663	11:20:33	2.8484	1121	0.04324
11:18:44	2.84315	1012	0.04849	11:19:39	2.84543	1067	0.04621	11:20:34	2.84856	1122	0.04308
11:18:45	2.84325	1013	0.04839	11:19:40	2.84548	1068	0.04616	11:20:35	2.84901	1123	0.04263
11:18:46	2.84183	1014	0.04981	11:19:41	2.84519	1069	0.04645	11:20:36	2.8486	1124	0.04304
11:18:47	2.8414	1015	0.05024	11:19:42	2.8459	1070	0.04574	11:20:37	2.84863	1125	0.04301
11:18:48	2.84263	1016	0.04901	11:19:43	2.84603	1071	0.04561	11:20:38	2.84905	1126	0.04259
11:18:49	2.84264	1017	0.049	11:19:44	2.84562	1072	0.04602	11:20:39	2.84888	1127	0.04276
11:18:50	2.84338	1018	0.04826	11:19:45	2.84601	1073	0.04563	11:20:40	2.84883	1128	0.04281
11:18:51	2.84227	1019	0.04937	11:19:46	2.84564	1074	0.046	11:20:41	2.84859	1129	0.04305
11:18:52	2.84193	1020	0.04971	11:19:47	2.84596	1075	0.04568	11:20:42	2.84914	1130	0.0425
11:18:53	2.84186	1021	0.04978	11:19:48	2.84648	1076	0.04516	11:20:43	2.84899	1131	0.04265
11:18:54	2.84167	1022	0.04997	11:19:49	2.84622	1077	0.04542	11:20:44	2.84899	1132	0.04265
11:18:55	2.84177	1023	0.04987	11:19:50	2.84601	1078	0.04563	11:20:45	2.84888	1133	0.04276
11:18:56	2.84224	1024	0.0494	11:19:51	2.84639	1079	0.04525	11:20:46	2.84936	1134	0.04228
11:18:57	2.84219	1025	0.04945	11:19:52	2.84593	1080		11:20:47	2.84927	1135	0.04237
11:18:58	2.84257	1026	0.04907	11:19:53	2.84648	1081	0.04516	11:20:48	2.84896	1136	0.04268
11:18:59	2.84211	1027	0.04953	11:19:54	2.84614	1082	0.0455	11:20:49	2.84912	1137	0.04252
11:19:00	2.84322	1028	0.04842	11:19:55	2.84651	1083	0.04513	11:20:50	2.84867	1138	0.04297
11:19:01	2.84285	1029	0.04879	11:19:56	2.84604	1084	0.0456	11:20:51	2.84915	1139	0.04249
11:19:02	2.84307	1030	0.04857	11:19:57	2.8463	1085	0.04534	11:20:52	2.84963	1140	0.04201
11:19:03	2.84263	1031	0.04901	11:19:58	2.84632	1086	0.04532	11:20:53	2.84995	1141	0.04169
11:19:04	2.84261	1032	0.04903	11:19:59	2.84681	1087	0.04483	11:20:54	2.8492	1142	0.04244
11:19:05	2.84266	1033	0.04898	11:20:00	2.84721	1088	0.04443	11:20:55	2.84972	1143	0.04192
11:19:06	2.84292	1034	0.04872	11:20:01	2.84645	1089	0.04519	11:20:56	2.84937	1144	0.04227
11:19:07	2.84352	1035	0.04812	11:20:02	2.84676	1090	0.04488	11:20:57	2.84956	1145	0.04208
11:19:08	2.84312	1036	0.04852	11:20:03	2.84622	1091	0.04542	11:20:58	2.85004	1146	0.0416
11:19:09	2.84323	1037	0.04841	11:20:04	2.84676	1092	0.04488	11:20:59	2.85037	1147	0.04127
11:19:10	2.84405	1038	0.04759	11:20:05	2.84649	1093	0.04515	11:21:00	2.84983	1148	0.04181
11:19:11	2.84322	1039	0.04842	11:20:06	2.84597	1094	0.04567	11:21:01	2.84989	1149	0.04175
11:19:12	2.84275	1040	0.04889	11:20:07	2.84633	1095	0.04531	11:21:02	2.84995	1150	0.04169
11:19:13	2.84422	1041	0.04742	11:20:08	2.84721	1096	0.04443	11:21:03	2.85007	1151	0.04157
11:19:14	2.84445	1042	0.04719	11:20:09	2.8474	1097	0.04424	11:21:04	2.8503	1152	0.04134
11:19:15	2.84355	1043	0.04809	11:20:10	2.84689	1098	0.04475	11:21:05	2.85002	1153	0.04162
11:19:16	2.84438	1044	0.04726	11:20:11	2.84688	1099	0.04476	11:21:06	2.85028	1154	0.04136

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW02

Channel 1 Identification

Static (m btoc) 9.06

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
17:26:35	10.571	0	1.511	17:27:30	9.74523	55	9.28786	17:28:25	9.54209	110	0.48209
17:26:36	9.94294	1	0.88294	17:27:31	9.74102	56	9.28365	17:28:26	9.53918	111	0.47918
17:26:37	10.2043	2	1.1443	17:27:32	9.73621	57	9.27884	17:28:27	9.5365	112	0.4765
17:26:38	10.3213	3	1.2613	17:27:33	9.73189	58	9.27452	17:28:28	9.53385	113	0.47385
17:26:39	10.1837	4	1.1237	17:27:34	9.727	59	9.26963	17:28:29	9.53048	114	0.47048
17:26:40	9.91442	5	0.85442	17:27:35	9.72342	60	9.26605	17:28:30	9.52846	115	0.46846
17:26:41	10.0788	6	1.0188	17:27:36	9.71841	61	9.26104	17:28:31	9.52504	116	0.46504
17:26:42	10.1733	7	1.1133	17:27:37	9.71429	62	9.25692	17:28:32	9.52264	117	0.46264
17:26:43	10.1715	8	1.1115	17:27:38	9.70998	63	9.25261	17:28:33	9.52013	118	0.46013
17:26:44	9.92756	9	0.86756	17:27:39	9.70574	64	9.24837	17:28:34	9.51737	119	0.45737
17:26:45	10.3751	10	1.3151	17:27:40	9.70098	65	9.24361	17:28:35	9.51462	120	0.45462
17:26:46	10.1657	11	1.1057	17:27:41	9.6969	66	9.23953	17:28:36	9.5118	121	0.4518
17:26:47	10.0527	12	0.9927	17:27:42	9.69241	67	9.23504	17:28:37	9.50983	122	0.44983
17:26:48	10.0221	13	0.9621	17:27:43	9.68807	68	9.2307	17:28:38	9.50723	123	0.44723
17:26:49	10.0333	14	0.9733	17:27:44	9.68396	69	9.22659	17:28:39	9.50449	124	0.44449
17:26:50	10.0266	15	0.9666	17:27:45	9.67987	70	9.2225	17:28:40	9.50196	125	0.44196
17:26:51	10.0111	16	0.9511	17:27:46	9.67596	71	9.21859	17:28:41	9.49976	126	0.43976
17:26:52	10.0033	17	0.9433	17:27:47	9.6721	72	9.21473	17:28:42	9.49732	127	0.43732
17:26:53	10.0015	18	0.9415	17:27:48	9.66807	73	9.2107	17:28:43	9.49446	128	0.43446
17:26:54	9.9949	19	0.9349	17:27:49	9.66266	74	9.20529	17:28:44	9.49232	129	0.43232
17:26:55	10.0148	20	0.9548	17:27:50	9.65978	75	9.20241	17:28:45	9.48959	130	0.42959
17:26:56	10.0053	21	0.9453	17:27:51	9.65608	76	9.19871	17:28:46	9.48724	131	0.42724
17:26:57	9.97586	22	0.91586	17:27:52	9.65187	77	9.1945	17:28:47	9.4851	132	0.4251
17:26:58	9.97271	23	0.91271	17:27:53	9.648	78	9.19063	17:28:48	9.48288	133	0.42288
17:26:59	9.97676	24	0.91676	17:27:54	9.6445	79	9.18713	17:28:49	9.4801	134	0.4201
17:27:00	9.95753	25	0.89753	17:27:55	9.64018	80	9.18281	17:28:50	9.47835	135	0.41835
17:27:01	9.95132	26	0.89132	17:27:56	9.63683	81	9.17946	17:28:51	9.47519	136	0.41519
17:27:02	9.94484	27	0.88484	17:27:57	9.63339	82	9.17602	17:28:52	9.47389	137	0.41389
17:27:03	9.93778	28	0.87778	17:27:58	9.62954	83	9.17217	17:28:53	9.47163	138	0.41163
17:27:04	9.93079	29	0.87079	17:27:59	9.62653	84	9.16916	17:28:54	9.46881	139	0.40881
17:27:05	9.92545	30	0.86545	17:28:00	9.62338	85	9.16601	17:28:55	9.46716	140	0.40716
17:27:06	9.89946	31	0.83946	17:28:01	9.61843	86	9.16106	17:28:56	9.46451	141	0.40451
17:27:07	9.90373	32	0.84373	17:28:02	9.61501	87	9.15764	17:28:57	9.46245	142	0.40245
17:27:08	9.87987	33	0.81987	17:28:03	9.61173	88	9.15436	17:28:58	9.46009	143	0.40009
17:27:09	9.87473	34	0.81473	17:28:04	9.6082	89	9.15083	17:28:59	9.45819	144	0.39819
17:27:10	9.87369	35	0.81369	17:28:05	9.60465	90	9.14728	17:29:00	9.45577	145	0.39577
17:27:11	9.83168	36	0.77168	17:28:06	9.60137	91	9.144	17:29:01	9.45408	146	0.39408
17:27:12	9.83489	37	0.77489	17:28:07	9.59798	92	9.14061	17:29:02	9.45191	147	0.39191
17:27:13	9.83001	38	0.77001	17:28:08	9.59455	93	9.13718	17:29:03	9.45004	148	0.39004
17:27:14	9.82465	39	0.76465	17:28:09	9.59111	94	9.13374	17:29:04	9.44786	149	0.38786
17:27:15	9.81917	40	0.75917	17:28:10	9.58819	95	9.13082	17:29:05	9.44568	150	0.38568
17:27:16	9.81442	41	0.75442	17:28:11	9.58463	96	9.12726	17:29:06	9.44395	151	0.38395
17:27:17	9.80912	42	0.74912	17:28:12	9.58122	97	9.12385	17:29:07	9.44183	152	0.38183
17:27:18	9.80461	43	0.74461	17:28:13	9.57849	98	9.12112	17:29:08	9.4399	153	0.3799
17:27:19	9.79966	44	0.73966	17:28:14	9.57508	99	9.11771	17:29:09	9.4375	154	0.3775
17:27:20	9.7948	45	0.7348	17:28:15	9.57204	100	9.11467	17:29:10	9.43575	155	0.37575
17:27:21	9.78977	46	0.72977	17:28:16	9.56851	101	9.11114	17:29:11	9.43388	156	0.37388
17:27:22	9.78402	47	0.72402	17:28:17	9.56619	102	9.10882	17:29:12	9.43239	157	0.37239
17:27:23	9.79496	48	0.73496	17:28:18	9.56243	103	9.10506	17:29:13	9.43066	158	0.37066
17:27:24	9.78255	49	0.72255	17:28:19	9.55991	104	9.10254	17:29:14	9.42822	159	0.36822
17:27:25	9.7786	50	0.7186	17:28:20	9.55679	105	9.09942	17:29:15	9.427	160	0.367
17:27:26	9.77056	51	0.71056	17:28:21	9.55373	106	9.09636	17:29:16	9.42462	161	0.36462
17:27:27	9.76044	52	0.70044	17:28:22	9.55088	107	9.09351	17:29:17	9.42259	162	0.36259
17:27:28	9.75735	53	0.69735	17:28:23	9.54786	108	9.09049	17:29:18	9.42076	163	0.36076
17:27:29	9.75	54	0.69	17:28:24	9.54462	109	9.08725	17:29:19	9.41879	164	0.35879

Location **Haines Junction HJ-MW02**

Channel 1 Identification

Static (m btoc) 9.06

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
17:29:20	9.41717	165	0.35717	17:30:18	9.33196	223	8.87459	17:31:16	9.27509	281	0.21509
17:29:21	9.41572	166	0.35572	17:30:19	9.33086	224	8.87349	17:31:17	9.27413	282	0.21413
17:29:22	9.41293	167	0.35293	17:30:20	9.32971	225	8.87234	17:31:18	9.27333	283	0.21333
17:29:23	9.41229	168	0.35229	17:30:21	9.3284	226	8.87103	17:31:19	9.27244	284	0.21244
17:29:24	9.40989	169	0.34989	17:30:22	9.32746	227	8.87009	17:31:20	9.27156	285	0.21156
17:29:25	9.40831	170	0.34831	17:30:23	9.32624	228	8.86887	17:31:21	9.27049	286	0.21049
17:29:26	9.40653	171	0.34653	17:30:24	9.32549	229	8.86812	17:31:22	9.26994	287	0.20994
17:29:27	9.40513	172	0.34513	17:30:25	9.32449	230	8.86712	17:31:23	9.269	288	0.209
17:29:28	9.40331	173	0.34331	17:30:26	9.32252	231	8.86515	17:31:24	9.26837	289	0.20837
17:29:29	9.40143	174	0.34143	17:30:27	9.3215	232	8.86413	17:31:25	9.26746	290	0.20746
17:29:30	9.40523	175	0.34523	17:30:28	9.32041	233	8.86304	17:31:26	9.26662	291	0.20662
17:29:31	9.40633	176	0.34633	17:30:29	9.32006	234	8.86269	17:31:27	9.26606	292	0.20606
17:29:32	9.41905	177	0.35905	17:30:30	9.31892	235	8.86155	17:31:28	9.26487	293	0.20487
17:29:33	9.41925	178	0.35925	17:30:31	9.31789	236	8.86052	17:31:29	9.26446	294	0.20446
17:29:34	9.41699	179	0.35699	17:30:32	9.31701	237	8.85964	17:31:30	9.26375	295	0.20375
17:29:35	9.41562	180	0.35562	17:30:33	9.31588	238	8.85851	17:31:31	9.26256	296	0.20256
17:29:36	9.41312	181	0.35312	17:30:34	9.31458	239	8.85721	17:31:32	9.26163	297	0.20163
17:29:37	9.41145	182	0.35145	17:30:35	9.31351	240	8.85614	17:31:33	9.26108	298	0.20108
17:29:38	9.40826	183	0.34826	17:30:36	9.31226	241	8.85489	17:31:34	9.26058	299	0.20058
17:29:39	9.39096	184	0.33096	17:30:37	9.31087	242	8.8535	17:31:35	9.25952	300	0.19952
17:29:40	9.38017	185	0.32017	17:30:38	9.31027	243	8.8529	17:31:36	9.25851	301	0.19851
17:29:41	9.38014	186	0.32014	17:30:39	9.30884	244	8.85147	17:31:37	9.25838	302	0.19838
17:29:42	9.37731	187	0.31731	17:30:40	9.30844	245	8.85107	17:31:38	9.25773	303	0.19773
17:29:43	9.37635	188	0.31635	17:30:41	9.30754	246	8.85017	17:31:39	9.25638	304	0.19638
17:29:44	9.37466	189	0.31466	17:30:42	9.30635	247	8.84898	17:31:40	9.25577	305	0.19577
17:29:45	9.37331	190	0.31331	17:30:43	9.3052	248	8.84783	17:31:41	9.25535	306	0.19535
17:29:46	9.37285	191	0.31285	17:30:44	9.30397	249	8.8466	17:31:42	9.25451	307	0.19451
17:29:47	9.37143	192	0.31143	17:30:45	9.30322	250	8.84585	17:31:43	9.25404	308	0.19404
17:29:48	9.37017	193	0.31017	17:30:46	9.30239	251	8.84502	17:31:44	9.25308	309	0.19308
17:29:49	9.36855	194	0.30855	17:30:47	9.30109	252	8.84372	17:31:45	9.25233	310	0.19233
17:29:50	9.36768	195	0.30768	17:30:48	9.29987	253	8.8425	17:31:46	9.25132	311	0.19132
17:29:51	9.36603	196	0.30603	17:30:49	9.29898	254	8.84161	17:31:47	9.25084	312	0.19084
17:29:52	9.36476	197	0.30476	17:30:50	9.2986	255	8.84123	17:31:48	9.25017	313	0.19017
17:29:53	9.36341	198	0.30341	17:30:51	9.29732	256	8.83995	17:31:49	9.24939	314	0.18939
17:29:54	9.36191	199	0.30191	17:30:52	9.29573	257	8.83836	17:31:50	9.24855	315	0.18855
17:29:55	9.36071	200	0.30071	17:30:53	9.29528	258	8.83791	17:31:51	9.24783	316	0.18783
17:29:56	9.35968	201	0.29968	17:30:54	9.29438	259	8.83701	17:31:52	9.24718	317	0.18718
17:29:57	9.35797	202	0.29797	17:30:55	9.29376	260	8.83639	17:31:53	9.24658	318	0.18658
17:29:58	9.35679	203	0.29679	17:30:56	9.29214	261	8.83477	17:31:54	9.24575	319	0.18575
17:29:59	9.35567	204	0.29567	17:30:57	9.29159	262	8.83422	17:31:55	9.24476	320	0.18476
17:30:00	9.35385	205	0.29385	17:30:58	9.29051	263	8.83314	17:31:56	9.24443	321	0.18443
17:30:01	9.35259	206	0.29259	17:30:59	9.28978	264	8.83241	17:31:57	9.2434	322	0.1834
17:30:02	9.35166	207	0.29166	17:31:00	9.28852	265	8.83115	17:31:58	9.24291	323	0.18291
17:30:03	9.34998	208	0.28998	17:31:01	9.2879	266	8.83053	17:31:59	9.24219	324	0.18219
17:30:04	9.34954	209	0.28954	17:31:02	9.28684	267	8.82947	17:32:00	9.24123	325	0.18123
17:30:05	9.34803	210	0.28803	17:31:03	9.28594	268	8.82857	17:32:01	9.24071	326	0.18071
17:30:06	9.34667	211	0.28667	17:31:04	9.28509	269	8.82772	17:32:02	9.23961	327	0.17961
17:30:07	9.34549	212	0.28549	17:31:05	9.28434	270	8.82697	17:32:03	9.2389	328	0.1789
17:30:08	9.34469	213	0.28469	17:31:06	9.28371	271	8.82634	17:32:04	9.23848	329	0.17848
17:30:09	9.34327	214	0.28327	17:31:07	9.2823	272	8.82493	17:32:05	9.23831	330	0.17831
17:30:10	9.34178	215	0.28178	17:31:08	9.28141	273	8.82404	17:32:06	9.23952	331	0.17952
17:30:11	9.34068	216	0.28068	17:31:09	9.28052	274	8.82315	17:32:07	9.24573	332	0.18573
17:30:12	9.33964	217	0.27964	17:31:10	9.28023	275	8.82286	17:32:08	9.25797	333	0.19797
17:30:13	9.3385	218	0.2785	17:31:11	9.27944	276	8.82207	17:32:09	9.2589	334	0.1989
17:30:14	9.33679	219	0.27679	17:31:12	9.27874	277	8.82137	17:32:10	9.2624	335	0.2024
17:30:15	9.33585	220	0.27585	17:31:13	9.27769	278	8.82032	17:32:11	9.25949	336	0.19949
17:30:16	9.33439	221	0.27439	17:31:14	9.27699	279	8.81962	17:32:12	9.25942	337	0.19942
17:30:17	9.333	222	0.273	17:31:15	9.27593	280	8.81856	17:32:13	9.25754	338	0.19754

Location **Haines Junction HJ-MW02**

Channel 1 Identification

Static (m btoc) 9.06

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
17:32:14	9.25667	339	0.19667								
17:32:15	9.25602	340	0.19602								
17:32:16	9.2558	341	0.1958								
17:32:17	9.25538	342	0.19538								
17:32:18	9.25317	343	0.19317								
17:32:19	9.25247	344	0.19247								
17:32:20	9.26258	345	0.20258								
17:32:21	9.25188	346	0.19188								
17:32:22	9.23944	347	0.17944								
17:32:23	9.24797	348	0.18797								
17:32:24	9.24747	349	0.18747								
17:32:25	9.24615	350	0.18615								
17:32:26	9.24515	351	0.18515								
17:32:27	9.24408	352	0.18408								
17:32:28	9.24553	353	0.18553								
17:32:29	9.2424	354	0.1824								
17:32:30	9.24006	355	0.18006								
17:32:31	9.23401	356	0.17401								
17:32:32	9.23708	357	0.17708								
17:32:33	9.24451	358	0.18451								
17:32:34	9.23721	359	0.17721								
17:32:35	9.23248	360	0.17248								
17:32:36	9.23165	361	0.17165								
17:32:37	9.23333	362	0.17333								
17:32:38	9.23259	363	0.17259								
17:32:39	9.22446	364	0.16446								
17:32:40	9.21481	365	0.15481								
17:32:41	9.21139	366	0.15139								
17:32:42	9.21327	367	0.15327								
17:32:43	9.21118	368	0.15118								
17:32:44	9.20497	369	0.14497								
17:32:45	9.20506	370	0.14506								
17:32:46	9.20526	371	0.14526								
17:32:47	9.20477	372	0.14477								
17:32:48	9.20417	373	0.14417								
17:32:49	9.20385	374	0.14385								
17:32:50	9.20351	375	0.14351								
17:32:51	9.20312	376	0.14312								
17:32:52	9.20293	377	0.14293								
17:32:53	9.20219	378	0.14219								
17:32:54	9.20203	379	0.14203								
17:32:55	9.20177	380	0.14177								
17:32:56	9.20143	381	0.14143								
17:32:57	9.2007	382	0.1407								

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW03

Channel 1 Identification

Static (m btoc) 10.136

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
14:51:42	10.3333	0	0.1973	14:52:37	10.2106	56	0.0746	14:53:32	10.195	111	0.059
14:51:43	10.3306	1	0.1946	14:52:38	10.2102	57	0.0742	14:53:33	10.1947	112	0.0587
14:51:44	10.2993	2	0.1633	14:52:39	10.21	58	0.074	14:53:34	10.1942	113	0.0582
14:51:45	10.3266	3	0.1906	14:52:40	10.2098	59	0.0738	14:53:35	10.1942	114	0.0582
14:51:46	10.2477	4	0.1117	14:52:41	10.209	60	0.073	14:53:36	10.1936	115	0.0576
14:51:47	10.2504	5	0.1144	14:52:42	10.2085	61	0.0725	14:53:37	10.1936	116	0.0576
14:51:48	10.2175	6	0.0815	14:52:43	10.2099	62	0.0739	14:53:38	10.1935	117	0.0575
14:51:49	10.2588	7	0.1228	14:52:44	10.2083	63	0.0723	14:53:39	10.193	118	0.057
14:51:50	10.319	8	0.183	14:52:45	10.2067	64	0.0707	14:53:40	10.1928	119	0.0568
14:51:51	10.304	9	0.168	14:52:46	10.2064	65	0.0704	14:53:41	10.1929	120	0.0569
14:51:52	10.1965	10	0.0605	14:52:47	10.2066	66	0.0706	14:53:42	10.1923	121	0.0563
14:51:53	10.217	11	0.081	14:52:48	10.2067	67	0.0707	14:53:43	10.192	122	0.056
14:51:54	10.2717	12	0.1357	14:52:49	10.2064	68	0.0704	14:53:44	10.1922	123	0.0562
14:51:55	10.2285	13	0.0925	14:52:50	10.2064	69	0.0704	14:53:45	10.192	124	0.056
14:51:56	10.2432	14	0.1072	14:52:51	10.2054	70	0.0694	14:53:46	10.1917	125	0.0557
14:51:57	10.2422	15	0.1062	14:52:52	10.205	71	0.069	14:53:47	10.1917	126	0.0557
14:51:58	10.2351	16	0.0991	14:52:53	10.2049	72	0.0689	14:53:48	10.1912	127	0.0552
14:51:59	10.2165	17	0.0805	14:52:54	10.2046	73	0.0686	14:53:49	10.191	128	0.055
14:52:00	10.247	18	0.111	14:52:55	10.2045	74	0.0685	14:53:50	10.1909	129	0.0549
14:52:01	10.2362	19	0.1002	14:52:56	10.2039	75	0.0679	14:53:51	10.1909	130	0.0549
14:52:02	10.2377	20	0.1017	14:52:57	10.2036	76	0.0676	14:53:52	10.1907	131	0.0547
14:52:03	10.2099	21	0.0739	14:52:58	10.2035	77	0.0675	14:53:53	10.1901	132	0.0541
14:52:04	10.3038	22	0.1678	14:52:59	10.2031	78	0.0671	14:53:54	10.1904	133	0.0544
14:52:05	10.2699	23	0.1339	14:53:00	10.2027	79	0.0667	14:53:55	10.1898	134	0.0538
14:52:06	10.2165	24	0.0805	14:53:01	10.2022	80	0.0662	14:53:56	10.19	135	0.054
14:52:07	10.2508	25	0.1148	14:53:02	10.2022	81	0.0662	14:53:57	10.1894	136	0.0534
14:52:08	10.2418	26	0.1058	14:53:03	10.2018	82	0.0658	14:53:58	10.189	137	0.053
14:52:09	10.256	27	0.12	14:53:04	10.2015	83	0.0655	14:53:59	10.1894	138	0.0534
14:52:10	10.3467	28	0.2107	14:53:05	10.201	84	0.065	14:54:00	10.1888	139	0.0528
14:52:11	10.1833	29	0.0473	14:53:06	10.2013	85	0.0653	14:54:01	10.1885	140	0.0525
14:52:12	10.2586	30	0.1226	14:53:07	10.2008	86	0.0648	14:54:02	10.1887	141	0.0527
14:52:13	10.1725	32	0.0365	14:53:08	10.2002	87	0.0642	14:54:03	10.1884	142	0.0524
14:52:14	10.2397	33	0.1037	14:53:09	10.1999	88	0.0639	14:54:04	10.1882	143	0.0522
14:52:15	10.2886	34	0.1526	14:53:10	10.2	89	0.064	14:54:05	10.1879	144	0.0519
14:52:16	10.2632	35	0.1272	14:53:11	10.1998	90	0.0638	14:54:06	10.1873	145	0.0513
14:52:17	10.2281	36	0.0921	14:53:12	10.1995	91	0.0635	14:54:07	10.1874	146	0.0514
14:52:18	10.2076	37	0.0716	14:53:13	10.1989	92	0.0629	14:54:08	10.1873	147	0.0513
14:52:19	10.2015	38	0.0655	14:53:14	10.1988	93	0.0628	14:54:09	10.1872	148	0.0512
14:52:20	10.2085	39	0.0725	14:53:15	10.1988	94	0.0628	14:54:10	10.1869	149	0.0509
14:52:21	10.2181	40	0.0821	14:53:16	10.1982	95	0.0622	14:54:11	10.1866	150	0.0506
14:52:22	10.22	41	0.084	14:53:17	10.1983	96	0.0623	14:54:12	10.1869	151	0.0509
14:52:23	10.2193	42	0.0833	14:53:18	10.1977	97	0.0617	14:54:13	10.1865	152	0.0505
14:52:24	10.2161	43	0.0801	14:53:19	10.1975	98	0.0615	14:54:14	10.186	153	0.05
14:52:25	10.2153	44	0.0793	14:53:20	10.1974	99	0.0614	14:54:15	10.1858	154	0.0498
14:52:26	10.2145	45	0.0785	14:53:21	10.1972	100	0.0612	14:54:16	10.1853	155	0.0493
14:52:27	10.2143	46	0.0783	14:53:22	10.1967	101	0.0607	14:54:17	10.1857	156	0.0497
14:52:28	10.2143	47	0.0783	14:53:23	10.1965	102	0.0605	14:54:18	10.1856	157	0.0496
14:52:29	10.2141	48	0.0781	14:53:24	10.1962	103	0.0602	14:54:19	10.1854	158	0.0494
14:52:30	10.2138	49	0.0778	14:53:25	10.196	104	0.06	14:54:20	10.1851	159	0.0491
14:52:31	10.2129	50	0.0769	14:53:26	10.1959	105	0.0599	14:54:21	10.1843	160	0.0483
14:52:32	10.2128	51	0.0768	14:53:27	10.1956	106	0.0596	14:54:22	10.1846	161	0.0486
14:52:33	10.2122	52	0.0762	14:53:28	10.1955	107	0.0595	14:54:23	10.1847	162	0.0487
14:52:34	10.2118	53	0.0758	14:53:29	10.1953	108	0.0593	14:54:24	10.1844	163	0.0484
14:52:35	10.2109	54	0.0749	14:53:30	10.1949	109	0.0589	14:54:25	10.1842	164	0.0482
14:52:36	10.2108	55	0.0748	14:53:31	10.1945	110	0.0585	14:54:26	10.1839	165	0.0479

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

Location Haines Junction HJ-MW03

Channel 1 Identification

Static (m btoc) 10.136

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
14:54:27	10.1836	166	0.0476	14:55:22	10.177	221	0.041	14:56:17	10.1725	276	0.0365
14:54:28	10.1837	167	0.0477	14:55:23	10.1773	222	0.0413	14:56:18	10.1724	277	0.0364
14:54:29	10.1835	168	0.0475	14:55:24	10.1772	223	0.0412	14:56:19	10.172	278	0.036
14:54:30	10.1834	169	0.0474	14:55:25	10.1769	224	0.0409	14:56:20	10.1719	279	0.0359
14:54:31	10.1832	170	0.0472	14:55:26	10.1765	225	0.0405	14:56:21	10.172	280	0.036
14:54:32	10.1834	171	0.0474	14:55:27	10.1771	226	0.0411	14:56:22	10.1715	281	0.0355
14:54:33	10.1829	172	0.0469	14:55:28	10.1763	227	0.0403	14:56:23	10.1725	282	0.0365
14:54:34	10.1829	173	0.0469	14:55:29	10.1767	228	0.0407	14:56:24	10.172	283	0.036
14:54:35	10.1827	174	0.0467	14:55:30	10.1764	229	0.0404	14:56:25	10.1723	284	0.0363
14:54:36	10.1826	175	0.0466	14:55:31	10.1761	230	0.0401	14:56:26	10.1723	285	0.0363
14:54:37	10.1827	176	0.0467	14:55:32	10.1763	231	0.0403	14:56:27	10.1719	286	0.0359
14:54:38	10.1824	177	0.0464	14:55:33	10.1761	232	0.0401	14:56:28	10.172	287	0.036
14:54:39	10.1824	178	0.0464	14:55:34	10.1761	233	0.0401	14:56:29	10.1712	288	0.0352
14:54:40	10.1822	179	0.0462	14:55:35	10.1758	234	0.0398	14:56:30	10.1711	289	0.0351
14:54:41	10.1823	180	0.0463	14:55:36	10.1758	235	0.0398	14:56:31	10.1714	290	0.0354
14:54:42	10.1814	181	0.0454	14:55:37	10.1758	236	0.0398	14:56:32	10.1717	291	0.0357
14:54:43	10.1816	182	0.0456	14:55:38	10.1757	237	0.0397	14:56:33	10.1712	292	0.0352
14:54:44	10.1818	183	0.0458	14:55:39	10.1759	238	0.0399	14:56:34	10.1716	293	0.0356
14:54:45	10.1815	184	0.0455	14:55:40	10.1759	239	0.0399	14:56:35	10.171	294	0.035
14:54:46	10.181	185	0.045	14:55:41	10.1757	240	0.0397	14:56:36	10.1708	295	0.0348
14:54:47	10.1812	186	0.0452	14:55:42	10.1758	241	0.0398	14:56:37	10.1709	296	0.0349
14:54:48	10.1812	187	0.0452	14:55:43	10.1753	242	0.0393	14:56:38	10.1707	297	0.0347
14:54:49	10.1807	188	0.0447	14:55:44	10.1752	243	0.0392	14:56:39	10.1703	298	0.0343
14:54:50	10.1807	189	0.0447	14:55:45	10.1751	244	0.0391	14:56:40	10.1712	299	0.0352
14:54:51	10.1803	190	0.0443	14:55:46	10.1753	245	0.0393	14:56:41	10.1706	300	0.0346
14:54:52	10.1805	191	0.0445	14:55:47	10.1752	246	0.0392	14:56:42	10.1706	301	0.0346
14:54:53	10.1802	192	0.0442	14:55:48	10.1749	247	0.0389	14:56:43	10.1706	302	0.0346
14:54:54	10.1804	193	0.0444	14:55:49	10.1747	248	0.0387	14:56:44	10.1702	303	0.0342
14:54:55	10.18	194	0.044	14:55:50	10.1749	249	0.0389	14:56:45	10.1703	304	0.0343
14:54:56	10.1799	195	0.0439	14:55:51	10.1748	250	0.0388	14:56:46	10.1705	305	0.0345
14:54:57	10.1802	196	0.0442	14:55:52	10.1738	251	0.0378	14:56:47	10.1704	306	0.0344
14:54:58	10.1801	197	0.0441	14:55:53	10.1743	252	0.0383	14:56:48	10.17	307	0.034
14:54:59	10.1789	198	0.0429	14:55:54	10.1743	253	0.0383	14:56:49	10.1701	308	0.0341
14:55:00	10.1793	199	0.0433	14:55:55	10.1742	254	0.0382	14:56:50	10.1705	309	0.0345
14:55:01	10.1794	200	0.0434	14:55:56	10.174	255	0.038	14:56:51	10.1699	310	0.0339
14:55:02	10.1794	201	0.0434	14:55:57	10.1741	256	0.0381	14:56:52	10.1701	311	0.0341
14:55:03	10.1788	202	0.0428	14:55:58	10.1741	257	0.0381	14:56:53	10.1698	312	0.0338
14:55:04	10.179	203	0.043	14:55:59	10.174	258	0.038	14:56:54	10.1697	313	0.0337
14:55:05	10.1793	204	0.0433	14:56:00	10.1738	259	0.0378	14:56:55	10.1696	314	0.0336
14:55:06	10.1787	205	0.0427	14:56:01	10.1734	260	0.0374	14:56:56	10.1699	315	0.0339
14:55:07	10.1788	206	0.0428	14:56:02	10.174	261	0.038	14:56:57	10.1695	316	0.0335
14:55:08	10.1788	207	0.0428	14:56:03	10.1734	262	0.0374	14:56:58	10.1698	317	0.0338
14:55:09	10.179	208	0.043	14:56:04	10.1735	263	0.0375	14:56:59	10.1695	318	0.0335
14:55:10	10.1786	209	0.0426	14:56:05	10.1737	264	0.0377	14:57:00	10.1694	319	0.0334
14:55:11	10.1783	210	0.0423	14:56:06	10.1736	265	0.0376	14:57:01	10.1695	320	0.0335
14:55:12	10.1784	211	0.0424	14:56:07	10.1734	266	0.0374	14:57:02	10.1691	321	0.0331
14:55:13	10.1781	212	0.0421	14:56:08	10.1731	267	0.0371	14:57:03	10.169	322	0.033
14:55:14	10.1782	213	0.0422	14:56:09	10.173	268	0.037	14:57:04	10.1691	323	0.0331
14:55:15	10.1783	214	0.0423	14:56:10	10.1733	269	0.0373	14:57:05	10.1687	324	0.0327
14:55:16	10.178	215	0.042	14:56:11	10.1734	270	0.0374	14:57:06	10.1691	325	0.0331
14:55:17	10.1779	216	0.0419	14:56:12	10.1726	271	0.0366	14:57:07	10.169	326	0.033
14:55:18	10.1779	217	0.0419	14:56:13	10.1724	272	0.0364	14:57:08	10.1687	327	0.0327
14:55:19	10.1773	218	0.0413	14:56:14	10.1729	273	0.0369	14:57:09	10.1689	328	0.0329
14:55:20	10.1775	219	0.0415	14:56:15	10.1727	274	0.0367	14:57:10	10.1689	329	0.0329
14:55:21	10.1773	220	0.0413	14:56:16	10.1721	275	0.0361	14:57:11	10.1682	330	0.0322

2010 Monitoring Well Program

Serial Number 1023050

Project ID W23101317

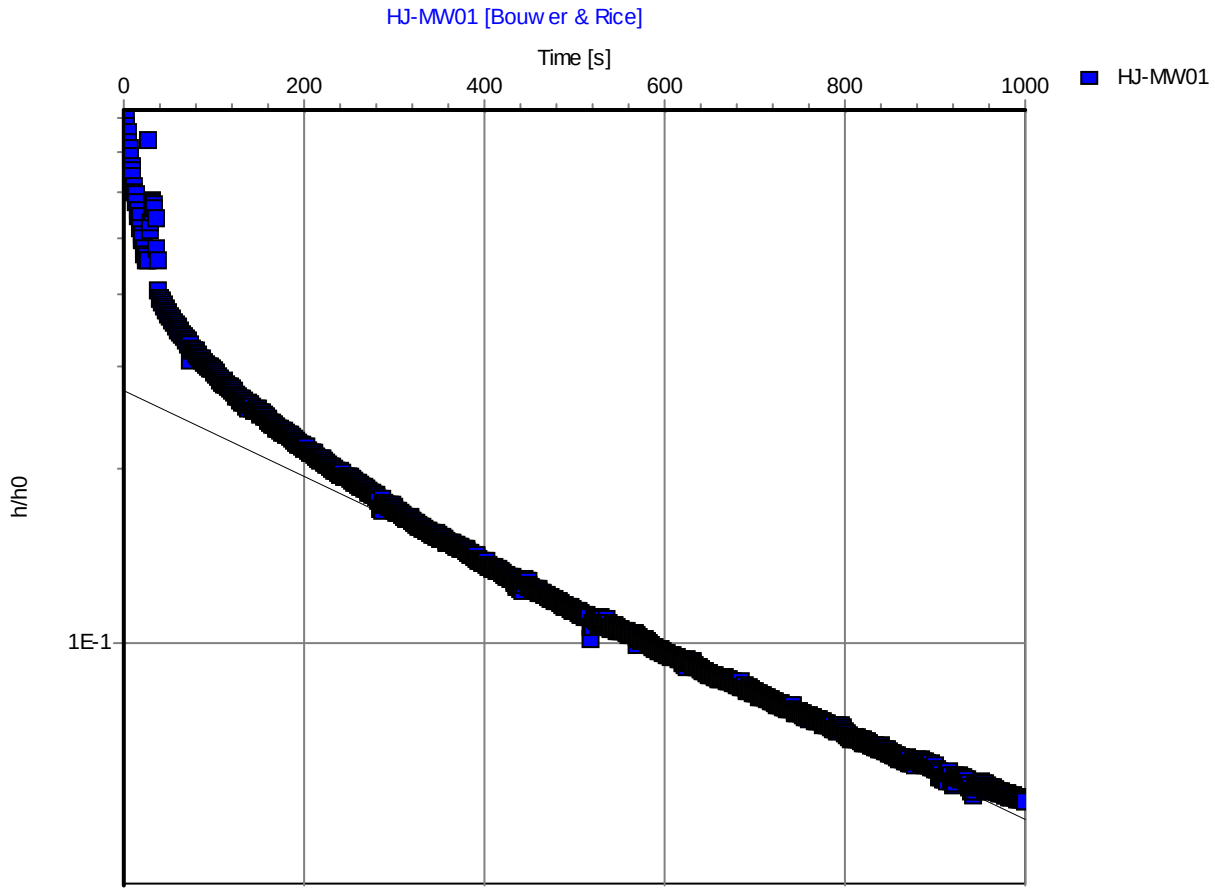
Location Haines Junction HJ-MW03

Channel 1 Identification

Static (m btoc) 10.136

Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown	Time	LEVEL	Seconds	Drawdown
14:57:12	10.1684	331	0.0324	14:58:07	10.1664	386	0.0304	14:59:02	10.1641	441	0.0281
14:57:13	10.1683	332	0.0323	14:58:08	10.1661	387	0.0301	14:59:03	10.1642	442	0.0282
14:57:14	10.1685	333	0.0325	14:58:09	10.1656	388	0.0296	14:59:04	10.1636	443	0.0276
14:57:15	10.1686	334	0.0326	14:58:10	10.1658	389	0.0298	14:59:05	10.1632	444	0.0272
14:57:16	10.1682	335	0.0322	14:58:11	10.1659	390	0.0299	14:59:06	10.1633	445	0.0273
14:57:17	10.1687	336	0.0327	14:58:12	10.1657	391	0.0297	14:59:07	10.163	446	0.027
14:57:18	10.1681	337	0.0321	14:58:13	10.1657	392	0.0297	14:59:08	10.1633	447	0.0273
14:57:19	10.1686	338	0.0326	14:58:14	10.1657	393	0.0297	14:59:09	10.163	448	0.027
14:57:20	10.1682	339	0.0322	14:58:15	10.1658	394	0.0298				
14:57:21	10.1686	340	0.0326	14:58:16	10.1657	395	0.0297				
14:57:22	10.1679	341	0.0319	14:58:17	10.1652	396	0.0292				
14:57:23	10.1679	342	0.0319	14:58:18	10.1655	397	0.0295				
14:57:24	10.1679	343	0.0319	14:58:19	10.1655	398	0.0295				
14:57:25	10.1681	344	0.0321	14:58:20	10.1654	399	0.0294				
14:57:26	10.1679	345	0.0319	14:58:21	10.1652	400	0.0292				
14:57:27	10.1676	346	0.0316	14:58:22	10.1655	401	0.0295				
14:57:28	10.1679	347	0.0319	14:58:23	10.1652	402	0.0292				
14:57:29	10.1678	348	0.0318	14:58:24	10.1649	403	0.0289				
14:57:30	10.1681	349	0.0321	14:58:25	10.165	404	0.029				
14:57:31	10.1678	350	0.0318	14:58:26	10.1649	405	0.0289				
14:57:32	10.1676	351	0.0316	14:58:27	10.1647	406	0.0287				
14:57:33	10.1679	352	0.0319	14:58:28	10.1652	407	0.0292				
14:57:34	10.1671	353	0.0311	14:58:29	10.1648	408	0.0288				
14:57:35	10.1673	354	0.0313	14:58:30	10.1651	409	0.0291				
14:57:36	10.1678	355	0.0318	14:58:31	10.1648	410	0.0288				
14:57:37	10.1674	356	0.0314	14:58:32	10.1647	411	0.0287				
14:57:38	10.167	357	0.031	14:58:33	10.1646	412	0.0286				
14:57:39	10.1671	358	0.0311	14:58:34	10.1648	413	0.0288				
14:57:40	10.1669	359	0.0309	14:58:35	10.1643	414	0.0283				
14:57:41	10.1676	360	0.0316	14:58:36	10.1646	415	0.0286				
14:57:42	10.1673	361	0.0313	14:58:37	10.1643	416	0.0283				
14:57:43	10.1666	362	0.0306	14:58:38	10.1648	417	0.0288				
14:57:44	10.1666	363	0.0306	14:58:39	10.1646	418	0.0286				
14:57:45	10.1669	364	0.0309	14:58:40	10.1642	419	0.0282				
14:57:46	10.1663	365	0.0303	14:58:41	10.1639	420	0.0279				
14:57:47	10.1663	366	0.0303	14:58:42	10.1651	421	0.0291				
14:57:48	10.1663	367	0.0303	14:58:43	10.1646	422	0.0286				
14:57:49	10.1667	368	0.0307	14:58:44	10.1645	423	0.0285				
14:57:50	10.1663	369	0.0303	14:58:45	10.1641	424	0.0281				
14:57:51	10.1664	370	0.0304	14:58:46	10.1639	425	0.0279				
14:57:52	10.1662	371	0.0302	14:58:47	10.1639	426	0.0279				
14:57:53	10.1675	372	0.0315	14:58:48	10.1639	427	0.0279				
14:57:54	10.1671	373	0.0311	14:58:49	10.1644	428	0.0284				
14:57:55	10.1696	374	0.0336	14:58:50	10.1646	429	0.0286				
14:57:56	10.17	375	0.034	14:58:51	10.1639	430	0.0279				
14:57:57	10.166	376	0.03	14:58:52	10.1639	431	0.0279				
14:57:58	10.1639	377	0.0279	14:58:53	10.1639	432	0.0279				
14:57:59	10.1638	378	0.0278	14:58:54	10.1655	433	0.0295				
14:58:00	10.1659	379	0.0299	14:58:55	10.1674	434	0.0314				
14:58:01	10.1668	380	0.0308	14:58:56	10.1639	435	0.0279				
14:58:02	10.167	381	0.031	14:58:57	10.1621	436	0.0261				
14:58:03	10.1667	382	0.0307	14:58:58	10.1639	437	0.0279				
14:58:04	10.1659	383	0.0299	14:58:59	10.1633	438	0.0273				
14:58:05	10.1658	384	0.0298	14:59:00	10.1626	439	0.0266				
14:58:06	10.1658	385	0.0298	14:59:01	10.1631	440	0.0271				

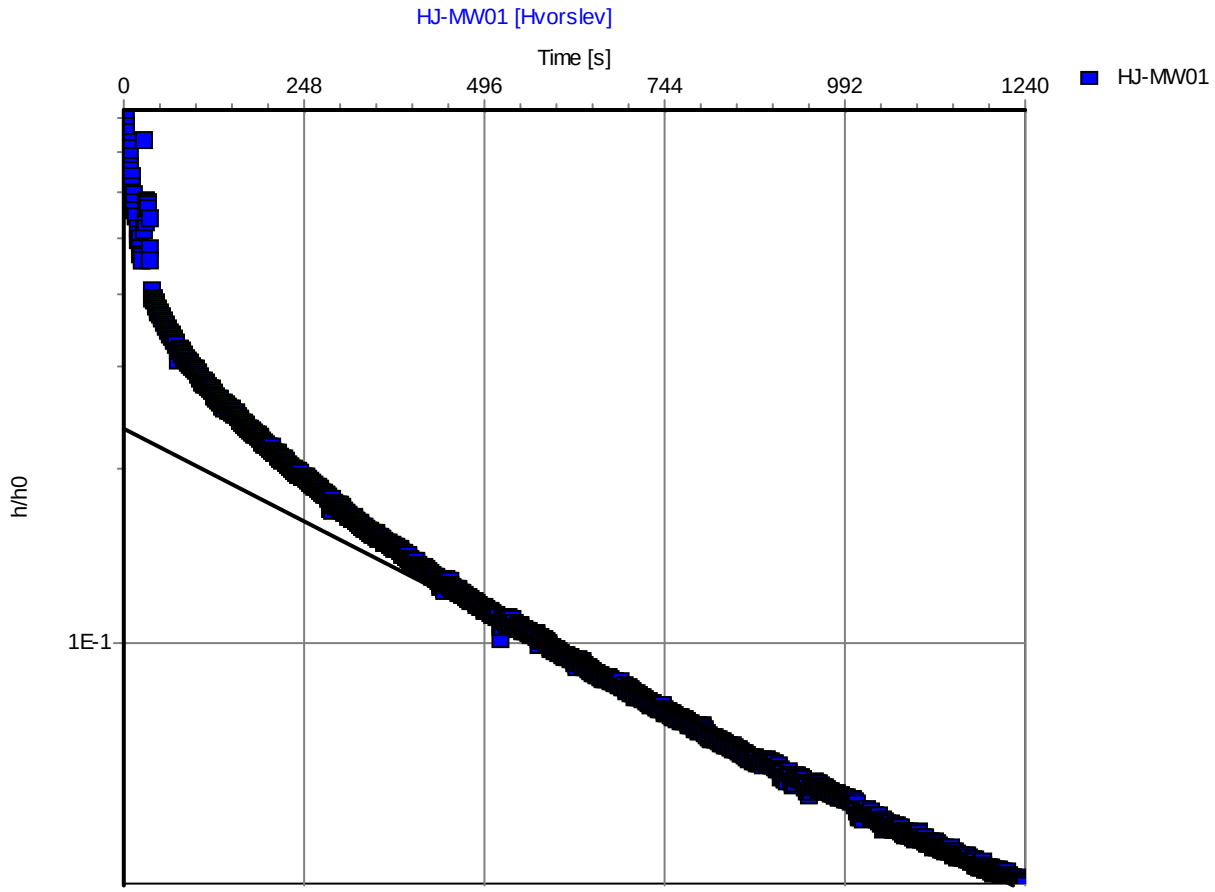
EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Breanne Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Bouwer & Rice	



Conductivity: 4.09E-7 [m/s]

Comments:

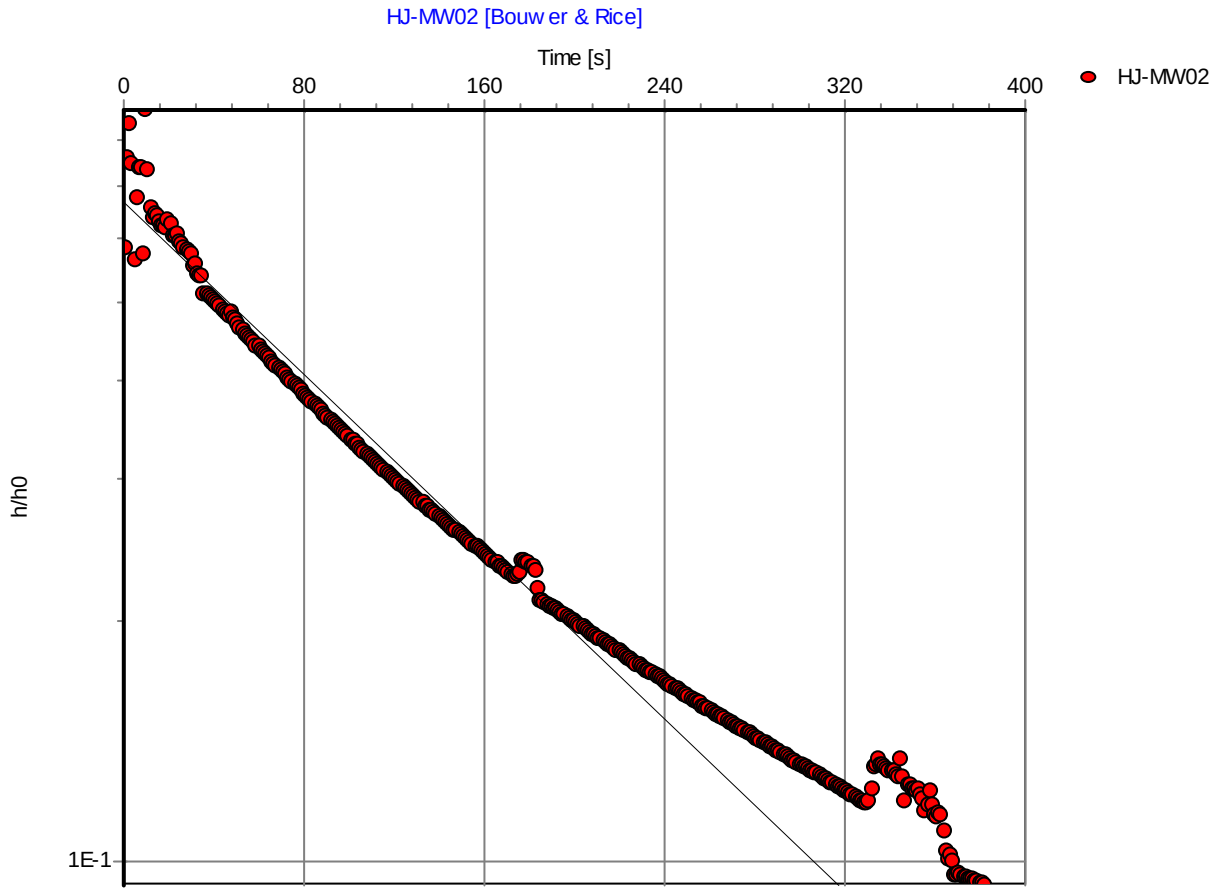
EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Breanne Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Hvorslev	



Conductivity: 4.74E-7 [m/s]

Comments:

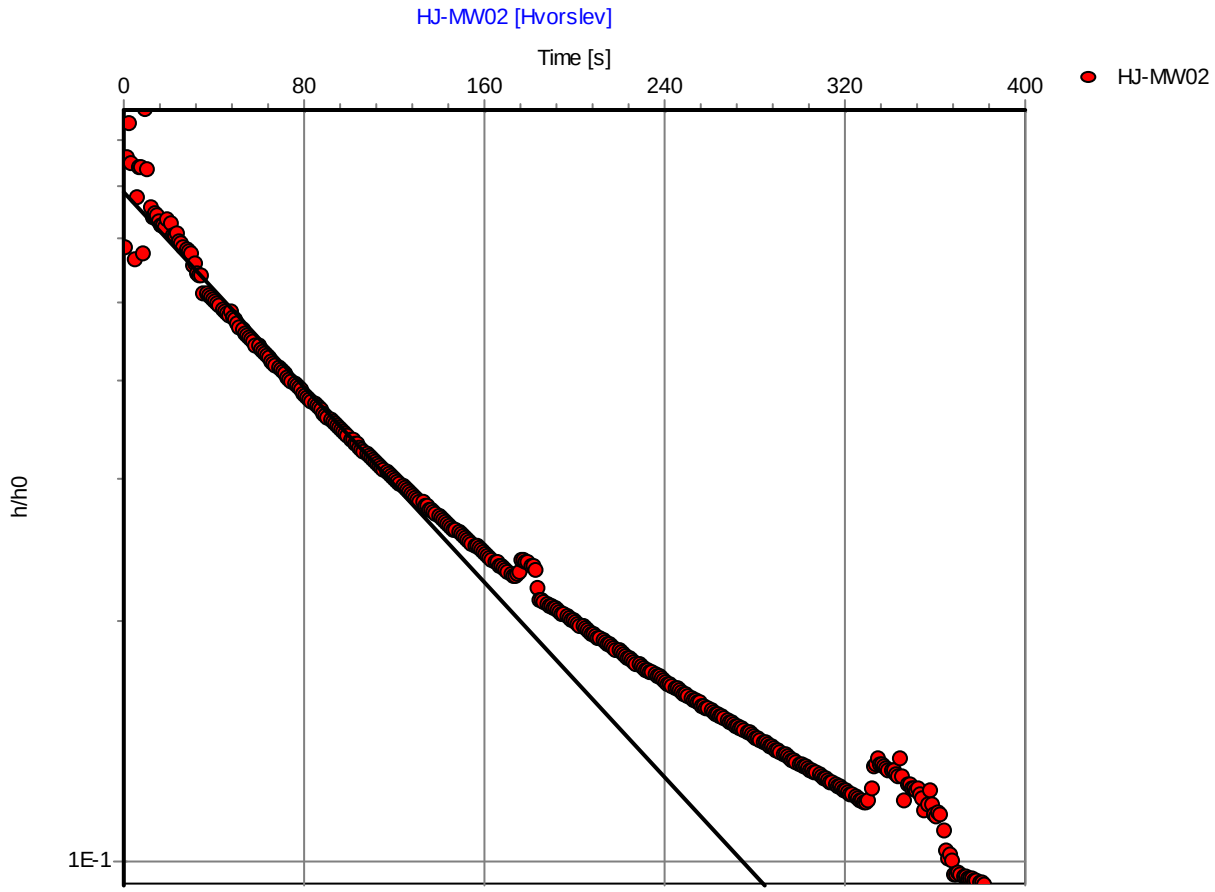
EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Bouwer & Rice	



Conductivity: 1.83E-6 [m/s]

Comments:

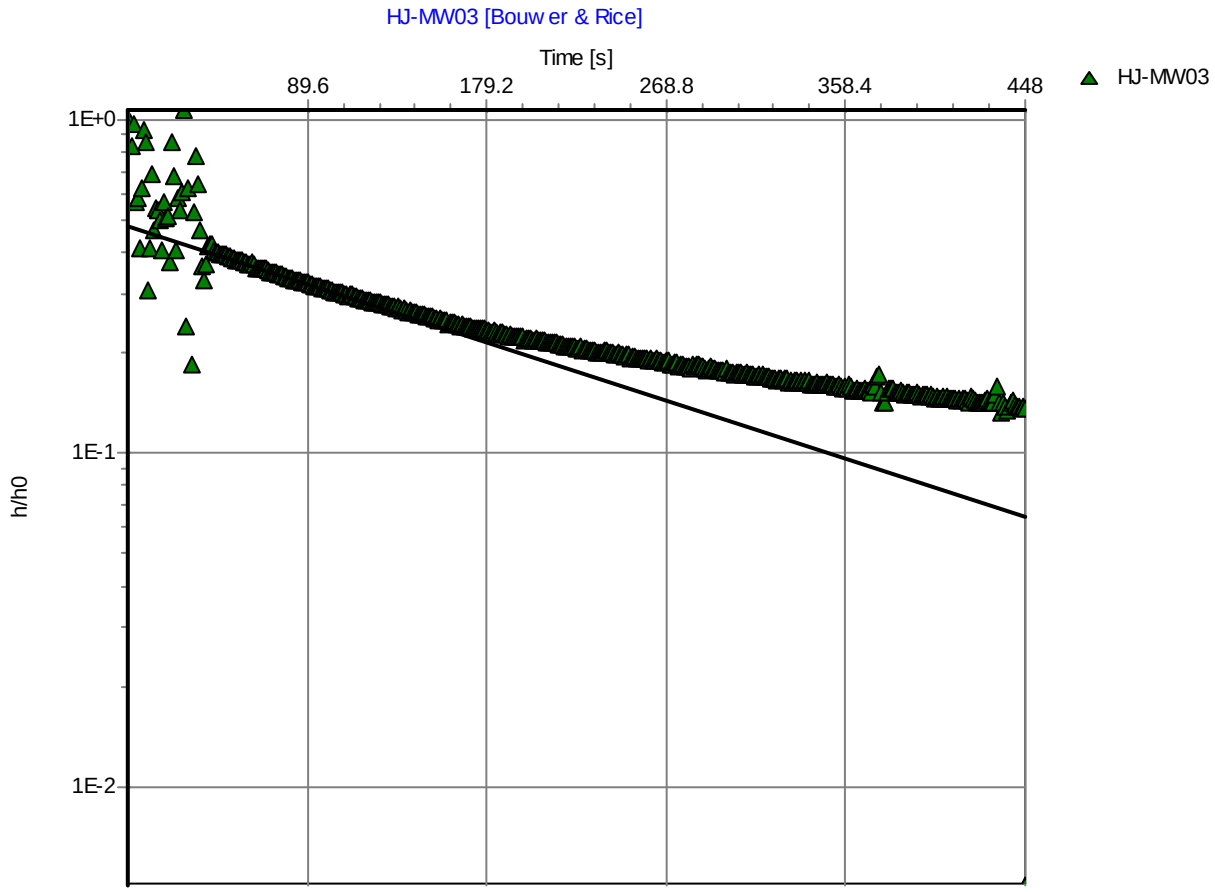
EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Hvorslev	



Conductivity: 2.25E-6 [m/s]

Comments:

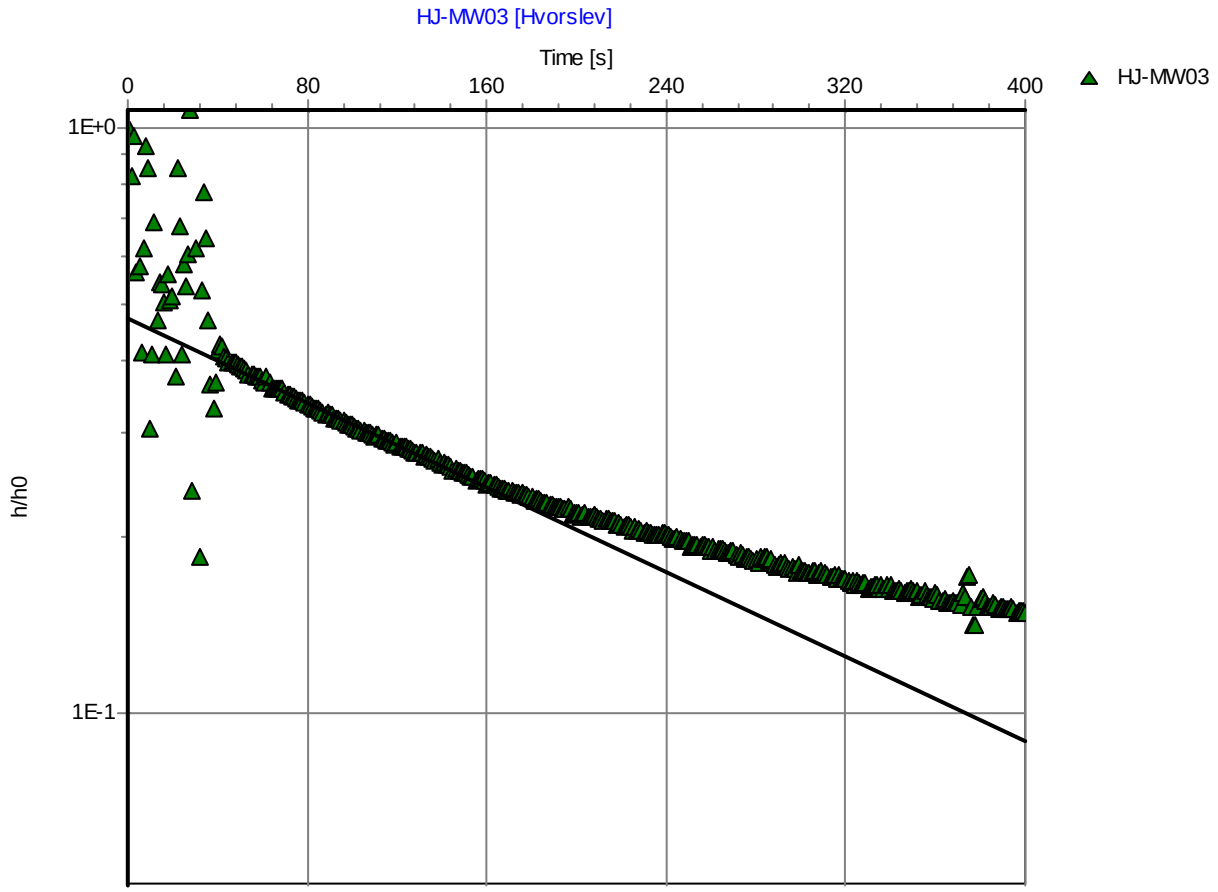
EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Bouwer & Rice	



Conductivity: 1.34E-6 [m/s]

Comments:

EBA Engineering Consultants Calcite Buisness Centre Unit 6, 151 Industrail Road Whitehorse, Yukon Y1A 2V3	**Slug Test Analysis Report** Number: W23101317 Project: W23101317-Haines Junction Client: Yukon Government
Location Haines Junction	
Test performed by: Test date: 1/12/2011	Evaluated by: SKS Reviewed by: RMM
Analysis Method: Hvorslev	



Conductivity: 1.33E-6 [m/s]

Comments: