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Michelle Unger
Teck Metals Ltd.
Bag 2000
Kimberley, BC
V1A 3E1

LONG TERM GROUNDWATER MONITORING PLAN, SÄ DENA HES MINE, YUKON TERRITORY

Dear Michelle:

Golder Associates Ltd. (Golder), on behalf of Kēyeh Nejéh Golder Corporation, is pleased to present this plan for long term groundwater monitoring to Teck Resources Limited (Teck) for the Sä Dena Hes Mine, located approximately 70 km by road from Watson Lake, Yukon.

1.0 BACKGROUND

The Sä Dena Hes mine operated as a lead-zinc mine for a 16 month period between August 1991 and December 1992, by Curragh Resources. A decline in zinc prices, in December 1992, forced a temporary closure of the mine. The Sä Dena Hes Operating Corporation purchased the mine in April 1994. However, the mine has remained closed since December 1992 due to low demands in the zinc market. Teck Resources Limited (Teck) is an operating partner of the mine.

Sä Dena Hes mine is permitted under a Yukon Quartz Mining Act Production License and a Type A Water Use License. Both permits are to expire on December 31, 2015. The conditions of both licenses allow for "Temporary Closure" of the mine, as it has resided since 1992; however, this status expired on January 28, 2013, and the mine has now entered a "Permanent Closure" phase.

In 2012, a Phase I and II Environmental Site Assessment (ESA) for the Site was completed by Golder on behalf of Kēyeh Nejéh Golder Corporation (KNG) and Teck. The results of the Phase II ESA identified eight Areas of Environmental Concern (AECs) at the Site. Four of the AECs (Jewelbox Hill, Burnick, Mill Site, and the Tailings and Reclaim ponds) indicated a potential for impact to groundwater. Based on the results of the Phase II ESA, in 2013 a groundwater evaluation was completed to assess the concentrations of the contaminants of concern at each of the four AECs and in other areas for coverage across the site and to assess background concentrations of the contaminants of concern. The monitoring well network is shown on Figure 1, attached.

Golder Associates Ltd.
500 - 4260 Still Creek Drive, Burnaby, British Columbia, Canada V5C 6C6
Tel: +1 (604) 296 4200 Fax: +1 (604) 298 5253 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

2.0 REGULATORY FRAMEWORK

It is our understanding that Teck met with representative of Yukon Energy Mines and Resources and Environment Yukon on May 23, 2013 to determine which department would take a lead on the closure of the mine. Based on the outcome of this meeting it was determined that Yukon Energy Mines and Resources would be the lead government department for the closure work and that a technical advisory committee, that includes a representative from Environment Yukon, would be set up to review the project.

The Yukon Contaminated Sites Regulation (CSR) contains standards to ensure that the quality of water at a site, or which flows from a site, is suitable for direct use and is protective of water uses on adjacent properties. The CSR contains standards based on the following four types of water use:

- Aquatic Life water use standards apply to water used as a habitat for components of the freshwater or marine ecosystem;
- Drinking Water use standards apply to water used for consumption by humans;
- Irrigation water use standards apply to water used to produce agricultural products; and
- Livestock water use standards apply to water used for consumption by livestock.

The standards for a variety of contaminants in water for each of these uses are listed in Schedule 3 of the CSR. Drinking water, irrigation and livestock water use standards are not applicable to the site because these water uses are not currently being used, and the absence of a reasonable probability of them being used in the future, on site or in the vicinity of the site. Aquatic Life standards are applicable at site as freshwater aquatic environments are present within 1.5 km of the leased site.

Special Waste Regulations (SWR) will also apply to contaminated water.

3.0 CONSIDERATIONS FOR ON-GOING MONITORING

On-going annual groundwater monitoring is recommended in specific locations at the Site to:

- Continue to assess potential source locations at the identified AECs and/or along potential pathways; and
- Monitor groundwater prior to discharge into the down-gradient receptors.

3.1 Source Locations

The following locations and AECs were identified at the Site in the 2012 Phase I and II ESA completed by Golder and in subsequent investigations, as having concentrations of petroleum hydrocarbons and metals in soil in excess of the Yukon CSR standards included:

- Jewelbox Hill (AEC 1);
- Burnick (AEC 2);
- Mill Site (AEC 3); and
- Tailings and Reclaim ponds (AEC 8).

In addition, the Main Zone Portal has been added as an AEC and metals concentrations in groundwater are being assessed along with surface water by SRK Consulting.

3.2 Down-gradient Receptors

The groundwater conceptual site model indicates that groundwater flows from Jewelbox Hill to the Reclaim Pond. The overburden thickness at Jewelbox, and the area between Jewelbox and the Mill site, is less than a few metres and groundwater was encountered within fractured bedrock. Between the Mill site and the Reclaim Pond, the water table is within unconsolidated sediments consisting of a silty sand layer between the thin Sand and Gravel unit and the bedrock. Groundwater discharges to surface water at the Reclaim Pond, which is part of Camp Creek. Therefore groundwater from Jewelbox Hill and the Mill Site flow towards and discharges at Camp Creek, which flows towards the southeast.

There is a groundwater divide on the site. The groundwater flow divide is located between the North Dam and former South Dam, and groundwater in this area flows towards the north and south. The groundwater flow direction north of the North Dam is north towards North Creek. The groundwater flow direction from Burnick is to the northeast and east towards the West Fork of Tributary E and southeast towards North Creek, and east along North Creek.

Based on the groundwater conceptual site model, Camp Creek is the surface water receptor for groundwater originating at Jewelbox, the Mill Site and the Reclaim Pond. North Creek is the surface water receptor for groundwater originating at Burnick and the Tailings Pond.

4.0 RECOMMENDED MONITORING LOCATIONS AND FREQUENCY

Based on the groundwater conceptual site model developed for the site we recommend:

- To monitor annually groundwater flow and quality originating from Jewelbox: monitor wells MW13-01 and MW13-05 to capture groundwater prior to it reaching Camp Creek from the north and east directions;
- The Mill Site is located between Jewelbox and Camp Creek in the northeast direction: monitor annually groundwater flow and quality originating from either source location at monitoring well location MW13-10;
- To monitor annually groundwater flow from Burnick towards North Creek and the landfill area: monitor MW14-04; and
- To monitor annually the tailings pond area: monitor MW13-07.

It is assumed with this plan that surface water will also be sampled at Camp Creek, North Creek and West Fork of Tributary E (the receptor locations). Groundwater is currently being monitored and sampled twice per year during spring freshet, and in the fall prior to winter conditions in order to capture the annual high and low groundwater periods. Going forward it is recommended that groundwater be sampled annually at low groundwater periods (approximately September) to coincide with the long term plan for surface water sampling so that trends and interactions can be compared. Water quality results will be reviewed upon receipt and a trend analysis completed with the previous data. If concentrations are observed to be increasing and approaching an applicable standard, additional sampling will be recommended for that year to confirm the results.

The estimated groundwater flow velocity through the overburden from the Mill Site to Camp Creek was measured to be 80 m/yr. The distance between the Mill Site and Camp Creek is approximately 800 m and using the estimated groundwater velocity, contamination that originated at the Mill Site would arrive at Camp Creek within 10 years. It is proposed then to monitor the groundwater wells for a period of 10 years considering that any discharges from the Mill Site would have occurred between twenty two years ago and up to 2014

when contamination was removed. It is likely that if any contamination had reached groundwater it would already be detected in previous sampling rounds, however the additional ten years is being proposed as a conservative measure. Sampling will be conducted annually for four years, then biennially in years six, eight and ten. This frequency will be reviewed following the evaluation of each data set and assumes that there is no change in conditions. A review of concentrations and trends following the receipt of data in year ten will determine if the groundwater sampling program should continue.

5.0 METHODOLOGY

During the groundwater monitoring program, groundwater samples should be collected using consistent methods and procedures. The depth to groundwater at each well would be measured prior to sampling to calculate the volume of water in the well. Due to the depth to water in the majority of the wells a dedicated disposable bailer has been used to purge and sample water from each well. Approximately three well volumes should be removed with the bailer. Water is collected from the outflow at regular intervals and parameters consisting of pH, temperature and electrical conductivity are measured using a handheld meter. Once more than three well volumes have been removed and the parameters have stabilized (i.e., changes in pH, temperature and electrical conductivity measurements between three successive readings were less than 10%), samples should be collected in pre-cleaned containers supplied by the laboratory. Samples from monitoring wells MW13-01, MW13-04, MW13-05, and MW13-10 will be analyzed for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Volatile Petroleum Hydrocarbons (VPHw), Light and Heavy Extractable Petroleum Hydrocarbons (LEPHw/HEPH), Polycyclic Aromatic Hydrocarbons (PAH), and dissolved metals and anions. The sample from MW13-07 will be analyzed for dissolved metals and anions. During each sampling round, a field duplicate of one of the samples will be collected for each parameter for Quality Assurance and Quality Control purposes. In addition, a trip blank for the volatile parameters will travel with the samples. The collected samples are to be stored in coolers with ice and shipped to the laboratory within the required hold times under standard Chain-of-Custody procedures.

6.0 CLOSURE

We trust that the information contained in this work plan is sufficient for your current needs. If you require any further information, please do not hesitate to contact Tamra Reynolds at 867-633-6076.

Yours very truly,

GOLDER ASSOCIATES LTD.

Tamra Reynolds, M.Sc., P.Geo.
Senior Hydrogeologist

Gary Hamilton, P.Geo.
Principal, Project Director

TR/GJH/syd

Attachments: Figure 1 Monitoring Well and Test Hole Locations

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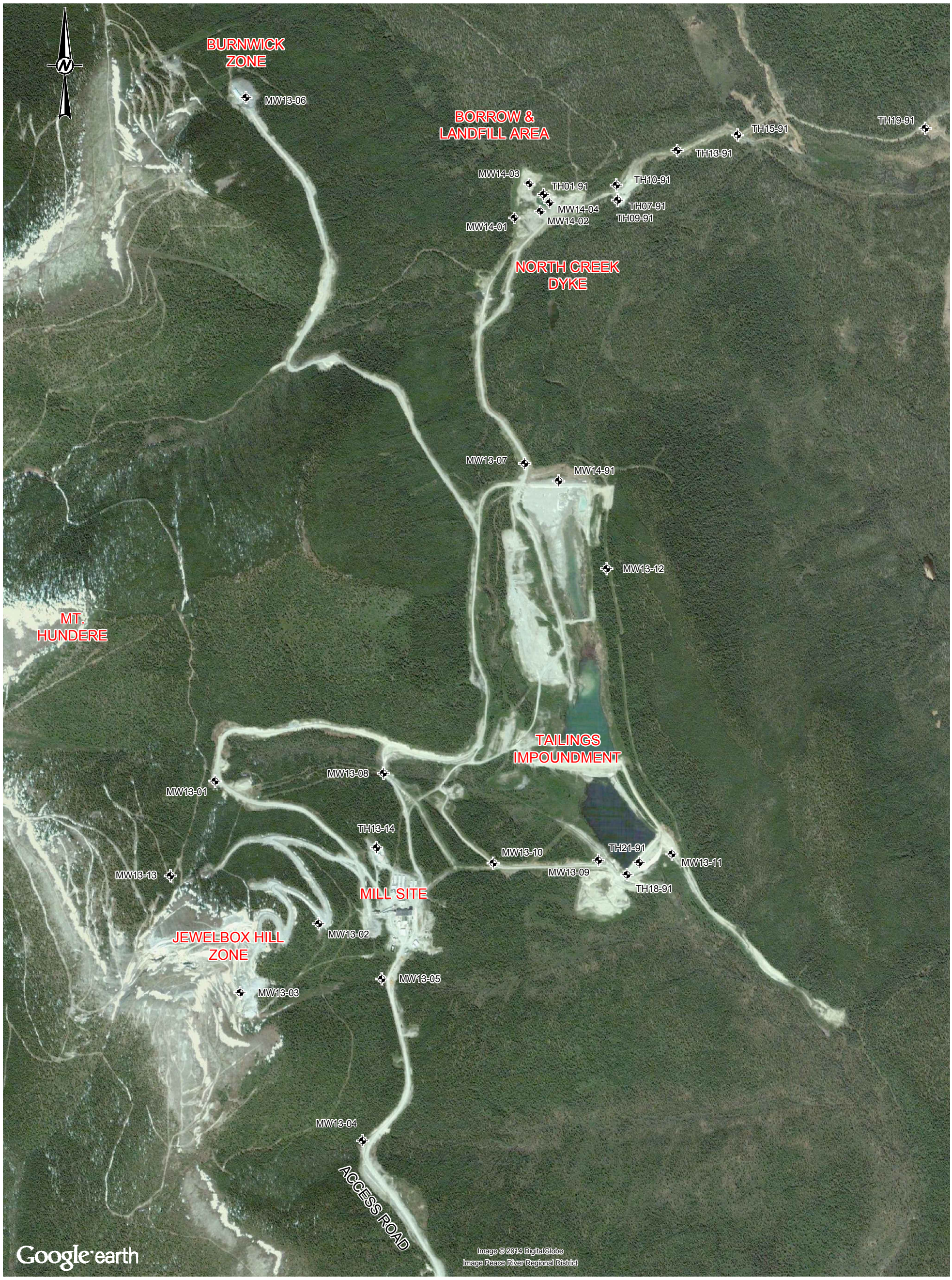

LEGEND

SDH MW WELL LOCATION

REFERENCE

All units are in metres unless otherwise noted.
Base imagery obtained from Google Earth Pro under licence.
Google Earth Imagery date June 12th, 2006.
Google Earth Image is to be used for surrounding detail reference only.
Datum: NAD 83 Projection: UTM Zone 9

0 300 600 900
SCALE METRES

PROJECT
TECK METALS
SA DENA HES HYDROGEOLOGICAL ASSESSMENT
SA DENA HES MINE, YUKON TERRITORY

TITLE
MONITORING WELL & TESTHOLE LOCATIONS

Golder Associates

PROJECT No.	12-1021-0006-7000		FILE No.	1210210006-7000-01
DESIGN	TR	2013-12-03	SCALE	AS SHOWN
CADD	LYT	2013-12-03	FIGURE	
CHECK	TR	2014-03-24	**FIGURE 1**	
REVIEW	HG	2014-03-24		