NORTH AMERICAN TUNGSTEN CORPORATION LTD




North American Tungsten Corporation Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT MACTUNG PROJECT, MACMILLAN PASS, YUKON

W23101021.023

December 2008

CREATING AND DELIVERING BETTER SOLUTIONS

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North American Tungsten Corporation Ltd.

ISSUED FOR USE

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YUKON

W23101021.023

December 2008

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APPENDICES

1.0 INTRODUCTION

North American Tungsten Corporation Ltd. (NATC) is in the process of requesting regulatory approvals to start underground mining operations at its Mactung property (the Site). EBA has provided environmental and engineering services to assist NATC with permitting and planning for the proposed mining activities. This Detailed Hydrogeological Assessment (DHA) is intended to provide the necessary hydrogeological baseline information required for preparing the permitting application documents.

The Mactung property is located in the Selwyn Mountains, approximately 11 km northwest by road from MacMillan Pass on the Yukon side of the Yukon/Northwest Territories (NT) border (Figure 1-1). The Mactung property is entirely situated on mineral claims held by NATC.

1.1 OBJECTIVES

The main objective of the DHA program was to collect hydrogeological information deemed necessary to provide hydrogeological background information for preparing the YESAA project proposal. EBA has reviewed the "Proponents Guide to Information Requirements for Executive Committee Project Proposal Submissions" (YESAB, 2005). The key points relating to the hydrogeological information required in a YESAA project proposal are indicated below:

- Describe the geological elements and processes that affect the hydrogeology of the project area watersheds, with supporting documentation.
- Characterize the groundwater regime of the area including quantity, aquifer discharge and recharge zones, depth to groundwater, and local and regional groundwater flow patterns.
- Include an assessment of groundwater quality that may be affected by the proposed project, if applicable.

To collect the baseline information required for the preparation of the YESAA project proposal, the DHA program:

- Assessed the baseline groundwater flow dynamics;
- Assessed the physical properties of the overburden deposits and of the fractured bedrock;
- Assessed the baseline groundwater chemistry; and
- Developed a baseline conceptual model of groundwater conditions at the Site.

The information gathered as part of the DHA can also be used to assist with mine planning (e.g., to facilitate inflow predictions and potential dewatering requirements); however, additional hydrogeological investigations may be necessary to satisfy this objective.

1.2 AUTHORIZATION

EBA was provided written authorization to complete the DHA program in accordance with EBA's proposal submitted on May 2, 2008, by Wade Stogran of NATC on June 10, 2008.

1.3 SCOPE OF WORK

The DHA program consisted of three main phases:

- Initial desktop study;
- Field investigation; and
- Reporting.

The initial desktop study consisted of a review of existing hydrogeological, geological and hydro-meteorological information, and the design of the field program. Based on the desktop study, the DHA was planned, including installation of a total of eight observation wells targeting the different mine facilities that will potentially affect groundwater flow and/or groundwater quality. The proposed well locations are situated in the anticipated upstream and downstream areas of the proposed underground workings, dry-stacked tailings facility, and reservoir.

The field component of the DHA program included the drilling, installation, testing and sampling of diamond drill holes (DDHs) to depths ranging from 30 m to 350 m. The field program was conducted from July 14 to August 25, 2008.

The work completed as part of the field component of the DHA program consisted of the following (see Figure 2-1):

- Nested well installations in bedrock (2" diameter PVC) and in overburden (1" diameter PVC) in DDHs MW-MT-08-03, MW-MT-08-04, MW-MT-08-04B, MW-MT-08-05, MW-MT-08-06, and MW-MT-08-08;
- Single well installation in bedrock equipped with Vibrating Wire Piezometers (VWP) in DDHs MW-MT-08-01, MW-MT-08-07, and MW-MT-08-08;
- Water level measurements in MW-MT-08-03, MW-MT-08-04, MW-MT-08-04B, MW-MT-08-05, MW-MT-08-06, MW-MT-08-08;
- VWP readings of in situ porewater pressure and temperature in MW-MT-08-01, MW-08-07, and MW-MT-08-08;
- Packer tests in DDHs MW-MT-08-01, MT-08-02, MW-MT-08-03, MW-MT-08-04, MW-MT-08-04B, MW-MT-08-05, MW-MT-08-06, MW-MT-08-07, and MW-MT-08-08;

- Step-drawdown tests at MW-MT-08-04B, and MW-MT-08-06;
- Short-term pumping tests at MW-MT-08-04B, MW-MT-08-06, MW-MT-08-08; and
- Groundwater sampling from deep installations at MW-MT-08-04B, MW-MT-08-05, MW-MT-08-06, MW-MT-08-07, MW-MT-08-08, and shallow groundwater sampling at two locations in the area of the proposed dry-stacked tailings facility and about 100 m west of the existing camp.

2.0 STUDY AREA

2.1 SITE DESCRIPTION

The Site is located about 11 km northwest of MacMillan Pass on the Yukon/NT border and is accessible by unpaved road (Figure 1-1). The Site is located in the Selwyn Mountain Range on the south flank of Mt. Allan. The ore deposit straddles the Yukon/NT border. However, the proposed mine site will be entirely situated on the Yukon portion of the ore deposit.

The Site is currently accessible by the North Canol Road and an 11 km access road branching off the North Canol Road at MacMillan Pass. This access road runs through NT and is supposed to be replaced by an access road, 35 km long, branching off the North Canol Road at the MacMillan Pass air strip and running entirely within the Yukon.

The Site is situated in mountainous terrain above the tree line, at elevations ranging from about 1500 m to 2200 m asl, and includes Mt. Allan and the valley south of it.

2.1.1 Local Study Area

For the purposes of this DHA, EBA has defined a Local Study Area (LSA) to encompass the area of the proposed mine site. Figure 2-1 shows the limits of the LSA, and Figure 2-2 shows an aerial photograph of the LSA including the locations of the groundwater observation wells installed as part of the DHA. The LSA is adequate for defining the hydrogeological regime at the mine site, for the purposes of the program objectives presented in Section 1.1. The LSA comprises the south slope of Mt. Allan and the adjacent valley of an unnamed creek (referred to here as Tributary C) to the south and west of Mt. Allan, including the ore deposit, the existing camp, and the areas of proposed mine facilities. The LSA extends southwest to the proposed location of the ravine dam.

2.1.2 Proposed Mining Development/Infrastructure

For the construction and operation of an underground tungsten extraction and concentrating mine at the Mactung property, EBA understands that the major proposed mine components include (see Figure 2-1):

- Underground workings;
- Tungsten processing mill, workshops, and laboratory facilities;

- Camp and administrative facilities;
- Dry-stacked tailings facility;
- Reservoir/ravine dam/water diversion structures; and
- New access road.

The proposed underground workings, the dry-stacked tailings facility, and the reservoir will likely have the most significant potential impact on groundwater flow and/or quality. Therefore, in addition to a general assessment of the groundwater regime at the Site, groundwater conditions have been assessed in more detail in the areas of these mine components to enable characterization of existing conditions and complete effects assessments for these key areas in the subsequent YESAA project proposal.

2.2 GEOLOGY

2.2.1 Overburden

Upper slopes and mountain ridges at the Site are predominantly talus or rock outcrop. The area is dominated by weathered, frost-shattered bedrock and colluvium. The overburden in the northern part of the LSA in the vicinity of Mt. Allan consists of coarse, blocky talus with a thickness of a few metres covering shallow weathered bedrock.

Near the valley sideslopes, colluvium has accumulated from rockfall, avalanching and other mass movement processes. The colluvium at lower elevations in the valley floor is mainly composed of silt, silty sand, and silty, sandy gravel, and is typically covered by a thin organic horizon with ground vegetation.

2.2.2 Bedrock Geology

The geology of the Mactung ore deposit has been extensively described in a number of reports by AMAX Northwest Mining Company Ltd., and is summarized on NATC's webpage (http://www.northamericantungsten.com/s/Mactung.asp). Figure 2-3 shows a simplified geological map of the project area and Figure 2-4 contains a more detailed geological map of the northern part of the LSA including the ore deposit.

The Mactung ore deposit is located in the eastern Selwyn Basin, an outer miogeoclinal basin that formed on the western margin of the North American continent. The dominantly thin-bedded siliciclastic rocks (shale, chert, and basinal limestone) grade to the northeast into the thick-bedded carbonate sediments of the variably subsiding Mackenzie Platform.

In Jurassic and early Cretaceous time, the rocks of the Selwyn Basin were folded by a northeast-directed compression of the miogeocline. The tungsten granitic magmatism event (97-92 Ma) is one of five intrusive suites and is responsible for the formation of a string of tungsten skarn deposits along the eastern flank of the Selwyn basin. The rocks in the Mactung area are part of the west-trending Macmillan Fold Belt. Stratigraphy in the general area of Mactung trends generally east-west and dips from 10º to 40º to the south.

The axes of large folds also trend east-west and may have a shallow westerly plunge. Several ages of high-angle normal faulting of various orientations are known in the area.

Shallow bedrock at Mactung comprises approximately 230 m of shallow southerly dipping, altered limestones, shales and siltstones of Cambrian to Silurian age. The entire sequence is overthrust to the north, producing a recumbent isoclinal fold with an axis that plunges at a shallow angle to the west and to the east, away from the deposit. The Cretaceous-aged Cirque Lake stock is intruded through this sequence. The deposit and the host stratigraphy is cut and offset by numerous steeply dipping northerly trending faults with displacements of up to 30 m or more. The main lithological boundaries and faults in the northern part of the LSA are shown in Figure 2-4.

The Mactung mineralization can be characterized as a metasomatic skarn deposit formed by magmatic hydrothermal fluids originating from a Cretaceous granitic stock. The deposit comprises an upper and lower mineralized skarn zone separated by 100 m of hornfelsed pelitic sediments. Scheelite (CaWO4) is the economic mineral of interest at Mactung, with wolframite ((Fe,Mn)WO4) reported only occasionally. Chalcopyrite is the main base metal found in the deposit but is probably not of economic significance.

2.3 LOCAL CLIMATIC CONDITIONS

Local climate data has been collected by a meteorological station at the existing Mactung camp since July 2005 and at the Meteorological Service of Canada's Macmillan Pass meteorological station (precipitation data from 1998 to 2005). The MacMillan Pass station is located approximately 8 km southeast of the Mactung property and 481 m lower in elevation than the Mactung camp.

The warmest period of the year is from June to late August (EBA, 2008a). October through March represents the coldest period, with seasonal transitions occurring in April and May and from late August through September. Average daily maximum, minimum mean and extreme air temperatures at Mactung for the period of record are summarized by month in Table 2-1. The mean summer air temperature (June through August) is typically between 5°C and 10°C, with daily maximums around 12°C and minimums around 6°C (Figure 2-5, Table 2-1). Mean winter temperatures (January through March) have more day-to-day variation but are typically between -10°C and -20°C. During the winter season, air temperatures rarely rise above freezing. The mean annual air temperature is -5.7°C.

Precipitation data recorded at the Macmillan Pass meteorological station were used to estimate yearly precipitation at the Site. The average annual precipitation (water-equivalent) is 672 mm based on precipitation data for the years 1998 to 2005. The average monthly distribution of precipitation for Macmillan Pass is also presented in Figure 2-5 and Table 2-1.

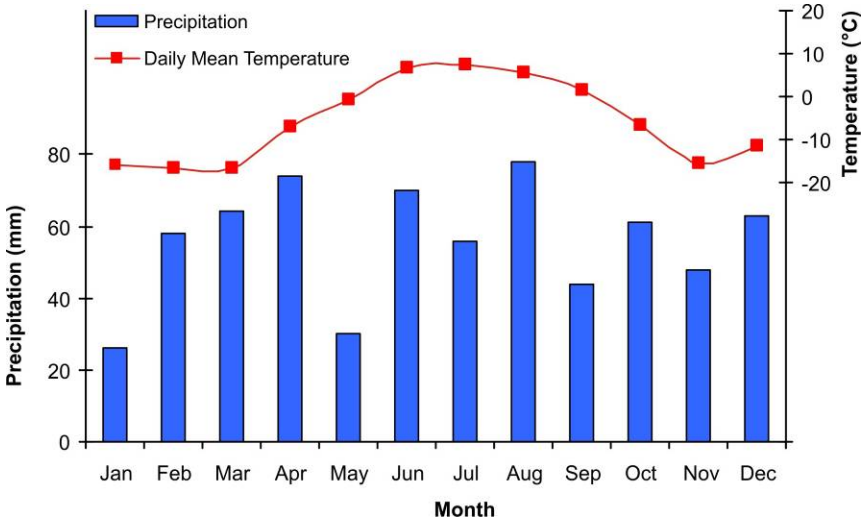

Figure 2-5. Monthly precipitation (water-equivalent) and daily mean temperatures at MacMillan Pass. (Precipitation data: 1998-2005; temperature data: 2005-2007)

TABLE 2-1: MACMILLAN PASS TEMPERATURE AND PRECIPITATION

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature													
Average Daily Max. (ºC)	-13.2	-12.0	-12.3	-2.6	4.0	10.3	11.6	8.7	4.1	-3.2	-12.4	-9.1	-2.2
Average Daily Min. (ºC)	-18.2	-18.9	-19.7	-10.2	-3.6	3.5	6.0	3.2	-0.3	-8.6	-17.9	-13.5	-8.2
Daily Mean (ºC)	-15.7	-16.4	-16.4	-7.1	-0.7	6.6	7.6	5.6	1.6	-6.4	-15.5	-11.2	-5.7
Extreme Max. (ºC)	-4.9	2.9	3.0	8.9	14.4	20.1	16.8	17.8	9.4	5.1	1.8	-1.1	20.1
Extreme Min. (ºC)	-31.4	-34.0	-36.6	-21.8	-10.2	-4.8	-0.9	-2.5	-4.9	-16.0	-30.9	-29.2	-36.6

Period of record from July 14, 2005 to September 13, 2007

Precipitation													
Precipitation (mm)	26	58	64	74	30	70	56	78	44	61	48	63	672.0

Source: Meterological Service of Canada - MacMillan Pass (Climate ID# 2100693) monthly data (period from 1998 - 2005)

3.0 METHODS

3.1 OBSERVATION WELL DRILLING AND INSTALLATION

3.1.1 Well Drilling

All DDHs were drilled by DJ Drilling Co Ltd. of Watson Lake, Yukon using a Longyear exploration diamond drill rig, and HQ-sized drilling tools. With HQ size tools, the borehole diameter is 96.1 mm and the core diameter is 63.5 mm. Drill water was taken from nearby surface water bodies. Water from an excavated sump next to MW-MT-08-02 was used for DDHs MW-MT-08-01 and MW-MT-08-02. Water from a small excavated sump approximately 150 m southwest of MW-MT-08-03 was used for DDH MW-MT-08-03. Water from Tributary C was used for DDHs MW-MT-08-04, MW-MT-08-04B, MW-MT-08-05, MW-MT-08-6, and MW-MT-08-07. DDH MW-MT-08-08 was drilled using water from a sump excavated about 100 m southwest of the existing camp. The drill water was continuously pumped from the water source to the drill rig to keep the water tank of the drill rig full. Excess drill water was drained to a sump excavated next to the drill rig.

The DDH were drilled using water-only when possible. A light polymer drilling mud was used sparingly in all DDHs, and only when the driller decided that the use of drill fluid additives was required for borehole stability reasons and to avoid damage or loss of drilling tools.

In addition to the DDHs, two testpits were excavated to assess the shallow overburden sediments and to install shallow 1" PVC standpipe piezometers close to DDH locations MW-MT-08-01 and MW-MT-08-08. Sediment samples were taken from both testpits and analyzed for grain size distribution. Based on the grain size composition, hydraulic conductivities were calculated using the methods described in Vukovic & Soro (1992). The analytical methods that EBA considers applicable for estimating hydraulic conductivity from coarse-grained, gravelly and sandy material were used.

3.1.2 Core Logging

All observation wells were drilled using the diamond drilling method. The main advantages of this method are the ability to retrieve a core that provides important geologic and geotechnical information necessary for mine planning purposes and the ability to increase the understanding of aquifer lithology and its hydraulic properties at the Site. For the purposes of the DHA, oriented core was not necessary, and oriented core was only retrieved from the combined hydrogeological and geotechnical DDHs MW-MT-08-06 and MW-MT-08-07 using the EZY-Mark® core orientation system by 2iC Australia Pty Ltd. It was necessary to obtain oriented core from these wells as they were also part of the geotechnical site investigation. All core logging was completed by EBA personnel in the core shack at the Site, and the following parameters were recorded:

- Run depth;

- Run length;
- Lithology;
- Recovery (length and %). Recovery values reported are generally equal to or less than 100% and in theory cannot exceed 100%. The recorded data, however, reflects how it was measured by the hydrogeologist logging the core and occasionally exceeded 100% due to the following scenarios:
  - there was excess core retrieval on one interval due to the fact that the previous interval that did not have full recovery, or
  - a high number of fractures resulted in an increased overall core length when re-assembling the core for measurement;
- Rock Quality Designation (RQD; sum of core length > 10 cm and %);
- Number of Fractures (joints and mechanical breaks);
- Alteration and weathering;
- Hardness;
- Joint number;
- Worst case joint (condition, roughness and alteration of joints considered as worst case from a geotechnical point of view); and
- Representative (average) joint (joint condition, joint roughness and joint alteration).

3.1.3 Well Completion

Once drilled, the DDHs were completed as either single or nested observation wells. The screened sections used had slot openings of 0.25 mm (0.010" or 10 slot). The length of the screened interval is 12.2 m (40 ft) for deep 2-inch diameter wells and 1.5 m (5 ft) for shallow 1-inch diameter wells. The deep screens were designed to ensure that, during pumping tests, the screen slot openings would not limit flow into the well.

A sand pack of Colorado Silica Sand (#10-20, grain size 1 mm, uniformity coefficient 1.55) was placed around the screen extending from about 3 m to 10 m above the top of the well screen depending on the purpose of the installation. The remaining annulus was filled with bentonite chips (Baroid Holeplug®, 3/8" grade). Usually it was not possible to fill the entire annulus above the sand pack with bentonite chips due to the small diameter of the remaining annulus and bridging of the bentonite chips, and/or due to borehole instability and partial collapse. In these cases, great caution was exercised to install proper seals between two screen sections (in the case of a nested well installation) and at surface to avoid hydraulic contact between two aquifers and to prevent groundwater contamination from surface water. Bentonite seals were placed carefully so that at least 1 m of continuous bentonite was installed between the upper and lower installation. The seal was achieved by

pouring the bentonite chips very slowly and regularly checking the depth to the bentonite seal using a downhole measuring tape.

3.2 GROUNDWATER LEVEL MEASUREMENTS

Groundwater levels were recorded at all installed observation wells for both shallow and deep groundwater at nested well installations using a Dipper-T® water level meter by Heron Instrument Inc. Groundwater levels were measured twice in August and again in September 2008. EBA considers that the short period of time for the groundwater level measurements excluded seasonal groundwater level variations.

Ground elevations at the well locations were surveyed by Underhill Geomatics Ltd. of Whitehorse, Yukon using ground base differential GPS methods. The casing stick-up was measured at each observation well location, and groundwater elevations were calculated by subtracting groundwater depth from the elevation of the measurement point.

3.3 VIBRATING WIRE PIEZOMETERS

Vibrating wire piezometers (VWPs) were installed in observation wells MW-MT-08-01, MW-MT-08-07, and MW-MT-08-08. The VWPs were either installed in the open borehole attached to the outside of a small diameter PVC pipe and grouted in place using a cement-bentonite grout (MW-MT-08-01 and MW-MT-08-07), or installed inside the PVC piezometer (MW-MT-08-08).

VWPs measure temperature and pressure with a piano wire attached to a diaphragm sensing element. The readings were converted into a pressure using the equation outlined on the calibration sheets prepared by the manufacturer RST Instruments (see Appendix A). The calibration data and initial readings are summarized in Table 3-1. The measured values represent the absolute pressure and need to be corrected for barometric pressure changes to obtain accurate measurements of porewater pressure. However, the barometric pressure at the Site varies by a maximum of about 50 hPa, which corresponds to a maximum error in porewater pressure of about 5 kPa or an error in hydraulic head of about 0.5 m. Because measurements of porewater pressure by VWPs with an accuracy of 5 kPa are deemed by EBA to be sufficient for the purpose of this study, no corrections for barometric pressure changes were conducted.

TABLE 3-1: VIBRATING WIRE PIEZOMETER CALIBRATION DATA										
Well	Date installed	Collar Elevation [m asl]	VWP s/n	Depth [m]	Vertical Depth [m bgs]	p_CF [kPa/F^{2}x10^{-3}]	p_ini [F^{2}x10^{-3}]	T_CF [kPa/°C rise]	T_ini °C	F [kpa/mbar]
MW-MT-08-01	19-Jul-08	2065	VW9080	20	20	0.09954	9218.2	-0.0664	5.7	0.1
MW-MT-08-01	19-Jul-08	2065	VW9082	145	144	0.82934	8930.2	0.5921	5.9	0.1
MW-MT-08-01	19-Jul-08	2065	VW9085	340	339	2.4146	8922.5	2.014	5.9	0.1
MW-MT-08-07	17-Aug-08	1496	VW9494	30	28	0.18013	8935.0	0.0294	6.8	0.1
MW-MT-08-08	24-Aug-08	1796	VW9510	103	97	0.80591	9087.7	0.3062	4.2	0.1

Notes: p_CF - Pressure calibration factor
p_ini - Initial pressure reading before installation
T_CF - Temperature correction factor
T_ini - Initial temperature reading before installation
F - Pressure conversion factor (kPa/mbar)

3.4 HYDRAULIC TESTING

Hydraulic tests were conducted in all DDHs at selected depth intervals to determine the hydraulic properties of the bedrock aquifers. Bulk hydraulic conductivity of the bedrock aquifer(s) were obtained from step-drawdown tests and/or constant rate pumping tests. Packer tests were utilized to provide hydraulic conductivity over finite bedrock intervals. The above-mentioned test methods are described in the following sub-sections.

3.4.1 Packer Tests

Packer tests are used to determine in situ hydraulic conductivity of a rock mass over a specific interval under constant pressure head conditions. Packer tests were conducted over representative intervals in all DDHs. The packer test intervals were selected by EBA based on drill core inspection to represent depth intervals that are representative of lithology, fracture frequency, fault zones, etc., over the entire depth of the DDH.

The packer test system is composed of three main components:

- A downhole assembly of two or three inflatable packer glands used to seal the tested interval within the DDH;
- A packer inflation system using nitrogen to inflate the packer glands and seal the test section; and
- A water pressure system that facilitates water injection at a constant pressure (head) into the tested interval and provides a measurement of the flow rate.

The tests were conducted after the drill rig had cored to a specified borehole depth. The drill rods were pulled back to allow the water level to stabilize. The water level was used to determine the excess pressure (P_w^{max}) to be applied over the tested interval and calculated as follow:

$$P_w^{max} = \sigma_v' = \gamma_s' (z_s) + \gamma_r' (z_{tz} - z_s)$$

Where:

γ'_s is the submerged unit weight of the overburden deposits;
γ'_r is the submerged unit weight of the bedrock;
z_s is the thickness of the overburden deposits; and
$(z_{tz}-z_s)$ is the thickness of bedrock over the tested interval.

In tests at this site, the excess pressure was not to exceed 700 kPa to avoid potential hydraulic fracturing of the rock.

The packer inflation pressures ensure that the tested interval is properly sealed, prevent slippage and avoid damage to the packer glands.

If drill fluid additives were used, the DDH was thoroughly flushed with water, and the polymer mud in the water tank was replaced by clean water prior to packer testing. The downhole assembly was lowered through the drill rods into the open borehole. The packer glands were inflated using nitrogen gas and the water pressure system connected to the water pump. Water was injected down the rods into the tested interval under a constant pressure. The injection rate was measured using a flow meter and recorded for selected pressures. The packer tests were conducted in stages where the excess pressure was increased from 33%, 67% to 100% of P_w^{max}. EBA testing staff exercised caution in setting these excess pressures so that no hydraulic fracturing would occur. The data collected from these stages was then used to calculate the hydraulic properties of the rock mass within the test interval.

3.4.2 Step-Drawdown Test

Step-drawdown tests were used at MW-MT-08-4B and MW-MT-08-06 to evaluate aquifer productivity and determine the optimum pump setting depth and withdrawal rate for the constant rate pumping tests.

The step-drawdown tests consisted of pumping from MW-MT-08-4B and MW-MT-08-06 at two or three different flow rates for a set interval (typically 0.5 to 1 hour per step). Flow rates selected for each step ranged between the minimum and maximum capabilities of the pump, with the minimum and maximum rates being the initial and final steps when aquifer conditions allowed it.

3.4.3 Constant Rate Pumping and Recovery Tests

Short term constant rate pumping and recovery tests allow the bulk hydraulic conductivity of the aquifer nearby the pumping well to be determined. As part of the DHA program,

constant rate pumping tests were conducted at observation wells MW-MT-08-04B, MW-MT-08-06, and MW-MT-08-08 located downgradient of the dry-stacked tailings facility, the reservoir, and the underground workings, respectively, to obtain representative hydraulic conductivity values for these areas.

The withdrawal rate for the constant rate pumping test was selected prior to the initiation of the test and was based on drawdown measurements recorded during the step-drawdown test (see Section 3.4.2). If no step-drawdown test had been conducted, the pump rate was chosen so that a drawdown of at least several metres could be achieved. Groundwater withdrawal rates were monitored and adjusted (if necessary) on a regular basis to ensure the specified pumping rate was maintained constant because it will generally decrease as drawdown in the well increases due to the pump working harder to lift the groundwater to surface as a result of the increasing hydraulic head difference. A Grundfos® Redi-Flo2 pump was used to conduct all pumping tests. Its variable speed feature allowed the withdrawal rate to be adjusted to remain constant (±5%) throughout the test.

Water level measurements were recorded in accordance with the time interval specified in Table 3-2. A Solinst® datalogger was installed in the pumping well to record the water level variations during both pumping and recovery intervals. The groundwater level could only be observed in the pumping well due to the lack of any nearby observation wells.

Field chemistry parameters (temperature, pH, conductivity, total dissolved solids, and dissolved oxygen) were measured during the pumping test and compared to the groundwater analytical results. All groundwater samples were sent to Bodycote Testing Group in Surrey, BC, for analysis. Section 3.5 provides further details regarding the groundwater sampling procedure.

At the end of the pumping interval, the pump was shut off and water levels were monitored and recorded at a frequency similar to the pumping test. The recovery period generally lasted until the water level had recovered to a minimum of 90% of total drawdown measured during the pumping test.

TABLE 3.2: PUMPING TEST DATA COLLECTION FREQUENCY

Elapsed Time since Start of Pumping, Change in Rate or During Recovery	Frequency
0 to 5 min	30 sec
5 to 10 min	1 min
10 to 20 min	2 min
20 to 60 min	5 min
60 to 120 min	10 min
120 to 360 min	30 min
360 to 1,440 min	60 min

3.5 GROUNDWATER SAMPLING

Groundwater samples were collected from deep installations in observation wells MW-MT-04B, MW-MT-08-05, MW-MT-08-06, MW-MT-08-07, MW-MT-08-08, and at two shallow groundwater sampling locations. One shallow groundwater sample ("MT Spring") was taken from a spring about 100 m west of the existing camp representing shallow groundwater within the overburden in the upland areas of Mt. Allan. Another shallow groundwater sample ("Drill Water #3") was collected from a sump which was excavated in the area of the dry-stacked tailings facility and used as a drill water source for drilling DDH MW-MT-08-03. In addition to the groundwater samples, drill water samples were collected to identify and potentially quantify contamination of the groundwater samples with remnants of drill water.

In addition to the groundwater samples collected from the Site, a sample was taken from a warm spring about 2 km west of the Site (UTM Nad83: Easting: 0438497, Northing: 7017672), which has recently been discovered and may provide some insight into deeper groundwater circulation in the vicinity of the LSA.

Based on prevailing conditions at each site, the water samples were collected using one of the following methods:

- Grab sampling in the case of surface/spring water collection or artesian groundwater conditions, or
- Pumping using a Grundfos® Redi-Flo2 submersible pump.

All wells were developed and purged prior to sample collection to remove suspended sediments, develop the sand pack, and remove possible drill water that had been lost into the formation during drilling or packer testing.

All the sample bottles used were provided by Bodycote Testing Group. Each bottle was rinsed three times with the water to be sampled before sample collection. Non-powdered nitrile gloves were worn at all stages of the sampling procedure to prevent sample contamination.

The samples were analyzed for physical parameters, nutrients, total metals and dissolved metals. The samples to be analyzed for dissolved metals were filtered using a 0.45 µm sterilized membrane and a vacuum field filtration unit. Nitric acid (3 ml at 20 vol-%) provided by Bodycote was used to preserve all dissolved and total metals samples. The samples were labelled and stored in a refrigerator for a maximum of two weeks before they were sent on ice in coolers to the lab. A chain of custody form detailing the sample handling information and analyses required was prepared and included with the samples prior to shipping via air cargo to Bodycote Testing Group in Surrey, B.C.

3.5.1 Quality Assurance/Quality Control (QA/QC) of Analytical Data

A field QA/QC procedure was implemented and consisted of submitting field blank and duplicate samples to the lab to quantify potential changes in groundwater chemistry

associated with sampling procedure or cross-contamination during sample shipping and to check the analytical repeatability.

A field blank sample composed of deionized water was collected during fieldwork using a similar sample handling procedure as described above.

The duplicate sample was collected at observation well MW-MT-08-08. The duplicate sample labelled "MW-MT-08-09" was collected immediately after sample MW-MT-08-08 using the sampling procedure detailed above and was submitted to the lab as a blind field duplicate.

4.0 RESULTS

4.1 OBSERVATION WELL DRILLING AND INSTALLATION

A total of eight observation wells were installed as part of the DHA program. Table 4-1 presents a summary of the observation well details. The depth of the observation wells completed within the bedrock aquifer varied from approximately 30 m to 350 m below ground surface (bgs). The depth of the wells completed within the overburden varied from approximately 2.7 to 4.9 m bgs. For each DDH completed, a geomechanical log report has been produced and can be found in Appendix B. All other geotechnical core logging parameters (see Section 3.1.2) will be presented and interpreted as part of a separate Geotechnical Report.

Figures B1 through B9 (Appendix B) present a borehole log of each DDH completed as part of the DHA program and include:

- Well location information;
- Description of lithology;
- Fracture frequency (number of fractures/m; if applicable);
- Rock Quality Designation (RQD %);
- Core recovery (%);
- Hydraulic conductivity obtained from packer tests; and
- Well installation summary (if applicable).

The testpit logs and the results of grain size analyses are presented in Appendix B.

TABLE 4-1: GROUNDWATER WELL SUMMARY

Well	Date of Well Completion	UTM NAD83, Zone 9		Collar Elevation	Depth to Middle of Screened Interval		Screen Length		Stick-up of PVC		Trend	Plunge
		Northing	Easting		Deep (2")	Shallow (1")	Deep	Shallow	Deep	Shallow		
		m	m	m asl	m bgs		m		m ags			
MW-MT-08-01	20-Jul-2008	7017549.53	441562.30	2064.61	351.4	1.7	--	1.5	--	1.20	0	-85
MW-MT-08-03	5-Aug-2008	7016723.21	441451.07	1656.74	54.3	3.5	12.2	1.5	1.11	1.11	0	-85
MW-MT-08-04	6-Aug-2008	7016321.94	441116.75	1591.39	36.0	3.5	12.2	1.5	1.24	1.24	0	-85
MW-MT-08-04B	17-Aug-2008	7016263.97	441296.32	1599.29	33.5	3.8	12.2	1.5	1.19	1.19	0	-90
MW-MT-08-05	8-Aug-2008	7016297.19	440345.89	1520.04	29.9	4.2	12.2	1.5	1.10	1.10	0	-85
MW-MT-08-06	12-Aug-2008	7016363.34	440021.14	1497.69	54.0	3.8	12.2	1.5	1.13	1.13	45	-70
MW-MT-08-07	17-Aug-2008	7016425.80	440161.17	1495.86	30.2	--	--	--	--	--	225	-70
MW-MT-08-08	16-Aug-2008	7017018.31	441876.40	1796.44	96.9	1.4	12.2	1.5	0.57	1.20	0	-70

Notes: m asl - metre above sea level
m ags - metre above ground surface
m bgs - metre below ground surface
-- - not available/does not exist

4.2 GROUNDWATER ELEVATION

Table 4-2 shows details on manual groundwater level measurements. Details for the VWP readings are presented in Table 4-3. A summary of all measured groundwater levels is presented in Table 4-4. Figure 4-1 shows a contour map of hydraulic heads for the LSA.

The hydraulic conditions at the observation well locations are described in more detail below:

- **MW-MT-08-01**: Three VWPs are installed in observation well MW-MT-08-01 at depths of 20, 144, and 339 m bgs. The pressure sensor at 20 m depth, however, malfunctioned shortly after installation. Four pressure and temperature readings were taken after completion of the observation well (Figure 4-2). Figure 4-2 shows that it took about 15 to 30 days until the pressures and temperatures had reached equilibrium with the surrounding conditions. The temperature readings indicate permafrost conditions to about 200 m to 250 m bgs, assuming a linear temperature gradient with depth (see Section 4.3). The VWP readings suggest permafrost temperatures of -1.5°C to -2°C. The VWP at 339 m depth indicates a ground temperature of 1.2°C (i.e., this VWP seems to be situated below the frozen rock mass). The in situ porewater pressure at a depth of 339 m bgs is about 430 kPa, corresponding to a hydraulic head of 1768 m asl. Assuming a similar hydraulic head for the entire saturated zone in observation well MW-MT-08-01, the thickness of the unsaturated zone would be about 300 m and would extend about 50 m to 100 m below the permafrost.

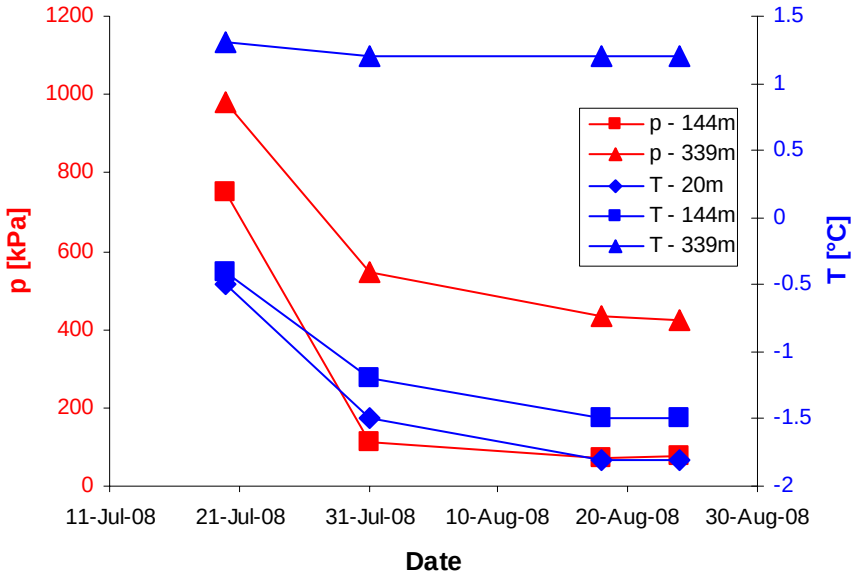

Figure 4-2. VWP readings at different depths in observation well MW-MT-08-01 (p – pressure, T - temperature).

- **MW-MT-08-03**: Two groundwater level measurements were taken at MW-MT-08-03 in August and September 2008. Both measurements are very similar and indicate hydraulic heads of 1648 m asl and 1653 m asl for the deep and shallow aquifers, respectively. The difference in hydraulic heads of about 5 m suggests that there is no or only very limited hydraulic connection between the shallow and deep aquifers. The thickness of the unsaturated zone was about 3.3 m in August/September 2008 but may be subject to seasonal variations.
- **MW-MT-08-04**: Two groundwater level measurements were taken at MW-MT-08-04 in August and September 2008. The measurements are very similar at both dates and indicate a hydraulic head of 1591 m asl for both the shallow and deep piezometer installations. There seems to be no hydraulic head difference between the overburden and bedrock aquifers, and hence, hydraulic contact between both aquifers can be assumed. Another possible explanation would be an installation fault resulting in hydraulic contact between the deep and shallow installations. However, a bentonite seal 1 m thick was installed just below the shallow well screen in MW-MT-08-04, and a flow connection between the deep and shallow installations due to an installation fault is therefore unlikely. The unsaturated zone is very thin with the groundwater table located about 0.2 to 0.3 m bgs.
- **MW-MT-08-04B**: Hydraulic head measurements in observation well MW-MT-08-04B in August and September 2008 yielded similar results for both dates (1598 m asl and

1599 m asl for the overburden and bedrock aquifers, respectively). The bedrock aquifer appeared to be slightly artesian with a hydraulic head being about 0.2 m above ground surface. The groundwater table of the shallow aquifer was at about 0.9-1.0 m bgs.

- **MW-MT-08-05**: Two measurements of the hydraulic head were taken in observation well MW-MT-08-05 in August and September 2008. The hydraulic heads in both shallow and deep piezometers rose by about 1 m from August to September, namely form 1520 to 1521 m asl in the deep aquifer and from 1519 to 1520 m asl in the shallow overburden aquifer. The hydraulic head difference of about 1 m indicated limited hydraulic contact between both aquifers. The thickness of the unsaturated zone was about 0.5 m to 1.0 m. Groundwater from the deep aquifer was slightly artesian, having a hydraulic head about 1 m above ground surface.
- **MW-MT-08-06**: The hydraulic heads in the shallow and deep piezometers of observation well MW-MT-08-06 also rose slightly from August to September 2008. The hydraulic head of the deep aquifer was 1490 m asl in both August and September. The shallow piezometer (4.6 m deep) was dry in August, and had about 7 cm of water inside the piezometer in September corresponding to a hydraulic head of 1493 m asl.
- **MW-MT-08-07**: The DDH MW-MT-08-07 encountered artesian groundwater conditions. The VWP installed at the bottom the well showed an in situ porewater pressure of about 410 kPa, corresponding to a hydraulic head of 1509 m asl. That is, the hydraulic head was about 13 m above ground surface in August and September 2008.
- **MW-MT-08-08**: Observation well MW-MT-08-08 is equipped with a VWP at the bottom of the well. The in situ water pressure measured by the VWP in August and September 2008 was about 560 kPa with a corresponding hydraulic head of 1756 m asl (i.e., the groundwater table within the bedrock aquifer is located at a depth of about 40 m bgs).

4.3 GROUNDWATER AND GROUND TEMPERATURES

Shallow ground and groundwater temperatures can vary substantially and are subject to seasonal temperature variations. Below the level of zero annual amplitude (i.e., below the depth of penetration of seasonal temperature variations), ground and groundwater temperatures are constant over time and are usually closely related to the mean annual air temperature. The typical depth of level of zero annual amplitude is about 10 m to 15 m bgs; however, this depth may vary depending on local environmental conditions (soil properties, land cover, vegetation, insolation and other factors). Ground temperatures steadily increase with further increasing depth as a result of the geothermal gradient.

The active layer is defined as the shallow soil zone that freezes and thaws with the changing seasons. Field observations at Mactung property in late summer showed that existing exploration DDHs in the northern part of the LSA were plugged by ice at a depth of about

2 m to 4 m bgs. These ice plugs probably indicate the top of permafrost and the thickness of the active layer at higher elevation on Mt. Allan.

Ground ice was found in testpit TP-MT-08-08 from a depth of about 1.5 m to 2 m below the original ground surface.

VWP readings in observation well MW-MT-08-01 indicate subzero ground temperatures at 20 m bgs (-1.8°C) and 144 m bgs (-1.5°C) but a positive ground temperature at a depth of 339 m bgs (1.2°C; Figure 4-3). Assuming that mean linear temperature increases with depth, permafrost seems to extend to about 200 m to 250 m bgs at the location of well MW-MT-08-01 at higher elevations in the northern part of the LSA.

There were no indications of permafrost conditions in the southern part of the LSA south of Mt. Allan. Packer tests did not reveal any impermeable zones, and temperature measurements conducted as part of the geotechnical site assessment yielded no evidence for the presence of permafrost in the valley south of Mt. Allan. Deep groundwater temperatures at the Site ranged from about 1 to 3°C based on water sample temperatures (see Section 4.5).

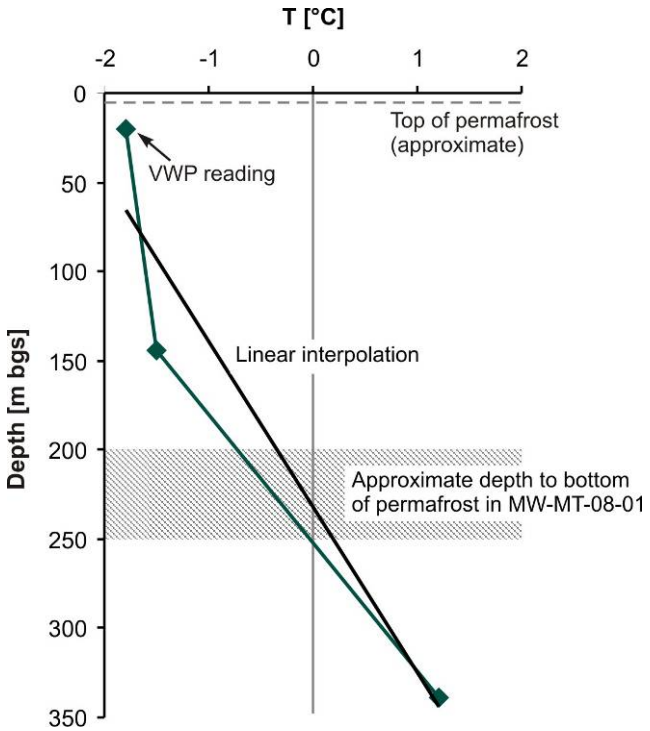

Figure 4-3. Ground temperature profile measured by VWPs installed in observation well MW-MT-08-01. The black line shows the linear interpolation of the temperature readings and represents the mean geothermal gradient, indicating that the permafrost extends to a depth of about 200 m to 250 m bgs at the location of well MW-MT-08-01.

4.4 HYDRAULIC TESTS

This section presents the results of methods that were employed to determine the hydraulic conductivity of the various aquifers at the site. The hydraulic properties of the bedrock aquifers were assessed using packer and pumping test methods described previously. All hydraulic tests results were interpreted using methods within the WHI AquiferTest version 3.0 software by Waterloo Hydrogeologic (now Schlumberger Water Services), except for the packer test results, which were interpreted using an in-house EXCEL-based code.

The hydraulic conductivity of the overburden sediments comprising the shallow aquifer were obtained from the grain size distribution of overburden samples using methods described in Vukovic & Soro (1992).

4.4.1 Packer Tests

The packer tests were conducted at selected depth intervals deemed representative for both intersected rock sequences and tectonic features encountered as observed in the drill cores. The results were interpreted using the Thiem (1904) solution and the following assumptions were made:

- Steady-state condition was reached during the test; and
- Radius of influence of the test did not exceed 10 m.

The results of all testing pressures for each interval are presented in Tables C-1 through C-12 (Appendix C). Table 4-5 presents a summary of the basic statistics calculated from the packer test results discussed below:

- **MW-MT-08-01**: Packer tests were conducted using a three packer system from July 16 to 18, 2008, after the DDH had been drilled to the target depth of 351 m bgs. A total of 19 intervals (6 m long) were tested to a depth of about 145 m bgs, assuming that permafrost would not extend beyond about 100 m bgs. Injection rates were generally about 1 L/min or less. The hydraulic conductivities were determined to range from 1×10^{-8} to 3×10^{-8} m/s, except for the test interval from 107.6 to 113.7 m bgs, which had a hydraulic conductivity of 2×10^{-7} m/s. A proper packer seal could not be achieved at test interval 71.0 to 77.1 m bgs, and therefore the hydraulic conductivity of this depth interval could not be determined.
- **MW-MT-08-02**: Packer tests were conducted using a three packer system from July 31 to August 2, 2008, after the DDH had been drilled to the target depth of 237.1 m bgs. A total of ten intervals (9 m long) were tested ranging in depth from about 83.2 to 232.6 m bgs. Most of the test intervals revealed hydraulic conductivities between 1×10^{-8} to 2×10^{-8} m/s. The test intervals between 83.2 and 125.9 m bgs, however, showed hydraulic conductivities between 6×10^{-8} to 4×10^{-7} m/s.

- **MW-MT-08-03**: Packer tests were conducted using a two packer system as the DDH was drilled from August 3 to 5, 2008. Packer tests were performed at five selected depths intervals ranging from 10.1 to 60.4 m bgs. The hydraulic conductivities determined ranged from $< 1\times10^{-8}$ to 3×10^{-6} m/s with the maximum hydraulic conductivity at a depth of about 23 to 30 m bgs. The deepest test interval (52.7 to 60.4 m bgs) had a hydraulic conductivity below the detection limit (1×10^{-8} m/s) of the packer testing assembly used (i.e., no measurable volume of water could be injected into the formation at applied pressures of up to 650 kPa).
- **MW-MT-08-04**: Packer tests were conducted using a two packer system as the DDH was drilled from August 5 to 6, 2008. Three depth intervals were tested between 10.1 and 36.0 m bgs. The test interval from 10.1 to 17.7 m bgs had a hydraulic conductivity of about 1×10^{-7} m/s, whereas the deeper intervals had hydraulic conductivities of about 2×10^{-8} m/s to 3×10^{-8} m/s, close to the detection limit of the packer test method.
- **MW-MT-08-04B**: Packer tests were conducted using a two packer system as the DDH was drilled from August 16 to 17, 2008. Three depth intervals were tested between 10.4 and 39.3 m bgs. Test intervals 10.4 to 18.0 m bgs and 19.5 to 27.1 m bgs both exhibited hydraulic conductivity values of about 1×10^{-6} m/s to 2×10^{-6} m/s. The interval from 31.7 to 39.3 m bgs had a hydraulic conductivity of about 2×10^{-7} m/s.
- **MW-MT-08-05**: Packer tests were conducted using a two packer system as the DDH was drilled from August 7 to 8, 2008. Four depth intervals were tested between 10.1 and 36.0 m bgs. The test interval 10.1 to 17.7 m bgs took very high flow even at very low pressure, and the water flow was too high to be measured. The large flow rate, however, was most likely the result of an improper packer seal, and no reliable value for the hydraulic conductivity of that test interval can be determined. For test intervals 16.2 to 23.8 m bgs and 28.3 to 36.0 m bgs, hydraulic conductivity values of 6×10^{-8} m/s and 1×10^{-7} m/s, respectively, were obtained. Because no pumping test was conducted in well MW-MT-08-05, a packer test covering almost the entire open DDH was performed to estimate the bulk hydraulic conductivity for this DDH. The resulting bulk hydraulic conductivity for MW-MT-08-05 (depth interval: 10.1-36.0 m bgs) was determined to be 2×10^{-7} m/s.
- **MW-MT-08-06**: Packer tests were conducted using a two packer system as the DDH was drilled from August 11 to 12, 2008. Six depth intervals were tested between 10.4 and 60.7 m bgs. Hydraulic conductivities were similar for most of the test intervals, ranging from 8×10^{-7} m/s to 2×10^{-6} m/s, except for test interval 34.7 to 42.4 m bgs which had a hydraulic conductivity of 2×10^{-7} m/s.
- **MW-MT-08-07**: Packer tests were conducted using a two packer system as the DDH was drilled (August 8 to 9, 2008). Two depth intervals were tested covering most of the intersected formation from 10.4 to 27.1 m bgs. Both tests yielded very similar hydraulic conductivity values— 3×10^{-6} m/s and 4×10^{-6} m/s, respectively.

- **MW-MT-08-08**: Packer tests were conducted using a two packer system as the DDH was drilled from August 15 to 16, 2008. A total of seven intervals were tested ranging from 22.3 to 100.0 m bgs. A proper packer seal could not be achieved for the test interval from 22.3 to 29.9 m bgs, presumably due to highly fractured rock and packer bypass flow. The next two test intervals, extending to a depth of 54.3 m bgs, are characterized by hydraulic conductivities below the detection limit of about 1×10^{-8} m/s for the test method used. No measurable amount of water could be injected even at high pressures of 420 or 570 kPa. Hydraulic conductivities of the test intervals below 54.3 m bgs range from about 4×10^{-8} m/s to 9×10^{-7} m/s with the minimum at 83.2 to 90.8 m bgs and the maximum at 92.4 to 100.0 m bgs.

In addition, packer tests were also conducted as part of the geotechnical site investigation (EBA, 2009) in three DDHs in the area of the proposed reservoir and ravine dam. The locations of the DDHs BH46, BH49, and BH50 are included in Figure 2-1, and the results of the packer tests are summarized below.

- **BH46:** Packer tests were conducted using a two packer system as the DDH was drilled from August 9 to 10, 2008. Two overlapping intervals between 28.3 and 33.5 m bgs were tested, and both tests yielded a hydraulic conductivity of $< 10^{-8}$ m/s.
- **BH49:** Packer tests were conducted using a two packer system as the DDH was drilled from August 12 to 13, 2008. A total of six depth intervals were tested comprising almost the entire bedrock intersected. The shallow depths intervals from 7.3 to 30.2 m bgs showed consistent mean hydraulic conductivities ranging from 1.9×10^{-6} m/s to 3.5×10^{-6} m/s. No appropriate packer seal could be achieved in all test intervals below the depth of 30.2 m bgs, and therefore the hydraulic conductivity below this depth could not be determined. Strongly fractured rock and fractures running parallel to the core axis might have caused bypass flow around the packer.
- **BH50:** Two packer tests were conducted using a two packer system as the DDH was drilled from August 14 to 15, 2008. No packer seal could be achieved for the test interval from 10.4 to 14.9 m bgs. The mean hydraulic conductivity of the test interval from 16.5 to 21.0 m bgs was determined by EBA to be 8×10^{-6} m/s.

4.4.2 Pumping Tests

Step-drawdown tests were conducted prior to the constant rate pumping test in observation wells MW-MT-04B and MW-MT-08-06. The results were interpreted using the Theis (1935) solution, and the Cooper-Jacob (1946) approximation.

To conserve time, constant rate tests were conducted immediately following the step-drawdown tests (i.e without recovery) in MW-MT-04B and MW-MT-08-06. In observation well MW-MT-08-08 only a constant rate test was conducted. The constant rate test results were interpreted using the Theis (1935) solution, and the Cooper-Jacob (1946) approximation. Only late-time data were used to calculate the average hydraulic

conductivities for each test well in order to minimize the influence of well storage effects on the test results.

A summary of the pumping test results is presented in Table 4-6. The individual test results are discussed below:

- **MW-MT-08-04B:** The step-drawdown test consisted of three intervals at withdrawal rates of 8, 14 and 19 L/min, respectively. The third step was continued at a constant rate for about 6 hours, followed by the recovery, which lasted for about 14 hours. Interpretation of the field data yielded bulk hydraulic conductivity values for the bedrock aquifer varying from 1×10^{-6} m/s to 2×10^{-5} m/s with a geometric mean of 1×10^{-6} m/s.
- **MW-MT-08-06**: The step-drawdown test consisted of two intervals at withdrawal rates of 3 and 13 L/min, respectively. The second step was continued at a constant rate for about 8 hours, followed by the recovery, which lasted for about 4 hours. Interpretation of the field data yielded bulk hydraulic conductivity values for the bedrock aquifer varying from 2×10^{-7} m/s to 6×10^{-6} m/s with a geometric mean of 2×10^{-7} m/s.
- **MW-MT-08-08**: The constant rate pumping test lasted for 7 hours and was followed by the recovery recorded for 2 hours. Interpretation of the field data yielded bulk hydraulic conductivity values for the bedrock aquifer varying between 3×10^{-7} m/s and 9×10^{-7} m/s with a geometric mean of 6×10^{-7} m/s.

TABLE 4-6: SUMMARY OF BULK HYDRAULIC CONDUCTIVITY OBTAINED FROM PUMPING TESTS

Well	Hydraulic Conductivity (K)				Hydraulic Test Type	Interpretation Method
	Results	Average	Minimum	Maximum		
	m/s					
MW-MT-08-04B	1.8E-05	**1E-06**	1E-06	2E-05	Step 1	Theis (1935)
	1.1E-05					Cooper-Jacob (1946) - Late Time
	1.8E-06				Step 2	Theis (1935)
	2.0E-06					Cooper-Jacob (1946)
	1.2E-06				Constant Rate	**Theis (1935) - Late Time**
	1.1E-06					Cooper-Jacob (1946) - Early Time
	2.2E-06					**Cooper-Jacob (1946) - Late Time**
	7.7E-06				Recovery	Theis (1935) - Early Time
	1.2E-06					**Theis (1935) - Late Time**
MW-MT-08-06	2.6E-06	**2E-07**	2E-07	6E-06	Step 1	Theis (1935)
	6.2E-06					Cooper-Jacob (1946) - Early Time
	2.5E-06					Cooper-Jacob (1946) - Late Time
	1.8E-07				Constant Rate	**Theis (1935) - Late Time**
	2.0E-07					**Cooper-Jacob (1946)**
	1.3E-06				Recovery	Theis (1935) - Early Time
	1.9E-07					**Theis (1935) - Late Time**
MW-MT-08-08	3.8E-07	**6E-07**	3E-07	9E-07	Constant Rate	Theis (1935)
	2.5E-07					Cooper-Jacob (1946) - Early Time
	6.1E-07					**Cooper-Jacob (1946) - Late Time**
	8.6E-07				Recovery	Theis (1935) - Early Time
	5.0E-07					**Theis (1935) - Late Time**

Note: Average hydraulic conductivities were calculated from constant rate test and recovery late-time data which are deemed to be less affected by well storage effects.

4.4.3 Hydraulic Conductivity Estimated from Grain Size Analysis

The hydraulic conductivity of the overburden sediments comprising the shallow aquifer were obtained from the grain size distribution of overburden samples from two testpits excavated next to observation wells MW-MT-08-01 and MW-MT-08-08 by methods described in Vukovic & Soro (1992). EBA used the methods that are considered applicable for coarse sandy and gravelly material. In addition to the sediment samples collected as part of the DHA, hydraulic conductivities of overburden sediments were determined for samples taken for the preliminary geotechnical investigation (EBA, 2008b).

The hydraulic conductivities determined from the grain size analyses are presented in Table 4-7. Table 4-8 provides a summary of the hydraulic conductivities of the shallow overburden aquifer in the different areas of the Site.

TABLE 4-8: HYDRAULIC CONDUCTIVITIES OF THE SHALLOW AQUIFERS

Location	Hydraulic Conductivity		
	Min	Max	Geomean
	[m/s]		
All	1.7E-07	2.5E-03	9.7E-06
Mt. Allan (incl. Mill, Camp)	1.7E-07	2.5E-03	3.1E-05
DSTF	1.5E-06	9.2E-06	4.7E-06
Ravine Dam	1.3E-06	1.7E-05	4.2E-06

Notes: DSTF - Dry-stacked tailings facility

4.5 HYDROGEOCHEMISTRY

The analytical results of all groundwater samples collected as part of the DHA program are presented in Table 4-9.

The purged water volumes prior to sampling are presented in Table 4-10. The water volume in each well (i.e., the volume of the saturated borehole including the volume of the PVC pipe and the HQ diameter DDH) had been replaced at least six times prior to sample collection. Note that this estimate is conservative because it does not take into account the backfill of the annulus with filter sand, bentonite, or slough. That is, the real number of purged volumes is likely to be greater than the values presented in Table 4-10. In addition, the total volume of water injected during packer testing was calculated and compared to purged water volume. All wells were purged until 185% to 3300% of the total injected water volume was removed from the well. EBA considers that most of the water was injected during packer testing and only minor volumes were injected during the drilling. This assumption is justified because no major drill water losses were observed during drilling. Given that the water volume in each observation well had been replaced at least 6 to 28 times the equivalent volume of the DDH, and that the purged water volumes were about 1.9 to 12 times the total injected water volumes during packer testing, EBA considers that there was no significant contamination with drill water.

TABLE 4-10: PURGED GROUNDWATER VOLUMES PRIOR TO SAMPLING

Observation Well	Total Water Volume Injected During Packer Tests [L]	Water Volume Injected over Well Screen Interval* [L]	Duration of Pumping [h]	Mean Pump Rate [L/min]	Purged Volume [L]	Standing Water Column [m]	Well Water Volume [L]	Number of Volumes Purged [-]	% Purged Relative to Volume Injected in Screen Interval
MW-MT-08-04B	1123	673	7.6	18.0	8188	39.8	288	28	1217%
MW-MT-08-05	449	412	1.5	17.1	1543	36.1	261	6	374%
MW-MT-08-06	4907	3395	8.6	12.2	6282	51.4	373	17	185%
MW-MT-08-07**	1982	1982	36	30.0	64800	30.2	219	296	3269%
MW-MT-08-08	2969	1783	6.9	8.5	3532	62.8	455	8	198%

Notes: * Well Screen interval includes well screen and sandpack
** Artesian well; flowing prior to grouting of DDH

A comparison of the analytical results for the groundwater samples with those for the corresponding drill water samples shows that all groundwater samples differ considerably from the drill water (see Piper diagram, Figure 4-4). The groundwater samples are therefore deemed by EBA to be unaffected by drill water contamination, and the drill water samples are not being considered further in this report.

4.5.1 QA/QC of Analytical Results

All concentrations in the field blank consisting of deionized water, handled in the same way as all other water samples, were either below or very close to the detection limit of the respective analytical method. This suggests that no significant alteration of the original chemical composition of the water samples occurred due to the sample handling procedure. The ion balance error of -27% for the field blank is most likely the result of very dilute concentrations close to the detection limits of the analytical methods.

The duplicate samples MW-MT-08-08 and MW-MT-08-09 had very similar analytical results for most analyzed species. Notable differences are only present if concentrations are low and close to the detection limit of the analytical method. EBA considers that the field duplicate results are within acceptable limits of reproducibility for the purposes of this study.

In addition, a QA/QC procedure has been implemented by Bodycote Testing Group, and all analytical results have been approved by a laboratory representative.

4.5.2 General and Physical Parameters

The results suggest that groundwater within the LSA has low to moderate concentrations of total dissolved solids (TDS) ranging from 99 to 257 mg/L, and corresponding low to moderate electrical conductivities from about 82 to 515 µS/cm. The pH values ranged from 7.0 to 9.4 and hardness ranged from 78 to 267 mg/L. Dissolved oxygen

concentrations were generally between 0.0 and 0.3 mg/L, suggesting reducing chemical conditions, except for the shallow groundwater sample which had dissolved oxygen concentrations of 11.2 mg/L. The groundwater temperatures measured during sampling varied only slightly between 2.5 and 3.1°C. Groundwater temperature at the warm spring was 32.9°C.

4.5.3 Major Ion Chemistry and Hydrochemical Facies

The groundwater samples can be classified based on their major ion chemical composition, taking into account all major anions and cations exceeding 10 meq-%[1]. The water type or hydrochemical facies is determined by listing the ions with concentrations greater than 10 meq-% in decreasing order (cations are listed first). Figures 4-4 and 4-5 show the major ion chemistry and hydrochemical facies for all groundwater samples collected.

Calcium is the dominating cation in all groundwater samples from the Site. Magnesium only exceeded 10 meq-% in the sample from observation well MW-MT-08-05 and varied between 1 and 10 meq-% in all other samples. Bicarbonate and sulphate were the dominating anions in all samples, except for the sample collected from observation well MW-MT-08-08, in which sulphate was the only dominating anion exceeding 10 meq-%. The bicarbonate concentration in the sample from well MW-MT-08-08, which is located on Mt. Allan and downgradient of the proposed underground workings, was significantly lower compared to the groundwater in valley wells to the south and west (see Table 4-9). The difference in hydrogeochemistry between groundwater from observation well MW-MT-08-08 and all other groundwater samples taken in the valley also becomes obvious in the Piper and Stiff diagrams, illustrating the chemical composition of each sample collected (see Figures 4-4 and 4-5).

The chemical composition of the groundwater samples from the valley floor (MW-MT-04B, MW-MT-08-05, MW-MT-08-06, and MW-MT-08-07) was very similar. These samples can be characterized as calcium-bicarbonate-sulphate type waters. The concentrations of bicarbonate and sulphate expressed in meq/L were similar for all samples from the valley floor, with bicarbonate slightly exceeding the sulphate concentrations in samples MW-MT-08-04B and MW-MT-08-06, and sulphate slightly exceeding the bicarbonate concentrations in samples MW-MT-08-05 and MW-MT-08-07. As mentioned above, in addition to calcium, magnesium also exceeded 10 meq-% in the sample from observation well MW-MT-08-05.

The sample taken from observation well MW-MT-08-08 contains significantly less bicarbonate and can therefore be characterized as calcium-sulphate type groundwater. Although this sample was taken from a depth of approximately 90 to 100 m bgs and most likely represents groundwater from below the permafrost zone (see Section 5.2.2), the water is only weakly mineralized, having a TDS content of only about 130 mg/L. Furthermore,

[1] The unit meq-% represents the percentage of cations and ions calculated from their milliequivalents per litre (meq/L). The unit milliequivalent per litre (meq/L) is the molar concentration multiplied by the charge of the ions.

the pH of 9.4 of the sample from well MW-MT-08-08 is notably higher than the pH of the other groundwater samples collected at the Site.

The sample collected from the spring west of the existing camp ("MT Spring") represents shallow overburden groundwater and can be characterized as weakly-mineralized, calcium-bicarbonate-sulphate type water. The shallow groundwater sample collected from a drill water sump in the area of the dry-stacked tailings facility ("Drill Water #3") can be typified as a slightly mineralized, calcium-sulphate-bicarbonate type water.

The sample taken from the Warm Spring about 2 km west of the Site differs considerably from the other groundwater samples with respect to hydrogeochemistry. The water of the Warm Spring can be typified as sodium-sulphate-carbonate type water. The dominating cation is sodium instead of calcium, similar to groundwater at the Site, and sulphate is the dominant anion. Due to the high pH (~ 9.7), carbonate is the dominant carbonate species in the Warm Spring sample.

4.5.4 Comparison of Site Hydrogeochemistry with Applicable Guidelines and Standards

All groundwater samples were analyzed for their concentrations of total and dissolved metals. The measured dissolved metals concentrations were compared to Yukon's Contaminated Sites Regulation (CSR; Environment Act) and Canadian Council of Ministers of the Environment (CCME) water quality guidelines for the protection of aquatic life. The CSR guideline values apply to both surface and groundwater, whereas the CCME guidelines only apply to surface water. However, as groundwater ultimately discharges into surface water bodies, the CCME guideline values are included here for reference. One approach for using the CCME freshwater aquatic life guidelines for groundwater is to multiply them by 10, which represents a dilution effect that might occur when groundwater discharges into surface water. While it is important to document where groundwater exceeds these adjusted "guideline" values, such exceedances do not compel action under the actual CCME regulations.

All exceedances are marked in Table 4-9, and metals exceeding the guidelines are discussed below:

- The **aluminium** concentration of 0.57 mg/L in the sample from observation well MW-MT-08-08 met the CSR standard but exceeded the CCME guideline value of 0.1 mg/L. However, when a dilution factor of 10 is taken into account,, the aluminium concentration in the groundwater sample was also below the adjusted CCME guideline value.
- **Cadmium** concentrations in the samples from observation wells MW-MT-08-4B, MW-MT-08-06, MW-Mt-08-08, and from the Spring located southwest of the existing camp exceeded the CCME guideline value of 0.000017 mg/L but not the CSR standard of 0.0005 to 0.0006 mg/L. When a dilution factor of 10 is assumed, the cadmium concentrations of all samples also fall below the adjusted CCME guideline value.

- **Iron** concentrations in the samples from the observation wells MW-MT-08-04B, MW-MT-08-07, and MW-MT-08-08 exceeded the CCME guideline value of 0.3 mg/L (As indicated previously, the CCME guidelines apply to surface water only, and this exceedance is indicated for reference only). There is no CSR guideline value for iron. When a dilution factor of 10 is taken into account, only the sample from observation well MW-MT-08-07 exceeds the adjusted CCME guideline.
- **Selenium** concentrations in the sample from observation well MW-MT-08-08, from the Spring west of the camp, and the Sump in the dry-stacked tailings facility slightly exceeded the CCME guideline of 0.001 mg/L but did not exceed the CSR guideline value of 0.01 mg/L. The selenium concentrations did not exceed the adjusted CCME guideline if a dilution factor of 10 is taken into consideration.
- The **zinc** concentration of 0.052 mg/L in the sample from the observation well MW-MT-08-07 slightly exceeded the CCME guideline value of 0.03 mg/L but is significantly below the CSR guideline value of 0.15-2.4 mg/L and the CCME guideline when a dilution factor of 10 is considered.

To summarize, there were no exceedances of the CSR standards by any groundwater sample from the Site. In addition, there was no exceedances of the adjusted CCME guideline values for comparison with groundwater (i.e., CCME freshwater aquatic values times 10), except for the dissolved iron concentration (3.24 mg/L) in the sample from well MW-MT-08-07. However, depending on the oxidation state of the dissolved iron (whether highly soluble ferrous iron (Fe^{2+}) or less soluble ferric iron (Fe^{3+})), this iron-rich groundwater may react with oxygen-rich surface water and precipitate so that resulting iron concentrations in the surface water may fall below the CCME surface water guideline value.

5.0 DISCUSSION

5.1 CONCEPTUAL HYDROGEOLOGICAL MODEL

The conceptual hydrogeological model is intended to conceptually describe the local hydrogeological conditions at Mactung property with respect to groundwater flow and groundwater quality. The conceptual model is based upon all information gathered during the DHA fieldwork and data interpretation.

The local hydrogeological system at the Site consists of shallow and deep aquifers. The shallow aquifer is composed of porous overburden sediments within the active zone in areas where permafrost exists. The deep aquifer comprises different bedrock lithologies in which groundwater flow mainly occurs along fractures and other rock discontinuities.

The LSA is bordered by surface water divides to the north, east, and south. EBA assumes the regional groundwater flow divides to coincide with surface water divides, i.e., groundwater from the mine site flows from Mt. Alan southwards to the valley and west along the trend of Tributary C.

The general orientation of groundwater flow contours (equipotential lines) mimics the topography of the Site and groundwater flows from the highest areas of Mt. Allan towards south, turning into a southwesterly or westerly flow direction in the valley of Tributary C (see Figure 4-1). Groundwater recharge occurs at higher elevations and the groundwater ultimately discharges to surface water bodies at lower elevations in the valleys. However, permafrost conditions in the upland areas reduce infiltration of surface water and shallow groundwater to the deep aquifer. Overburden sediments in the valley are typically composed of moraine sediments mixed with talus and colluvium, having a low hydraulic conductivity. These fine-grained sediments may also act as a barrier for infiltrating water and as a (semi-)confining layer for deeper groundwater.

The hydrogeological conditions for both shallow and deep aquifers at the Site are discussed in more detail in the following sections. Figures 5-1 and 5-2 present conceptual hydrogeological cross-sections through the LSA.

5.1.1 Overburden Aquifer

The shallow aquifer at Mactung property is composed of porous overburden sediments. In the upland areas, the overburden sediments mainly consist of very coarse, blocky talus derived from ongoing erosion of upslope bedrock headwalls. A soil cover is lacking at higher elevations and steep slopes where erosion is most active. The colluvium at lower elevations in the valley floor is mainly composed of silt, silty sand, and silty, sandy gravel; and is more weathered and typically covered by a thin organic horizon with ground vegetation. The thickness of the overburden sediments is about 1 m to 3 m in the upland areas of Mt. Allan, and about 5 m to 10 m at the valley floor.

The overburden sediments at observation wells MW-MT-08-01-S and MW-MT-08-08-S were sampled from testpits excavated at both locations to a depth of about 2.7 m. Based on the grain size distributions, the hydraulic conductivity of the sediment samples were determined by EBA to range over several orders of magnitude from 2×10^{-7} m/s to 3×10^{-3} m/s (see Table 4-8, above). The hydraulic conductivity of the overburden sediments in the northern part of the Site in the upland area of Mt. Allan are generally higher than in the valley south of Mt. Allan. The hydraulic conductivities in the areas of the dry-stacked tailings facility and the ravine dam are fairly consistent with a mean value of about 5×10^{-6} m/s.

Groundwater flow within the overburden aquifer occurs in the active layer where permafrost exists (i.e., in the layer of seasonal thawing and freezing). The main groundwater flow in conjunction with the highest groundwater levels is expected to occur during the snowmelt in late spring after thawing of the shallow sediments. The groundwater flow is characterized by local, small-scale flow cells, and the flow direction mainly follows the local topography. In areas where a hydraulic connection exists between the shallow overburden and deep bedrock aquifers, groundwater recharge to the bedrock aquifer may occur. In the northern part of the LSA, at the southern slope of Mt. Allan, shallow groundwater can likely be characterized as temporary or seasonal subsurface runoff

(ephemeral throughflow) rather than permanent groundwater in a strict sense due to the high hydraulic conductivity of the overburden sediments and the presence of permafrost beneath the active zone.

5.1.2 Bedrock Aquifer

The shallow overburden aquifer is underlain by a fractured bedrock aquifer. The bedrock lithology mainly consists of hornfels, metapelite, skarn, and limestone in the northern part of the LSA on Mt. Allan, and is dominated by metapelite in the southern and western part at the valley floor in the vicinity of the proposed dry-stacked tailings facility and the reservoir.

Groundwater flow in the bedrock aquifer predominantly occurs in fractures and fault zones. Groundwater flow in fractured media is complex and can be quite variable, depending on the local hydrogeological and structural geological conditions. Transmissivity values can change over several orders of magnitude within the same rock mass, and groundwater flow may be largely controlled by a few conductive fractures or other rock mass discontinuities.

In the upland areas of Mt. Allan, groundwater within the bedrock aquifer occurs beneath the permafrost, which extends to depths of about 50 to 300 m bgs, depending on local permafrost conditions (see Figure 5-1). The small hydraulic gradient between observation wells MW-MT-08-01 and MW-MT-08-08 suggests that very little recharge takes place in the upland areas (i.e., water infiltration is reduced by the presence of permafrost). However, hydraulic heads do increase from south to north in the northern part of the LSA along a mild hydraulic gradient in the upland areas of Mt. Allan where permafrost exists (see hydraulic head measurements in wells MW-MT-08-01 and MW-MT-08-08). This indicates that at least some recharge takes place in this area.

In contrast, there is no indication of permafrost at lower elevations in the valley, and therefore groundwater recharge can be assumed to occur at higher rates in the lower valley areas.

The general groundwater flow direction within the bedrock aquifer is southwards in the northern part of the LSA, turning into a southwesterly or westerly direction in the valley of Tributary C. Groundwater discharge areas are situated next to the valley floor south and west of Mt. Allan (see Figures 4-1, 5-1, and 5-2). The transition from recharge area to discharge area within the deep aquifer is interpreted to occur in the area of the proposed dry-stacked tailings facility.

5.1.3 Hydrogeochemistry

The chemical composition of groundwater strongly depends on the local and upgradient aquifer lithologies. As groundwater flows through the aquifer, it assumes and continuously evolves a characteristic chemical composition due to interaction with the aquifer matrix. As such, a groundwater sample represents the local and upstream aquifer conditions, and its

composition is a function of aquifer lithology, solution kinetics, water residence time, mixing, and groundwater flow patterns.

All groundwater samples from the Site have a similar hydrochemical composition with slight differences between samples from the shallow and deep aquifers, respectively. All groundwater samples are calcium-bicarbonate-sulphate groundwater types, except for the deep, sub-permafrost groundwater in the northern part of the LSA which has significantly less bicarbonate and can be typified as a calcium-sulphate water type. Generally, the deep groundwater is slightly more mineralized and metals concentrations are higher in the deep groundwater compared to the shallow groundwater. There are no remarkable exceedances of water quality guidelines.

5.1.4 Surface Water – Groundwater Interaction

The main surface water body within the LSA is Tributary C originating southwest of the existing camp and flowing through the southern part of the LSA (Figures 2-1 and 2-2). Tributary C1 joins Tributary C in the area of the proposed reservoir, and Tributaries C2 and C3 join Tributary C downstream of the reservoir and outside of the LSA. Tributary C is the main receiving surface water body for groundwater discharging in the LSA, and it is anticipated that groundwater discharge from all areas of proposed mine infrastructure, including underground workings, camp and mill site, dry-stacked tailings facility, and reservoir, will ultimately discharge to Tributary C. However, weakly artesian groundwater conditions at locations close to Tributary C in observation wells MW-MT-08-04B, MW-MT-08-05, and MW-MT-08-07 indicate that the hydraulic connection between the deep aquifer and Tributary C might be reduced in those areas, and the deep groundwater may only discharge to Tributary C further downstream.

Tributary C2 may receive some discharge water from the westernmost area of the proposed underground workings. Tributary C3 most likely does not receive any discharging groundwater from the areas of proposed mine facilities.

5.1.5 Permafrost Conditions

Vibrating wire piezometer installations in observation wells MW-MT-08-01 and MW-MT-08-08 indicate the presence of permafrost in the northern part of the LSA. The permafrost seems to extend to depths of about 200 to 250 m bgs at elevations close to the summit of Mt. Allan, and to a depth of about 50 m bgs at elevations in the vicinity of the proposed mill site. Additional field observations in existing exploration DDHs suggest that the active zone extents to a depth of about 2 to 4 m bgs (see Figure 5-1).

Thermistor cable installations at different locations in the southern and western part of the LSA suggest seasonal soil temperatures above freezing. These data are described in more detail in a separate report of the geotechnical site investigation. In addition, there was no evidence for frozen bedrock in the packer tests in DDHs within the lower valley area. Therefore, there is no indication of permafrost conditions at lower elevations at the valley slope and valley floor.

5.2 LOCAL HYDROGEOLOGICAL CONDITIONS AT PROPOSED MINE COMPONENTS

In addition to a description of the general hydrogeological conditions at the Site, a detailed assessment of the local baseline conditions at the sites of the proposed mine infrastructure was conducted. The proposed mine infrastructure components deemed to have potential impacts on groundwater flow and/or quality are the camp and mill site facilities, the underground workings, the dry-stacked tailings facility, and the ageing pond.

5.2.1 Underground Workings

The proposed underground workings will be situated in the northernmost part of the LSA. The drifts and stopes are planned to extend to a maximum depth of about 400 m bgs or to a minimum elevation of about 1710 m asl.

The shallow aquifer in that area is composed of coarse, blocky talus and is about 2 m to 3 m thick. The bedrock aquifer in the vicinity of the proposed underground workings consists of hornfels, metapelite, skarn, and limestone.

EBA interprets the field results that permafrost extends to about 200 to 250 m bgs at the southwestern edge of the underground workings as inferred from temperature measurements in observation well MW-MT-08-01. Assuming a similar extent of the permafrost over the entire area of the underground workings, the uppermost 20% to 40% of the underground workings can be expected to be within permafrost conditions. VWP data from well MW-MT-08-01 indicate an in situ porewater pressure corresponding to a hydraulic head of about 1770 m at a depth of 340 m bgs. Presuming a slight increase in hydraulic head from the southern edge of the underground workings, where well MW-MT-08-01 is located, to the northern edge, the bottom 20% to 40% of the proposed underground workings may encounter saturated aquifer conditions.

The local groundwater flow direction in the deep aquifer is southwards with a hydraulic gradient of about 0.025. The bulk hydraulic conductivity of the rock mass as determined by the pumping test in observation well MW-MT-08-08 is about 6×10^{-7} m/s, which is about half an order of magnitude above the average hydraulic conductivity as inferred from the packer tests. Assuming an effective porosity of 0.05 to 0.15 (e.g., Domenico and Schwartz, 1998), the typical groundwater flow velocity would be in the order of magnitude of a few metres per year. However, flow velocities along highly conductive fractures or faults, which represent preferential flow paths, might be significantly faster.

A deep groundwater sample was collected from observation well MW-MT-08-08, which is located downstream of the underground workings. The sample can be characterized as lowly mineralized, calcium-sulphate type groundwater, with a high pH of 9.4 and a total dissolved solids content of about 130 mg/L. The groundwater sample contains some of the highest dissolved metals concentrations within the LSA; however, none of the metal concentrations exceeded the applicable CSR groundwater standards. EBA does not know the reason for the anomalous deep groundwater chemistry at well MW-MT-08-08.

A shallow groundwater sample was taken from a spring about 150 m west of the existing camp. This sample is deemed to represent shallow seasonal subsurface runoff, representative of groundwater from the shallow overburden aquifer in the northern part of the LSA. The water sample can be typified as lowly mineralized calcium-bicarbonate-sulphate type water with near neutral pH of 7.4, and a total dissolved solids concentration of about 120 mg/L. Metals concentrations were generally low and fell below applicable water quality guidelines.

5.2.2 Camp and Mill Site

The proposed camp and mill site are located downgradient of the underground workings and the ore body. The geological profile intersected in DDH MW-MT-08-08, which is located at the proposed mill site, consists of interbedded metapelite, limestone, and hornfels.

Ground ice was found in the testpit close by DDH MW-MT-08-08 at a depth of about 1.5 to 2 m bgs in August 2008, indicating a shallow active zone.

Packer tests in DDH MW-MT-08-08 revealed a very low hydraulic conductivity ($< 1\times10^{-8}$ m/s) to a depth of about 55 m bgs. The low hydraulic conductivity may be attributed to the presence of permafrost conditions to that depth. Below about 55 m bgs, the hydraulic conductivity seems to increase, and there is no indication of permafrost conditions from 55 m bgs to the bottom at 103 m bgs.

The groundwater level in observation well MW-MT-08-08 is about 40 m bgs. If the permafrost indeed extends to a depth of about 55 m bgs, the groundwater would be confined by the permafrost acting as an aquitard. However, this remains speculative since there were no direct temperature measurements within the anticipated depth range of permafrost at the camp and mill site locations.

The general groundwater flow in both shallow and deep aquifers in the vicinity of the camp and mill sites is directed southwards and essentially follows topography. The hydraulic gradient in the bedrock aquifer is about 0.02 in the vicinity of the camp and mill site and north of it but increases to the south as permafrost diminishes and recharge takes place. The hydraulic gradient south of the proposed locations of the camp and mill site rises to about 0.1 to 0.5. The bulk hydraulic conductivity as determined by packer and pumping tests conducted in observation well MW-MT-08-08 is about 6×10^{-7} m/s. The corresponding groundwater flow velocity—again, assuming an effective porosity of about 0.05 to 0.15—is in the order of magnitude of a few metres per year increasing to several decametres per year south of the camp and mill site.

The hydrogeochemistry of the samples taken in the area of the proposed camp and mill site has already been described in Section 5.2.1. Both samples were collected at the camp or mill site downgradient of the underground workings and are deemed representative for deep and shallow groundwater chemistry in the northern part of the LSA.

5.2.3 Dry-stacked Tailings Facility

The proposed dry-stacked tailings facility is situated at the valley floor south of Mt. Allan and downgradient of the mill site. The bedrock geology is dominated by metapelite and some minor limestone and hornfels. Observation well MW-MT-08-03 is located upgradient of the proposed dry-stacked tailings facility, and observation wells MW-MT-08-04 and MW-MT-08-04B are located downgradient. Diamond drill hole MW-MT-08-04 intersected a felsic dyke from the bedrock surface to the bottom at 42.1 m bgs. Felsic dykes are common for that area and are usually subvertical and a few metres in thickness. Observation well MW-MT-08-04 is therefore not representative of typical bedrock in the area downgradient of the dry-stacked tailings facility. The thickness of the shallow overburden aquifer in the vicinity of the tailings facility is about 5 m to 10 m.

There was no indication of permafrost during the drilling and installation of the observation wells up- and downgradient of the dry-stacked tailings facility.

The deep groundwater flows in a southwesterly direction, mimicking the topography of the valley floor. The shallow groundwater is expected to closely follow small-scale topography. The thickness of the unsaturated zone is about 3.3 m upgradient of the dry-stacked tailings facility, and decreases to 1 m or less downgradient of the dry-stacked tailings facility.

At observation well MW-MT-08-03, hydraulic heads in the shallow and deep aquifers differ by about 5.5 m, with the shallow groundwater having the larger hydraulic head. This difference in hydraulic head indicates limited hydraulic connection between both aquifers. The deep groundwater downgradient of the dry-stacked tailings facility is slightly artesian (MW-MT-08-04B) or the groundwater elevation is close to grade (MW-MT-08-04). Hydraulic heads are similar in shallow and deep aquifers at well MW-MT-08-04 and slightly lower in the shallow aquifer at observation well MW-MT-08-04B. The slightly artesian conditions in the deep groundwater at well MW-MT-08-04B, which is located very close to Tributary C, suggest that there is a limited hydraulic connection between the groundwater and the creek.

The hydraulic gradient in the deep bedrock aquifer is about 0.1 to 0.15. The bulk hydraulic conductivity obtained from the pumping test in observation well MW-MT-08-04B is 1×10^{-6} m/s, which is slightly above the mean hydraulic conductivity of 7×10^{-7} m/s as determined by packer tests in DDHs MW-MT-08-03 and MW-MT-08-04B. The corresponding groundwater flow velocity is in the order of magnitude of several decametres per year up to a maximum of about 100 m per year.

The groundwater samples from both shallow and deep aquifers in the vicinity of the dry-stacked tailings facility can be characterized as calcium-sulphate-bicarbonate or calcium-bicarbonate-sulphate type water. Both samples have similar, near neutral pH of 7.6 to 7.8 and are lowly mineralized with total dissolved solids concentrations of about 140 to 160 mg/L. As expected, the deep bedrock groundwater has slightly higher mineralization compared to the shallow overburden groundwater. Dissolved metals concentrations are relatively low with the deep groundwater generally having slightly higher dissolved metals

concentrations, except for selenium which is slightly higher in the shallow groundwater. All dissolved metals concentrations fall below the applicable guidelines, accounting for dilution in the case of the CCME surface water guideline values.

5.2.4 Reservoir

The proposed reservoir and the ravine dam are located downgradient of the dry-stacked tailings facility at the valley floor southwest of Mt. Allan. Three groundwater observation wells have been installed upgradient (MW-MT-08-05) and downgradient (MW-MT-08-06 and MW-MT-08-07) of the proposed reservoir. The geology at all three drill locations is dominated by metapelite. The bedrock is covered by overburden sediments of about 5 m to 10 m thickness.

There was no indication of permafrost during the drilling and installation of the observation wells up- and downgradient of the proposed reservoir.

The groundwater flow follows the topography and is directed east-northeast to west-southwest east of the reservoir and is presumably directed southeast to northwest north of the reservoir, and then following the inclination of the valley floor towards northwest. The thickness of the unsaturated zone at observation well MW-MT-08-05 is about 0.5 m to 1.5 m, and about 4 m to 5.5 m at MW-MT-08-06.

The hydraulic heads in the shallow and deep aquifers differ significantly in the area of the reservoir, being about 1.5 m higher in the deep aquifer compared to the shallow aquifer upgradient of the reservoir (MW-MT-08-05), and about 3-4 m lower in the deep aquifer compared to the shallow downgradient of the reservoir at well MW-MT-08-06.

The deep groundwater at MW-MT-08-05 is slightly artesian with the hydraulic head being about 0.1 m to 1 m above grade. In the vicinity of well MW-MT-08-07, the deep groundwater is artesian with the hydraulic head of about 13 m above grade. As indicated in the well log for MW-MT-08-07, a VWP was installed and the hole was grouted back to prevent uncontrolled flow. The strongly artesian conditions encountered in MW-MT-08-07 seem to be a local phenomenon. A geotechnical DDH (BH46) about 100 m south-southeast and a condemnation DDH (MS-183) about 100 m south-southwest of MW-MT-08-07 did not encounter artesian conditions.

The hydraulic gradient inferred from the groundwater elevation measurements in observation wells MW-MT-08-05 and MW-MT-08-07 is about 0.15. The bulk hydraulic conductivity of 2×10^{-7} m/s determined by the pumping test in observation well MW-MT-08-06 corresponded well with the mean hydraulic conductivity of 6×10^{-7} m/s obtained from packer tests in observation wells MW-MT-08-05, MW-MT-08-06, and MW-MT-08-07, and in the geotechnical DDHs BH46, BH49, and BH50. The resulting groundwater flow velocity in the vicinity of the proposed reservoir is in the order of magnitude of a few metres to decametres per year.

Groundwater samples were taken from observation wells MW-MT-08-05, MW-MT-08-06, and MW-MT-08-07. The samples differ in that the groundwater in wells MW-MT-08-05

and MW-MT-08-07 originates from the area north of Tributary C, whereas the groundwater in well MW-MT-08-06 was recharged in the area south and west of Tributary C. The samples collected from wells MW-MT-08-05 and MW-MT-08-07 could be characterized as calcium-(magnesium)-sulphate-bicarbonate water, and the groundwater sample from MW-MT-08-06 could be described as calcium-bicarbonate-sulphate water. All dissolved metals concentrations – except for iron in the sample from well MW-MT-08-07 – meet the water quality guidelines taking into account dilution in the case of CCME surface water guideline values. However, as mentioned previously, the fate of the dissolved iron concentration if this groundwater were to discharge into oxygenated surface water strongly depends on the oxidation state of the iron.

6.0 CONCLUSIONS

EBA completed a Detailed Hydrogeological Assessment at the Mactung Property in general accordance with the scope of work presented in Section 1.3 to satisfy the objectives presented in Section 1.1. To fulfill the objectives of the study, EBA coordinated the installation and testing of eight groundwater observation wells at key areas of the site, including the proposed underground workings, mill site, dry-stacked tailings facility, and reservoir/ravine dam. In doing so, EBA refined the understanding of the hydrogeological regime at Mactung property, particularly in the areas of proposed mine infrastructure.

The key conclusions resulting from this study are:

- Groundwater occurs at the Site in both shallow and deep aquifers. Shallow groundwater in the overburden is likely to be ephemeral, especially in the northern part of the LSA, and occurs within the active layer. Deep groundwater flow in fractured bedrock exists throughout the LSA but is limited to depths below permafrost in the upland areas of Mt. Allan. There was no indication of the presence of permafrost in the valley south of Mt. Allan.
- Deep groundwater flows south from the area of proposed underground workings and turns southwest in the lower valley areas. The general groundwater flow pattern mimics topography at the Site. The hydraulic gradient of the deep groundwater varies between about 0.02 and 0.5, being lowest in areas underlying permafrost beneath the summit of Mt. Allan, and highest south and west of the mill site. Hydraulic gradients in the shallow aquifer are likely controlled by small-scale topography.
- Hydraulic conductivity values obtained from packer tests conducted in all DDHs drilled as part of the DHA field program range over about 2 to 3 orders of magnitude from $< 1\times10^{-8}$ m/s to 8×10^{-6} m/s. Mean bulk hydraulic conductivities determined by pumping tests after well completion range from about 2×10^{-7} m/s to 1×10^{-6} m/s.
- Hydraulic conductivity values calculated from grain size analyses and analytical methods indicate that the overburden colluvium and weathered bedrock at the site have hydraulic conductivities in the order of 2×10^{-7} m/s to 2×10^{-1} m/s when in an unfrozen state. Since the overburden deposits are generally shallow, they are affected by seasonal

ground frost. In winter months, shallow groundwater will tend to freeze, decreasing the hydraulic conductivity of the overburden deposits.

- Groundwater quality was characterized at seven locations (five deep groundwater samples, two shallow groundwater samples). Groundwater is typically calcium-bicarbonate-sulphate or calcium-sulphate type, neutral to alkaline pH (7.0 to 9.4), with hardness ranging from about 80 to 270 mg/L, and low dissolved oxygen concentrations of 0.0 to 0.3 mg/L in the deep groundwater. Dissolved oxygen in the shallow groundwater samples was close to saturation (~11.5 mg/L). None of the groundwater parameter concentrations exceeded CSR standards.

The results from the field program conducted in July and August 2008 were used to develop a conceptual hydrogeological model that characterizes the hydrogeological baseline conditions in the LSA and is required for the preparation of the YESAA application documents. The DHA has substantially broadened the understanding of the hydrogeological conditions at the Site, and provides background information necessary for the hydrogeological baseline characterization and effects assessment pertaining to the YESAA application documents.

7.0 CLOSURE

This report has been prepared specifically for North American Tungsten Corporation Ltd. for the purposes described in Section 1.0 of this report. The report has been prepared in accordance with generally accepted geo–environmental practices. Additional information regarding the use of this report is presented in the Environmental Report - General Conditions (attached), which form a part of this report.

We trust this report is satisfactory. If you have any questions about this report, please contact the undersigned at your convenience.

Sincerely,
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GEO-ENVIRONMENTAL REPORT – GENERAL CONDITIONS

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TABLES

TABLE 4-2: Groundwater Level Measurements

Well	Date of Water Level Measurement	Deep			Shallow			Date of Water Level Measurement	Deep			Shallow			Remarks
		Depth to Water	Depth to Water*	Groundwater Elevation*	Depth to Water	Depth to Water*	Groundwater Elevation*		Depth to Water	Depth to Water*	Groundwater Elevation*	Depth to Water	Depth to Water*	Groundwater Elevation*	
		m bPVC**	m bgs	m asl	m bPVC**	m bgs	m asl		m bPVC**	m bgs	m asl	m bPVC**	m bgs	m asl	
MW-MT-08-01	20-Aug-2008	--	--	see Table 4-3	dry	--	--	20-Aug-2008	--	--	see Table 4-3	dry	--	--	VWP in deep installation
MW-MT-08-03	18-Aug-2008	10.23	9.09	1647.65	4.45	3.33	1653.41	24-Sep-2008	9.98	8.84	1647.90	4.44	3.32	1653.42	
MW-MT-08-04	19-Aug-2008	1.46	0.22	1591.17	1.54	0.30	1591.09	24-Sep-2008	1.57	0.33	1591.06	1.62	0.38	1591.01	
MW-MT-08-04B	20-Aug-2008	1.04	-0.15	1599.44	2.03	0.84	1598.45	24-Sep-2008	1.00	-0.19	1599.48	2.19	1.00	1598.29	
MW-MT-08-05	21-Aug-2008	1.05	-0.05	1520.09	2.62	1.51	1518.53	24-Sep-2008	0.13	-0.97	1521.01	1.57	0.47	1519.57	
MW-MT-08-06	21-Aug-2008	9.80	8.15	1489.54	dry	--	--	23-Sep-2008	8.95	7.35	1490.34	5.66	4.26	1493.44	
MW-MT-08-07	--	--	--	see Table 4-3	--	--	--	--	--	--	see Table 4-3	--	--	--	VWP
MW-MT-08-08	20-Aug-2008	--	--	see Table 4-3	dry	--	--	24-Sep-2008	--	--	see Table 4-3	3.21	2.01	1794.43	VWP in deep installation

Notes: * Depths below ground surface and elevations corrected for angle of inclined boreholes where applicable
** bPVC - Below top of PVC standpipe piezometer

TABLE 4-3: VIBRATING WIRE PIEZOMETER READINGS

Well	Date	Depth	p_meas	T_meas	p	Hydraulic Head
		[m bgs]	[F^2x10^{-3}]	[oC]	[kPa]	[m asl]
MW-MT-08-01	20-Jul-08	20	7558.2	**-0.5**	**166**	**2061.2**
MW-MT-08-01	20-Jul-08	144	8018.1	**-0.4**	**753**	**1995.4**
MW-MT-08-01	20-Jul-08	339	8513.4	**1.3**	**979**	**1823.8**
MW-MT-08-01	31-Jul-08	20	--	**-1.5**	**--**	**--**
MW-MT-08-01	31-Jul-08	144	8791.8	**-1.2**	**111**	**1931.2**
MW-MT-08-01	31-Jul-08	339	8692.7	**1.2**	**545**	**1780.4**
MW-MT-08-01	18-Aug-08	20	--	**-1.8**	**--**	**--**
MW-MT-08-01	18-Aug-08	144	8839.7	**-1.5**	**71**	**1927.2**
MW-MT-08-01	18-Aug-08	339	8739.6	**1.2**	**432**	**1769.1**
MW-MT-08-01	24-Aug-08	20	--	**-1.8**	**--**	**--**
MW-MT-08-01	24-Aug-08	144	8834	**-1.5**	**75**	**1927.7**
MW-MT-08-01	24-Aug-08	339	8742.6	**1.2**	**425**	**1768.4**
MW-MT-08-07	22-Aug-08	28	6649.8	**2.4**	**412**	**1508.8**
MW-MT-08-07	6-Sep-08	28	6686.1	**2.0**	**405**	**1508.2**
MW-MT-08-07	23-Sep-08	28	6657.9	**1.9**	**410**	**1508.7**
MW-MT-08-08	24-Aug-08	97	8388.3	**1.2**	**563**	**1755.9**
MW-MT-08-08	24-Sep-08	97	8393	**1.2**	**559**	**1755.5**

Notes: p_meas - Pressure measured
T_meas - Temperature measured
p - Pressure calculated using the equation presented on the calibration sheets (see Appendix A)
Hydraulic head was calculated assuming a water density of 1000 kg/m^3

TABLE 4-4: SUMMARY OF HYDRAULIC HEAD MEASUREMENTS

Well	Deep Installation		Shallow Installation	
	Aug-08	Sep-08	Aug-08	Sep-08
	m asl		m asl	
MW-MT-08-01	1768.4*	--	dry	dry
MW-MT-08-03	1647.7	1647.9	1653.4	1653.4
MW-MT-08-04	1591.2	1591.1	1591.1	1591.0
MW-MT-08-04B	1599.4	1599.5	1598.5	1598.3
MW-MT-08-05	1520.1	1521.0	1518.5	1519.6
MW-MT-08-06	1489.5	1490.3	dry	1493.4
MW-MT-08-07	1508.8*	1508.7*	--	--
MW-MT-08-08	1755.9*	1755.5*	dry	1794.4

Notes: * Calculated from VWP pressure readings

TABLE 4-5: SUMMARY OF HYDRAULIC PROPERTIES FROM PACKER TESTS

Well	Interval Tested				Hydraulic Conductivity					Remarks
	From	To	Midpoint	Length of Interval	Min	Max	Average	$LogK_{Average}$	σ_{LogK}	
	m bgs			m	m/s	m/s	m/s	--		
MW-MT-08-01	28.3	34.4	31.4	6.1	2.1E-08	4.3E-08	2.9E-08	7.53	0.11	
	34.4	40.5	37.5	6.1	1.8E-08	4.5E-08	2.6E-08	7.58	0.15	
	40.5	46.6	43.6	6.1	1.5E-08	3.8E-08	2.3E-08	7.63	0.14	
	46.6	52.7	49.7	6.1	1.7E-08	4.1E-08	2.5E-08	7.60	0.12	
	52.7	58.8	55.8	6.1	1.4E-08	3.9E-08	2.9E-08	7.53	0.12	
	58.8	64.9	61.9	6.1	1.4E-08	4.3E-08	2.9E-08	7.54	0.17	
	64.9	71.0	68.0	6.1	1.1E-08	4.1E-08	2.6E-08	7.58	0.13	
	71.0	77.1	74.1	6.1	--	--	--	--	--	No packer seal
	77.1	83.2	80.2	6.1	1.1E-08	3.7E-08	2.0E-08	7.70	0.17	
	83.2	89.3	86.3	6.1	1.1E-08	4.4E-08	2.5E-08	7.61	0.15	
	89.3	95.4	92.4	6.1	1.0E-08	5.0E-08	2.2E-08	7.65	0.20	
	95.4	101.5	98.5	6.1	7.6E-09	4.1E-08	2.5E-08	7.60	0.17	
	101.5	107.6	104.6	6.1	1.3E-08	4.0E-08	2.6E-08	7.59	0.13	
	107.6	113.7	110.7	6.1	1.1E-07	2.0E-07	1.6E-07	6.80	0.08	
	113.7	119.8	116.8	6.1	1.5E-08	3.7E-08	2.5E-08	7.60	0.12	
	119.8	125.9	122.9	6.1	7.9E-09	3.6E-08	2.1E-08	7.68	0.17	
	125.9	132.0	129.0	6.1	1.5E-08	4.0E-08	2.3E-08	7.64	0.16	
	132.0	138.1	135.1	6.1	7.3E-09	2.6E-08	1.4E-08	7.84	0.24	
	138.1	144.2	141.2	6.1	7.1E-09	2.2E-08	1.4E-08	7.87	0.15	
MW-MT-08-02	223.4	232.6	228.0	9.2	9.2E-09	2.6E-08	1.5E-08	7.82	0.13	
	214.3	223.4	218.9	9.1	1.2E-08	2.7E-08	1.7E-08	7.76	0.11	
	205.1	214.3	209.7	9.2	1.2E-08	2.8E-08	1.5E-08	7.82	0.11	
	196.0	205.1	200.6	9.1	6.9E-09	1.7E-08	1.2E-08	7.93	0.09	
	186.8	196.0	191.4	9.2	7.2E-09	1.8E-08	1.2E-08	7.93	0.12	
	177.7	186.8	182.3	9.1	1.1E-08	2.1E-08	1.5E-08	7.83	0.10	
	83.2	92.4	87.8	9.2	8.4E-08	8.3E-07	3.8E-07	6.42	0.36	
	101.5	110.6	106.1	9.1	2.4E-08	1.6E-07	6.2E-08	7.21	0.34	
	116.7	125.9	121.3	9.2	2.1E-08	3.7E-07	1.8E-07	6.74	0.37	
	132.0	141.1	136.6	9.1	1.7E-08	3.4E-08	2.3E-08	7.64	0.10	
MW-MT-08-03	10.1	17.7	13.9	7.6	4.6E-07	9.2E-07	6.9E-07	6.16	0.12	
	22.3	29.9	26.1	7.6	3.2E-06	3.4E-06	3.3E-06	5.49	0.01	
	34.4	39.0	36.7	4.6	1.0E-06	1.6E-06	1.3E-06	5.89	0.04	
	37.5	45.1	41.3	7.6	3.1E-08	7.1E-08	5.0E-08	7.30	0.12	
	52.7	60.4	56.6	7.7	--	--	< 1E-08	--	--	No detectable flow
MW-MT-08-04	10.1	17.7	13.9	7.6	6.6E-08	2.0E-07	1.1E-07	6.97	0.13	
	19.2	26.8	23.0	7.6	9.4E-09	2.4E-08	1.7E-08	7.76	0.13	
	28.3	36.0	32.2	7.7	1.7E-08	5.3E-08	3.1E-08	7.51	0.22	
MW-MT-08-04B	10.4	18.0	14.2	7.6	1.2E-06	2.2E-06	1.7E-06	5.77	0.09	
	19.5	27.1	23.3	7.6	8.3E-07	1.8E-06	1.5E-06	5.83	0.11	
	31.7	39.3	35.5	7.6	9.5E-08	2.2E-07	1.6E-07	6.81	0.13	
MW-MT-08-05	10.1	17.7	13.9	7.6	--	--	--	--	--	No packer seal
	16.2	23.8	20.0	7.6	2.3E-08	1.0E-07	5.7E-08	7.24	0.16	
	28.3	36.0	32.2	7.7	6.1E-08	1.5E-07	1.0E-07	7.00	0.13	
	10.1	36.0	23.1	25.9	2.1E-07	2.6E-07	2.3E-07	6.64	0.03	
MW-MT-08-06	10.4	18.0	14.2	7.6	--	--	--	--	--	No packer seal
	13.4	21.0	17.2	7.6	7.1E-07	2.9E-06	1.5E-06	5.83	0.16	
	22.6	30.2	26.4	7.6	6.8E-07	1.0E-06	8.5E-07	6.07	0.08	
	34.7	42.4	38.6	7.7	1.2E-07	2.8E-07	1.8E-07	6.74	0.14	
	43.9	51.5	47.7	7.6	1.3E-06	1.5E-06	1.4E-06	5.84	0.02	
	53.0	60.7	56.9	7.7	1.4E-06	1.7E-06	1.6E-06	5.79	0.02	
MW-MT-08-07	10.4	18.0	14.2	7.6	3.2E-06	4.5E-06	3.8E-06	5.42	0.04	
	19.5	27.1	23.3	7.6	2.1E-06	3.7E-06	3.0E-06	5.53	0.10	
MW-MT-08-08	22.3	29.9	26.1	7.6	--	--	--	--	--	No packer seal
	34.4	42.1	38.3	7.7	--	--	< 1E-08	--	--	No detectable flow
	46.6	54.3	50.5	7.7	--	--	< 1E-08	--	--	No detectable flow
	58.8	66.4	62.6	7.6	4.3E-08	1.5E-07	7.8E-08	7.11	0.15	
	71.0	78.6	74.8	7.6	2.6E-07	7.3E-07	4.7E-07	6.32	0.16	
	83.2	90.8	87.0	7.6	2.5E-08	5.3E-08	3.6E-08	7.44	0.13	
	92.4	100.0	96.2	7.6	8.7E-07	9.5E-07	9.1E-07	6.04	0.01	
BH46	28.3	33.5	30.9	5.2	--	--	< 1E-08	--	--	No detectable flow
	22.3	33.5	27.9	11.3	--	--	< 1E-08	--	--	No detectable flow
BH49	7.3	11.9	9.6	4.6	2.2E-06	3.1E-06	2.6E-06	5.59	0.01	
	13.4	21.0	17.2	7.6	1.4E-06	2.9E-06	1.9E-06	5.71	0.01	
	22.6	30.2	26.4	7.6	3.0E-06	4.3E-06	3.5E-06	5.46	0.01	
	31.7	39.3	35.5	7.6	--	--	--	--	--	No packer seal
	34.7	39.3	37.0	4.6	--	--	--	--	--	No packer seal
	40.8	45.4	43.1	4.6	--	--	--	--	--	No packer seal
BH50	10.4	14.9	12.6	4.6	--	--	--	--	--	No packer seal
	16.5	21.0	18.7	4.6	5.0E-06	9.0E-06	8.0E-06	5.10	0.01	

Note: m bgs - metres below ground surface
Data for the DDHs BH46, BH49, and BH50 were collected as part of the geotechnical site investigations.

TABLE 4-7: HYDRAULIC CONDUCTIVITIES DETERMINED FROM GRAIN SIZE DISTRIBUTION

Sample	Depth	Location	Northing	Easting	Elevation	Description	Composition				Hydraulic Conductivity					Constant Head Permeability	Porosity
							Clay	Silt	Sand	Gravel	Kozeny	Zamarinu	Krueger	Zunker	Geomean		
	[m]				[m asl]		[%]				[m/s]					[m/s]	[%]
TP-MT-08-01	1.0	Mt. Allan	7017550	441562	2064	Gravel	16		18	66	5.8E-05	1.1E-04	1.7E-04	6.4E-05	**9.1E-05**	-	26
TP-MT-08-01	2.0	Mt. Allan	7017550	441562	2064	Gravel	3		7	90	1.0E-05	9.6E-02	4.9E-01	8.4E-05	**2.5E-03**	-	34
TP-MT-08-08	0.5	Mill Site	7017027	441878	1796	Sandy Gravel	1	4	27	68	9.2E-07	1.2E-03	8.7E-03	6.7E-06	**9.0E-05**	-	26
TP-MT-08-08	2.5	Mill Site	7017027	441878	1796	Silty, Sandy Gravel	7	28	30	35	9.7E-08	2.2E-07	3.8E-07	1.2E-07	**1.7E-07**	-	26
BH01 SA03	1.2-1.8	Camp	7017384	442351	1873	Sandy Gravel	-	14	27	59	2.6E-06	1.6E-05	4.3E-05	4.5E-06	**9.4E-06**	-	26
BH10 SA02	0.6-1.2	Mill Site	7016941	441804	1773	Gravel	-	9	16	75	3.1E-06	7.3E-05	3.0E-04	8.4E-06	**2.7E-05**	-	26
BH21 SA02_03	0.6-1.8	Ravine Dam	7016321	440148	1500	Gravel	1	7	18	74	8.2E-07	7.4E-05	4.4E-04	3.3E-06	**1.7E-05**	7.7E-04	26
TP12 SA02	2.0-2.2	Ravine Dam	7016187	440117	1452	Silty Sand	3	35	53	9	5.8E-07	1.9E-06	3.6E-06	7.8E-07	**1.3E-06**	-	27
TP14 SA03	1.0-1.2	Ravine Dam	7016337	440226	1500	Sandy, Silty Gravel	0	27	31	42	1.6E-06	3.3E-06	5.8E-06	1.8E-06	**2.7E-06**	-	26
TP15 SA02	2.0-2.2	Ravine Dam	7016317	440292	1506	Sandy Gravel	2	17	34	47	6.0E-07	2.9E-06	7.0E-06	9.5E-07	**1.8E-06**	-	26
TP16 SA03	3.0-3.2	Ravine Dam	7016406	440082	1513	Gravel and Sand	1	9	39	51	7.9E-07	4.3E-05	1.9E-04	2.8E-06	**1.2E-05**	-	26
TP33 SA01	0.4-0.6	DSTF	7016585	441307	1650	Gravel and Sand	1	15	37	47	7.2E-07	1.0E-05	3.4E-05	1.7E-06	**4.5E-06**	-	26
TP34 SA02	1.8-2.0	DSTF	7016503	441310	1644	Sandy Gravel	1	10	30	59	7.8E-07	2.9E-05	1.3E-04	2.5E-06	**9.2E-06**	-	26
TP35 SA01	0.3-0.5	DSTF	7016613	441407	1641	Silty Gravel and Sand	2	22	38	38	5.6E-07	2.3E-06	5.2E-06	8.4E-07	**1.5E-06**	-	26
BH22 SA03_04	1.2-2.4	DSTF	7016407	440797	1602	Sand and Gravel	2	10	45	43	7.7E-07	2.3E-05	9.4E-05	2.3E-06	**7.8E-06**	9.9E-06	26

Notes: DSTF - Dry-stacked tailings facility

TABLE 4-9: SUMMARY OF GROUNDWATER CHEMISTRY AT MACTUNG PROPERTY

Analyte	Units	Reference Number	638159-8	638159-7	638159-2	637977-3	638159-6	637977-5	637977-1	637977-2	638159-9	638159-1	638159-5	638159-3	638159-4	Yukon CSR	CCME Guideline [1,2]	CCME Guideline [1,2]
		Sample Date	19-Aug-08	20-Aug-08	21-Aug-08	9-Aug-08	18-Aug-08	21-Jul-08	5-Aug-08	9-Aug-08	19-Aug-08	21-Aug-08	18-Aug-08	18-Aug-08	20-Aug-08			
		Site	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung			
		Sample Name	MT-MW-08-04B	MT-MW-08-05	MT-MW-08-06	MW-MT-08-07	MT-MW-08-08	MT Spring	Warm Spring	Drill Water #3	Drill Water #4B	Drill Water #6	Drill Water #8	MW-MT-08-09 / Duplicate of MW-MT-08-08	Field Blank			
		Sample Location	DDH	DDH	DDH	DDH	DDH	Spring	DDH	Sump	Tributary C	Tributary C	Sump	Duplicate of MW-MT-08-08	De-ionized Water	Aquatic Life	Aquatic Life	Aquatic Life
		Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Surface Water	Surface Water	Groundwater	Water			
		Relative Groundwater Depth	Deep	Deep	Deep	Deep	Deep	Shallow	Deep	Shallow	-	-	-	Deep	-			× 10
		Detection Limit	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results			
Ion Balance	%		-3.01	-2.95	-1.40	-0.32	-5.66	-1.37	0.82	-1.22	-2.39	-2.53	-6.53	-0.39	-27.01	-	-	
Water type			Ca-HCO3-SO4	Ca-Mg-SO4-HCO3	Ca-HCO3-SO4	Ca-SO4-HCO3	Ca-SO4	Ca-HCO3-SO4	Na-SO4-CO3	Ca-SO4-HCO3	Ca-SO4-HCO3	Ca-SO4-HCO3	Ca-HCO3-SO4	Ca-SO4	--	-	-	
Field Parameters																		
Temperature	°C		2.8	2.4	2.5	2.9	3.1	1.2	32.9	7.0	5.3	2.8	2.1	3.1	-	-	-	-
pH	-		7.86	7.00	7.83	7.23	9.38	7.35	9.68	7.16	7.40	7.59	7.59	**9.38**	-	-	6.5 - 9	-
Dissolved O_2	mg/L		0.0	0.0	0.0	0.0	0.3	11.2	0.5	11.7	10.6	11.3	11.3	0.3	-		5.5 - 9.5	-
Electrical Conductivity	µS/cm at 25		259	515	382	515	198	82	400	222	256	217	115	198	-	-	-	-
TDS	ppm		130	257	190	255	99	123	287	112	128	109	57	99	-	-	-	-
Routine Water																		
pH	-		7.84	7.94	8.03	7.52	8.99	7.81	**9.31**	7.63	7.72	7.81	7.65	**9.07**	6.06	-	6.5 - 9	-
Electrical Conductivity	µS/cm at 25	1	240	469	351	497	184	176	366	216	238	242	106	183	1	-	-	-
Turbidity	NTU	0.1	15.0	6.6	0.2	15.0	30.0	0.7	0.9	0.5	<0.1	<0.1	<0.1	30.0	<0.1	-	-	-
Total Dissolved Solids		1	162	337	245	334	136	120	314	138	164	169	72	137	<1	-	-	-
Hardness		1	118	264	196	267	78	86	6	103	121	126	51	80	<1	-	-	-
Chloride		0.02	0.07	0.04	0.04	0.03	0.10	0.08	11.20	0.04	0.06	0.05	0.07	0.10	<0.02	-	-	-
Ammonia - N		0.005	0.097	0.080	0.029	0.014	0.260	<0.005	0.047	<0.005	<0.005	<0.005	<0.005	0.262	0.011	11.3	1.54	15.4
Nitrate - N		0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.15	<0.01	0.08	0.03	0.03	0.22	0.06	<0.01	400	13	130
Nitrite - N	mg/L	0.01	0.03	0.06	0.04	0.04	<0.01	0.01	<0.01	0.01	0.02	0.02	<0.01	<0.01	<0.01	0.2	0.06	0.6
Sulfate (SO4)		0.05	58.60	149.00	97.60	140.00	69.60	39.20	65.50	64.00	85.20	83.70	25.40	69.00	<0.05	1000	-	-
Hydroxide		5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Carbonate		6	<6	<6	<6	<6	7	<6	39	<6	<6	<6	<6	8	<6	-	-	-
Bicarbonate		5	90	160	130	160	20	60	20	50	50	60	40	10	<5	-	-	-
T-Alkalinity		5	74	130	105	131	25	54	82	42	40	46	30	25	<5	-	-	-
Acidity	mg/L as CaCO3	5	<5	6	<5	-	<5	-	-	-	<5	<5	<5	<5	<5	-	-	-
Metals - Total																		
Mercury		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0	0.000026	0.00026
Aluminum		0.005	0.143	0.132	0.017	<0.005	1.050	0.030	0.123	0.015	0.078	0.020	0.021	1.000	<0.005	-	0.1	1
Antimony		0.0002	0.0010	<0.0002	0.0014	0.0004	0.0099	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0098	<0.0002	0.2	-	-
Arsenic		0.0002	0.0026	0.0004	0.0014	0.0044	0.0063	0.0003	0.0006	<0.0002	0.0011	0.0009	0.0003	0.0060	<0.0002	0.05	0.005	0.05
Barium		0.001	0.025	0.023	0.024	0.022	0.022	0.007	0.038	0.008	0.020	0.021	0.005	0.021	<0.001	10	-	-
Beryllium		0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00006	<0.00004	<0.00004	<0.00004	0.00008	<0.00004	<0.00004	0.00007	<0.00004	0.053	-	-
Bismuth		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001	-	-	-
Boron		0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.442	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-
Cadmium		0.00001	<0.00001	0.00001	0.00001	<0.00001	0.00008	0.00001	0.00007	0.00003	0.00024	0.00015	<0.00001	0.00008	<0.00001	0.0005-0.0006	0.000017	0.00017
Calcium		0.04	44.80	81.30	61.20	103.00	32.90	31.80	2.27	40.10	44.30	44.20	18.80	33.00	<0.04	-	-	-
Chromium		0.0004	0.0005	0.0009	0.0004	0.0007	0.0018	0.0005	<0.0004	0.0004	<0.0004	<0.0004	<0.0004	0.0017	<0.0004	0.01	0.0013	0.01
Cobalt		0.00002	0.00005	0.00012	0.00012	0.00254	0.00012	0.00002	0.00009	0.00002	0.00118	0.00026	<0.00002	0.00011	<0.00002	0.009	-	-
Copper		0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.05-0.09	0.002 - 0.0044	0.02-0.04
Iron		0.01	1.64	0.87	0.17	3.73	0.59	0.03	0.23	0.03	0.05	0.02	0.03	0.56	0.02	-	0.3	3
Lead		0.0001	<0.0001	0.0002	<0.0001	0.0002	0.0016	<0.0001	0.0002	<0.0001	<0.0001	0.0001	<0.0001	0.0015	<0.0001	0.06-0.16	0.0075	0.07
Lithium		0.001	0.004	0.002	0.004	0.003	0.003	<0.001	0.138	<0.001	0.002	0.001	<0.001	0.003	<0.001	-	-	-
Magnesium		0.04	3.27	15.90	9.40	4.54	0.68	1.73	0.04	1.20	2.98	2.56	0.87	0.65	<0.04	-	-	-
Manganese	mg/L	0.0001	0.0994	0.0120	0.0184	0.1360	0.0093	0.0006	0.0023	0.0006	0.0487	0.0091	0.0006	0.0087	<0.0001	-	-	-
Molybdenum		0.00002	0.00202	0.00107	0.00756	0.00379	0.00899	0.00207	0.00839	0.00104	0.00091	0.00108	0.00211	0.00889	<0.00002	10	0.073	0.73
Nickel		0.001	0.003	0.002	0.002	0.062	0.001	<0.001	<0.001	<0.001	0.009	0.004	<0.001	0.001	<0.001	1.1-1.5	0.156	1.5
Phosphorus		0.01	0.02	0.04	0.03	0.08	0.07	0.02	0.03	0.01	0.02	0.01	0.03	0.07	0.02	-	-	-
Potassium		0.04	2.78	1.78	1.65	1.03	0.88	0.46	1.78	0.71	0.76	0.83	0.44	0.86	<0.04	-	-	-
Selenium		0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0018	<0.0006	<0.0006	0.0007	0.0009	0.0013	0.0006	0.0017	<0.0006	0.01	0.001	0.01
Silicon		0.01	3.63	4.03	3.03	3.29	6.69	3.20	38.00	2.39	2.52	2.40	2.60	6.63	0.04	-	-	-
Silver		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0005-0.015	0.0001	0.001
Sodium		0.04	2.40	1.70	2.10	0.90	5.40	0.60	71.60	0.90	0.80	0.80	0.60	5.40	0.30	-	-	-
Strontium		0.001	0.120	1.010	0.202	0.220	0.045	0.047	0.041	0.084	0.095	0.096	0.026	0.046	<0.001	-	-	-
Thallium		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.003	-	-
Tin		0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0003	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	-	-	-
Titanium		0.0001	0.0049	0.0062	0.0009	0.0005	0.0256	0.0019	0.0029	0.0006	0.0011	0.0004	0.0010	0.0229	<0.0001	1	-	-
Uranium		0.0004	0.0040	0.0029	0.0116	0.0110	0.0007	0.0006	<0.0004	<0.0004	0.0004	0.0006	<0.0004	0.0007	<0.0004	3	-	-
Vanadium		0.00003	0.00119	0.00098	0.00039	0.00023	0.00808	0.00046	0.00078	0.00034	0.00015	0.00009	0.00043	0.00761	<0.00003	-	-	-
Zinc		0.001	0.003	0.006	0.003	0.050	0.007	0.002	0.005	0.002	0.011	0.009	0.004	0.010	0.003	0.15-2.4	0.03	0.3
Zirconium		0.0001	0.0002	0.0001	0.0002	<0.0001	0.0003	<0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	<0.0001	-	-	-

Analyte	Units	Reference Number	638159-8	638159-7	638159-2	637977-3	638159-6	637977-5	637977-1	637977-2	638159-9	638159-1	638159-5	638159-3	638159-4	Yukon CSR	CCME Guideline [1,2]	CCME Guideline [1,2]
		Sample Date	19-Aug-08	20-Aug-08	21-Aug-08	9-Aug-08	18-Aug-08	21-Jul-08	5-Aug-08	9-Aug-08	19-Aug-08	21-Aug-08	18-Aug-08	18-Aug-08	20-Aug-08			
		Site	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung	Mactung			
		Sample Name	MT-MW-08-04B	MT-MW-08-05	MT-MW-08-06	MW-MT-08-07	MT-MW-08-08	MT Spring	Warm Spring	Drill Water #3	Drill Water #4B	Drill Water #6	Drill Water #8	MW-MT-08-09 /	Field Blank			
		Sample Location	DDH	DDH	DDH	DDH	DDH	Spring	DDH	Sump	Tributary C	Tributary C	Sump	Duplicate of MW-MT-08-08	De-ionized Water	Aquatic Life	Aquatic Life	Aquatic Life
		Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Surface Water	Surface Water	Surface Water	Groundwater	Water			
		Relative Groundwater Depth	Deep	Deep	Deep	Deep	Deep	Shallow	Deep	Shallow	-	-	-	Deep	-			× 10
		Detection Limit	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results			
Metals - Dissolved																		
Mercury		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0	0.000026	0.00026
Aluminum		0.01	0.02	0.01	0.02	<0.01	**0.57**	0.02	0.03	<0.01	0.03	0.02	0.01	**0.69**	0.01	-	0.1	1
Antimony		0.0002	0.0024	0.0008	0.0032	0.0010	0.0108	0.0007	<0.0002	0.0005	0.0005	0.0006	0.0005	0.0105	0.0006	0.2	-	-
Arsenic		0.0002	0.0016	<0.0002	0.0016	0.0045	0.0058	<0.0002	0.0005	<0.0002	0.0011	0.0012	0.0003	0.0060	<0.0002	0.05	0.005	0.05
Barium		0.001	0.019	0.020	0.025	0.021	0.012	0.007	0.024	0.009	0.021	0.024	0.005	0.012	<0.001	10	-	-
Beryllium		0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00006	<0.00004	<0.00004	<0.00004	0.00004	<0.00004	<0.00004	0.00006	<0.00004	0.053	-	-
Bismuth		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	-	-	-
Boron		0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.448	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	-	-	-
Cadmium		0.00001	**0.00002**	0.00001	**0.00003**	<0.00001	**0.00015**	**0.00002**	<0.00001	<0.00001	0.00024	0.00018	0.00001	**0.00009**	<0.00001	0.0005-0.0006	0.000017	0.00017
Calcium		0.04	42.30	80.10	62.70	99.80	30.30	31.80	2.41	39.30	43.70	46.10	18.80	31.40	0.26	-	-	-
Chromium		0.0004	<0.0004	0.0007	0.0006	0.0007	0.0009	<0.0004	<0.0004	<0.0004	<0.0004	0.0008	<0.0004	0.0009	<0.0004	0.01	0.001[3]	0.01
Cobalt		0.00002	0.00006	0.00006	0.00012	0.00248	0.00009	0.00004	<0.00002	0.00002	0.00105	0.00026	<0.00002	0.00010	0.00002	0.009	-	-
Copper		0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	0.05-0.09	0.002 - 0.004[4]	0.02-0.04
Iron		0.01	**0.55**	<0.01	0.11	**3.24**	**0.31**	0.02	<0.01	<0.01	<0.01	0.01	<0.01	**0.42**	<0.01	-	0.3	3
Lead		0.0001	<0.0001	0.0001	0.0002	<0.0001	0.0012	0.0002	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0015	<0.0001	0.06-0.16	0.007[5]	0.07
Lithium		0.001	0.004	0.002	0.005	0.003	0.003	<0.001	0.139	<0.001	0.002	0.002	<0.001	0.003	<0.001	-	-	-
Magnesium		0.04	3.07	15.70	9.59	4.29	0.51	1.60	<0.04	1.14	2.98	2.79	0.89	0.53	<0.04	-	-	-
Manganese	mg/L	0.0001	0.0881	0.0101	0.0179	0.1310	0.0050	0.0009	0.0004	0.0004	0.0444	0.0092	0.0003	0.0059	0.0004	-	-	-
Molybdenum		0.00002	0.00188	0.00099	0.00768	0.00355	0.00842	0.00203	0.00571	0.00095	0.00100	0.00122	0.00213	0.00856	<0.00002	10	0.073	0.73
Nickel		0.001	0.002	<0.001	0.002	0.060	0.001	<0.001	<0.001	<0.001	0.009	0.004	<0.001	0.001	<0.001	1.1-1.5	0.15[6]	1.5
Phosphorus		0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	-	-	-
Potassium		0.04	2.53	1.71	1.64	0.99	0.68	0.47	1.86	0.68	0.75	0.90	0.42	0.66	<0.04	-	-	-
Selenium		0.0006	<0.0006	<0.0006	<0.0006	<0.0006	**0.0024**	**0.0016**	**0.0082**	**0.0026**	0.0017	0.0023	0.0010	**0.0025**	<0.0006	0.01	0.001	0.01
Silicon		0.01	3.28	3.75	3.08	3.18	5.50	3.24	36.90	2.32	2.47	2.56	2.56	5.59	0.04	-	-	-
Silver		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0005-0.015	0.0001	0.001
Sodium		0.04	2.11	1.50	1.95	0.66	4.94	0.50	73.40	0.66	0.66	0.91	0.43	4.90	0.20	-	-	-
Strontium		0.001	0.114	1.000	0.209	0.213	0.042	0.047	0.043	0.083	0.096	0.102	0.025	0.044	0.001	-	-	-
Thallium		0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.003	-	-
Thorium		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-
Tin		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	-	-
Titanium		0.0001	0.0010	0.0006	0.0008	0.0003	0.0092	0.0014	0.0029	<0.0001	0.0005	0.0007	0.0005	0.0090	0.0003	1	-	-
Tungsten		0.0001	0.0036	0.0017	0.0038	0.0004	0.0219	0.0098	0.0552	0.0005	0.0012	0.0008	0.0150	0.0224	0.0003	-	-	-
Uranium		0.0004	0.0035	0.0027	0.0117	0.0098	0.0006	0.0005	<0.0004	<0.0004	<0.0004	0.0006	<0.0004	0.0007	<0.0004	3	-	-
Vanadium		0.00004	0.00021	0.00021	0.00033	0.00021	0.00480	0.00036	0.00021	0.00026	0.00015	0.00014	0.00043	0.00497	<0.00004	-	-	-
Zinc		0.001	0.003	0.002	0.003	**0.052**	0.004	0.003	0.001	<0.001	0.010	0.009	<0.001	0.005	0.002	0.15-2.4	0.03	0.3
Zirconium		0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	-	-	-

Notes:

"<" indicates less than the laboratory detection limit

"-" indicates no guidelines or no standards established

Applicable Standard: Underline indicates exceeds Yukon CSR Standard (note: CSR Standard compared with total metals concentrations for surface water, and dissolved metals concentrations for groundwater).

Comparison Guidelines: **Bold Highlighting- indicates results exceed CCME Aquatic life guidelines (Note: Used total metals for surface water and dissolved metals for groundwater)**

Comparison Guidelines: **Bold Highlighting and Borders- indicates results exceed CCME Aquatic life guidelines x 10 (Note: Used total metals for surface water and dissolved metals for groundwater)**

[1] Canadian Water Quality Guidelines for the Protection of Aquatice Life, Canadian Council of Ministers of the Environment ("CCME"), updated 6.0, July 2006

[2] Standard based on Canadian Trigger Ranges for ultra-oligotrophic, the most stringent of standards.

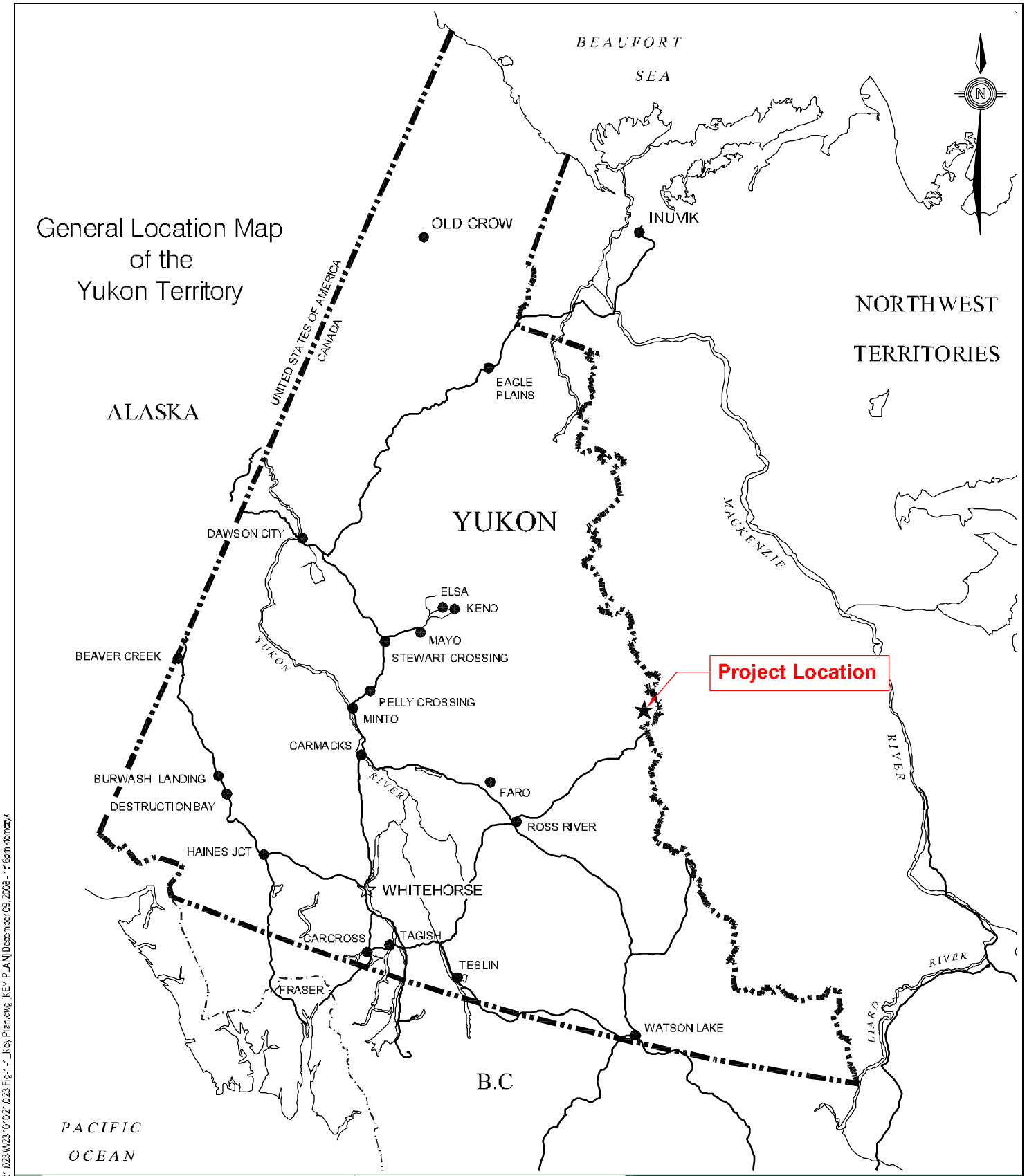
[3] Standard is for Chromium VI.

[4] Standard is based on hardness (CaCO3) where copper equals; 0.002 mg/L when hardness is 0 - 120 mg/l, 0.003 mg/L when hardness is 120-180 mg/L, 0.004 mg/L when hardness is >180 mg/L.

[5] Standard is based on hardness (CaCO3) where lead equals; 0.001 mg/L when hardness is 0 - 60 mg/l, 0.002 mg/L when hardness is 60-120 mg/L, 0.004 mg/L when hardness is 120 - 180 mg/L, 0.007 when hardness is >180 mg/L.

[6] Standard is based on hardness (CaCO3) where nickel equals; 0.025 mg/L when hardness is 0 - 60 mg/l, 0.065 mg/L when hardness is 60-120 mg/L, 0.110 mg/L when hardness is 120 - 180 mg/L, 0.150 when hardness is >180 mg/L.

FIGURES



CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

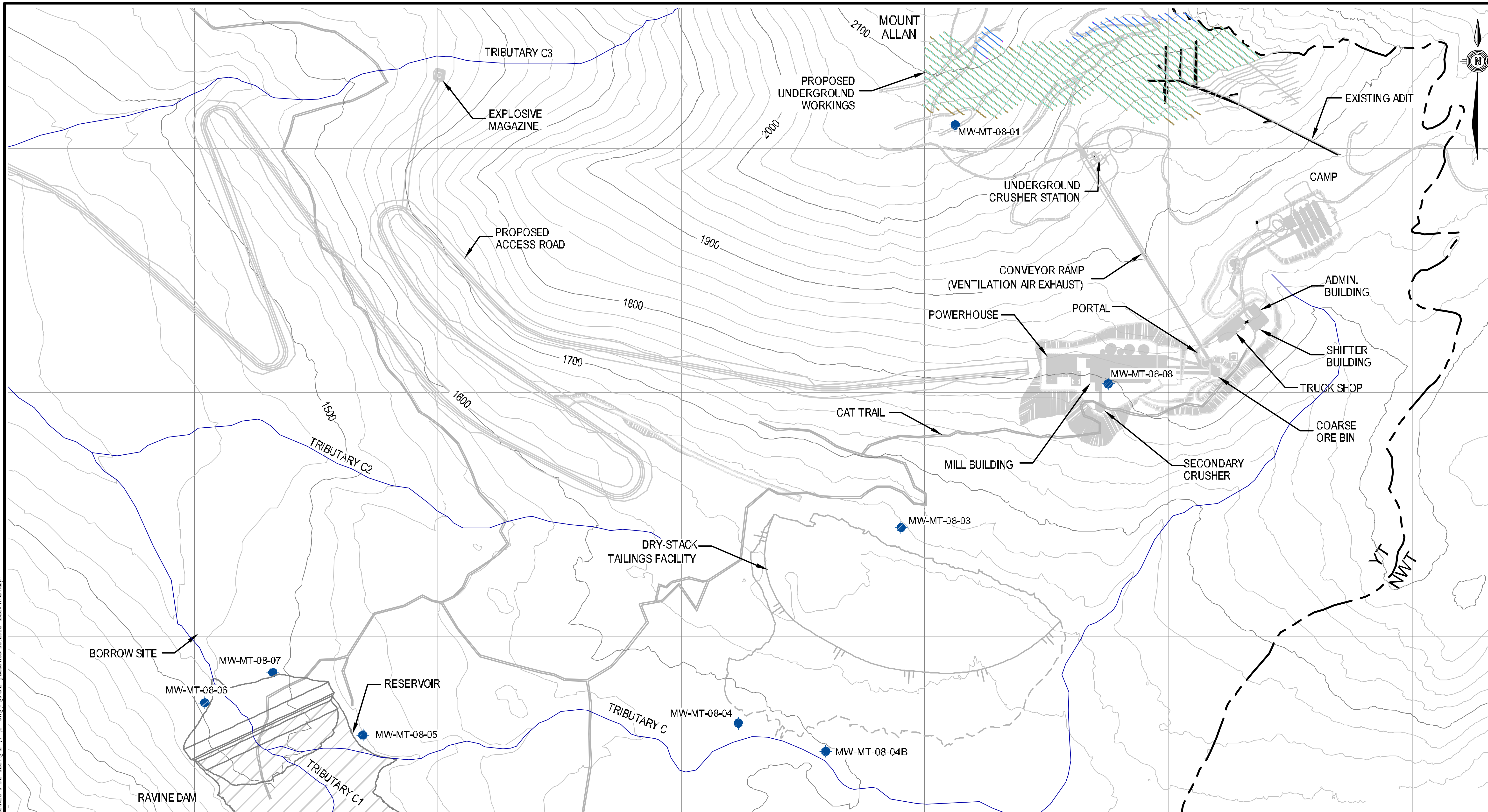
DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YUKON

SITE LOCATION MAP

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W23101050.003	KJT	RMM	0
OFFICE	DATE		
EBA-WHSE	OCTOBER, 2008		

Figure 1-1



LEGEND

GROUNDWATER OBSERVATION WELL LOCATION

NOTES:
1. 20 m CONTOUR INTERVAL
2. DRAWING PRODUCED IN COLOUR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

0 250
Scale: 1: 7 500 (metres)

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT MACTUNG PROJECT, MACMILLAN PASS, YT

SITE PLAN

PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	RMM	0

OFFICE	DATE
EBA-WHSE	OCTOBER, 2008

Figure 2-1

LEGEND

⌖ Groundwater Observation Well Location (Approximate)

NOTES

Aerial photo taken on August 07, 2008 by EBA

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT - MACMILLAN PASS, YT

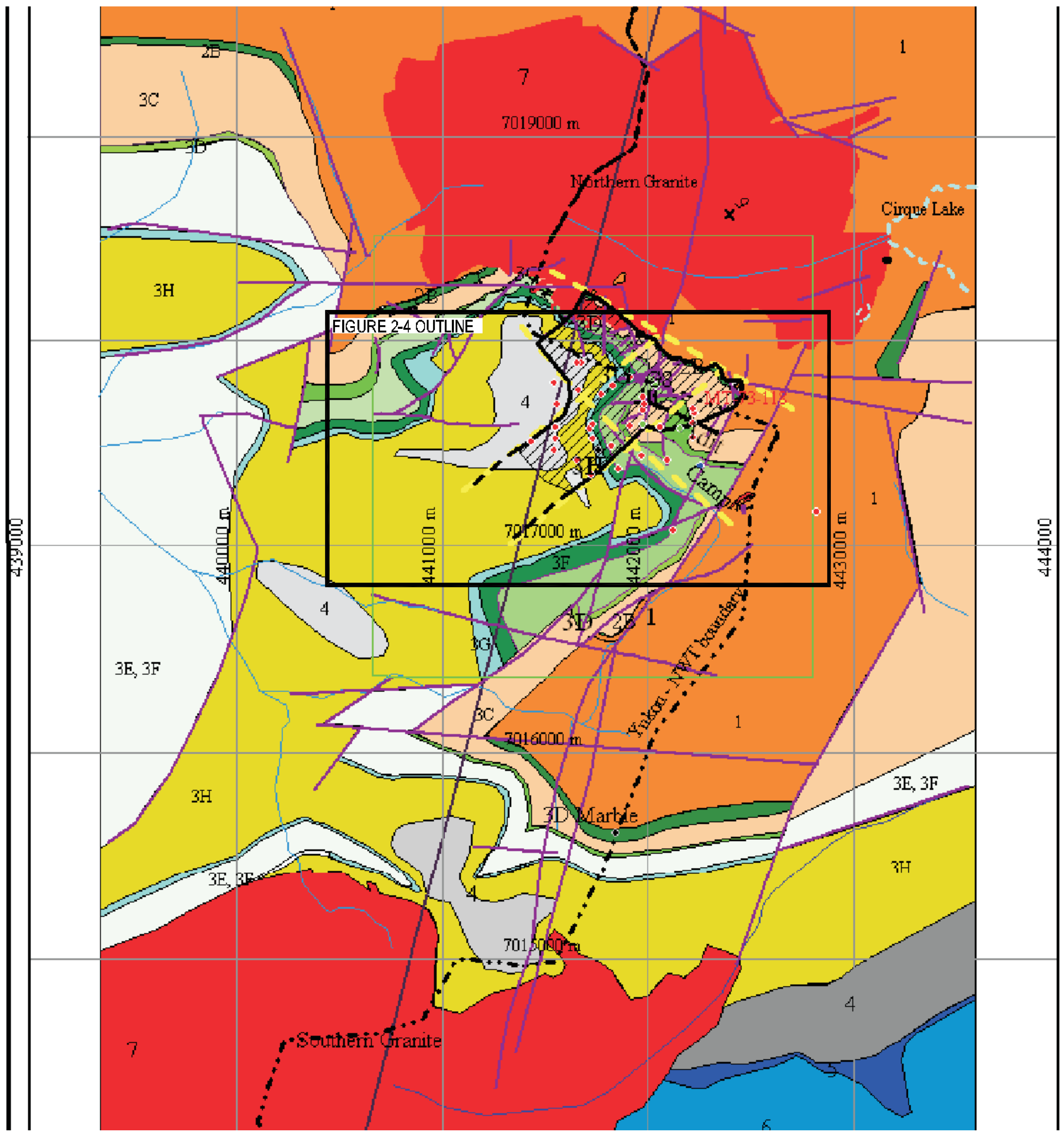
Aerial Photograph of Local Study Area

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W23101021.023	SK	RMM	1
OFFICE: EBA-WHSE	DATE: November 2008		

Figure 2-2

\\Eba.local\corp\Whitehorse\Environmental\W231\Projects\W23101021 2007 Environmental Baseline Studies Work Scope\W23101021.023 - Hydrogeology\Report\Final\Figure 2-2.cdr



LEGEND

- 9 Quartz vein
- 8 Felsic dyke
- 7 Biotite granite (dominant), leucogranite
- 6 Meta-shale, Meta-conglomerate
- 5 Dark Limestone, Chert
- 4 Graphitic phyllite (graptolitic), dark calcarous graphitic phyllite
- 3H Graphitic phyllite, Calc-silicate, biotite hornfels
- 3G (Quartz)-talc-tremolite rock
- 3F Skarn, Calc-silicate, Marble, Biotie hornfels, graphitic phyllite
- 3E Graphitic phyllite, Biotite hornfels, Skarn, Marble, calc-silicate
- 3D Skarn, Calc-silicate, Marble, Biotie hornfels, graphitic phyllite
- 3C Biotite hornfels, Graphitic phyllite
- 2B Skarn, Calc-silicate, Marble, Biotite hornfels
- 1 Biotite schist, Muscovite-biotite schist, biotite-chlorite schist
- Fault/Lineament
- Creek, Intermettent creek
- (Au-Cu) - W skarn
- Diamond drillhole
- Camp Site

Scale: 1: 25 000 (metres) — 0 to 1 000

NOTES

1. GEBRU, A.L. AND LENTZ, D.R., 2008. GEOCHEMISTRY AND CHRONOLOGY OF GRANITOIDS ADJACENT TO THE MACTUNG AU-CU-W SKARN. POSTER PRESENTATION AT GOLDSCHMIDT 2008 CONFERENCE, UNIV. OF BRITISH COLUMBIA, VANCOUVER, CANADA.
2. DRAWING HAS BEEN PRODUCED IN COLOR, ANY REPORDUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

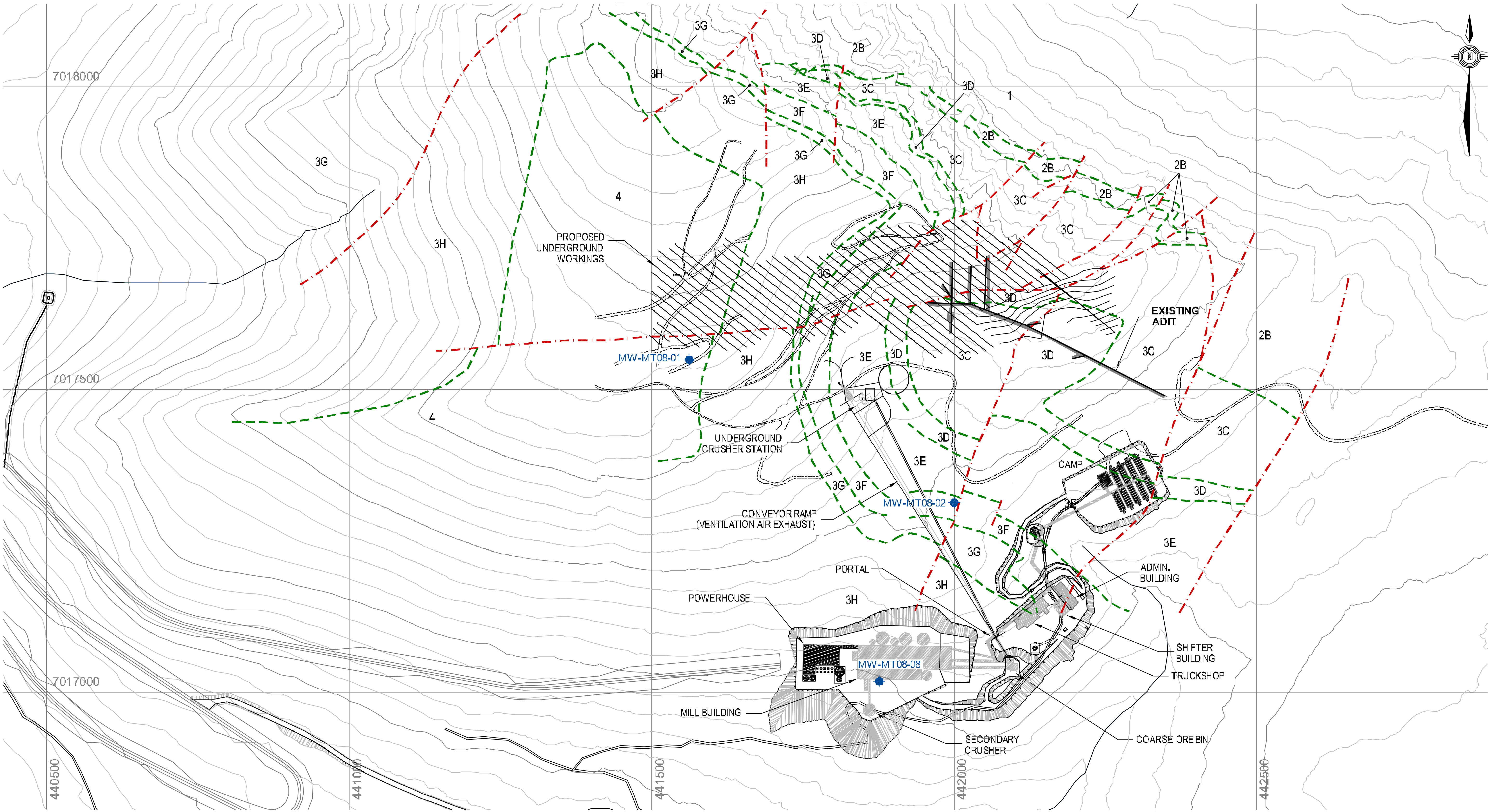
DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

GEOLOGICAL MAP OF MACTUNG AREA

PROJECT NO.	DWN	CKD	REV
W23101021.023	JSB	SK/RMM	0

OFFICE	DATE
EBA-WHSE	October 25, 2008

Figure 2-3



LEGEND

CAMBRO-ORDOVICIAN

4	Black Graptolitic Shale and Flagstone
3H	Black Shale with Rare Limestone Beds
3G	Talc-Tremolite Dolomite with Thin Shale Beds
3F	Interbedded Shale, Siltstone and Limestone Slump Breccias, Shale and Siltstone
3E	Interbedded Shale, Siltstone and Limestone
3D	Interbedded Calcic and Phosphatic Limestone Slump Breccias, Shale and Siltstone
3C	Black Pebbly Shale and Siltstone with Rare Limestone Beds
2B	Limestone, Limestone Slump Breccia, Shale and Siltstone
1	Interbedded Shale, Siltstone and Greywacke

3F, 3E, 3D: Hosts to the Upper Ore Zone

2B: Hosts to the Lower Ore Zone

SYMBOLS

- Geological Contact (Observed or Inferred)
- Fault (Defined or Inferred)
- Groundwater Observation Well Location

NOTES

1. STRUCTURAL GEOLOGY OBTAINED FROM SHEETS M-N 13-14 (DWG. NO 2E-GE-004) & M-N 11-12 (DWG. NO. 2E-GE-005) DRAWING TITLE MACTUNG GEOLOGY, AS PRODUCED BY AMAX NORTHWEST MINING COMPANY LIMITED, AND PROVIDED BY CLIENT.
2. DRAWING PRODUCED IN COLOR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

0 50 100 200 300 metres

SCALE 1:6000

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

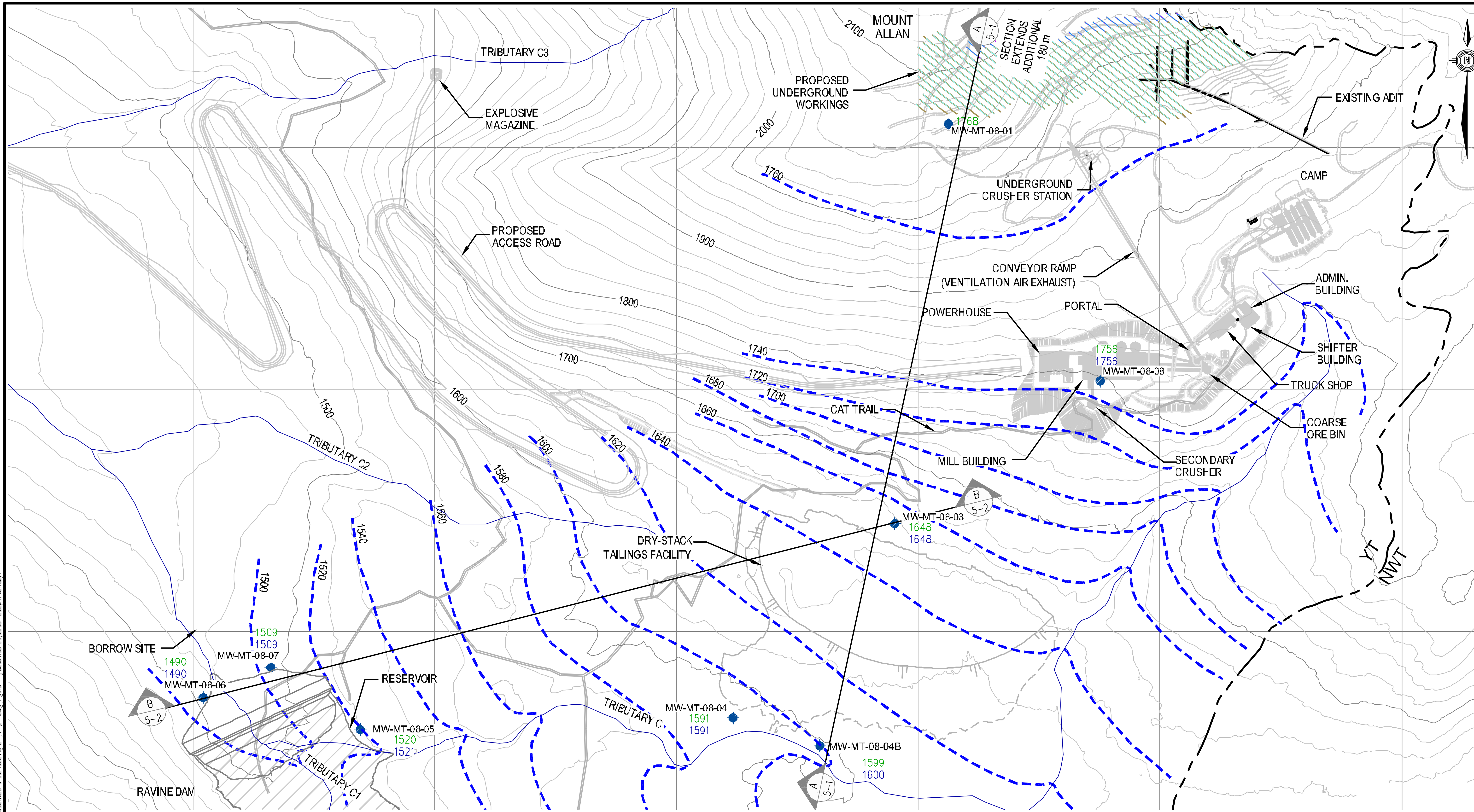
DETAILED HYDROGEOLOGICAL ASSESSMENT MACTUNG PROJECT, MACMILLAN PASS, YT

MT. ALLAN STRUCTURAL GEOLOGY MAP

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W23101021.023	JSB	SK/RMM	0
OFFICE	DATE		
EBA-WHSE	October 25, 2008		

Figure 2-4



LEGEND

GROUNDWATER OBSERVATION WELL LOCATION

1489 HYDRAULIC HEAD MEASUREMENT OBSERVED (AUG 2008) IN DEEP INSTALLATIONS (m-asl)

1490 HYDRAULIC HEAD MEASUREMENT OBSERVED (SEPT 2008) IN DEEP INSTALLATIONS (m-asl)

INFERRED GROUNDWATER EQUIPOTENTIAL CONTOUR (m-asl)

NOTES:

1. 20 m CONTOUR INTERVAL
2. DRAWING PRODUCED IN COLOUR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

0 250

Scale: 1: 7 500 (metres)

Client

NORTH AMERICAN TUNGSTEN CORPORATION LTD

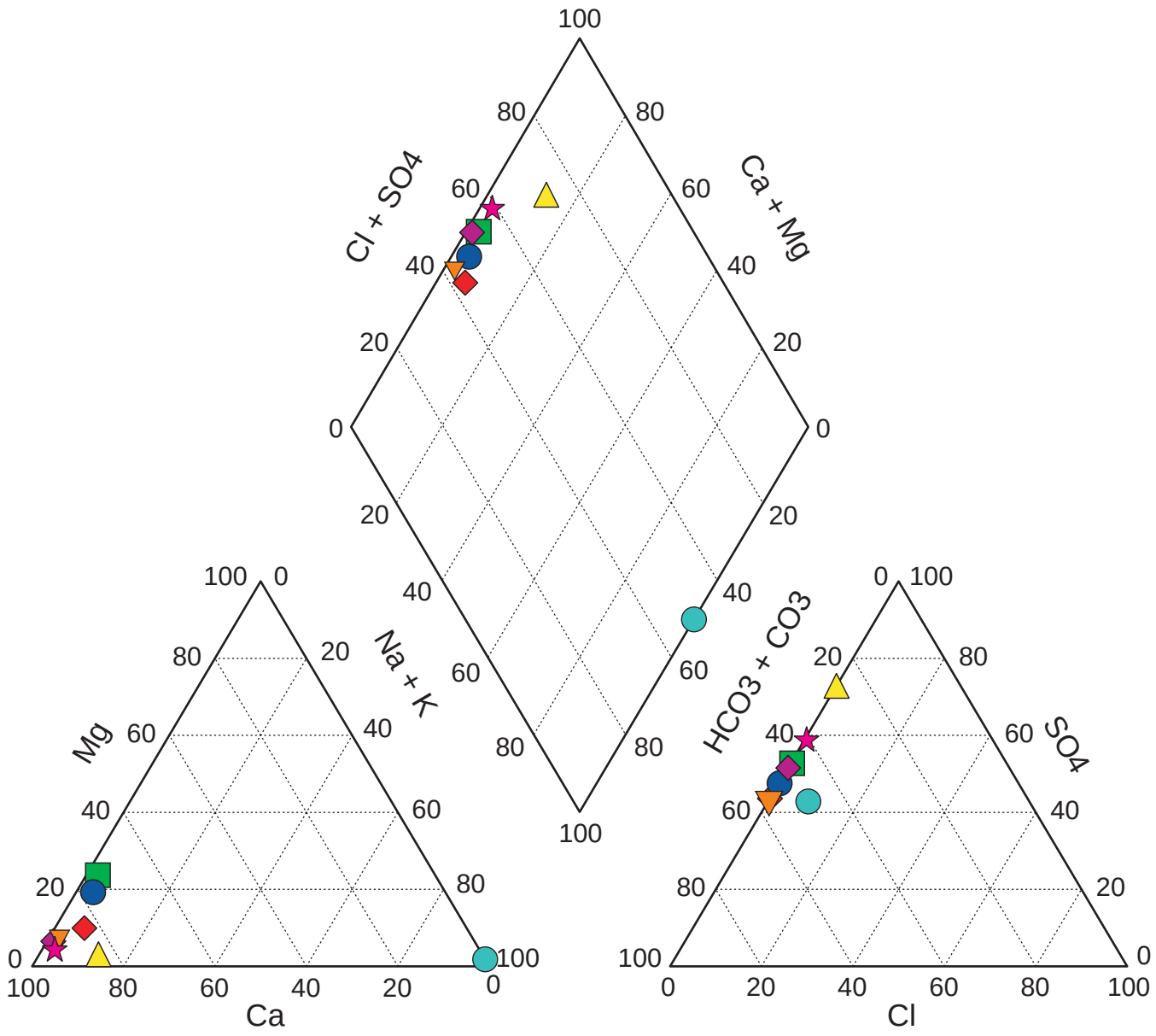
EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

GROUNDWATER OBSERVATION WELLS AND HYDRAULIC HEAD MAP

PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	RMM	0
OFFICE	DATE		
EBA-WHSE	OCTOBER, 2008		

Figure 4-1



LEGEND

- MW-MT-08-04B
- MW-MT-08-05
- MW-MT-08-06
- MW-MT-08-07
- MW-MT-08-08
- Warm Spring
- MT Spring
- Sump

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

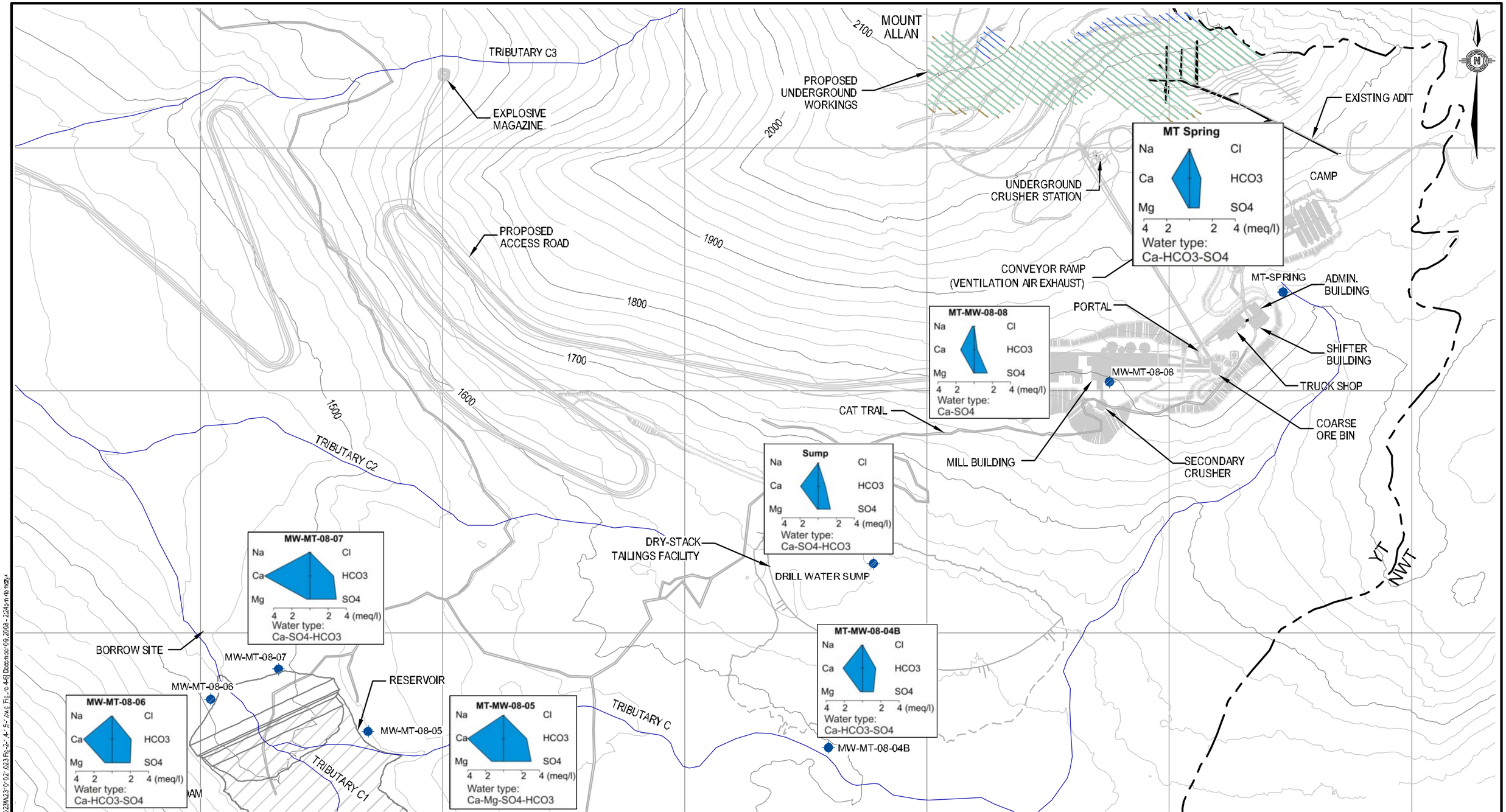
DETAILED HYDROGEOLOGICAL ASSESSMENT MACTUNG PROJECT - MACMILLAN PASS, YT

Piper Diagram

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
W23101021.023	SK	RMM	1
OFFICE: EBA-WHSE	DATE: November 2008		

Figure 4-4



LEGEND

GROUNDWATER SAMPLING LOCATION

NOTES:

1. 20 m CONTOUR INTERVAL
2. DRAWING PRODUCED IN COLOUR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

0 250

Scale: 1: 7 500 (metres)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

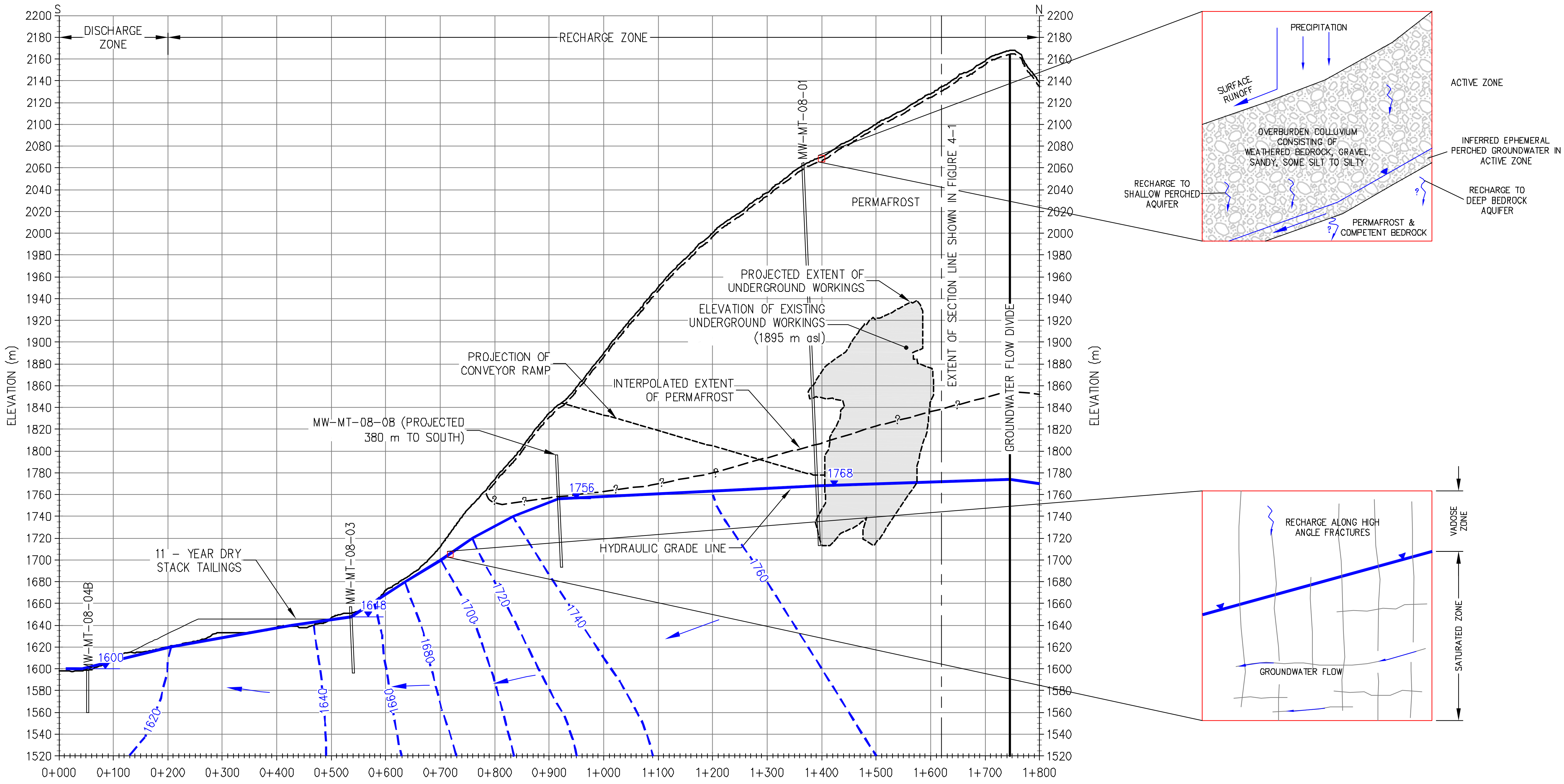
DETAILED HYDROGEOLOGICAL ASSESSMENT MACTUNG PROJECT, MACMILLAN PASS, YT

HYDROGEOCHEMISTRY AND WATER TYPE

EBA Engineering Consultants Ltd.

PROJECT NO	DWN	CHD	REV
W23101021.023	KJT	RMM	0
CAD FILE	DATE		
EBA-WHSE	OCTOBER, 2008		

Figure 4-5



A SECTION A - LOOKING EAST NORTH EAST
4-1 SCALE 1:7,500H 1:3,750V

LEGEND

▼ 1490 HYDRAULIC HEAD MEASUREMENT OBSERVED (SEPT 2008) IN DEEP INSTALLATIONS (m asl)

— — INFERRED GROUNDWATER EQUIPOTENTIAL CONTOUR (m asl)

NOTE:

DRAWING PRODUCED IN COLOUR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

NORTH AMERICAN TUNGSTEN CORPORATION LTD

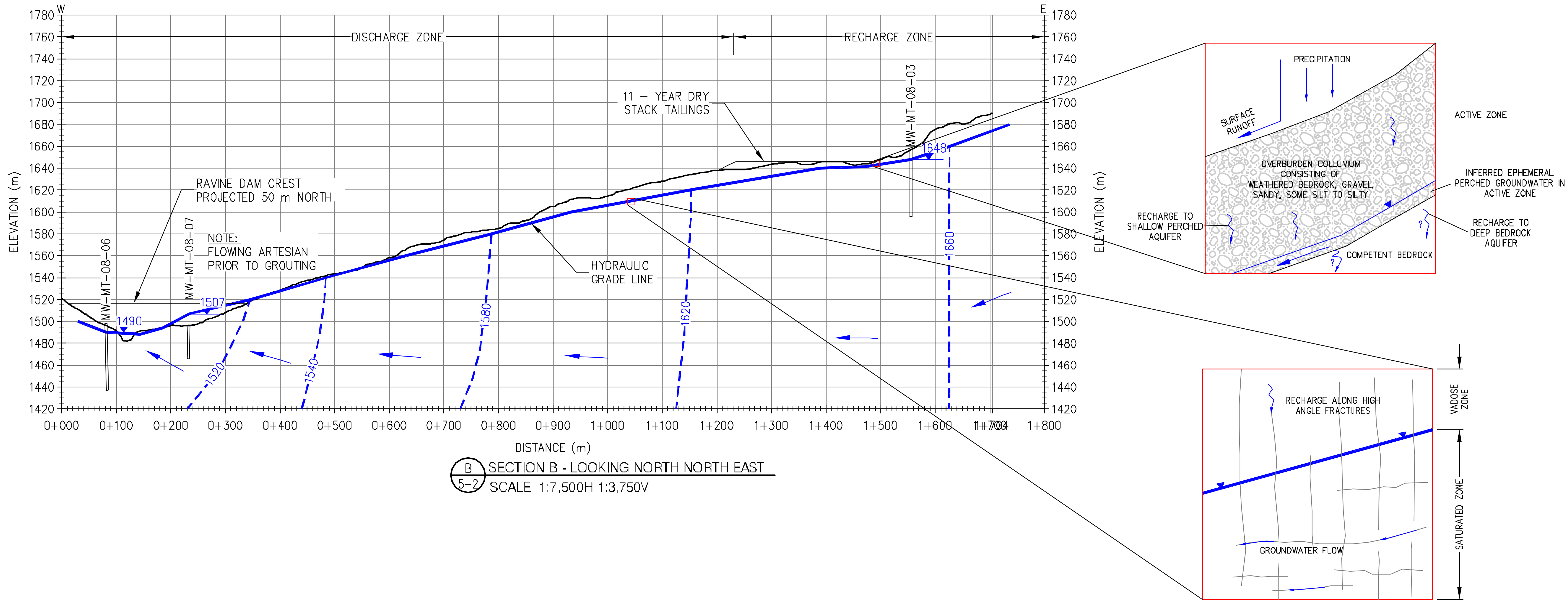
EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

CONCEPTUAL HYDROGEOLOGY
CROSS SECTION A

PROJECT NO	DWN	CKD	REV
W23101021.023	KJT	RMM	0
OFFICE	DATE		
EBA-WHSE	OCTOBER, 2008		

Figure 5-1



B
5-2
SECTION B - LOOKING NORTH NORTH EAST
SCALE 1:7,500H 1:3,750V

LEGEND

▼ 1490 HYDRAULIC HEAD MEASUREMENT OBSERVED (SEPT 2008) IN DEEP INSTALLATIONS (masl)

– – – GROUNDWATER EQUIPOTENTIAL CONTOUR (masl)

NOTE:

DRAWING PRODUCED IN COLOUR, REPRODUCTIONS MAY NOT BE REPRESENTATIVE OF ORIGINAL.

CLIENT: NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

CONCEPTUAL HYDROGEOLOGY CROSS SECTION B

PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	RMM	0
OFFICE: EBA-WHSE	DATE: OCTOBER, 2008		

Figure 5-2

APPENDIX A

APPENDIX A CALIBRATION SHEETS FOR VIBRATING WIRE PIEZOMETERS

Calibration Record

200 - 2050 Hartley Ave., Coquitlam, British Columbia, Canada V3K 6W5
Tel: 604.540.1100 • Fax: 604.540.1005 • Toll Free: 1.800.665.5599 (North America only)
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

Vibrating Wire Pressure Transducer

MW-MT-08-01
Depth : 20 m

Customer:		EBA ENG. CONSULTANTS -YUKON
Model:		VW2100-0.35
Serial Number:		**VW9080**
Mfg Number:		08-5458
Range:		350.0 kPa
Date of Calibration:		22-Apr-08
Temperature:		23.8 °C
Barometric Pressure:		1003.4 millibars
W.O. Number:		Q011302
Cable Length:		25 meters
Cable Colour Code:	Red / Black (Coil)	Green / White (Thermistor)
Cable Type:		EL380004
Thermistor Type:		3 Kohms

Zero Reading:
p: 9218.2 B
T = 5.7 °C

Applied Pressure (kPa)	First Reading (B units)	Applied Pressure (kPa)	Second Reading (B units)	Average Pressure (kPa)	Average Readings (B units)	Calculated Linear (kPa)	Linearity F.S. Error (%)	Polynomial Fit (% FS)
0.0	8991	0.0	8992	0.0	8992	0.6	0.17	0.03
70.0	8298	70.0	8296	70.0	8297	69.7	-0.08	-0.05
140.0	7594	140.0	7594	140.0	7594	139.7	-0.09	0.02
210.0	6891	210.0	6892	210.0	6892	209.6	-0.11	0.00
280.0	6185	280.0	6185	280.0	6185	279.9	-0.02	0.01
350.0	5476	350.0	5477	350.0	5477	350.5	0.13	-0.01
						Max. Error (%):	0.17	0.05

Linear Calibration Factor:	**C.F.=**	**0.09954 kPa/B unit**
Regression Zero:	**At Calibration Bi =**	**8997.4 B unit**
Temperature Correction Factor:	**Tk =**	**-0.0664 kPa/°C rise**

Polynomial Gage Factors (kPa) **A:** -3.0179E-07 **B:** -0.095171 **C:** 880.22

Pressure is calculated with the following equations:
Linear, $P(kPa) = C.F. X (Li - Lc) - [Tk (Ti - Tc)] + [0.10 (Bi - Bc)]$
Polynomial: $P(kPa)=A(Lc)^2+BLc+C+Tk(Tc-Ti)-[0.10(Bc-Bi)]$

	Date (dd/mm/yr)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Factory Zero Readings:	25-Apr-08	8996	22.2	1000.1
Shipped Zero Readings:	24-Jun-08	8982	21.3	1023.7

Li, Lc = initial (at installation) and current readings
Ti, Tc = initial (at installation) and current temperature, in °C
Bi, Bc = initial (at installation) and current barometric pressure readings, in millibars
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts
B units = Hz^2 / 1000 ie: 1700Hz = 2890 B units

Technician: C. Byerley CB Date: 24-Jun-08

Applied Science Technologists and Technicians of British Columbia
22724
AL CULLEY
ASCT

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Calibration Record

200 - 2050 Hartley Ave., Coquitlam, British Columbia, Canada V3K 6W5
Tel: 604.540.1100 • Fax: 604.540.1005 • Toll Free: 1.800.665.5599 (North America only)
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

Vibrating Wire Pressure Transducer

MW - MT - 08 - 01
Depth: 145 m

Zero Reading
p: 8930.2 B
T = 5.9 °C

Customer:	EBA ENG. CONSULTANTS -YUKON	
Model:	VW2100-3.0	
Serial Number:	**VW9082**	
Mfg Number	08-9547	
Range:	3.0 MPa	
Date of Calibration:	15-May-08	
Temperature:	24.1 °C	
Barometric Pressure:	991.6 millibars	
W.O. Number:	Q011302	
Cable Length:	155 meters	
Cable Colour Code:	Red / Black (Coil)	Green / White (Thermistor)
Cable Type:	EL380004	
Thermistor Type:	3 Kohms	

Applied Pressure (MPa)	First Reading (B units)	Applied Pressure (MPa)	Second Reading (B units)	Average Pressure (MPa)	Average Readings (B units)	Calculated Linear (MPa)	Linearity F.S. Error (%)	Polynomial Fit (% FS)
0.000	8912	0.000	8913	0.000	8913	0.008	0.26	0.02
0.600	8201	0.600	8202	0.600	8202	0.598	-0.08	-0.03
1.200	7482	1.200	7482	1.200	7482	1.194	-0.19	0.01
1.800	6758	1.800	6759	1.800	6759	1.794	-0.19	0.01
2.400	6030	2.400	6030	2.400	6030	2.398	-0.05	0.00
3.000	5296	3.000	5296	3.000	5296	3.007	0.24	-0.01
						Max. Error (%):	0.26	0.03

Linear Calibration Factor:	C.F.=	0.00082934 MPa/B unit
Regression Zero:	At Calibration Bi =	8922.0 B unit
Temperature Correction Factor:	Tk =	0.0005921 MPa/°C rise

Polynomial Gage Factors (MPa) A: -4.2724E-09 B: -0.00076863 C: 7.1903

Pressure is calculated with the following equations:
Linear, P(MPa) = C.F. X (Li - Lc) - [Tk (Ti - Tc)] + { 0.00010 (Bi - Bc)]
Polynomial: $P(MPa)=A(Lc)^2+BLc+C+Tk(Tc-Ti)-[0.00010(Bc-Bi)]$

	Date (dd/mm/yr)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Factory Zero Readings:	12-Jun-08	8917	24.1	1001.7
Shipped Zero Readings:	24-Jun-08	8917	21.3	1023.7

Li, Lc = initial (at installation) and current readings
Ti, Tc = initial (at installation) and current temperature, in °C
Bi, Bc = initial (at installation) and current barometric pressure readings, in millibars
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts
B units = Hz^2 / 1000 ie: 1700Hz = 2890 B units

Technician: C. Byerley CB Date: 24-Jun-08

Applied Science Technologists and Technicians of British Columbia
22724
A.C.
AL CULLEY
ASCT

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Document Number: ELL0143F

Recycles
MIG0106A

Calibration Record

200 - 2050 Hartley Ave., Coquitlam, British Columbia, Canada V3K 6W5
Tel: 604.540.1100 • Fax: 604.540.1005 • Toll Free: 1.800.665.5599 (North America only)
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

Vibrating Wire Pressure Transducer

MW - MT - 08 - 01

Depth. 340 m

Zero Reading

p: 8922.5 B

T= 5.9 °C

Customer:		EBA ENG. CONSULTANTS -YUKON
Model:		VW2100-10.0-HD
Serial Number:		**VW9085**
Mfg Number		07-3948
Range:		10.0 MPa
Date of Calibration:		7-May-08
Temperature:		22 °C
Barometric Pressure:		1007.6 millibars
W.O. Number:		Q011302
Cable Length:		355 meters
Cable Colour Code:	Red / Black (Coil)	Green / White (Thermistor)
Cable Type:		EL380004
Thermistor Type:		3 Kohms

Applied Pressure (MPa)	First Reading (B units)	Applied Pressure (MPa)	Second Reading (B units)	Average Pressure (MPa)	Average Readings (B units)	Calculated Linear (MPa)	Linearity F.S. Error (%)	Polynomial Fit (% FS)
0.000	8914	0.000	8914	0.000	8914	0.007	0.07	-0.01
2.000	8090	2.000	8088	2.000	8089	1.999	-0.01	0.01
4.000	7262	4.000	7263	4.000	7263	3.995	-0.05	0.01
6.000	6436	6.000	6435	6.000	6436	5.992	-0.08	-0.02
8.000	5604	8.000	5605	8.000	5605	7.998	-0.02	0.00
10.000	4772	10.000	4772	10.000	4772	10.008	0.08	0.00
						Max. Error (%):	0.08	0.02

Linear Calibration Factor:	C.F.=	0.0024146 MPa/B unit
Regression Zero:	At Calibration Bi =	8917.0 B unit
Temperature Correction Factor:	Tk =	0.002014 MPa/°C rise

Polynomial Gage Factors (MPa) A: -3.4879E-09 B: -0.0023668 C: 21.374

Pressure is calculated with the following equations:
Linear, P(MPa) = C.F. X (Li - Lc) - [Tk (Ti - Tc)] + [0.00010 (Bi - Bc)]
Polynomial: $P(MPa)=A(Lc)^2+BLc+C+Tk(Tc-Ti)-[0.00010(Bc-Bi)]$

	Date (dd/mm/yr)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Factory Zero Readings:	8-May-08	8924	25.0	978.0
Shipped Zero Readings:	24-Jun-08	8930	21.1	1023.7

Li, Lc = initial (at installation) and current readings
Ti, Tc = initial (at installation) and current temperature, in °C
Bi, Bc = initial (at installation) and current barometric pressure readings, in millibars
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts
B units = Hz^2 / 1000 ie: 1700Hz = 2890 B units

Technician: C. Byerley CB Date: 24-Jun-08

Applied Science Technologists and Technicians of British Columbia
22724
AL CULLEY
ASCT

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Document Number: ELL0143F

Recycled
MIG0106A

Calibration Record

200 - 2050 Hartley Ave., Coquitlam, British Columbia, Canada V3K 6W5
Tel: 604.540.1100 • Fax: 604.540.1005 • Toll Free: 1.800.665.5599 (North America only)
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

Vibrating Wire Pressure Transducer

MW-MT-08-07
(artesian)
Depth : 30 m
Zero Reading
P: 8935.0 B
T = 6.8°C

Customer:	EBA Engineering Consultants - Yukon	
Model:	VW2100-0.7	
Serial Number:	**VW9494**	
Mfg Number:	08-13471	
Range:	700.0 kPa	
Date of Calibration:	16-Jul-08	
Temperature:	24.4 °C	
Barometric Pressure:	1000.3 millibars	
W.O. Number:	028084	
Cable Length:	35 meters	
Cable Colour Code:	Red / Black (Coil)	Green / White (Thermistor)
Cable Type:	EL380004	
Thermistor Type:	3 Kohms	

Applied Pressure (kPa)	First Reading (B units)	Applied Pressure (kPa)	Second Reading (B units)	Average Pressure (kPa)	Average Readings (B units)	Calculated Linear (kPa)	Linearity F.S. Error (%)	Polynomial Fit (% FS)
0.0	8861	0.0	8861	0.0	8861	1.1	0.15	0.03
140.0	8093	140.0	8093	140.0	8093	139.4	-0.08	-0.06
280.0	7316	280.0	7316	280.0	7316	279.4	-0.09	0.01
420.0	6538	420.0	6539	420.0	6539	419.4	-0.08	0.01
560.0	5758	560.0	5758	560.0	5758	560.0	0.00	0.03
700.0	4977	700.0	4977	700.0	4977	700.7	0.10	-0.02
						Max. Error (%):	0.15	0.06

Linear Calibration Factor:	**C.F.=**	**0.18013 kPa/B unit**
Regression Zero:	**At Calibration Bi =**	**8867.0 B unit**
Temperature Correction Factor:	**Tk =**	**0.0294 kPa/°C rise**

Polynomial Gage Factors (kPa) A: -4.2049E-07 B: -0.17431 C: 1577.8

Pressure is calculated with the following equations:
Linear, P(kPa) = C.F. X (Li - Lc) - [Tk (Ti - Tc)] + [0.10 (Bi - Bc)]
Polynomial: $P(kPa)=A(Lc)^2+BLc+C+Tk(Tc-Ti)-[0.10(Bc-Bi)]$

	Date (dd/mm/yr)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Factory Zero Readings:	18-Jul-08	8859	24.4	996.0
Shipped Zero Readings:	12-Aug-08	8861	24.1	1016.7

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AL CULLEY
ASCT

Li, Lc = initial (at installation) and current readings
Ti, Tc = initial (at installation) and current temperature, in °C
Bi, Bc = initial (at installation) and current barometric pressure readings, in millibars
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts
B units = Hz^2 / 1000 ie: 1700Hz = 2890 B units

Technician: C. Guilbeault Date: 13-Aug-08

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Calibration Record

200 - 2050 Hartley Ave., Coquitlam, British Columbia, Canada V3K 6W5
Tel: 604.540.1100 • Fax: 604.540.1005 • Toll Free: 1.800.665.5599 (North America only)
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

Vibrating Wire Pressure Transducer

MW-MT-08-08

Depth : 103 m

Zero Reading
p: 9087.7
T= 42 °C

Customer:		EBA Consultants-Yukon
Model:		VW2100-3.0
Serial Number:		**VW9510**
Mfg Number		08-11103
Range:		3.0 MPa
Date of Calibration:		2-Jul-08
Temperature:		24.3 °C
Barometric Pressure:		991.3 millibars
W.O. Number:		028101
Cable Length:		110 meters
Cable Colour Code:	Red / Black (Coil)	Green / White (Thermistor)
Cable Type:		EL380004
Thermistor Type:		3 Kohms

Applied Pressure (MPa)	First Reading (B units)	Applied Pressure (MPa)	Second Reading (B units)	Average Pressure (MPa)	Average Readings (B units)	Calculated Linear (MPa)	Linearity F.S. Error (%)	Polynomial Fit (% FS)
0.000	9071	0.000	9071	0.000	9071	0.006	0.20	-0.02
0.600	8335	0.600	8335	0.600	8335	0.599	-0.03	0.02
1.200	7595	1.200	7595	1.200	7595	1.196	-0.15	0.03
1.800	6851	1.800	6854	1.800	6853	1.794	-0.20	-0.02
2.400	6104	2.400	6103	2.400	6104	2.398	-0.08	-0.03
3.000	5347	3.000	5347	3.000	5347	3.007	0.24	0.02
						Max. Error (%):	0.24	0.03

Linear Calibration Factor:	**C.F.=**	**0.00080591 MPa/B unit**
Regression Zero:	**At Calibration Bi =**	**9078.5 B unit**
Temperature Correction Factor:	**Tk =**	**0.0003062 MPa/°C rise**

Polynomial Gage Factors (MPa) A: -3.5962E-09 B: -0.00075405 C: 7.1354

Pressure is calculated with the following equations:
Linear, P(MPa) = C.F. X (Li - Lc) - [Tk (Ti - Tc)] + { 0.00010 (Bi - Bc) }
Polynomial: $P(MPa)=A(Lc)^2+BLc+C+Tk(Tc-Ti)-[0.00010(Bc-Bi)]$

	Date (dd/mm/yr)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Factory Zero Readings:	25-Jul-08	9065	25.5	998.7
Shipped Zero Readings:	18-Aug-08	9076	23.9	1008.1

Applied Science Technologists and Technicians of British Columbia
22724
A. C.
AL CULLEY
ASCT

Li, Lc = initial (at installation) and current readings
Ti, Tc = initial (at installation) and current temperature, in °C
Bi, Bc = initial (at installation) and current barometric pressure readings, in millibars
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts
B units = Hz^2 / 1000 ie: 1700Hz = 2890 B units

Technician: Z. Soos ZS Date: 18-Aug-08

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1

Document Number: ELL0143F

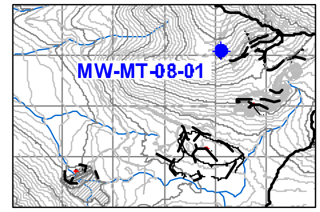
Recycled
MIG0106A

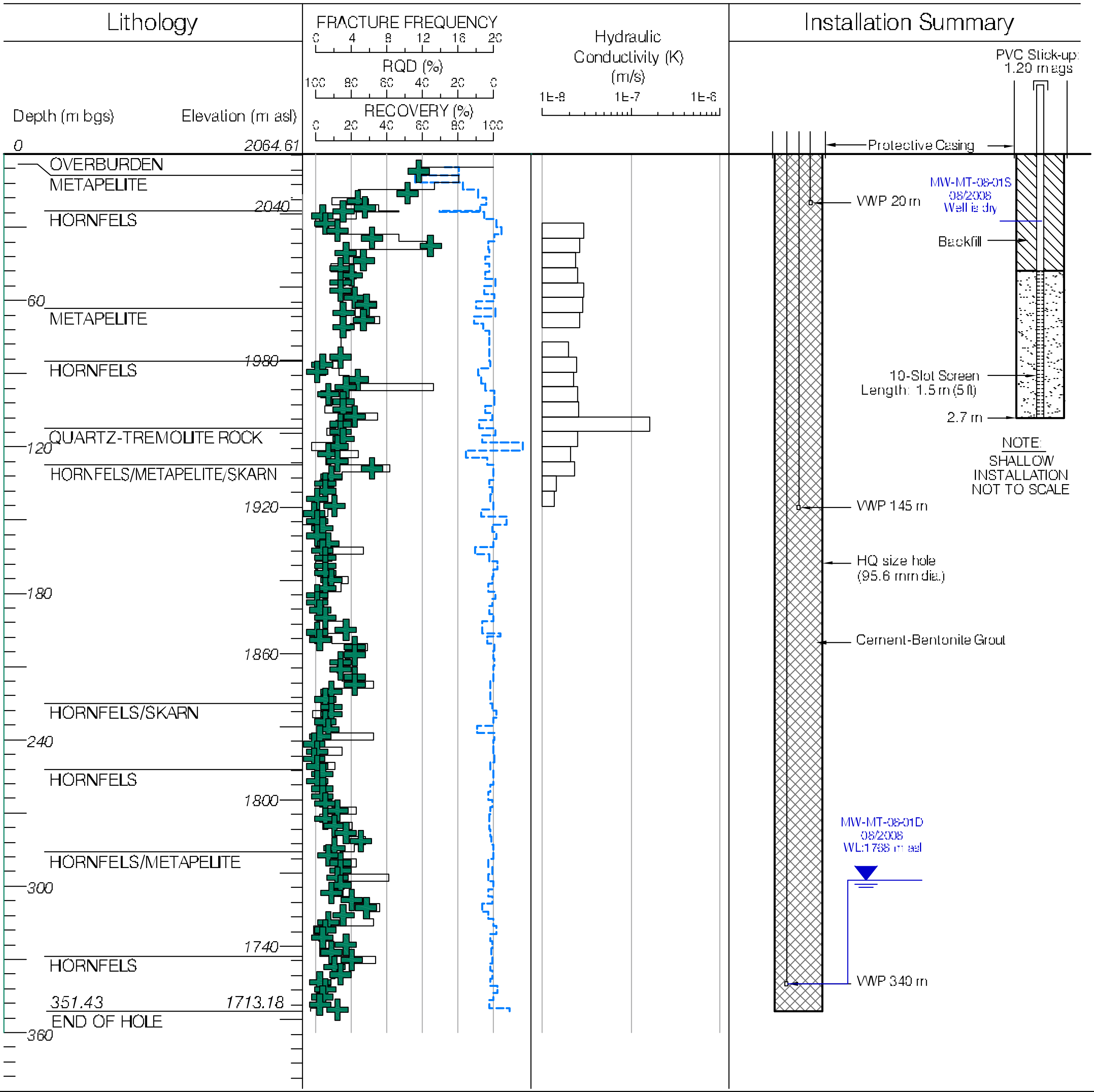
APPENDIX B

APPENDIX B WELL LOGS AND HYDROGEOLOGY CORE LOGGING DATA

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-01
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	2064.61 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7017550 N;
DRILL DATE:	July 20, 2008		441562 E
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-85°





Lithology
Depth (m bgs)
Elevation (m asl)
0
2064.61
OVERBURDEN
METAPELITE
2040
HORNFELS
60
METAPELITE
1980
HORNFELS
QUARTZ-TREMOLITE ROCK
120
HORNFELS/METAPELITE/SKARN
1920
180
1860
HORNFELS/SKARN
240
HORNFELS
1800
HORNFELS/METAPELITE
300
1740
HORNFELS
351.43
1713.18
END OF HOLE
360
FRACTURE FREQUENCY
0 4 8 12 16 20
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-8 1E-7 1E-6
Installation Summary
PVC Stick-up: 1.20 m ags
Protective Casing
MW-MT-08-01S
08/2008
Well is dry
VWP 20 m
Backfill
10-Slot Screen Length: 1.5 m (5 ft)
2.7 m
NOTE: SHALLOW INSTALLATION NOT TO SCALE
VWP 145 m
HQ size hole (95.6 mm dia.)
Cement-Bentonite Grout
MW-MT-08-01D
08/2008
WL:1788 m asl
VWP 340 m

LEGEND

- ✚ Fracture Frequency (No. Fractures/m)
- - - - Recovery (%)
- —— Rock Quality Designation (RQD; %)
- VWP Vibrating Wire Piezometer

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

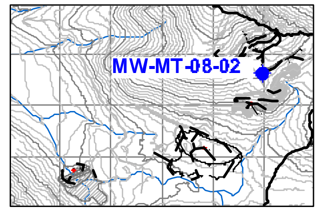
BOREHOLE LOG
MW-MT-08-01

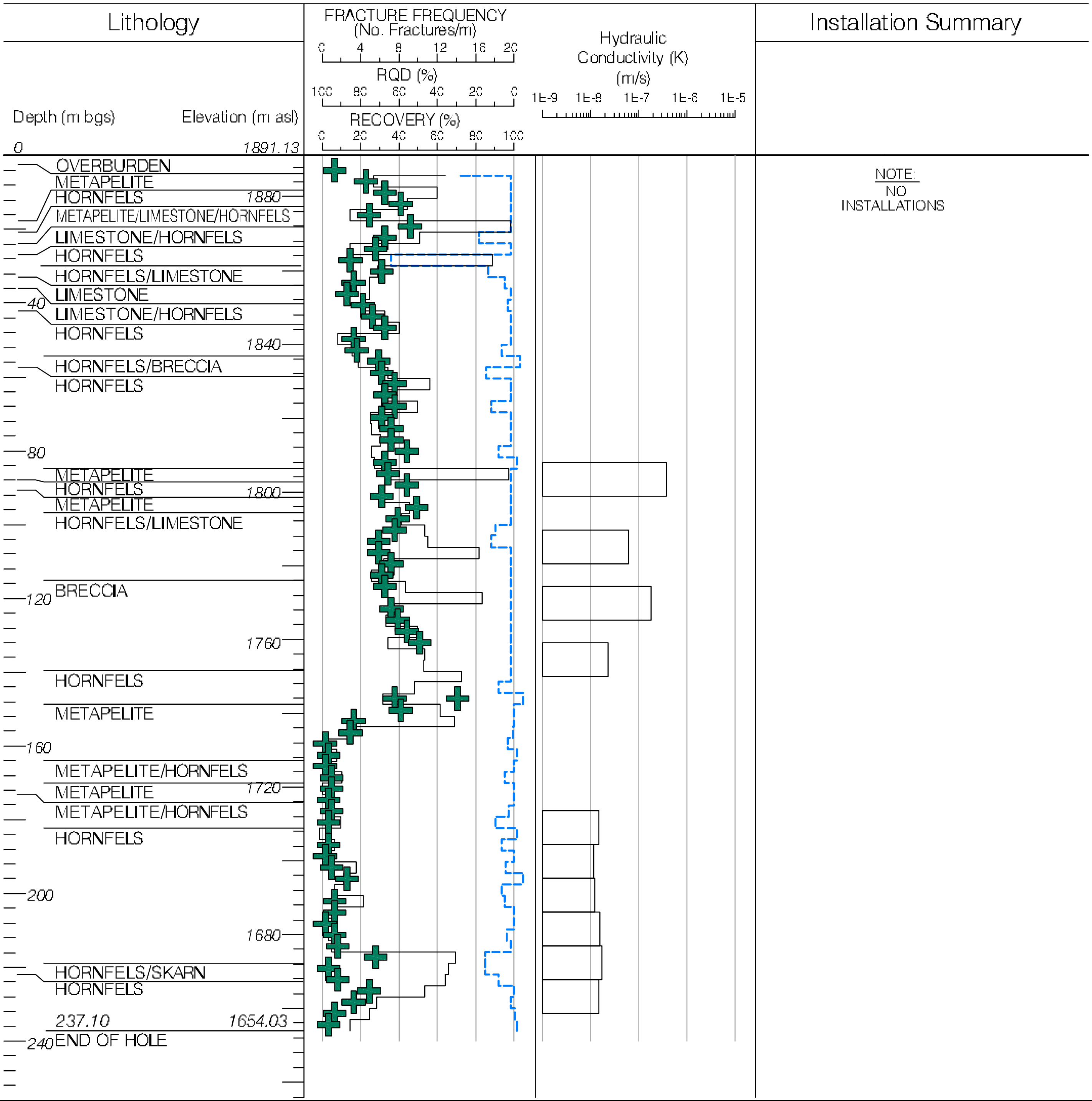
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B1

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-02
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1891.13 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7017313.55 N; 442000.27 E
DRILL DATE:	August 2, 2008		
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-85°





Lithology
FRACTURE FREQUENCY (No. Fractures/m)
0 4 8 12 16 20
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-9 1E-8 1E-7 1E-6 1E-5
Installation Summary
Depth (m bgs)
Elevation (m asl)
0
1891.13
OVERBURDEN
METAPELITE
HORNFELS
1880
METAPELITE/LIMESTONE/HORNFELS
LIMESTONE/HORNFELS
HORNFELS
HORNFELS/LIMESTONE
LIMESTONE
40
LIMESTONE/HORNFELS
HORNFELS
1840
HORNFELS/BRECCIA
HORNFELS
80
METAPELITE
HORNFELS
1800
METAPELITE
HORNFELS/LIMESTONE
BRECCIA
120
1760
HORNFELS
METAPELITE
160
METAPELITE/HORNFELS
METAPELITE
1720
METAPELITE/HORNFELS
HORNFELS
200
1680
HORNFELS/SKARN
HORNFELS
237.10
1654.03
240
END OF HOLE
NOTE:
NO
INSTALLATIONS

LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

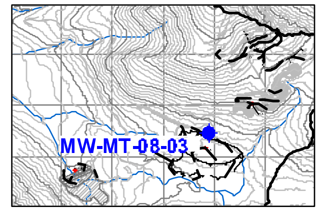
BOREHOLE LOG
MW-MT-08-02

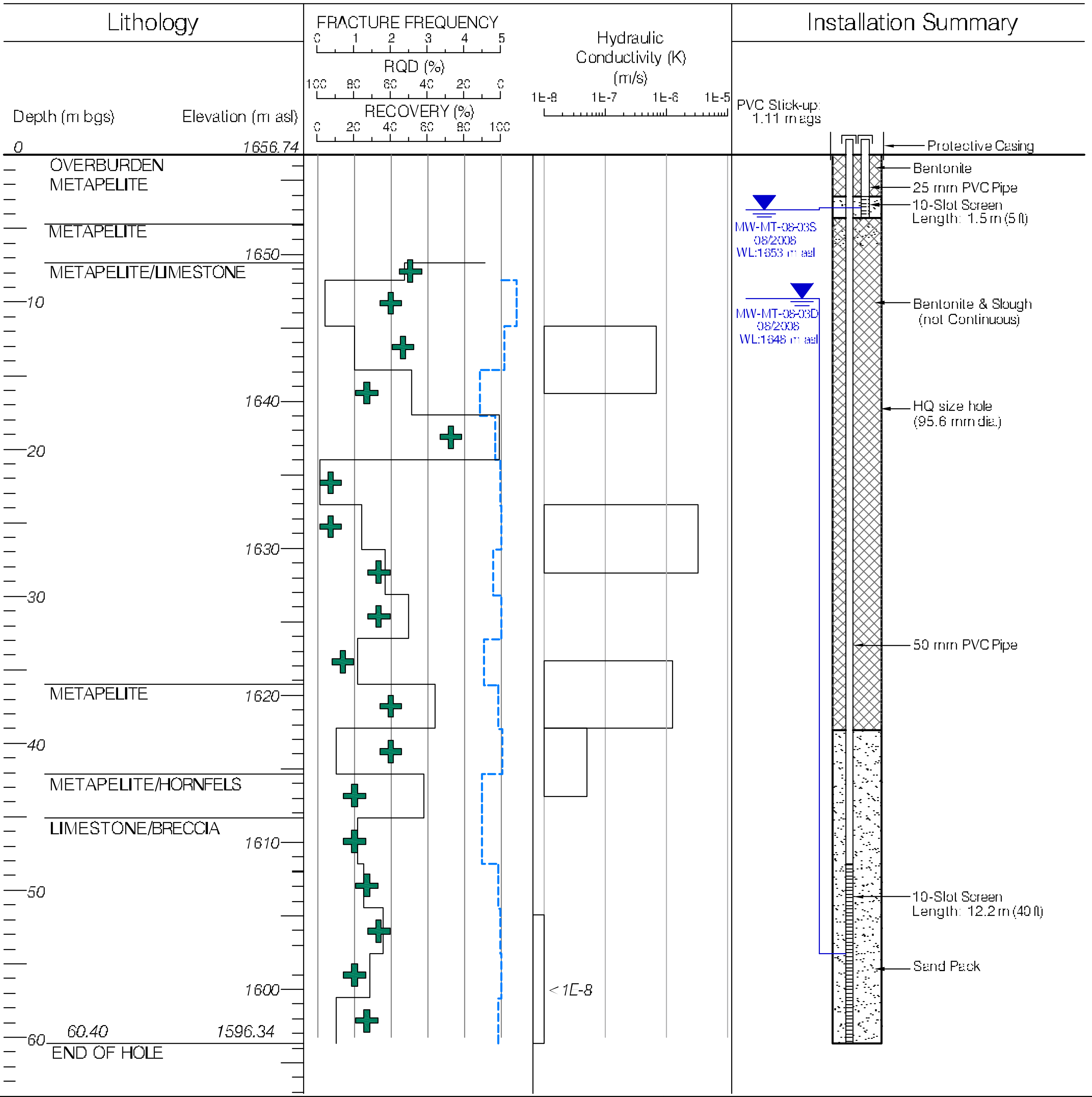
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B2

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-03
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1656.74 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7016723 N; 441451 E
DRILL DATE:	August 5, 2008		
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-85°





Lithology
Depth (m bgs)
Elevation (m asl)
0
1656.74
OVERBURDEN
METAPELITE
METAPELITE
1650
METAPELITE/LIMESTONE
10
1640
20
1630
30
METAPELITE
1620
40
METAPELITE/HORNFELS
LIMESTONE/BRECCIA
1610
50
1600
60
60.40
1596.34
END OF HOLE
FRACTURE FREQUENCY
0 1 2 3 4 5
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-8 1E-7 1E-6 1E-5
<1E-8
Installation Summary
PVC Stick-up: 1.11 m ags
Protective Casing
Bentonite
25 mm PVC Pipe
10-Slot Screen Length: 1.5 m (5 ft)
MW-MT-08-03S 08/2008 WL:1653 m asl
MW-MT-08-03D 08/2008 WL:1648 m asl
Bentonite & Slough (not Continuous)
HQ size hole (95.6 mm dia.)
50 mm PVC Pipe
10-Slot Screen Length: 12.2 m (40 ft)
Sand Pack

LEGEND

- ✚ Fracture Frequency (No. Fractures/m)
- - - - Recovery (%)
- —— Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd. eba

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

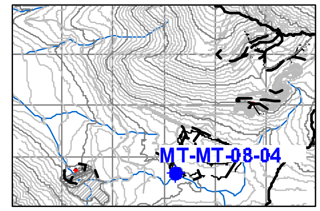
BOREHOLE LOG
MW-MT-08-03

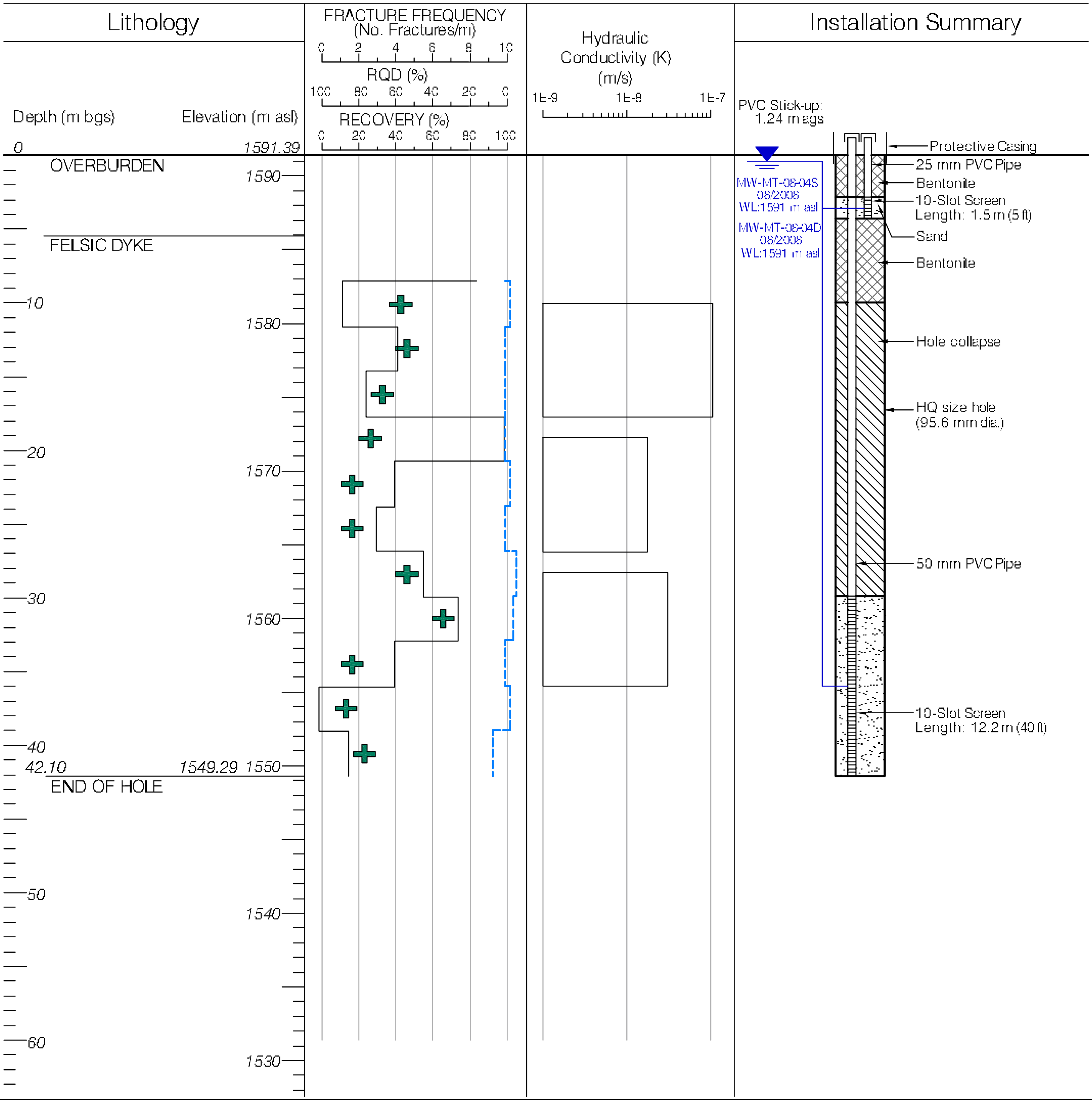
PROJECT NO.	DWN	CKD	REV
W231010210203	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B3

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-04
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1591.39 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7016322 N; 441117 E
DRILL DATE:	August 6, 2008		
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-85°





Lithology
Depth (m bgs)
Elevation (m asl)
0
1591.39
OVERBURDEN
FELSIC DYKE
END OF HOLE
10
20
30
40
42.10
1549.29
50
60
1590
1580
1570
1560
1550
1540
1530
FRACTURE FREQUENCY (No. Fractures/m)
0 2 4 6 8 10
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-9
1E-8
1E-7
Installation Summary
PVC Stick-up: 1.24 m ags
MW-MT-08-04S 08/2008 WL:1591 m asl
MW-MT-08-04D 08/2008 WL:1591 m asl
Protective Casing
25 mm PVC Pipe
Bentonite
10-Slot Screen Length: 1.5 m (5 ft)
Sand
Bentonite
Hole collapse
HQ size hole (95.6 mm dia.)
50 mm PVC Pipe
10-Slot Screen Length: 12.2 m (40 ft)

LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

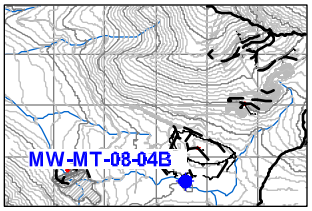
DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

BOREHOLE LOG
MW-MT-08-04

PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B4

BOREHOLE LOG



PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-04B
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1599.29 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7016264 N;
DRILL DATE:	August 17, 2008		441296 E
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-90°

Lithology

Depth (m bgs) / Elevation (m asl)

0 — 1599.29 — OVERBURDEN

METAPELITE

10 — 1590

20 — 1580

30 — 1570

39.55 — 1559.74 — 1560

40 — END OF HOLE

50 — 1550

60 — 1540

FRACTURE FREQUENCY (No. Fractures/m)

0 1 2 3 4 5

RQD (%)

100 80 60 40 20 0

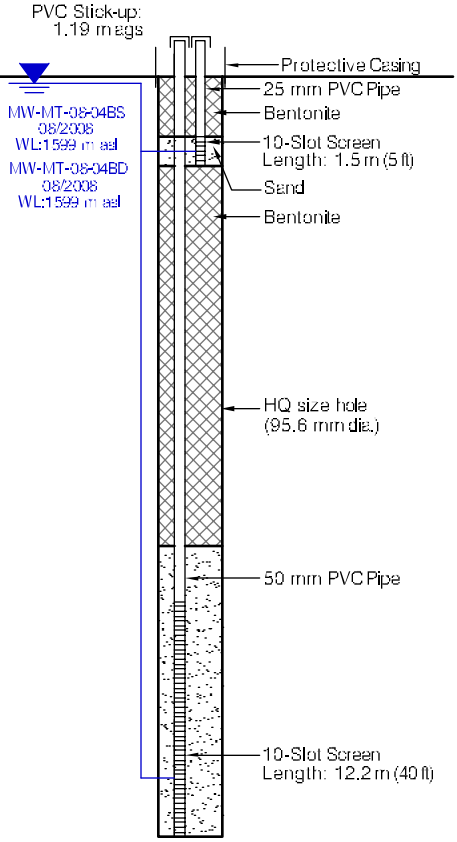
RECOVERY (%)

0 20 40 60 80 100

Hydraulic Conductivity (K) (m/s)

1E-8 1E-7 1E-6 1E-5

Installation Summary



LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

BOREHOLE LOG
MW-MT-08-04B

EBA Engineering Consultants Ltd.

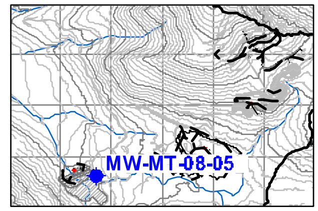
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

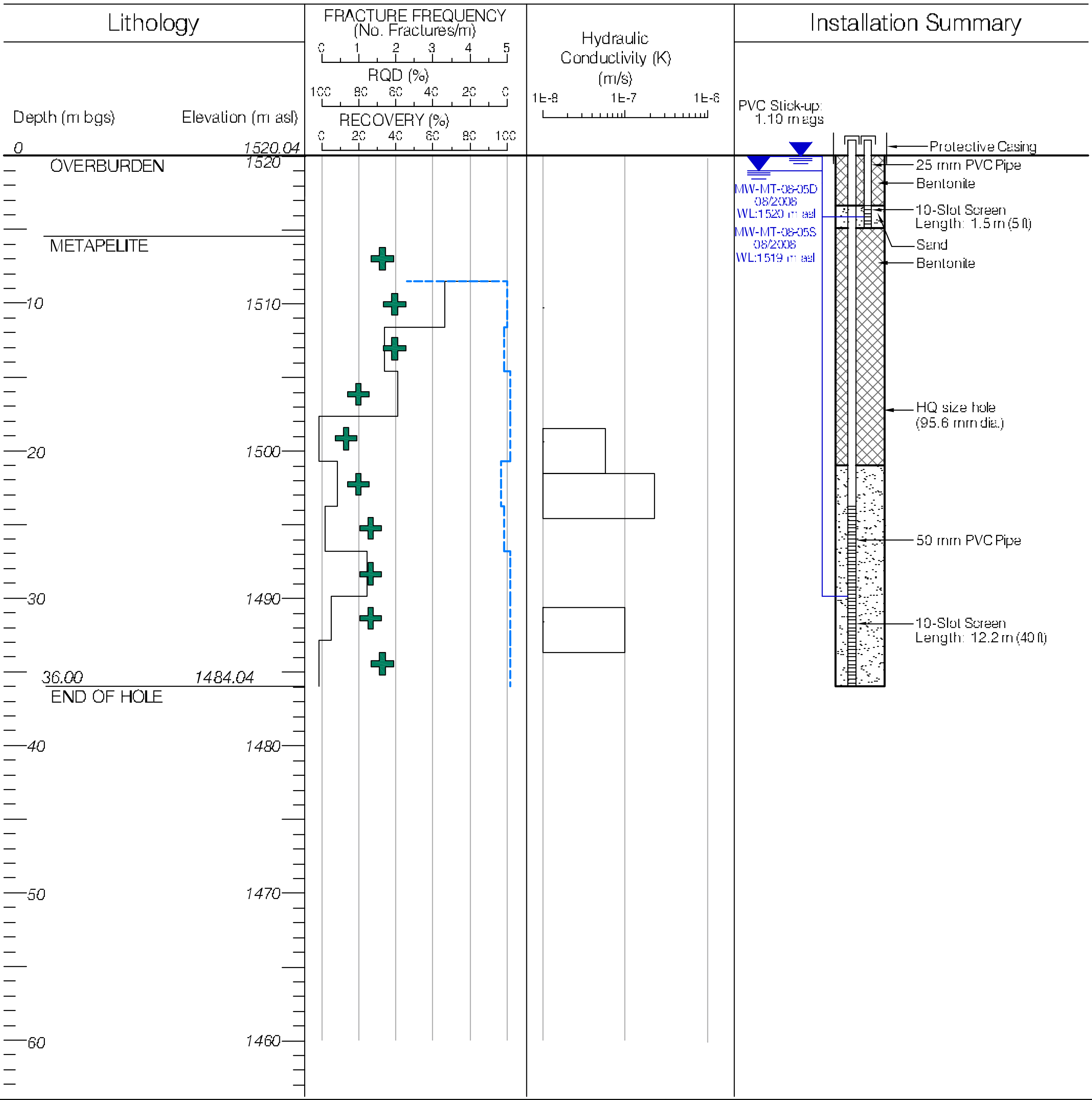
Figure B5

BOREHOLE LOG

PROJECT NAME: Detailed Hydrogeological Assessment
LOCATION: Mactung Property
CLIENT: North American Tungsten Corporation Ltd.
DRILL TYPE: DDH - DJ Drilling
DRILL DATE: August 8, 2008
DRILL SIZE: HQ

BOREHOLE NO.: MW-MT-08-05
PROJECT NO.: W23101021.023
GROUND ELEVATION: 1520.04 m asl
UTM (NAD27, Zone 9): 7016297 N; 440346 E
TREND/PLUNGE: 0°/-85°





Lithology
FRACTURE FREQUENCY (No. Fractures/m)
0 1 2 3 4 5
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-8 1E-7 1E-6
Installation Summary
Depth (m bgs)
Elevation (m asl)
0
1520.04
1520
OVERBURDEN
METAPELITE
10
1510
20
1500
30
1490
36.00
1484.04
END OF HOLE
40
1480
50
1470
60
1460
PVC Stick-up: 1.10 m ags
Protective Casing
25 mm PVC Pipe
Bentonite
10-Slot Screen Length: 1.5 m (5 ft)
Sand
Bentonite
MW-MT-08-05D 08/2008 WL:1520 m asl
MW-MT-08-05S 08/2008 WL:1519 m asl
HQ size hole (95.6 mm dia.)
50 mm PVC Pipe
10-Slot Screen Length: 12.2 m (40 ft)

LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)

CLIENT: NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd. eba

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

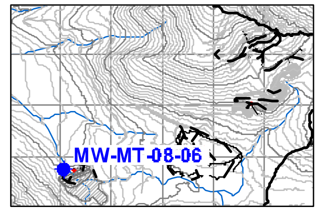
BOREHOLE LOG
MW-MT-08-05

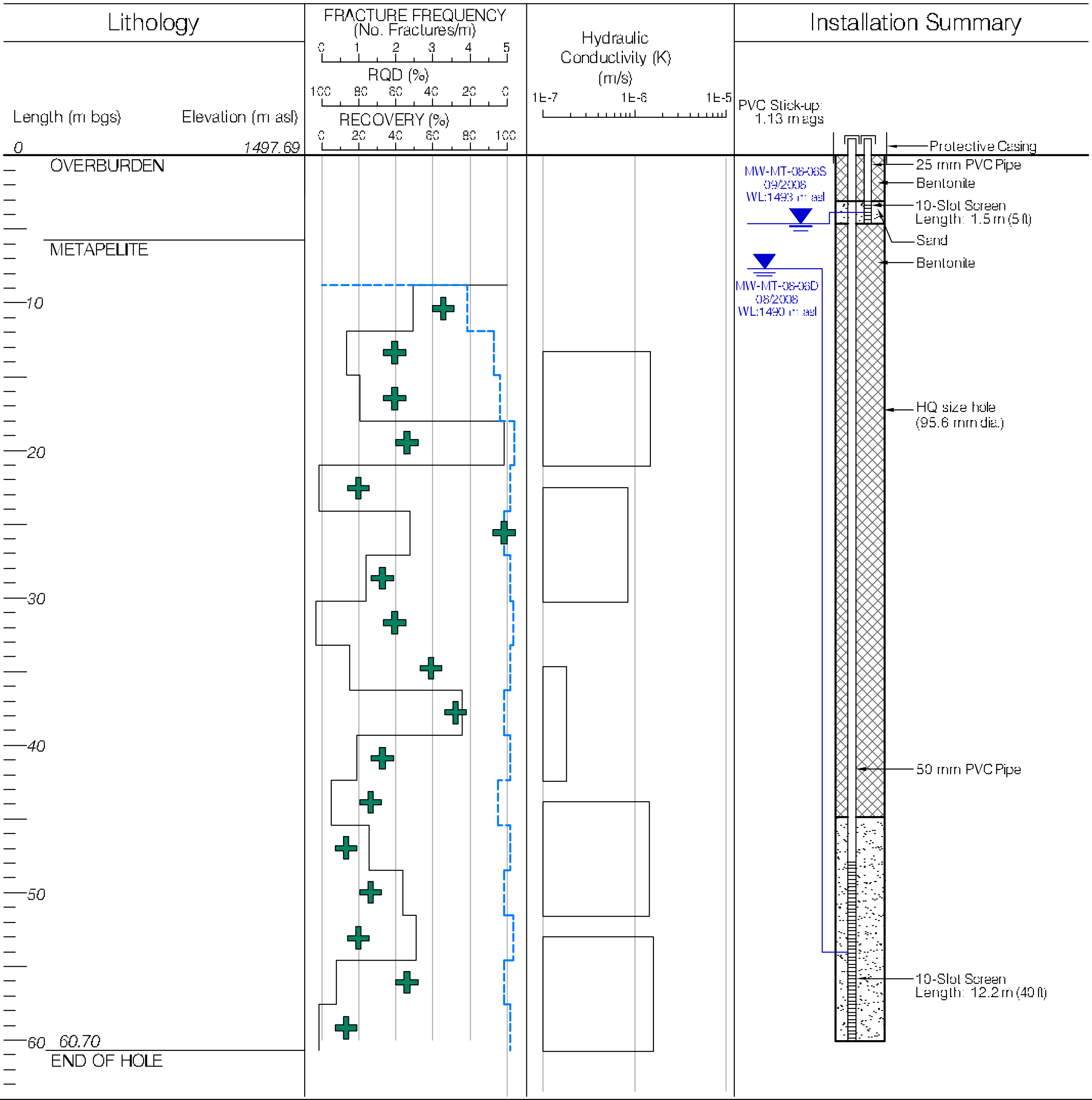
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B6

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-06
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1497.69 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7016363 N; 440021 E
DRILL DATE:	August 12, 2008		
DRILL SIZE:	HQ	TREND/PLUNGE:	45°/-70°





Lithology
Length (m bgs)
Elevation (m asl)
0
1497.69
OVERBURDEN
METAPELITE
10
20
30
40
50
60
60.70
END OF HOLE
FRACTURE FREQUENCY (No. Fractures/m)
0 1 2 3 4 5
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-7 1E-6 1E-5
Installation Summary
PVC Stick-up: 1.13 m ags
Protective Casing
25 mm PVC Pipe
Bentonite
10-Slot Screen Length: 1.5 m (5 ft)
Sand
Bentonite
MW-MT-08-06S 09/2008 WL:1493 m asl
MW-MT-08-06D 08/2008 WL:1490 m asl
HQ size hole (95.6 mm dia.)
50 mm PVC Pipe
10-Slot Screen Length: 12.2 m (40 ft)

LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

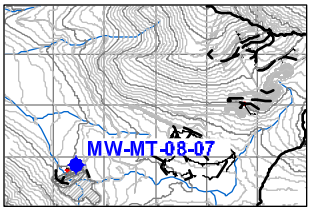
DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

BOREHOLE LOG
MW-MT-08-06

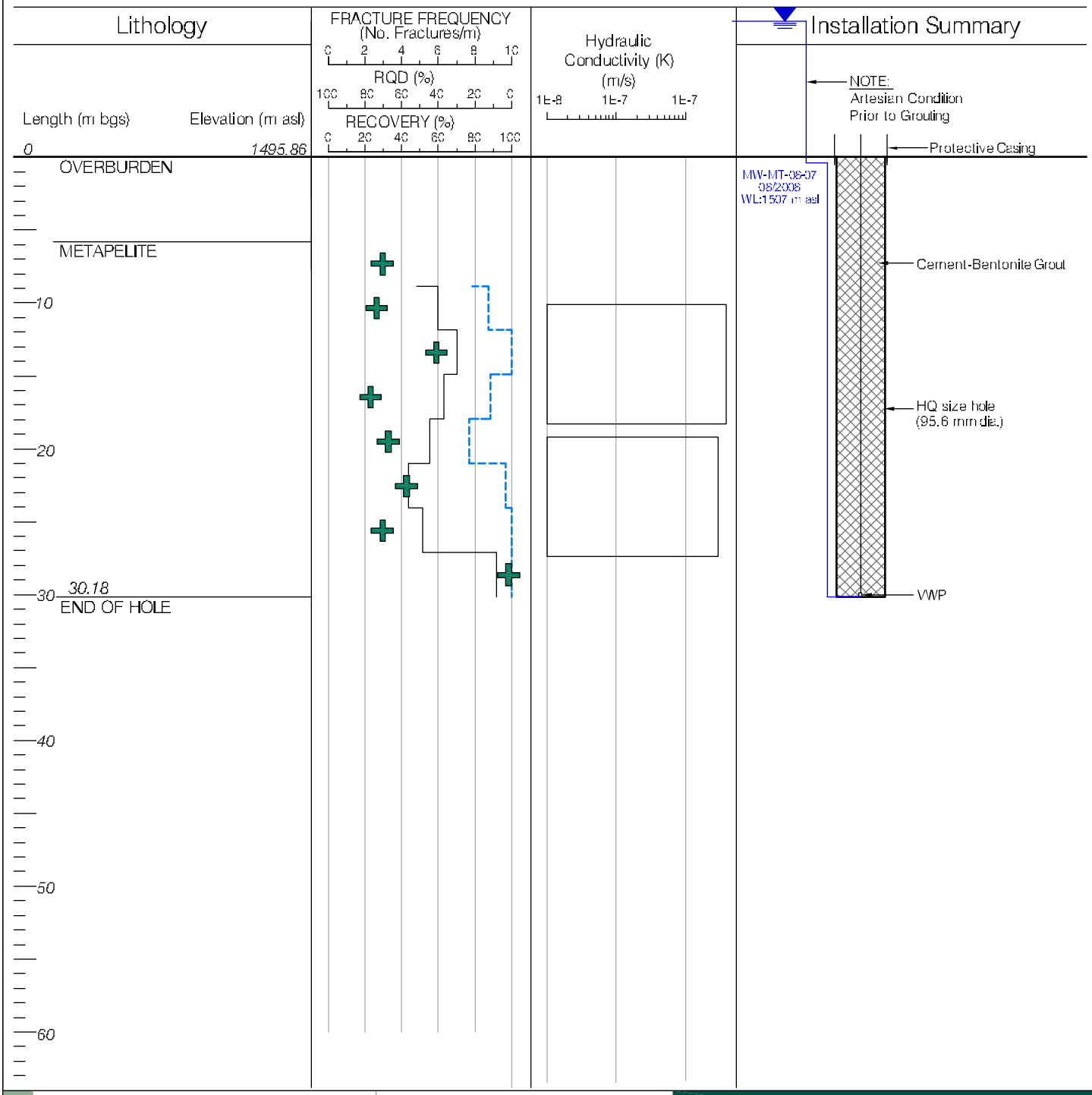
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B7

BOREHOLE LOG



PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	HYD-MT-08-07
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1495.86 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 9):	7016426 N;
DRILL DATE:	August 17, 2008		440161 E
DRILL SIZE:	HQ	TREND/PLUNGE:	225°/-70°



LEGEND

- Fracture Frequency (No. Fractures/m)
- Recovery (%)
- Rock Quality Designation (RQD; %)
- VWP Vibrating Wire Piezometer

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

BOREHOLE LOG
MW-MT-08-07

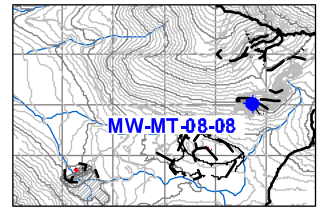
EBA Engineering Consultants Ltd.

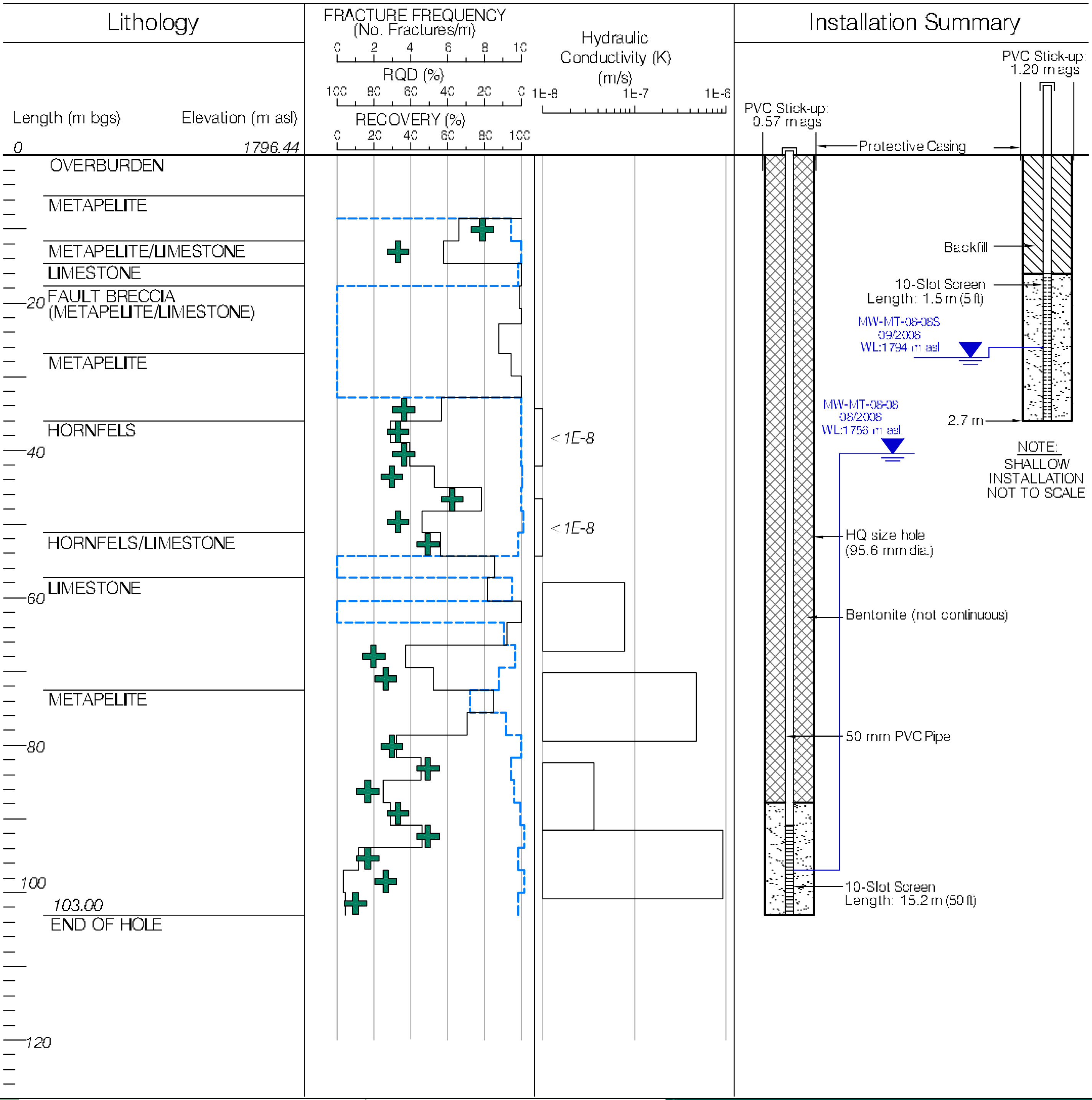
PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE: WHSE	DATE: OCTOBER 20, 2008		

Figure B8

BOREHOLE LOG

PROJECT NAME:	Detailed Hydrogeological Assessment	BOREHOLE NO.:	MW-MT-08-08
LOCATION:	Mactung Property	PROJECT NO.:	W23101021.023
CLIENT:	North American Tungsten Corporation Ltd.	GROUND ELEVATION:	1796.44 m asl
DRILL TYPE:	DDH - DJ Drilling	UTM (NAD27, Zone 8):	7017018 N;
DRILL DATE:	August 16, 2008		441876 E
DRILL SIZE:	HQ	TREND/PLUNGE:	0°/-70°





Lithology
FRACTURE FREQUENCY (No. Fractures/m)
0 2 4 6 8 10
RQD (%)
100 80 60 40 20 0
RECOVERY (%)
0 20 40 60 80 100
Hydraulic Conductivity (K) (m/s)
1E-8 1E-7 1E-6
Installation Summary
Length (m bgs)
Elevation (m asl)
0
1796.44
OVERBURDEN
METAPELITE
METAPELITE/LIMESTONE
LIMESTONE
20
FAULT BRECCIA (METAPELITE/LIMESTONE)
METAPELITE
HORNFELS
40
HORNFELS/LIMESTONE
LIMESTONE
60
METAPELITE
80
100
103.00
END OF HOLE
120
< 1E-8
< 1E-8
PVC Stick-up: 0.57 m ags
PVC Stick-up: 1.20 m ags
Protective Casing
Backfill
10-Slot Screen Length: 1.5 m (5 ft)
MW-MT-08-08S 09/2008 WL:1794 m asl
2.7 m
MW-MT-08-08 09/2008 WL:1756 m asl
NOTE: SHALLOW INSTALLATION NOT TO SCALE
HQ size hole (95.6 mm dia.)
Bentonite (not continuous)
50 mm PVC Pipe
10-Slot Screen Length: 15.2 m (50 ft)

LEGEND

- ✚ Fracture Frequency (No. Fractures/m)
- - - - Recovery (%)
- —— Rock Quality Designation (RQD; %)

CLIENT

NORTH AMERICAN TUNGSTEN CORPORATION LTD

EBA Engineering Consultants Ltd.

DETAILED HYDROGEOLOGICAL ASSESSMENT
MACTUNG PROJECT, MACMILLAN PASS, YT

BOREHOLE LOG
MW-MT-08-08

PROJECT NO.	DWN	CKD	REV
W23101021.023	KJT	SK	0
OFFICE	DATE		
WHSE	OCTOBER 20, 2008		

Figure B9

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-01

Client: North American Tungsten Corp
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: SK

Northing: 7017550
Easting: 441562
Elevation: 2065 m asl
Trend: 0
Plunge: -85

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
5.49	4.73	1.52	13	1	Metapelite	1.10	72	0.00	0	-	-	-
8.53	7.01	3.05	28	2	Metapelite	2.45	80	1.28	42	36	12	-
11.58	10.06	3.05	38	3	Metapelite	1.71	56	0.60	20	-	-	-
14.63	13.11	3.05	48	4	Metapelite	2.53	83	1.01	33	-	-	3
17.68	16.16	3.05	58	5	Metapelite	2.78	91	2.32	76	32	10	5
20.73	19.21	3.05	68	6	Metapelite	2.93	96	2.78	91	15	5	6
23.16	21.94	2.44	76	7	Metapelite	2.25	92	1.58	65	14	6	5
23.77	23.47	0.61	78	8	Hornfels	0.43	70	0.33	53	2	3	1
26.82	25.30	3.05	88	9	Hornfels	2.88	94	2.35	77	3	1	10
29.87	28.35	3.05	98	10	Hornfels	3.10	102	3.06	100	4	1	5
32.92	31.40	3.05	108	11	Metapelite	3.18	104	2.83	93	8	3	7
35.97	34.45	3.05	118	12	Hornfels	3.06	100	1.62	53	20	7	4
39.01	37.49	3.05	128	13	Metapelite	2.96	97	1.16	38	40	13	3
42.06	40.54	3.05	138	14	Hornfels	2.98	98	2.48	81	11	4	5
45.11	43.59	3.05	148	15	Metapelite	2.91	95	2.18	71	17	6	6
48.16	46.64	3.05	158	16	Hornfels	2.97	97	2.79	91	9	3	3
51.21	49.69	3.05	168	17	Hornfels	2.91	95	2.36	77	13	4	2
54.25	52.73	3.05	178	18	Hornfels	3.08	101	2.55	84	9	3	2
57.30	55.78	3.05	188	19	Hornfels	2.89	95	2.66	87	9	3	6
60.35	58.83	3.05	198	20	Hornfels	3.06	100	2.40	79	14	5	8
63.40	61.88	3.05	208	21	Hornfels	2.75	90	2.01	66	18	6	6
66.45	64.93	3.05	218	22	Metapelite	3.08	101	2.37	78	10	3	12
69.49	67.97	3.05	228	23	Metapelite	2.71	89	1.96	64	17	6	6
72.54	71.02	3.05	238	24	Metapelite	2.87	94	2.47	81	10	3	9
-	-	-	248	25	Core box dropped and core lost	-	-	-	-	-	-	-
-	-	-	258	26		-	-	-	-	-	-	-
-	-	-	268	27		-	-	-	-	-	-	-
84.73	83.21	3.05	278	28	Metapelite	2.97	97	2.62	86	9	3	9
87.78	86.26	3.05	288	29	Hornfels	2.99	98	2.77	91	3	1	9
90.83	89.31	3.05	298	30	Hornfels	2.79	91	2.65	87	1	0	10
93.88	92.36	3.05	308	31	Talc-Tremolite Rock	2.84	93	2.48	81	15	5	6
96.92	95.40	3.05	318	32	Talc-Tremolite Rock	2.91	95	1.03	34	11	4	18
99.97	98.45	3.05	328	33	Talc-Tremolite Rock	3.06	100	2.96	97	5	2	4
103.02	101.50	3.05	338	34	Talc-Tremolite Rock	3.06	100	2.77	91	10	3	2
106.07	104.55	3.05	348	35	Talc-Tremolite Rock	2.91	95	2.89	95	10	3	11
109.11	107.59	3.05	358	36	Talc-Tremolite Rock	3.02	99	2.00	66	14	5	3
112.17	110.65	3.05	368	37	Talc-Tremolite Rock	2.80	92	2.70	89	9	3	12
115.21	113.69	3.05	378	38	Quartz-Tremolite Rock	3.08	101	2.86	94	9	3	6
118.26	116.74	3.05	388	39	Quartz-Tremolite Rock	2.86	94	2.66	87	10	3	6
121.31	119.79	3.05	398	40	Quartz-Tremolite Rock	3.55	116	3.12	102	8	3	7
124.36	122.84	3.05	408	41	Quartz-Tremolite Rock	2.58	85	2.32	76	5	2	8
127.41	125.89	3.05	418	42	Quartz-Tremolite Rock	2.94	96	2.71	89	8	3	9
130.45	128.93	3.05	428	43	Hornfels	3.04	100	1.79	59	20	7	9
133.50	131.98	3.05	438	44	Hornfels	3.04	100	2.61	86	6	2	15
136.55	135.03	3.05	448	45	Skarn / Hornfels	2.98	98	2.98	98	4	1	7
139.60	138.08	3.05	458	46	Hornfels	3.03	99	2.97	97	4	1	7
142.65	141.13	3.05	468	47	Skarn / Quartz	3.00	98	3.00	98	1	0	10
145.69	144.17	3.05	478	48	Skarn / Hornfels	3.04	100	2.77	91	7	2	4
148.74	147.22	3.05	488	49	Hornfels/skarn	2.84	93	2.84	93	0	0	8
151.79	150.27	3.05	498	50	Skarn / Limestone	3.28	108	3.28	108	1	0	10
154.84	153.32	3.05	508	51	Hornfels/skarn	3.02	99	3.02	99	3	1	10
157.89	156.37	3.05	518	52	Skarn / Hornfels	3.09	101	3.09	101	1	0	11
160.93	159.41	3.05	528	53	Hornfels / Skarn	3.05	100	3.05	100	5	2	11
163.98	162.46	3.05	538	54	Hornfels / Skarn / Metapelite	2.73	90	2.24	73	3	1	10
167.03	165.51	3.05	548	55	Hornfels / Skarn	2.97	97	2.77	91	4	1	17
170.08	168.56	3.05	558	56	Hornfels	3.12	102	3.05	100	4	1	12
173.13	171.61	3.05	568	57	Hornfels / Metapelite	3.05	100	3.02	99	4	1	11
176.17	174.65	3.05	578	58	Hornfels / Metapelite	3.02	99	2.50	82	6	2	17
179.22	177.70	3.05	588	59	Hornfels / Skarn / Metapelite	2.96	97	2.62	86	4	1	14

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
182.27	180.75	3.05	598	60	Hornfels / Metapelite / Skarn	3.08	101	3.08	101	1	0	20
185.32	183.80	3.05	608	61	Hornfels / Skarn	3.03	99	3.03	99	1	0	12
188.37	186.85	3.05	618	62	Skarn / Quartz / Hornfels	2.97	97	2.92	96	2	1	11
191.41	189.89	3.05	628	63	Hornfels/skarn	3.05	100	2.84	93	4	1	5
196.46	194.94	3.05	638	64	Hornfels / Metapelite	2.86	94	2.51	82	11	4	6
197.51	195.99	3.05	648	65	Hornfels / Metapelite	3.16	104	3.16	104	1	0	8
200.56	199.04	3.05	658	66	Hornfels / Skarn / Metapelite	2.94	96	2.78	91	2	1	10
203.61	202.09	3.05	668	67	Hornfels / Metapelite	3.06	100	2.16	71	14	5	2
206.65	205.13	3.05	678	68	Hornfels / Metapelite	3.05	100	2.55	84	14	5	7
209.70	208.18	3.05	688	69	Hornfels / Metapelite	3.07	101	2.46	81	9	3	9
212.75	211.23	3.05	698	70	Hornfels / Metapelite / Skarn	3.04	100	2.69	88	9	3	4
215.80	214.28	3.05	708	71	Hornfels / Metapelite	3.05	100	2.60	85	14	5	5
218.85	217.33	3.05	718	72	Hornfels / Metapelite / Skarn	2.99	98	2.06	68	14	5	9
221.89	220.37	3.05	728	73	Hornfels / Metapelite / Skarn	2.99	98	2.78	91	6	2	7
224.94	223.42	3.05	738	74	Hornfels / Metapelite / Skarn	2.99	98	2.96	97	4	1	9
227.99	226.47	3.05	748	75	Hornfels / Skarn	3.02	99	2.95	97	6	2	8
231.04	229.52	3.05	758	76	Hornfels / Skarn	3.10	102	3.10	102	6	2	10
234.09	232.57	3.05	768	77	Skarn / Quartz / Hornfels	3.04	100	2.94	96	4	1	16
237.13	235.61	3.05	778	78	Hornfels / Skarn	2.77	91	2.77	91	5	2	17
240.18	238.66	3.05	788	79	Hornfels / Skarn	3.07	101	2.07	68	2	1	16
243.23	241.71	3.05	798	80	Skarn	3.05	100	3.05	100	0	0	13
246.28	244.76	3.05	808	81	Hornfels / Skarn	3.04	100	2.61	86	1	0	12
249.33	247.81	3.05	818	82	Hornfels / Skarn	3.06	100	3.06	100	0	0	5
252.37	250.85	3.05	828	83	Hornfels / Skarn	2.99	98	2.72	89	1	0	10
255.42	253.90	3.05	838	84	Hornfels	3.04	100	2.88	94	3	1	12
258.47	256.95	3.05	848	85	Hornfels	3.04	100	3.04	100	1	0	11
261.52	260.00	3.05	858	86	Hornfels	3.00	98	2.86	94	3	1	15
264.57	263.05	3.05	868	87	Hornfels	2.96	97	2.96	97	3	1	18
267.61	266.09	3.05	878	88	Hornfels	3.03	99	2.77	91	4	1	7
270.66	269.14	3.05	888	89	Hornfels	3.00	98	2.35	77	8	3	13
273.71	272.19	3.05	898	90	Hornfels	2.98	98	2.98	98	4	1	14
276.76	275.24	3.05	908	91	Hornfels	2.98	98	2.42	79	7	2	13
279.81	278.29	3.05	918	92	Hornfels	3.00	98	2.49	82	11	4	4
282.85	281.33	3.05	928	93	Hornfels	3.01	99	2.20	72	16	5	6
285.90	284.38	3.05	938	94	Hornfels	3.05	100	2.40	79	7	2	13
288.95	287.43	3.05	948	95	Hornfels / Metapelite	3.04	100	2.64	87	5	2	16
292.00	290.48	3.05	958	96	Hornfels / Metapelite	2.96	97	2.35	77	9	3	8
295.05	293.53	3.05	968	97	Hornfels / Metapelite	3.03	99	2.60	85	9	3	11
298.09	296.57	3.05	978	98	Hornfels / Metapelite	2.95	97	1.80	59	8	3	6
301.14	299.62	3.05	988	99	Hornfels / Metapelite	3.04	100	2.56	84	9	3	8
304.19	302.67	3.05	998	100	Hornfels / Metapelite	2.95	97	2.75	90	6	2	10
307.24	305.72	3.05	1008	101	Hornfels / Metapelite	3.03	99	2.40	79	13	4	3
310.29	308.77	3.05	1018	102	Hornfels / Metapelite	2.85	93	1.96	64	18	6	6
313.33	311.81	3.05	1028	103	Hornfels	2.95	97	2.13	70	10	3	7
316.38	314.86	3.05	1038	104	Hornfels / Metapelite	3.04	100	2.06	68	5	2	10
319.43	317.91	3.05	1048	105	Hornfels / Metapelite	3.09	101	3.09	101	4	1	10
322.48	320.96	3.05	1058	106	Hornfels	3.00	98	3.00	98	3	1	5
325.53	324.01	3.05	1068	107	Hornfels	3.02	99	2.76	90	11	4	6
328.57	327.05	3.05	1078	108	Hornfels / Metapelite	3.01	99	2.99	98	6	2	9
331.62	330.10	3.05	1088	109	Hornfels	3.02	99	2.03	67	13	4	6
334.67	333.15	3.05	1098	110	Hornfels	2.99	98	2.70	89	7	2	11
337.72	336.20	3.05	1108	111	Hornfels	3.02	99	2.72	89	9	3	8
340.77	339.25	3.05	1118	112	Hornfels / Skarn	3.00	98	2.80	92	2	1	11
343.81	342.29	3.05	1128	113	Hornfels	3.11	102	2.87	94	4	1	9
346.86	345.34	3.05	1138	114	Hornfels	3.04	100	3.04	100	3	1	10
349.91	348.39	3.05	1148	115	Hornfels	2.97	97	2.97	97	2	1	8
351.43	350.67	1.52	1153	116	Hornfels	1.66	109	1.57	103	4	3	4

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-02

Client: North American Tungsten Corp
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: SK

Northing: 7017314
Easting: 442000
Elevation: 1891 m asl
Trend: 0
Plunge: -85

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
5.50	3.98	3.05	18	1	Metapelite	2.20	72	1.10	36	4	1	23
8.50	6.98	3.05	28	2	Metapelite	3.00	98	2.23	73	14	5	21
11.60	10.08	3.05	38	3	Metapelite	3.00	98	1.22	40	20	7	>50
14.60	13.08	3.05	48	4	Metapelite	3.00	98	1.70	56	25	8	>50
17.70	16.18	3.05	58	5	Metapelite	3.00	98	2.60	85	15	5	13
20.70	19.18	3.05	68	6	Hornfels	3.00	98	1.90	2	28	9	12
23.80	22.28	3.05	78	7	Metapelite / Limestone / Hornfels	2.50	82	1.50	49	20	7	8
26.80	25.28	3.05	88	8	Limestone / Hornfels	3.000	98	2.60	85	17	6	7
29.90	28.38	3.05	98	9	Hornfels	1.09	36	0.34	11	9	3	7
32.90	31.38	3.05	108	10	Hornfels / Limestone	2.64	87	2.16	71	19	6	6
36.00	34.48	3.05	118	11	Limestone	2.90	95	2.37	78	10	3	14
39.00	37.48	3.05	128	12	Limestone / Hornfels	3.00	98	2.30	75	8	3	16
42.10	40.58	3.05	138	13	Limestone / Hornfels	2.95	97	2.45	80	13	4	12
45.10	43.58	3.05	148	14	Hornfels	3.00	98	2.05	67	16	5	18
48.20	46.68	3.05	158	15	Hornfels	3.00	98	1.83	60	20	7	26
51.20	49.68	3.05	168	16	Hornfels	3.00	98	2.80	92	10	3	22
54.30	52.78	3.05	178	17	Hornfels	2.85	94	2.57	84	11	4	20
57.30	55.78	3.05	188	18	Hornfels/Breccia	3.15	103	2.47	81	18	6	>50
60.40	58.88	3.05	198	19	Hornfels	2.61	86	2.00	66	19	6	20
63.40	61.88	3.05	208	20	Hornfels	3.00	98	1.34	44	23	8	20
66.40	64.88	3.05	218	21	Hornfels	3.00	98	2.09	69	20	7	20
69.50	67.98	3.05	228	22	Hornfels	2.70	89	1.53	50	23	8	9
72.50	70.98	3.05	238	23	Hornfels	3.00	98	2.28	75	19	6	14
75.60	74.08	3.05	248	24	Hornfels	3.00	98	2.26	74	22	7	7
78.60	77.08	3.05	258	25	Hornfels	3.00	98	2.11	69	22	7	8
81.70	80.18	3.05	268	26	Hornfels	2.80	92	2.26	74	27	9	4
84.70	83.18	3.05	278	27	Hornfels	3.10	102	2.21	73	20	7	4
87.80	86.28	3.05	288	28	Metapelite	3.00	98	1.08	3	21	7	5
90.80	89.28	3.05	298	29	Hornfels	3.00	98	2.05	67	27	9	-
93.90	92.38	3.05	308	30	Metapelite	3.00	98	2.11	69	19	6	3
96.90	95.38	3.05	318	31	Metapelite	3.00	98	1.67	55	30	10	2
100.00	98.48	3.05	328	32	Hornfels	3.00	98	1.79	59	24	8	0
103.00	101.48	3.05	338	33	Hornfels / Gouge	2.75	90	1.42	47	23	8	3
106.10	104.58	3.05	348	34	Hornfels / Limestone	2.70	89	1.37	45	18	6	0
109.10	107.58	3.05	358	35	Limestone / Hornfels	3.00	98	2.33	18	18	6	6
112.20	110.68	3.05	368	36	Limestone / Hornfels	3.00	98	2.07	68	22	7	2
115.20	113.68	3.05	378	37	Limestone / Hornfels	3.00	98	2.27	74	19	6	10
118.30	116.78	3.05	388	38	Breccia	3.00	98	1.72	56	20	7	10
121.30	119.78	3.05	398	39	Breccia	3.00	98	0.50	16	-	-	-
124.40	122.88	3.05	408	40	Breccia	3.00	98	1.91	63	22	7	3
127.40	125.88	3.05	418	41	Breccia	3.00	98	2.04	67	24	8	5
130.50	128.98	3.05	428	42	Breccia	3.00	98	1.53	50	27	9	5
133.50	131.98	3.05	438	43	Breccia	3.00	98	2.00	66	31	10	5
136.60	135.08	3.05	448	44	Breccia	3.00	98	1.42	47	-	-	-
139.60	138.08	3.05	458	45	Breccia	3.00	98	1.43	47	-	-	-
142.60	141.08	3.05	468	46	Hornfels	3.00	98	0.83	27	-	-	-
145.70	144.18	3.05	478	47	Hornfels	2.80	92	1.58	52	-	-	-
148.70	147.18	3.05	488	48	Hornfels	3.20	105	2.08	68	43	14	2
148.70	147.18	3.05	488	48	Hornfels / Metapelite	3.05	100	1.87	61	23	8	8
151.80	150.28	3.05	498	49	Metapelite	3.05	100	1.17	38	25	8	6
154.80	153.28	3.05	508	50	Metapelite	3.05	100	0.94	31	10	3	5
157.90	156.38	3.05	518	51	Metapelite	3.04	100	2.61	86	9	3	11
160.90	159.38	3.05	528	52	Metapelite	2.95	97	2.95	97	1	0	14
164.00	162.48	3.05	538	53	Metapelite	3.10	102	2.82	93	2	1	16
167.00	165.48	3.05	548	54	Metapelite / Hornfels	3.05	100	2.98	98	1	0	16
170.10	168.58	3.05	558	55	Metapelite / Hornfels	2.90	95	2.74	90	3	1	18
173.10	171.58	3.05	568	56	Metapelite	3.05	100	3.05	100	3	1	12
176.20	174.68	3.05	578	57	Metapelite / Hornfels	3.05	100	2.98	98	2	1	18
179.20	177.68	3.05	588	58	Metapelite / Hornfels	2.97	97	2.94	96	3	1	16

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
182.30	180.78	3.05	598	59	Metapelite / Hornfels	2.75	90	2.75	90	2	1	20
185.30	183.78	3.05	608	60	Hornfels	3.10	102	3.10	102	-	-	24
188.40	186.88	3.05	618	61	Hornfels	2.85	94	2.85	94	2	1	18
191.40	189.88	3.05	628	62	Hornfels	3.05	100	3.05	100	1	0	12
194.50	192.98	3.05	638	63	Hornfels	2.92	96	2.50	82	3	1	11
197.50	195.98	3.05	648	64	Hornfels	3.20	105	2.70	89	8	3	24
200.60	199.08	3.05	658	65	Hornfels	2.85	94	2.85	94	-	-	18
203.60	202.08	3.05	668	66	Hornfels	2.90	95	2.40	79	4	1	18
206.70	205.18	3.05	678	67	Hornfels	3.05	100	2.85	94	4	1	10
209.70	208.18	3.05	688	68	Hornfels	3.05	100	3.05	100	1	0	14
212.80	211.28	3.05	698	69	Hornfels	2.94	96	2.94	96	4	1	9
215.80	214.28	3.05	708	70	Hornfels	3.00	98	2.90	95	5	2	7
218.80	217.28	3.05	718	71	Hornfels	2.60	85	0.93	31	17	6	6
221.90	220.38	3.05	728	72	Hornfels / Skarn	2.60	85	1.05	34	2	1	5
224.90	223.38	3.05	738	73	Hornfels	2.80	92	1.10	36	5	2	17
228.00	226.48	3.05	748	74	Hornfels	3.05	100	1.42	47	15	5	9
231.00	229.48	3.05	758	75	Hornfels	3.00	98	2.19	72	10	3	14
234.10	232.58	3.05	768	76	Hornfels	3.07	101	2.30	75	4	1	16
237.10	235.58	3.05	778	77	Hornfels	3.10	102	2.60	85	2	1	18

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-03

Client: North American Tungsten Corporation Ltd
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: SK

Northing: 7016723
Easting: 441451
Elevation: 1657 m asl
Trend / Plunge: 0° / -85°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
7.30	6.00	2.60	18	1	Metapelite	-	-	0.24	9	-	-	-
8.50	7.90	1.20	28	2	Metapelite / Limestone	1.20	100	0.64	53	3	3	6
11.60	10.08	3.05	38	3	Metapelite / Limestone	3.30	108	2.95	97	6	2	19
14.60	13.08	3.05	48	4	Metapelite / Limestone	3.10	102	2.46	81	7	2	18
17.70	16.18	3.05	58	5	Metapelite / Limestone	2.68	88	1.50	49	4	1	15
20.70	19.18	3.05	68	6	Metapelite / Limestone	2.95	97	1.73	57	11	4	16
23.80	22.28	3.05	78	7	Metapelite / Limestone	3.03	99	3.03	99	1	0	21
26.80	25.28	3.05	88	8	Metapelite / Limestone	3.050	100	2.33	76	1	0	26
29.90	28.38	3.05	98	9	Metapelite / Limestone	2.91	95	1.95	64	5	2	24
32.90	31.38	3.05	108	10	Metapelite / Limestone	3.05	100	1.55	51	5	2	21
36.00	34.48	3.05	118	11	Metapelite / Limestone	2.75	90	2.40	79	2	1	17
39.00	37.48	3.05	128	12	Metapelite	3.00	98	1.12	37	6	2	17
42.10	40.58	3.05	138	13	Metapelite	3.06	100	2.75	90	6	2	15
45.10	43.58	3.05	148	14	Metapelite/Hornfels	-	-	1.30	43	3	1	10
48.20	46.68	3.05	158	15	Limestone Breccia	2.72	89	2.40	79	3	1	21
51.20	49.68	3.05	168	16	Limestone Breccia	3.00	98	2.30	75	4	1	21
54.30	52.78	3.05	178	17	Limestone Breccia	3.02	99	1.98	65	5	2	19
57.30	55.78	3.05	188	18	Limestone Breccia	3.05	100	2.20	72	3	1	24
60.40	58.88	3.05	198	19	Limestone Breccia	3.00	98	2.76	90	4	1	11

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-04

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: PMC

Northing: 7016322
Easting: 441117
Elevation: 1591 m asl
Trend / Plunge: 0° / -85°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
8.50	6.98	3.05	28	1	Felsic Dyke	3.00	98	0.50	16	-	-	-
11.60	10.08	3.05	38	2	Felsic Dyke	3.10	102	2.70	89	13	4	4
14.60	13.08	3.05	48	3	Felsic Dyke	3.00	98	1.80	59	14	5	10
17.70	16.18	3.05	58	4	Felsic Dyke	3.00	98	2.32	76	10	3	12
20.70	19.18	3.05	68	5	Felsic Dyke	3.00	98	1.97	2	8	3	18
23.80	22.28	3.05	78	6	Felsic Dyke	3.10	102	1.85	61	5	2	20
26.80	25.28	3.05	88	7	Felsic Dyke	3.00	98	2.15	71	5	2	20
29.90	28.38	3.05	98	8	Felsic Dyke	3.20	105	1.37	45	14	5	50
32.90	31.38	3.05	108	9	Felsic Dyke	3.15	103	0.81	27	20	7	50
36.00	34.48	3.05	118	10	Felsic Dyke	3.00	98	1.85	61	5	2	50
39.00	37.48	3.05	128	11	Felsic Dyke	3.10	102	3.10	102	4	1	18
42.10	40.58	3.05	138	12	Felsic Dyke	2.80	92	2.60	85	7	2	19

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-04B

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: PMC

Northing: 7016264
Easting: 441296
Elevation: 1599 m asl
Trend / Plunge: 0° / -90°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
5.80	4.28	3.05	18	1	Metapelite	2.30	75	1.52	50	8	3	12
8.80	7.28	3.05	29	2	Metapelite	3.10	102	2.30	75	7	2	20
11.90	10.38	3.05	39	3	Metapelite	3.10	102	2.95	97	5	2	14
14.90	13.38	3.05	49	4	Metapelite	3.00	98	2.50	82	9	3	8
17.00	15.48	3.05	56	5	Metapelite	3.14	103	3.03	2	6	2	15
21.00	19.48	3.05	69	6	Metapelite	2.90	95	2.35	77	7	2	3
24.10	22.58	3.05	79	7	Metapelite	3.08	101	3.08	101	4	1	12
27.10	25.58	3.05	89	8	Metapelite	3.15	103	2.32	76	8	3	11
30.20	28.68	3.05	99	9	Metapelite	3.10	102	2.30	75	7	2	13
33.20	31.68	3.05	109	10	Metapelite	3.00	98	2.90	95	6	2	12
36.30	34.78	3.05	119	11	Metapelite	3.05	100	2.70	89	4	1	20
39.30	37.78	3.05	129	12	Metapelite	2.85	94	2.40	79	4	1	-
39.55	38.03	3.05	130	13	Metapelite	0.25	8	0.25	8	-	-	-

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-05

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: PMC

Northing: 7016297
Easting: 440346
Elevation: 1520 m asl
Trend / Plunge: 0° / -85°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
8.50	6.98	3.05	28	1	Metapelite	1.40	46	0.21	7	5	2	-
11.60	10.08	3.05	38	2	Metapelite	3.05	100	1.02	33	6	2	-
14.60	13.08	3.05	48	3	Metapelite	3.00	98	2.02	66	6	2	-
17.70	16.18	3.05	58	4	Metapelite	3.10	102	1.80	59	3	1	-
20.70	19.18	3.05	68	5	Metapelite	3.10	102	3.10	102	2	1	19
23.80	22.28	3.05	78	6	Metapelite	2.96	97	2.80	92	3	1	15
26.80	25.28	3.05	88	7	Metapelite	3.00	98	3.00	98	4	1	22
29.90	28.38	3.05	98	8	Metapelite	3.10	102	2.30	75	4	1	20
32.90	31.38	3.05	108	9	Metapelite	3.10	102	2.90	95	4	1	26
36.00	34.48	3.05	118	10	Metapelite	3.10	102	3.10	102	5	2	21

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-06

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: PMC

Northing: 7016363
Easting: 440021
Elevation: 1498 m asl
Trend / Plunge: 45° / -70°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
8.80	7.28	3.05	28	1	Metapelite	-	-	-	-	-	-	-
11.90	10.38	3.05	38	2	Metapelite	2.40	79	1.54	50	10	3	6
14.90	13.38	3.05	48	3	Metapelite	2.84	93	2.64	87	6	2	11
18.00	16.48	3.05	58	4	Metapelite	2.93	96	2.42	79	6	2	14
21.00	19.48	3.05	68	5	Metapelite	3.17	104	2.84	2	7	2	14
24.10	22.58	3.05	78	6	Metapelite	3.10	102	3.10	102	3	1	10
27.10	25.58	3.05	88	7	Metapelite	3.000	98	1.59	52	15	5	6
30.20	28.68	3.05	98	8	Metapelite	3.10	102	2.33	76	5	2	16
33.20	31.68	3.05	108	9	Metapelite	3.15	103	3.15	103	6	2	8
36.30	34.78	3.05	118	10	Metapelite	3.10	102	2.59	85	9	3	14
39.30	37.78	3.05	128	11	Metapelite	3.00	98	0.74	24	11	4	7
42.40	40.88	3.05	138	12	Metapelite	3.10	102	2.47	81	5	2	17
45.40	43.88	3.05	148	13	Metapelite	2.90	95	2.90	95	4	1	10
48.50	46.98	3.05	158	14	Metapelite	3.10	102	2.28	75	2	1	12
51.50	49.98	3.05	168	15	Metapelite	3.00	98	1.72	56	4	1	-
54.60	53.08	3.05	178	16	Metapelite	3.16	104	1.50	49	3	1	-
57.60	56.08	3.05	188	17	Metapelite	3.00	98	2.81	92	7	2	-
60.70	59.18	3.05	198	18	Metapelite	3.10	102	3.10	102	2	1	15

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-07

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: CSD

Northing: 7016426
Easting: 440161
Elevation: 1496 m asl
Trend / Plunge: 225° / -70°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
8.84	7.32	3.05	28	1	Metapelite	2.40	79	1.58	52	9	3	-
11.87	10.35	3.05	38	2	Metapelite	2.66	87	1.22	40	8	3	-
14.92	13.40	3.05	48	3	Metapelite	3.05	100	0.90	30	18	6	-
17.98	16.46	3.05	58	4	Metapelite	2.70	89	1.12	37	7	2	-
21.03	19.51	3.05	68	5	Metapelite	2.35	77	1.36	45	10	3	-
24.08	22.56	3.05	78	6	Metapelite	2.95	97	1.72	56	13	4	-
27.13	25.61	3.05	88	7	Metapelite	3.05	100	1.48	49	9	3	-
30.18	28.66	3.05	98	8	Metapelite	3.05	100	0.25	8	30	10	-

Geomechanics Log - for Hydrogeology DDH logging

Hole # MW-MT-08-08

Client: North American Tungsten Corporation Ltd.
Project: W23101021.023
Project Number: Mactung Hydrogeology
Logged By: SK

Northing: 7017018
Easting: 441876
Elevation: 1796 m asl
Trend / Plunge: 0° / -70°

Run Depth To (m)	Run Depth Middle (m)	Run Length (m)	Run to Depth (ft)	Run No.	Lithology	Recovery		RQD		No. Fractures		
						Length (m)	%	Length (m)	%	Joints	Frequency (/m)	Mech Breaks
8.50	6.98	3.05	18	1	Metapelite	-	-	-	-	-	-	-
11.60	10.08	3.05	28	2	Metapelite	2.88	94	1.04	34	24	8	8
14.60	13.08	3.05	38	3	Metapelite / Limestone	3.05	100	1.30	43	10	3	14
17.70	16.18	3.05	48	4	Limestone	3.00	98	0.00	0	-	-	-
20.70	19.18	3.05	58	5	Fault Breccia (Metapelite / Limestone)	-	-	0.00	2	-	-	-
22.80	21.28	3.05	68	6	Fault Breccia (Metapelite / Limestone)	-	-	0.00	0	-	-	-
26.80	25.28	3.05	78	7	Fault Breccia (Metapelite / Limestone)	-	-	0.37	12	-	-	-
29.90	28.38	3.05	88	8	Metapelite	-	-	0.17	6	-	-	-
32.90	31.38	3.05	98	9	Metapelite	-	-	0.00	0	-	-	-
36.00	34.48	3.05	108	10	Metapelite	3.05	100	1.33	44	11	4	9
39.00	37.48	3.05	118	11	Hornfels	3.05	100	2.18	71	10	3	14
42.10	40.58	3.05	128	12	Hornfels	3.05	100	1.85	61	11	4	15
45.10	43.58	3.05	138	13	Hornfels	3.06	100	1.45	48	9	3	18
48.20	46.68	3.05	148	14	Hornfels	3.04	100	0.66	22	19	6	7
51.20	49.68	3.05	158	15	Hornfels	3.08	101	1.64	54	10	3	15
54.30	52.78	3.05	168	16	Hornfels / Limestone	3.00	98	1.35	44	15	5	11
57.30	55.78	3.05	178	17	Hornfels / Limestone	-	-	0.45	15	-	-	-
60.40	58.88	3.05	188	18	Limestone	2.90	95	0.56	18	-	-	-
63.40	61.88	3.05	198	19	Limestone	-	-	0.00	0	-	-	-
66.40	64.88	3.05	208	20	Limestone	2.75	90	0.24	8	-	-	-
69.50	67.98	3.05	218	21	Limestone	2.95	97	1.92	63	6	2	13
72.50	70.98	3.05	228	22	Limestone	2.67	88	1.47	48	8	3	13
75.60	74.08	3.05	238	23	Metapelite	2.20	72	0.46	15	-	-	-
78.60	77.08	3.05	248	24	Metapelite	2.80	92	0.91	30	-	-	-
81.70	80.18	3.05	258	25	Metapelite	3.05	100	2.07	68	9	3	15
84.70	83.18	3.05	268	26	Metapelite	2.87	94	1.67	55	15	5	16
87.80	86.28	3.05	278	27	Metapelite	2.92	96	2.29	75	5	2	10
90.80	89.28	3.05	288	28	Metapelite	3.03	99	2.18	71	10	3	21
93.90	92.38	3.05	298	29	Metapelite	3.10	102	1.65	54	15	5	14
96.90	95.38	3.05	308	30	Metapelite	3.00	98	2.70	89	5	2	18
100.00	98.48	3.05	318	31	Metapelite	3.10	102	2.95	97	8	3	19
103.00	101.48	3.05	328	32	Metapelite	2.99	98	2.92	96	3	1	15

Detailed Hydrogeological Assessment	Client: North American Tungsten Corp.	PROJECT NO. - TESTPIT NO.
Mactung Property		TP-MT-08-01
MacMillan Pass, YT/NT		

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	NOTES & COMMENTS	Slotted Piezometer	Depth (ft)
0	GRAVEL - some silt and sand (weathered bedrock), angular, dark grey to black, moist to wet				0
1	- becomes brown, moist				5
2	GRAVEL - some sand, trace silt (weathered bedrock), angular, reddish brown, moist				
	- water seepage into pit				10
3	END OF BOREHOLE 2.7 m - Refusal on competent bedrock - Installed standpipe piezometer with sand pack and bentonite seal				
4					15
5					16

eba

LOGGED BY: SK	COMPLETION DEPTH: 2.7m
REVIEWED BY: RMM	COMPLETE: 8/20/2008
DRAWING NO:	Page 1 of 1

PARTICLE SIZE DISTRIBUTION

ASTM C136 & D422

Project: **MacTung Enviro Baseline Studies - 2008 Hydrogeology**

Project Number: W23101021.023

Date Tested: 9/19/2008

Borehole Number: W23101021.023 TP-MT-08-01

Depth: 1.0 m

Soil Description: GRAVEL - some sand, some silt

Cu:

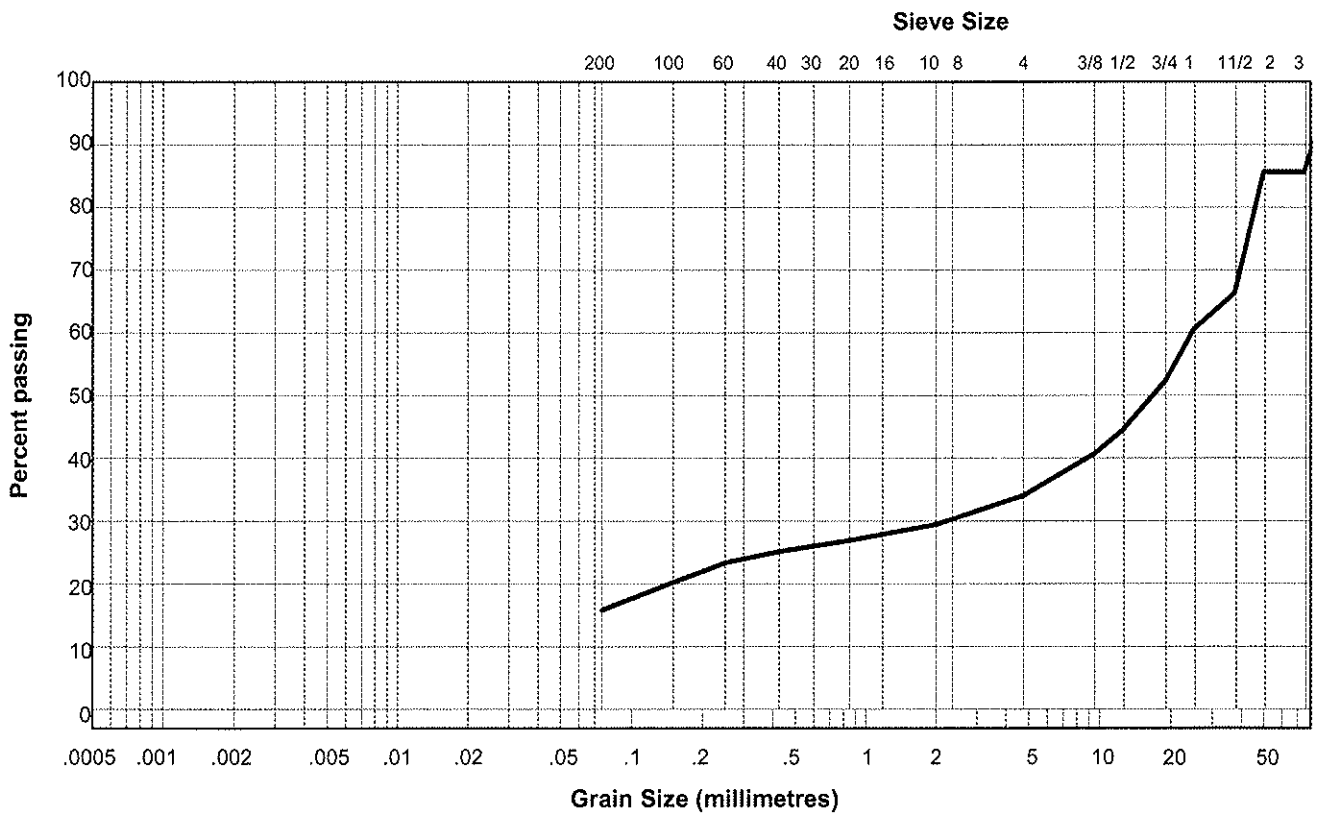
Cc:

Natural Moisture Content: Not done

Remarks:

Sieve Size	Percent Passing
75.000	86
37.500	66
25.000	61
19.000	52
12.500	44
9.500	41
4.750	34
2.000	29
0.850	27
0.425	25
0.250	23
0.150	20
0.075	15.8

Clay	Silt	Sand			Gravel	
		Fine	Medium	Coarse	Fine	Coarse



Reviewed By: _____

EBA Engineering Consultants Ltd.

PARTICLE SIZE DISTRIBUTION

ASTM C136 & D422

Project: **MacTung Environmental Baseline Studies-2008 Hydrogeology**

Project Number: W23101021.023

Date Tested: 9/19/2008

Borehole Number: W23101021.023 TP-MT-08-01

Depth: 2.05 m

Soil Description: GRAVEL - some sand, trace silt

Cu: N/A

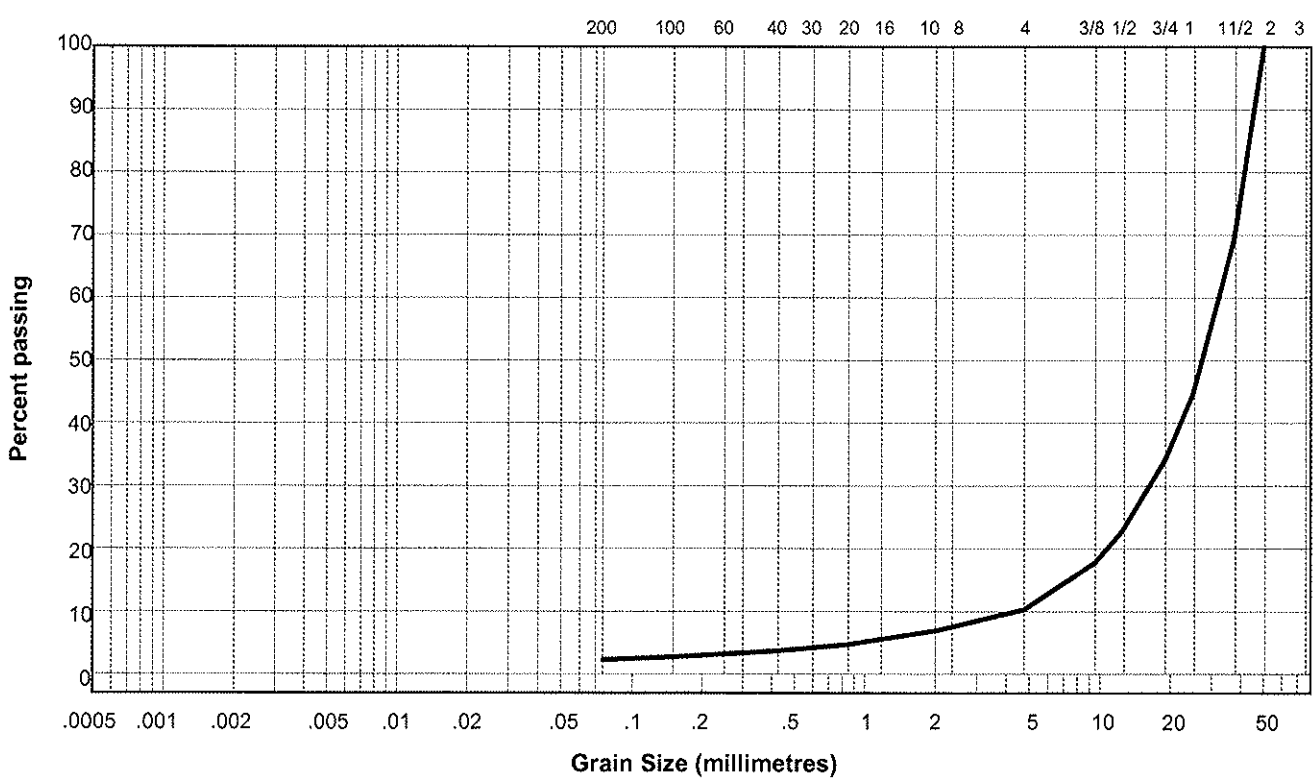
Cc: N/A

Natural Moisture Content: Not done

Remarks: 0

Sieve Size	Percent Passing
50.000	100
37.500	69
25.000	45
19.000	34
12.500	23
9.500	18
4.750	10
2.000	7
0.850	5
0.425	4
0.250	3
0.150	3
0.075	2.3

Clay	Silt	Sand			Gravel	
		Fine	Medium	Coarse	Fine	Coarse



Reviewed By: _____

EBA Engineering Consultants Ltd.

Detailed Hydrogeological Assessment	Client: North American Tungsten Corp.	PROJECT NO. - TESTPIT NO.
Mactung Property		TP-MT-08-08
MacMillan Pass, YT/NT		

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	NOTES & COMMENTS	Slotted Piezometer	Depth (ft)
0	GRAVEL - sandy, trace silt (colluvium), angular, dark, grey				0
1	- ice rich permafrost				5
2	GRAVEL - silty, sandy, trace clay (colluvium), angular, light grey-brown, frozen				
3	END OF BOREHOLE 2.7 m - Refusal at 2.7 m on permafrost and/or competent bedrock - Installed standpipe piezometer with sand pack and 1" bentonite seal				10
4					15
5					16

eba

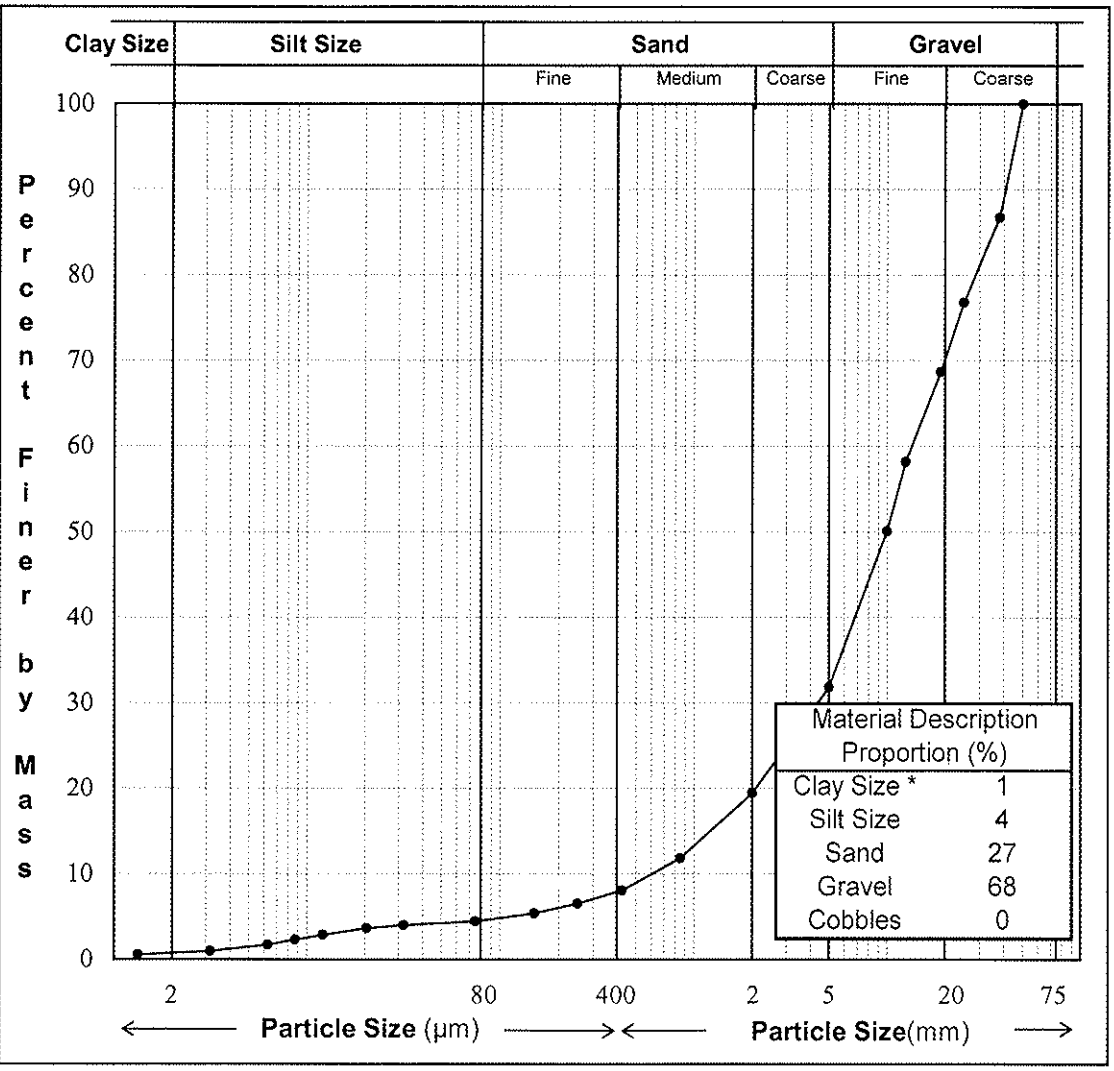
LOGGED BY: SK	COMPLETION DEPTH: 2.7m
REVIEWED BY: RMM	COMPLETE: 8/20/2008
DRAWING NO:	Page 1 of 1

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	**MacTung Enviro. Baseline Studies-2008 Hydrogeology**	Date Tested:	2008/09/22
Client:	North American Tungsten Corp		
Project No.:	W23101021.023		
Location:	0		
Sample No.:	W23101021.023 TP-MT-08-08		
Depth:	0.5 m		
Description**:	GRAVEL - sandy, trace silt, trace clay		

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	100
38 mm	87
25 mm	77
19 mm	69
13 mm	58
10 mm	50
5 mm	32
2 mm	19
850 µm	12
425 µm	8
250 µm	7
150 µm	5
75 µm	4
32 µm	4
20 µm	4
12 µm	3
9 µm	2
6 µm	2
3 µm	1
1 µm	1



Remarks: * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual.

** The description is visually based & subject to EBA description protocols.

Reviewed By: _____

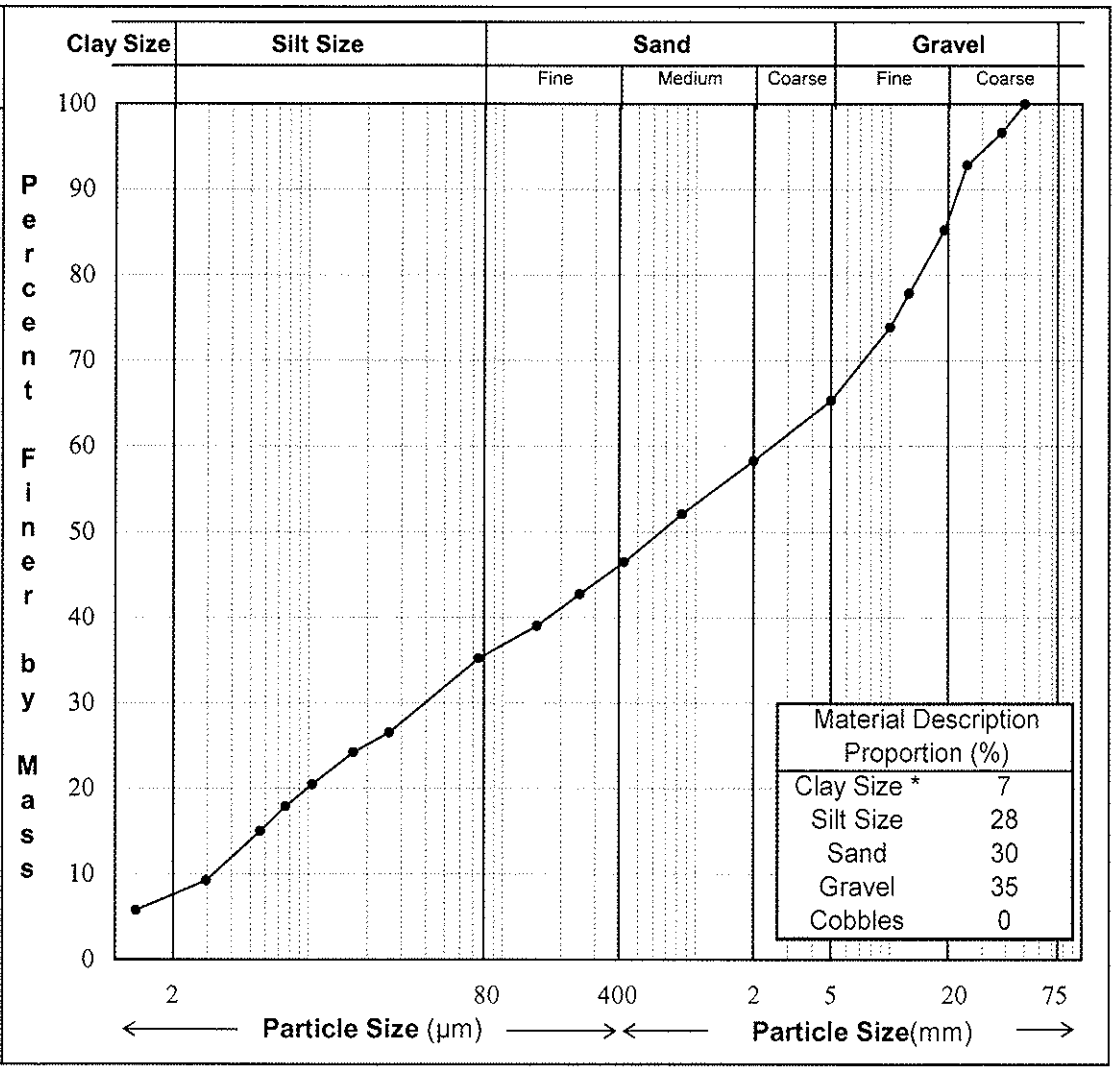
EBA Engineering Consultants Ltd.

PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D422

Project:	**MacTung Enviro. Baseline Studies-2008 Hydrogeology**	Date Tested:	2008/09/22
Client:	North American Tungsten Corp		
Project No.:	W23101021.023		
Location:	0		
Sample No.:	W23101021.023 TP-MT-08-08		
Depth:	2.5 m		
Description**:	GRAVEL - sandy, silty, trace clay		

Particle Size	Percent Passing
100 mm	
75 mm	
50 mm	100
38 mm	97
25 mm	93
19 mm	85
13 mm	78
10 mm	74
5 mm	65
2 mm	58
850 µm	52
425 µm	46
250 µm	43
150 µm	39
75 µm	35
26 µm	27
17 µm	24
10 µm	20
8 µm	18
6 µm	15
3 µm	9
1 µm	6



Remarks: * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual.

** The description is visually based & subject to EBA description protocols.

Reviewed By: _____

EBA Engineering Consultants Ltd.

APPENDIX C

APPENDIX C PACKER TEST DATA

TABLE C-1: PACKER TEST RESULTS - MW-MT-08-01

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				143.128			
93	113	103	28.3	34.4	31.4	110	1.0	6.10	42.6	0.048	143.128	0.0000		
93	113	103	28.3	34.4	31.4	110	2.0	6.10	42.6	0.048	143.129	0.0005	2.73E-08	7.56
93	113	103	28.3	34.4	31.4	115	3.0	6.10	43.1	0.048	143.129	0.0005	2.69E-08	7.57
93	113	103	28.3	34.4	31.4	115	4.0	6.10	43.1	0.048	143.130	0.0005	2.69E-08	7.57
93	113	103	28.3	34.4	31.4	115	5.0	6.10	43.1	0.048	143.130	0.0005	2.69E-08	7.57
							0.0				143.131			
93	113	103	28.3	34.4	31.4	215	1.0	6.10	53.3	0.048	143.132	0.0005	2.18E-08	7.66
93	113	103	28.3	34.4	31.4	210	2.0	6.10	52.8	0.048	143.132	0.0005	2.20E-08	7.66
93	113	103	28.3	34.4	31.4	215	3.0	6.10	53.3	0.048	143.133	0.0005	2.18E-08	7.66
93	113	103	28.3	34.4	31.4	230	4.0	6.10	54.8	0.048	143.133	0.0005	2.12E-08	7.67
93	113	103	28.3	34.4	31.4	230	5.0	6.10	54.8	0.048	143.134	0.0005	2.12E-08	7.67
							0.0				143.134			
93	113	103	28.3	34.4	31.4	330	1.0	6.10	65.0	0.048	143.135	0.0010	3.57E-08	7.45
93	113	103	28.3	34.4	31.4	330	2.0	6.10	65.0	0.048	143.136	0.0010	3.57E-08	7.45
93	113	103	28.3	34.4	31.4	330	3.0	6.10	65.0	0.048	143.137	0.0010	3.57E-08	7.45
93	113	103	28.3	34.4	31.4	330	4.0	6.10	65.0	0.048	143.138	0.0010	3.57E-08	7.45
93	113	103	28.3	34.4	31.4	330	5.0	6.10	65.0	0.048	143.139	0.0010	3.57E-08	7.45
							0.0				143.140			
93	113	103	28.3	34.4	31.4	220	1.0	6.10	53.8	0.048	143.140	0.0005	2.16E-08	7.67
93	113	103	28.3	34.4	31.4	220	2.0	6.10	53.8	0.048	143.141	0.0010	4.32E-08	7.37
93	113	103	28.3	34.4	31.4	220	3.0	6.10	53.8	0.048	143.142	0.0010	4.32E-08	7.37
93	113	103	28.3	34.4	31.4	220	4.0	6.10	53.8	0.048	143.143	0.0010	4.32E-08	7.37
93	113	103	28.3	34.4	31.4	220	5.0	6.10	53.8	0.048	143.144	0.0010	4.32E-08	7.37
							0.0				143.144			
93	113	103	28.3	34.4	31.4	110	1.0	6.10	42.6	0.048	143.145	0.0005	2.73E-08	7.56
93	113	103	28.3	34.4	31.4	110	2.0	6.10	42.6	0.048	143.145	0.0005	2.73E-08	7.56
93	113	103	28.3	34.4	31.4	110	3.0	6.10	42.6	0.048	143.146	0.0005	2.73E-08	7.56
93	113	103	28.3	34.4	31.4	110	4.0	6.10	42.6	0.048	143.146	0.0005	2.73E-08	7.56
93	113	103	28.3	34.4	31.4	110	5.0	6.10	42.6	0.048	143.147	0.0005	2.73E-08	7.56
							0.0				143.178			
113	133	123	34.4	40.5	37.5	180	1.0	6.10	55.8	0.048	143.178	0.0000		
113	133	123	34.4	40.5	37.5	140	2.0	6.10	51.8	0.048	143.178	0.0000		
113	133	123	34.4	40.5	37.5	140	3.0	6.10	51.8	0.048	143.178	0.0000		
113	133	123	34.4	40.5	37.5	140	4.0	6.10	51.8	0.048	143.178	0.0000		
113	133	123	34.4	40.5	37.5	140	5.0	6.10	51.8	0.048	143.178	0.0000		
							0.0				143.179			
113	133	123	34.4	40.5	37.5	265	1.0	6.10	64.5	0.048	143.180	0.0005	1.80E-08	7.74
113	133	123	34.4	40.5	37.5	265	2.0	6.10	64.5	0.048	143.180	0.0005	1.80E-08	7.74
113	133	123	34.4	40.5	37.5	265	3.0	6.10	64.5	0.048	143.181	0.0005	1.80E-08	7.74
113	133	123	34.4	40.5	37.5	265	4.0	6.10	64.5	0.048	143.181	0.0005	1.80E-08	7.74
113	133	123	34.4	40.5	37.5	265	5.0	6.10	64.5	0.048	143.182	0.0005	1.80E-08	7.74
							0.0				143.183			
113	133	123	34.4	40.5	37.5	400	1.0	6.10	78.3	0.048	143.185	0.0015	4.45E-08	7.35
113	133	123	34.4	40.5	37.5	400	2.0	6.10	78.3	0.048	143.186	0.0010	2.97E-08	7.53
113	133	123	34.4	40.5	37.5	400	3.0	6.10	78.3	0.048	143.187	0.0010	2.97E-08	7.53
113	133	123	34.4	40.5	37.5	400	4.0	6.10	78.3	0.048	143.188	0.0015	4.45E-08	7.35
113	133	123	34.4	40.5	37.5	400	5.0	6.10	78.3	0.048	143.190	0.0015	4.45E-08	7.35
							0.0				143.190			
113	133	123	34.4	40.5	37.5	270	1.0	6.10	65.0	0.048	143.191	0.0010	3.57E-08	7.45
113	133	123	34.4	40.5	37.5	270	2.0	6.10	65.0	0.048	143.192	0.0010	3.57E-08	7.45
113	133	123	34.4	40.5	37.5	270	3.0	6.10	65.0	0.048	143.193	0.0005	1.79E-08	7.75
113	133	123	34.4	40.5	37.5	270	4.0	6.10	65.0	0.048	143.194	0.0010	3.57E-08	7.45
113	133	123	34.4	40.5	37.5	270	5.0	6.10	65.0	0.048	143.195	0.0010	3.57E-08	7.45
							0.0				143.195			
113	133	123	34.4	40.5	37.5	140	1.0	6.10	51.8	0.048	143.196	0.0005	2.24E-08	7.65
113	133	123	34.4	40.5	37.5	140	2.0	6.10	51.8	0.048	143.196	0.0005	2.24E-08	7.65
113	133	123	34.4	40.5	37.5	140	3.0	6.10	51.8	0.048	143.197	0.0005	2.24E-08	7.65
113	133	123	34.4	40.5	37.5	140	4.0	6.10	51.8	0.048	143.197	0.0005	2.24E-08	7.65
113	133	123	34.4	40.5	37.5	140	5.0	6.10	51.8	0.048	143.198	0.0005	2.24E-08	7.65
							0.0				143.227			
133	153	143	40.5	46.6	43.6	180	1.5	6.10	61.9	0.048	143.227	0.0000		
133	153	143	40.5	46.6	43.6	180	2.5	6.10	61.9	0.048	143.228	0.0005	1.87E-08	7.73
133	153	143	40.5	46.6	43.6	180	3.0	6.10	61.9	0.048	143.228	0.0000		
133	153	143	40.5	46.6	43.6	180	4.0	6.10	61.9	0.048	143.228	0.0005	1.87E-08	7.73
133	153	143	40.5	46.6	43.6	180	5.0	6.10	61.9	0.048	143.228	0.0000		
							0.0				143.229			
133	153	143	40.5	46.6	43.6	310	1.0	6.10	75.2	0.048	143.229	0.0000		
133	153	143	40.5	46.6	43.6	310	2.0	6.10	75.2	0.048	143.230	0.0010	3.09E-08	7.51
133	153	143	40.5	46.6	43.6	310	3.0	6.10	75.2	0.048	143.231	0.0005	1.54E-08	7.81
133	153	143	40.5	46.6	43.6	310	4.0	6.10	75.2	0.048	143.231	0.0005	1.54E-08	7.81
133	153	143	40.5	46.6	43.6	310	5.0	6.10	75.2	0.048	143.232	0.0010	3.09E-08	7.51
							0.0				143.233			
133	153	143	40.5	46.6	43.6	470	1.0	6.10	91.5	0.048	143.234	0.0015	3.81E-08	7.42
133	153	143	40.5	46.6	43.6	470	2.0	6.10	91.5	0.048	143.235	0.0010	2.54E-08	7.60
133	153	143	40.5	46.6	43.6	470	3.0	6.10	91.5	0.048	143.236	0.0010	2.54E-08	7.60
133	153	143	40.5	46.6	43.6	470	4.0	6.10	91.5	0.048	143.238	0.0015	3.81E-08	7.42
133	153	143	40.5	46.6	43.6	470	5.0	6.10	91.5	0.048	143.239	0.0010	2.54E-08	7.60
							0.0				143.239			
133	153	143	40.5	46.6	43.6	315	1.0	6.10	75.7	0.048	143.240	0.0010	3.07E-08	7.51
133	153	143	40.5	46.6	43.6	315	2.0	6.10	75.7	0.048	143.241	0.0010	3.07E-08	7.51
133	153	143	40.5	46.6	43.6	315	3.0	6.10	75.7	0.048	143.242	0.0005	1.53E-08	7.81
133	153	143	40.5	46.6	43.6	315	4.0	6.10	75.7	0.048	143.242	0.0005	1.53E-08	7.81
133	153	143	40.5	46.6	43.6	315	5.0	6.10	75.7	0.048	143.243	0.0010	3.07E-08	7.51
							0.0				143.244			
133	153	143	40.5	46.6	43.6	180	1.0	6.10	61.9	0.048	143.244	0.0005	1.87E-08	7.73
133	153	143	40.5	46.6	43.6	180	2.0	6.10	61.9	0.048	143.245	0.0005	1.87E-08	7.73
133	153	143	40.5	46.6	43.6	180	3.0	6.10	61.9	0.048	143.246	0.0010	3.75E-08	7.43
133	153	143	40.5	46.6	43.6	180	4.0	6.10	61.9	0.048	143.246	0.0005	1.87E-08	7.73
133	153	143	40.5	46.6	43.6	180	5.0	6.10	61.9	0.048	143.247	0.0005	1.87E-08	7.73
							0.0				143.278			
153	173	163	46.6	52.7	49.7	175	1.0	6.10	67.5	0.048	143.278	0.0005	1.72E-08	7.76
153	173	163	46.6	52.7	49.7	175	2.0	6.10	67.5	0.048	143.279	0.0005	1.72E-08	7.76
153	173	163	46.6	52.7	49.7	175	3.0	6.10	67.5	0.048	143.279	0.0005	1.72E-08	7.76
153	173	163	46.6	52.7	49.7	175	4.0	6.10	67.5	0.048	143.280	0.0005	1.72E-08	7.76
153	173	163	46.6	52.7	49.7	180	5.0	6.10	68.0	0.048	143.280	0.0005	1.71E-08	7.77
							0.0				143.281			
153	173	163	46.6	52.7	49.7	360	1.0	6.10	86.4	0.048	143.282	0.0010	2.69E-08	7.57
153	173	163	46.6	52.7	49.7	360	2.0	6.10	86.4	0.048	143.283	0.0010	2.69E-08	7.57
153	173	163	46.6	52.7	49.7	360	3.0	6.10	86.4	0.048	143.284	0.0010	2.69E-08	7.57
153	173	163	46.6	52.7	49.7	360	4.0	6.10	86.4	0.048	143.285	0.0010	2.69E-08	7.57
153	173	163	46.6	52.7	49.7	360	5.0	6.10	86.4	0.048	143.286	0.0010	2.69E-08	7.57
							0.0				143.286			
153	173	163	46.6	52.7	49.7	550	1.0	6.10	105.8	0.048	143.288	0.0015	3.29E-08	7.48
153	173	163	46.6	52.7	49.7	550	2.0	6.10	105.8	0.048	143.289	0.0015	3.29E-08	7.48
153	173	163	46.6	52.7	49.7	550	3.0	6.10	105.8	0.048	143.291	0.0015	3.29E-08	7.48

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
153	173	163	46.6	52.7	49.7	550	4.0	6.10	105.8	0.048	143.292	0.0015	3.29E-08	7.48
153	173	163	46.6	52.7	49.7	550	5.0	6.10	105.8	0.048	143.294	0.0015	3.29E-08	7.48
							0.0				143.294			
153	173	163	46.6	52.7	49.7	365	1.0	6.10	86.9	0.048	143.295	0.0010	2.67E-08	7.57
153	173	163	46.6	52.7	49.7	365	2.0	6.10	86.9	0.048	143.296	0.0010	2.67E-08	7.57
153	173	163	46.6	52.7	49.7	365	3.0	6.10	86.9	0.048	143.297	0.0010	2.67E-08	7.57
153	173	163	46.6	52.7	49.7	365	4.0	6.10	86.9	0.048	143.298	0.0010	2.67E-08	7.57
153	173	163	46.6	52.7	49.7	365	5.0	6.10	86.9	0.048	143.299	0.0010	2.67E-08	7.57
							0.0				143.300			
153	173	163	46.6	52.7	49.7	185	1.2	6.10	68.5	0.048	143.301	0.0009	2.90E-08	7.54
153	173	163	46.6	52.7	49.7	185	2.0	6.10	68.5	0.048	143.302	0.0012	4.08E-08	7.39
153	173	163	46.6	52.7	49.7	185	3.0	6.10	68.5	0.048	143.302	0.0005	1.69E-08	7.77
153	173	163	46.6	52.7	49.7	185	4.0	6.10	68.5	0.048	143.303	0.0005	1.69E-08	7.77
153	173	163	46.6	52.7	49.7	185	5.3	6.10	68.5	0.048	143.304	0.0008	2.55E-08	7.59
							0.0				143.335			
173	193	183	52.7	58.8	55.8	220	1.0	6.10	78.2	0.048	143.335	0.0000		
173	193	183	52.7	58.8	55.8	220	2.3	6.10	78.2	0.048	143.336	0.0008	2.38E-08	7.62
173	193	183	52.7	58.8	55.8	220	3.3	6.10	78.2	0.048	143.337	0.0005	1.37E-08	7.86
173	193	183	52.7	58.8	55.8	220	4.0	6.10	78.2	0.048	143.337	0.0007	2.22E-08	7.65
173	193	183	52.7	58.8	55.8	220	5.0	6.10	78.2	0.048	143.338	0.0005	1.48E-08	7.83
							0.0				143.338			
173	193	183	52.7	58.8	55.8	415	1.0	6.10	98.1	0.048	143.340	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	2.0	6.10	98.1	0.048	143.341	0.0010	2.37E-08	7.63
173	193	183	52.7	58.8	55.8	415	3.0	6.10	98.1	0.048	143.342	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	4.0	6.10	98.1	0.048	143.344	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	5.0	6.10	98.1	0.048	143.345	0.0010	2.37E-08	7.63
							0.0				143.346			
173	193	183	52.7	58.8	55.8	620	1.0	6.10	119.0	0.048	143.348	0.0020	3.90E-08	7.41
173	193	183	52.7	58.8	55.8	620	2.0	6.10	119.0	0.048	143.350	0.0020	3.90E-08	7.41
173	193	183	52.7	58.8	55.8	620	3.0	6.10	119.0	0.048	143.352	0.0020	3.90E-08	7.41
173	193	183	52.7	58.8	55.8	620	4.0	6.10	119.0	0.048	143.353	0.0015	2.93E-08	7.53
173	193	183	52.7	58.8	55.8	620	5.0	6.10	119.0	0.048	143.355	0.0020	3.90E-08	7.41
							0.0				143.356			
173	193	183	52.7	58.8	55.8	415	1.0	6.10	98.1	0.048	143.357	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	2.0	6.10	98.1	0.048	143.359	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	3.0	6.10	98.1	0.048	143.360	0.0015	3.55E-08	7.45
173	193	183	52.7	58.8	55.8	415	4.0	6.10	98.1	0.048	143.361	0.0010	2.37E-08	7.63
173	193	183	52.7	58.8	55.8	415	5.0	6.10	98.1	0.048	143.363	0.0015	3.55E-08	7.45
							0.0				143.363			
173	193	183	52.7	58.8	55.8	220	1.0	6.10	78.2	0.048	143.364	0.0010	2.97E-08	7.53
173	193	183	52.7	58.8	55.8	220	2.0	6.10	78.2	0.048	143.365	0.0010	2.97E-08	7.53
173	193	183	52.7	58.8	55.8	220	3.0	6.10	78.2	0.048	143.366	0.0010	2.97E-08	7.53
173	193	183	52.7	58.8	55.8	220	4.0	6.10	78.2	0.048	143.367	0.0010	2.97E-08	7.53
173	193	183	52.7	58.8	55.8	220	5.0	6.10	78.2	0.048	143.368	0.0010	2.97E-08	7.53
							0.0				143.415			
193	213	203	58.8	64.9	61.9	230	1.0	6.10	85.3	0.048	143.416	0.0005	1.36E-08	7.87
193	213	203	58.8	64.9	61.9	230	2.0	6.10	85.3	0.048	143.416	0.0005	1.36E-08	7.87
193	213	203	58.8	64.9	61.9	230	3.0	6.10	85.3	0.048	143.417	0.0010	2.72E-08	7.57
193	213	203	58.8	64.9	61.9	230	4.0	6.10	85.3	0.048	143.418	0.0005	1.36E-08	7.87
193	213	203	58.8	64.9	61.9	230	5.0	6.10	85.3	0.048	143.419	0.0010	2.72E-08	7.57
							0.0				143.423			
193	213	203	58.8	64.9	61.9	460	1.0	6.10	108.8	0.048	143.424	0.0010	2.14E-08	7.67
193	213	203	58.8	64.9	61.9	460	2.0	6.10	108.8	0.048	143.426	0.0020	4.27E-08	7.37
193	213	203	58.8	64.9	61.9	460	3.0	6.10	108.8	0.048	143.428	0.0015	3.20E-08	7.49
193	213	203	58.8	64.9	61.9	460	4.0	6.10	108.8	0.048	143.429	0.0015	3.20E-08	7.49
193	213	203	58.8	64.9	61.9	460	5.0	6.10	108.8	0.048	143.431	0.0015	3.20E-08	7.49
							0.0				143.433			
193	213	203	58.8	64.9	61.9	690	1.0	6.10	132.2	0.048	143.435	0.0020	3.51E-08	7.45
193	213	203	58.8	64.9	61.9	690	2.0	6.10	132.2	0.048	143.437	0.0020	3.51E-08	7.45
193	213	203	58.8	64.9	61.9	690	3.0	6.10	132.2	0.048	143.439	0.0020	3.51E-08	7.45
193	213	203	58.8	64.9	61.9	690	4.0	6.10	132.2	0.048	143.441	0.0020	3.51E-08	7.45
193	213	203	58.8	64.9	61.9	690	5.0	6.10	132.2	0.048	143.443	0.0020	3.51E-08	7.45
							0.0				143.445			
193	213	203	58.8	64.9	61.9	460	1.0	6.10	108.8	0.048	143.447	0.0020	4.27E-08	7.37
193	213	203	58.8	64.9	61.9	460	2.0	6.10	108.8	0.048	143.449	0.0020	4.27E-08	7.37
193	213	203	58.8	64.9	61.9	460	3.0	6.10	108.8	0.048	143.450	0.0010	2.14E-08	7.67
193	213	203	58.8	64.9	61.9	460	4.0	6.10	108.8	0.048	143.452	0.0020	4.27E-08	7.37
193	213	203	58.8	64.9	61.9	460	5.0	6.10	108.8	0.048	143.454	0.0020	4.27E-08	7.37
							0.0				143.455			
193	213	203	58.8	64.9	61.9	230	1.0	6.10	85.3	0.048	143.456	0.0005	1.36E-08	7.87
193	213	203	58.8	64.9	61.9	230	2.0	6.10	85.3	0.048	143.457	0.0010	2.72E-08	7.57
193	213	203	58.8	64.9	61.9	230	3.0	6.10	85.3	0.048	143.458	0.0015	4.08E-08	7.39
193	213	203	58.8	64.9	61.9	230	4.0	6.10	85.3	0.048	143.459	0.0010	2.72E-08	7.57
193	213	203	58.8	64.9	61.9	230	5.0	6.10	85.3	0.048	143.460	0.0010	2.72E-08	7.57
							0.0				144.250			
213	233	223	64.9	71.0	68.0	230	1.0	6.10	91.4	0.048	144.250	0.0000		
213	233	223	64.9	71.0	68.0	230	2.0	6.10	91.4	0.048	144.251	0.0010	2.54E-08	7.60
213	233	223	64.9	71.0	68.0	230	3.0	6.10	91.4	0.048	144.251	0.0000		
213	233	223	64.9	71.0	68.0	230	4.0	6.10	91.4	0.048	144.252	0.0010	2.54E-08	7.60
213	233	223	64.9	71.0	68.0	230	5.0	6.10	91.4	0.048	144.252	0.0000		
							0.0				144.257			
213	233	223	64.9	71.0	68.0	410	1.0	6.10	109.8	0.048	144.258	0.0005	1.06E-08	7.98
213	233	223	64.9	71.0	68.0	410	2.0	6.10	109.8	0.048	144.259	0.0015	3.17E-08	7.50
213	233	223	64.9	71.0	68.0	410	3.0	6.10	109.8	0.048	144.260	0.0010	2.12E-08	7.67
213	233	223	64.9	71.0	68.0	410	4.0	6.10	109.8	0.048	144.261	0.0010	2.12E-08	7.67
213	233	223	64.9	71.0	68.0	410	5.0	6.10	109.8	0.048	144.263	0.0015	3.17E-08	7.50
							0.0				144.264			
213	233	223	64.9	71.0	68.0	700	1.0	6.10	139.4	0.048	144.266	0.0020	3.33E-08	7.48
213	233	223	64.9	71.0	68.0	700	2.0	6.10	139.4	0.048	144.268	0.0020	3.33E-08	7.48
213	233	223	64.9	71.0	68.0	700	3.0	6.10	139.4	0.048	144.270	0.0020	3.33E-08	7.48
213	233	223	64.9	71.0	68.0	700	4.0	6.10	139.4	0.048	144.272	0.0020	3.33E-08	7.48
213	233	223	64.9	71.0	68.0	700	5.0	6.10	139.4	0.048	144.274	0.0020	3.33E-08	7.48
							0.0				144.275			
213	233	223	64.9	71.0	68.0	440	1.0	6.10	112.8	0.048	144.276	0.0010	2.06E-08	7.69
213	233	223	64.9	71.0	68.0	440	2.0	6.10	112.8	0.048	144.277	0.0010	2.06E-08	7.69
213	233	223	64.9	71.0	68.0	440	3.0	6.10	112.8	0.048	144.278	0.0010	2.06E-08	7.69
213	233	223	64.9	71.0	68.0	440	4.0	6.10	112.8	0.048	144.280	0.0020	4.12E-08	7.39
213	233	223	64.9	71.0	68.0	440	5.0	6.10	112.8	0.048	144.282	0.0020	4.12E-08	7.39
							0.0				144.283			
213	233	223	64.9	71.0	68.0	240	1.0	6.10	92.4	0.048	144.284	0.0010	2.51E-08	7.60
213	233	223	64.9	71.0	68.0	240	2.0	6.10	92.4	0.048	144.285	0.0010	2.51E-08	7.60
213	233	223	64.9	71.0	68.0	240	3.0	6.10	92.4	0.048	144.286	0.0010	2.51E-08	7.60
213	233	223	64.9	71.0	68.0	240	4.0	6.10	92.4	0.048	144.287	0.0010	2.51E-08	7.60
213	233	223	64.9	71.0	68.0	240	5.0	6.10	92.4	0.048	144.288	0.0010	2.51E-08	7.60
							0.0				144.318			
233	253	243	71.0	77.1	74.1	230	1.0	6.10	97.5	0.048	144.320	0.0020	No packer seal	
233	253	243	71.0	77.1	74.1	230	2.0	6.10	97.5	0.048	144.321	0.0005		

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
233	253	243	71.0	77.1	74.1	230	3.0	6.10	97.5	0.048	144.321	0.0005		
233	253	243	71.0	77.1	74.1	230	4.0	6.10	97.5	0.048	144.322	0.0010		
233	253	243	71.0	77.1	74.1	230	5.0	6.10	97.5	0.048	144.323	0.0010		
							0.0				144.323			
233	253	243	71.0	77.1	74.1	450	1.0	6.10	120.0	0.048	144.325	0.0020		
233	253	243	71.0	77.1	74.1	450	2.0	6.10	120.0	0.048	144.326	0.0010		
233	253	243	71.0	77.1	74.1	450	3.0	6.10	120.0	0.048	144.328	0.0015		
233	253	243	71.0	77.1	74.1	450	4.0	6.10	120.0	0.048	144.330	0.0020		
233	253	243	71.0	77.1	74.1	450	5.0	6.10	120.0	0.048	144.331	0.0015		
							0.0				144.340			
233	253	243	71.0	77.1	74.1	690	1.0	6.10	144.4	0.048	144.360	0.0200		
233	253	243	71.0	77.1	74.1	690	2.0	6.10	144.4	0.048	144.380	0.0200		
233	253	243	71.0	77.1	74.1	690	3.0	6.10	144.4	0.048	144.405	0.0250		
233	253	243	71.0	77.1	74.1	690	4.0	6.10	144.4	0.048	144.425	0.0200		
233	253	243	71.0	77.1	74.1	690	5.0	6.10	144.4	0.048	144.445	0.0200		
							0.0				144.460			
233	253	243	71.0	77.1	74.1	460	1.0	6.10	121.0	0.048	144.475	0.0150		
233	253	243	71.0	77.1	74.1	460	2.0	6.10	121.0	0.048	144.480	0.0050		
233	253	243	71.0	77.1	74.1	460	3.0	6.10	121.0	0.048	144.505	0.0250		
233	253	243	71.0	77.1	74.1	460	4.0	6.10	121.0	0.048	144.520	0.0150		
233	253	243	71.0	77.1	74.1	460	5.0	6.10	121.0	0.048	144.545	0.0250		
							0.0				144.560			
233	253	243	71.0	77.1	74.1	230	1.0	6.10	97.5	0.048	144.570	0.0100		
233	253	243	71.0	77.1	74.1	230	2.0	6.10	97.5	0.048	144.580	0.0100		
233	253	243	71.0	77.1	74.1	230	3.0	6.10	97.5	0.048	144.590	0.0100		
233	253	243	71.0	77.1	74.1	230	4.0	6.10	97.5	0.048	144.600	0.0100		
233	253	243	71.0	77.1	74.1	230	5.0	6.10	97.5	0.048	144.611	0.0110		
							0.0				144.398			
253	273	263	77.1	83.2	80.2	230	1.0	6.10	103.6	0.048	144.399	0.0010	2.24E-08	7.65
253	273	263	77.1	83.2	80.2	230	2.0	6.10	103.6	0.048	144.400	0.0010	2.24E-08	7.65
253	273	263	77.1	83.2	80.2	230	3.0	6.10	103.6	0.048	144.401	0.0010	2.24E-08	7.65
253	273	263	77.1	83.2	80.2	230	4.0	6.10	103.6	0.048	144.402	0.0005	1.12E-08	7.95
253	273	263	77.1	83.2	80.2	230	5.0	6.10	103.6	0.048	144.403	0.0010	2.24E-08	7.65
							0.0				144.404			
253	273	263	77.1	83.2	80.2	460	1.0	6.10	127.1	0.048	144.406	0.0015	2.74E-08	7.56
253	273	263	77.1	83.2	80.2	460	2.0	6.10	127.1	0.048	144.407	0.0015	2.74E-08	7.56
253	273	263	77.1	83.2	80.2	460	3.0	6.10	127.1	0.048	144.408	0.0010	1.83E-08	7.74
253	273	263	77.1	83.2	80.2	460	4.0	6.10	127.1	0.048	144.409	0.0010	1.83E-08	7.74
253	273	263	77.1	83.2	80.2	460	5.0	6.10	127.1	0.048	144.410	0.0010	1.83E-08	7.74
							0.0				144.412			
253	273	263	77.1	83.2	80.2	700	1.0	6.10	151.5	0.048	144.414	0.0020	3.07E-08	7.51
253	273	263	77.1	83.2	80.2	700	2.0	6.10	151.5	0.048	144.416	0.0020	3.07E-08	7.51
253	273	263	77.1	83.2	80.2	700	3.0	6.10	151.5	0.048	144.418	0.0020	3.07E-08	7.51
253	273	263	77.1	83.2	80.2	700	4.0	6.10	151.5	0.048	144.420	0.0020	3.07E-08	7.51
253	273	263	77.1	83.2	80.2	700	5.0	6.10	151.5	0.048	144.422	0.0020	3.07E-08	7.51
							0.0				144.424			
253	273	263	77.1	83.2	80.2	460	1.0	6.10	127.1	0.048	144.425	0.0010	1.83E-08	7.74
253	273	263	77.1	83.2	80.2	460	2.0	6.10	127.1	0.048	144.426	0.0010	1.83E-08	7.74
253	273	263	77.1	83.2	80.2	460	3.0	6.10	127.1	0.048	144.428	0.0020	3.66E-08	7.44
253	273	263	77.1	83.2	80.2	460	4.0	6.10	127.1	0.048	144.429	0.0010	1.83E-08	7.74
253	273	263	77.1	83.2	80.2	460	5.0	6.10	127.1	0.048	144.430	0.0010	1.83E-08	7.74
							0.0				144.431			
253	273	263	77.1	83.2	80.2	230	1.0	6.10	103.6	0.048	144.431	0.0005	1.12E-08	7.95
253	273	263	77.1	83.2	80.2	230	2.0	6.10	103.6	0.048	144.432	0.0005	1.12E-08	7.95
253	273	263	77.1	83.2	80.2	230	3.0	6.10	103.6	0.048	144.432	0.0005	1.12E-08	7.95
253	273	263	77.1	83.2	80.2	230	4.0	6.10	103.6	0.048	144.433	0.0005	1.12E-08	7.95
253	273	263	77.1	83.2	80.2	230	5.0	6.10	103.6	0.048	144.433	0.0005	1.12E-08	7.95
							0.0				144.473			
273	293	283	83.2	89.3	86.3	230	1.0	6.10	109.7	0.048	144.474	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	2.0	6.10	109.7	0.048	144.475	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	3.0	6.10	109.7	0.048	144.476	0.0005	1.06E-08	7.98
273	293	283	83.2	89.3	86.3	230	4.0	6.10	109.7	0.048	144.476	0.0005	1.06E-08	7.98
273	293	283	83.2	89.3	86.3	230	5.0	6.10	109.7	0.048	144.477	0.0010	2.12E-08	7.67
							0.0				144.478			
273	293	283	83.2	89.3	86.3	460	1.0	6.10	133.2	0.048	144.480	0.0020	3.49E-08	7.46
273	293	283	83.2	89.3	86.3	460	2.0	6.10	133.2	0.048	144.482	0.0015	2.62E-08	7.58
273	293	283	83.2	89.3	86.3	460	3.0	6.10	133.2	0.048	144.483	0.0015	2.62E-08	7.58
273	293	283	83.2	89.3	86.3	460	4.0	6.10	133.2	0.048	144.485	0.0015	2.62E-08	7.58
273	293	283	83.2	89.3	86.3	460	5.0	6.10	133.2	0.048	144.486	0.0015	2.62E-08	7.58
							0.0				144.487			
273	293	283	83.2	89.3	86.3	700	1.0	6.10	157.6	0.048	144.490	0.0030	4.42E-08	7.35
273	293	283	83.2	89.3	86.3	700	2.0	6.10	157.6	0.048	144.492	0.0020	2.95E-08	7.53
273	293	283	83.2	89.3	86.3	700	3.0	6.10	157.6	0.048	144.494	0.0020	2.95E-08	7.53
273	293	283	83.2	89.3	86.3	700	4.0	6.10	157.6	0.048	144.496	0.0020	2.95E-08	7.53
273	293	283	83.2	89.3	86.3	700	5.0	6.10	157.6	0.048	144.498	0.0020	2.95E-08	7.53
							0.0				144.499			
273	293	283	83.2	89.3	86.3	460	1.0	6.10	133.2	0.048	144.501	0.0020	3.49E-08	7.46
273	293	283	83.2	89.3	86.3	460	2.0	6.10	133.2	0.048	144.503	0.0020	3.49E-08	7.46
273	293	283	83.2	89.3	86.3	460	3.0	6.10	133.2	0.048	144.505	0.0020	3.49E-08	7.46
273	293	283	83.2	89.3	86.3	460	4.0	6.10	133.2	0.048	144.506	0.0010	1.74E-08	7.76
273	293	283	83.2	89.3	86.3	460	5.0	6.10	133.2	0.048	144.508	0.0020	3.49E-08	7.46
							0.0				144.509			
273	293	283	83.2	89.3	86.3	230	1.0	6.10	109.7	0.048	144.510	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	2.0	6.10	109.7	0.048	144.511	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	3.0	6.10	109.7	0.048	144.512	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	4.0	6.10	109.7	0.048	144.513	0.0010	2.12E-08	7.67
273	293	283	83.2	89.3	86.3	230	5.0	6.10	109.7	0.048	144.514	0.0010	2.12E-08	7.67
							0.0				144.555			
293	313	303	89.3	95.4	92.4	230	1.0	6.10	115.8	0.048	144.556	0.0005	1.00E-08	8.00
293	313	303	89.3	95.4	92.4	230	2.0	6.10	115.8	0.048	144.556	0.0000		
293	313	303	89.3	95.4	92.4	230	3.0	6.10	115.8	0.048	144.556	0.0005	1.00E-08	8.00
293	313	303	89.3	95.4	92.4	230	4.0	6.10	115.8	0.048	144.556	0.0000		
293	313	303	89.3	95.4	92.4	230	5.0	6.10	115.8	0.048	144.557	0.0005	1.00E-08	8.00
							0.0				144.558			
293	313	303	89.3	95.4	92.4	450	1.0	6.10	138.2	0.048	144.559	0.0010	1.68E-08	7.77
293	313	303	89.3	95.4	92.4	450	2.0	6.10	138.2	0.048	144.560	0.0010	1.68E-08	7.77
293	313	303	89.3	95.4	92.4	450	3.0	6.10	138.2	0.048	144.561	0.0010	1.68E-08	7.77
293	313	303	89.3	95.4	92.4	450	4.0	6.10	138.2	0.048	144.562	0.0010	1.68E-08	7.77
293	313	303	89.3	95.4	92.4	450	5.0	6.10	138.2	0.048	144.563	0.0010	1.68E-08	7.77
							0.0				144.565			
293	313	303	89.3	95.4	92.4	700	1.0	6.10	163.7	0.048	144.567	0.0020	2.84E-08	7.55
293	313	303	89.3	95.4	92.4	700	2.0	6.10	163.7	0.048	144.570	0.0030	4.26E-08	7.37
293	313	303	89.3	95.4	92.4	700	3.0	6.10	163.7	0.048	144.573	0.0030	4.26E-08	7.37
293	313	303	89.3	95.4	92.4	700	4.0	6.10	163.7	0.048	144.575	0.0020	2.84E-08	7.55
293	313	303	89.3	95.4	92.4	700	5.0	6.10	163.7	0.048	144.577	0.0020	2.84E-08	7.55
							0.0				144.579			
293	313	303	89.3	95.4	92.4	450	1.0	6.10	138.2	0.048	144.582	0.0030	5.04E-08	7.30

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
293	313	303	89.3	95.4	92.4	450	2.0	6.10	138.2	0.048	144.584	0.0020	3.36E-08	7.47
293	313	303	89.3	95.4	92.4	450	3.0	6.10	138.2	0.048	144.586	0.0020	3.36E-08	7.47
293	313	303	89.3	95.4	92.4	450	4.0	6.10	138.2	0.048	144.588	0.0020	3.36E-08	7.47
293	313	303	89.3	95.4	92.4	450	5.0	6.10	138.2	0.048	144.590	0.0020	3.36E-08	7.47
							0.0				144.591			
293	313	303	89.3	95.4	92.4	230	1.0	6.10	115.8	0.048	144.592	0.0010	2.01E-08	7.70
293	313	303	89.3	95.4	92.4	230	2.0	6.10	115.8	0.048	144.593	0.0010	2.01E-08	7.70
293	313	303	89.3	95.4	92.4	230	3.0	6.10	115.8	0.048	144.594	0.0010	2.01E-08	7.70
293	313	303	89.3	95.4	92.4	230	4.0	6.10	115.8	0.048	144.595	0.0010	2.01E-08	7.70
293	313	303	89.3	95.4	92.4	230	5.0	6.10	115.8	0.048	144.596	0.0010	2.01E-08	7.70
							0.0				144.650			
313	333	323	95.4	101.5	98.5	235	1.0	6.10	122.4	0.048	144.651	0.0010	1.90E-08	7.72
313	333	323	95.4	101.5	98.5	235	2.0	6.10	122.4	0.048	144.652	0.0015	2.85E-08	7.55
313	333	323	95.4	101.5	98.5	235	3.2	6.10	122.4	0.048	144.653	0.0009	1.62E-08	7.79
313	333	323	95.4	101.5	98.5	235	4.0	6.10	122.4	0.048	144.654	0.0012	2.29E-08	7.64
313	333	323	95.4	101.5	98.5	235	5.0	6.10	122.4	0.048	144.655	0.0010	1.90E-08	7.72
							0.0				144.656			
313	333	323	95.4	101.5	98.5	465	1.3	6.10	145.9	0.048	144.658	0.0016	2.55E-08	7.59
313	333	323	95.4	101.5	98.5	465	2.2	6.10	145.9	0.048	144.660	0.0022	3.46E-08	7.46
313	333	323	95.4	101.5	98.5	465	3.0	6.10	145.9	0.048	144.662	0.0024	3.84E-08	7.42
313	333	323	95.4	101.5	98.5	465	4.0	6.10	145.9	0.048	144.664	0.0020	3.18E-08	7.50
313	333	323	95.4	101.5	98.5	465	5.0	6.10	145.9	0.048	144.666	0.0025	3.98E-08	7.40
							0.0				144.668			
313	333	323	95.4	101.5	98.5	700	1.0	6.10	169.8	0.048	144.670	0.0025	3.42E-08	7.47
313	333	323	95.4	101.5	98.5	700	2.2	6.10	169.8	0.048	144.673	0.0026	3.51E-08	7.46
313	333	323	95.4	101.5	98.5	700	3.0	6.10	169.8	0.048	144.676	0.0030	4.12E-08	7.39
313	333	323	95.4	101.5	98.5	700	4.0	6.10	169.8	0.048	144.679	0.0030	4.10E-08	7.39
313	333	323	95.4	101.5	98.5	700	5.0	6.10	169.8	0.048	144.681	0.0025	3.42E-08	7.47
							0.0				144.682			
313	333	323	95.4	101.5	98.5	465	1.0	6.10	145.9	0.048	144.684	0.0015	2.39E-08	7.62
313	333	323	95.4	101.5	98.5	465	2.0	6.10	145.9	0.048	144.687	0.0020	3.18E-08	7.50
313	333	323	95.4	101.5	98.5	465	3.0	6.10	145.9	0.048	144.689	0.0015	2.39E-08	7.62
313	333	323	95.4	101.5	98.5	465	4.0	6.10	145.9	0.048	144.691	0.0015	2.39E-08	7.62
313	333	323	95.4	101.5	98.5	465	5.0	6.10	145.9	0.048	144.693	0.0015	2.39E-08	7.62
							0.0				144.693			
313	333	323	95.4	101.5	98.5	235	1.0	6.10	122.4	0.048	144.695	0.0009	1.71E-08	7.77
313	333	323	95.4	101.5	98.5	235	2.0	6.10	122.4	0.048	144.696	0.0009	1.71E-08	7.77
313	333	323	95.4	101.5	98.5	235	3.0	6.10	122.4	0.048	144.697	0.0004	7.59E-09	8.12
313	333	323	95.4	101.5	98.5	235	4.0	6.10	122.4	0.048	144.699	0.0009	1.71E-08	7.77
313	333	323	95.4	101.5	98.5	235	5.0	6.10	122.4	0.048	144.700	0.0009	1.71E-08	7.77
							0.0				144.810			
333	353	343	101.5	107.6	104.5	235	1.0	6.10	128.5	0.048	144.811	0.0007	1.27E-08	7.90
333	353	343	101.5	107.6	104.5	230	2.0	6.10	128.0	0.048	144.812	0.0008	1.45E-08	7.84
333	353	343	101.5	107.6	104.5	230	3.0	6.10	128.0	0.048	144.813	0.0010	1.81E-08	7.74
333	353	343	101.5	107.6	104.5	230	4.0	6.10	128.0	0.048	144.814	0.0010	1.81E-08	7.74
333	353	343	101.5	107.6	104.5	230	5.0	6.10	128.0	0.048	144.815	0.0011	2.00E-08	7.70
							0.0				144.817			
333	353	343	101.5	107.6	104.5	470	1.0	6.10	152.5	0.048	144.819	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	2.0	6.10	152.5	0.048	144.821	0.0019	2.89E-08	7.54
333	353	343	101.5	107.6	104.5	470	3.0	6.10	152.5	0.048	144.823	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	4.0	6.10	152.5	0.048	144.825	0.0016	2.44E-08	7.61
333	353	343	101.5	107.6	104.5	470	5.0	6.10	152.5	0.048	144.827	0.0020	3.05E-08	7.52
							0.0				144.832			
333	353	343	101.5	107.6	104.5	680	1.0	6.10	173.9	0.048	144.835	0.0025	3.34E-08	7.48
333	353	343	101.5	107.6	104.5	680	2.0	6.10	173.9	0.048	144.837	0.0025	3.34E-08	7.48
333	353	343	101.5	107.6	104.5	680	3.0	6.10	173.9	0.048	144.840	0.0025	3.34E-08	7.48
333	353	343	101.5	107.6	104.5	680	4.0	6.10	173.9	0.048	144.842	0.0025	3.34E-08	7.48
333	353	343	101.5	107.6	104.5	680	5.0	6.10	173.9	0.048	144.845	0.0030	4.01E-08	7.40
							0.0				144.846			
333	353	343	101.5	107.6	104.5	470	1.0	6.10	152.5	0.048	144.848	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	2.0	6.10	152.5	0.048	144.850	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	3.0	6.10	152.5	0.048	144.852	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	4.0	6.10	152.5	0.048	144.854	0.0020	3.05E-08	7.52
333	353	343	101.5	107.6	104.5	470	5.0	6.10	152.5	0.048	144.856	0.0020	3.05E-08	7.52
							0.0				144.857			
333	353	343	101.5	107.6	104.5	230	1.0	6.10	128.0	0.048	144.858	0.0013	2.36E-08	7.63
333	353	343	101.5	107.6	104.5	230	2.0	6.10	128.0	0.048	144.859	0.0012	2.18E-08	7.66
333	353	343	101.5	107.6	104.5	230	3.0	6.10	128.0	0.048	144.860	0.0012	2.18E-08	7.66
333	353	343	101.5	107.6	104.5	230	4.0	6.10	128.0	0.048	144.861	0.0010	1.81E-08	7.74
333	353	343	101.5	107.6	104.5	230	5.0	6.10	128.0	0.048	144.863	0.0013	2.36E-08	7.63
							0.0				144.981			
353	373	363	107.6	113.7	110.6	230	1.0	6.10	134.1	0.048	144.990	0.0090	1.56E-07	6.81
353	373	363	107.6	113.7	110.6	230	2.0	6.10	134.1	0.048	144.998	0.0080	1.39E-07	6.86
353	373	363	107.6	113.7	110.6	230	3.0	6.10	134.1	0.048	145.007	0.0090	1.56E-07	6.81
353	373	363	107.6	113.7	110.6	230	4.0	6.10	134.1	0.048	145.016	0.0090	1.56E-07	6.81
353	373	363	107.6	113.7	110.6	230	5.0	6.10	134.1	0.048	145.025	0.0085	1.47E-07	6.83
							0.0				145.035			
353	373	363	107.6	113.7	110.6	470	1.0	6.10	158.6	0.048	145.049	0.0135	1.98E-07	6.70
353	373	363	107.6	113.7	110.6	470	2.0	6.10	158.6	0.048	145.062	0.0130	1.90E-07	6.72
353	373	363	107.6	113.7	110.6	470	3.0	6.10	158.6	0.048	145.075	0.0135	1.98E-07	6.70
353	373	363	107.6	113.7	110.6	470	4.0	6.10	158.6	0.048	145.088	0.0130	1.90E-07	6.72
353	373	363	107.6	113.7	110.6	470	5.0	6.10	158.6	0.048	145.102	0.0135	1.98E-07	6.70
							0.0				145.120			
353	373	363	107.6	113.7	110.6	700	1.0	6.10	182.0	0.048	145.136	0.0160	2.04E-07	6.69
353	373	363	107.6	113.7	110.6	700	2.0	6.10	182.0	0.048	145.151	0.0150	1.91E-07	6.72
353	373	363	107.6	113.7	110.6	700	3.0	6.10	182.0	0.048	145.167	0.0160	2.04E-07	6.69
353	373	363	107.6	113.7	110.6	750	4.0	6.10	187.1	0.048	145.182	0.0150	1.86E-07	6.73
353	373	363	107.6	113.7	110.6	700	5.0	6.10	182.0	0.048	145.195	0.0130	1.66E-07	6.78
							0.0				145.205			
353	373	363	107.6	113.7	110.6	470	1.0	6.10	158.6	0.048	145.216	0.0105	1.54E-07	6.81
353	373	363	107.6	113.7	110.6	470	2.0	6.10	158.6	0.048	145.226	0.0105	1.54E-07	6.81
353	373	363	107.6	113.7	110.6	470	3.0	6.10	158.6	0.048	145.237	0.0110	1.61E-07	6.79
353	373	363	107.6	113.7	110.6	470	4.0	6.10	158.6	0.048	145.248	0.0110	1.61E-07	6.79
353	373	363	107.6	113.7	110.6	470	5.0	6.10	158.6	0.048	145.258	0.0100	1.46E-07	6.83
							0.0				145.264			
353	373	363	107.6	113.7	110.6	230	1.0	6.10	134.1	0.048	145.271	0.0070	1.21E-07	6.92
353	373	363	107.6	113.7	110.6	230	2.0	6.10	134.1	0.048	145.279	0.0075	1.30E-07	6.89
353	373	363	107.6	113.7	110.6	230	3.0	6.10	134.1	0.048	145.285	0.0065	1.13E-07	6.95
353	373	363	107.6	113.7	110.6	230	4.0	6.10	134.1	0.048	145.292	0.0070	1.21E-07	6.92
353	373	363	107.6	113.7	110.6	230	5.0	6.10	134.1	0.048	145.299	0.0070	1.21E-07	6.92
							0.0				145.356			
373	393	383	113.7	119.8	116.7	230	1.0	6.10	140.2	0.048	145.357	0.0009	1.49E-08	7.83
373	393	383	113.7	119.8	116.7	230	2.0	6.10	140.2	0.048	145.358	0.0011	1.82E-08	7.74
373	393	383	113.7	119.8	116.7	230	3.0	6.10	140.2	0.048	145.359	0.0010	1.66E-08	7.78
373	393	383	113.7	119.8	116.7	230	4.0	6.10	140.2	0.048	145.360	0.0010	1.66E-08	7.78
373	393	383	113.7	119.8	116.7	230	5.0	6.10	140.2	0.048	145.361	0.0010	1.66E-08	7.78
							0.0				145.362			

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
373	393	383	113.7	119.8	116.7	460	1.0	6.10	163.6	0.048	145.364	0.0020	2.84E-08	7.55
373	393	383	113.7	119.8	116.7	460	2.0	6.10	163.6	0.048	145.366	0.0020	2.84E-08	7.55
373	393	383	113.7	119.8	116.7	460	3.0	6.10	163.6	0.048	145.368	0.0020	2.84E-08	7.55
373	393	383	113.7	119.8	116.7	460	4.0	6.10	163.6	0.048	145.371	0.0025	3.55E-08	7.45
373	393	383	113.7	119.8	116.7	460	5.0	6.10	163.6	0.048	145.373	0.0020	2.84E-08	7.55
							0.0				145.375			
373	393	383	113.7	119.8	116.7	700	1.0	6.10	188.1	0.048	145.378	0.0030	3.70E-08	7.43
373	393	383	113.7	119.8	116.7	700	2.0	6.10	188.1	0.048	nan			
373	393	383	113.7	119.8	116.7	700	3.0	6.10	188.1	0.048	145.383			
373	393	383	113.7	119.8	116.7	700	4.0	6.10	188.1	0.048	145.386	0.0028	3.46E-08	7.46
373	393	383	113.7	119.8	116.7	700	5.0	6.10	188.1	0.048	145.389	0.0029	3.58E-08	7.45
							0.0				145.391			
373	393	383	113.7	119.8	116.7	470	1.0	6.10	164.7	0.048	145.393	0.0020	2.82E-08	7.55
373	393	383	113.7	119.8	116.7	470	2.0	6.10	164.7	0.048	145.395	0.0020	2.82E-08	7.55
373	393	383	113.7	119.8	116.7	470	3.0	6.10	164.7	0.048	145.397	0.0020	2.82E-08	7.55
373	393	383	113.7	119.8	116.7	470	4.0	6.10	164.7	0.048	145.400	0.0025	3.53E-08	7.45
373	393	383	113.7	119.8	116.7	470	5.0	6.10	164.7	0.048	145.402	0.0020	2.82E-08	7.55
							0.0				145.403			
373	393	383	113.7	119.8	116.7	230	1.0	6.10	140.2	0.048	145.404	0.0012	1.99E-08	7.70
373	393	383	113.7	119.8	116.7	230	2.0	6.10	140.2	0.048	145.406	0.0015	2.49E-08	7.60
373	393	383	113.7	119.8	116.7	230	3.0	6.10	140.2	0.048	145.407	0.0013	2.15E-08	7.67
373	393	383	113.7	119.8	116.7	230	4.0	6.10	140.2	0.048	145.408	0.0012	1.99E-08	7.70
373	393	383	113.7	119.8	116.7	230	5.0	6.10	140.2	0.048	145.410	0.0013	2.15E-08	7.67
							0.0				145.447			
393	413	403	119.8	125.9	122.8	230	1.0	6.10	146.3	0.048	145.448	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	2.0	6.10	146.3	0.048	145.449	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	3.0	6.10	146.3	0.048	145.450	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	4.0	6.10	146.3	0.048	145.451	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	5.0	6.10	146.3	0.048	145.452	0.0010	1.59E-08	7.80
							0.0				145.454			
393	413	403	119.8	125.9	122.8	460	1.0	6.10	169.7	0.048	145.456	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	2.0	6.10	169.7	0.048	145.458	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	3.0	6.10	169.7	0.048	145.460	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	4.0	6.10	169.7	0.048	145.462	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	5.0	6.10	169.7	0.048	145.464	0.0020	2.74E-08	7.56
							0.0				145.467			
393	413	403	119.8	125.9	122.8	700	1.0	6.10	194.2	0.048	145.470	0.0030	3.59E-08	7.45
393	413	403	119.8	125.9	122.8	700	2.0	6.10	194.2	0.048	145.472	0.0020	2.39E-08	7.62
393	413	403	119.8	125.9	122.8	700	3.0	6.10	194.2	0.048	145.475	0.0025	2.99E-08	7.52
393	413	403	119.8	125.9	122.8	700	4.0	6.10	194.2	0.048	145.477	0.0020	2.39E-08	7.62
393	413	403	119.8	125.9	122.8	700	5.0	6.10	194.2	0.048	145.479	0.0025	2.99E-08	7.52
							0.0				145.480			
393	413	403	119.8	125.9	122.8	460	1.0	6.10	169.7	0.048	145.482	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	2.0	6.10	169.7	0.048	145.484	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	3.0	6.10	169.7	0.048	145.486	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	4.0	6.10	169.7	0.048	145.488	0.0020	2.74E-08	7.56
393	413	403	119.8	125.9	122.8	460	5.0	6.10	169.7	0.048	145.490	0.0020	2.74E-08	7.56
							0.0				145.492			
393	413	403	119.8	125.9	122.8	230	1.0	6.10	146.3	0.048	145.492	0.0005	7.94E-09	8.10
393	413	403	119.8	125.9	122.8	230	2.0	6.10	146.3	0.048	145.493	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	3.0	6.10	146.3	0.048	145.494	0.0005	7.94E-09	8.10
393	413	403	119.8	125.9	122.8	230	4.0	6.10	146.3	0.048	145.495	0.0010	1.59E-08	7.80
393	413	403	119.8	125.9	122.8	230	5.0	6.10	146.3	0.048	145.496	0.0010	1.59E-08	7.80
							0.0				145.545			
413	433	423	125.9	132.0	128.9	230	1.0	6.10	152.4	0.048	145.546	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	2.0	6.10	152.4	0.048	145.547	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	3.0	6.10	152.4	0.048	145.548	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	4.0	6.10	152.4	0.048	145.549	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	5.0	6.10	152.4	0.048	145.550	0.0010	1.52E-08	7.82
							0.0				145.553			
413	433	423	125.9	132.0	128.9	460	1.0	6.10	175.8	0.048	145.555	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	2.0	6.10	175.8	0.048	145.557	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	3.0	6.10	175.8	0.048	145.560	0.0030	3.96E-08	7.40
413	433	423	125.9	132.0	128.9	460	4.0	6.10	175.8	0.048	145.562	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	5.0	6.10	175.8	0.048	145.564	0.0020	2.64E-08	7.58
							0.0				145.568			
413	433	423	125.9	132.0	128.9	700	1.0	6.10	200.3	0.048	145.571	0.0030	3.48E-08	7.46
413	433	423	125.9	132.0	128.9	700	2.0	6.10	200.3	0.048	145.574	0.0030	3.48E-08	7.46
413	433	423	125.9	132.0	128.9	700	3.0	6.10	200.3	0.048	145.577	0.0030	3.48E-08	7.46
413	433	423	125.9	132.0	128.9	700	4.0	6.10	200.3	0.048	145.580	0.0030	3.48E-08	7.46
413	433	423	125.9	132.0	128.9	700	5.0	6.10	200.3	0.048	145.583	0.0030	3.48E-08	7.46
							0.0				145.584			
413	433	423	125.9	132.0	128.9	460	1.0	6.10	175.8	0.048	145.586	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	2.0	6.10	175.8	0.048	145.589	0.0030	3.96E-08	7.40
413	433	423	125.9	132.0	128.9	460	3.0	6.10	175.8	0.048	145.591	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	4.0	6.10	175.8	0.048	145.593	0.0020	2.64E-08	7.58
413	433	423	125.9	132.0	128.9	460	5.0	6.10	175.8	0.048	145.595	0.0020	2.64E-08	7.58
							0.0				145.596			
413	433	423	125.9	132.0	128.9	230	1.0	6.10	152.4	0.048	145.597	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	2.0	6.10	152.4	0.048	145.598	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	3.0	6.10	152.4	0.048	145.599	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	4.0	6.10	152.4	0.048	145.600	0.0010	1.52E-08	7.82
413	433	423	125.9	132.0	128.9	230	5.0	6.10	152.4	0.048	145.601	0.0010	1.52E-08	7.82
							0.0				145.637			
433	453	443	132.0	138.1	135.0	230	1.0	6.10	158.5	0.048	145.638	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	2.0	6.10	158.5	0.048	145.638	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	3.0	6.10	158.5	0.048	145.639	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	4.0	6.10	158.5	0.048	145.639	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	5.0	6.10	158.5	0.048	145.640	0.0010	1.47E-08	7.83
							0.0				145.641			
433	453	443	132.0	138.1	135.0	460	1.0	6.10	181.9	0.048	145.642	0.0010	1.28E-08	7.89
433	453	443	132.0	138.1	135.0	460	2.0	6.10	181.9	0.048	145.644	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	3.0	6.10	181.9	0.048	145.646	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	4.0	6.10	181.9	0.048	145.648	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	5.0	6.10	181.9	0.048	145.650	0.0020	2.55E-08	7.59
							0.0				145.651			
433	453	443	132.0	138.1	135.0	700	1.0	6.10	206.4	0.048	145.653	0.0020	2.25E-08	7.65
433	453	443	132.0	138.1	135.0	700	2.0	6.10	206.4	0.048	145.655	0.0020	2.25E-08	7.65
433	453	443	132.0	138.1	135.0	700	3.0	6.10	206.4	0.048	145.657	0.0020	2.25E-08	7.65
433	453	443	132.0	138.1	135.0	700	4.0	6.10	206.4	0.048	145.659	0.0020	2.25E-08	7.65
433	453	443	132.0	138.1	135.0	700	5.0	6.10	206.4	0.048	145.661	0.0020	2.25E-08	7.65
							0.0				145.662			
433	453	443	132.0	138.1	135.0	460	1.0	6.10	181.9	0.048	145.663	0.0010	1.28E-08	7.89
433	453	443	132.0	138.1	135.0	460	2.0	6.10	181.9	0.048	145.665	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	3.0	6.10	181.9	0.048	145.667	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	4.0	6.10	181.9	0.048	145.669	0.0020	2.55E-08	7.59
433	453	443	132.0	138.1	135.0	460	5.0	6.10	181.9	0.048	145.670	0.0010	1.28E-08	7.89

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				145.671			
433	453	443	132.0	138.1	135.0	230	1.0	6.10	158.5	0.048	145.672	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	2.0	6.10	158.5	0.048	145.672	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	3.0	6.10	158.5	0.048	145.673	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	4.0	6.10	158.5	0.048	145.673	0.0005	7.33E-09	8.13
433	453	443	132.0	138.1	135.0	230	5.0	6.10	158.5	0.048	145.674	0.0005	7.33E-09	8.13
							0.0				145.709			
453	473	463	138.1	144.2	141.1	230	1.0	6.10	164.6	0.048	145.709	0.0000		
453	473	463	138.1	144.2	141.1	230	2.0	6.10	164.6	0.048	145.710	0.0005	7.06E-09	8.15
453	473	463	138.1	144.2	141.1	230	3.0	6.10	164.6	0.048	145.710	0.0000		
453	473	463	138.1	144.2	141.1	230	4.0	6.10	164.6	0.048	145.710	0.0005	7.06E-09	8.15
453	473	463	138.1	144.2	141.1	230	5.0	6.10	164.6	0.048	145.711	0.0005	7.06E-09	8.15
							0.0				145.711			
453	473	463	138.1	144.2	141.1	460	1.0	6.10	188.0	0.048	145.712	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	2.0	6.10	188.0	0.048	145.713	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	3.0	6.10	188.0	0.048	145.714	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	4.0	6.10	188.0	0.048	145.715	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	5.0	6.10	188.0	0.048	145.716	0.0010	1.24E-08	7.91
							0.0				145.717			
453	473	463	138.1	144.2	141.1	700	1.0	6.10	212.5	0.048	145.719	0.0020	2.19E-08	7.66
453	473	463	138.1	144.2	141.1	700	2.0	6.10	212.5	0.048	145.721	0.0020	2.19E-08	7.66
453	473	463	138.1	144.2	141.1	700	3.0	6.10	212.5	0.048	145.723	0.0020	2.19E-08	7.66
453	473	463	138.1	144.2	141.1	700	4.0	6.10	212.5	0.048	145.725	0.0020	2.19E-08	7.66
453	473	463	138.1	144.2	141.1	700	5.0	6.10	212.5	0.048	145.727	0.0020	2.19E-08	7.66
							0.0				145.728			
453	473	463	138.1	144.2	141.1	460	1.0	6.10	188.0	0.048	145.729	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	2.0	6.10	188.0	0.048	145.730	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	3.0	6.10	188.0	0.048	145.731	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	4.0	6.10	188.0	0.048	145.732	0.0010	1.24E-08	7.91
453	473	463	138.1	144.2	141.1	460	5.0	6.10	188.0	0.048	145.733	0.0010	1.24E-08	7.91
							0.0				145.734			
453	473	463	138.1	144.2	141.1	230	1.0	6.10	164.6	0.048	145.736	0.0015	2.12E-08	7.67
453	473	463	138.1	144.2	141.1	230	2.0	6.10	164.6	0.048	145.737	0.0010	1.41E-08	7.85
453	473	463	138.1	144.2	141.1	230	3.0	6.10	164.6	0.048	145.738	0.0010	1.41E-08	7.85
453	473	463	138.1	144.2	141.1	230	4.0	6.10	164.6	0.048	145.739	0.0010	1.41E-08	7.85
453	473	463	138.1	144.2	141.1	230	5.0	6.10	164.6	0.048	145.740	0.0010	1.41E-08	7.85

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-2: PACKER TEST RESULTS - MW-MT-08-02

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				146.082			
733	763	748	223.4	232.6	228.0	230	1.0	9.14	251.4	0.048	146.084	0.0020	1.23E-08	7.91
733	763	748	223.4	232.6	228.0	230	2.0	9.14	251.4	0.048	146.086	0.0015	9.24E-09	8.03
733	763	748	223.4	232.6	228.0	230	3.0	9.14	251.4	0.048	146.087	0.0015	9.24E-09	8.03
733	763	748	223.4	232.6	228.0	230	4.0	9.14	251.4	0.048	146.089	0.0020	1.23E-08	7.91
733	763	748	223.4	232.6	228.0	230	5.0	9.14	251.4	0.048	146.091	0.0020	1.23E-08	7.91
							0.0				146.093			
733	763	748	223.4	232.6	228.0	460	1.0	9.14	274.9	0.048	146.096	0.0030	1.69E-08	7.77
733	763	748	223.4	232.6	228.0	460	2.0	9.14	274.9	0.048	146.098	0.0020	1.13E-08	7.95
733	763	748	223.4	232.6	228.0	460	3.0	9.14	274.9	0.048	146.101	0.0030	1.69E-08	7.77
733	763	748	223.4	232.6	228.0	460	4.0	9.14	274.9	0.048	146.103	0.0020	1.13E-08	7.95
733	763	748	223.4	232.6	228.0	460	5.0	9.14	274.9	0.048	146.105	0.0020	1.13E-08	7.95
							0.0				146.107			
733	763	748	223.4	232.6	228.0	700	1.0	9.14	299.4	0.048	146.111	0.0040	2.07E-08	7.68
733	763	748	223.4	232.6	228.0	700	2.0	9.14	299.4	0.048	146.115	0.0040	2.07E-08	7.68
733	763	748	223.4	232.6	228.0	700	3.0	9.14	299.4	0.048	146.118	0.0030	1.55E-08	7.81
733	763	748	223.4	232.6	228.0	700	4.0	9.14	299.4	0.048	146.122	0.0040	2.07E-08	7.68
733	763	748	223.4	232.6	228.0	700	5.0	9.14	299.4	0.048	146.127	0.0050	2.59E-08	7.59
							0.0				146.128			
733	763	748	223.4	232.6	228.0	460	1.0	9.14	274.9	0.048	146.131	0.0030	1.69E-08	7.77
733	763	748	223.4	232.6	228.0	460	2.0	9.14	274.9	0.048	146.135	0.0040	2.25E-08	7.65
733	763	748	223.4	232.6	228.0	460	3.0	9.14	274.9	0.048	146.138	0.0030	1.69E-08	7.77
733	763	748	223.4	232.6	228.0	460	4.0	9.14	274.9	0.048	146.142	0.0040	2.25E-08	7.65
733	763	748	223.4	232.6	228.0	460	5.0	9.14	274.9	0.048	146.145	0.0030	1.69E-08	7.77
							0.0				146.146			
733	763	748	223.4	232.6	228.0	230	1.0	9.14	251.4	0.048	146.148	0.0020	1.23E-08	7.91
733	763	748	223.4	232.6	228.0	230	2.0	9.14	251.4	0.048	146.151	0.0030	1.85E-08	7.73
733	763	748	223.4	232.6	228.0	230	3.0	9.14	251.4	0.048	146.153	0.0020	1.23E-08	7.91
733	763	748	223.4	232.6	228.0	230	4.0	9.14	251.4	0.048	146.155	0.0020	1.23E-08	7.91
733	763	748	223.4	232.6	228.0	230	5.0	9.14	251.4	0.048	146.157	0.0020	1.23E-08	7.91
							0.0				146.502			
703	733	718	214.3	223.4	218.8	230	1.0	9.14	242.3	0.048	146.504	0.0020	1.28E-08	7.89
703	733	718	214.3	223.4	218.8	230	2.0	9.14	242.3	0.048	146.507	0.0030	1.92E-08	7.72
703	733	718	214.3	223.4	218.8	230	3.0	9.14	242.3	0.048	146.509	0.0020	1.28E-08	7.89
703	733	718	214.3	223.4	218.8	230	4.0	9.14	242.3	0.048	146.511	0.0020	1.28E-08	7.89
703	733	718	214.3	223.4	218.8	230	5.0	9.14	242.3	0.048	146.514	0.0030	1.92E-08	7.72
							0.0				146.515			
703	733	718	214.3	223.4	218.8	460	1.0	9.14	265.8	0.048	146.517	0.0020	1.17E-08	7.93
703	733	718	214.3	223.4	218.8	460	2.0	9.14	265.8	0.048	146.520	0.0030	1.75E-08	7.76
703	733	718	214.3	223.4	218.8	460	3.0	9.14	265.8	0.048	146.524	0.0040	2.33E-08	7.63
703	733	718	214.3	223.4	218.8	460	4.0	9.14	265.8	0.048	146.527	0.0030	1.75E-08	7.76
703	733	718	214.3	223.4	218.8	460	5.0	9.14	265.8	0.048	146.530	0.0030	1.75E-08	7.76
							0.0				146.531			
703	733	718	214.3	223.4	218.8	700	1.0	9.14	290.2	0.048	146.535	0.0040	2.13E-08	7.67
703	733	718	214.3	223.4	218.8	700	2.0	9.14	290.2	0.048	146.540	0.0050	2.67E-08	7.57
703	733	718	214.3	223.4	218.8	700	3.0	9.14	290.2	0.048	146.544	0.0040	2.13E-08	7.67
703	733	718	214.3	223.4	218.8	700	4.0	9.14	290.2	0.048	146.548	0.0040	2.13E-08	7.67
703	733	718	214.3	223.4	218.8	700	5.0	9.14	290.2	0.048	146.552	0.0040	2.13E-08	7.67
							0.0				146.553			
703	733	718	214.3	223.4	218.8	460	1.0	9.14	265.8	0.048	146.556	0.0030	1.75E-08	7.76
703	733	718	214.3	223.4	218.8	460	2.0	9.14	265.8	0.048	146.560	0.0040	2.33E-08	7.63
703	733	718	214.3	223.4	218.8	460	3.0	9.14	265.8	0.048	146.564	0.0040	2.33E-08	7.63
703	733	718	214.3	223.4	218.8	460	4.0	9.14	265.8	0.048	146.566	0.0020	1.17E-08	7.93
703	733	718	214.3	223.4	218.8	460	5.0	9.14	265.8	0.048	146.569	0.0030	1.75E-08	7.76
							0.0				146.570			
703	733	718	214.3	223.4	218.8	230	1.0	9.14	242.3	0.048	146.573	0.0030	1.92E-08	7.72
703	733	718	214.3	223.4	218.8	230	2.0	9.14	242.3	0.048	146.575	0.0020	1.28E-08	7.89
703	733	718	214.3	223.4	218.8	230	3.0	9.14	242.3	0.048	146.578	0.0030	1.92E-08	7.72
703	733	718	214.3	223.4	218.8	230	4.0	9.14	242.3	0.048	146.580	0.0020	1.28E-08	7.89
703	733	718	214.3	223.4	218.8	230	5.0	9.14	242.3	0.048	146.582	0.0020	1.28E-08	7.89
							0.0				146.918			
673	703	688	205.1	214.3	209.7	230	1.0	9.14	233.2	0.048	146.920	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	2.0	9.14	233.2	0.048	146.922	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	3.0	9.14	233.2	0.048	146.924	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	4.0	9.14	233.2	0.048	146.926	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	5.0	9.14	233.2	0.048	146.928	0.0020	1.33E-08	7.88
							0.0				146.929			
673	703	688	205.1	214.3	209.7	460	1.0	9.14	256.6	0.048	146.931	0.0020	1.21E-08	7.92
673	703	688	205.1	214.3	209.7	460	2.0	9.14	256.6	0.048	146.933	0.0020	1.21E-08	7.92
673	703	688	205.1	214.3	209.7	460	3.0	9.14	256.6	0.048	146.935	0.0020	1.21E-08	7.92
673	703	688	205.1	214.3	209.7	460	4.0	9.14	256.6	0.048	146.937	0.0020	1.21E-08	7.92
673	703	688	205.1	214.3	209.7	460	5.0	9.14	256.6	0.048	146.939	0.0020	1.21E-08	7.92
							0.0				146.942			
673	703	688	205.1	214.3	209.7	700	1.0	9.14	281.1	0.048	146.945	0.0030	1.65E-08	7.78
673	703	688	205.1	214.3	209.7	700	2.0	9.14	281.1	0.048	146.948	0.0030	1.65E-08	7.78
673	703	688	205.1	214.3	209.7	700	3.0	9.14	281.1	0.048	146.952	0.0040	2.20E-08	7.66
673	703	688	205.1	214.3	209.7	700	4.0	9.14	281.1	0.048	146.957	0.0050	2.75E-08	7.56
673	703	688	205.1	214.3	209.7	700	5.0	9.14	281.1	0.048	146.961	0.0040	2.20E-08	7.66
							0.0				146.963			
673	703	688	205.1	214.3	209.7	460	1.0	9.14	256.6	0.048	146.966	0.0030	1.81E-08	7.74
673	703	688	205.1	214.3	209.7	460	2.0	9.14	256.6	0.048	146.968	0.0020	1.21E-08	7.92
673	703	688	205.1	214.3	209.7	460	3.0	9.14	256.6	0.048	146.972	0.0040	2.41E-08	7.62
673	703	688	205.1	214.3	209.7	460	4.0	9.14	256.6	0.048	146.975	0.0030	1.81E-08	7.74
673	703	688	205.1	214.3	209.7	460	5.0	9.14	256.6	0.048	146.978	0.0030	1.81E-08	7.74
							0.0				146.979			
673	703	688	205.1	214.3	209.7	230	1.0	9.14	233.2	0.048	146.981	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	2.0	9.14	233.2	0.048	146.983	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	3.0	9.14	233.2	0.048	146.985	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	4.0	9.14	233.2	0.048	146.987	0.0020	1.33E-08	7.88
673	703	688	205.1	214.3	209.7	230	5.0	9.14	233.2	0.048	146.989	0.0020	1.33E-08	7.88
							0.0				147.951			
643	673	658	196.0	205.1	200.6	230	1.0	9.14	224.0	0.048	147.953	0.0015	1.04E-08	7.98
643	673	658	196.0	205.1	200.6	230	2.0	9.14	224.0	0.048	147.954	0.0015	1.04E-08	7.98
643	673	658	196.0	205.1	200.6	230	3.0	9.14	224.0	0.048	147.955	0.0010	6.91E-09	8.16
643	673	658	196.0	205.1	200.6	230	4.0	9.14	224.0	0.048	147.957	0.0020	1.38E-08	7.86
643	673	658	196.0	205.1	200.6	230	5.0	9.14	224.0	0.048	147.958	0.0005		
							0.0				147.960			
643	673	658	196.0	205.1	200.6	450	1.0	9.14	246.4	0.048	147.962	0.0015	9.43E-09	8.03
643	673	658	196.0	205.1	200.6	450	2.0	9.14	246.4	0.048	147.963	0.0015	9.43E-09	8.03

643	673	658	196.0	205.1	200.6	450	3.0	9.14	246.4	0.048	147.965	0.0020	1.26E-08	7.90
643	673	658	196.0	205.1	200.6	450	4.0	9.14	246.4	0.048	147.967	0.0015	9.43E-09	8.03
643	673	658	196.0	205.1	200.6	450	5.0	9.14	246.4	0.048	147.968	0.0015	9.43E-09	8.03
							0.0				147.974			
643	673	658	196.0	205.1	200.6	690	1.0	9.14	270.9	0.048	147.977	0.0020	1.14E-08	7.94
643	673	658	196.0	205.1	200.6	690	2.0	9.14	270.9	0.048	147.980	0.0025	1.43E-08	7.84
643	673	658	196.0	205.1	200.6	690	3.0	9.14	270.9	0.048	147.983	0.0030	1.71E-08	7.77
643	673	658	196.0	205.1	200.6	690	4.0	9.14	270.9	0.048	147.985	0.0025	1.43E-08	7.84
643	673	658	196.0	205.1	200.6	690	5.0	9.14	270.9	0.048	147.988	0.0025	1.43E-08	7.84
							0.0				147.994			
643	673	658	196.0	205.1	200.6	460	1.0	9.14	247.5	0.048	147.996	0.0020	1.25E-08	7.90
643	673	658	196.0	205.1	200.6	460	2.0	9.14	247.5	0.048	147.999	0.0025	1.56E-08	7.81
643	673	658	196.0	205.1	200.6	460	3.0	9.14	247.5	0.048	148.001	0.0020	1.25E-08	7.90
643	673	658	196.0	205.1	200.6	460	4.0	9.14	247.5	0.048	148.003	0.0025	1.56E-08	7.81
643	673	658	196.0	205.1	200.6	460	5.0	9.14	247.5	0.048	148.005	0.0020	1.25E-08	7.90
							0.0				148.011			
643	673	658	196.0	205.1	200.6	230	1.0	9.14	224.0	0.048	148.013	0.0015	1.04E-08	7.98
643	673	658	196.0	205.1	200.6	230	2.0	9.14	224.0	0.048	148.014	0.0015	1.04E-08	7.98
643	673	658	196.0	205.1	200.6	230	3.0	9.14	224.0	0.048	148.016	0.0020	1.38E-08	7.86
643	673	658	196.0	205.1	200.6	230	4.0	9.14	224.0	0.048	148.018	0.0015	1.04E-08	7.98
643	673	658	196.0	205.1	200.6	230	5.0	9.14	224.0	0.048	148.019	0.0015	1.04E-08	7.98
							0.0				148.349			
613	643	628	186.8	196.0	191.4	240	1.0	9.14	215.9	0.048	148.351	0.0015	1.08E-08	7.97
613	643	628	186.8	196.0	191.4	240	2.0	9.14	215.9	0.048	148.352	0.0015	1.08E-08	7.97
613	643	628	186.8	196.0	191.4	240	3.0	9.14	215.9	0.048	148.353	0.0010	7.17E-09	8.14
613	643	628	186.8	196.0	191.4	240	4.0	9.14	215.9	0.048	148.355	0.0015	1.08E-08	7.97
613	643	628	186.8	196.0	191.4	240	5.0	9.14	215.9	0.048	148.356	0.0010	7.17E-09	8.14
							0.0				148.358			
613	643	628	186.8	196.0	191.4	460	1.0	9.14	238.3	0.048	148.360	0.0020	1.30E-08	7.89
613	643	628	186.8	196.0	191.4	460	2.0	9.14	238.3	0.048	148.362	0.0015	9.75E-09	8.01
613	643	628	186.8	196.0	191.4	460	3.0	9.14	238.3	0.048	148.364	0.0020	1.30E-08	7.89
613	643	628	186.8	196.0	191.4	460	4.0	9.14	238.3	0.048	148.365	0.0015	9.75E-09	8.01
613	643	628	186.8	196.0	191.4	460	5.0	9.14	238.3	0.048	148.367	0.0020	1.30E-08	7.89
							0.0				148.374			
613	643	628	186.8	196.0	191.4	700	1.0	9.14	262.8	0.048	148.377	0.0030	1.77E-08	7.75
613	643	628	186.8	196.0	191.4	700	2.0	9.14	262.8	0.048	148.380	0.0025	1.47E-08	7.83
613	643	628	186.8	196.0	191.4	700	3.0	9.14	262.8	0.048	148.383	0.0030	1.77E-08	7.75
613	643	628	186.8	196.0	191.4	700	4.0	9.14	262.8	0.048	148.385	0.0020	1.18E-08	7.93
613	643	628	186.8	196.0	191.4	700	5.0	9.14	262.8	0.048	148.387	0.0025	1.47E-08	7.83
							0.0				148.713			
583	613	598	177.7	186.8	182.3	230	1.0	9.14	205.7	0.048	148.715	0.0015	1.13E-08	7.95
583	613	598	177.7	186.8	182.3	230	2.0	9.14	205.7	0.048	148.716	0.0015	1.13E-08	7.95
583	613	598	177.7	186.8	182.3	230	3.0	9.14	205.7	0.048	148.718	0.0015	1.13E-08	7.95
583	613	598	177.7	186.8	182.3	230	4.0	9.14	205.7	0.048	148.719	0.0015	1.13E-08	7.95
583	613	598	177.7	186.8	182.3	230	5.0	9.14	205.7	0.048	148.721	0.0015	1.13E-08	7.95
							0.0				148.725			
583	613	598	177.7	186.8	182.3	450	1.0	9.14	228.2	0.048	148.727	0.0020	1.36E-08	7.87
583	613	598	177.7	186.8	182.3	450	2.0	9.14	228.2	0.048	148.729	0.0020	1.36E-08	7.87
583	613	598	177.7	186.8	182.3	450	3.0	9.14	228.2	0.048	148.732	0.0025	1.70E-08	7.77
583	613	598	177.7	186.8	182.3	450	4.0	9.14	228.2	0.048	148.734	0.0020	1.36E-08	7.87
583	613	598	177.7	186.8	182.3	450	5.0	9.14	228.2	0.048	148.736	0.0025	1.70E-08	7.77
							0.0				148.741			
583	613	598	177.7	186.8	182.3	700	1.0	9.14	253.7	0.048	148.745	0.0035	2.14E-08	7.67
583	613	598	177.7	186.8	182.3	700	2.0	9.14	253.7	0.048	148.748	0.0030	1.83E-08	7.74
583	613	598	177.7	186.8	182.3	700	3.0	9.14	253.7	0.048	148.751	0.0035	2.14E-08	7.67
583	613	598	177.7	186.8	182.3	700	4.0	9.14	253.7	0.048	148.754	0.0025	1.53E-08	7.82
583	613	598	177.7	186.8	182.3	700	5.0	9.14	253.7	0.048	148.757	0.0030	1.83E-08	7.74
							0.0				149.635			
273	303	288	83.2	92.4	87.8	230	1.0	9.14	111.2	0.048	149.642	0.0070	9.74E-08	7.01
273	303	288	83.2	92.4	87.8	230	2.0	9.14	111.2	0.048	149.650	0.0080	1.11E-07	6.95
273	303	288	83.2	92.4	87.8	230	3.0	9.14	111.2	0.048	149.656	0.0060	8.35E-08	7.08
273	303	288	83.2	92.4	87.8	230	4.0	9.14	111.2	0.048	149.662	0.0060	8.35E-08	7.08
273	303	288	83.2	92.4	87.8	230	5.0	9.14	111.2	0.048	149.669	0.0070	9.74E-08	7.01
							0.0				149.720			
273	303	288	83.2	92.4	87.8	460	1.0	9.14	134.7	0.048	149.780	0.0600	6.90E-07	6.16
273	303	288	83.2	92.4	87.8	460	2.0	9.14	134.7	0.048	149.825	0.0450	5.17E-07	6.29
273	303	288	83.2	92.4	87.8	460	3.0	9.14	134.7	0.048	149.882	0.0570	6.55E-07	6.18
273	303	288	83.2	92.4	87.8	460	4.0	9.14	134.7	0.048	149.935	0.0530	6.09E-07	6.22
273	303	288	83.2	92.4	87.8	460	5.0	9.14	134.7	0.048	149.989	0.0540	6.21E-07	6.21
							0.0				150.030			
273	303	288	83.2	92.4	87.8	700	1.0	9.14	159.2	0.048	150.110	0.0800	7.78E-07	6.11
273	303	288	83.2	92.4	87.8	700	2.0	9.14	159.2	0.048	150.192	0.0820	7.98E-07	6.10
273	303	288	83.2	92.4	87.8	700	3.0	9.14	159.2	0.048	150.272	0.0800	7.78E-07	6.11
273	303	288	83.2	92.4	87.8	700	4.0	9.14	159.2	0.048	150.349	0.0770	7.49E-07	6.13
273	303	288	83.2	92.4	87.8	700	5.0	9.14	159.2	0.048	150.434	0.0850	8.27E-07	6.08
							0.0				150.470			
273	303	288	83.2	92.4	87.8	460	1.0	9.14	134.7	0.048	150.530	0.0600	6.90E-07	6.16
273	303	288	83.2	92.4	87.8	460	2.0	9.14	134.7	0.048	150.585	0.0550	6.32E-07	6.20
273	303	288	83.2	92.4	87.8	460	3.0	9.14	134.7	0.048	150.642	0.0570	6.55E-07	6.18
273	303	288	83.2	92.4	87.8	460	4.0	9.14	134.7	0.048	150.700	0.0580	6.67E-07	6.18
273	303	288	83.2	92.4	87.8	460	5.0	9.14	134.7	0.048	150.758	0.0580	6.67E-07	6.18
							0.0				150.760			
273	303	288	83.2	92.4	87.8	230	1.0	9.14	111.2	0.048	150.792	0.0320	4.45E-07	6.35
273	303	288	83.2	92.4	87.8	230	2.0	9.14	111.2	0.048	150.805	0.0130	1.81E-07	6.74
273	303	288	83.2	92.4	87.8	230	3.0	9.14	111.2	0.048	150.823	0.0180	2.51E-07	6.60
273	303	288	83.2	92.4	87.8	230	4.0	9.14	111.2	0.048	150.839	0.0160	2.23E-07	6.65
273	303	288	83.2	92.4	87.8	230	5.0	9.14	111.2	0.048	150.856	0.0170	2.37E-07	6.63
							0.0				151.264			
333	363	348	101.5	110.6	106.1	230	1.0	9.14	129.5	0.048	151.266	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	2.0	9.14	129.5	0.048	151.268	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	3.0	9.14	129.5	0.048	151.270	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	4.0	9.14	129.5	0.048	151.272	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	5.0	9.14	129.5	0.048	151.274	0.0020	2.39E-08	7.62
							0.0				151.282			
333	363	348	101.5	110.6	106.1	460	1.0	9.14	153.0	0.048	151.292	0.0100	1.01E-07	6.99
333	363	348	101.5	110.6	106.1	460	2.0	9.14	153.0	0.048	151.297	0.0050	5.06E-08	7.30
333	363	348	101.5	110.6	106.1	460	3.0	9.14	153.0	0.048	151.311	0.0140	1.42E-07	6.85
333	363	348	101.5	110.6	106.1	460	4.0	9.14	153.0	0.048	151.319	0.0080	8.10E-08	7.09
333	363	348	101.5	110.6	106.1	460	5.0	9.14	153.0	0.048	151.329	0.0100	1.01E-07	6.99
							0.0				151.340			
333	363	348	101.5	110.6	106.1	700	1.0	9.14	177.5	0.048	151.358	0.0180	1.57E-07	6.80
333	363	348	101.5	110.6	106.1	710	2.0	9.14	178.5	0.048	151.374	0.0160	1.39E-07	6.86
333	363	348	101.5	110.6	106.1	710	3.0	9.14	178.5	0.048	151.390	0.0160	1.39E-07	6.86
333	363	348	101.5	110.6	106.1	710	4.0	9.14	178.5	0.048	151.406	0.0160	1.39E-07	6.86

333	363	348	101.5	110.6	106.1	710	5.0	9.14	178.5	0.048	151.424	0.0180	1.56E-07	6.81
							0.0				151.428			
333	363	348	101.5	110.6	106.1	460	1.0	9.14	153.0	0.048	151.438	0.0100	1.01E-07	6.99
333	363	348	101.5	110.6	106.1	460	2.0	9.14	153.0	0.048	151.449	0.0110	1.11E-07	6.95
333	363	348	101.5	110.6	106.1	460	3.0	9.14	153.0	0.048	151.461	0.0120	1.21E-07	6.92
333	363	348	101.5	110.6	106.1	460	4.0	9.14	153.0	0.048	151.472	0.0110	1.11E-07	6.95
333	363	348	101.5	110.6	106.1	460	5.0	9.14	153.0	0.048	151.482	0.0100	1.01E-07	6.99
							0.0				151.483			
333	363	348	101.5	110.6	106.1	230	1.0	9.14	129.5	0.048	151.485	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	2.0	9.14	129.5	0.048	151.487	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	3.0	9.14	129.5	0.048	151.490	0.0030	3.59E-08	7.45
333	363	348	101.5	110.6	106.1	230	4.0	9.14	129.5	0.048	151.492	0.0020	2.39E-08	7.62
333	363	348	101.5	110.6	106.1	230	5.0	9.14	129.5	0.048	151.494	0.0020	2.39E-08	7.62
							0.0				152.470			
383	413	398	116.7	125.9	121.3	230	1.0	9.14	144.8	0.048	152.475	0.0050	5.35E-08	7.27
383	413	398	116.7	125.9	121.3	230	2.0	9.14	144.8	0.048	152.480	0.0050	5.35E-08	7.27
383	413	398	116.7	125.9	121.3	230	3.0	9.14	144.8	0.048	152.485	0.0050	5.35E-08	7.27
383	413	398	116.7	125.9	121.3	230	4.0	9.14	144.8	0.048	152.487	0.0020	2.14E-08	7.67
383	413	398	116.7	125.9	121.3	230	5.0	9.14	144.8	0.048	152.489	0.0020	2.14E-08	7.67
							0.0				152.510			
383	413	398	116.7	125.9	121.3	460	1.0	9.14	168.2	0.048	152.550	0.0400	3.68E-07	6.43
383	413	398	116.7	125.9	121.3	460	2.0	9.14	168.2	0.048	152.590	0.0400	3.68E-07	6.43
383	413	398	116.7	125.9	121.3	460	3.0	9.14	168.2	0.048	152.624	0.0340	3.13E-07	6.50
383	413	398	116.7	125.9	121.3	460	4.0	9.14	168.2	0.048	152.660	0.0360	3.31E-07	6.48
383	413	398	116.7	125.9	121.3	460	5.0	9.14	168.2	0.048	152.692	0.0320	2.95E-07	6.53
							0.0				152.720			
383	413	398	116.7	125.9	121.3	700	1.0	9.14	192.7	0.048	152.764	0.0440	3.54E-07	6.45
383	413	398	116.7	125.9	121.3	700	2.0	9.14	192.7	0.048	152.805	0.0410	3.29E-07	6.48
383	413	398	116.7	125.9	121.3	700	3.0	9.14	192.7	0.048	152.845	0.0400	3.21E-07	6.49
383	413	398	116.7	125.9	121.3	700	4.0	9.14	192.7	0.048	152.885	0.0400	3.21E-07	6.49
383	413	398	116.7	125.9	121.3	700	5.0	9.14	192.7	0.048	152.922	0.0370	2.97E-07	6.53
							0.0				152.945			
383	413	398	116.7	125.9	121.3	460	1.0	9.14	168.2	0.048	152.974	0.0290	2.67E-07	6.57
383	413	398	116.7	125.9	121.3	460	2.0	9.14	168.2	0.048	153.002	0.0280	2.58E-07	6.59
383	413	398	116.7	125.9	121.3	460	3.0	9.14	168.2	0.048	153.028	0.0260	2.39E-07	6.62
383	413	398	116.7	125.9	121.3	460	4.0	9.14	168.2	0.048	153.056	0.0280	2.58E-07	6.59
383	413	398	116.7	125.9	121.3	460	5.0	9.14	168.2	0.048	153.084	0.0280	2.58E-07	6.59
							0.0				153.100			
383	413	398	116.7	125.9	121.3	230	1.0	9.14	144.8	0.048	153.119	0.0190	2.03E-07	6.69
383	413	398	116.7	125.9	121.3	230	2.0	9.14	144.8	0.048	153.135	0.0160	1.71E-07	6.77
383	413	398	116.7	125.9	121.3	230	3.0	9.14	144.8	0.048	153.154	0.0190	2.03E-07	6.69
383	413	398	116.7	125.9	121.3	230	4.0	9.14	144.8	0.048	153.173	0.0190	2.03E-07	6.69
383	413	398	116.7	125.9	121.3	230	5.0	9.14	144.8	0.048	153.190	0.0170	1.82E-07	6.74
							0.0				153.612			
433	463	448	132.0	141.1	136.6	230	1.0	9.14	160.0	0.048	153.615	0.0030	2.90E-08	7.54
433	463	448	132.0	141.1	136.6	230	2.0	9.14	160.0	0.048	153.617	0.0020	1.94E-08	7.71
433	463	448	132.0	141.1	136.6	230	3.0	9.14	160.0	0.048	153.619	0.0020	1.94E-08	7.71
433	463	448	132.0	141.1	136.6	230	4.0	9.14	160.0	0.048	153.621	0.0020	1.94E-08	7.71
433	463	448	132.0	141.1	136.6	230	5.0	9.14	160.0	0.048	153.623	0.0020	1.94E-08	7.71
							0.0				153.626			
433	463	448	132.0	141.1	136.6	460	1.0	9.14	183.5	0.048	153.630	0.0040	3.38E-08	7.47
433	463	448	132.0	141.1	136.6	460	2.0	9.14	183.5	0.048	153.633	0.0030	2.53E-08	7.60
433	463	448	132.0	141.1	136.6	460	3.0	9.14	183.5	0.048	153.635	0.0020	1.69E-08	7.77
433	463	448	132.0	141.1	136.6	460	4.0	9.14	183.5	0.048	153.638	0.0030	2.53E-08	7.60
433	463	448	132.0	141.1	136.6	460	5.0	9.14	183.5	0.048	153.641	0.0030	2.53E-08	7.60

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-3: PACKER TEST RESULTS - MW-MT-08-03

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				153.960			
33	58	45.5	10.1	17.7	13.9	140	1.0	7.62	28.1	0.048	153.968	0.0080	5.28E-07	6.28
33	58	45.5	10.1	17.7	13.9	140	2.0	7.62	28.1	0.048	153.975	0.0070	4.62E-07	6.34
33	58	45.5	10.1	17.7	13.9	140	3.0	7.62	28.1	0.048	153.982	0.0070	4.62E-07	6.34
33	58	45.5	10.1	17.7	13.9	140	4.0	7.62	28.1	0.048	153.990	0.0080	5.28E-07	6.28
33	58	45.5	10.1	17.7	13.9	140	5.0	7.62	28.1	0.048	153.997	0.0070	4.62E-07	6.34
							0.0				154.010			
33	58	45.5	10.1	17.7	13.9	280	1.0	7.62	42.4	0.048	154.026	0.0160	7.01E-07	6.15
33	58	45.5	10.1	17.7	13.9	280	2.0	7.62	42.4	0.048	154.047	0.0210	9.20E-07	6.04
33	58	45.5	10.1	17.7	13.9	280	3.0	7.62	42.4	0.048	154.065	0.0180	7.88E-07	6.10
33	58	45.5	10.1	17.7	13.9	280	4.0	7.62	42.4	0.048	154.083	0.0180	7.88E-07	6.10
33	58	45.5	10.1	17.7	13.9	280	5.0	7.62	42.4	0.048	154.101	0.0180	7.88E-07	6.10
							0.0				154.130			
33	58	45.5	10.1	17.7	13.9	420	1.0	7.62	56.7	0.048	154.158	0.0280	9.18E-07	6.04
33	58	45.5	10.1	17.7	13.9	420	2.0	7.62	56.7	0.048	154.183	0.0250	8.19E-07	6.09
33	58	45.5	10.1	17.7	13.9	420	3.0	7.62	56.7	0.048	154.210	0.0270	8.85E-07	6.05
33	58	45.5	10.1	17.7	13.9	420	4.0	7.62	56.7	0.048	154.236	0.0260	8.52E-07	6.07
33	58	45.5	10.1	17.7	13.9	420	5.0	7.62	56.7	0.048	154.262	0.0260	8.52E-07	6.07
							0.0				155.000			
73	98	85.5	22.3	29.9	26.1	100	1.0	7.62	36.3	0.048	155.065	0.0650	3.33E-06	5.48
73	98	85.5	22.3	29.9	26.1	100	2.0	7.62	36.3	0.048	155.129	0.0640	3.28E-06	5.48
73	98	85.5	22.3	29.9	26.1	100	3.0	7.62	36.3	0.048	155.193	0.0640	3.28E-06	5.48
73	98	85.5	22.3	29.9	26.1	100	4.0	7.62	36.3	0.048	155.256	0.0630	3.23E-06	5.49
73	98	85.5	22.3	29.9	26.1	100	5.0	7.62	36.3	0.048	155.320	0.0640	3.28E-06	5.48
							0.0				155.490			
73	98	85.5	22.3	29.9	26.1	190	1.0	7.62	45.4	0.048	155.572	0.0820	3.35E-06	5.47
73	98	85.5	22.3	29.9	26.1	190	2.0	7.62	45.4	0.048	155.652	0.0800	3.27E-06	5.49
73	98	85.5	22.3	29.9	26.1	190	3.0	7.62	45.4	0.048	155.731	0.0790	3.23E-06	5.49
73	98	85.5	22.3	29.9	26.1	190	4.0	7.62	45.4	0.048	155.810	0.0790	3.23E-06	5.49
73	98	85.5	22.3	29.9	26.1	190	5.0	7.62	45.4	0.048	155.890	0.0800	3.27E-06	5.49
							0.0				156.150			
73	98	85.5	22.3	29.9	26.1	280	1.0	7.62	54.6	0.048	156.244	0.0940	3.20E-06	5.50
73	98	85.5	22.3	29.9	26.1	280	2.0	7.62	54.6	0.048	156.338	0.0940	3.20E-06	5.50
73	98	85.5	22.3	29.9	26.1	280	3.0	7.62	54.6	0.048	156.431	0.0930	3.16E-06	5.50
73	98	85.5	22.3	29.9	26.1		4.0	7.62	26.1	0.048			Running out of water; test stopped	
73	98	85.5	22.3	29.9	26.1		5.0	7.62	26.1	0.048				
							0.0				156.605			
113	128	120.5	34.4	39.0	36.7	140	1.0	4.57	51.0	0.048	156.626	0.0210	1.28E-06	5.89
113	128	120.5	34.4	39.0	36.7	140	2.0	4.57	51.0	0.048	156.647	0.0210	1.28E-06	5.89
113	128	120.5	34.4	39.0	36.7	140	3.0	4.57	51.0	0.048	156.667	0.0200	1.21E-06	5.92
113	128	120.5	34.4	39.0	36.7	140	4.0	4.57	51.0	0.048	156.687	0.0195	1.18E-06	5.93
113	128	120.5	34.4	39.0	36.7	140	5.0	4.57	51.0	0.048	156.706	0.0195	1.18E-06	5.93
							0.0				156.730			
113	128	120.5	34.4	39.0	36.7	330	1.0	4.57	70.4	0.048	156.766	0.0360	1.58E-06	5.80
113	128	120.5	34.4	39.0	36.7	330	2.0	4.57	70.4	0.048	156.789	0.0230	1.01E-06	5.99
113	128	120.5	34.4	39.0	36.7	330	3.0	4.57	70.4	0.048	156.817	0.0280	1.23E-06	5.91
113	128	120.5	34.4	39.0	36.7	330	4.0	4.57	70.4	0.048	156.845	0.0280	1.23E-06	5.91
113	128	120.5	34.4	39.0	36.7	330	5.0	4.57	70.4	0.048	156.873	0.0280	1.23E-06	5.91
							0.0				156.925			
113	128	120.5	34.4	39.0	36.7	420	1.0	4.57	79.6	0.048	156.961	0.0360	1.40E-06	5.85
113	128	120.5	34.4	39.0	36.7	420	2.0	4.57	79.6	0.048	156.996	0.0350	1.36E-06	5.87
113	128	120.5	34.4	39.0	36.7	420	3.0	4.57	79.6	0.048	157.030	0.0340	1.32E-06	5.88
113	128	120.5	34.4	39.0	36.7	420	4.0	4.57	79.6	0.048	157.065	0.0350	1.36E-06	5.87
113	128	120.5	34.4	39.0	36.7	420	5.0	4.57	79.6	0.048	157.099	0.0340	1.32E-06	5.88
							0.0				157.162			
123	148	135.5	37.5	45.1	41.3	180	1.0	7.62	59.7	0.048	157.164	0.0020	6.23E-08	7.21
123	148	135.5	37.5	45.1	41.3	180	2.0	7.62	59.7	0.048	157.166	0.0020	6.23E-08	7.21
123	148	135.5	37.5	45.1	41.3	180	3.0	7.62	59.7	0.048	157.167	0.0010	3.11E-08	7.51
123	148	135.5	37.5	45.1	41.3	180	4.0	7.62	59.7	0.048	157.168	0.0010	3.11E-08	7.51
123	148	135.5	37.5	45.1	41.3	180	5.0	7.62	59.7	0.048	157.169	0.0010	3.11E-08	7.51
							0.0				157.170			
123	148	135.5	37.5	45.1	41.3	360	1.0	7.62	78.0	0.048	157.172	0.0020	4.76E-08	7.32
123	148	135.5	37.5	45.1	41.3	360	2.0	7.62	78.0	0.048	157.175	0.0030	7.15E-08	7.15
123	148	135.5	37.5	45.1	41.3	360	3.0	7.62	78.0	0.048	157.177	0.0020	4.76E-08	7.32
123	148	135.5	37.5	45.1	41.3	360	4.0	7.62	78.0	0.048	157.179	0.0020	4.76E-08	7.32
123	148	135.5	37.5	45.1	41.3	360	5.0	7.62	78.0	0.048	157.181	0.0020	4.76E-08	7.32
							0.0				157.182			
123	148	135.5	37.5	45.1	41.3	540	1.0	7.62	96.4	0.048	157.185	0.0030	5.78E-08	7.24
123	148	135.5	37.5	45.1	41.3	540	2.0	7.62	96.4	0.048	157.188	0.0030	5.78E-08	7.24
123	148	135.5	37.5	45.1	41.3	540	3.0	7.62	96.4	0.048	157.191	0.0030	5.78E-08	7.24
123	148	135.5	37.5	45.1	41.3	540	4.0	7.62	96.4	0.048	157.194	0.0030	5.78E-08	7.24
123	148	135.5	37.5	45.1	41.3	540	5.0	7.62	96.4	0.048	157.197	0.0030	5.78E-08	7.24
							0.0							
173	198	185.5	52.7	60.4	56.5	650	1.0	7.62	122.8	0.048		0.0000	No detectable flow	
173	198	185.5	52.7	60.4	56.5	650	2.0	7.62	122.8	0.048		0.0000		
173	198	185.5	52.7	60.4	56.5	650	3.0	7.62	122.8	0.048		0.0000		
173	198	185.5	52.7	60.4	56.5	650	4.0	7.62	122.8	0.048		0.0000		
173	198	185.5	52.7	60.4	56.5	650	5.0	7.62	122.8	0.048		0.0000		

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-4: PACKER TEST RESULTS - MW-MT-08-04

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				157.275			
33	58	45.5	10.1	17.7	13.9	50	1.0	7.62	19.0	0.048	157.277	0.0020	1.96E-07	6.71
33	58	45.5	10.1	17.7	13.9	50	2.0	7.62	19.0	0.048	157.278	0.0010	9.80E-08	7.01
33	58	45.5	10.1	17.7	13.9	50	3.0	7.62	19.0	0.048	157.279	0.0010	9.80E-08	7.01
33	58	45.5	10.1	17.7	13.9	50	4.0	7.62	19.0	0.048	157.280	0.0010	9.80E-08	7.01
33	58	45.5	10.1	17.7	13.9	50	5.0	7.62	19.0	0.048	157.281	0.0010	9.80E-08	7.01
							0.0				157.282			
33	58	45.5	10.1	17.7	13.9	90	1.0	7.62	23.0	0.048	157.283	0.0010	8.06E-08	7.09
33	58	45.5	10.1	17.7	13.9	90	2.0	7.62	23.0	0.048	157.284	0.0010	8.06E-08	7.09
33	58	45.5	10.1	17.7	13.9	90	3.0	7.62	23.0	0.048	157.285	0.0010	8.06E-08	7.09
33	58	45.5	10.1	17.7	13.9	90	4.0	7.62	23.0	0.048	157.287	0.0020	1.61E-07	6.79
33	58	45.5	10.1	17.7	13.9	90	5.0	7.62	23.0	0.048	157.288	0.0010	8.06E-08	7.09
							0.0				157.289			
33	58	45.5	10.1	17.7	13.9	140	1.0	7.62	28.1	0.048	157.290	0.0010	6.60E-08	7.18
33	58	45.5	10.1	17.7	13.9	140	2.0	7.62	28.1	0.048	157.292	0.0020	1.32E-07	6.88
33	58	45.5	10.1	17.7	13.9	140	3.0	7.62	28.1	0.048	157.294	0.0020	1.32E-07	6.88
33	58	45.5	10.1	17.7	13.9	140	4.0	7.62	28.1	0.048	157.296	0.0020	1.32E-07	6.88
33	58	45.5	10.1	17.7	13.9	140	5.0	7.62	28.1	0.048	157.298	0.0020	1.32E-07	6.88
							0.0				157.327			
63	88	75.5	19.2	26.8	23.0	80	1.0	7.62	31.2	0.048	157.327	0.0002	1.19E-08	7.92
63	88	75.5	19.2	26.8	23.0	80	2.0	7.62	31.2	0.048	157.328	0.0003	1.79E-08	7.75
63	88	75.5	19.2	26.8	23.0	80	3.0	7.62	31.2	0.048	157.328	0.0003	1.79E-08	7.75
63	88	75.5	19.2	26.8	23.0	80	4.0	7.62	31.2	0.048	157.328	0.0002	1.19E-08	7.92
63	88	75.5	19.2	26.8	23.0	80	5.0	7.62	31.2	0.048	157.328	0.0002	1.19E-08	7.92
							0.0				157.329			
63	88	75.5	19.2	26.8	23.0	160	1.0	7.62	39.3	0.048	157.330	0.0005	2.36E-08	7.63
63	88	75.5	19.2	26.8	23.0	160	2.0	7.62	39.3	0.048	157.330	0.0005	2.36E-08	7.63
63	88	75.5	19.2	26.8	23.0	160	3.0	7.62	39.3	0.048	157.330	0.0002	9.45E-09	8.02
63	88	75.5	19.2	26.8	23.0	160	4.0	7.62	39.3	0.048	157.331	0.0005	2.36E-08	7.63
63	88	75.5	19.2	26.8	23.0	160	5.0	7.62	39.3	0.048	157.331	0.0005	2.36E-08	7.63
							0.0				157.332			
63	88	75.5	19.2	26.8	23.0	250	1.0	7.62	48.5	0.048	157.333	0.0005	1.92E-08	7.72
63	88	75.5	19.2	26.8	23.0	250	2.0	7.62	48.5	0.048	157.333	0.0005	1.92E-08	7.72
63	88	75.5	19.2	26.8	23.0	250	3.0	7.62	48.5	0.048	157.334	0.0005	1.92E-08	7.72
63	88	75.5	19.2	26.8	23.0	250	4.0	7.62	48.5	0.048	157.334	0.0005	1.92E-08	7.72
63	88	75.5	19.2	26.8	23.0	250	5.0	7.62	48.5	0.048	157.335	0.0005	1.92E-08	7.72
							0.0				157.449			
93	118	105.5	28.3	36.0	32.2	120	1.0	7.62	44.4	0.048	157.449	0.0005	2.09E-08	7.68
93	118	105.5	28.3	36.0	32.2	120	2.0	7.62	44.4	0.048	157.450	0.0005	2.09E-08	7.68
93	118	105.5	28.3	36.0	32.2	120	3.0	7.62	44.4	0.048	157.450	0.0005	2.09E-08	7.68
93	118	105.5	28.3	36.0	32.2		4.0	7.62	32.2	0.048			No detectable flow	
93	118	105.5	28.3	36.0	32.2		5.0	7.62	32.2	0.048				
							0.0				157.451			
93	118	105.5	28.3	36.0	32.2	230	1.0	7.62	55.6	0.048	157.453	0.0015	5.01E-08	7.30
93	118	105.5	28.3	36.0	32.2	230	2.0	7.62	55.6	0.048	157.454	0.0010	3.34E-08	7.48
93	118	105.5	28.3	36.0	32.2	230	3.0	7.62	55.6	0.048	157.454	0.0005	1.67E-08	7.78
93	118	105.5	28.3	36.0	32.2	230	4.0	7.62	55.6	0.048	157.455	0.0005	1.67E-08	7.78
93	118	105.5	28.3	36.0	32.2	230	5.0	7.62	55.6	0.048	157.455	0.0005	1.67E-08	7.78
							0.0				157.456			
93	118	105.5	28.3	36.0	32.2	370	1.0	7.62	69.9	0.048	157.458	0.0020	5.32E-08	7.27
93	118	105.5	28.3	36.0	32.2	370	2.0	7.62	69.9	0.048	157.460	0.0020	5.32E-08	7.27
93	118	105.5	28.3	36.0	32.2	370	3.0	7.62	69.9	0.048	157.462	0.0015	3.99E-08	7.40
93	118	105.5	28.3	36.0	32.2	370	4.0	7.62	69.9	0.048	157.464	0.0020	5.32E-08	7.27
93	118	105.5	28.3	36.0	32.2	370	5.0	7.62	69.9	0.048	157.466	0.0020	5.32E-08	7.27

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-5: PACKER TEST RESULTS - MW-MT-08-04B

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				176.250			
34	59	46.5	10.4	18.0	14.2	50	1.0	7.62	19.3	0.048	176.264	0.0140	1.35E-06	5.87
34	59	46.5	10.4	18.0	14.2	50	2.0	7.62	19.3	0.048	176.276	0.0120	1.16E-06	5.94
34	59	46.5	10.4	18.0	14.2	50	3.0	7.62	19.3	0.048	176.290	0.0140	1.35E-06	5.87
34	59	46.5	10.4	18.0	14.2	50	4.0	7.62	19.3	0.048	176.304	0.0140	1.35E-06	5.87
34	59	46.5	10.4	18.0	14.2	50	5.0	7.62	19.3	0.048	176.320	0.0160	1.54E-06	5.81
							0.0				176.335			
34	59	46.5	10.4	18.0	14.2	100	1.0	7.62	24.4	0.048	176.358	0.0230	1.75E-06	5.76
34	59	46.5	10.4	18.0	14.2	100	2.0	7.62	24.4	0.048	176.383	0.0250	1.91E-06	5.72
34	59	46.5	10.4	18.0	14.2	100	3.0	7.62	24.4	0.048	176.406	0.0230	1.75E-06	5.76
34	59	46.5	10.4	18.0	14.2	100	4.0	7.62	24.4	0.048	176.430	0.0240	1.83E-06	5.74
34	59	46.5	10.4	18.0	14.2	100	5.0	7.62	24.4	0.048	176.452	0.0220	1.68E-06	5.78
							0.0				176.465			
34	59	46.5	10.4	18.0	14.2	140	1.0	7.62	28.5	0.048	176.498	0.0330	2.16E-06	5.67
34	59	46.5	10.4	18.0	14.2	140	2.0	7.62	28.5	0.048	176.530	0.0320	2.09E-06	5.68
34	59	46.5	10.4	18.0	14.2	140	3.0	7.62	28.5	0.048	176.563	0.0330	2.16E-06	5.67
34	59	46.5	10.4	18.0	14.2	140	4.0	7.62	28.5	0.048	176.594	0.0310	2.02E-06	5.69
34	59	46.5	10.4	18.0	14.2	140	5.0	7.62	28.5	0.048	176.625	0.0310	2.02E-06	5.69
							0.0				176.700			
64	89	76.5	19.5	27.1	23.3	80	1.0	7.62	31.5	0.048	176.720	0.0200	1.18E-06	5.93
64	89	76.5	19.5	27.1	23.3	80	2.0	7.62	31.5	0.048	176.734	0.0140	8.27E-07	6.08
64	89	76.5	19.5	27.1	23.3	80	3.0	7.62	31.5	0.048	176.757	0.0230	1.36E-06	5.87
64	89	76.5	19.5	27.1	23.3	80	4.0	7.62	31.5	0.048	176.774	0.0170	1.00E-06	6.00
64	89	76.5	19.5	27.1	23.3	80	5.0	7.62	31.5	0.048	176.792	0.0180	1.06E-06	5.97
							0.0				176.810			
64	89	76.5	19.5	27.1	23.3	165	1.0	7.62	40.1	0.048	176.848	0.0380	1.76E-06	5.75
64	89	76.5	19.5	27.1	23.3	165	2.0	7.62	40.1	0.048	176.885	0.0370	1.71E-06	5.77
64	89	76.5	19.5	27.1	23.3	165	3.0	7.62	40.1	0.048	176.920	0.0350	1.62E-06	5.79
64	89	76.5	19.5	27.1	23.3	165	4.0	7.62	40.1	0.048	176.958	0.0380	1.76E-06	5.75
64	89	76.5	19.5	27.1	23.3	165	5.0	7.62	40.1	0.048	176.992	0.0340	1.57E-06	5.80
							0.0				177.010			
64	89	76.5	19.5	27.1	23.3	250	1.0	7.62	48.8	0.048	177.055	0.0450	1.71E-06	5.77
64	89	76.5	19.5	27.1	23.3	250	2.0	7.62	48.8	0.048	177.102	0.0470	1.79E-06	5.75
64	89	76.5	19.5	27.1	23.3	250	3.0	7.62	48.8	0.048	177.146	0.0440	1.68E-06	5.78
64	89	76.5	19.5	27.1	23.3	250	4.0	7.62	48.8	0.048	177.192	0.0460	1.75E-06	5.76
64	89	76.5	19.5	27.1	23.3	250	5.0	7.62	48.8	0.048	177.239	0.0470	1.79E-06	5.75
							0.0				177.268			
104	129	116.5	31.7	39.3	35.5	130	1.0	7.62	48.8	0.048	177.271	0.0030	1.14E-07	6.94
104	129	116.5	31.7	39.3	35.5	130	2.0	7.62	48.8	0.048	177.274	0.0030	1.14E-07	6.94
104	129	116.5	31.7	39.3	35.5	130	3.0	7.62	48.8	0.048	177.277	0.0030	1.14E-07	6.94
104	129	116.5	31.7	39.3	35.5	130	4.0	7.62	48.8	0.048	177.280	0.0025	9.53E-08	7.02
104	129	116.5	31.7	39.3	35.5	130	5.0	7.62	48.8	0.048	177.282	0.0025	9.53E-08	7.02
							0.0				177.288			
104	129	116.5	31.7	39.3	35.5	270	1.0	7.62	63.0	0.048	177.294	0.0060	1.77E-07	6.75
104	129	116.5	31.7	39.3	35.5	270	2.0	7.62	63.0	0.048	177.300	0.0060	1.77E-07	6.75
104	129	116.5	31.7	39.3	35.5	270	3.0	7.62	63.0	0.048	177.306	0.0060	1.77E-07	6.75
104	129	116.5	31.7	39.3	35.5	270	4.0	7.62	63.0	0.048	177.312	0.0060	1.77E-07	6.75
104	129	116.5	31.7	39.3	35.5	270	5.0	7.62	63.0	0.048	177.318	0.0055	1.62E-07	6.79
							0.0				177.330			
104	129	116.5	31.7	39.3	35.5	400	1.0	7.62	76.3	0.048	177.339	0.0090	2.19E-07	6.66
104	129	116.5	31.7	39.3	35.5	400	2.0	7.62	76.3	0.048	177.348	0.0085	2.07E-07	6.68
104	129	116.5	31.7	39.3	35.5	400	3.0	7.62	76.3	0.048	177.355	0.0075	1.83E-07	6.74
104	129	116.5	31.7	39.3	35.5	400	4.0	7.62	76.3	0.048	177.364	0.0090	2.19E-07	6.66
104	129	116.5	31.7	39.3	35.5	400	5.0	7.62	76.3	0.048	177.373	0.0085	2.07E-07	6.68

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-6: PACKER TEST RESULTS - MW-MT-08-05

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0							
33	58	45.5	10.1	17.7	13.9		1.0	7.62	13.9	0.048		0.0000	Flow too high (>1L/s)	
33	58	45.5	10.1	17.7	13.9		2.0	7.62	13.9	0.048		0.0000		
33	58	45.5	10.1	17.7	13.9		3.0	7.62	13.9	0.048		0.0000		
33	58	45.5	10.1	17.7	13.9		4.0	7.62	13.9	0.048		0.0000		
33	58	45.5	10.1	17.7	13.9		5.0	7.62	13.9	0.048		0.0000		
							0.0				157.659			
53	78	65.5	16.2	23.8	20.0	70	1.0	7.62	27.1	0.048	157.660	0.0010	6.86E-08	7.16
53	78	65.5	16.2	23.8	20.0	70	2.0	7.62	27.1	0.048	157.662	0.0015	1.03E-07	6.99
53	78	65.5	16.2	23.8	20.0	70	3.0	7.62	27.1	0.048	157.662	0.0005	3.43E-08	7.46
53	78	65.5	16.2	23.8	20.0	70	4.0	7.62	27.1	0.048	157.663	0.0010	6.86E-08	7.16
53	78	65.5	16.2	23.8	20.0	70	5.0	7.62	27.1	0.048	157.664	0.0010	6.86E-08	7.16
							0.0				157.668			
53	78	65.5	16.2	23.8	20.0	145	1.0	7.62	34.8	0.048	157.669	0.0010	5.35E-08	7.27
53	78	65.5	16.2	23.8	20.0	145	2.0	7.62	34.8	0.048	157.670	0.0010	5.35E-08	7.27
53	78	65.5	16.2	23.8	20.0	145	3.0	7.62	34.8	0.048	157.671	0.0010	5.35E-08	7.27
53	78	65.5	16.2	23.8	20.0	145	4.0	7.62	34.8	0.048	157.672	0.0010	5.35E-08	7.27
53	78	65.5	16.2	23.8	20.0	145	5.0	7.62	34.8	0.048	157.673	0.0010	5.35E-08	7.27
							0.0				157.675			
53	78	65.5	16.2	23.8	20.0	200	1.0	7.62	40.4	0.048	157.677	0.0015	6.91E-08	7.16
53	78	65.5	16.2	23.8	20.0	200	2.0	7.62	40.4	0.048	157.678	0.0010	4.60E-08	7.34
53	78	65.5	16.2	23.8	20.0	200	3.0	7.62	40.4	0.048	157.680	0.0020	9.21E-08	7.04
53	78	65.5	16.2	23.8	20.0	200	4.0	7.62	40.4	0.048	157.680	0.0005	2.30E-08	7.64
53	78	65.5	16.2	23.8	20.0	200	5.0	7.62	40.4	0.048	157.682	0.0015	6.91E-08	7.16
							0.0				157.696			
93	118	105.5	28.3	36.0	32.2	130	1.0	7.62	45.4	0.048	157.698	0.0020	8.18E-08	7.09
93	118	105.5	28.3	36.0	32.2	130	2.0	7.62	45.4	0.048	157.700	0.0020	8.18E-08	7.09
93	118	105.5	28.3	36.0	32.2	130	3.0	7.62	45.4	0.048	157.702	0.0015	6.14E-08	7.21
93	118	105.5	28.3	36.0	32.2	130	4.0	7.62	45.4	0.048	157.703	0.0015	6.14E-08	7.21
93	118	105.5	28.3	36.0	32.2	130	5.0	7.62	45.4	0.048	157.705	0.0015	6.14E-08	7.21
							0.0				157.708			
93	118	105.5	28.3	36.0	32.2	230	1.0	7.62	55.6	0.048	157.712	0.0040	1.34E-07	6.87
93	118	105.5	28.3	36.0	32.2	230	2.0	7.62	55.6	0.048	157.715	0.0030	1.00E-07	7.00
93	118	105.5	28.3	36.0	32.2	230	3.0	7.62	55.6	0.048	157.719	0.0035	1.17E-07	6.93
93	118	105.5	28.3	36.0	32.2	230	4.0	7.62	55.6	0.048	157.722	0.0030	1.00E-07	7.00
93	118	105.5	28.3	36.0	32.2	230	5.0	7.62	55.6	0.048	157.725	0.0030	1.00E-07	7.00
							0.0				157.729			
93	118	105.5	28.3	36.0	32.2	350	1.0	7.62	67.8	0.048	157.735	0.0055	1.51E-07	6.82
93	118	105.5	28.3	36.0	32.2	350	2.0	7.62	67.8	0.048	157.740	0.0050	1.37E-07	6.86
93	118	105.5	28.3	36.0	32.2	350	3.0	7.62	67.8	0.048	157.744	0.0045	1.23E-07	6.91
93	118	105.5	28.3	36.0	32.2	350	4.0	7.62	67.8	0.048	157.749	0.0045	1.23E-07	6.91
93	118	105.5	28.3	36.0	32.2	350	5.0	7.62	67.8	0.048	157.753	0.0045	1.23E-07	6.91
							0.0				157.825			
33	118	75.5	10.1	36.0	23.0	80	1.0	25.91	31.2	0.048	157.839	0.0135	2.37E-07	6.63
33	118	75.5	10.1	36.0	23.0	80	2.0	25.91	31.2	0.048	157.852	0.0130	2.28E-07	6.64
33	118	75.5	10.1	36.0	23.0	80	3.0	25.91	31.2	0.048	157.865	0.0130	2.28E-07	6.64
33	118	75.5	10.1	36.0	23.0	80	4.0	25.91	31.2	0.048	157.877	0.0125	2.19E-07	6.66
33	118	75.5	10.1	36.0	23.0	80	5.0	25.91	31.2	0.048	157.889	0.0120	2.10E-07	6.68
							0.0				157.905			
33	118	75.5	10.1	36.0	23.0	160	1.0	25.91	39.3	0.048	157.924	0.0190	2.64E-07	6.58
33	118	75.5	10.1	36.0	23.0	160	2.0	25.91	39.3	0.048	157.940	0.0160	2.22E-07	6.65
33	118	75.5	10.1	36.0	23.0	160	3.5	25.91	39.3	0.048	157.963	0.0150	2.08E-07	6.68
33	118	75.5	10.1	36.0	23.0	160	4.0	25.91	39.3	0.048	157.970	0.0150	2.08E-07	6.68
33	118	75.5	10.1	36.0	23.0	160	5.0	25.91	39.3	0.048	157.985	0.0150	2.08E-07	6.68
							0.0				158.005			
33	118	75.5	10.1	36.0	23.0	240	1.0	25.91	47.5	0.048	158.027	0.0220	2.53E-07	6.60
33	118	75.5	10.1	36.0	23.0	240	2.0	25.91	47.5	0.048	158.048	0.0210	2.42E-07	6.62
33	118	75.5	10.1	36.0	23.0	240	3.0	25.91	47.5	0.048	158.068	0.0200	2.30E-07	6.64
33	118	75.5	10.1	36.0	23.0	240	4.0	25.91	47.5	0.048	158.088	0.0200	2.30E-07	6.64
33	118	75.5	10.1	36.0	23.0	240	5.0	25.91	47.5	0.048	158.108	0.0200	2.30E-07	6.64

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)

r_2 - Radius of influence of test (m; assumed 10 m)

r_1 - Drill hole radius (m)

l - Thickness of the interval tested (m)

h_1-h_2 - Induced hydraulic head (m)

TABLE C-7: PACKER TEST RESULTS - MW-MT-08-06

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0							
34	59	46.5	10.4	18.0	14.2		1.0	7.62	14.2	0.048		0.0000	No packer seal	
34	59	46.5	10.4	18.0	14.2		2.0	7.62	14.2	0.048		0.0000		
34	59	46.5	10.4	18.0	14.2		3.0	7.62	14.2	0.048		0.0000		
34	59	46.5	10.4	18.0	14.2		4.0	7.62	14.2	0.048		0.0000		
34	59	46.5	10.4	18.0	14.2		5.0	7.62	14.2	0.048		0.0000		
							0.0				161.823			
44	69	56.5	13.4	21.0	17.2	55	1.0	7.62	22.8	0.048	161.837	0.0140	1.14E-06	5.94
44	69	56.5	13.4	21.0	17.2	55	2.0	7.62	22.8	0.048	161.852	0.0150	1.22E-06	5.91
44	69	56.5	13.4	21.0	17.2	55	3.0	7.62	22.8	0.048	161.864	0.0120	9.77E-07	6.01
44	69	56.5	13.4	21.0	17.2	55	4.0	7.62	22.8	0.048	161.878	0.0140	1.14E-06	5.94
44	69	56.5	13.4	21.0	17.2	55	5.0	7.62	22.8	0.048	161.890	0.0120	9.77E-07	6.01
							0.0				161.905			
44	69	56.5	13.4	21.0	17.2	115	1.0	7.62	28.9	0.048	161.932	0.0270	1.73E-06	5.76
44	69	56.5	13.4	21.0	17.2	115	2.0	7.62	28.9	0.048	161.960	0.0280	1.80E-06	5.75
44	69	56.5	13.4	21.0	17.2	115	3.0	7.62	28.9	0.048	161.985	0.0250	1.60E-06	5.79
44	69	56.5	13.4	21.0	17.2	115	4.0	7.62	28.9	0.048	162.030	0.0450	2.89E-06	5.54
44	69	56.5	13.4	21.0	17.2	115	5.0	7.62	28.9	0.048	162.041	0.0110	7.06E-07	6.15
							0.0				162.055			
44	69	56.5	13.4	21.0	17.2	165	1.0	7.62	34.0	0.048	162.094	0.0390	2.13E-06	5.67
44	69	56.5	13.4	21.0	17.2	165	2.0	7.62	34.0	0.048	162.124	0.0300	1.64E-06	5.79
44	69	56.5	13.4	21.0	17.2	165	3.0	7.62	34.0	0.048	162.159	0.0350	1.91E-06	5.72
44	69	56.5	13.4	21.0	17.2	165	4.0	7.62	34.0	0.048	162.194	0.0350	1.91E-06	5.72
44	69	56.5	13.4	21.0	17.2	165	5.0	7.62	34.0	0.048	162.229	0.0350	1.91E-06	5.72
							0.0				162.335			
74	99	86.5	22.6	30.2	26.4	90	1.0	7.62	35.5	0.048	162.349	0.0135	7.06E-07	6.15
74	99	86.5	22.6	30.2	26.4	90	2.0	7.62	35.5	0.048	162.362	0.0135	7.06E-07	6.15
74	99	86.5	22.6	30.2	26.4	90	3.0	7.62	35.5	0.048	162.375	0.0130	6.80E-07	6.17
74	99	86.5	22.6	30.2	26.4	90	4.0	7.62	35.5	0.048	162.388	0.0130	6.80E-07	6.17
74	99	86.5	22.6	30.2	26.4	90	5.0	7.62	35.5	0.048	162.401	0.0130	6.80E-07	6.17
							0.0				162.425			
74	99	86.5	22.6	30.2	26.4	180	1.5	7.62	44.7	0.048	162.457	0.0213	8.86E-07	6.05
74	99	86.5	22.6	30.2	26.4	180	2.0	7.62	44.7	0.048	162.468	0.0220	9.14E-07	6.04
74	99	86.5	22.6	30.2	26.4	180	3.0	7.62	44.7	0.048	162.485	0.0170	7.06E-07	6.15
74	99	86.5	22.6	30.2	26.4	180	4.0	7.62	44.7	0.048	162.509	0.0240	9.97E-07	6.00
74	99	86.5	22.6	30.2	26.4	180	5.0	7.62	44.7	0.048	162.530	0.0210	8.73E-07	6.06
							0.0				162.550			
74	99	86.5	22.6	30.2	26.4	280	1.0	7.62	54.9	0.048	162.581	0.0310	1.05E-06	5.98
74	99	86.5	22.6	30.2	26.4	280	2.0	7.62	54.9	0.048	162.610	0.0290	9.81E-07	6.01
74	99	86.5	22.6	30.2	26.4	280	3.0	7.62	54.9	0.048	162.639	0.0290	9.81E-07	6.01
74	99	86.5	22.6	30.2	26.4	280	4.0	7.62	54.9	0.048	162.669	0.0300	1.02E-06	5.99
74	99	86.5	22.6	30.2	26.4	280	5.0	7.62	54.9	0.048	162.699	0.0300	1.02E-06	5.99
							0.0				162.755			
114	139	126.5	34.7	42.4	38.6	140	1.0	7.62	52.8	0.048	162.759	0.0035	1.23E-07	6.91
114	139	126.5	34.7	42.4	38.6	140	2.0	7.62	52.8	0.048	162.762	0.0035	1.23E-07	6.91
114	139	126.5	34.7	42.4	38.6	140	3.0	7.62	52.8	0.048	162.766	0.0040	1.41E-07	6.85
114	139	126.5	34.7	42.4	38.6	140	4.0	7.62	52.8	0.048	162.770	0.0035	1.23E-07	6.91
114	139	126.5	34.7	42.4	38.6	140	5.0	7.62	52.8	0.048	162.773	0.0035	1.23E-07	6.91
							0.0				162.780			
114	139	126.5	34.7	42.4	38.6	290	1.0	7.62	68.1	0.048	162.787	0.0065	1.77E-07	6.75
114	139	126.5	34.7	42.4	38.6	290	2.0	7.62	68.1	0.048	162.793	0.0065	1.77E-07	6.75
114	139	126.5	34.7	42.4	38.6	290	3.0	7.62	68.1	0.048	162.800	0.0065	1.77E-07	6.75
114	139	126.5	34.7	42.4	38.6	290	4.0	7.62	68.1	0.048	162.806	0.0065	1.77E-07	6.75
114	139	126.5	34.7	42.4	38.6	290	5.0	7.62	68.1	0.048	162.813	0.0065	1.77E-07	6.75
							0.0				162.820			
114	139	126.5	34.7	42.4	38.6	430	1.0	7.62	82.4	0.048	162.832	0.0115	2.59E-07	6.59
114	139	126.5	34.7	42.4	38.6	430	2.0	7.62	82.4	0.048	162.844	0.0120	2.71E-07	6.57
114	139	126.5	34.7	42.4	38.6	430	3.0	7.62	82.4	0.048	162.856	0.0125	2.82E-07	6.55
114	139	126.5	34.7	42.4	38.6	430	4.0	7.62	82.4	0.048	162.868	0.0120	2.71E-07	6.57
114	139	126.5	34.7	42.4	38.6	430	5.0	7.62	82.4	0.048	162.880	0.0115	2.59E-07	6.59
							0.0				163.335			
144	169	156.5	43.9	51.5	47.7	180	1.0	7.62	66.1	0.048	163.385	0.0500	1.41E-06	5.85
144	169	156.5	43.9	51.5	47.7	180	2.0	7.62	66.1	0.048	163.435	0.0500	1.41E-06	5.85
144	169	156.5	43.9	51.5	47.7	180	3.0	7.62	66.1	0.048	163.482	0.0470	1.32E-06	5.88
144	169	156.5	43.9	51.5	47.7	180	4.0	7.62	66.1	0.048	163.530	0.0480	1.35E-06	5.87
144	169	156.5	43.9	51.5	47.7	180	5.0	7.62	66.1	0.048	163.580	0.0500	1.41E-06	5.85
							0.0				163.600			
144	169	156.5	43.9	51.5	47.7	360	1.0	7.62	84.4	0.048	163.666	0.0660	1.45E-06	5.84
144	169	156.5	43.9	51.5	47.7	360	2.0	7.62	84.4	0.048	163.732	0.0660	1.45E-06	5.84
144	169	156.5	43.9	51.5	47.7	360	3.0	7.62	84.4	0.048	163.800	0.0680	1.50E-06	5.82
144	169	156.5	43.9	51.5	47.7	360	4.0	7.62	84.4	0.048	163.864	0.0640	1.41E-06	5.85
144	169	156.5	43.9	51.5	47.7	360	5.0	7.62	84.4	0.048	163.930	0.0660	1.45E-06	5.84
							0.0				164.400			
144	169	156.5	43.9	51.5	47.7	540	1.0	7.62	102.8	0.048	164.485	0.0850	1.54E-06	5.81
144	169	156.5	43.9	51.5	47.7	540	2.0	7.62	102.8	0.048	164.570	0.0850	1.54E-06	5.81
144	169	156.5	43.9	51.5	47.7	540	3.0	7.62	102.8	0.048	164.649	0.0790	1.43E-06	5.85
144	169	156.5	43.9	51.5	47.7	540	4.0	7.62	102.8	0.048	164.728	0.0790	1.43E-06	5.85
144	169	156.5	43.9	51.5	47.7	540	5.0	7.62	102.8	0.048	164.805	0.0770	1.39E-06	5.86
							0.0				165.200			
174	199	186.5	53.0	60.7	56.8	210	1.0	7.62	78.3	0.048	165.270	0.0700	1.66E-06	5.78
174	199	186.5	53.0	60.7	56.8	210	2.0	7.62	78.3	0.048	165.330	0.0600	1.42E-06	5.85
174	199	186.5	53.0	60.7	56.8	210	3.0	7.62	78.3	0.048	165.402	0.0720	1.71E-06	5.77
174	199	186.5	53.0	60.7	56.8	210	4.0	7.62	78.3	0.048	165.468	0.0660	1.57E-06	5.80
174	199	186.5	53.0	60.7	56.8	210	5.0	7.62	78.3	0.048	165.535	0.0670	1.59E-06	5.80
							0.0				165.680			
174	199	186.5	53.0	60.7	56.8	420	1.0	7.62	99.7	0.048	165.768	0.0880	1.64E-06	5.79
174	199	186.5	53.0	60.7	56.8	420	2.0	7.62	99.7	0.048	165.858	0.0900	1.68E-06	5.78
174	199	186.5	53.0	60.7	56.8	420	3.0	7.62	99.7	0.048	165.946	0.0880	1.64E-06	5.79
174	199	186.5	53.0	60.7	56.8	420	4.0	7.62	99.7	0.048	166.035	0.0890	1.66E-06	5.78
174	199	186.5	53.0	60.7	56.8	420	5.0	7.62	99.7	0.048	166.125	0.0900	1.68E-06	5.78
							0.0				166.210			
174	199	186.5	53.0	60.7	56.8	630	1.0	7.62	121.1	0.048	166.315	0.1050	1.61E-06	5.79
174	199	186.5	53.0	60.7	56.8	630	2.0	7.62	121.1	0.048	166.420	0.1050	1.61E-06	5.79
174	199	186.5	53.0	60.7	56.8	630	3.0	7.62	121.1	0.048	166.525	0.1050	1.61E-06	5.79
174	199	186.5	53.0	60.7	56.8	630	4.0	7.62	121.1	0.048	166.630	0.1050	1.61E-06	5.79
174	199	186.5	53.0	60.7	56.8	630	5.0	7.62	121.1	0.048	166.730	0.1000	1.53E-06	5.81

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-8: PACKER TEST RESULTS - MW-MT-08-07

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				158.120			
34	59	46.5	10.4	18.0	14.2	35	1.0	7.62	17.7	0.048	158.151	0.0310	3.25E-06	5.49
34	59	46.5	10.4	18.0	14.2	35	2.0	7.62	17.7	0.048	158.182	0.0310	3.25E-06	5.49
34	59	46.5	10.4	18.0	14.2	35	3.0	7.62	17.7	0.048	158.215	0.0330	3.46E-06	5.46
34	59	46.5	10.4	18.0	14.2	35	4.0	7.62	17.7	0.048	158.248	0.0330	3.46E-06	5.46
34	59	46.5	10.4	18.0	14.2	35	5.0	7.62	17.7	0.048	158.284	0.0360	3.77E-06	5.42
							0.0				158.310			
34	59	46.5	10.4	18.0	14.2	65	1.0	7.62	20.8	0.048	158.354	0.0440	3.93E-06	5.41
34	59	46.5	10.4	18.0	14.2	65	2.0	7.62	20.8	0.048	158.403	0.0490	4.38E-06	5.36
34	59	46.5	10.4	18.0	14.2	65	3.0	7.62	20.8	0.048	158.446	0.0430	3.84E-06	5.42
34	59	46.5	10.4	18.0	14.2	65	4.0	7.62	20.8	0.048	158.485	0.0390	3.48E-06	5.46
34	59	46.5	10.4	18.0	14.2	65	5.0	7.62	20.8	0.048	158.535	0.0500	4.47E-06	5.35
							0.0				158.600			
34	59	46.5	10.4	18.0	14.2	100	1.0	7.62	24.4	0.048	158.653	0.0530	4.04E-06	5.39
34	59	46.5	10.4	18.0	14.2	100	2.0	7.62	24.4	0.048	158.708	0.0550	4.19E-06	5.38
34	59	46.5	10.4	18.0	14.2	100	3.0	7.62	24.4	0.048	158.762	0.0540	4.12E-06	5.39
34	59	46.5	10.4	18.0	14.2	100	4.0	7.62	24.4	0.048	158.814	0.0520	3.96E-06	5.40
34	59	46.5	10.4	18.0	14.2	100	5.0	7.62	24.4	0.048	158.868	0.0540	4.12E-06	5.39
							0.0				158.885			
64	89	76.5	19.5	27.1	23.3	80	1.0	7.62	31.5	0.048	158.922	0.0370	2.18E-06	5.66
64	89	76.5	19.5	27.1	23.3	80	2.0	7.62	31.5	0.048	158.958	0.0355	2.10E-06	5.68
64	89	76.5	19.5	27.1	23.3	80	3.0	7.62	31.5	0.048	158.994	0.0365	2.15E-06	5.67
64	89	76.5	19.5	27.1	23.3	80	4.0	7.62	31.5	0.048	159.031	0.0370	2.18E-06	5.66
64	89	76.5	19.5	27.1	23.3	80	5.0	7.62	31.5	0.048	159.067	0.0360	2.13E-06	5.67
							0.0				159.220			
64	89	76.5	19.5	27.1	23.3	160	1.0	7.62	39.6	0.048	159.295	0.0750	3.52E-06	5.45
64	89	76.5	19.5	27.1	23.3	160	2.0	7.62	39.6	0.048	159.368	0.0730	3.42E-06	5.47
64	89	76.5	19.5	27.1	23.3	160	3.0	7.62	39.6	0.048	159.438	0.0700	3.28E-06	5.48
64	89	76.5	19.5	27.1	23.3	160	4.0	7.62	39.6	0.048	159.506	0.0680	3.19E-06	5.50
64	89	76.5	19.5	27.1	23.3	160	5.0	7.62	39.6	0.048	159.573	0.0670	3.14E-06	5.50
							0.0				159.630			
64	89	76.5	19.5	27.1	23.3	240	1.0	7.62	47.8	0.048	159.725	0.0950	3.69E-06	5.43
64	89	76.5	19.5	27.1	23.3	240	2.0	7.62	47.8	0.048	159.819	0.0940	3.65E-06	5.44
64	89	76.5	19.5	27.1	23.3	240	3.0	7.62	47.8	0.048	159.913	0.0940	3.65E-06	5.44
64	89	76.5	19.5	27.1	23.3	240	4.0	7.62	47.8	0.048	160.007	0.0940	3.65E-06	5.44
64	89	76.5	19.5	27.1	23.3	240	5.0	7.62	47.8	0.048	160.102	0.0950	3.69E-06	5.43

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-9: PACKER TEST RESULTS - MW-MT-08-08

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0							
73	98	85.5	22.3	29.9	26.1		1.0	7.62	26.1	0.048		0.0000	No packer seal	
73	98	85.5	22.3	29.9	26.1		2.0	7.62	26.1	0.048		0.0000		
73	98	85.5	22.3	29.9	26.1		3.0	7.62	26.1	0.048		0.0000		
73	98	85.5	22.3	29.9	26.1		4.0	7.62	26.1	0.048		0.0000		
73	98	85.5	22.3	29.9	26.1		5.0	7.62	26.1	0.048		0.0000		
							0.0							
113	138	125.5	34.4	42.1	38.3		1.0	7.62	38.3	0.048		0.0000	No detectable flow	
113	138	125.5	34.4	42.1	38.3		2.0	7.62	38.3	0.048		0.0000		
113	138	125.5	34.4	42.1	38.3		3.0	7.62	38.3	0.048		0.0000		
113	138	125.5	34.4	42.1	38.3		4.0	7.62	38.3	0.048		0.0000		
113	138	125.5	34.4	42.1	38.3		5.0	7.62	38.3	0.048		0.0000		
							0.0							
153	178	165.5	46.6	54.3	50.4		1.0	7.62	50.4	0.048		0.0000	No detectable flow	
153	178	165.5	46.6	54.3	50.4		2.0	7.62	50.4	0.048		0.0000		
153	178	165.5	46.6	54.3	50.4		3.0	7.62	50.4	0.048		0.0000		
153	178	165.5	46.6	54.3	50.4		4.0	7.62	50.4	0.048		0.0000		
153	178	165.5	46.6	54.3	50.4		5.0	7.62	50.4	0.048		0.0000		
							0.0				173.125			
193	218	205.5	58.8	66.4	62.6	230	1.0	7.62	86.1	0.048	173.128	0.0030	6.48E-08	7.19
193	218	205.5	58.8	66.4	62.6	230	2.0	7.62	86.1	0.048	173.130	0.0020	4.32E-08	7.36
193	218	205.5	58.8	66.4	62.6	230	3.0	7.62	86.1	0.048	173.133	0.0030	6.48E-08	7.19
193	218	205.5	58.8	66.4	62.6	230	4.0	7.62	86.1	0.048	173.135	0.0020	4.32E-08	7.36
193	218	205.5	58.8	66.4	62.6	230	5.0	7.62	86.1	0.048	173.138	0.0030	6.48E-08	7.19
							0.0				173.142			
193	218	205.5	58.8	66.4	62.6	460	1.0	7.62	109.5	0.048	173.146	0.0040	6.79E-08	7.17
193	218	205.5	58.8	66.4	62.6	460	2.0	7.62	109.5	0.048	173.151	0.0050	8.48E-08	7.07
193	218	205.5	58.8	66.4	62.6	460	3.0	7.62	109.5	0.048	173.156	0.0050	8.48E-08	7.07
193	218	205.5	58.8	66.4	62.6	460	4.0	7.62	109.5	0.048	173.162	0.0060	1.02E-07	6.99
193	218	205.5	58.8	66.4	62.6	480	5.0	7.62	111.6	0.048	173.171	0.0090	1.50E-07	6.82
							0.0				173.180			
193	218	205.5	58.8	66.4	62.6	700	1.0	7.62	134.0	0.048	173.189	0.0090	1.25E-07	6.90
193	218	205.5	58.8	66.4	62.6	700	2.0	7.62	134.0	0.048	173.195	0.0060	8.32E-08	7.08
193	218	205.5	58.8	66.4	62.6	700	3.0	7.62	134.0	0.048	173.202	0.0070	9.71E-08	7.01
193	218	205.5	58.8	66.4	62.6	700	4.0	7.62	134.0	0.048	173.208	0.0060	8.32E-08	7.08
193	218	205.5	58.8	66.4	62.6	700	5.0	7.62	134.0	0.048	173.214	0.0060	8.32E-08	7.08
							0.0				173.505			
233	258	245.5	71.0	78.6	74.8	230	1.0	7.62	98.3	0.048	173.520	0.0150	2.84E-07	6.55
233	258	245.5	71.0	78.6	74.8	230	2.0	7.62	98.3	0.048	173.542	0.0220	4.16E-07	6.38
233	258	245.5	71.0	78.6	74.8	230	3.0	7.62	98.3	0.048	173.563	0.0210	3.97E-07	6.40
233	258	245.5	71.0	78.6	74.8	230	4.0	7.62	98.3	0.048	173.586	0.0230	4.35E-07	6.36
233	258	245.5	71.0	78.6	74.8	230	5.0	7.62	98.3	0.048	173.600	0.0140	2.65E-07	6.58
							0.0				173.660			
233	258	245.5	71.0	78.6	74.8	460	1.0	7.62	121.7	0.048	173.701	0.0410	6.26E-07	6.20
233	258	245.5	71.0	78.6	74.8	460	2.0	7.62	121.7	0.048	173.749	0.0480	7.33E-07	6.14
233	258	245.5	71.0	78.6	74.8	460	3.0	7.62	121.7	0.048	173.790	0.0410	6.26E-07	6.20
233	258	245.5	71.0	78.6	74.8	460	4.0	7.62	121.7	0.048	173.835	0.0450	6.87E-07	6.16
233	258	245.5	71.0	78.6	74.8	460	5.0	7.62	121.7	0.048	173.870	0.0350	5.34E-07	6.27
							0.0							
233	258	245.5	71.0	78.6	74.8	700	1.0	7.62	146.2	0.048		0.0000	Pump problems	
233	258	245.5	71.0	78.6	74.8	700	2.0	7.62	146.2	0.048		0.0000		
233	258	245.5	71.0	78.6	74.8	700	3.0	7.62	146.2	0.048		0.0000		
233	258	245.5	71.0	78.6	74.8	700	4.0	7.62	146.2	0.048		0.0000		
233	258	245.5	71.0	78.6	74.8	700	5.0	7.62	146.2	0.048		0.0000		
							0.0				174.311			
273	298	285.5	83.2	90.8	87.0	240	1.0	7.62	111.5	0.048				
273	298	285.5	83.2	90.8	87.0	240	2.0	7.62	111.5	0.048	174.313			
273	298	285.5	83.2	90.8	87.0	240	3.0	7.62	111.5	0.048	174.315	0.0015	2.50E-08	7.60
273	298	285.5	83.2	90.8	87.0	240	4.0	7.62	111.5	0.048	174.316	0.0015	2.50E-08	7.60
273	298	285.5	83.2	90.8	87.0	240	5.0	7.62	111.5	0.048	174.318	0.0015	2.50E-08	7.60
							0.0				174.319			
273	298	285.5	83.2	90.8	87.0	450	1.0	7.62	132.9	0.048	174.322	0.0025	3.50E-08	7.46
273	298	285.5	83.2	90.8	87.0	450	2.0	7.62	132.9	0.048	174.324	0.0025	3.50E-08	7.46
273	298	285.5	83.2	90.8	87.0	450	3.0	7.62	132.9	0.048	174.326	0.0020	2.80E-08	7.55
273	298	285.5	83.2	90.8	87.0	450	4.0	7.62	132.9	0.048	174.329	0.0030	4.19E-08	7.38
273	298	285.5	83.2	90.8	87.0	450	5.0	7.62	132.9	0.048	174.331	0.0020	2.80E-08	7.55
							0.0				174.335			
273	298	285.5	83.2	90.8	87.0	680	1.0	7.62	156.4	0.048	174.339	0.0040	4.75E-08	7.32
273	298	285.5	83.2	90.8	87.0	680	2.0	7.62	156.4	0.048	174.343	0.0040	4.75E-08	7.32
273	298	285.5	83.2	90.8	87.0	680	3.0	7.62	156.4	0.048	174.348	0.0045	5.35E-08	7.27
273	298	285.5	83.2	90.8	87.0	680	4.0	7.62	156.4	0.048	174.352	0.0040	4.75E-08	7.32
273	298	285.5	83.2	90.8	87.0	680	5.0	7.62	156.4	0.048	174.356	0.0045	5.35E-08	7.27
							0.0				175.290			
303	328	315.5	92.4	100.0	96.2	230	1.0	7.62	119.6	0.048	175.347	0.0570	8.85E-07	6.05
303	328	315.5	92.4	100.0	96.2	230	2.0	7.62	119.6	0.048	175.405	0.0580	9.01E-07	6.05
303	328	315.5	92.4	100.0	96.2	230	3.0	7.62	119.6	0.048	175.463	0.0580	9.01E-07	6.05
303	328	315.5	92.4	100.0	96.2	230	4.0	7.62	119.6	0.048	175.520	0.0570	8.85E-07	6.05
303	328	315.5	92.4	100.0	96.2	230	5.0	7.62	119.6	0.048	175.576	0.0560	8.70E-07	6.06
							0.0				175.735			
303	328	315.5	92.4	100.0	96.2	470	1.0	7.62	144.1	0.048	175.809	0.0740	9.54E-07	6.02
303	328	315.5	92.4	100.0	96.2	470	2.0	7.62	144.1	0.048	175.881	0.0720	9.29E-07	6.03
303	328	315.5	92.4	100.0	96.2	470	3.0	7.62	144.1	0.048	175.953	0.0720	9.29E-07	6.03
303	328	315.5	92.4	100.0	96.2	470	4.0	7.62	144.1	0.048	176.024	0.0710	9.16E-07	6.04
303	328	315.5	92.4	100.0	96.2	470	5.0	7.62	144.1	0.048	176.094	0.0700	9.03E-07	6.04
							0.0							
303	328	315.5	92.4	100.0	96.2	700	1.0	7.62	167.5	0.048		0.0000	Ran out of water	
303	328	315.5	92.4	100.0	96.2	700	2.0	7.62	167.5	0.048		0.0000		
303	328	315.5	92.4	100.0	96.2	700	3.0	7.62	167.5	0.048		0.0000		
303	328	315.5	92.4	100.0	96.2	700	4.0	7.62	167.5	0.048		0.0000		
303	328	315.5	92.4	100.0	96.2	700	5.0	7.62	167.5	0.048		0.0000		

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-10: PACKER TEST RESULTS - BH49

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
							0.0				166.826			
24	39	31.5	7.3	11.9	9.6	30	1.0	4.57	12.7	0.048	166.837	0.0110	2.69E-06	5.57
24	39	31.5	7.3	11.9	9.6	30	2.0	4.57	12.7	0.048	166.849	0.0120	2.94E-06	5.53
24	39	31.5	7.3	11.9	9.6	30	3.0	4.57	12.7	0.048	166.859	0.0095	2.32E-06	5.63
24	39	31.5	7.3	11.9	9.6	30	4.0	4.57	12.7	0.048	166.868	0.0090	2.20E-06	5.66
24	39	31.5	7.3	11.9	9.6	30	5.0	4.57	12.7	0.048	166.877	0.0090	2.20E-06	5.66
							0.0				166.895			
24	39	31.5	7.3	11.9	9.6	50	1.0	4.57	14.7	0.048	166.908	0.0130	2.74E-06	5.56
24	39	31.5	7.3	11.9	9.6	50	2.0	4.57	14.7	0.048	166.920	0.0120	2.53E-06	5.60
24	39	31.5	7.3	11.9	9.6	50	3.0	4.57	14.7	0.048	166.932	0.0115	2.42E-06	5.62
24	39	31.5	7.3	11.9	9.6	50	4.0	4.57	14.7	0.048	166.943	0.0115	2.42E-06	5.62
24	39	31.5	7.3	11.9	9.6	50	5.0	4.57	14.7	0.048	166.955	0.0120	2.53E-06	5.60
							0.0				166.965			
24	39	31.5	7.3	11.9	9.6	80	1.0	4.57	17.8	0.048	166.982	0.0165	2.88E-06	5.54
24	39	31.5	7.3	11.9	9.6	80	2.0	4.57	17.8	0.048	166.997	0.0150	2.62E-06	5.58
24	39	31.5	7.3	11.9	9.6	80	3.0	4.57	17.8	0.048	167.014	0.0175	3.05E-06	5.52
24	39	31.5	7.3	11.9	9.6	80	4.0	4.57	17.8	0.048	167.030	0.0160	2.79E-06	5.55
24	39	31.5	7.3	11.9	9.6	80	5.0	4.57	17.8	0.048	167.046	0.0160	2.79E-06	5.55
							0.0				167.148			
44	69	56.5	13.4	21.0	17.2	54	1.0	7.62	22.7	0.048	167.166	0.0180	1.47E-06	5.83
44	69	56.5	13.4	21.0	17.2	54	2.0	7.62	22.7	0.048	167.185	0.0190	1.55E-06	5.81
44	69	56.5	13.4	21.0	17.2	54	3.0	7.62	22.7	0.048	167.203	0.0180	1.47E-06	5.83
44	69	56.5	13.4	21.0	17.2	54	4.0	7.62	22.7	0.048	167.221	0.0180	1.47E-06	5.83
44	69	56.5	13.4	21.0	17.2	54	5.0	7.62	22.7	0.048	167.238	0.0170	1.39E-06	5.86
							0.0				167.255			
44	69	56.5	13.4	21.0	17.2	109	1.0	7.62	28.3	0.048	167.290	0.0350	2.30E-06	5.64
44	69	56.5	13.4	21.0	17.2	109	2.0	7.62	28.3	0.048	167.315	0.0250	1.64E-06	5.79
44	69	56.5	13.4	21.0	17.2	109	3.0	7.62	28.3	0.048	167.350	0.0350	2.30E-06	5.64
44	69	56.5	13.4	21.0	17.2	109	4.0	7.62	28.3	0.048	167.380	0.0300	1.97E-06	5.71
44	69	56.5	13.4	21.0	17.2	109	5.0	7.62	28.3	0.048	167.410	0.0300	1.97E-06	5.71
							0.0				167.430			
44	69	56.5	13.4	21.0	17.2	163	1.0	7.62	33.8	0.048	167.475	0.0450	2.47E-06	5.61
44	69	56.5	13.4	21.0	17.2	163	2.0	7.62	33.8	0.048	167.520	0.0450	2.47E-06	5.61
44	69	56.5	13.4	21.0	17.2	163	3.0	7.62	33.8	0.048	167.564	0.0440	2.42E-06	5.62
44	69	56.5	13.4	21.0	17.2	163	4.0	7.62	33.8	0.048	167.616	0.0520	2.86E-06	5.54
44	69	56.5	13.4	21.0	17.2	163	5.0	7.62	33.8	0.048	167.655	0.0390	2.14E-06	5.67
							0.0				167.930			
74	99	86.5	22.6	30.2	26.4	90	1.0	7.62	35.5	0.048	167.990	0.0600	3.14E-06	5.50
74	99	86.5	22.6	30.2	26.4	90	2.0	7.62	35.5	0.048	168.050	0.0600	3.14E-06	5.50
74	99	86.5	22.6	30.2	26.4	90	3.0	7.62	35.5	0.048	168.110	0.0600	3.14E-06	5.50
74	99	86.5	22.6	30.2	26.4	90	4.0	7.62	35.5	0.048	168.167	0.0570	2.98E-06	5.53
74	99	86.5	22.6	30.2	26.4	90	5.0	7.62	35.5	0.048	168.250	0.0830	4.34E-06	5.36
							0.0				168.260			
74	99	86.5	22.6	30.2	26.4	180	1.0	7.62	44.7	0.048	168.349	0.0890	3.70E-06	5.43
74	99	86.5	22.6	30.2	26.4	180	2.0	7.62	44.7	0.048	168.439	0.0900	3.74E-06	5.43
74	99	86.5	22.6	30.2	26.4	180	3.0	7.62	44.7	0.048	168.527	0.0880	3.66E-06	5.44
74	99	86.5	22.6	30.2	26.4	180	4.0	7.62	44.7	0.048	168.615	0.0880	3.66E-06	5.44
74	99	86.5	22.6	30.2	26.4	180	5.0	7.62	44.7	0.048	168.705	0.0900	3.74E-06	5.43
74	99	86.5	22.6	30.2	26.4	270							Too much flow; packer bypass?	
104	129	116.5	31.7	39.3	35.5	140							Packer bypass	
114	129	121.5	34.7	39.3	37.0	140							Packer bypass	
134	149	141.5	40.8	45.4	43.1	160							Packer bypass	

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

TABLE C-11: PACKER TEST RESULTS - BH50

Interval Tested						Pressure	Time	Aquifer thickness tested	H	Drill hole radius	Cumulative Volume	Injection Rate	Hydraulic Conductivity (K)	Log(K)
From	To	Midpoint	From	To	Midpoint									
ft	ft	ft	m	m	m bgs	KPa	min	m	m H20	m	m^3	m^3/min	m/s	
34	49	41.5	10.4	14.9	12.6								Packer bypass	
							0.0				171.910			
54	69	61.5	16.5	21.0	18.7	60	1.0	4.57	24.9	0.048	171.980	0.0700	8.72E-06	5.06
54	69	61.5	16.5	21.0	18.7	60	2.0	4.57	24.9	0.048	172.045	0.0650	8.10E-06	5.09
54	69	61.5	16.5	21.0	18.7	60	3.0	4.57	24.9	0.048	172.110	0.0650	8.10E-06	5.09
54	69	61.5	16.5	21.0	18.7	60	4.0	4.57	24.9	0.048	172.180	0.0700	8.72E-06	5.06
54	69	61.5	16.5	21.0	18.7	60	5.0	4.57	24.9	0.048	172.247	0.0670	8.35E-06	5.08
							0.0				172.310			
54	69	61.5	16.5	21.0	18.7	120	1.0	4.57	31.0	0.048	172.398	0.0880	8.80E-06	5.06
54	69	61.5	16.5	21.0	18.7	120	2.0	4.57	31.0	0.048	172.448	0.0500	5.00E-06	5.30
54	69	61.5	16.5	21.0	18.7	120	3.0	4.57	31.0	0.048	172.532	0.0840	8.40E-06	5.08
54	69	61.5	16.5	21.0	18.7	120	4.0	4.57	31.0	0.048	172.613	0.0810	8.10E-06	5.09
54	69	61.5	16.5	21.0	18.7	120	5.0	4.57	31.0	0.048	172.703	0.0900	9.00E-06	5.05

Note: m bgs - metres below ground surface

Hydraulic conductivity obtained from Thiem (1906):

$$K = \frac{Q \cdot \ln\left(\frac{r_2}{r_1}\right)}{2\pi l \cdot (h_1 - h_2)}$$

Where:

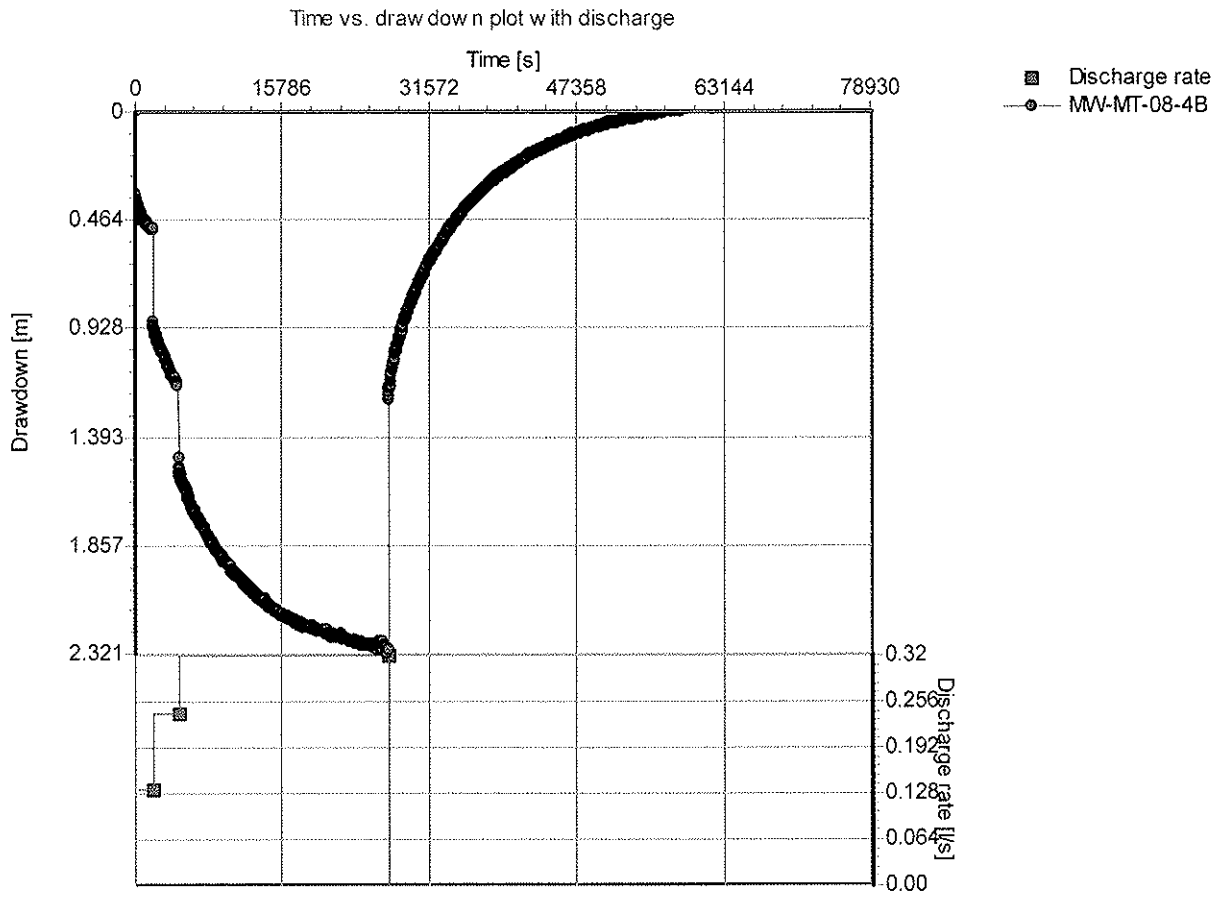
Q - Injection rate (m^3/s)
r_2 - Radius of influence of test (m; assumed 10 m)
r_1 - Drill hole radius (m)
l - Thickness of the interval tested (m)
h_1-h_2 - Induced hydraulic head (m)

APPENDIX D

APPENDIX D PUMPING TEST DATA AND GRAPHS

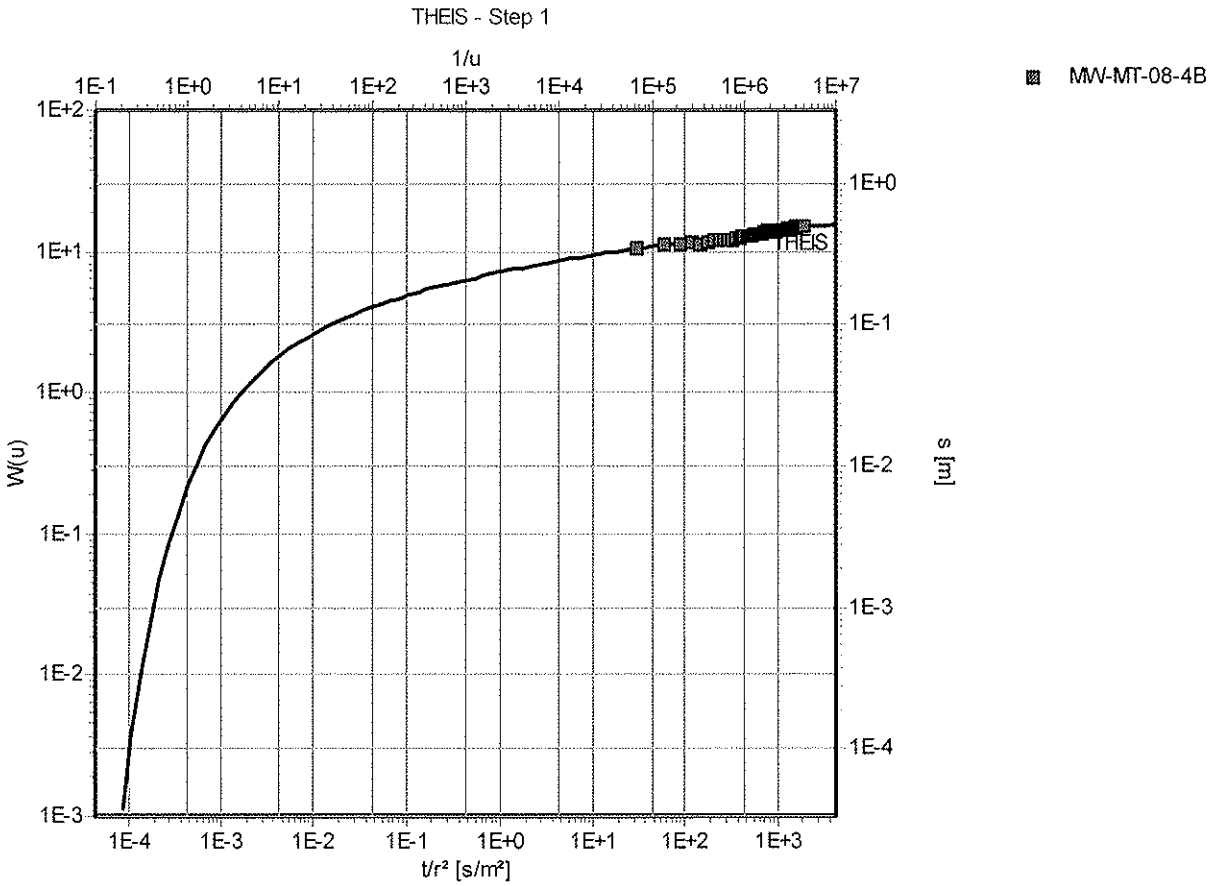
EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: Time vs. drawdown plot with discharge	



EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS	



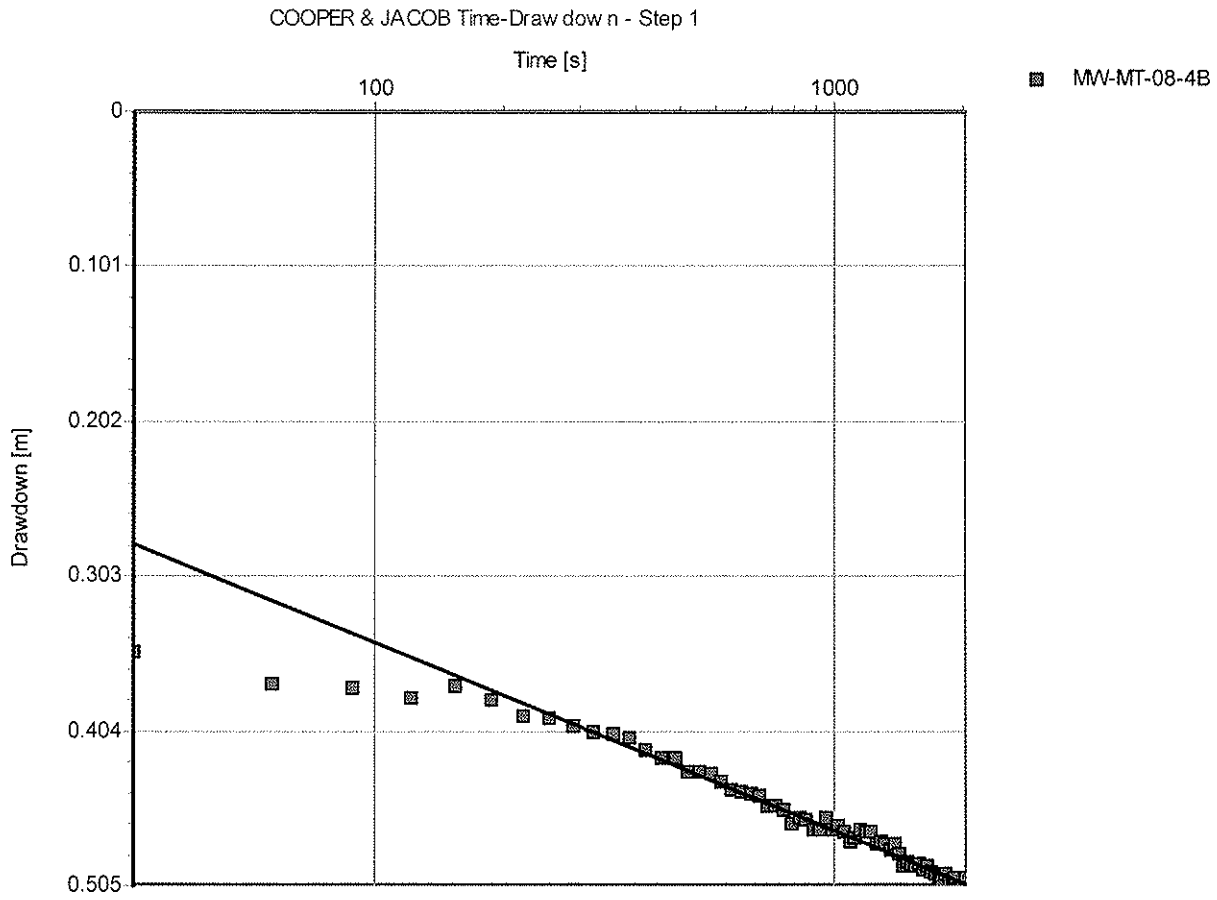
Transmissivity: 7.14×10^-4 [m²/s]

Conductivity: 1.82×10^-5 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B

Test performed by:	SK	Evaluated by:	SK
Test date:	9/9/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		

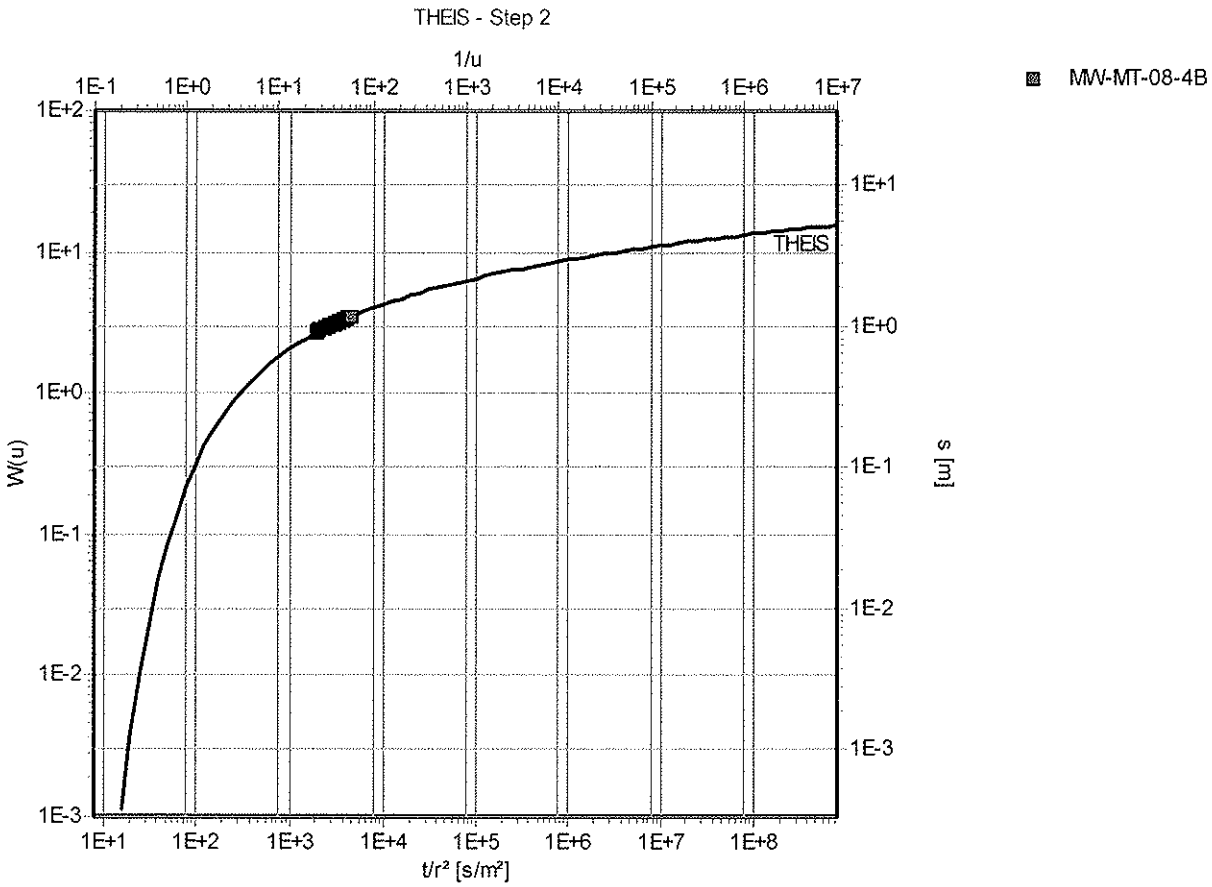


Transmissivity: 4.47×10^-4 [m²/s]

Conductivity: 1.14×10^-5 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK	Evaluated by: SK
Test date: 9/9/2008	Reviewed by: RMM
Analysis method: THEIS	



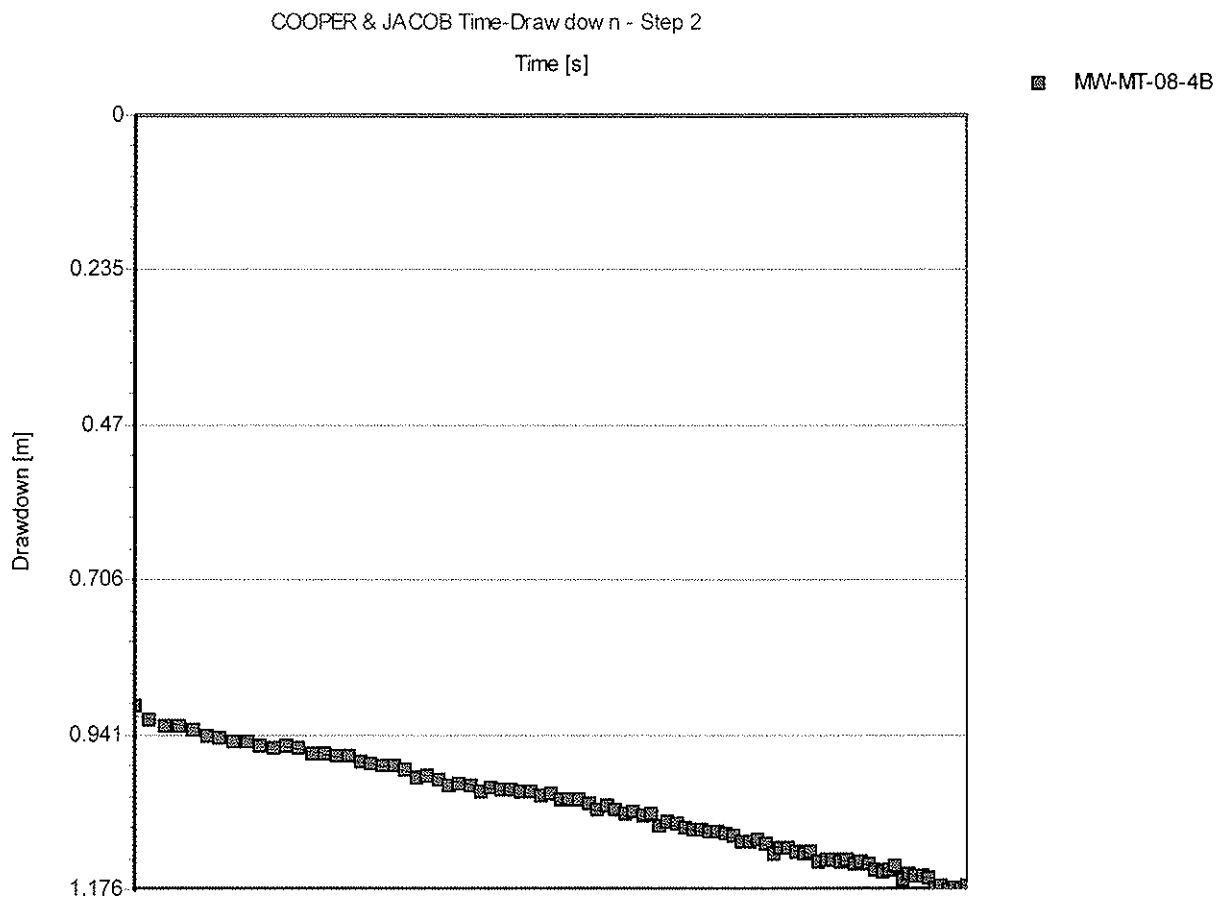
Transmissivity: 7.13×10^-5 [m²/s]

Conductivity: 1.81×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B

Test performed by:	SK	Evaluated by:	SK
Test date:	9/9/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		

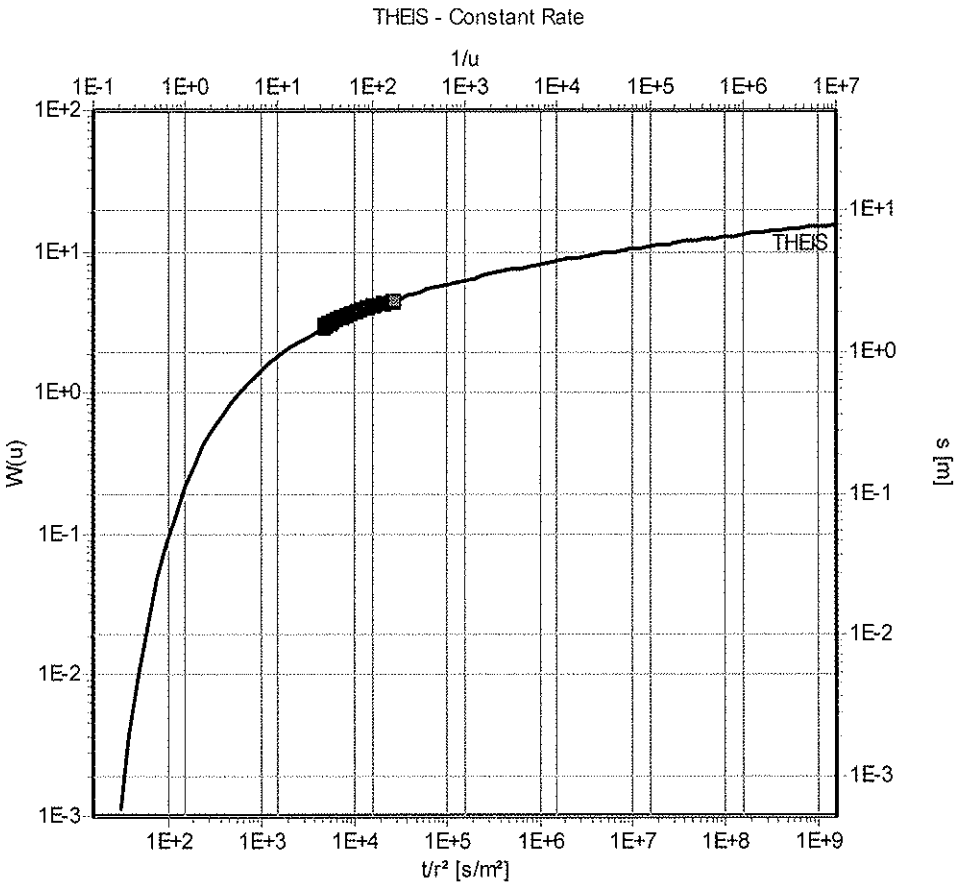


Transmissivity: 7.87×10^-5 [m²/s]

Conductivity: 2.00×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS	

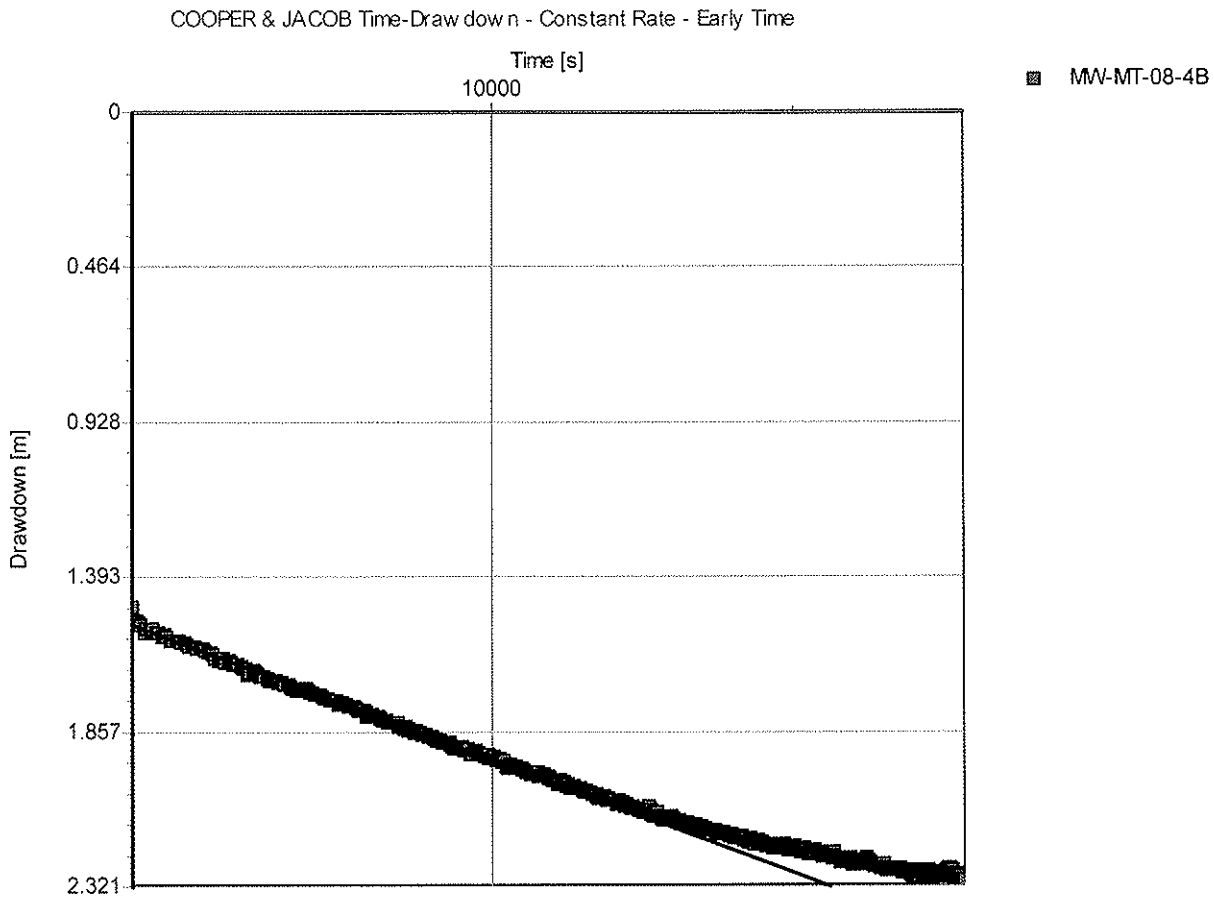


Transmissivity: 4.59×10^-5 [m²/s]

Conductivity: 1.17×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: COOPER & JACOB Time-Drawdown	



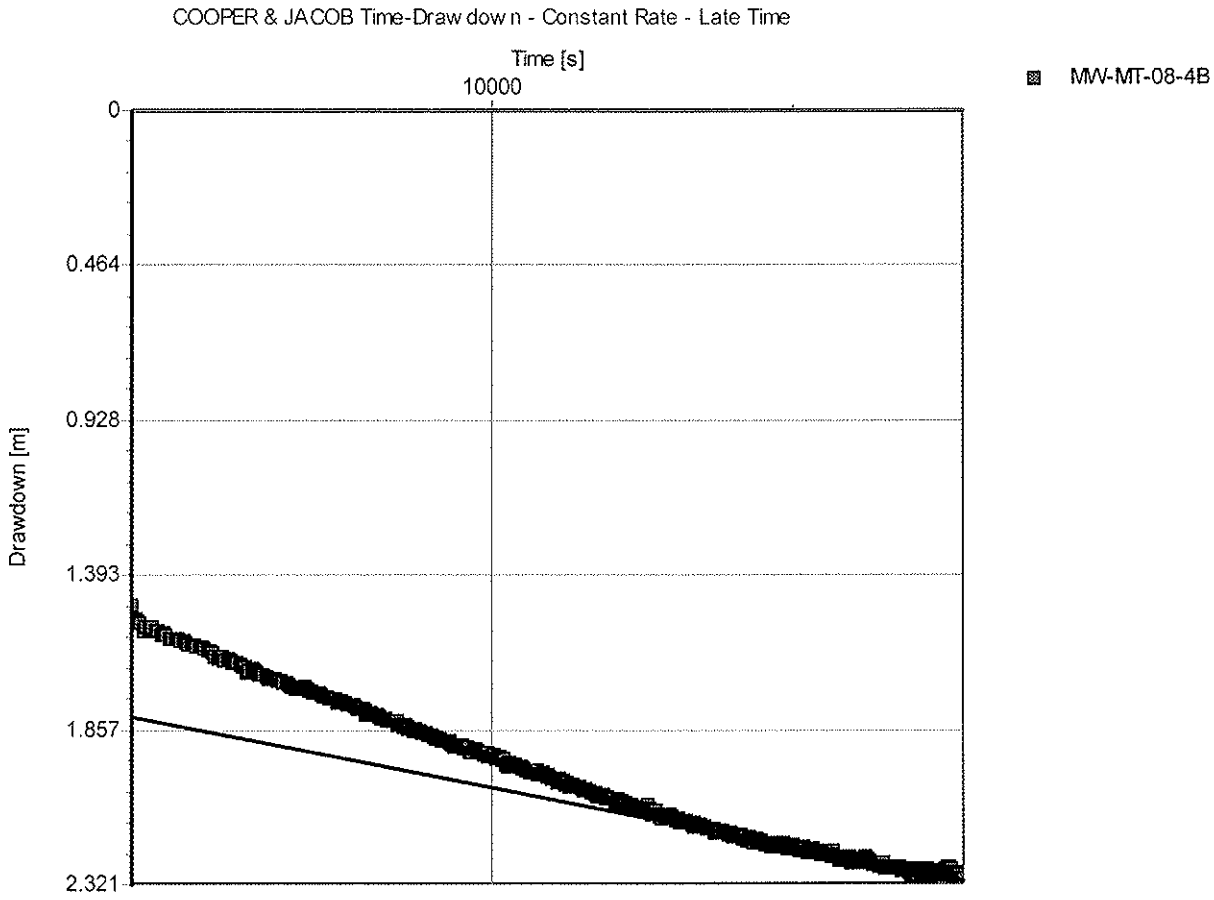
Transmissivity: 4.48×10^-5 [m²/s]

Conductivity: 1.14×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B

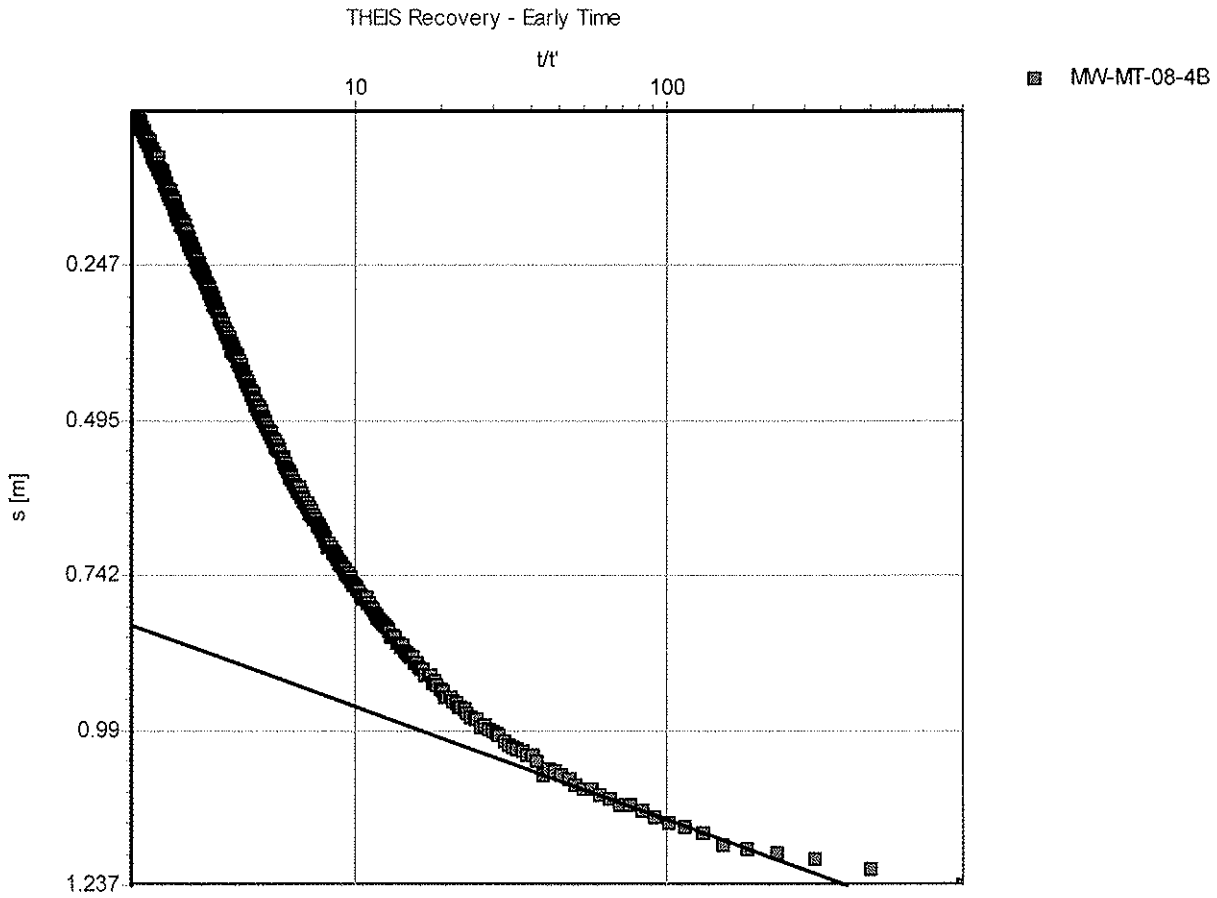
Test performed by:	SK	Evaluated by:	SK
Test date:	9/9/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		



Transmissivity: 8.51×10^-5 [m²/s]

Conductivity: 2.16×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.	
Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B	
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM	
Analysis method: THEIS Recovery		

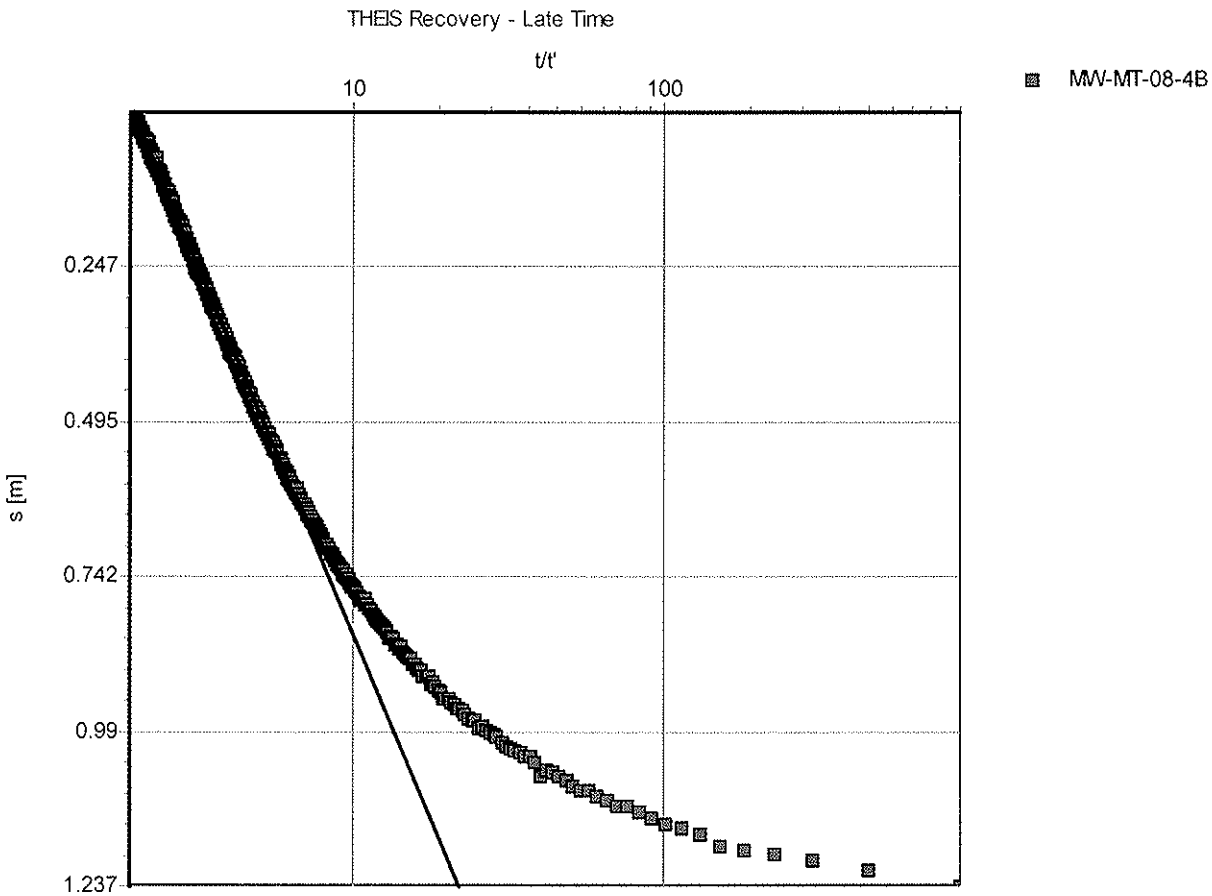


Transmissivity: 3.02×10^-4 [m²/s]

Conductivity: 7.68×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-4B
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS Recovery	



Transmissivity: 4.68×10^-5 [m²/s]

Conductivity: 1.19×10^-6 [m/s]

EBA Engineering Consultants Ltd.
Calcite Business Centre
Unit 6, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3

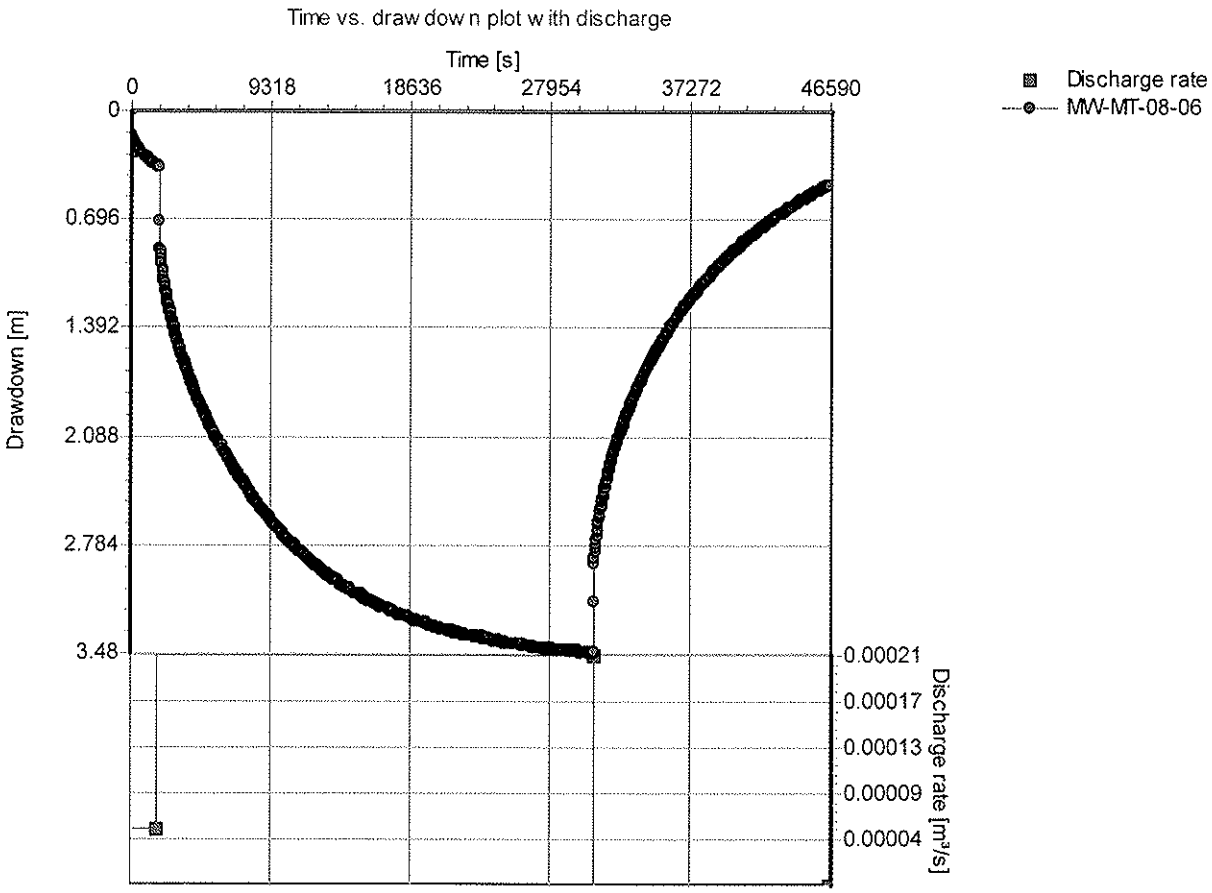
Pumping test analysis

No: W23101021.023

Project: Mactung

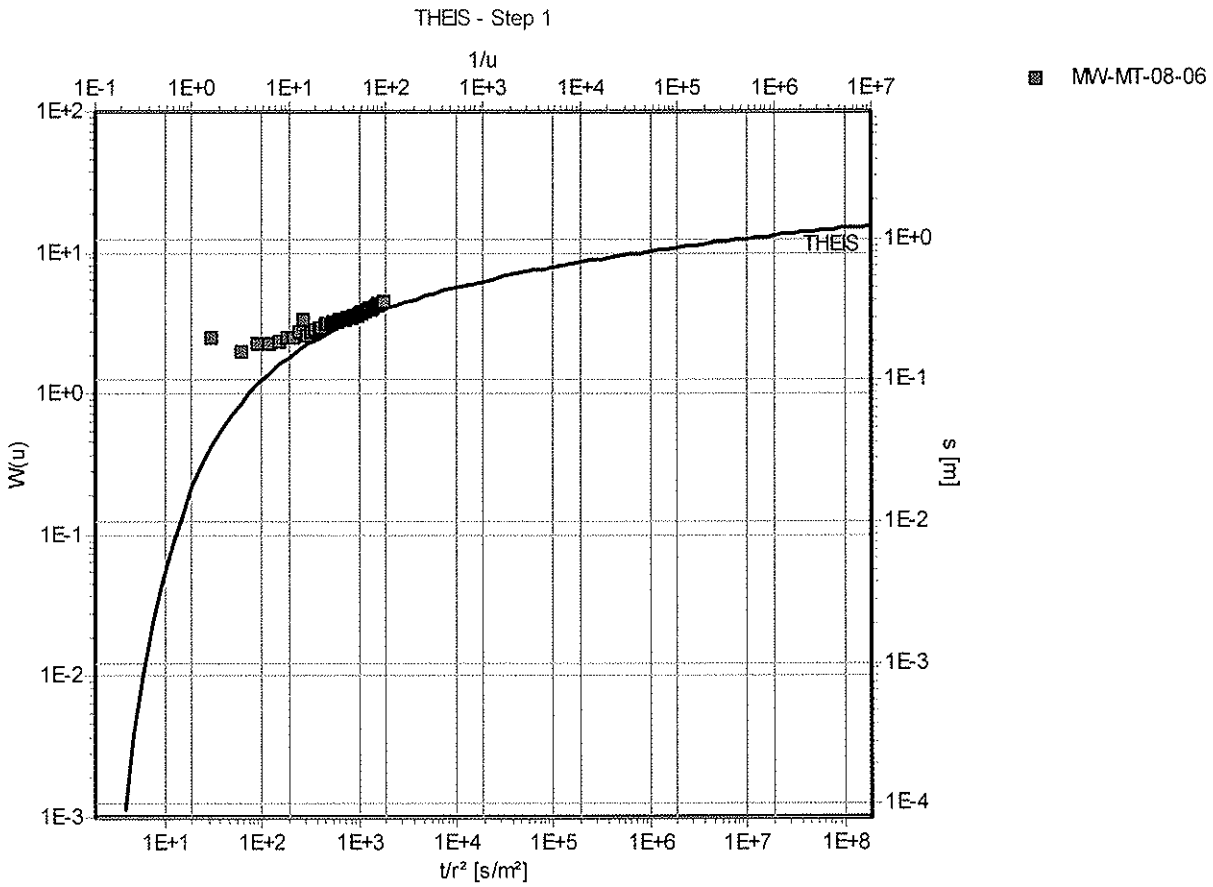
Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-06
Test performed by: SK	Evaluated by: SK
Test date: 9/8/2008	Reviewed by: RMM
Analysis method: Time vs. drawdown plot with discharge	



EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-06
Test performed by: SK Test date: 9/8/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS	



Transmissivity: 1.34×10^-4 [m²/s]

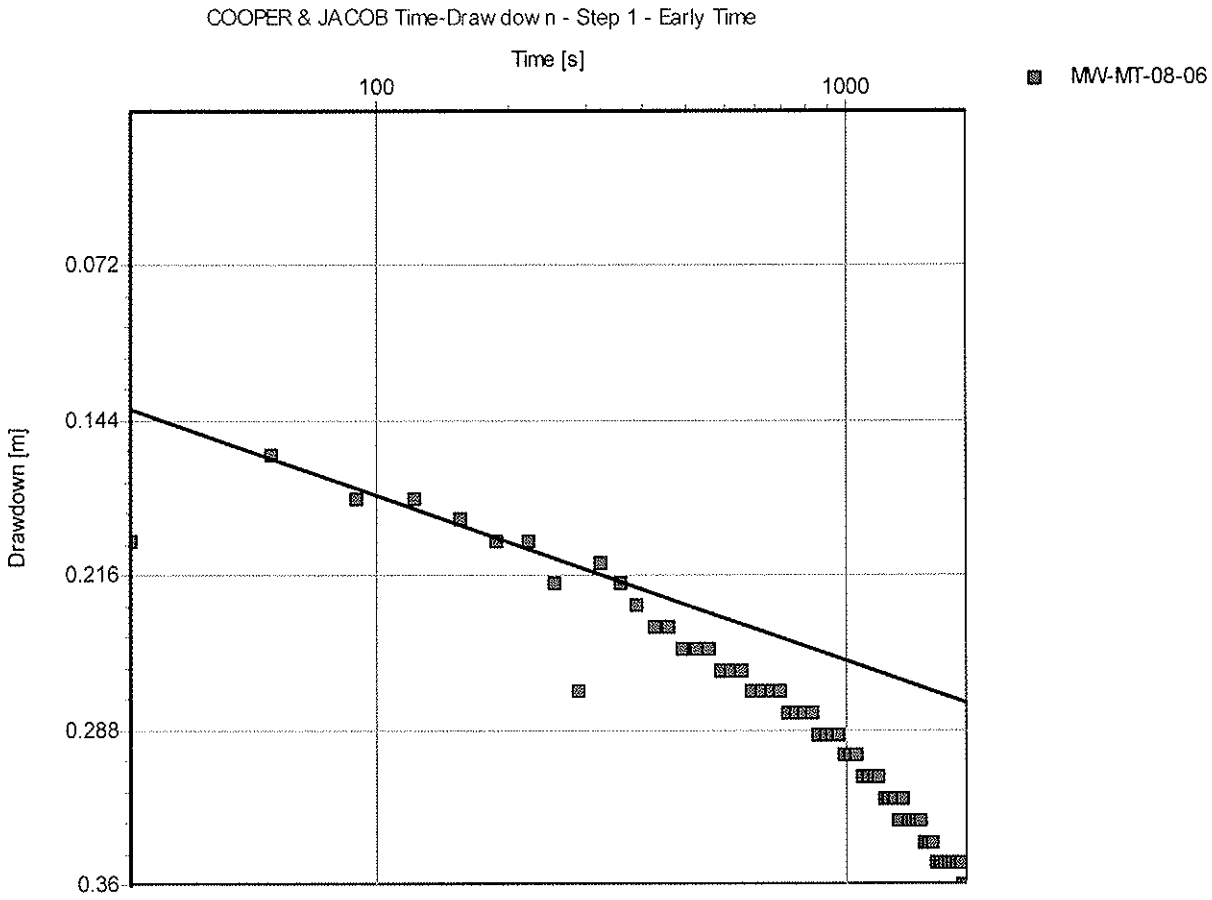
Conductivity: 2.57×10^-6 [m/s]

EBA Engineering Consultants Ltd.
Calcite Business Centre
Unit 6, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3

Pumping test analysis

No:	W23101021.023
Project:	Mactung
Client:	North American Tungsten Corporation Ltd.

Location:	Mactung Property, Yukon
Pumping test:	MW-MT-08-06
Test performed by:	SK
Test date:	9/8/2008
Evaluated by:	SK
Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown



Transmissivity: 3.21×10^-4 [m²/s]

Conductivity: 6.17×10^-6 [m/s]

EBA Engineering Consultants Ltd.
Calcite Business Centre
Unit 6, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3

Pumping test analysis

No: W23101021.023

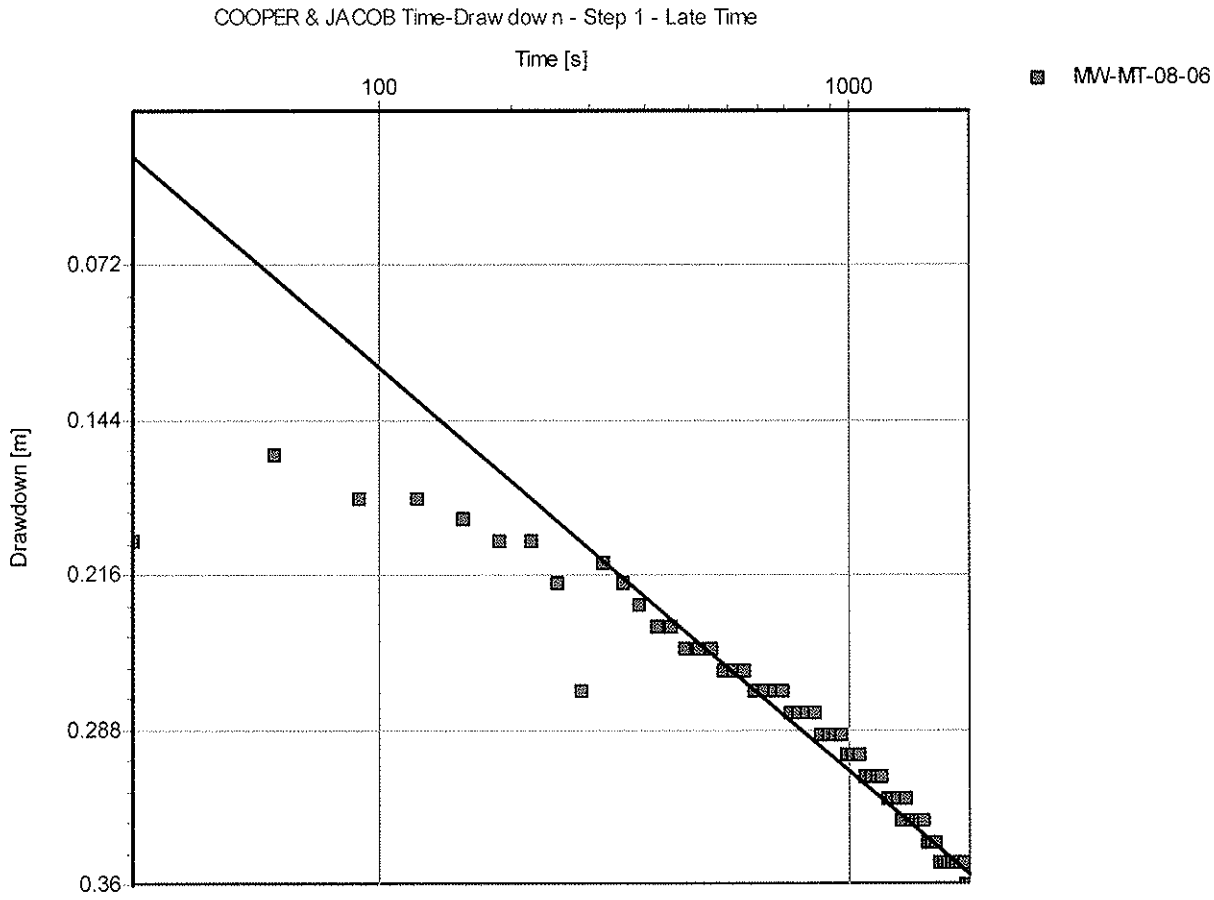
Project: Mactung

Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon

Pumping test: MW-MT-08-06

Test performed by:	SK	Evaluated by:	SK
Test date:	9/8/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		

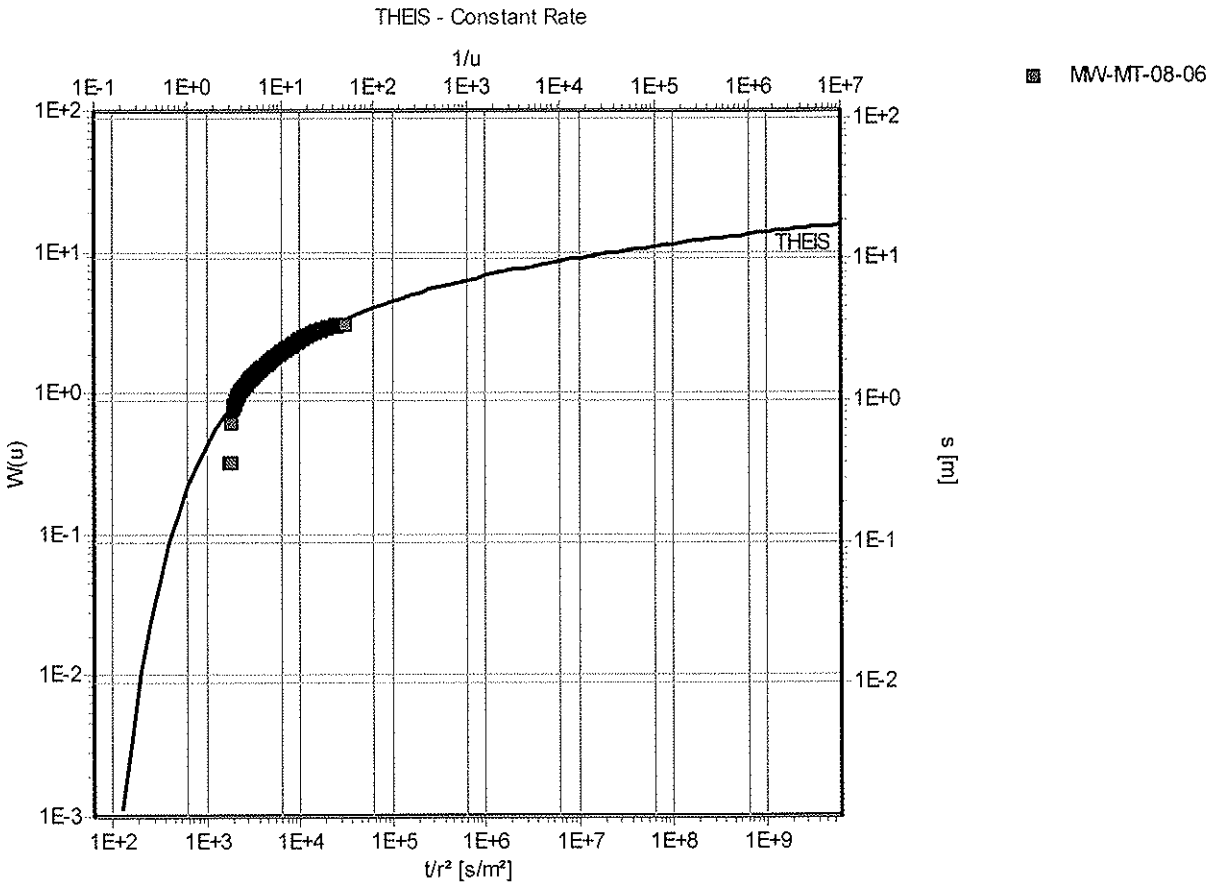


Transmissivity: 1.31×10^-4 [m²/s]

Conductivity: 2.52×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-06
Test performed by: SK Test date: 9/8/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS	

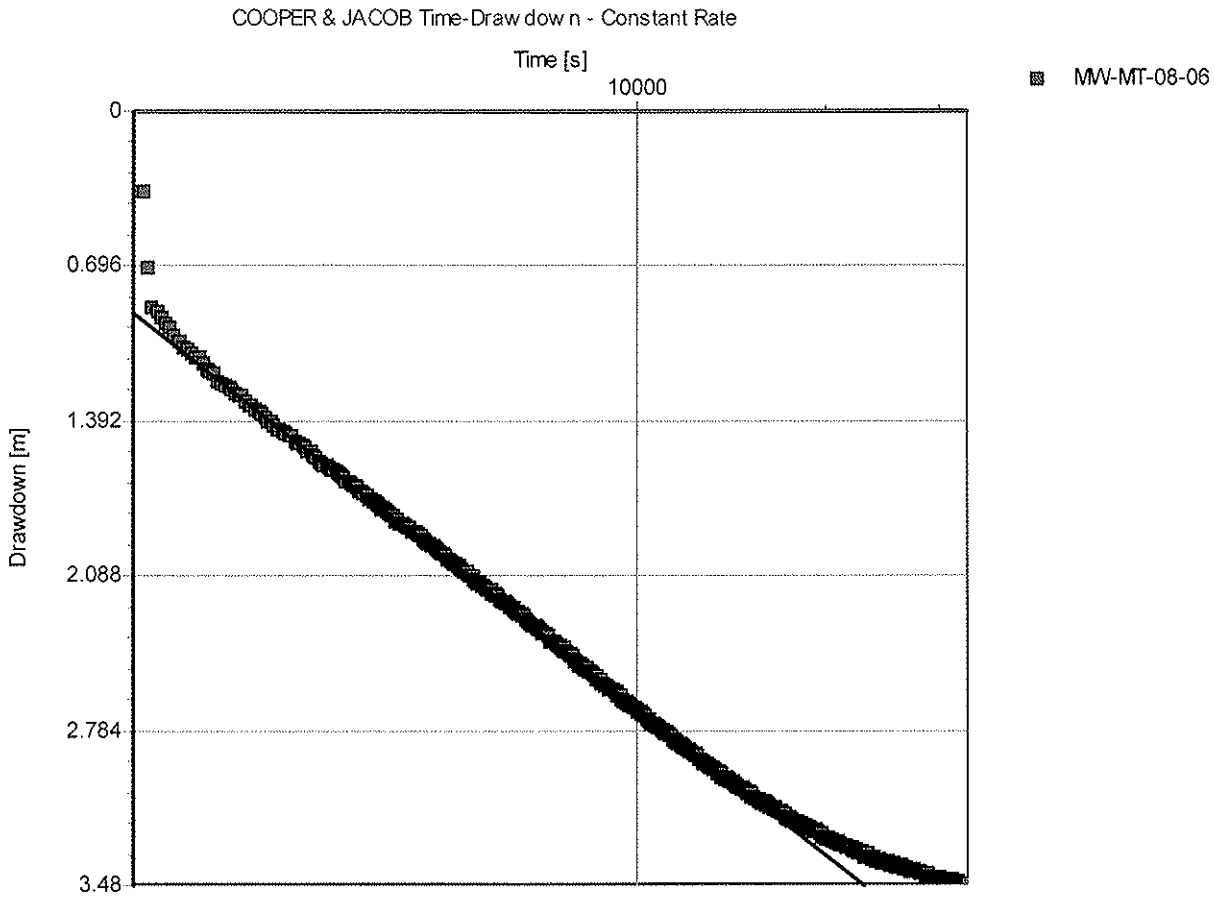


Transmissivity: 9.45×10^-6 [m²/s]

Conductivity: 1.82×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location:	Mactung Property, Yukon	Pumping test:	MW-MT-08-06
Test performed by:	SK	Evaluated by:	SK
Test date:	9/8/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		

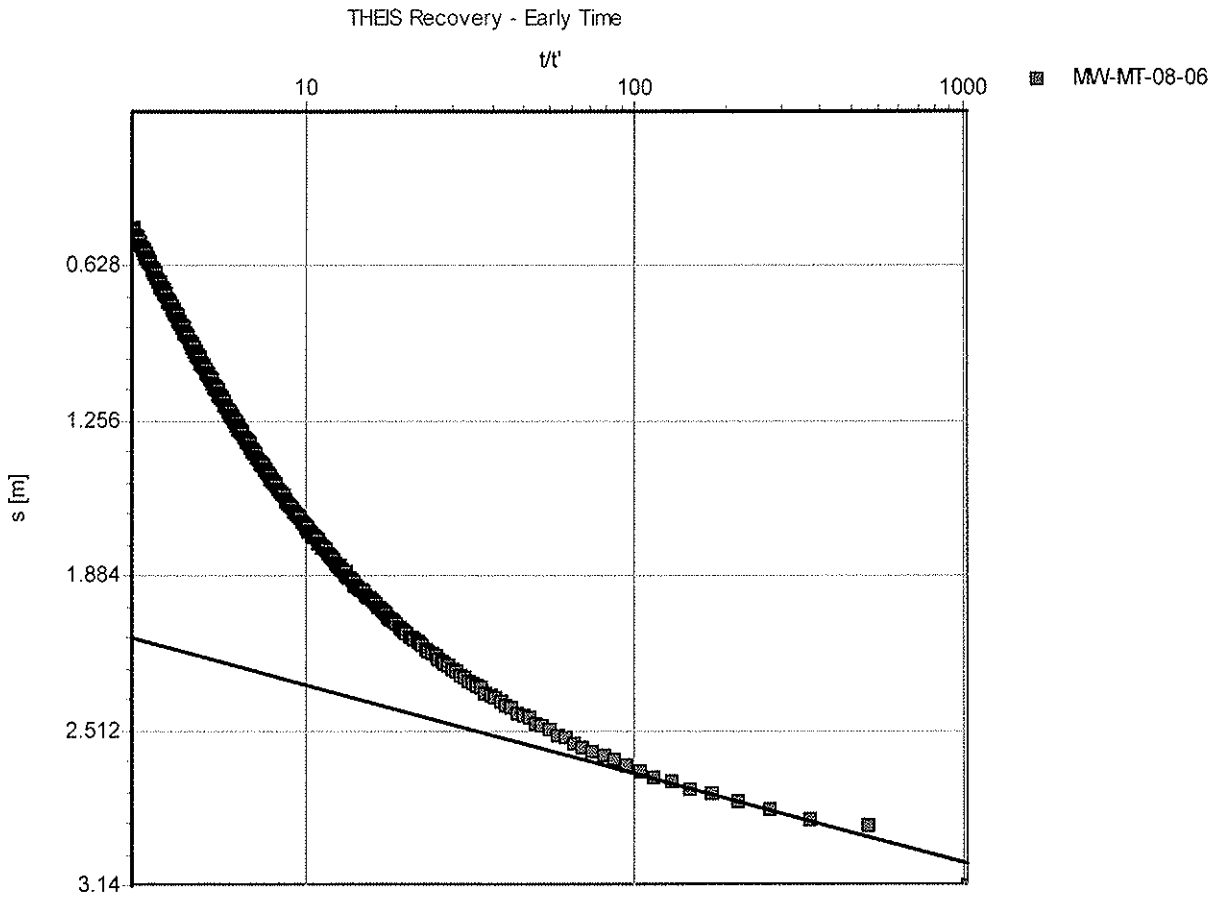


Transmissivity: 1.03×10^-5 [m²/s]

Conductivity: 1.99×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-06
Test performed by: SK Test date: 9/8/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS Recovery	



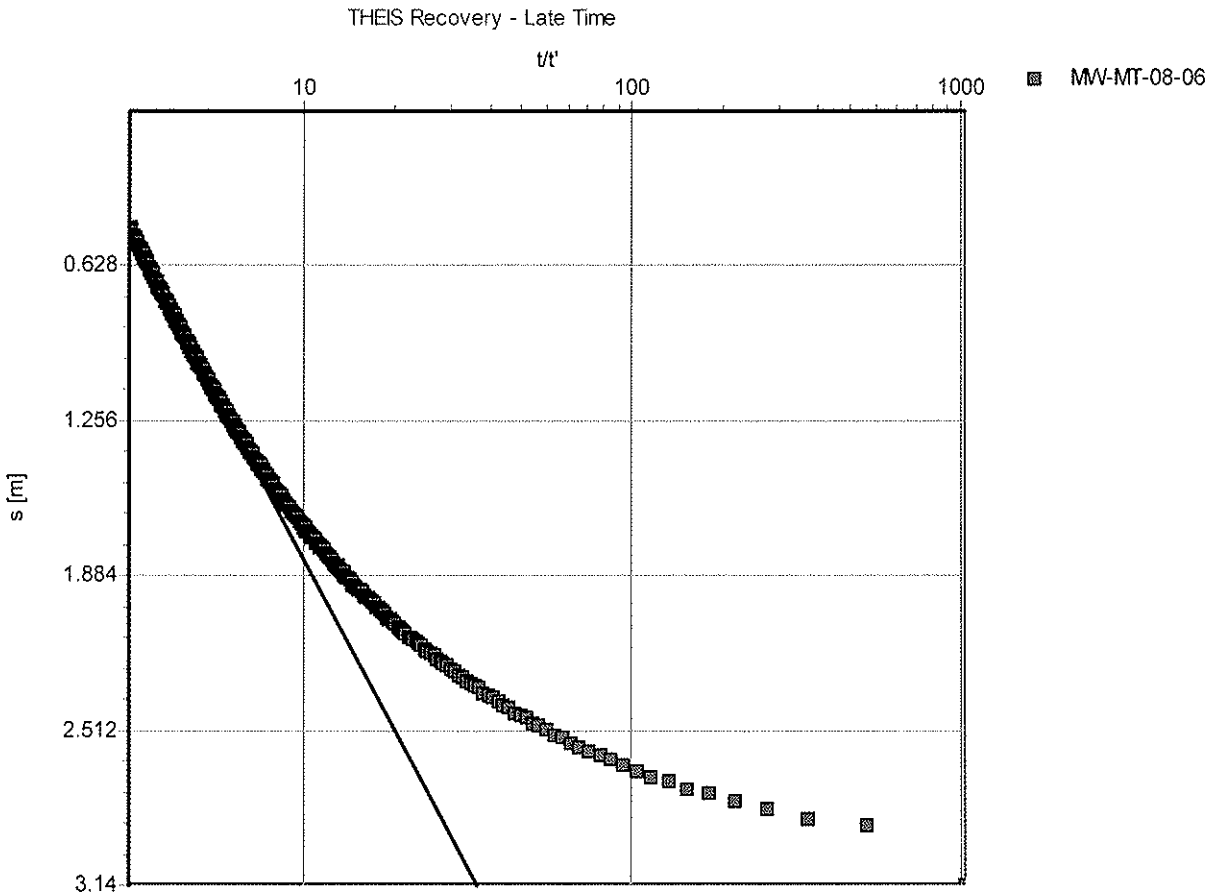
Transmissivity: 6.85×10^-5 [m²/s]

Conductivity: 1.32×10^-6 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-06

Test performed by:	SK	Evaluated by:	SK
Test date:	9/8/2008	Reviewed by:	RMM
Analysis method:	THEIS Recovery		



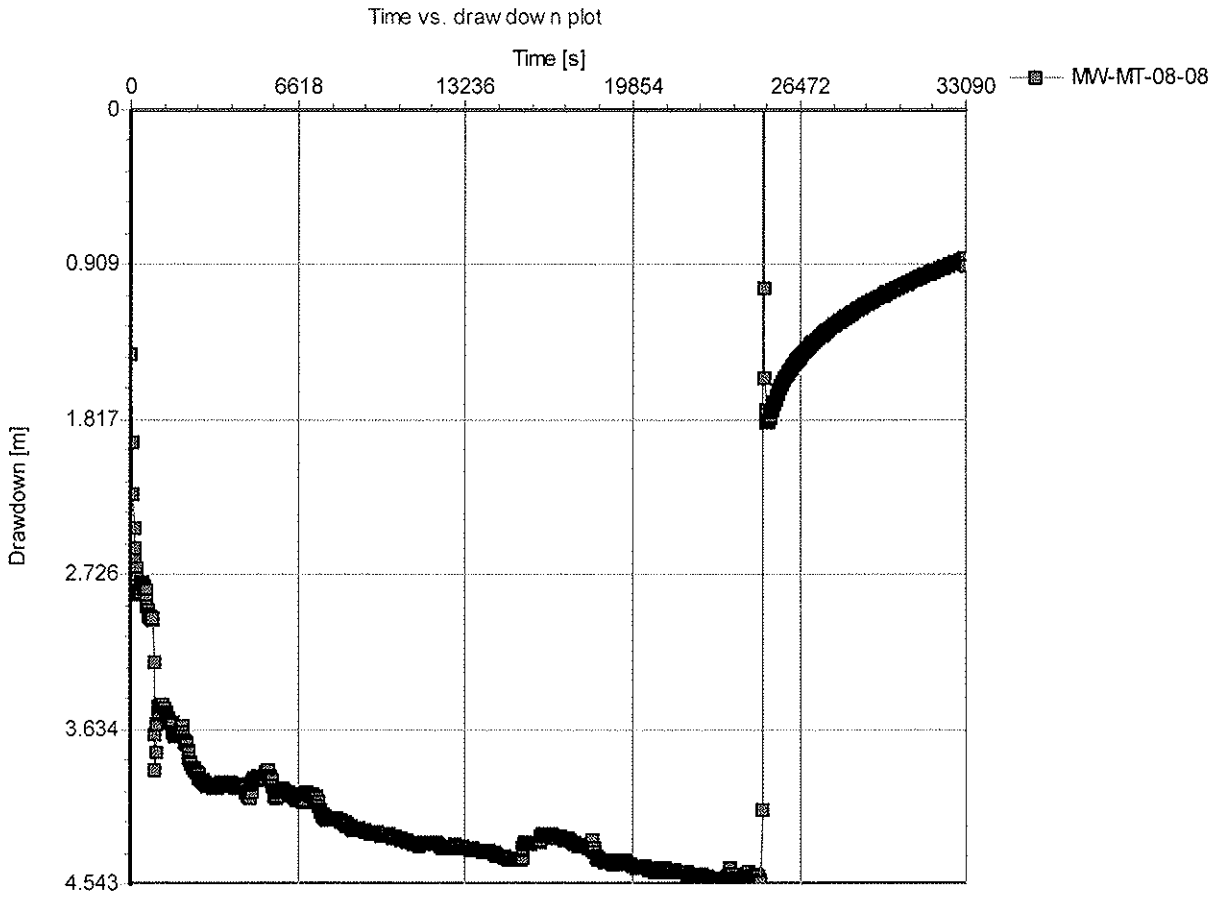
Transmissivity: 9.80×10^-6 [m²/s]

Conductivity: 1.88×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

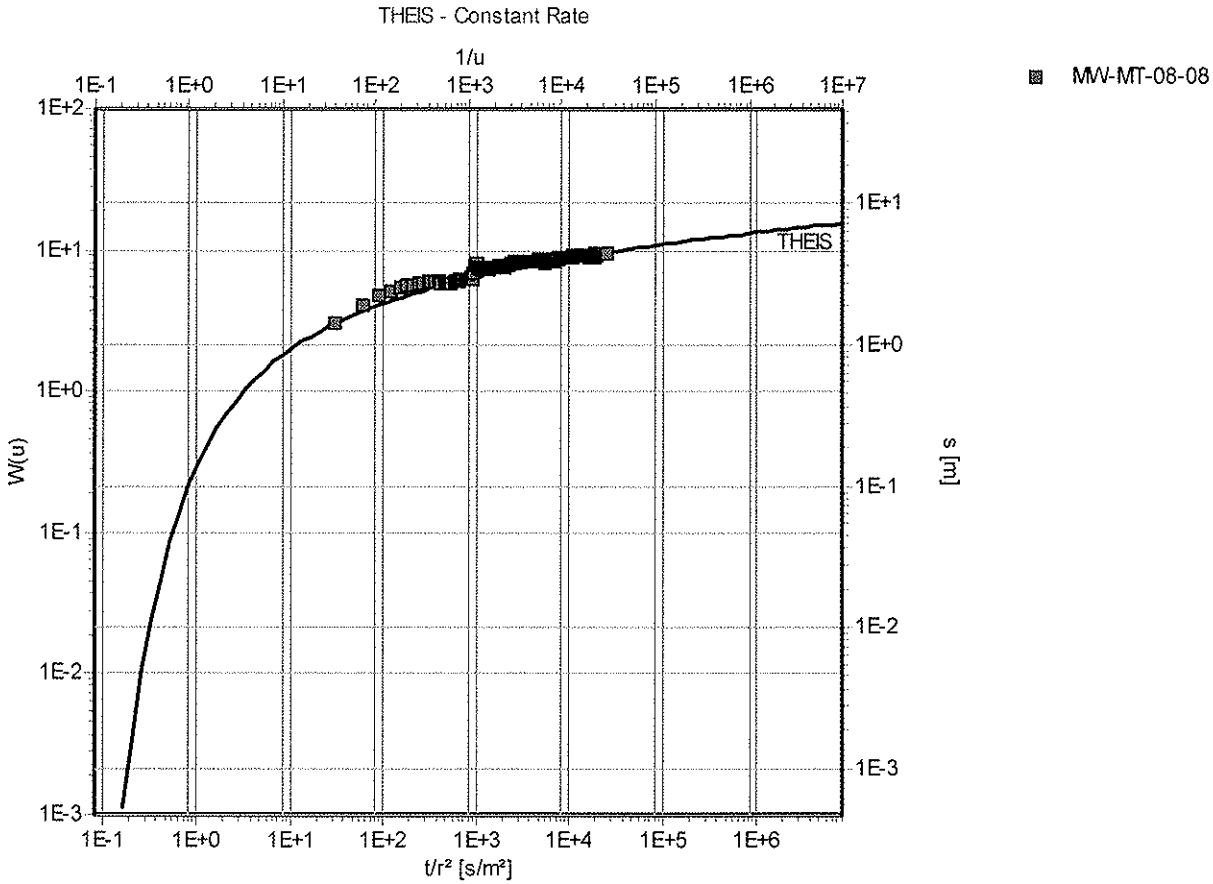
Location: Mactung Property, Yukon	Pumping test: MW-MT-08-08

Test performed by:	SK	Evaluated by:	SK
Test date:	9/9/2008	Reviewed by:	RMM
Analysis method:	Time vs. drawdown plot		



EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-08
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS	

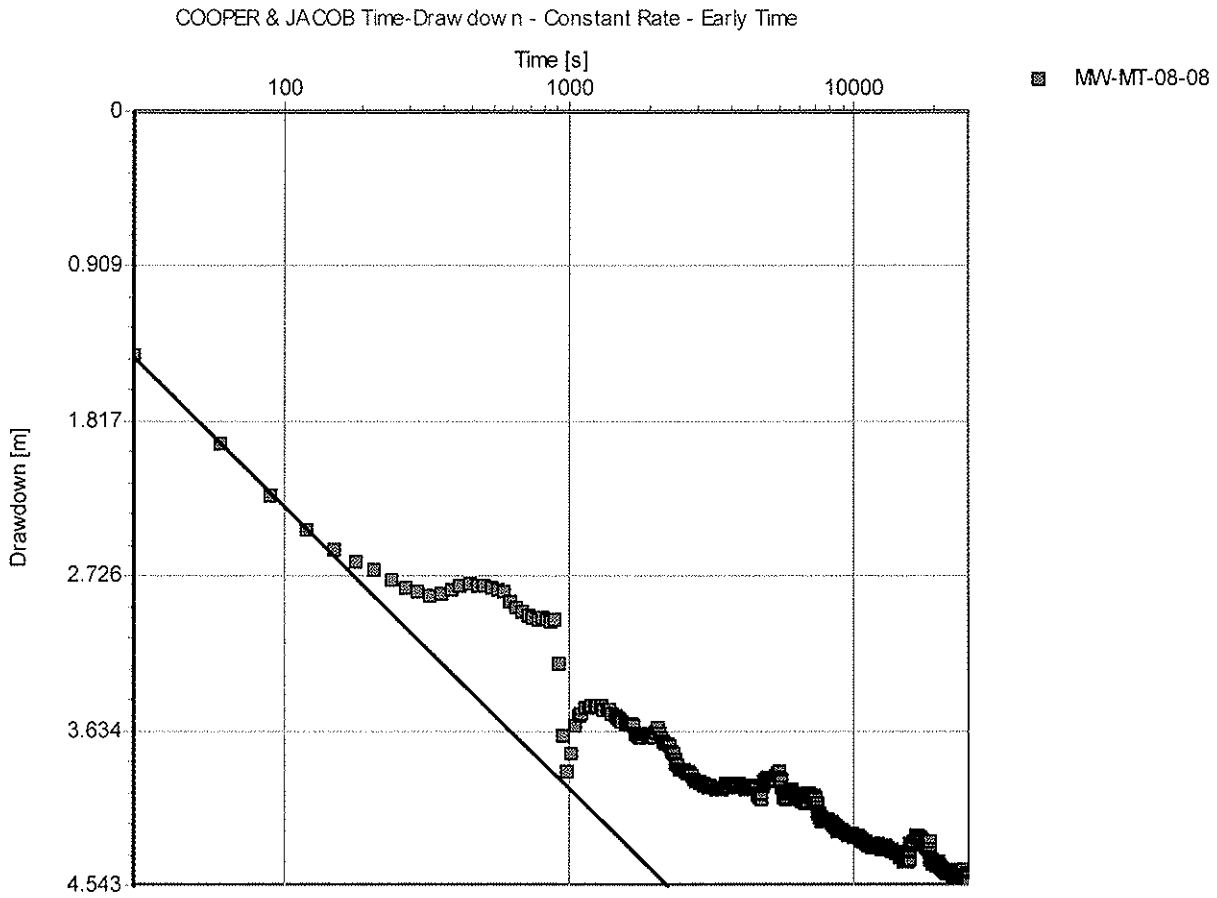


Transmissivity: 2.40×10^-5 [m²/s]

Conductivity: 3.82×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis**	
	No:	W23101021.023
	Project:	Mactung
	Client:	North American Tungsten Corporation Ltd.

Location:	Mactung Property, Yukon	Pumping test:	MW-MT-08-08
Test performed by:	SK	Evaluated by:	SK
Test date:	9/9/2008	Reviewed by:	RMM
Analysis method:	COOPER & JACOB Time-Drawdown		

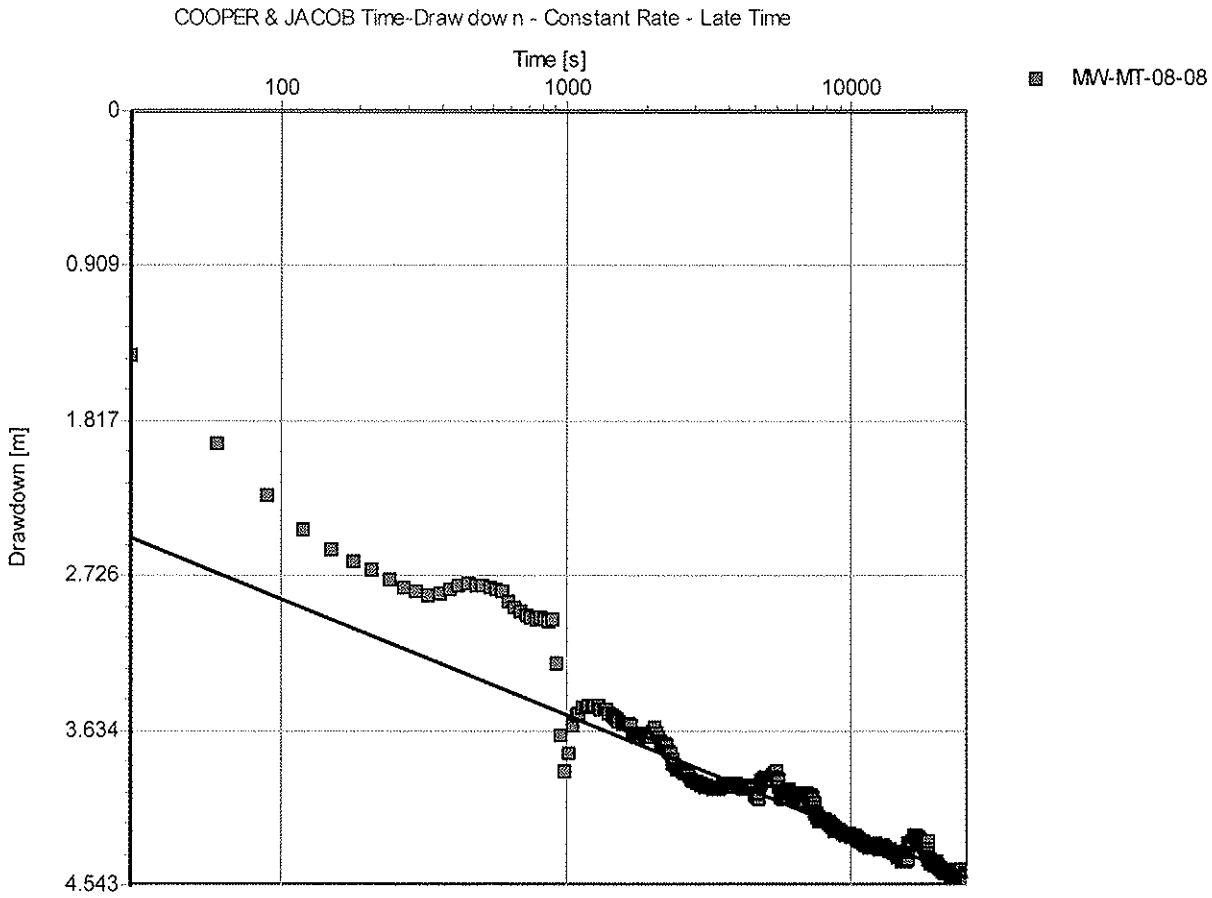


Transmissivity: 1.56×10^-5 [m²/s]

Conductivity: 2.49×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-08
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: COOPER & JACOB Time-Drawdown	



Transmissivity: 3.81×10^-5 [m²/s]

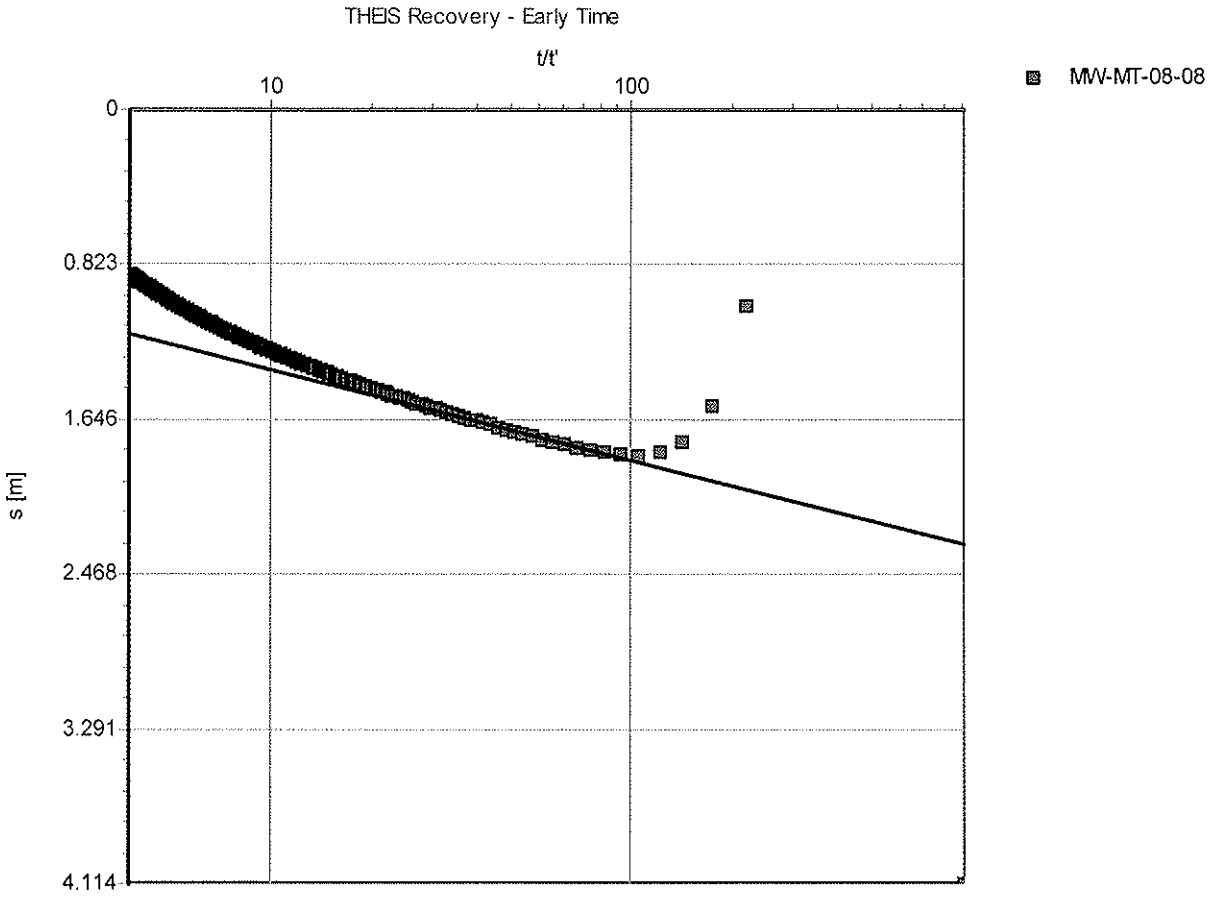
Conductivity: 6.07×10^-7 [m/s]

EBA Engineering Consultants Ltd.
Calcite Business Centre
Unit 6, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3

Pumping test analysis

No:	W23101021.023
Project:	Mactung
Client:	North American Tungsten Corporation Ltd.

Location:	Mactung Property, Yukon
Pumping test:	MW-MT-08-08
Test performed by:	SK
Test date:	9/9/2008
Evaluated by:	SK
Reviewed by:	RMM
Analysis method:	THEIS Recovery

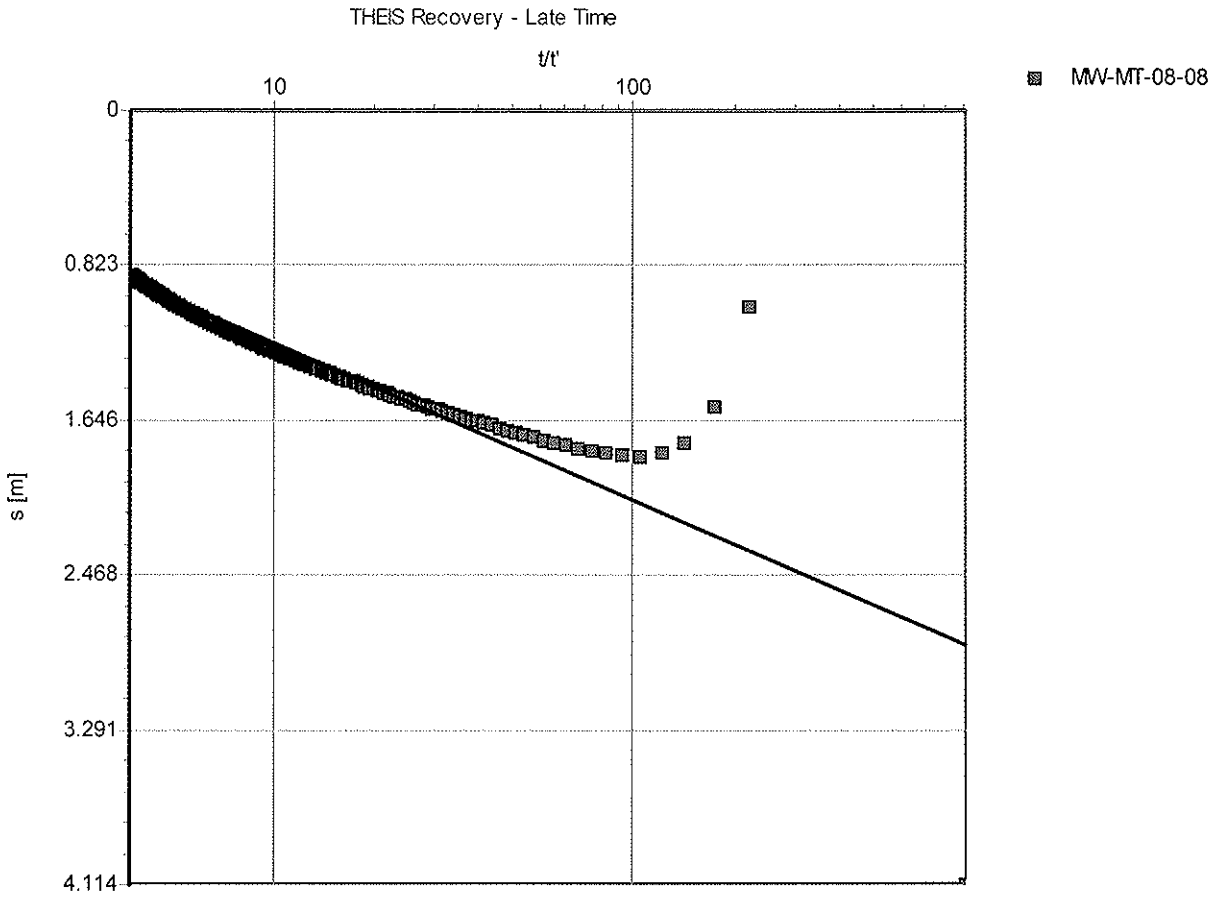


Transmissivity: 5.39×10^-5 [m²/s]

Conductivity: 8.58×10^-7 [m/s]

EBA Engineering Consultants Ltd. Calcite Business Centre Unit 6, 151 Industrial Road Whitehorse, Yukon Y1A 2V3	**Pumping test analysis** No: W23101021.023 Project: Mactung Client: North American Tungsten Corporation Ltd.

Location: Mactung Property, Yukon	Pumping test: MW-MT-08-08
Test performed by: SK Test date: 9/9/2008	Evaluated by: SK Reviewed by: RMM
Analysis method: THEIS Recovery	



Transmissivity: 3.11×10^-5 [m²/s]

Conductivity: 4.95×10^-7 [m/s]

APPENDIX E

APPENDIX E HYDROGEOCHEMISTRY ANALYTICAL RESULTS

LOT 638159

Bodycote TESTING GROUP

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:			**Copy of Report To:**		Copy of invoice:
Company:	EBA Engineering Consulting Ltd.		Company:	EBA Engineering Consulting Ltd.	Mail invoice to this address for approval ☐
Address:	Unit 6, 151 Industrial Rd Whitehorse, YT Y1A 2V3	QA/QC Report [x]	Address:	Unit 6, 151 Industrial Rd Whitehorse, YT Y1A 2V3	
		Report Result:			Report Result:
Attention:	Stephan Klump	Fax ☐	Attention:	Stephan Klump	Fax ☐
Phone:	867-668-3068	Mail [x]	Phone:	867-668-3068	Mail [x]
Fax:	867-668-4349	Courier ☐	Fax:	867-668-4349	Courier ☐
Cell:		e-mail [x]	Cell:		e-mail [x]
e-mail:	sklump@eba.ca	e-Service ☐	e-mail:	sklump@eba.ca	e-Service ☐

Information to be included on Report and Invoice

Project ID: W23101021.023
Project Name: Mactung
Project Location: Mactung
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: S. Klump / COC by M. Laviolette

Company EBA Signature _____

I authorize Bodycote to proceed with the work work indicated on this form:

Date: 22-Aug Initial: MAL

Received by: BM Sample Temp. 16°C

Waybill #: AUG 25 2008 Date

Company Mactung Time 8:30

Special Instructions / Comments

Quote provided by Tracy Buehler to S. Klump.

* All sample analyses must meet CCME (Aquatic Life) detection limit

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	ACIDITY	DISP	NH4	TTW	TURB	TW33	W39BC			
							↓	Enter tests above (✓ relevant samples below)									
1	DRILL H2O #6	MACTUNG		21-Aug-08	WATER		3	X	X	X	X	X	X	X			
2	MT-MW-08-06	MACTUNG		21-Aug-08	WATER		3	X	X	X	X	X	X	X			
3	MT-MW-08-09	MACTUNG		18-Aug-08	WATER		3	X	X	X	X	X	X	X			
4	FIELD BLANK	MACTUNG		20-Aug-08	WATER		3	X	X	X	X	X	X	X			
5	DRILL H2O #8	MACTUNG		18-Aug-08	WATER		3	X	X	X	X	X	X	X			
6	MT-MW-08-08	MACTUNG		18-Aug-08	WATER		3	X	X	X	X	X	X	X			
7	MT-MW-08-05	MACTUNG		20-Aug-08	WATER		3	X	X	X	X	X	X	X			
8	MT-MW-08-04B	MACTUNG		19-Aug-08	WATER		3	X	X	X	X	X	X	X			
9	DRILL H2O #4B	MACTUNG		19-Aug-08	WATER		3	X	X	X	X	X	X	X			
10	WARM SPRING	MACTUNG		05-Aug-08	WATER		1	X	X	X	X	X					
11																	
12																	
13																	
14																	
15																	

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

Bodycote TESTING GROUP

Control Number A015617

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:			**Copy of Report To:**		**Copy of Invoice:** ☐
Company:	EBA Engineering Consulting Ltd.		Company:	SAME	
Address:	Calcite Business Center Unit 6, 151 Industrial Road Whitehorse, YT Y1A 2V3	QA/QC Report ☐	Address:		Mail Invoice to this address for approval ☐
Attention:		**Report Results:**	Attention:	STEPHAN KLUMP	**Report Results:**
Phone:		Fax ☐	Phone:	867 668-2071 x 250	Fax ☐
Fax:	(867) 668-2071	Mail ☑	Fax:		Mail ☑
Cell:	(867) 668-4349	Courier ☐	Cell:		Courier ☐
e-mail:		e-mail ☑	e-mail:	sklump@eba.ca.	e-mail ☑
		e-Service ☐			e-Service ☐

Information to be included on Report and Invoice

Project ID: W231021.023
Project Name: MACTUNG
Project Location: MACTUNG
Legal Location:
PO#:
Proj. Acct. Code:
Agreement ID: ~~[illegible]~~ 387038

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: Stephan Klump - EBA
COC Prepared by: Ryan Martin
Company EBA Signature

I authorize Bodycote to proceed with the work indicated on this form:

Date: Aug 20, 2008 Initial:

Received by: AMK Sample Temp. 8 °C

Waybill # Date

Company Time 1:30

Special Instructions / Comments

Quote provided by Tracy Buehler to Stephan Klump

* Must meet CCME detection limits

Please indicate which regulations you are required to meet: _____

FOR LAB USE ONLY
Condition 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're testing POTABLE WATER for **HUMAN CONSUMPTION.**

	Sample Identification	Location	Depth IN CM M	Date/Time Sampled	Matrix	Sampling Method	Number of Containers	Anions	Nutrients	Physical	Total Metals	Dissolved Metals				
							↓	Enter tests above (✓ relevant samples below)								
1	Warm Spring		-	Aug 5	H_2O	Surface	3	X	X	X	X	X				
2	Drill Water Pond #2		-	Aug 9	↓	Surface	3	X	X	X	X	X				
3	MW-MT-08-07		-	Aug 9	↓	Artesian	3	X	X	X	X	X				
4	MT08001		-	July 21	↓	Drill H_2O	3	X	X	X	X	X				
5	MT SPRING 1		-	July 21	↓	Spring	3	X	X	X	X	X				
6	* CALL Before		-													
7	Analyzing !		-													
8			-													
9	Contact: Ryan Martin		867 668-2071				x	231								
10	or Stphan Klump		867 668-2071				x	250								
11			-													
12			-													
13			-													
14			-													
15			-													

NOTE: All hazardous samples must be labeled according to WHMIS guidelines.

Page _____ of _____

Form No. 0006 (Rev. 04/07)

Report Transmission Cover Page

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Approval Status:	Approved
Invoice Frequency:	by Lot
COD Status:	
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Contact	Company	Address
Stephan Klump	EBA Engineering Consulting Lt	Calcite Business Centre, Unit 6, 151 Industrial Road Whitehorse, YT Y1A 2V3 Phone: (867) 668-2071 Fax: (867) 668-4349 Email: sklump@eba.ca

	Copies	Delivery	Format
M	1	Post	
	1	Email - Single Report	PDF

_____ PAGES IN THIS TRANSMISSION

Notes To Clients:

- Some total metal results were less than dissolved metal results for lot 638159. The results were verified and are within expected measurement uncertainty.

Reports associated with this Lot

Id/Format/Report Date	Id/Format/Report Date	Id/Format/Report Date
1144132 Env2QC 3 Smp & DL 29-Aug-08		

Bodycote TESTING GROUP

Sample Custody

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Sample Disposal Date: November 27, 2008

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 bottom of this page.

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

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	$ 10.00
Storage for 6 to 20 samples per month	$ 15.00
Storage for 21 to 50 samples per month	$ 30.00
Storage for 51 to 200 samples per month	$ 60.00
Storage for more than 200 samples per month	$ 110.00

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

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

Name _____

Company _____

Address _____

_____

Phone _____

Fax _____

Signature _____

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Reference Number		638159-1	638159-2	638159-3
Sample Date		Aug 21, 2008	Aug 21, 2008	Aug 18, 2008
Sample Location		Mactung	Mactung	Mactung
Sample Description		Drill H2O #6	MT-MW-08-06	MT-MW-08-09
Matrix		Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	<0.005	0.029	0.262	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.021	0.019	0.694	0.005
Antimony	Dissolved	mg/L	0.0006	0.0032	0.0105	0.0002
Arsenic	Dissolved	mg/L	0.0012	0.0016	0.0060	0.0002
Barium	Dissolved	mg/L	0.024	0.025	0.012	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00006	0.00004
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00018	0.00003	0.00009	0.00001
Chromium	Dissolved	mg/L	0.0008	0.0006	0.0009	0.0004
Cobalt	Dissolved	mg/L	0.00026	0.00012	0.0001	0.00002
Copper	Dissolved	mg/L	0.001	<0.001	0.001	0.001
Iron	Dissolved	mg/L	0.01	0.11	0.42	0.01
Lead	Dissolved	mg/L	0.0002	0.0002	0.0015	0.0001
Lithium	Dissolved	mg/L	0.002	0.005	0.003	0.001
Manganese	Dissolved	mg/L	0.0092	0.0179	0.0059	0.0001
Molybdenum	Dissolved	mg/L	0.00122	0.00768	0.00856	0.00002
Nickel	Dissolved	mg/L	0.004	0.002	0.001	0.001
Selenium	Dissolved	mg/L	0.0023	<0.0006	0.0025	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.102	0.209	0.044	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0007	0.0008	0.0090	0.0001
Tungsten	Dissolved	mg/L	0.0008	0.0038	0.0224	0.0001
Uranium	Dissolved	mg/L	0.0006	0.0117	0.0007	0.0004
Vanadium	Dissolved	mg/L	0.00014	0.00033	0.00497	0.00004
Zinc	Dissolved	mg/L	0.009	0.003	0.005	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	0.0003	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Hardness	as CaCO3	mg/L	121	191	85	1
Calcium	Total	mg/L	44.2	61.2	33.0	0.04
Magnesium	Total	mg/L	2.56	9.40	0.65	0.04
Phosphorus	Total	mg/L	0.01	0.03	0.07	0.01
Potassium	Total	mg/L	0.83	1.65	0.86	0.04

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Reference Number	638159-1	638159-2	638159-3
Sample Date	Aug 21, 2008	Aug 21, 2008	Aug 18, 2008
Sample Location	Mactung	Mactung	Mactung
Sample Description	Drill H2O #6	MT-MW-08-06	MT-MW-08-09
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Silicon	Total	mg/L	2.40	3.03	6.63	0.01
Sodium	Total	mg/L	0.8	2.1	5.4	0.04
Physical and Aggregate Properties						
Turbidity		NTU	<0.1	0.2	30	0.1
Routine Water						
pH	@ 25 °C		7.81	8.03	9.07	
Electrical Conductivity		µS/cm at 25 C	242	351	183	1
Chloride	Dissolved	mg/L	0.05	0.04	0.10	0.02
Nitrate - N	Dissolved	mg/L	0.03	<0.01	0.06	0.01
Nitrite - N	Dissolved	mg/L	0.02	0.04	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	83.7	97.6	69.0	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	8	6
Bicarbonate		mg/L	60	130	10	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	46	105	25	5
Total Dissolved Solids	Calculated	mg/L	169	245	137	1
Calcium	Dissolved	mg/L	46.1	62.7	31.4	0.04
Iron	Dissolved	mg/L	0.01	0.11	0.42	0.01
Magnesium	Dissolved	mg/L	2.79	9.59	0.53	0.04
Manganese	Dissolved	mg/L	0.0092	0.0179	0.0059	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	0.05	0.01
Potassium	Dissolved	mg/L	0.90	1.64	0.66	0.04
Silicon	Dissolved	mg/L	2.56	3.08	5.59	0.01
Sodium	Dissolved	mg/L	0.91	1.95	4.90	0.04
Hardness	as CaCO3	mg/L	126	196	80	1
Trace Metals Total						
Aluminum	Total	µg/L	20	17	1000	5
Antimony	Total	µg/L	<0.2	1.4	9.8	0.2
Arsenic	Total	µg/L	0.9	1.4	6.0	0.2
Barium	Total	µg/L	21	24	21	1
Beryllium	Total	µg/L	<0.04	<0.04	0.07	0.04
Boron	Total	µg/L	<5	<5	<5	5
Cadmium	Total	µg/L	0.15	0.01	0.08	0.01
Chromium	Total	µg/L	<0.4	0.4	1.7	0.4
Cobalt	Total	µg/L	0.26	0.12	0.11	0.02
Copper	Total	µg/L	<1	<1	1	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

	Reference Number	638159-1	638159-2	638159-3	
	Sample Date	Aug 21, 2008	Aug 21, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Drill H2O #6	MT-MW-08-06	MT-MW-08-09	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Trace Metals Total - Continued						
Iron	Total	µg/L	20	173	563	10
Lead	Total	µg/L	0.1	<0.1	1.5	.1
Lithium	Total	µg/L	1	4	3	1
Manganese	Total	µg/L	9.1	18.4	8.7	0.1
Molybdenum	Total	µg/L	1.08	7.56	8.89	0.02
Nickel	Total	µg/L	4	2	1	1
Selenium	Total	µg/L	1.3	<0.6	1.7	0.6
Silver	Total	µg/L	<0.01	<0.01	<0.01	0.01
Strontium	Total	µg/L	96	202	46	1.0
Thallium	Total	µg/L	<0.01	<0.01	<0.01	0.01
Tin	Total	µg/L	0.1	<0.1	<0.1	0.1
Titanium	Total	µg/L	0.4	0.9	22.9	0.1
Uranium	Total	µg/L	0.6	11.6	0.7	0.4
Vanadium	Total	µg/L	0.09	0.39	7.61	0.03
Zinc	Total	µg/L	9	3	10	1
Zirconium	Total	µg/L	<0.1	0.2	0.4	0.1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

	Reference Number	638159-4	638159-5	638159-6	
	Sample Date	Aug 20, 2008	Aug 18, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Field Blank	Drill H2O#8	MT-MW-08-08	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	0.011	<0.005	0.260	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.010	0.008	0.572	0.005
Antimony	Dissolved	mg/L	0.0006	0.0005	0.0108	0.0002
Arsenic	Dissolved	mg/L	<0.0002	0.0003	0.0058	0.0002
Barium	Dissolved	mg/L	<0.001	0.005	0.012	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00006	0.00004
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.00015	0.00001
Chromium	Dissolved	mg/L	<0.0004	<0.0004	0.0009	0.0004
Cobalt	Dissolved	mg/L	0.00002	<0.00002	0.00009	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	0.002	0.001
Iron	Dissolved	mg/L	<0.01	<0.01	0.31	0.01
Lead	Dissolved	mg/L	<0.0001	<0.0001	0.0012	0.0001
Lithium	Dissolved	mg/L	<0.001	<0.001	0.003	0.001
Manganese	Dissolved	mg/L	0.0004	0.0003	0.0050	0.0001
Molybdenum	Dissolved	mg/L	<0.00002	0.00213	0.00842	0.00002
Nickel	Dissolved	mg/L	<0.001	<0.001	0.001	0.001
Selenium	Dissolved	mg/L	<0.0006	0.0010	0.0024	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.001	0.025	0.042	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0003	0.0005	0.0092	0.0001
Tungsten	Dissolved	mg/L	0.0003	0.0150	0.0219	0.0001
Uranium	Dissolved	mg/L	<0.0004	<0.0004	0.0006	0.0004
Vanadium	Dissolved	mg/L	<0.00004	0.00043	0.00480	0.00004
Zinc	Dissolved	mg/L	0.002	<0.001	0.004	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	0.0003	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Hardness	as CaCO3	mg/L	<1	50	85	1
Calcium	Total	mg/L	<0.04	18.8	32.9	0.04
Magnesium	Total	mg/L	<0.04	0.87	0.68	0.04
Phosphorus	Total	mg/L	0.02	0.03	0.07	0.01
Potassium	Total	mg/L	<0.04	0.44	0.88	0.04

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Reference Number		638159-4	638159-5	638159-6
Sample Date		Aug 20, 2008	Aug 18, 2008	Aug 18, 2008
Sample Location		Mactung	Mactung	Mactung
Sample Description		Field Blank	Drill H2O#8	MT-MW-08-08
Matrix		Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Silicon	Total	mg/L	0.04	2.60	6.69	0.01
Sodium	Total	mg/L	0.3	0.6	5.4	0.04
Physical and Aggregate Properties						
Turbidity		NTU	<0.1	<0.1	30	0.1
Routine Water						
pH	@ 25 °C		6.06	7.65	8.99	
Electrical Conductivity		µS/cm at 25 C	1	106	184	1
Chloride	Dissolved	mg/L	<0.02	0.07	0.10	0.02
Nitrate - N	Dissolved	mg/L	<0.01	0.22	0.06	0.01
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	<0.05	25.4	69.6	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	7	6
Bicarbonate		mg/L	<5	40	20	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	<5	30	25	5
Total Dissolved Solids	Calculated	mg/L	<1	72	136	1
Calcium	Dissolved	mg/L	0.26	18.8	30.3	0.04
Iron	Dissolved	mg/L	<0.01	<0.01	0.31	0.01
Magnesium	Dissolved	mg/L	<0.04	0.89	0.51	0.04
Manganese	Dissolved	mg/L	0.0004	0.0003	0.0050	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	0.04	0.01
Potassium	Dissolved	mg/L	<0.04	0.42	0.68	0.04
Silicon	Dissolved	mg/L	0.044	2.56	5.50	0.01
Sodium	Dissolved	mg/L	0.20	0.43	4.94	0.04
Hardness	as CaCO3	mg/L	<1	51	78	1
Trace Metals Total						
Aluminum	Total	µg/L	<5	21	1050	5
Antimony	Total	µg/L	<0.2	<0.2	9.9	0.2
Arsenic	Total	µg/L	<0.2	0.3	6.3	0.2
Barium	Total	µg/L	<1	5	22	1
Beryllium	Total	µg/L	<0.04	<0.04	0.06	0.04
Boron	Total	µg/L	<5	<5	<5	5
Cadmium	Total	µg/L	<0.01	<0.01	0.08	0.01
Chromium	Total	µg/L	<0.4	<0.4	1.8	0.4
Cobalt	Total	µg/L	<0.02	<0.02	0.12	0.02
Copper	Total	µg/L	<1	<1	1	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

	Reference Number	638159-4	638159-5	638159-6	
	Sample Date	Aug 20, 2008	Aug 18, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Field Blank	Drill H2O#8	MT-MW-08-08	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Trace Metals Total - Continued						
Iron	Total	µg/L	16	33	586	10
Lead	Total	µg/L	<0.1	<0.1	1.6	.1
Lithium	Total	µg/L	<1	<1	3	1
Manganese	Total	µg/L	<0.1	0.6	9.3	0.1
Molybdenum	Total	µg/L	<0.02	2.11	8.99	0.02
Nickel	Total	µg/L	<1	<1	1	1
Selenium	Total	µg/L	<0.6	0.6	1.8	0.6
Silver	Total	µg/L	<0.01	<0.01	<0.01	0.01
Strontium	Total	µg/L	<1	26	45	1.0
Thallium	Total	µg/L	<0.01	<0.01	<0.01	0.01
Tin	Total	µg/L	<0.1	<0.1	<0.1	0.1
Titanium	Total	µg/L	<0.1	1	25.6	0.1
Uranium	Total	µg/L	<0.4	<0.4	0.7	0.4
Vanadium	Total	µg/L	<0.03	0.43	8.08	0.03
Zinc	Total	µg/L	3	4	7	1
Zirconium	Total	µg/L	<0.1	<0.1	0.3	0.1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

	Reference Number	638159-7	638159-8	638159-9	
	Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	0.080	0.097	<0.005	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.008	0.021	0.027	0.005
Antimony	Dissolved	mg/L	0.0008	0.0024	0.0005	0.0002
Arsenic	Dissolved	mg/L	<0.0002	0.0016	0.0011	0.0002
Barium	Dissolved	mg/L	0.020	0.019	0.021	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00004	0.00004
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00001	0.00002	0.00024	0.00001
Chromium	Dissolved	mg/L	0.0007	<0.0004	<0.0004	0.0004
Cobalt	Dissolved	mg/L	0.00006	0.00006	0.00105	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Iron	Dissolved	mg/L	<0.01	0.55	<0.01	0.01
Lead	Dissolved	mg/L	0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.002	0.004	0.002	0.001
Manganese	Dissolved	mg/L	0.0101	0.0881	0.0444	0.0001
Molybdenum	Dissolved	mg/L	0.00099	0.00188	0.00100	0.00002
Nickel	Dissolved	mg/L	<0.001	0.002	0.009	0.001
Selenium	Dissolved	mg/L	<0.0006	<0.0006	0.0017	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	1.000	0.114	0.096	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0006	0.001	0.0005	0.0001
Tungsten	Dissolved	mg/L	0.0017	0.0036	0.0012	0.0001
Uranium	Dissolved	mg/L	0.0027	0.0035	<0.0004	0.0004
Vanadium	Dissolved	mg/L	0.00021	0.00021	0.00015	0.00004
Zinc	Dissolved	mg/L	0.002	0.003	0.01	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Hardness	as CaCO3	mg/L	268	125	123	1
Calcium	Total	mg/L	81.3	44.8	44.3	0.04
Magnesium	Total	mg/L	15.9	3.27	2.98	0.04
Phosphorus	Total	mg/L	0.04	0.02	0.02	0.01
Potassium	Total	mg/L	1.78	2.78	0.76	0.04

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Reference Number	638159-7	638159-8	638159-9	
Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008	
Sample Location	Mactung	Mactung	Mactung	
Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B	
Matrix	Water	Water	Water	

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Silicon	Total	mg/L	4.03	3.63	2.52	0.01
Sodium	Total	mg/L	1.7	2.4	0.8	0.04
Physical and Aggregate Properties						
Turbidity		NTU	6.6	15	<0.1	0.1
Routine Water						
pH	@ 25 °C		7.94	7.84	7.72	
Electrical Conductivity		µS/cm at 25 C	469	240	238	1
Chloride	Dissolved	mg/L	0.04	0.07	0.06	0.02
Nitrate - N	Dissolved	mg/L	<0.01	<0.01	0.03	0.01
Nitrite - N	Dissolved	mg/L	0.06	0.03	0.02	0.01
Sulfate (SO4)	Dissolved	mg/L	149	58.6	85.2	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	<6	6
Bicarbonate		mg/L	160	90	50	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	6	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	130	74	40	5
Total Dissolved Solids	Calculated	mg/L	337	162	164	1
Calcium	Dissolved	mg/L	80.1	42.3	43.7	0.04
Iron	Dissolved	mg/L	<0.01	0.55	<0.01	0.01
Magnesium	Dissolved	mg/L	15.7	3.07	2.98	0.04
Manganese	Dissolved	mg/L	0.0101	0.0881	0.0444	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Potassium	Dissolved	mg/L	1.71	2.53	0.75	0.04
Silicon	Dissolved	mg/L	3.75	3.28	2.47	0.01
Sodium	Dissolved	mg/L	1.50	2.11	0.66	0.04
Hardness	as CaCO3	mg/L	264	118	121	1
Trace Metals Total						
Aluminum	Total	µg/L	132	143	78	5
Antimony	Total	µg/L	<0.2	1.0	<0.2	0.2
Arsenic	Total	µg/L	0.4	2.6	1.1	0.2
Barium	Total	µg/L	23	25	20	1
Beryllium	Total	µg/L	<0.04	<0.04	0.08	0.04
Boron	Total	µg/L	<5	<5	<5	5
Cadmium	Total	µg/L	0.01	<0.01	0.24	0.01
Chromium	Total	µg/L	0.9	0.5	<0.4	0.4
Cobalt	Total	µg/L	0.12	0.05	1.18	0.02
Copper	Total	µg/L	<1	<1	<1	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

	Reference Number	638159-7	638159-8	638159-9	
	Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Trace Metals Total - Continued						
Iron	Total	µg/L	869	1640	51	10
Lead	Total	µg/L	0.2	<0.1	<0.1	.1
Lithium	Total	µg/L	2	4	2	1
Manganese	Total	µg/L	12.0	99.4	48.7	0.1
Molybdenum	Total	µg/L	1.07	2.02	0.91	0.02
Nickel	Total	µg/L	2	3	9	1
Selenium	Total	µg/L	<0.6	<0.6	0.9	0.6
Silver	Total	µg/L	<0.01	<0.01	<0.01	0.01
Strontium	Total	µg/L	1010	120	95	1.0
Thallium	Total	µg/L	<0.01	<0.01	<0.01	0.01
Tin	Total	µg/L	<0.1	<0.1	<0.1	0.1
Titanium	Total	µg/L	6.2	4.9	1.1	0.1
Uranium	Total	µg/L	2.9	4.0	0.4	0.4
Vanadium	Total	µg/L	0.98	1.19	0.15	0.03
Zinc	Total	µg/L	6	3	11	1
Zirconium	Total	µg/L	0.1	0.2	<0.1	0.1

Approved by: Andrew Garrard

Andrew Garrard, BSc
Operations Manager

Bodycote TESTING GROUP

Methodology and Notes

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 11, 2008
Report Number:	1149054

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Acidity in water	APHA		Titration Method, 2310 B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Conductivity, 2510	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Electrometric Method, 4500-H+ B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Nephelometric Method, 2130 B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Titration Method, 2320 B	25-Aug-08	BTG Surrey
Ammonium-N in Water (color Surrey)	APHA	*	Phenate Method, 4500-NH3 F	27-Aug-08	BTG Surrey
Anions by IEC in water (Surrey)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	26-Aug-08	BTG Surrey
Mercury Low Level (Total) in water	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	25-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	25-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-MS, 6020	25-Aug-08	BTG Surrey

** Bodycote method(s) based on reference method*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Comments:

- Some total metal results were less than dissolved metal results for lot 638159. The results were verified and are within expected measurement uncertainty.

Report Transmission Cover Page

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Approval Status:	Approved
Invoice Frequency:	by Lot
COD Status:	
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Contact	Company	Address
Stephan Klump	EBA Engineering Consulting Lt	Calcite Business Centre, Unit 6, 151 Industrial Road Whitehorse, YT Y1A 2V3 Phone: (867) 668-2071 Fax: (867) 668-4349 Email: sklump@eba.ca

	Copies	Delivery	Format
M	1	Post	
	1	Email - Single Report	PDF

_____ PAGES IN THIS TRANSMISSION

Notes To Clients:

- This report was re-issued to include missing Bismuth analysis and correct the units to mg/L. Report 1149286 replaces original report 1143908.
- Some total metal results were less than dissolved metal results for lot 637977. The results were verified and are within expected measurement uncertainty.

Reports associated with this Lot

Id/Format/Report Date	Id/Format/Report Date	Id/Format/Report Date
1143908 Env2 3 Smp & DL 29-Aug-08		

Bodycote TESTING GROUP

Sample Custody

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Sample Disposal Date: November 27, 2008

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 bottom of this page.

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

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	$ 10.00
Storage for 6 to 20 samples per month	$ 15.00
Storage for 21 to 50 samples per month	$ 30.00
Storage for 51 to 200 samples per month	$ 60.00
Storage for more than 200 samples per month	$ 110.00

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

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

Name _____

Company _____

Address _____

_____

Phone _____

Fax _____

Signature _____

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

	Reference Number	637977-1	637977-2	637977-3	
	Sample Date	Aug 05, 2008	Aug 09, 2008	Aug 09, 2008	
	Sample Location				
	Sample Description	Worm Spring	Drill Water#2	MW-MT-08-07	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	0.047	<0.005	0.014	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.026	<0.005	<0.005	0.005
Antimony	Dissolved	mg/L	<0.0002	0.0005	0.0010	0.0002
Arsenic	Dissolved	mg/L	0.0005	<0.0002	0.0045	0.0002
Barium	Dissolved	mg/L	0.024	0.009	0.021	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Dissolved	mg/L	0.448	0.005	<0.004	0.004
Cadmium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Dissolved	mg/L	<0.0004	<0.0004	0.0007	0.0004
Cobalt	Dissolved	mg/L	<0.00002	0.00002	0.00248	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Iron	Dissolved	mg/L	<0.01	<0.01	3.24	0.01
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.139	<0.001	0.003	0.001
Manganese	Dissolved	mg/L	0.0004	0.0004	0.1310	0.0001
Molybdenum	Dissolved	mg/L	0.00571	0.00095	0.00355	0.00002
Nickel	Dissolved	mg/L	<0.001	<0.001	0.060	0.001
Selenium	Dissolved	mg/L	0.0082	0.0026	<0.0006	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.043	0.083	0.213	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0029	<0.0001	0.0003	0.0001
Tungsten	Dissolved	mg/L	0.0552	0.0005	0.0004	0.0001
Uranium	Dissolved	mg/L	<0.0004	<0.0004	0.0098	0.0004
Vanadium	Dissolved	mg/L	0.00021	0.00026	0.00021	0.00004
Zinc	Dissolved	mg/L	0.001	<0.001	0.052	0.001
Zirconium	Dissolved	mg/L	0.0003	<0.0001	<0.0001	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Total	mg/L	0.123	0.015	<0.005	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	0.0004	0.0002
Arsenic	Total	mg/L	0.0006	<0.0002	0.0044	0.0002
Barium	Total	mg/L	0.038	0.008	0.022	0.001

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

	Reference Number	637977-1	637977-2	637977-3	
	Sample Date	Aug 05, 2008	Aug 09, 2008	Aug 09, 2008	
	Sample Location				
	Sample Description	Worm Spring	Drill Water#2	MW-MT-08-07	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Metals Total - Continued						
Beryllium	Total	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Total	mg/L	0.442	0.007	<0.005	0.004
Cadmium	Total	mg/L	0.00007	0.00003	<0.00001	0.00001
Calcium	Total	mg/L	2.27	40.1	103	0.04
Chromium	Total	mg/L	<0.0004	0.0004	0.0007	0.0004
Cobalt	Total	mg/L	0.00009	0.00002	0.00254	0.00002
Copper	Total	mg/L	<0.001	<0.001	<0.001	0.001
Iron	Total	mg/L	0.23	0.03	3.73	0.01
Lead	Total	mg/L	0.0002	<0.0001	0.0002	0.0001
Lithium	Total	mg/L	0.138	<0.001	0.003	0.001
Magnesium	Total	mg/L	0.04	1.20	4.54	0.04
Manganese	Total	mg/L	0.0023	0.0006	0.136	0.0001
Molybdenum	Total	mg/L	0.00839	0.00104	0.00379	0.00002
Nickel	Total	mg/L	<0.001	<0.001	0.062	0.001
Phosphorus	Total	mg/L	0.03	0.01	0.08	0.01
Potassium	Total	mg/L	1.78	0.71	1.03	0.04
Selenium	Total	mg/L	<0.0006	0.0007	<0.0006	0.0006
Silicon	Total	mg/L	38.0	2.39	3.29	0.01
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Sodium	Total	mg/L	71.6	0.9	0.9	0.04
Strontium	Total	mg/L	0.041	0.084	0.220	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Total	mg/L	0.0003	0.0001	0.0001	0.0001
Titanium	Total	mg/L	0.0029	0.0006	0.0005	0.0001
Uranium	Total	mg/L	<0.0004	<0.0004	0.0110	0.0004
Vanadium	Total	mg/L	0.00078	0.00034	0.00023	0.00004
Zinc	Total	mg/L	0.005	0.002	0.050	0.001
Zirconium	Total	mg/L	0.0004	<0.0001	<0.0001	0.0001
Physical and Aggregate Properties						
Turbidity		NTU	0.9	0.5	15	0.1
Routine Water						
pH	@ 25 °C		9.31	7.63	7.52	
Electrical Conductivity		µS/cm at 25 C	366	216	497	1
Chloride	Dissolved	mg/L	11.2	0.04	0.03	0.02
Nitrate - N	Dissolved	mg/L	<0.01	0.08	<0.01	0.01

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

		Reference Number	637977-1	637977-2	637977-3
		Sample Date	Aug 05, 2008	Aug 09, 2008	Aug 09, 2008
		Sample Location			
		Sample Description	Worm Spring	Drill Water#2	MW-MT-08-07
		Matrix	Water	Water	Water
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	0.04	0.01
Sulfate (SO4)	Dissolved	mg/L	65.5	64.0	140	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	39	<6	<6	6
Bicarbonate		mg/L	20	50	160	5
T-Alkalinity	as CaCO3	mg/L	82	42	131	5
Total Dissolved Solids	Calculated	mg/L	314	138	334	1
Calcium	Dissolved	mg/L	2.41	39.3	99.8	0.04
Iron	Dissolved	mg/L	<0.01	<0.01	3.24	0.01
Magnesium	Dissolved	mg/L	<0.04	1.14	4.29	0.04
Manganese	Dissolved	mg/L	0.0004	0.0004	0.1310	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Potassium	Dissolved	mg/L	1.86	0.68	0.99	0.04
Silicon	Dissolved	mg/L	36.9	2.32	3.18	0.01
Sodium	Dissolved	mg/L	73.4	0.66	0.66	0.04
Hardness	as CaCO3	mg/L	6	103	267	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Reference Number	637977-5
Sample Date	Jul 21, 2008
Sample Location	
Sample Description	MT Spring
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	<0.005			0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01			0.01
Aluminum	Dissolved	mg/L	0.021			0.005
Antimony	Dissolved	mg/L	0.0007			0.0002
Arsenic	Dissolved	mg/L	<0.0002			0.0002
Barium	Dissolved	mg/L	0.007			0.001
Beryllium	Dissolved	mg/L	<0.00004			0.00004
Bismuth	Dissolved	mg/L	<0.0001			0.0001
Boron	Dissolved	mg/L	<0.004			0.004
Cadmium	Dissolved	mg/L	0.00002			0.00001
Chromium	Dissolved	mg/L	<0.0004			0.0004
Cobalt	Dissolved	mg/L	0.00004			0.00002
Copper	Dissolved	mg/L	<0.001			0.001
Iron	Dissolved	mg/L	0.02			0.01
Lead	Dissolved	mg/L	0.0002			0.0001
Lithium	Dissolved	mg/L	<0.001			0.001
Manganese	Dissolved	mg/L	0.0009			0.0001
Molybdenum	Dissolved	mg/L	0.00203			0.00002
Nickel	Dissolved	mg/L	<0.001			0.001
Selenium	Dissolved	mg/L	0.0016			0.0006
Silver	Dissolved	mg/L	<0.00001			0.00001
Strontium	Dissolved	mg/L	0.047			0.001
Thallium	Dissolved	mg/L	<0.00001			0.00001
Thorium	Dissolved	mg/L	<0.0001			0.0001
Tin	Dissolved	mg/L	<0.0001			0.0001
Titanium	Dissolved	mg/L	0.0014			0.0001
Tungsten	Dissolved	mg/L	0.0098			0.0001
Uranium	Dissolved	mg/L	0.0005			0.0004
Vanadium	Dissolved	mg/L	0.00036			0.00004
Zinc	Dissolved	mg/L	0.003			0.001
Zirconium	Dissolved	mg/L	<0.0001			0.0001
Metals Total						
Mercury	Total	ug/L	<0.01			0.01
Aluminum	Total	mg/L	0.030			0.005
Antimony	Total	mg/L	<0.0002			0.0002
Arsenic	Total	mg/L	0.0003			0.0002
Barium	Total	mg/L	0.007			0.001

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Reference Number	637977-5
Sample Date	Jul 21, 2008
Sample Location	
Sample Description	MT Spring
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Beryllium	Total	mg/L	<0.00004			0.00004
Bismuth	Total	mg/L	<0.0001			0.0001
Boron	Total	mg/L	<0.005			0.004
Cadmium	Total	mg/L	0.00001			0.00001
Calcium	Total	mg/L	31.8			0.04
Chromium	Total	mg/L	0.0005			0.0004
Cobalt	Total	mg/L	0.00002			0.00002
Copper	Total	mg/L	<0.001			0.001
Iron	Total	mg/L	0.03			0.01
Lead	Total	mg/L	<0.0001			0.0001
Lithium	Total	mg/L	<0.001			0.001
Magnesium	Total	mg/L	1.73			0.04
Manganese	Total	mg/L	0.0006			0.0001
Molybdenum	Total	mg/L	0.00207			0.00002
Nickel	Total	mg/L	<0.001			0.001
Phosphorus	Total	mg/L	0.02			0.01
Potassium	Total	mg/L	0.46			0.04
Selenium	Total	mg/L	<0.0006			0.0006
Silicon	Total	mg/L	3.20			0.01
Silver	Total	mg/L	<0.00001			0.00001
Sodium	Total	mg/L	0.6			0.04
Strontium	Total	mg/L	0.047			0.001
Tellurium	Total	mg/L	<0.0001			0.0001
Thallium	Total	mg/L	<0.00001			0.00001
Thorium	Total	mg/L	<0.0001			0.0001
Tin	Total	mg/L	<0.0001			0.0001
Titanium	Total	mg/L	0.0019			0.0001
Uranium	Total	mg/L	0.0006			0.0004
Vanadium	Total	mg/L	0.00046			0.00004
Zinc	Total	mg/L	0.002			0.001
Zirconium	Total	mg/L	<0.0001			0.0001
Physical and Aggregate Properties						
Turbidity		NTU	0.7			0.1
Routine Water						
pH	@ 25 °C		7.81			
Electrical Conductivity		µS/cm at 25 C	176			1
Chloride	Dissolved	mg/L	0.08			0.02
Nitrate - N	Dissolved	mg/L	0.15			0.01

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Reference Number	637977-5
Sample Date	Jul 21, 2008
Sample Location	
Sample Description	MT Spring
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	0.01			0.01
Sulfate (SO4)	Dissolved	mg/L	39.2			0.05
Hydroxide		mg/L	<5			5
Carbonate		mg/L	<6			6
Bicarbonate		mg/L	60			5
T-Alkalinity	as CaCO3	mg/L	54			5
Total Dissolved Solids	Calculated	mg/L	120			1
Calcium	Dissolved	mg/L	31.8			0.04
Iron	Dissolved	mg/L	0.02			0.01
Magnesium	Dissolved	mg/L	1.60			0.04
Manganese	Dissolved	mg/L	0.0009			0.0001
Phosphorus	Dissolved	mg/L	<0.01			0.01
Potassium	Dissolved	mg/L	0.47			0.04
Silicon	Dissolved	mg/L	3.24			0.01
Sodium	Dissolved	mg/L	0.50			0.04
Hardness	as CaCO3	mg/L	86			1

Approved by: Marie England

Marie England
Consulting Scientist

Bodycote TESTING GROUP

Methodology and Notes

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	Stephen Klump		
Company:	EBA		

Lot ID:	**637977**
Control Number:	A015617
Date Received:	Aug 21, 2008
Date Reported:	Sep 12, 2008
Report Number:	1149286

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water	APHA	*	Conductivity, 2510	22-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Electrometric Method, 4500-H+ B	22-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Nephelometric Method, 2130 B	22-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Titration Method, 2320 B	22-Aug-08	BTG Surrey
Ammonium-N in Water (color Surrey)	APHA	*	Phenate Method, 4500-NH3 F	26-Aug-08	BTG Surrey
Anions by IEC in water (Surrey)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	22-Aug-08	BTG Surrey
Mercury Low Level (Total) in water	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	25-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	23-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	23-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	22-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	22-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-MS, 6020	22-Aug-08	BTG Surrey

** Bodycote method(s) based on reference method*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Comments:

- This report was re-issued to include missing Bismuth analysis and correct the units to mg/L. Report 1149286 replaces original report 1143908.
- Some total metal results were less than dissolved metal results for lot 637977. The results were verified and are within expected measurement uncertainty.

Report Transmission Cover Page

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Approval Status:	Pending Approval
Invoice Frequency:	by Lot
COD Status:	
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Contact	Company	Address
Stephan Klump	EBA Engineering Consulting Lt	Calcite Business Centre, Unit 6, 151 Industrial Road Whitehorse, YT Y1A 2V3 Phone: (867) 668-2071 Fax: (867) 668-4349 Email: sklump@eba.ca

	Copies	Delivery	Format
M	1	Post	
	1	Email - Single Report	PDF

_____ PAGES IN THIS TRANSMISSION

Notes To Clients:

- This report was issued to include addition of Bismuth analysis on lot 638159. Report 1149799 is an addendum to report 1149054.
- Some total metal results were less than dissolved metal results for lot 638159. The results were verified and are within expected measurement uncertainty.

Reports associated with this Lot

Id/Format/Report Date	Id/Format/Report Date	Id/Format/Report Date
1144132 Env2QC 3 Smp & DL 29-Aug-08	1149054 Env2 3 Smp & DL 11-Sep-08	

Bodycote TESTING GROUP

Sample Custody

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Sample Disposal Date: December 10, 2008

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 bottom of this page.

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

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	$ 10.00
Storage for 6 to 20 samples per month	$ 15.00
Storage for 21 to 50 samples per month	$ 30.00
Storage for 51 to 200 samples per month	$ 60.00
Storage for more than 200 samples per month	$ 110.00

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

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

Name _____

Company _____

Address _____

_____

Phone _____

Fax _____

Signature _____

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Reference Number		638159-1	638159-2	638159-3
Sample Date		Aug 21, 2008	Aug 21, 2008	Aug 18, 2008
Sample Location		Mactung	Mactung	Mactung
Sample Description		Drill H2O #6	MT-MW-08-06	MT-MW-08-09
Matrix		Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	<0.005	0.029	0.262	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.021	0.019	0.694	0.005
Antimony	Dissolved	mg/L	0.0006	0.0032	0.0105	0.0002
Arsenic	Dissolved	mg/L	0.0012	0.0016	0.0060	0.0002
Barium	Dissolved	mg/L	0.024	0.025	0.012	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00006	0.00004
Bismuth	Dissolved	mg/L	<0.0001	<0.0001	0.0002	0.0001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00018	0.00003	0.00009	0.00001
Chromium	Dissolved	mg/L	0.0008	0.0006	0.0009	0.0004
Cobalt	Dissolved	mg/L	0.00026	0.00012	0.0001	0.00002
Copper	Dissolved	mg/L	0.001	<0.001	0.001	0.001
Iron	Dissolved	mg/L	0.01	0.11	0.42	0.01
Lead	Dissolved	mg/L	0.0002	0.0002	0.0015	0.0001
Lithium	Dissolved	mg/L	0.002	0.005	0.003	0.001
Manganese	Dissolved	mg/L	0.0092	0.0179	0.0059	0.0001
Molybdenum	Dissolved	mg/L	0.00122	0.00768	0.00856	0.00002
Nickel	Dissolved	mg/L	0.004	0.002	0.001	0.001
Selenium	Dissolved	mg/L	0.0023	<0.0006	0.0025	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.102	0.209	0.044	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0007	0.0008	0.0090	0.0001
Tungsten	Dissolved	mg/L	0.0008	0.0038	0.0224	0.0001
Uranium	Dissolved	mg/L	0.0006	0.0117	0.0007	0.0004
Vanadium	Dissolved	mg/L	0.00014	0.00033	0.00497	0.00004
Zinc	Dissolved	mg/L	0.009	0.003	0.005	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	0.0003	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Total	mg/L	0.020	0.017	1.00	0.005
Antimony	Total	mg/L	<0.0002	0.0014	0.0098	0.0002
Arsenic	Total	mg/L	0.0009	0.0014	0.0060	0.0002
Barium	Total	mg/L	0.021	0.024	0.021	0.001

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Reference Number	638159-1	638159-2	638159-3
Sample Date	Aug 21, 2008	Aug 21, 2008	Aug 18, 2008
Sample Location	Mactung	Mactung	Mactung
Sample Description	Drill H2O #6	MT-MW-08-06	MT-MW-08-09
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Beryllium	Total	mg/L	<0.00004	<0.00004	0.00007	0.00004
Bismuth	Total	mg/L	<0.0001	<0.0001	0.0005	0.0001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	0.00015	0.00001	0.00008	0.00001
Calcium	Total	mg/L	44.2	61.2	33.0	0.04
Chromium	Total	mg/L	<0.0004	0.0004	0.0017	0.0004
Cobalt	Total	mg/L	0.00026	0.00012	0.00011	0.00002
Copper	Total	mg/L	<0.001	<0.001	0.001	0.001
Iron	Total	mg/L	0.02	0.17	0.56	0.01
Lead	Total	mg/L	0.0001	<0.0001	0.0015	0.0001
Lithium	Total	mg/L	0.001	0.004	0.003	0.001
Magnesium	Total	mg/L	2.56	9.40	0.65	0.04
Manganese	Total	mg/L	0.0091	0.0184	0.0087	0.0001
Molybdenum	Total	mg/L	0.00108	0.00756	0.00889	0.00002
Nickel	Total	mg/L	0.004	0.002	0.001	0.001
Phosphorus	Total	mg/L	0.01	0.03	0.07	0.01
Potassium	Total	mg/L	0.83	1.65	0.86	0.04
Selenium	Total	mg/L	0.0013	<0.0006	0.0017	0.0006
Silicon	Total	mg/L	2.40	3.03	6.63	0.01
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Sodium	Total	mg/L	0.8	2.1	5.4	0.04
Strontium	Total	mg/L	0.096	0.202	0.046	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Total	mg/L	0.0001	<0.0001	<0.0001	0.0001
Titanium	Total	mg/L	0.0004	0.0009	0.0229	0.0001
Uranium	Total	mg/L	0.0006	0.0116	0.0007	0.0004
Vanadium	Total	mg/L	0.00009	0.00039	0.00761	0.00004
Zinc	Total	mg/L	0.009	0.003	0.01	0.001
Zirconium	Total	mg/L	<0.0001	0.0002	0.0004	0.0001
Physical and Aggregate Properties						
Turbidity		NTU	<0.1	0.2	30	0.1
Routine Water						
pH	@ 25 °C		7.81	8.03	9.07	
Electrical Conductivity		µS/cm at 25 C	242	351	183	1
Chloride	Dissolved	mg/L	0.05	0.04	0.10	0.02
Nitrate - N	Dissolved	mg/L	0.03	<0.01	0.06	0.01

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

	Reference Number	638159-1	638159-2	638159-3	
	Sample Date	Aug 21, 2008	Aug 21, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Drill H2O #6	MT-MW-08-06	MT-MW-08-09	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	0.02	0.04	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	83.7	97.6	69.0	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	8	6
Bicarbonate		mg/L	60	130	10	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	46	105	25	5
Total Dissolved Solids	Calculated	mg/L	169	245	137	1
Calcium	Dissolved	mg/L	46.1	62.7	31.4	0.04
Iron	Dissolved	mg/L	0.01	0.11	0.42	0.01
Magnesium	Dissolved	mg/L	2.79	9.59	0.53	0.04
Manganese	Dissolved	mg/L	0.0092	0.0179	0.0059	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	0.05	0.01
Potassium	Dissolved	mg/L	0.90	1.64	0.66	0.04
Silicon	Dissolved	mg/L	2.56	3.08	5.59	0.01
Sodium	Dissolved	mg/L	0.91	1.95	4.90	0.04
Hardness	as CaCO3	mg/L	126	196	80	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

	Reference Number	638159-4	638159-5	638159-6	
	Sample Date	Aug 20, 2008	Aug 18, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Field Blank	Drill H2O#8	MT-MW-08-08	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	0.011	<0.005	0.260	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.010	0.008	0.572	0.005
Antimony	Dissolved	mg/L	0.0006	0.0005	0.0108	0.0002
Arsenic	Dissolved	mg/L	<0.0002	0.0003	0.0058	0.0002
Barium	Dissolved	mg/L	<0.001	0.005	0.012	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00006	0.00004
Bismuth	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	<0.00001	0.00001	0.00015	0.00001
Chromium	Dissolved	mg/L	<0.0004	<0.0004	0.0009	0.0004
Cobalt	Dissolved	mg/L	0.00002	<0.00002	0.00009	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	0.002	0.001
Iron	Dissolved	mg/L	<0.01	<0.01	0.31	0.01
Lead	Dissolved	mg/L	<0.0001	<0.0001	0.0012	0.0001
Lithium	Dissolved	mg/L	<0.001	<0.001	0.003	0.001
Manganese	Dissolved	mg/L	0.0004	0.0003	0.0050	0.0001
Molybdenum	Dissolved	mg/L	<0.00002	0.00213	0.00842	0.00002
Nickel	Dissolved	mg/L	<0.001	<0.001	0.001	0.001
Selenium	Dissolved	mg/L	<0.0006	0.0010	0.0024	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.001	0.025	0.042	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0003	0.0005	0.0092	0.0001
Tungsten	Dissolved	mg/L	0.0003	0.0150	0.0219	0.0001
Uranium	Dissolved	mg/L	<0.0004	<0.0004	0.0006	0.0004
Vanadium	Dissolved	mg/L	<0.00004	0.00043	0.00480	0.00004
Zinc	Dissolved	mg/L	0.002	<0.001	0.004	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	0.0003	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Total	mg/L	<0.005	0.021	1.05	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	0.0099	0.0002
Arsenic	Total	mg/L	<0.0002	0.0003	0.0063	0.0002
Barium	Total	mg/L	<0.001	0.005	0.022	0.001

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Reference Number	638159-4	638159-5	638159-6
Sample Date	Aug 20, 2008	Aug 18, 2008	Aug 18, 2008
Sample Location	Mactung	Mactung	Mactung
Sample Description	Field Blank	Drill H2O#8	MT-MW-08-08
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Beryllium	Total	mg/L	<0.00004	<0.00004	0.00006	0.00004
Bismuth	Total	mg/L	<0.0001	<0.0001	0.0005	0.0001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	<0.00001	<0.00001	0.00008	0.00001
Calcium	Total	mg/L	<0.04	18.8	32.9	0.04
Chromium	Total	mg/L	<0.0004	<0.0004	0.0018	0.0004
Cobalt	Total	mg/L	<0.00002	<0.00002	0.00012	0.00002
Copper	Total	mg/L	<0.001	<0.001	0.001	0.001
Iron	Total	mg/L	0.02	0.03	0.58	0.01
Lead	Total	mg/L	<0.0001	<0.0001	0.0016	0.0001
Lithium	Total	mg/L	<0.001	<0.001	0.003	0.001
Magnesium	Total	mg/L	<0.04	0.87	0.68	0.04
Manganese	Total	mg/L	<0.0001	0.0006	0.0093	0.0001
Molybdenum	Total	mg/L	<0.00002	0.00211	0.00899	0.00002
Nickel	Total	mg/L	<0.001	<0.001	0.001	0.001
Phosphorus	Total	mg/L	0.02	0.03	0.07	0.01
Potassium	Total	mg/L	<0.04	0.44	0.88	0.04
Selenium	Total	mg/L	<0.0006	0.0006	0.0018	0.0006
Silicon	Total	mg/L	0.04	2.60	6.69	0.01
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Sodium	Total	mg/L	0.3	0.6	5.4	0.04
Strontium	Total	mg/L	<0.001	0.026	0.045	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Total	mg/L	<0.0001	0.001	0.0256	0.0001
Uranium	Total	mg/L	<0.0004	<0.0004	0.0007	0.0004
Vanadium	Total	mg/L	<0.00004	0.00043	0.00808	0.00004
Zinc	Total	mg/L	0.003	0.004	0.007	0.001
Zirconium	Total	mg/L	<0.0001	<0.0001	0.0003	0.0001
Physical and Aggregate Properties						
Turbidity		NTU	<0.1	<0.1	30	0.1
Routine Water						
pH	@ 25 °C		6.06	7.65	8.99	
Electrical Conductivity		µS/cm at 25 C	1	106	184	1
Chloride	Dissolved	mg/L	<0.02	0.07	0.10	0.02
Nitrate - N	Dissolved	mg/L	<0.01	0.22	0.06	0.01

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

	Reference Number	638159-4	638159-5	638159-6	
	Sample Date	Aug 20, 2008	Aug 18, 2008	Aug 18, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	Field Blank	Drill H2O#8	MT-MW-08-08	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Sulfate (SO4)	Dissolved	mg/L	<0.05	25.4	69.6	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	7	6
Bicarbonate		mg/L	<5	40	20	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	<5	30	25	5
Total Dissolved Solids	Calculated	mg/L	<1	72	136	1
Calcium	Dissolved	mg/L	0.26	18.8	30.3	0.04
Iron	Dissolved	mg/L	<0.01	<0.01	0.31	0.01
Magnesium	Dissolved	mg/L	<0.04	0.89	0.51	0.04
Manganese	Dissolved	mg/L	0.0004	0.0003	0.0050	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	0.04	0.01
Potassium	Dissolved	mg/L	<0.04	0.42	0.68	0.04
Silicon	Dissolved	mg/L	0.044	2.56	5.50	0.01
Sodium	Dissolved	mg/L	0.20	0.43	4.94	0.04
Hardness	as CaCO3	mg/L	<1	51	78	1

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

	Reference Number	638159-7	638159-8	638159-9	
	Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonia - N	Dissolved	mg/L	0.080	0.097	<0.005	0.005
Metals Dissolved						
Mercury	Total Dissolved	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Dissolved	mg/L	0.008	0.021	0.027	0.005
Antimony	Dissolved	mg/L	0.0008	0.0024	0.0005	0.0002
Arsenic	Dissolved	mg/L	<0.0002	0.0016	0.0011	0.0002
Barium	Dissolved	mg/L	0.020	0.019	0.021	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00001	0.00002	0.00024	0.00001
Chromium	Dissolved	mg/L	0.0007	<0.0004	<0.0004	0.0004
Cobalt	Dissolved	mg/L	0.00006	0.00006	0.00105	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Iron	Dissolved	mg/L	<0.01	0.55	<0.01	0.01
Lead	Dissolved	mg/L	0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.002	0.004	0.002	0.001
Manganese	Dissolved	mg/L	0.0101	0.0881	0.0444	0.0001
Molybdenum	Dissolved	mg/L	0.00099	0.00188	0.00100	0.00002
Nickel	Dissolved	mg/L	<0.001	0.002	0.009	0.001
Selenium	Dissolved	mg/L	<0.0006	<0.0006	0.0017	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	1.000	0.114	0.096	0.001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Dissolved	mg/L	0.0006	0.001	0.0005	0.0001
Tungsten	Dissolved	mg/L	0.0017	0.0036	0.0012	0.0001
Uranium	Dissolved	mg/L	0.0027	0.0035	<0.0004	0.0004
Vanadium	Dissolved	mg/L	0.00021	0.00021	0.00015	0.00004
Zinc	Dissolved	mg/L	0.002	0.003	0.01	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Metals Total						
Mercury	Total	ug/L	<0.01	<0.01	<0.01	0.01
Aluminum	Total	mg/L	0.132	0.143	0.078	0.005
Antimony	Total	mg/L	<0.0002	0.0010	<0.0002	0.0002
Arsenic	Total	mg/L	0.0004	0.0026	0.0011	0.0002
Barium	Total	mg/L	0.023	0.025	0.020	0.001

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID: **638159**
Control Number:
Date Received: Aug 25, 2008
Date Reported: Sep 15, 2008
Report Number: 1149799

Reference Number	638159-7	638159-8	638159-9
Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008
Sample Location	Mactung	Mactung	Mactung
Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B
Matrix	Water	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total - Continued						
Beryllium	Total	mg/L	<0.00004	<0.00004	0.00008	0.00004
Bismuth	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	0.00001	<0.00001	0.00024	0.00001
Calcium	Total	mg/L	81.3	44.8	44.3	0.04
Chromium	Total	mg/L	0.0009	0.0005	<0.0004	0.0004
Cobalt	Total	mg/L	0.00012	0.00005	0.00118	0.00002
Copper	Total	mg/L	<0.001	<0.001	<0.001	0.001
Iron	Total	mg/L	0.87	1.64	0.05	0.01
Lead	Total	mg/L	0.0002	<0.0001	<0.0001	0.0001
Lithium	Total	mg/L	0.002	0.004	0.002	0.001
Magnesium	Total	mg/L	15.9	3.27	2.98	0.04
Manganese	Total	mg/L	0.0120	0.0994	0.0487	0.0001
Molybdenum	Total	mg/L	0.00107	0.00202	0.00091	0.00002
Nickel	Total	mg/L	0.002	0.003	0.009	0.001
Phosphorus	Total	mg/L	0.04	0.02	0.02	0.01
Potassium	Total	mg/L	1.78	2.78	0.76	0.04
Selenium	Total	mg/L	<0.0006	<0.0006	0.0009	0.0006
Silicon	Total	mg/L	4.03	3.63	2.52	0.01
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Sodium	Total	mg/L	1.7	2.4	0.8	0.04
Strontium	Total	mg/L	1.01	0.120	0.095	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Total	mg/L	0.0062	0.0049	0.0011	0.0001
Uranium	Total	mg/L	0.0029	0.0040	0.0004	0.0004
Vanadium	Total	mg/L	0.00098	0.00119	0.00015	0.00004
Zinc	Total	mg/L	0.006	0.003	0.011	0.001
Zirconium	Total	mg/L	0.0001	0.0002	<0.0001	0.0001
Physical and Aggregate Properties						
Turbidity		NTU	6.6	15	<0.1	0.1
Routine Water						
pH	@ 25 °C		7.94	7.84	7.72	
Electrical Conductivity		µS/cm at 25 C	469	240	238	1
Chloride	Dissolved	mg/L	0.04	0.07	0.06	0.02
Nitrate - N	Dissolved	mg/L	<0.01	<0.01	0.03	0.01

Bodycote TESTING GROUP

Analytical Report

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

	Reference Number	638159-7	638159-8	638159-9	
	Sample Date	Aug 20, 2008	Aug 19, 2008	Aug 19, 2008	
	Sample Location	Mactung	Mactung	Mactung	
	Sample Description	MT-MW-08-05	MT-MW-08-04B	Drill H2O #4B	
	Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	0.06	0.03	0.02	0.01
Sulfate (SO4)	Dissolved	mg/L	149	58.6	85.2	0.05
Hydroxide		mg/L	<5	<5	<5	5
Carbonate		mg/L	<6	<6	<6	6
Bicarbonate		mg/L	160	90	50	5
Acidity	titrate to pH of 8.3	mg/L as CaCO3	6	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	130	74	40	5
Total Dissolved Solids	Calculated	mg/L	337	162	164	1
Calcium	Dissolved	mg/L	80.1	42.3	43.7	0.04
Iron	Dissolved	mg/L	<0.01	0.55	<0.01	0.01
Magnesium	Dissolved	mg/L	15.7	3.07	2.98	0.04
Manganese	Dissolved	mg/L	0.0101	0.0881	0.0444	0.0001
Phosphorus	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Potassium	Dissolved	mg/L	1.71	2.53	0.75	0.04
Silicon	Dissolved	mg/L	3.75	3.28	2.47	0.01
Sodium	Dissolved	mg/L	1.50	2.11	0.66	0.04
Hardness	as CaCO3	mg/L	264	118	121	1

Approved by:

Andrew Garrard, BSc
Operations Manager

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Ammonia - N	mg/L	<0.005	0.000	-0.006	0.006	yes
Material Used:	Blank - Nutrients					
Date Acquired:	August 27, 2008					
Acquired By:	Heather Johnson					

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Ammonia - N	mg/L	0.0	0.020	98.500	90.010 - 109.990	yes
Material Used:	CC- Low - Nutrients					
Date Acquired:	August 27, 2008					
Acquired By:	Heather Johnson					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Ammonia - N	mg/L	4.8	5.013	4.260	5.760	yes
Material Used:	WL-NUTA2-					
Date Acquired:	August 27, 2008					
Acquired By:	Heather Johnson					
Ammonia - N	mg/L	4.95	5.013	4.260	5.760	yes
Material Used:	WM-NutA2-					
Date Acquired:	August 27, 2008					
Acquired By:	Heather Johnson					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Ammonia - N	mg/L	<0.005	<0.005	19.980	0.020	yes
Material Used:	Surrey - Int. Duplicate 1					
Date Acquired:	August 27, 2008					
Acquired By:	Heather Johnson					

Metals Dissolved

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Mercury	ug/L	<0.01	0.00	-19.98	19.98	yes
Material Used:	Metals Blank - water - total					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Mercury	ug/L	0.08	0.11	0.08	0.14	yes
Material Used:	WL-Hg6-					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					
Aluminum	mg/L	0.161	0.171	0.135	0.191	yes
Antimony	mg/L	0.0449	0.0439	0.0356	0.0485	yes
Arsenic	mg/L	0.0347	0.0360	0.0308	0.0413	yes
Barium	mg/L	0.108	0.104	0.095	0.105	yes
Beryllium	mg/L	0.0185	0.01798	0.01580	0.02120	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Metals Dissolved - Continued

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Boron	mg/L	0.131	0.130	0.100	0.146	yes
Cadmium	mg/L	0.02200	0.02198	0.01767	0.02433	yes
Chromium	mg/L	0.1840	0.1752	0.1501	0.1999	yes
Cobalt	mg/L	0.06740	0.06604	0.05564	0.07556	yes
Copper	mg/L	0.127	0.120	0.092	0.136	yes
Iron	mg/L	0.14	0.14	0.10	0.17	yes
Lead	mg/L	0.174	0.1614	0.1326	0.1974	yes
Molybdenum	mg/L	0.1120	0.11392	0.09675	0.13065	yes
Nickel	mg/L	0.182	0.176	0.138	0.200	yes
Selenium	mg/L	0.0116	0.0120	0.0076	0.0157	yes
Silver	mg/L	0.01580	0.01497	0.01110	0.01770	yes
Strontium	mg/L	0.140	0.136	0.110	0.154	yes
Thallium	mg/L	0.00623	0.00600	0.00497	0.00683	yes
Vanadium	mg/L	0.1860	0.18120	0.15449	0.20951	yes
Zinc	mg/L	0.092	0.088	0.058	0.112	yes
Material Used:	WL-ICP6					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.04	0.10	-1.02	1.21	yes
Magnesium	mg/L	<0.04	0.00	-0.02	0.02	yes
Phosphorus	mg/L	<0.01	1.40	-8.59	11.39	yes
Potassium	mg/L	<0.04	0.14	-0.94	1.22	yes
Silicon	mg/L	<0.01	3.80	-6.19	13.79	yes
Sodium	mg/L	<0.0	0.0	-0.1	0.2	yes
Material Used:	ICP-MS Acid Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Calcium	mg/L	<0.04	0.02	-0.28	0.32	yes
Magnesium	mg/L	<0.04	0.00	-0.03	0.03	yes
Phosphorus	mg/L	<0.01	5.00	-10.00	20.00	yes
Potassium	mg/L	<0.04	0.00	-0.03	0.03	yes
Silicon	mg/L	<0.01	10.00	-20.00	40.00	yes
Sodium	mg/L	<0.0	0.0	-0.0	0.0	yes
Material Used:	ICP-MS Method Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Mercury	ug/L	<0.01	0.000	-20.010	20.010	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Metals Total - Continued

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Material Used:	Metals Blank - water - total					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Phosphorus	ug/L	445.6	500.00	89.12	82.40 - 102.20	yes
Silicon	ug/L	218.3	233.00	93.69	-67.00 - 533.00	yes
Material Used:	QS-ICP-1 - Metals Matrix Spike					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Mercury	ug/L	0.096	0.110	0.081	0.139	yes
Material Used:	WL-Hg6-					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					
Aluminum	mg/L	0.775	0.853	0.735	0.865	yes
Antimony	mg/L	0.235	0.2195	0.1966	0.2194	yes
Arsenic	mg/L	0.183	0.1799	0.1622	0.1898	yes
Barium	mg/L	0.51	0.520	0.470	0.522	yes
Beryllium	mg/L	0.0928	0.08990	0.07820	0.10280	yes
Boron	mg/L	0.61	0.630	0.436	0.764	yes
Cadmium	mg/L	0.102	0.10990	0.09400	0.11680	yes
Calcium	mg/L	24.4	25.29	22.30	28.30	yes
Chromium	mg/L	0.869	0.8760	0.7640	0.9560	yes
Cobalt	mg/L	0.327	0.33000	0.29330	0.35270	yes
Copper	mg/L	0.59	0.601	0.553	0.631	yes
Iron	mg/L	0.78	0.72	0.63	0.81	yes
Lead	mg/L	0.851	0.8070	0.7167	0.8973	yes
Magnesium	mg/L	12.0	12.48	10.50	14.50	yes
Manganese	mg/L	0.388	0.3810	0.3441	0.4179	yes
Molybdenum	mg/L	0.597	0.56960	0.50700	0.63300	yes
Nickel	mg/L	0.85	0.878	0.788	0.904	yes
Potassium	mg/L	17.8	17.54	15.50	19.50	yes
Selenium	mg/L	0.051	0.0600	0.0322	0.0718	yes
Silver	mg/L	0.0749	0.07470	0.06230	0.07370	yes
Sodium	mg/L	20.0	20.3	18.3	22.3	yes
Strontium	mg/L	0.69	0.678	0.596	0.716	yes
Thallium	mg/L	0.0309	0.03000	0.02300	0.03500	yes
Vanadium	mg/L	0.886	0.90600	0.80000	0.95000	yes
Zinc	mg/L	0.41	0.440	0.398	0.494	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Metals Total - Continued

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Material Used:	WM-ICP6-					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Hardness	mg/L	172	173	20	5	yes
Calcium	mg/L	31.8	31.9	15.00	0.40	yes
Magnesium	mg/L	6.63	6.54	15.00	0.40	yes
Phosphorus	mg/L	0.12	0.12	15.00	50.00	yes
Potassium	mg/L	2.83	2.84	15.00	1.00	yes
Silicon	mg/L	2.35	2.36	15.00	50.00	yes
Sodium	mg/L	23.8	23.5	15.0	0.4	yes
Material Used:	ICP-MS Client Duplicate					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					
Mercury	ug/L	<0.01	<0.01	30.000	0.050	yes
Material Used:	Metals Int. Duplicate - water tot					
Date Acquired:	August 25, 2008					
Acquired By:	Marie England					

Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Turbidity	NTU	<0.1	<0.1	20.0	0.2	yes
Material Used:	Surrey - Int. Duplicate 1					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Turbidity	NTU	10	10.0	9.0	11.0	yes
Material Used:	CC - PCT					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					

Routine Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.04	0.10	-1.02	1.21	yes
Magnesium	mg/L	<0.04	0.00	-0.02	0.02	yes
Phosphorus	mg/L	<0.01	1.40	-12.40	15.20	yes
Potassium	mg/L	<0.04	0.10	-0.98	1.18	yes
Silicon	mg/L	<0.01	3.800	-6.190	13.790	yes
Sodium	mg/L	<0.04	0.02	-0.11	0.15	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Routine Water - Continued

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Material Used:	ICP-MS Acid Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Calcium	mg/L	<0.04	0.01	-0.14	0.16	yes
Magnesium	mg/L	<0.04	0.00	-0.02	0.02	yes
Phosphorus	mg/L	<0.01	2.40	-9.60	14.40	yes
Potassium	mg/L	<0.04	0.10	-0.98	1.18	yes
Silicon	mg/L	<0.01	10.000	-20.000	40.000	yes
Sodium	mg/L	<0.04	0.02	-0.10	0.14	yes
Material Used:	ICP-MS Method Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Chloride	mg/L	<0.02	0.00	-0.05	0.05	yes
Fluoride	mg/L	<0.01	0.00	-0.10	0.10	yes
Nitrate - N	mg/L	<0.01	0.00	-0.03	0.03	yes
Nitrite - N	mg/L	<0.01	0.00	-0.10	0.10	yes
Sulfate (SO4)	mg/L	<0.05	0.00	-0.10	0.10	yes
Material Used:	Surrey Blank					
Date Acquired:	August 26, 2008					
Acquired By:	Heather Johnson					

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
pH	pH	8.0	8.00	99.67	97.00 - 103.00	yes
Material Used:	CC - pH					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
Chloride	mg/L	1.5	1.50	98.00	90.01 - 109.99	yes
Fluoride	mg/L	1.0	1.00	103.00	90.01 - 109.99	yes
Nitrate - N	mg/L	1.0	1.00	99.61	90.01 - 109.99	yes
Nitrite - N	mg/L	1.5	1.50	101.33	90.01 - 109.99	yes
Sulfate (SO4)	mg/L	7.5	7.50	100.67	90.01 - 109.99	yes
Material Used:	QM-An-					
Date Acquired:	August 26, 2008					
Acquired By:	Heather Johnson					
Calcium	mg/L	0.1	0.10	116.00	70.00 - 130.00	yes
Magnesium	mg/L	0.1	0.10	93.00	85.00 - 115.00	yes
Potassium	mg/L	0.5	0.50	94.80	85.00 - 115.00	yes
Silicon	ug/L	220.6	233.000	94.678	-67.000 - 533.000	yes
Sodium	mg/L	0.1	0.10	105.00	70.00 - 130.00	yes
Material Used:	QS-ICP-1 - Metals Matrix Spike					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Routine Water - Continued

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
T-Alkalinity	mg/L	12	10	9	12	yes
Material Used:	QL - Alk -					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
Acidity	mg/L as CaCO3	790	781	718	844	yes
Material Used:	W-Acid-					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
pH		8.30		0.00	0.00	yes
Electrical Conductivity	µS/cm at 25 C	224	243	217	269	yes
Chloride	mg/L	27.0	27.03	23.62	30.44	yes
Fluoride	mg/L	3.02	2.98	2.71	3.25	yes
Nitrate - N	mg/L	1.96	1.98	1.55	2.41	yes
Sulfate (SO4)	mg/L	15.1	14.94	11.74	18.06	yes
T-Alkalinity	mg/L	50	45	40	50	yes
Material Used:	W-MIN2-					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
Calcium	mg/L	12.2	12.64	10.98	14.22	yes
Magnesium	mg/L	5.94	6.24	5.40	7.08	yes
Manganese	mg/L	0.0781	0.0762	0.0647	0.0851	yes
Potassium	mg/L	8.39	8.77	7.45	10.09	yes
Sodium	mg/L	9.49	10.13	8.96	11.24	yes
Material Used:	WL-ICP6					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	23.4	24.0	9.99	1.00	yes
Magnesium	mg/L	9.52	9.89	9.99	1.00	yes
Phosphorus	mg/L	0.01	0.01	9.99	10.00	yes
Potassium	mg/L	34.2	34.9	9.99	1.00	yes
Silicon	mg/L	4.02	4.18	9.990	20.000	yes
Sodium	mg/L	46.2	47.6	9.99	5.00	yes
Hardness	mg/L	98	101	15	5	yes
Material Used:	ICP-MS Client Duplicate					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
pH		8.21	8.21	0.10	0.10	yes
Chloride	mg/L	3.32	3.32	15.00	0.25	yes
Fluoride	mg/L	0.21	0.21	15.00	0.50	yes
Nitrate - N	mg/L	0.06	0.05	15.00	0.05	yes
Nitrite - N	mg/L	<0.01	0.01	15.00	0.50	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Routine Water - Continued

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Sulfate (SO4)	mg/L	24.4	24.5	15.00	0.50	yes
Hydroxide	mg/L	<5	<5	10	10	yes
Carbonate	mg/L	<6	<6	10	10	yes
Bicarbonate	mg/L	80	80	10	10	yes
P-Alkalinity	mg/L	<5	<5	10	5	yes
T-Alkalinity	mg/L	96	96	10	5	yes
Material Used:	Surrey - Int. Duplicate 1					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH		10.3	9.95	9.36	10.54	yes
Electrical Conductivity	µS/cm at 25 C	203	220	191	249	yes
P-Alkalinity	mg/L	42	29	9	49	yes
T-Alkalinity	mg/L	101	96	84	108	yes
Material Used:	CC - PCT					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
Electrical Conductivity	µS/cm at 25 C	1380	1411	1340	1482	yes
Material Used:	EC-CC2					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					
Electrical Conductivity	µS/cm at 25 C	<1	0	-2	2	yes
Material Used:	RO water 1					
Date Acquired:	August 25, 2008					
Acquired By:	Heather Johnson					

Trace Metals Dissolved

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	µg/L	<5	1	-9	11	yes
Antimony	µg/L	<0.2	0.0	-0.3	0.3	yes
Arsenic	µg/L	<0.2	0.0	-0.3	0.3	yes
Barium	µg/L	<1	0	-1	1	yes
Beryllium	µg/L	<0.04	0.00	-0.10	0.10	yes
Boron	µg/L	<4	0	-4	4	yes
Cadmium	µg/L	<0.01	0.00	-0.03	0.03	yes
Chromium	µg/L	<0.4	0.0	-0.5	0.5	yes
Cobalt	µg/L	<0.02	0.00	-0.10	0.10	yes
Copper	µg/L	<1	0	-1	1	yes
Iron	µg/L	<10	3	-7	13	yes
Lead	µg/L	<0.1	0.0	-0.2	0.2	yes
Lithium	µg/L	<1	0	-1	1	yes
Manganese	µg/L	<0.1	0.0	-0.1	0.1	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Dissolved - Continued

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Molybdenum	µg/L	<0.02	0.00	-0.99	0.99	yes
Nickel	µg/L	<1	0	-1	1	yes
Selenium	µg/L	<0.6	0.0	-0.6	0.6	yes
Silver	µg/L	0.08	0.00	-0.05	0.05	yes
Strontium	µg/L	<1	0	-1	1	yes
Thallium	µg/L	<0.01	0.00	-0.01	0.01	yes
Thorium	µg/L	0.1	0.0	-0.7	0.7	yes
Tin	µg/L	0.5	0.0	-0.1	0.1	yes
Titanium	µg/L	<0.1	0.0	-0.2	0.2	yes
Uranium	µg/L	<0.4	0.0	-0.3	0.3	yes
Vanadium	µg/L	<0.04	0.00	-0.35	0.35	yes
Zinc	µg/L	<1	0	-5	6	yes
Zirconium	µg/L	<0.1	0.0	-0.1	0.1	yes
Material Used:	ICP-MS Acid Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Aluminum	µg/L	<5	10	-20	40	yes
Antimony	µg/L	<0.2	0.0	-0.3	0.3	yes
Arsenic	µg/L	<0.2	0.0	-0.6	0.6	yes
Barium	µg/L	<1	0	-2	2	yes
Beryllium	µg/L	<0.04	0.00	-0.04	0.04	yes
Boron	µg/L	<4	0	-3	3	yes
Cadmium	µg/L	<0.01	0.00	-0.03	0.03	yes
Chromium	µg/L	<0.4	0.0	-0.4	0.4	yes
Cobalt	µg/L	<0.02	0.00	-0.03	0.03	yes
Copper	µg/L	<1	1	-5	7	yes
Iron	µg/L	<10	3	-12	18	yes
Lead	µg/L	<0.1	0.0	-0.2	0.2	yes
Lithium	µg/L	<1	0	-1	1	yes
Manganese	µg/L	<0.1	0.0	-0.3	0.3	yes
Molybdenum	µg/L	<0.02	0.00	-0.99	0.99	yes
Nickel	µg/L	<1	0	-1	1	yes
Selenium	µg/L	<0.6	-0.4	-1.9	1.1	yes
Silver	µg/L	<0.01	0.00	-0.51	0.51	yes
Strontium	µg/L	<1	1	-5	7	yes
Thallium	µg/L	<0.01	0.00	-0.11	0.11	yes
Thorium	µg/L	<0.1	-0.1	-0.7	0.5	yes
Tin	µg/L	<0.1	0.0	-0.3	0.3	yes
Titanium	µg/L	<0.1	0.0	-0.2	0.2	yes
Uranium	µg/L	<0.4	0.0	-0.0	0.0	yes
Vanadium	µg/L	<0.04	0.00	-0.30	0.30	yes
Zinc	µg/L	<1	4	-8	16	yes
Zirconium	µg/L	<0.1	0.0	-0.0	0.0	yes

Bodycote TESTING GROUP

Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Dissolved - Continued

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Material Used:	ICP-MS Method Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Aluminum	µg/L	90.1	100	90	85 - 115	yes
Antimony	µg/L	219.3	200.0	109.6	90.0 - 110.0	yes
Arsenic	µg/L	189.3	200.0	94.6	90.0 - 110.0	yes
Barium	µg/L	100.4	100	100	90 - 110	yes
Beryllium	µg/L	95.6	100.00	95.56	90.01 - 109.99	yes
Boron	µg/L	99.7	100	100	90 - 110	yes
Cadmium	µg/L	101.4	100.00	101.40	90.01 - 109.99	yes
Chromium	µg/L	95.8	100.0	95.8	90.0 - 110.0	yes
Cobalt	µg/L	92.0	100.00	92.03	90.01 - 109.99	yes
Copper	µg/L	96.3	100	96	90 - 110	yes
Iron	µg/L	106.2	100	106	85 - 115	yes
Lead	µg/L	213.7	200.0	106.8	90.0 - 110.0	yes
Manganese	µg/L	95.3	100.0	95.3	90.0 - 110.0	yes
Molybdenum	µg/L	100.4	100.00	100.40	90.01 - 109.99	yes
Nickel	µg/L	93.5	100	94	90 - 110	yes
Selenium	µg/L	94.6	100.0	94.6	90.0 - 110.0	yes
Silver	µg/L	26.5	25.00	106.08	90.01 - 109.99	yes
Strontium	µg/L	99.4	100	99	90 - 110	yes
Thallium	µg/L	535.1	500.00	107.02	90.01 - 109.99	yes
Tin	µg/L	521.7	500.0	104.3	90.0 - 110.0	yes
Vanadium	µg/L	94.0	100.00	93.97	90.01 - 109.99	yes
Zinc	µg/L	94.4	100	94	90 - 110	yes
Material Used:	QS-ICP-1 - Metals Matrix Spike					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	µg/L	14	15	10	20	yes
Antimony	µg/L	0.9	1	10.0	1.0	yes
Arsenic	µg/L	0.6	0.7	10.0	1.0	yes
Barium	µg/L	3	3	10	5	yes
Beryllium	µg/L	<0.04	<0.04	9.99	1.00	yes
Boron	µg/L	18	20	10	5	yes
Cadmium	µg/L	<0.01	0.01	9.99	0.50	yes
Chromium	µg/L	3.2	3.4	10.0	5.0	yes
Cobalt	µg/L	0.17	0.17	9.99	0.50	yes
Copper	µg/L	7	8	10	5	yes
Iron	µg/L	<10	<10	10	50	yes

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Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Dissolved - Continued

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Lead	µg/L	<0.1	0.1	10.0	0.5	yes
Lithium	µg/L	2	2	10	5	yes
Manganese	µg/L	1155	1240	10.0	0.5	yes
Molybdenum	µg/L	9.99	10.63	9.99	0.50	yes
Nickel	µg/L	<1	<1	10	5	yes
Selenium	µg/L	4.6	4.7	10.0	0.5	yes
Silver	µg/L	<0.01	<0.01	9.99	0.50	yes
Strontium	µg/L	192	198	10	0	yes
Thallium	µg/L	<0.01	<0.01	9.99	0.10	yes
Thorium	µg/L	<0.1	<0.1	10.0	0.1	yes
Tin	µg/L	<0.1	0.2	10.0	0.5	yes
Titanium	µg/L	0.5	0.5	10.0	0.5	yes
Uranium	µg/L	0.9	0.9	10.0	0.1	yes
Vanadium	µg/L	0.46	0.50	9.99	0.50	yes
Zinc	µg/L	3	2	10	5	yes
Zirconium	µg/L	0.1	0.2	10.0	0.5	yes

Material Used: ICP-MS Client Duplicate
Date Acquired: August 25, 2008
Acquired By: Aaron Zentner

Trace Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	µg/L	<5	1	-9	11	yes
Antimony	µg/L	<0.2	0.0	-0.3	0.3	yes
Arsenic	µg/L	<0.2	0.0	-0.8	0.8	yes
Barium	µg/L	<1	0.0	-0.9	0.9	yes
Beryllium	µg/L	<0.04	0.00	-0.04	0.04	yes
Boron	µg/L	<5	0	-5	5	yes
Cadmium	µg/L	<0.01	0.00	-0.06	0.06	yes
Chromium	µg/L	<0.4	0.0	-0.4	0.4	yes
Cobalt	µg/L	<0.02	0.00000	-0.02730	0.02730	yes
Copper	µg/L	<1	0.000	-1.320	1.320	yes
Iron	µg/L	<10	3	-7	13	yes
Lead	µg/L	<0.1	0.000	-0.174	0.174	yes
Lithium	µg/L	<1	0	-1	1	yes
Manganese	µg/L	<0.1	0.0	-0.1	0.1	yes
Molybdenum	µg/L	<0.02	0.00	-0.10	0.10	yes
Nickel	µg/L	<1	0	-1	1	yes
Selenium	µg/L	<0.6	0.0	-1.6	1.6	yes
Silver	µg/L	<0.01	0.00	-0.05	0.05	yes
Strontium	µg/L	<1	0.0	-1.0	1.0	yes
Tellurium	µg/L	<0.1	0.0	-0.2	0.2	yes

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Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
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	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Total - Continued

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Thallium	µg/L	<0.01	0.00	-0.11	0.11	yes
Thorium	µg/L	<0.10	0.00	-0.15	0.15	yes
Tin	µg/L	1.9	0.0	-0.1	0.1	yes
Titanium	µg/L	<0.1	0.0	-0.2	0.2	yes
Uranium	µg/L	<0.4	0.0	-0.0	0.0	yes
Vanadium	µg/L	<0.03	0.00	-1.65	1.65	yes
Zinc	µg/L	<1	1	-1	2	yes
Zirconium	µg/L	<0.1	0.0	-0.0	0.0	yes
Material Used:	ICP-MS Acid Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					
Aluminum	µg/L	<5	0	-15	15	yes
Antimony	µg/L	<0.2	0.0	-0.3	0.3	yes
Arsenic	µg/L	<0.2	0.0	-0.6	0.6	yes
Barium	µg/L	<1	0.0	-1.1	1.1	yes
Beryllium	µg/L	<0.04	0.00	-0.20	0.20	yes
Boron	µg/L	<5	2	-13	17	yes
Cadmium	µg/L	<0.01	0.00	-0.05	0.05	yes
Chromium	µg/L	<0.4	0.0	-0.1	0.1	yes
Cobalt	µg/L	<0.02	0.00000	-0.03000	0.03000	yes
Copper	µg/L	<1	0.000	-1.680	1.680	yes
Iron	µg/L	10	5	-10	20	yes
Lead	µg/L	<0.1	0.000	-0.150	0.150	yes
Lithium	µg/L	<1	0	-1	1	yes
Manganese	µg/L	<0.1	0.0	-0.4	0.4	yes
Molybdenum	µg/L	<0.02	0.00	-0.06	0.06	yes
Nickel	µg/L	<1	0	-1	1	yes
Selenium	µg/L	<0.6	0.0	-1.0	1.0	yes
Silver	µg/L	<0.01	0.00	-0.04	0.04	yes
Strontium	µg/L	<1	0.0	-1.0	1.0	yes
Tellurium	µg/L	<0.1	0.0	-0.2	0.2	yes
Thallium	µg/L	<0.01	0.00	-0.15	0.15	yes
Thorium	µg/L	<0.10	0.00	-0.54	0.54	yes
Tin	µg/L	0.2	0.0	-0.1	0.1	yes
Titanium	µg/L	<0.1	0.0	-0.1	0.1	yes
Uranium	µg/L	<0.4	0.0	-0.5	0.5	yes
Vanadium	µg/L	<0.03	0.00	-0.30	0.30	yes
Zinc	µg/L	<1	1	-5	7	yes
Zirconium	µg/L	<0.1	0.0	-0.1	0.1	yes
Material Used:	ICP-MS Method Blank					
Date Acquired:	August 25, 2008					
Acquired By:	Aaron Zentner					

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Quality Control

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Total - Continued

Calibration Check	Units	Measured	Target	% Recovery	Criteria (%)	Passed QC
Aluminum	µg/L	88.1	100	88	85 - 105	yes
Antimony	µg/L	222.8	200.0	111.4	88.3 - 108.3	yes
Arsenic	µg/L	202.2	200.0	101.1	87.5 - 105.5	yes
Barium	µg/L	98.7	100.0	98.7	87.9 - 105.9	yes
Beryllium	µg/L	99.4	100.00	99.43	82.74 - 113.46	yes
Boron	µg/L	93.0	100	93	81 - 109	yes
Cadmium	µg/L	98.8	100.00	98.83	91.60 - 109.60	yes
Chromium	µg/L	96.5	100.0	96.5	88.6 - 106.6	yes
Cobalt	µg/L	99.0	100.00000	99.04000	89.40000 -	yes
Copper	µg/L	100.0	100.000	99.950	87.100 - 105.100	yes
Lead	µg/L	214.1	200.000	107.050	93.010 - 112.990	yes
Manganese	µg/L	102.7	100.0	102.7	89.8 - 107.8	yes
Molybdenum	µg/L	98.6	100.00	98.61	88.40 - 106.40	yes
Nickel	µg/L	96.8	100	97	87 - 105	yes
Selenium	µg/L	92.8	100.0	92.8	84.7 - 109.1	yes
Silver	µg/L	25.7	25.00	102.64	87.30 - 105.30	yes
Strontium	µg/L	99.7	100.0	99.7	88.9 - 105.7	yes
Thallium	µg/L	538.3	500.00	107.66	95.02 - 110.78	yes
Tin	µg/L	518.6	500.0	103.7	69.9 - 106.5	yes
Vanadium	µg/L	93.6	100.00	93.57	86.90 - 104.90	yes
Zinc	µg/L	93.6	100	94	85 - 109	yes

Material Used: QS-ICP-1 - Metals Matrix Spike
Date Acquired: August 25, 2008
Acquired By: Aaron Zentner

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	µg/L	70	70	15	100	yes
Antimony	µg/L	<0.2	<0.2	15.0	2.0	yes
Arsenic	µg/L	1.2	1.3	15.0	2.0	yes
Barium	µg/L	56	57	15.0	10.0	yes
Beryllium	µg/L	<0.04	<0.04	15.00	0.40	yes
Boron	µg/L	62	62	15	40	yes
Cadmium	µg/L	0.07	0.06	15.00	0.10	yes
Chromium	µg/L	1.8	1.5	15.0	6.0	yes
Cobalt	µg/L	0.37	0.38	15.00000	0.20000	yes
Copper	µg/L	48	49	15.000	5.000	yes
Iron	µg/L	499	515	15	100	yes
Lead	µg/L	0.7	1.4	15.000	1.000	yes
Lithium	µg/L	5	5	15	10	yes
Manganese	µg/L	34.0	34.6	15.0	1.0	yes
Molybdenum	µg/L	0.67	0.74	15.00	0.20	yes
Nickel	µg/L	7	7	15	10	yes
Selenium	µg/L	<0.6	<0.6	15.0	5.0	yes

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Quality Control

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	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
Date Reported:	Sep 15, 2008
Report Number:	1149799

Trace Metals Total - Continued

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Silver	µg/L	<0.01	<0.01	15.00	0.10	yes
Strontium	µg/L	158	157	15.0	10.0	yes
Tellurium	µg/L	<0.1	<0.1	20.0	0.5	yes
Thallium	µg/L	<0.01	<0.01	15.00	0.10	yes
Thorium	µg/L	<0.10	<0.10	15.00	1.00	yes
Tin	µg/L	0.2	0.4	15.0	1.0	yes
Titanium	µg/L	6.0	4.7	15.0	1.0	yes
Uranium	µg/L	0.6	0.6	15.0	1.0	yes
Vanadium	µg/L	1.12	1.0	15.00	0.40	yes
Zinc	µg/L	8	9	15	10	yes
Zirconium	µg/L	0.4	0.4	15.0	1.0	yes

Material Used: ICP-MS Client Duplicate
Date Acquired: August 25, 2008
Acquired By: Marie England

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Methodology and Notes

Bill To:	EBA Engineering Consulting Lt	Project:	
Report To:	EBA Engineering Consulting Lt	ID:	W23101021.023
	Calcite Business Centre	Name:	Mactung
	Unit 6, 151 Industrial Road	Location:	Mactung
	Whitehorse, YT, Canada	LSD:	
	Y1A 2V3	P.O.:	
Attn:	Stephan Klump	Acct code:	
Sampled By:	S.Klump		
Company:			

Lot ID:	**638159**
Control Number:	
Date Received:	Aug 25, 2008
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Report Number:	1149799

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Acidity in water	APHA		Titration Method, 2310 B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Conductivity, 2510	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Electrometric Method, 4500-H+ B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Nephelometric Method, 2130 B	25-Aug-08	BTG Surrey
Alk, pH, EC, Turb in water	APHA	*	Titration Method, 2320 B	25-Aug-08	BTG Surrey
Ammonium-N in Water (color Surrey)	APHA	*	Phenate Method, 4500-NH3 F	27-Aug-08	BTG Surrey
Anions by IEC in water (Surrey)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	26-Aug-08	BTG Surrey
Mercury Low Level (Total) in water	EPA	*	Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	25-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	25-Aug-08	BTG Surrey
Trace Metals (dissolved) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-AES, 6010B	25-Aug-08	BTG Surrey
Trace Metals (Total) in Water	US EPA	*	Metals & Trace Elements by ICP-MS, 6020	25-Aug-08	BTG Surrey

** Bodycote method(s) based on reference method*

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
US EPA	US Environmental Protection Agency Test Methods

Comments:

- This report was issued to include addition of Bismuth analysis on lot 638159. Report 1149799 is an addendum to report 1149054.
- Some total metal results were less than dissolved metal results for lot 638159. The results were verified and are within expected measurement uncertainty.