Elsa Reclamation and Development Company Ltd.

Keno Hill Mine

Site Investigation and Improvements, Special Projects

Mackeno and Wernecke Tailings Assessment

Date:

March 31, 2009

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1.0 INTRODUCTION

In April 2007, SRK Consulting Engineers and Scientists (SRK), with assistance from Access Consulting Group (ACG), completed a baseline report entitled "*Baseline Environmental Report United Keno Hill Mines Property*" for Elsa Reclamation & Development Company (ERDC). As part of this Baseline Environmental Report for the Keno Hill Mine Property, two historic tailings sites (Mackeno and Wernecke) were investigated in 2007. It was observed that both sites required further investigation to document the chemical characteristics of the tailings, the extent of tailings release/containment, and their potential environmental effects.

The old Wernecke tailings were initially contained in a small pond structure below the mill; however, they were later allowed to flow down the valley into an unnamed lake at the head of Ladue Creek. These tailings now fill approximately one quarter of the lake (Public Works and Government Services Canada, 2000). Confirmation of these tailings within the lake was not part of this study.

The Mackeno tailings are located in the Christal Creek Valley. From the spring of 1952 until approximately July 1954 the tailings were deposited directly into Christal Creek (Public Works and Government Services Canada, 2000). Between 2,700 tonnes and 4,500 tonnes were deposited in an undammed pile beside the lake. Recent observations indicated that portions of these tailings are actively eroding into Christal Creek (PWGSC, 2000).

The objective of this assessment project was to conduct an investigation at both tailings sites to characterize the tailings (geochemical and physical stability, potential effects) and to identify and develop remedial and closure options.

1.1 SCOPE

The following tasks were involved within the scope of this assessment:

Task 1 – Historic Data Review

All relevant historical data was complied and reviewed including data from Environment Canada. Water quality data from the Christal Creek downstream of the historic Mackeno tailings have been monitored as early as 1970. Additional water quality monitoring stations were commissioned in 2007 to sample at locations in close proximity both upstream and downstream of the Mackeno tailings on a quarterly basis. This sampling program was covered in the additional receiving water quality monitoring program. Recent studies on stream sediment quality were also examined in order to explore potential effects of the tailings on stream sediment quality. Please see Section 7.0 "*Discussion*" for comments on water quality and stream sediment quality.

Task 2 – Site Inspection

A field investigation was conducted at both the Mackeno and Wernecke tailings areas. The investigation included area delineation, site stability assessment, and an estimation of the quantity of tailings. Samples from the local receiving environment (surface waters, sediments and soils) were collected. A D8 Caterpillar was used to dig test pits to confirm the extent of tailings volume. Field personnel also collected representative samples for tailings characterization (ICP metals, paste pH, acid base accounting, and shake flask (metal leaching) and fire assay samples for silver, lead and zinc content. All samples were collected and sent to a certified lab.

Task 3 – Closure Option Development

Following the data and information review remediation options were developed and summarized. Potential closure options include tailings relocation, tailings reprocessing, tailings stabilization and cover. Options are summarized in Section 7.4 "*Closure Options*" of this report.

Task 4 - Reporting

This report summarizes the information found during the study of Mackeno and Wernecke tailing sites and discusses potential closure options.

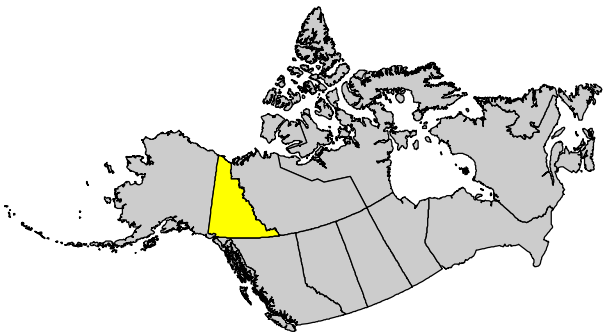
2.0 PHYSICAL SETTING

2.1 *OVERALL SITE DESCRIPTION AND SITE USE*

The Keno Hill mining district is located in the vicinity of Keno City (63˚ 55'N, 135˚ 29'W), in central Yukon Territory, 354 km (by air) due north of Whitehorse. Access to the property is via a paved, two-lane highway from Whitehorse to Mayo (407 km) and an all-weather gravel road northeast from Mayo to Elsa (45 km); a total distance of 452 km. The property lies along the broad McQuesten River valley with three prominent hills to the south of the valley. Figure 1 shows the general project location within the Yukon Territory, while Figure 2 shows the location on a smaller scale.

The Keno Hill silver district site lies within the Yukon Plateau, just south of the Wernecke Mountains. The elevation of the valley is about 700 m (2,300 ft) above sea level. Galena Hill, Keno Hill and Sourdough Hill rise to elevations of about 1,400 m, 1,825 m and 1,370 m, respectively. The terrain consists of concordant, rolling, upland areas separated by wide valleys. Alpine mountain peaks extend above the uplands locally. Valley bottoms and slopes have dense boreal forest cover but the upland commonly extends above tree line and is tundra covered.

Milling began at Mackeno in the spring of 1952 and was discontinued in 1954. The mill produced an average of 55 tonnes of tailings per day, with over 40,000 tonnes deposited directly into Christal Creek. About 2,700 tonnes to 4,500 tonnes were deposited into an undammed pile beside the lake. Additional tailings are thought to be deposited into the lake. Tailings are identified on the lake shore and there is no dam built to contain the tailings. A beaver dam is impounding the tailings between two islands but should not be considered permanent. There has been no attempt to reclaim the tailings (PWGSC, 2000).



ALEXCO

ACCESS CONSULTING GROUP

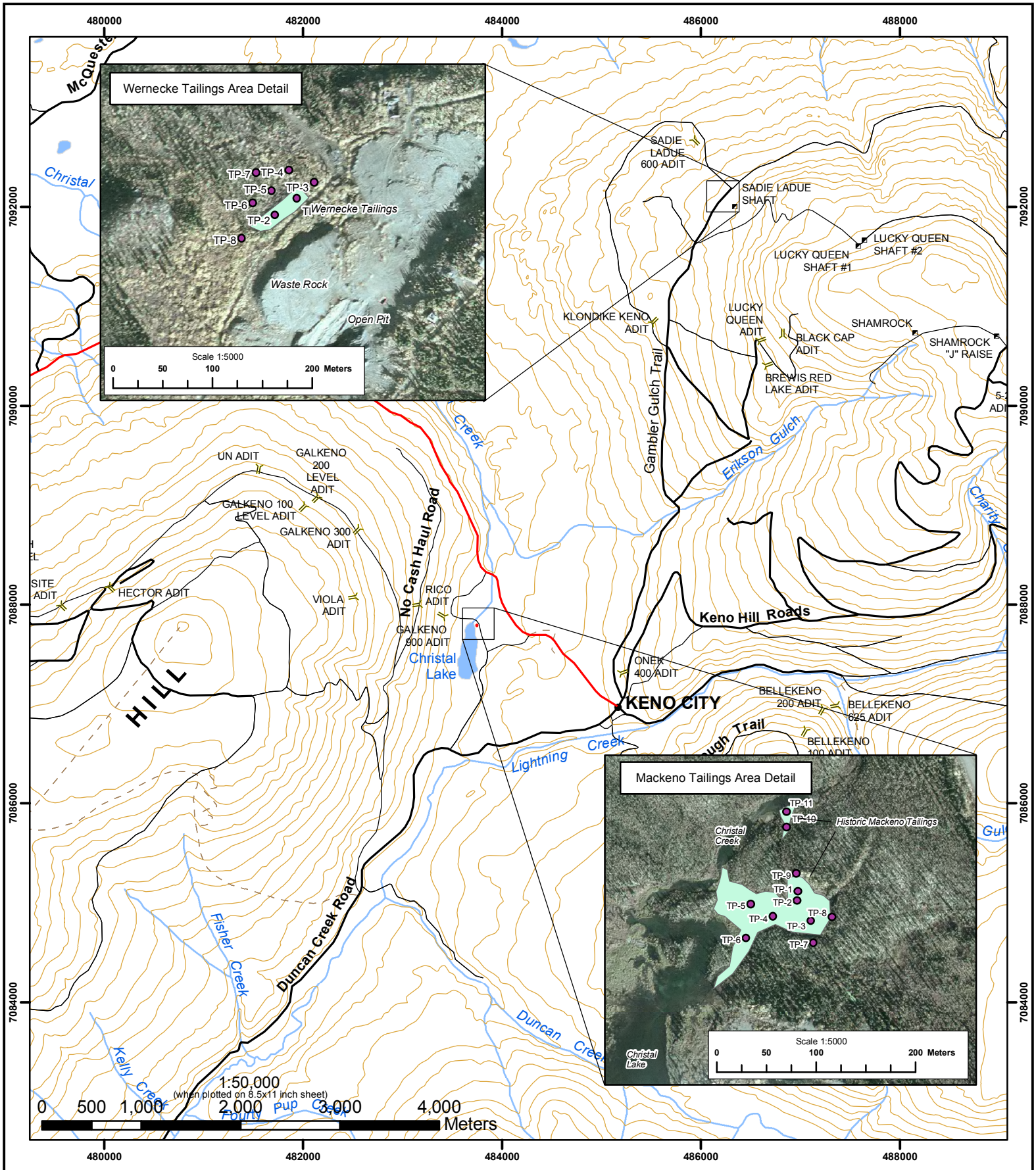
ELSA RECLAMATION AND DEVELOPMENT COMPANY LTD.

KENO HILL SILVER DISTRICT

SITE LOCATION MAP

Drawn By: EA	**FIGURE 1**
Checked By: KN	DATE: 3/31/2009

FILE: \\dawson\d\project\all projects\alex-05-01\2008 contract special projects\fig1_1_genloc1.mxd



N

Legend

Topography

- Town
- Silver Trail
- Secondary Road
- Limited-use road
- Trail
- Watercourse
- Waterbody

Mine Workings

- Valley Tailings
- Adit
- Shaft (to surface - connection to underground not determined)

ERDC

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TAILINGS REPORT

KENO HILL SILVER DISTRICT

PROPERTY OVERVIEW AND SITE LOCATION MAP

Drawn By: EA	DATE: 3/31/2009	**FIGURE 2**
Checked by: DC	FILE: \\dawson\d\projects\allprojects\alex-05-01\2008 contract special projects\fig1_2_propertyloc tailings.prj mxd	

According to the *Keno Valley/Dublin Gulch Environmental Baseline Assessment Volumes I to V* completed by Environmental Services Public Works and Government Services Canada in March, 2000 (PWGSC, 2000), the Wernecke Mill operated from 1925 to 1931 and milled about 200,000 tons of ore. The mill was dismantled and moved to Elsa in 1936. Tailings from the Wernecke mill were allowed to flow down the slope below the site. The tailings are now spread along the slope from the site all the way to a small lake situated at the headwater of Ladue Creek in the valley below. Some attempts were made to contain the tailings in a small impoundment structure, although most of the tailings are spread down the slope below. Construction of the structure was made out of sheet metal supported by wooden fence posts and provided limited physical confinement of the tailings.

3.0 PREVIOUS ASSESSMENTS

A previous site assessment entitled "*Keno Valley/Dublin Gulch Environmental Baseline Assessment Volumes I to V*" was completed by Environmental Services Public Works and Government Services Canada in March, 2000 (PWGSC, 2000). The assessment was prepared for the Waste Management Program of Indian and Northern Affairs Canada (INAC). The five volume report described current baseline environmental conditions including identifying hazardous and non-hazardous waste throughout the Keno Valley and Dublin Gulch area. This report was referenced while conducting this assessment.

As mentioned previously, a baseline report entitled "*Baseline Environmental Report United Keno Hill Mines Property*" was prepared for ERDC. The SRK report confirms and updates areas of identified by the March 2000 Environmental Baseline Assessment. Its purpose was to delineate the known environmental conditions and to serve as a basis for the development of closure and reclamation plans for the Keno Hill mines property. Information gathered in this baseline report was referenced while conducting this tailings assessment.

4.0 SITE INVESTIGATION

4.1 *METHODOLOGY*

The tailings assessment at both sites was undertaken as per the Yukon *Contaminated Sites Regulations* (CSR) with particular attention to Section 8: "*Site Investigations"* and Section 9: "*Site Assessments"*. All associated Protocols, particularly: Protocol No. 2 "*Analysis of Samples Taken in Relation to the Contaminated Sites Regulation"*; Protocol No. 3 "*Soil Sampling Procedures at Contaminated Sites"*; and Protocol No. 9*: "Determining Background Soil Quality",* were followed as necessary to complete the project.

4.2 *TAILINGS SAMPLING PROGRAM*

ACG conducted the tailings field assessment at Wernecke on September 30th, 2008, and at Mackeno on October 1st, 2008. The assessments were conducted by K. Neunherz of ACG and concentrated on the old Wernecke tailings contained in the small pond structure below where the mill used to be and upslope of the unnamed lake (refer to Figure 2). At Mackeno the assessment was conducted at the undammed pile of tailings beside Christal Lake (Figure 2). The field visit at both sites consisted of a visual inspection and soil sampling program that included excavating several test pits using a D8 Caterpillar, as well as manually digging test pits in areas the D8 caterpillar could not reach.

A summary of the 2008 field inspections, field screening results, and the laboratory analytical program are presented in Tables 1 to 6 in Appendix A. Test pit locations are presented in Figure 2. The selected photos in Appendix B show typical stains identified in the field as well as an overview of the test pit program.

4.3 *QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)*

Quality assurance and quality control practices were employed during the collection, storage, and shipment of soil samples. These practices include:

- ACG field screened samples using a calibrated Oakton ISO 9001 certified waterproof ORPTestr 10 to measure pH;
- Changed nitrile gloves between collection of samples, logging, and/or monitoring;
- Use of clean, laboratory supplied containers for sample collection;
- Filling of the jars completely to eliminate sample headspace and contaminant volatilization;
- Transportation/storage of samples in ice-packed, insulated coolers, with chain of custody documentation; and,
- Using a Certified and accredited laboratory.

4.4 *SOIL SAMPLING AND FIELD SCREENING*

Field Screening

A calibrated Oakton ISO 9001 waterproof ORPTestr 10 pH Meter (pH meter) was used to obtain field screening results of pH produced by grab samples of soil with the potential of containing tailings. This was conducted by creating a paste pH by obtaining a 20 g air-dried sample of the soil in question and mixing it thoroughly with 20 ml of distilled water. The sample was left to stand for ten (10) minutes. The pH meter was then inserted into the container and a reading was taken. All soil samples were sealed in laboratory prepared jars and bags, labeled and stored in ice packed, insulated coolers.

Samples were collected according to Protocol No. 3: *"Soil Sampling Procedures"*. A standard sampling procedure was used as outlined under the *CSR* and the applicable American Society for Testing and Materials (ASTM) standards (D 4547-03[1]). All soil

[1] Standard Guide for Sampling Waste and Soils for Volatile Organic Compounds

samples were obtained with nitrile gloves and placed in sterile glass jars and plastic bags provided by the laboratory.

Wernecke

Soil samples were collected as per the CSR, Protocol No. 3 Soil Sampling Procedures. Samples were collected from two (2) test pits excavated by the D8 Caterpillar and six (6) test pits which were excavated manually.

Samples were collected at intervals depending on changes in stratification characteristics. Soils were logged and examined for the presence of staining, and field screened for pH.

Mackeno

Soil samples were collected as per the CSR, Protocol No. 3 Soil Sampling Procedures. Samples were collected from four (4) test pits excavated by the D8 Caterpillar and seven (7) test pits which were excavated manually. Samples were collected at intervals depending on changes in stratification characteristics. Samples collected from manually excavated test pits were surface samples. Soils were logged and examined for the presence of staining, and field screened for pH values.

Table 1 in Appendix A under “pH Readings” contains a summary of pH readings from the field investigation.

4.5 *LABORATORY ANALYTICAL PROGRAM*

Wernecke

The tailings were sampled at eight different locations on the surface and subsurface. Results are found in Tables 1, 2 and 3 in Appendix A. A total of twelve (12) soil samples were submitted to ALS Laboratory Group, British Columbia, a CAEAL certified laboratory as per CSR Protocol No. 2. Based on field observations and pH readings, the following analyses were conducted:

- A total of twelve (12) samples were tested for ICP metals;
- Ten (10) of the twelve (12) samples were tested for Acid Base Accounting;
- Four (4) of the twelve (12) samples were tested for metal leaching;
- Fire assay was conducted on four (4) of the twelve samples; and
- All remaining soil samples were stored in ice packed insulated coolers.

Mackeno

The tailings were sampled at eight different locations on the surface and subsurface (Figure 2). Results are found in Tables 1, 2 and 3 in Appendix A. A total of seventeen (17) soil samples were submitted to ALS Laboratory Group, British Columbia, a CAEAL certified laboratory as per CSR Protocol No. 2. Based on field observations and pH readings, the following analyses were conducted:

- A total of seventeen (17) samples were tested for ICP metals;
- Fourteen (14) of the seventeen (17) samples were tested for Acid Base Accounting;
- Seven (7) of the seventeen (17) samples were tested for metal leaching;
- Fire assay was conducted on three (3) of the seventeen (17) samples from Mackeno; and
- All remaining soil samples were stored in ice packed insulated packages.

5.0 REGULATORY CRITERIA APPLICABLE TO THE SITE

ICP Metal Parameters analyzed were compared to the CSR *"Schedule 1 – Generic Numerical Soil Standards and Schedule 2 – Matrix Numerical"* Soil Standards under the Industrial land use (IL) listing.

Applicable industrial land use standards were applied to the site. This included:

- Human Health Protection Standards: *Intake of contaminated soil*, and
- Environmental Protection Standards: *Groundwater flow to surface water used by aquatic life – freshwater* (as majority of the samples collected were within one (1) km of a surface water body); and *Toxicity to soil invertebrates and plants*.

Human health protection standards for groundwater used for drinking water was not used as a standard since there were no wells used for drinking water within 1.5 km of the sample locations. However it is noted that the Keno City community well is located approximately 2 km from the Mackeno tailings site.

Shake Flask (metal leaching) results were compared to the *Canadian Environmental Act (CEA) "Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations, 2005: Schedule 6: Hazardous Constituents Controlled Under Leachate Test and Regulation Limits".*

The shake flask (metal leaching) results were also compared to effluent quality standards found in the Keno Hill Mines Property Water Use licence QZ07-078. These standards are similar to *Metal Mining Effluent Regulations* (MMER) standards and were added for reference. It should be clarified that while the site effluent discharge standards and MMER regulations do not apply to the results of metal leaching tests, the fact that the tailings have been inferred to be influencing water quality in Christal Creek makes the comparison appropriate. This topic is further discussed in Section *7.0 "Discussion"* of this report.

The Yukon does not have a legislated Acid Base Accounting (ABA) ratio for waste rock or tailings. A common industry practice is to infer that samples with a neutralizing potential to maximum potential acidity ratio (NP:MPA) of greater than 3:1 are unlikely to produce net acidity with no further test work or study. NP:MPA ratios of below 1:1 are likely to produce net acidity while ratios of between 1:1 and 3:1 are unlikely to produce net acidity but may warrant further test work.

5.1 *SUMMARY OF APPLICABLE SITE CRITERIA*

Metals: *CSR* Schedule 1 and 2 for industrial land use;

Shake Flask (metal leaching): CEA Schedule 6 for "Export *and Import of Hazardous Waste and Hazardous Recyclable Material Regulations.*

6.0 FINDINGS OF THE SITE ASSESSMENT

6.1 *STRATIGRAPHY*

Wernecke

The soil profile observed during this study generally consisted of fine grain tailings. Unfrozen soil found below the tailings consisted of a course grain material with organic matter (i.e. roots and peat). In test pit (TP) 1, tailings were found until a depth of 1.4 m. In TP2 tailings were found until a depth of 1.2m. For TP5, TP6 and TP7 tailings were present while no evidence of tailings were present in test pits TP3, TP4, or TP8.

Mackeno

The soil profile observed during this study generally consisted of fine grain tailings. Unfrozen soil found below the tailings consisted of silt, clay, sand and organics.

In test pit (TP) 1 tailings were observed but not abundant to a depth of 2.2 m. In TP2 tailings were found until a depth of 1.2 m. In TP4 tailings were found until a depth of 0.7 m. For test pits TP4, TP5, TP6, TP10 and TP11 tailings were present while there was no tailings present in TP7, TP8 and TP9.

See Table 6 in Appendix A for a summary of test pits and tailings thicknesses.

6.2 *GROUNDWATER*

Wernecke

No groundwater was encountered in any of the test pits during this study indicating that the groundwater table depth is below 3 m in the vicinity of these tailings.

Mackeno

Ground water was not encountered in the upper test pit locations. Water (surface water seepage due to the proximity of site to Christal Lake) was encountered at 30 cm in test pits excavated at the lower portion of the tailings.

6.3 *FIELD SCREENING RESULTS*

Wernecke

The highest pH identified during soil sampling was 7.11 at TP7 while the lowest pH identified was 6.3 at the base of test pit 1 (TP1 base). The average pH reading of the Wernecke tailing soil samples was 6.8.

Mackeno

The highest pH identified during soil sampling was 6.06 at test pit 11 (TP11) while the lowest was 4.06 at test pit 1 between 0-0.4m (TP1 0-0.4m). The average pH reading of the Mackeno tailing soil samples was 5.4.

Table 1 in Appendix A "Field Screening Results: *pH Readings*" contains a summary of pH readings from the field investigation.

6.4 *LABORATORY ANALYTICAL RESULTS*

Complete laboratory analytical result reports are presented in Appendix C.

6.4.1 Soil ICP Metal Parameters

Wernecke

Laboratory analytical results for samples submitted for ICP metals analysis resulted in parameter exceedances of Silver (Ag), Arsenic (As), Cadmium (Cd), Antimony (Sb) and Zinc (Zn).

- All soil samples from the Wernecke tailing site analyzed for silver content exceeded CSR regulations except for samples collected at TP1 base, TP2 base, and TP4;
- All soil samples analyzed for arsenic exceeded the CSR regulations except for samples collected at TP1 base and TP2 base;

- All soil samples analyzed for antimony exceeded CSR regulations except for samples collected at TP1 base, TP2 base, and TP4; and
- All soil samples analyzed for cadmium and zinc exceeded CSR regulations.

Mackeno

Laboratory analytical results for samples submitted for ICP metals analysis resulted in parameter exceedances of Silver (Ag), Arsenic (As), Cadmium (Cd), Copper (Cu), Lead (Pb), Antimony (Sb) and Zinc (Zn).

- All soil samples analyzed for silver content exceeded the CSR regulations except for TP1 at 0.4 to 1.5 m, TP1 at 1.5 to 2.2 m, and TP1 base;
- Soil samples analyzed for copper found to have CSR regulation exceedences included TP1 at 0 to 0.4 m, TP2 at 0.9 to 1.2 m, TP2 base, TP2 composite, TP3 at 0 to 0.45 m, and TP3 at 0.45 to 0.7 m and TP6 at 0 to 0.45 m;
- All soil samples analyzed for lead exceeded the CSR regulations except for TP1 at 0.4 to 1.5 m, TP1 at 1.5 to 2.2 m, and TP1 base.
- All soil samples analyzed for antimony exceeded CSR regulations except for TP1 at 0.4 to 1.5 m, TP1 at 1.5 to 2.2 m, and TP1 base.
- All soil samples analyzed for cadmium and zinc exceeded the CSR regulations.

All ICP metals analytical results are summarized in Table 2 in Appendix A. Laboratory analysis reports are included in Appendix C.

6.4.2 Soil Acid Base Accounting

Wernecke

The Acid Base Accounting (ABA) analysis showed four (4) of the ten (10) NP:MPA ratios were below 3:1.

Mackeno

The Acid Base Accounting (ABA) results showed all fourteen (14) NP:MPA (neutralization potential: maximum potential acidity) ratios were below 3:1.

ABA analytical results are summarized in Table 3 in Appendix A. Laboratory analytical reports are included in Appendix C.

6.4.3 Fire Assay

In addition to standard ICP metals, two composite samples each from Mackeno and Wernecke were analyzed using fire assay for silver, lead and zinc if their ICP results were over the analytical limit (100, 10,000, and 10,000 mg/kg, respectively). Fire assays provide more accurate results for high concentrations of economic metals such as silver, lead and zinc. Results are shown in Table 4 in Appendix A. These results show metal contents which may be of economic interest. More discussion with regard to their possible economic potential is found in the "*Discussion"* section (Section 7).

Wernecke

Wernecke TP1 composite showed 112 mg/kg silver and 3.62% zinc. ICP results for lead indicate 1920 mg/kg, or 0.192%. TP-2 showed only 2.94% zinc with results for silver and lead below fire assay trigger with ICP results showing 92 mg/kg, or 92 g/tonne silver and 1660 mg/kg or 0.166% lead.

Mackeno

TP2 composite showed the highest grades, with 249 g/tonne silver, 1.31% lead and 8.34% zinc. TP3 composite showed 152 g/tonne silver and 4.02% zinc with lead reported by ICP at 2,750 mg/kg, or 0.275% lead.

Fire assay analytical results are found in Table 4 in Appendix A. Laboratory analysis reports are included in Appendix C.

6.4.4 Shake Flask (Metal Leaching)

Wernecke

Laboratory analytical results for samples submitted for shake flask (metal leaching) analysis resulted in no parameter exceedances under CEA standards. However, leachate samples were found to have levels of cadmium (Cd) and zinc (Zn) which were higher than discharge limits in Alexco's current water licence QZ07-078.

- All samples exceeded discharge standards for cadmium under water use licence standards except for TP2 at 0 to 0.7 m.
- All samples exceeded discharge standards for zinc under water use licence standards.

Mackeno

Laboratory analytical results for samples submitted for shake flask (metal leaching) analysis resulted in exceedances in both CEA standards and *discharge limits in Alexco's current water licence QZ07-078*. Exceedences were found in cadmium (Cd), lead (Pb) and zinc (Zn).

- All samples exceeded both CEA and water use licence discharge standards for zinc;
- All samples exceeded both CEA and water use licence discharge standards for cadmium; and
- All samples exceeded both CEA and water use licence discharge standards for lead except for TP1 at 0.4 to 1.5 m and TP1 at 1.5 to 2.2 m.

Shake flask (metal leaching) analytical results are found in Table 5 in Appendix A. Laboratory analysis reports are included in Appendix C.

7.0 DISCUSSION

7.1 *TAILINGS VOLUME ESTIMATES*

Historical records show that the Mackeno Mill processed over 122,000 tons of ore between 1953 and 1957 (Debicki, 1983). Subtracting concentrate shipped from total ore milled produced an estimate of approximately 100,000 tonnes discharged at the site as tailings. McLaren and Lucas, (1954, as quoted in Environmental Services Public Works and Government Services Canada, 2000) report that between 1952 and July 1954, approximately 40,000 tonnes tailings were deposited directly into Christal Creek. The PWGSC 2000 report states that additional tailings are thought to have been deposited directly into Christal Lake. The Site Characterization Report by Access Mining Consultants Ltd. (AMCL, 1996) reports that between 2,700 tonnes and 4,500 tonnes were deposited in an undammed pile beside the lake below the mill site along the north end of Christal Lake. This was the main site which was sampled during this study.

According to the *Keno Valley/Dublin Gulch Environmental Baseline Assessment Volumes I to V* completed by PWGSC in March, 2000, the Wernecke Mill was estimated to have processed 200,000 tons of ore. Tailings produced were then contained in a small pond structure below the mill site. Historical records for Wernecke infer that tailings from Sadie-Ladue and Lucky Queen were also transported to Wernecke. These tailings were later then allowed to flow down the valley to the unnamed lake found below. It is now estimated that these tailings fill a quarter of the lake and it is likely they cover the entire floor of the lake which has an approximately surface area of 400,000 m^2 (PWGSC, 2000). This location is off property and was not assessed in this study. The old tailings impoundment structure is where the sampling took place during this study.

Test pit logs and field mapping were used in conjunction with historical mapping (SRK, 1977), and aerial orthophotos in order to determine a rough estimate of volume of the tailings areas which were sampled in this study at the Mackeno and Wernecke sites (see Figure 1-2 for test pit locations, and Table 6 in Appendix A for a summary of tailings depths encountered in each of the test pits that were dug).

Mackeno:

Surface area for the main tailings area at Mackeno (the area subject to test pitting) was found to be 5,463 m^2. Test pit logs within this area reveal an average thickness of tailings to be 85.3 cm. A rough volume estimate produced by multiplying surface area by average thickness gives 4,689 m^3. Using a density of assumption for the tailings of 1.8 tonnes/m^3, this gives an estimate of 8,440 tonnes, which is roughly double the estimate reported by AMCL in 1996.

A smaller delta shaped polygon to the north was also calculated based on the SRK report mapping for the site, which showed the old discharge pipeline going all the way to the location. This is most likely the remainder of the 40,000 tonnes which were piped directly to Christal Creek between 1952-1954, as reported by McLaren and Lucas (1954). This polygon has a surface area of 245.8 m^3. Because no thickness data of this tailings deposit is known, a volume estimate cannot be made for this pile.

A conservative estimate of tailings volume at the Mackeno site is at least 4,689 m^3 with additional tailings volume possibly unaccounted for in the smaller deposit to the north and an unknown volume in Christal Creek and Christal Lake.

Wernecke:

Surface area of the tailings area at Wernecke which was test pitted is calculated at 946 m^2. Average depth of the two main pits dug and Wernecke (TP1 and TP2) give an average of 1.225 m. A rough volume estimate produced by multiplying surface area by average thickness gives 1,158.85 m^3. Results from TP5 and possibly TP6 and TP7 indicate additional tailings outside the main tailings area polygon which is obvious from the orthophoto. As noted in the introduction, the area sampled represents only a small portion of the tailings produced at the site. Additional work down gradient of the Wernecke site will be required to determine depth and spatial extent of tailings.

Volume estimates for both the Mackeno and Christal Lake site were very rough and not based on true 3D objects because of the limited information available. Based on information from the PWGSC report (2000), we know that significant volumes of tailings exist under water at both the Mackeno and Wernecke sites which have not been sampled or accounted for. In addition, significant volumes of tailings are reported in the bed of Christal Creek (SRK, 2007). An unknown amount has been transported downstream by the flow. An additional quantity of tailings was also thought to have been deposited into Christal Lake. A collaborative project between Natural Resources Canada, Environment Canada and INAC is currently underway which involves sediment core sampling from Christal Lake. The results of this collaborative study will add to the information known about the site and provide further knowledge on where the historical tailings have ended up.

7.2 *ENVIRONMENTAL EFFECTS OF TAILINGS*

7.2.1 Tailing ICP Metals

ICP metal analysis showed several exceedences in CSR regulations in all excavated test pits. The results showed significantly high concentrations of silver, aluminum, cadmium, copper, lead, antimony and zinc. These findings indicate that the impact of these tailing sites on the environment are considerable and bring up further concern regarding adverse effects on nearby water systems and aquatic resources. The results of this study have increased our understanding of the area and tailings; however, further studies would need to be conducted to fully understand the scope of environmental effects that has occurred in the area and how best this area would be remediated. Water quality and aquatic resource assessments conducted by Minnow Environmental Inc. (2008 and 2009) indicate that the Christal Lake drainage has elevated levels of zinc and cadmium which may be adversely effecting local aquatic resources. Minnow Environmental Inc. will be completing work on developing site specific water quality goals for the drainage that recognize the effects from the Mackeno tailings.

7.2.2 Acid Base Accounting (ABA) and pH Readings

Metal leaching and acid drainage can occur over a range of pH conditions; in many circumstances however leaching is enhanced if drainage pH drops below 5.5 - 6. Although neutral pH can reduce the solubility of certain metals such as aluminum, iron and copper it does not necessarily prevent metal leaching of elements such as antimony, arsenic, cadmium, molybdenum or zinc if found in high concentrations (Ministry of Energy and Mines, British Columbia, 1998).

ABA was conducted on samples taken from both tailings sites as the procedure provides values to help assess the potential for metal leaching and acid production. This process assists in evaluating the effects of the tailings on the surrounding environmental, in both these cases largely water quality.

Of the ten samples analyzed for ABA at the Wernecke site; four were found to have a NP/MPA ratio between 1:1 and 3:1, one sample had a ratio of less the 1:1 and five samples had ratios above 3:1. These results infer that the site may have the potential for acid production and thus may be effecting the immediate environment. For Wernecke, further testing may also be needed down slope of the site where tailings were allow to flow in the past. An assessment of the water quality of the unnamed lake would be essential as it has been estimated in past reports that the tailings cover the entire bed of the lake.

Of the fourteen samples analyzed for ABA at Mackeno, eleven were found to have a NP/MPA ratio of less than 1:1. These results infer that tailings could have detrimental effects on the receiving environment due to acidity and associated high metal loads. With the average pH for tailing samples collected at Mackeno of 5.4, in addition to the low NP/MPA ratios found in all samples collected at the site; it can be concluded that these tailings are producing high metal loads which are entering the receiving environment at Christal Lake and Christal Creek (see Sections 7.2.4 and 7.2.5). The test results from both the Mackeno and Wernecke sites are however similar to the results obtained by SRK 2009 as part of their geochemical review of the Elsa valley tailings area. The conclusion of the SRK 2009 report is that of the samples tested none will develop strongly acid weathering

conditions in situ. In the long term, it is expected that the Mackeno and Wernecke tailings will behave geochemically similar to the valley tailings. However the environmental effects of metal leaching and acid rock drainage from the Mackeno and Wernecke sites are dependent on other site specific conditions such as geology, climate, proximity to streams and environmental sensitivity.

Based on a review of the potential contaminants in the Mackeno tailings and their availability, the metal leaching effects to local water quality and aquatic resources in Christal Creek have been are noted (Minnow, 2008 and 2009). Remedial measures are necessary to minimize the risk of future contaminant loadings to local receiving waters. A discussion of potential remedial measures for the Mackeno and Wernecke sites is presented in Section 7.4.

7.2.3 Stream Sediment Quality in Christal Creek

A number of stream sediment quality studies have been done on Christal Creek in recent years. These studies all found levels of arsenic, cadmium, copper, lead and zinc exceeding the CCME Interim Freshwater Sediment Quality Guidelines in Christal Creek. Of sample locations in Christal Creek, the highest levels for all metals were found at KV-6, which is just below the Mackeno Tailings site. The high levels of metals in stream sediments in Christal Creek can almost certainly be attributed to historic Mackeno tailings which are both in Christal Creek and along the shoreline of Christal Lake.

The assessment of stream sediment effects to Christal Creek has been presented in Minnow 2009.

7.2.4 Water Quality in Christal Creek

Recent analysis of water quality data from Christal Creek show the highest levels of dissolved metals in Christal Creek are found at KV-6, which again, is just below the historic Mackeno tailings. This data strongly suggests that the historic Mackeno tailings are having

a significant effect on the water quality of Christal Creek. Minnow 2008 provides a more detailed assessment of water quality in the Christal Creek drainage.

7.3 *ECONOMIC POTENTIAL*

Tailings assays show significant values in silver, lead and zinc remain in samples taken from both the Mackeno and Wernecke tailings sites. Rough volume calculations for these tailings areas indicate a significant volume of tailings is still present at these sites. Additional detailed sampling and more accurate volume calculations may be required to make any definitive statement regarding the size of the potential resource. Equally important is that engineering and metallurgical testing be undertaken in order to determine metals recoverability and associated recovery costs. A separate study on reprocessing the Elsa valley tailings was completed by ERDC in 2009 (ERDC, 2009). This study looked in detail at the viability of reprocessing the valley tailings at Elsa. While reprocessing tailings at Elsa is technologically and economically feasible, any reprocessing of tailings at Mackeno or Wernecke would ultimately be associated with the viability of reprocessing tailings at Elsa.

Should tailings reprocessing be considered a closure option, then further work consistent with planned studies for the Elsa valley tailings should be undertaken at both the Mackeno and Wernecke sites with more detailed mapping and sampling in order to gather data for more precise estimates of tailings extents, volumes, metal contents and metallurgical characteristics.

7.4 *CLOSURE OPTIONS*

Due to poor historical practices and lack of information, remediation of sites with high metal leaching and potential acid drainage can be challenging and costly. Several conceptual strategies have been proposed in order to remediate or reduce the environmental impact of the historic tailings at Mackeno and Wernecke sites. These closure options include tailings relocation, and stabilization in place. A variant of the tailings relocation option is to reprocessing of the tailings; however, for the purposes of this report, the reprocessing of the Mackeno or Wernecke tailings is not considered further as tailings processing for these

tailings are considered uneconomical on their own and would only be considered for reprocessing as part of the assessment of tailings reprocessing at the Elsa valley tailings.

7.4.1 Tailings Relocation

Relocation of the tailings is an obvious potential solution, particularly at the Mackeno site, where approximately 4,689 m^3 of the tailings are situated near Christal Creek and Christal Lake. Similarly approximately 1,158 m^3 of tailings exist at the Wernecke site and both these volumes are low enough that relocation of tailings is a viable option. Relocating these tailings to an alternative location where they are further away from receiving waters will have a positive effect, especially on Christal Creek. Costing for relocation will depend on a number of factors including the exact volume of tailings to be moved, the distance hauled to an alternative site, any additional site preparation or engineering work required to host the tailings, and costs associated with rehabilitation and/or revegetation of the area where the tailings were removed. Additional costs may arise if long term environmental concerns remain with the site where tailings are relocated. Based on a preliminary assessment of possible locations, the Elsa valley tailing area is a logical location for tailings placement.

Tailings from the Mackeno and Wernecke sites would be excavated, place in haul trucks and trucked to the Elsa valley tailings area. At the Mackeno site, a tailings beach exists near the shore of Christal Lake/Creek and precautions would need to be taken to ensure that tailings solids are not released to the water course. Excavation during low water periods coupled with a small coffer dam may be required to excavate these tailings near the watercourse.

The exact placement of the relocated tailings at Elsa valley tailings area would be considered as part of closure plan for the valley tailings area. The excavated area at the tailings sites would be filled with inert soil material as required and re-sloped to shed drainage and revegetated.

Detailed plans for this option will be presented as part of the overall existing state of mine reclamation and closure plan.

7.4.2 Tailings Stabilization and Cover

A final closure option for both the Mackeno and Wernecke sites is to leave the tailings relatively close to their current location, with the focus on stabilizing them and preventing additional erosion into water bodies (i.e. Christal Creek) and minimizing and controlling runoff and infiltration into the tailings. Tailings stabilization and cover is discussed separately for each site.

Mackeno:

For this site, most tailings are contained within a small depression with the remainder of tailings located on the shore of Christal Lake/Creek. There is no containment structure retaining the tailings. As a first step, the tailings located near the lake would have to be pulled back, moved and consolidated with the other tailings. Precautions would need to be taken to ensure that tailings solids are not released to the water course. Excavation during low water periods coupled with a small coffer dam may be required to excavate these tailings near the watercourse and consolidate the tailings. A small retaining structure would be required to contain the tailings and isolate the tailings from Christal Lake. The tailings would then be covered with either an evapotranspiration soil cover or geosynthetic liner and soil cover and then revegetated in order to reduce infiltration from meteoric water, stabilize the tailings and reduce erosion.

Detailed plans for this option will be presented as part of the overall existing state of mine reclamation and closure plan.

Wernecke:

For this site, most tailings are contained within a localized area. There is a rudimentary containment structure retaining the tailings, which would require replacement. As a first step, the tailings located outside of the containment area would be pulled back, moved and consolidated with the other tailings. A small retaining structure would be required to contain the tailings. The tailings would then be covered with either an evapotranspiration soil cover or geosynthetic liner and soil cover and then revegetated in order to reduce infiltration from meteoric water, stabilize the tailings and reduce erosion..

Detailed plans for this option will be presented as part of the overall existing state of mine reclamation and closure plan.

8.0 CONCLUSIONS

In September and October 2008, Access Consulting Group conducted two site assessments at the Wernecke and Mackeno tailings sites found in the Keno Hill Silver District. Both site assessments consisted of a visual inspection and soil sampling program which included excavating several test pits using a D8 caterpillar as well as manually digging test pits in areas where the D8 caterpillar could not reach. The objective of the assessment was to conduct field studies at both tailings site to fully characterize the tailings (geochemically, physical stability, potential effects) and to identify and develop preliminary remedial and closure options.

Soils were logged and field-screened for pH. Based on these field observations and pH readings soils samples were submitted for laboratory ICP metals analysis, shake flask (metal leaching), acid base accounting analysis and fire assay for each site . Tailings samples were submitted to an approved laboratory for confirmation analysis. These results were reviewed, considered in relation to other geochemical studies conducted at the site (SRK, 2009) and a preliminary assessment made of the potential effects of the tailings on local receiving waters and aquatic resources. On the basis of the geochemical and effects assessment remedial measures are required, particularly at the Mackeno tailings area, to control the potential for long term metals release from these areas to the environment.

Potential remediation/closure options are presented at a conceptual level for the tailings area and include tailings relocation to the Elsa valley tailings area and stabilize of tailings in place. Further development of the closure options for the Mackeno and Wernecke sites will be completed as part of the existing state of mine reclamation and closure plan.

Additional work at both the Mackeno and Wernecke sites may be required for closure option details including further mapping to determine estimates of tailings extents and volumes. Any further consideration of tailings reprocessing should be linked with the tailings reprocessing option at the Elsa valley tailings.

Maintaining the current environmental monitoring program in order to more accurately quantify and qualify environmental effects of the tailings on the receiving environment should be continued.

9.0 REFERENCES

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10.0 REPORT LIMITATIONS

This report was prepared for the exclusive use of Elsa Reclamation and Development Company Ltd., and is based on data and information collected during the environmental site assessment sampling events completed in August and September/October 2008. Access Consulting Group has followed standard professional procedures in conducting the assessment and in preparing the contents of this report. The material in this report reflects Access Consulting Group's best judgment in light of the information available at the time of the preparation of this report. Any use that a third party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of the third parties. Access Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Access Consulting Group believes that the contents of this report are substantively correct.

The information and data contained in this report, including without limitation, the results of any sampling and analyses conducted by Access Consulting Group, are based solely on the conditions observed at the time of the field assessment and have been developed or obtained through the exercise of Access Consulting Group's professional judgment and are set to the best of Access Consulting Group's knowledge, information, and belief. Although every effort has been made to confirm that all such information and data is factual, complete and accurate, Access Consulting Group offers no guarantees or warranties, either expressed or implied, with respect to such information or data.

Access Consulting Group shall not by the act of issuing this report be deemed to have represented that any sampling and analyses conducted by it have been exhaustive or will identify all contaminants or contamination of the site, and persons relying on the results thereof do so at their own risk.

Should you have any questions regarding this report, or require further information, please contact the undersigned at Access Consulting Group in Whitehorse, Yukon.

Respectfully submitted,

ACCESS CONSULTING GROUP
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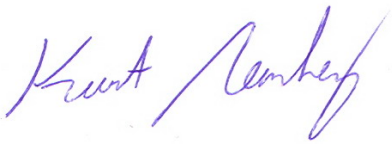

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Appendix A

Tables 1 to 6

Table 1 Field Screening Results: pH Readings

Sample	Field pH
Wernecke	
Wermecke TP1 0-0.8m	7.01
Wermecke TP1 0.8-1.4m	6.85
Wermecke TP1 composite	6.96
Wermecke TP1 base	6.3
Wermecke TP2 0.0.7m	7.05
Wermecke TP2 0.7-1.2m	6.75
Wermecke TP2 composite	6.87
Wermecke TP2 base	6.36
Wermecke TP 4	6.85
Wermecke TP 5	6.91
Wermecke TP 6	6.84
Wermecke TP 7	7.11
Mackeno	
Mackeno TP1 0-0.4m	4.7
Mackeno TP1 0.4-1.5m	4.06
Mackeno TP1 1.5-2.2m	4.71
Mackeno TP1 base	5.43
Mackeno TP1 composite	4.8
Mackeno TP2 0-0.9m	6.02
Mackeno TP2 0.9-1.2m	4.7
Mackeno TP2 base	5.07
Mackeno TP2 composite	5.64
Mackeno TP3 0-0.45m	5.94
Mackeno TP3 0.45-0.7m	4.96
Mackeno TP3 composite	5.66
Mackeno TP4 0-0.35m	6.01
Mackeno TP5 0-0.45m	6
Mackeno TP6 0-0.45m	5.91
Mackeno TP10	6.05
Mackeno TP11	6.06

Table 2 ICP & Fire Assay Results

	Tailing ICP Sample Results																			
Parameters	Silver	Aluminium	Arsenic	Boron	Barium	Beryllium	Bismuth	Calcium	Cadmium	Cobalt	Chromium	Copper*	Iron	Gallium	Mercury	Potassium	Lanthanum	Magnesium	Manganses	Molybdenum
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Detection Limit	**0.2**	**1000**	**2**	**10**	**10**	**0.5**	**2**	**1000**	**0.5**	**1**	**1**	**1**	**1000**	**10**	**1**	**1000**	**10**	**1000**	**5**	**1**
Criteria[a]	**40**	**ns**	**20**	**n/s**	**2000**	**8**	**ns**	**ns**	**2-150[b]**	**300**	**60**	**90-30,000[b]**	**ns**	**ns**	**150**	**ns**	**ns**	**ns**	**ns**	**40**
Sample																				
Wernecke																				
Wernecke TP1 0-0.8m	**>100**	1000	**182**	<10	60	<0.5	3	12400	**410**	2	<1	124.0	228000	<10	<1	300	<10	20600	>50000	<1
Wernecke TP1 0.8-1.4m	**97.8**	1200	**115**	<10	100	<0.5	3	15100	**418**	3	<1	130.0	192000	<10	1	300	<10	19000	>50000	1
Wernecke TP1 composite	**>100**	800	**186**	<10	70	<0.5	5	10700	**377**	2	<1	141.0	239000	<10	1	200	<10	21800	>50000	1
Wernecke TP1 base	4.3	10400	18	<10	160	<0.5	<2	2900	**6.3**	7	24	22.0	24600	<10	<1	300	10.0	4100	1080	2
Wernecke TP2 0.0.7m	**79.7**	1300	**170**	<10	80	<0.5	<2	16600	**333**	3	1	102.0	187000	<10	1	300	<10	18600	49300	1
Wernecke TP2 0.7-1.2m	**70.3**	1200	**187**	<10	80	<0.5	4	13200	**216**	1	<1	93.0	203000	<10	<1	300	<10	19200	>50000	2
Wernecke TP2 composite	**92**	1200	**155**	<10	70	<0.5	3	15200	**323**	4	1	109.0	200000	<10	1	300	<10	19000	>50000	1
Wernecke TP2 base	2.7	12200	19	<10	160	<0.5	<2	3500	**17.4**	9	27	26.0	25600	<10	<1	400	10.0	4500	1590	2
Wernecke TP 4	6.5	12300	**29**	<10	160	<0.5	<2	4100	**41.1**	8	26	28.0	30100	<10	<1	400	10.0	4700	2690	2
Wernecke TP 5	**>100**	1300	**175**	<10	60	<0.5	4	14600	**182.5**	2	<1	111.0	213000	<10	<1	200	<10	20000	>50000	1
Wernecke TP 6	**61.3**	3700	**193**	<10	170	<0.5	<2	7100	**128.5**	6	5	49.0	148500	<10	<1	300	<10	14000	41400	1
Wernecke TP 7	**49.4**	2700	**160**	<10	160	<0.5	2	9500	**111.0**	3	4	50.0	175000	<10	2	300	<10	16200	43400	<1
Mackeno TP1 0-0.4m	**>100**	900	**2950**	<10	10	<0.5	4	1400	**844**	3	3	**231.0**	99800	<10	3	100	<10	1700	29600	<1
Mackeno TP1 0.4-1.5m	2.4	6400	**57**	<10	160	<0.5	<2	2300	**30.9**	7	14	28.0	18100	<10	1	200	10.0	2900	703	<1
Mackeno TP1 1.5-2.2m	0.6	6300	**38**	<10	150	<0.5	<2	3400	**37.9**	7	14	30.0	18400	<10	<1	300	10.0	3300	744	2
Mackeno TP1 base	1.1	10100	**23**	<10	200	<0.5	<2	4300	**70.4**	10	21	43.0	20600	<10	<1	400	10.0	4900	1075	1
Mackeno TP1 composite	**62.9**	4200	**1410**	<10	70	<0.5	<2	1600	**101.5**	5	9	79.0	44600	<10	1	200	<10	1800	2720	<1
Mackeno TP2 0-0.9m	**>100**	800	**8520**	<10	<10	<0.5	8	1900	**>1000**	16	1	461.0	167000	<10	4	<100	<10	2400	44500	<1
Mackeno TP2 0.9-1.2m	**>100**	900	**2720**	<10	<10	<0.5	3	1200	**806**	2	4	**190.0**	89900	<10	3	<100	<10	1000	23400	<1
Mackeno TP2 base	**>100**	2400	**3330**	<10	10	<0.5	2	1800	**620**	4	9	**189.0**	83300	<10	1	100	<10	1500	23300	<1
Mackeno TP2 composite	**>100**	900	**4890**	<10	<10	<0.5	2	1500	**>1000**	9	2	**304.0**	116500	<10	3	<100	<10	1700	33000	<1
Mackeno TP3 0-0.45m	**>100**	1100	**2780**	<10	10	<0.5	2	1700	**782**	6	3	**231.0**	93900	<10	2	<100	<10	2000	35000	<1
Mackeno TP3 0.45-0.7m	**>100**	1300	**2490**	<10	10	<0.5	<2	900	**411**	1	7	**167.0**	70800	<10	1	100	<10	1000	10550	<1
Mackeno TP3 composite	**>100**	1200	**2750**	<10	10	<0.5	2	1200	**519.0**	3	5	193.0	87300	<10	1	100	<10	1300	23600	<1
Mackeno TP4 0-0.35m	**>100**	700	**6430**	<10	<10	<0.5	4	1500	**>1000**	6	2	366.0	169000	<10	4	<100	<10	2200	41600	<1
Mackeno TP5 0-0.45m	**>100**	500	**>10000**	<10	<10	<0.5	<2	1300	**>1000**	15	<1	449.0	190000	<10	5	<100	<10	2000	35700	<1
Mackeno TP6 0-0.45m	**>100**	500	**6960**	<10	<10	<0.5	5	1700	**>1000**	6	<1	**422.0**	174000	<10	6	<100	<10	2000	41200	<1
Mackeno TP10	**>100**	2300	**2310**	<10	20	<0.5	3	1500	**265.0**	7	6	673.0	116000	<10	2	100	<10	2000	43600	<1
Mackeno TP11	**>100**	500	**>10000**	<10	<10	<0.5	7	2300	**>1000**	24	5	329.0	204000	<10	3	<100	<10	3200	>50000	<1

[a] Industrial Land Use Standards, from Schedule 1 and Schedule 2 of the *Yukon Contaminated Sites Regulations.*

[b] pH influenced soil standards under the *Contaminated Sites Regulations*

*** Groundwater used for drinking water is not within 1.5 km of any sites sampled. It is assumed the sites are within 1 km of surface water.**

Peach = Value exceeds *Contaminated Site Regulations*

ns = not specified

nt = not tested

Table 2 ICP & Fire Assay Results

	Tailing ICP Sample Results														
Parameters	Sodium	Nickel	Phosphorus	Lead*	Sulfur	Antimony	Scandium	Strontium	Thorium	Thallium	Titanium	Uranium	Vanadium	Tungsten	Zinc
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Detection Limit	**1000**	**1**	**10**	**2**	**1000**	**2**	**1**	**1**	**20**	**1000**	**10**	**10**	**1**	**10**	**2**
Criteria[a]	**ns**	**500**	**ns**	**150-40,000[b]**	**ns**	**40**	**ns**	**ns**	**ns**	**ns**	**ns**	**ns**	**n/s**	**ns**	**150-3000[b]**
Sample															
Wernecke															
Wernecke TP1 0-0.8m	200	3	250	2070	7500	**121**	3	15	<20	<100	<10	10	11	10	**>10000**
Wernecke TP1 0.8-1.4m	<100	1	390	2180	8800	**148**	3	21	<20	<100	<10	10	11	<10	**>10000**
Wernecke TP1 composite	<100	<1	230	1920	6800	**144**	3	15	<20	<100	<10	10	11	<10	**>10000**
Wernecke TP1 base	<100	14	730	71	400	7	3	17	<20	400	<10	<10	40	<10	**1430**
Wernecke TP2 0.0.7m	<100	1	400	1590	7700	**103**	3	22	<20	<100	<10	10	10	<10	**>10000**
Wernecke TP2 0.7-1.2m	<100	<1	370	1570	7000	**93**	3	21	<20	<100	<10	10	11	<10	**>10000**
Wernecke TP2 composite	<100	3.0	360	1660	7400	**112.0**	3	20	<20	<100	<10	10	10	<10	**>10000**
Wernecke TP2 base	<100	19	750	102	400	7	3	19	<20	400	<10	<10	44.0	<10	**2550.0**
Wernecke TP 4	<100	17	900	162	400	10	3	18	<20	300	<10	<10	44	<10	**3980**
Wernecke TP 5	<100	<1	380	2260	6200	**135.0**	3	23	<20	<100	<10	10	12	10	**>10000**
Wernecke TP 6	<100	6.0	570	1390	2900	**70.0**	3	14	<20	100	<10	<10	16	<10	**8310**
Wernecke TP 7	<100	6	490	1290	2800	**57**	3	15	<20	100	<10	<10	14	<10	**7970**
Mackeno TP1 0-0.4m	<100	11	240	**8740**	36900	**358**	1	4	<20	<100	<10	<10	3	10	**>10000**
Mackeno TP1 0.4-1.5m	<100	18	840	108	800	4	2	16	<20	300	<10	<10	23	<10	**1470**
Mackeno TP1 1.5-2.2m	100	22	950	34	700	2	2	19	<20	300	<10	<10	26	<10	**1695**
Mackeno TP1 base	100	40	930	72	1200	2	3	25	<20	400	<10	<10	33	<10	**3030**
Mackeno TP1 composite	<100	14	600	**4040**	8300	**102**	1	11	<20	100	<10	<10	14	<10	**7300**
Mackeno TP2 0-0.9m	<100	28	170	**>10000**	95600	**1840**	<1	5	<20	<100	<10	<10	2	40	**>10000**
Mackeno TP2 0.9-1.2m	<100	9.0	220	**6680**	30700	**278.0**	1	5	<20	<100	<10	<10	2	10	**>10000**
Mackeno TP2 base	<100	16	340	**>10000**	33700	**425**	1	8	<20	<100	<10	<10	4.0	<10	**>10000**
Mackeno TP2 composite	<100	20	210	**>10000**	60200	**734**	<1	6	<20	<100	<10	<10	2	20	**>10000**
Mackeno TP3 0-0.45m	<100	15.0	240	**>10000**	36300	**488.0**	1	6	<20	<100	<10	<10	2	10	**>10000**
Mackeno TP3 0.45-0.7m	<100	10.0	330	**7270**	21900	**229.0**	1	6	<20	<100	<10	<10	3	<10	**>10000**
Mackeno TP3 composite	<100	10	300	**8260**	30800	**318**	1	6	<20	<100	<10	<10	3	10	**>10000**
Mackeno TP4 0-0.35m	<100	20	150	**>10000**	87000	**903**	1	4	<20	<100	<10	<10	2	40	**>10000**
Mackeno TP5 0-0.45m	<100	24.0	80	**>10000**	>100000	**1090.0**	<1	2	<20	<100	<10	<10	2	30	**>10000**
Mackeno TP6 0-0.45m	<100	17.0	100	**>10000**	92000	**647.0**	<1	4	<20	<100	<10	<10	2	30	**>10000**
Mackeno TP10	<100	24	340	**>10000**	22000	**1020**	1	15	<20	<100	<10	<10	4	20	**>10000**
Mackeno TP11	<100	40	110	**>10000**	>100000	**772**	1	4	<20	<100	<10	<10	2	40	**>10000**

[a] Industrial Land Use Standards, from Schedule 1 and Schedule 2 of the *Yukon Contaminated Sites Regulations.*

[b] pH influenced soil standards under the *Contaminated Sites Regulations*

*** Groundwater used for drinking water is not within 1.5 km of any sites sampled. It is assumed the sites are within 1 km of surface water.**

Peach = Value exceeds *Contaminated Site Regulations*

ns = not specified

nt = not tested

Table 3 Tailing Acid Base Accounting Sample Results

	OA-VOL08	OA-VOL08	OA-VOL08	OA-VOL08	OA-ELE07	OA-VOL08	S-IR08	S-GRA06	S-GRA06a	S-CAL06	C-GAS05	C-GAS05
Parameters	**MPA**	**FIZZ RATING**	**NNP**	**NP**	**pH**	**Ratio (NP:MPA)**	**S**	**S**	**S**	**S**	**C**	**CO2**
Units	**tCaCO3/1000t ore**	**Unity**	**tCaCO3/1000t ore**	**tCaCO3/1000t ore**	**Unity**	**Unity**	**%**	**%**	**%**	**%**	**%**	**%**
Detection Limit	**0.3**	**1**	**1**	**1**	**0.1**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.05**	**0.2**
Sample												
Wernecke												
Wermecke TP1 0-0.8m	55.6	2	-3	53	7.3	0.95	1.78	0.03	<0.01	1.75	7.07	25.9
Wermecke TP1 0.8-1.4m	53.4	2	4	57	7.4	1.07	1.71	0.04	0.01	1.67	5.84	21.4
Wermecke TP1 composite	–	–	–	–	–	–	–	–	–	–	–	–
Wermecke TP1 base	1.6	1	3	5	4.7	3.2	0.05	0.05	<0.01	<0.01	0.05	0.2
Wermecke TP2 0.0.7m	40.9	2	20	61	7.5	1.49	1.31	0.03	0.01	1.28	6.18	22.6
Wermecke TP2 0.7-1.2m	27.8	2	32	60	7.6	2.16	0.89	0.03	<0.01	0.86	6.04	22.1
Wermecke TP2 composite	–	–	–	–	–	–	–	–	–	–	–	–
Wermecke TP2 base	1.3	1	6	7	5.8	5.6	0.04	<0.01	<0.01	0.04	<0.05	<0.2
Wermecke TP 4	1.6	1	4	6	6	3.84	0.05	<0.01	<0.01	0.05	<0.05	<0.2
Wermecke TP 5	20.3	2	47	67	7.5	3.3	0.65	<0.01	<0.01	0.65	7.2	26.4
Wermecke TP 6	8.1	2	26	34	7.2	4.18	0.26	<0.01	0.01	0.26	4.6	16.9
Wermecke TP 7	9.7	2	41	51	7.5	5.26	0.31	<0.01	0.01	0.31	5.4	19.8
Mackeno												
Mackeno TP1 0-0.4m	225.6	1	-211	15	5.8	0.07	7.22	0.14	0.07	7.08	1.59	5.8
Mackeno TP1 0.4-1.5m	2.2	1	2	4	4.2	1.83	0.07	0.02	0.02	0.05	<0.05	<0.2
Mackeno TP1 1.5-2.2m	2.2	1	1	3	4.7	1.37	0.07	0.04	0.04	0.03	<0.05	<0.2
Mackeno TP1 base	3.8	1	2	6	4.9	1.6	0.12	0.13	0.12	<0.01	<0.05	<0.2
Mackeno TP1 composite	–	–	–	–	–	–	–	–	–	–	–	–
Mackeno TP2 0-0.9m	582.8	1	-565	18	6.1	0.03	18.65	0.15	0.12	18.5	2.37	8.7
Mackeno TP2 0.9-1.2m	187.5	1	-175	13	5.5	0.07	6	0.26	0.19	5.74	1.28	4.7
Mackeno TP2 base	132.8	1	-114	19	5.6	0.14	4.25	0.43	0.29	3.82	1.23	4.5
Mackeno TP2 composite												
Mackeno TP3 0-0.45m	228.1	1	-207	21	6.3	0.09	7.3	0.1	0.01	7.2	1.98	7.2
Mackeno TP3 0.45-0.7m	96.9	1	-89	8	5.2	0.08	3.1	0.19	0.18	2.91	0.44	1.6
Mackeno TP3 composite	–	–	–	–	–	–	–	–	–	–	–	–
Mackeno TP4 0-0.35m	556.3	1	-545	11	6.1	0.02	17.8	0.28	0.08	17.5	2.53	9.3
Mackeno TP5 0-0.45m	796.9	1	-786	11	6	0.01	25.5	0.29	0.17	25.2	2.07	7.6
Mackeno TP6 0-0.45m	662.5	1	-646	17	5.7	0.03	21.2	0.2	0.11	21	2.3	8.4
Mackeno TP10	60.9	2	-31	30	6.4	0.49	1.95	0.09	0.04	1.86	2.13	7.8
Mackeno TP11	581.3	1	-568	13	5.8	0.02	18.6	0.07	0.04	18.55	3.17	11.6

Table 4 Fire Assay Results

Parameters	Silver	Lead	Zinc
Units	g/tonne	%	%
Detection Limit	**1**	**0.1**	**0.1**
Wernecke			
Wernecke TP1 composite	112	˜	3.62
Wernecke TP2 composite	˜	˜	2.94
Mackeno			
Mackeno TP2 composite	249	1.31	8.34
Mackeno TP3 composite	152	˜	4.02

Parameters	Silver	Lead	Zinc
Units	mg/kg	mg/kg	mg/kg
Detection Limit	**1**	**1000**	**1000**
Wernecke			
Wernecke TP1 composite	112	˜	36200
Wernecke TP2 composite	˜	˜	29400
Mackeno			
Mackeno TP2 composite	249	13100	83400
Mackeno TP3 composite	152	˜	40200

Table 5 Tailings Leachable Metals Sample Results

Sample ID	Wernecke TP1 0-0.8m	Detection limits	Wernecke TP1 0.8-1.4m	Detection limits	Wernecke TP2 0-0.7m	Detection limits	Wernecke TP2 0.7-1.2m	Detection limits		MacKeno TP1 0-0.4m	Detection limits	MacKeno TP1 0.4-1.5m	Detection limits	MacKeno TP1 1.5-2.2m	Detection limits	MacKeno TP2 0-0.9m	Detection limits	MacKeno TP2 0.9-1.2m	Detection limits	MacKeno TP3 0-0.45m	Detection limits	MacKeno TP3 0.45-0.7m	Detection Lim	Criteria[a]	Criteria[b]	Units
Physical Tests																										
% Moisture (%)	7.78	0.1	10.4	0.1	10.2	0.1	16.1	0.1		20.2	0.1	14.1	0.1	19.3	0.1	5.96	0.1	20	0.1	11.7	0.1	19.2	0.1			
Leachable Anions & Nutrients																										
pH	7.55	0.01	7.46	0.01	7.74	0.01	7.55	0.01		5.54	0.01	4.46	0.01	5.09	0.01	6.71	0.01	5.8	0.01	6.87	0.01	6.15	0.01			
Leachable Metals																										
Aluminum (Al)-Leachable	0.047	0.01	<0.025	0.025	<0.0050	0.005	<0.010	0.01		<0.25	0.25	0.5	0.25	0.54	0.25	<0.25	0.25	<0.25	0.25	<0.10	0.1	<0.25	0.25	ns	ns	mg/L
Antimony (Sb)-Leachable	0.00143	0.0002	0.00148	0.0005	0.00131	0.0001	0.00214	0.0002		<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	0.0088	0.005	<0.0050	0.005	0.0026	0.002	<0.0050	0.005	ns	ns	mg/L
Arsenic (As)-Leachable	<0.0020	0.002	<0.0050	0.005	<0.0010	0.001	<0.0020	0.002		<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.020	0.02	<0.050	0.05	2.5	0.5	mg/L
Barium (Ba)-Leachable	0.0603	0.002	0.0545	0.005	0.058	0.001	0.0594	0.002		<0.050	0.05	<0.050	0.05	<0.050	0.05	0.054	0.05	<0.050	0.05	0.028	0.02	<0.050	0.05	100	ns	mg/L
Beryllium (Be)-Leachable	<0.0010	0.001	<0.0025	0.0025	<0.00050	0.0005	<0.0010	0.001		<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.010	0.01	<0.025	0.025	ns	ns	mg/L
Bismuth (Bi)-Leachable	<0.0010	0.001	<0.0025	0.0025	<0.00050	0.0005	<0.0010	0.001		<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.010	0.01	<0.025	0.025	ns	ns	mg/L
Boron (B)-Leachable	<0.020	0.02	<0.050	0.05	<0.010	0.01	<0.020	0.02		<0.50	0.5	<0.50	0.5	<0.50	0.5	<0.50	0.5	<0.50	0.5	<0.20	0.2	<0.50	0.5	500	ns	mg/L
Cadmium (Cd)-Leachable	0.105	0.0001	0.257	0.00025	0.0708	0.00005	0.176	0.0001		3.81	0.0025	2.7	0.0025	2.93	0.0025	3.85	0.0025	6.92	0.0025	2.9	0.001	5.73	0.0025	0.5	0.05	mg/L
Calcium (Ca)-Leachable	29.7	0.2	27.2	0.5	26	0.1	23.9	0.2		10.1	5	6.7	5	46.7	5	6.8	5	15	5	3.5	2	12.7	5	ns	ns	mg/L
Chromium (Cr)-Leachable	<0.0010	0.001	<0.0025	0.0025	<0.00050	0.0005	<0.0010	0.001		<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.010	0.01	<0.025	0.025	5	ns	mg/L
Cobalt (Co)-Leachable	0.00145	0.0002	0.00398	0.0005	0.00225	0.0001	0.00196	0.0002		0.0443	0.005	0.0145	0.005	0.0168	0.005	0.0195	0.005	0.0343	0.005	0.0089	0.002	0.0381	0.005	ns	ns	mg/L
Copper (Cu)-Leachable	<0.0020	0.002	<0.0050	0.005	0.0049	0.001	0.0025	0.002		<0.050	0.05	0.059	0.05	0.051	0.05	<0.050	0.05	<0.050	0.05	<0.020	0.02	<0.050	0.05	ns	0.3	mg/L
Iron (Fe)-Leachable	<0.030	0.03	<0.030	0.03	<0.030	0.03	<0.030	0.03		4.62	0.03	<0.030	0.03	0.047	0.03	<0.030	0.03	1.65	0.03	<0.030	0.03	0.123	0.03	ns	ns	mg/L
Lead (Pb)-Leachable	0.0174	0.0002	0.0917	0.0005	0.0362	0.0001	0.0262	0.0002		2.56	0.005	0.0135	0.005	0.0246	0.005	2.55	0.005	2.19	0.005	0.7	0.002	2	0.005	5	0.2	mg/L
Lithium (Li)-Leachable	<0.010	0.01	<0.025	0.025	<0.0050	0.005	<0.010	0.01		<0.25	0.25	<0.25	0.25	<0.25	0.25	<0.25	0.25	<0.25	0.25	<0.10	0.1	<0.25	0.25	ns	ns	mg/L
Magnesium (Mg)-Leachable	4.54	0.1	5.43	0.25	5.35	0.05	5.97	0.1		11.6	2.5	5	2.5	6.6	2.5	<2.5	2.5	14.6	2.5	<1.0	1	6.1	2.5	ns	ns	mg/L
Manganese (Mn)-Leachable	0.97	0.001	3.5	0.0025	1.6	0.0005	2.43	0.001		188	0.025	38.4	0.025	44.1	0.025	24.4	0.025	195	0.025	12.2	0.01	100	0.025	ns	ns	mg/L
Mercury (Hg)-Leachable	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005		<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	<0.000050	0.00005	0.1	ns	mg/L
Molybdenum (Mo)-Leachable	0.00023	0.0002	<0.00050	0.0005	0.00053	0.0001	0.00064	0.0002		<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0020	0.002	<0.0050	0.005	ns	ns	mg/L
Nickel (Ni)-Leachable	0.0027	0.001	0.0055	0.0025	0.00175	0.0005	0.0022	0.001		0.102	0.025	0.035	0.025	0.11	0.025	0.083	0.025	0.068	0.025	0.024	0.01	0.076	0.025	ns	0.5	mg/L
Phosphorus (P)-Leachable	<0.30	0.3	<0.30	0.3	<0.30	0.3	<0.30	0.3		<0.30	0.3	<0.30	0.3	<0.30	0.3	<0.30	0.3	<0.30	0.3	<0.30	0.3	<0.30	0.3	ns	ns	mg/L
Potassium (K)-Leachable	1.43	0.1	1.39	0.25	1.16	0.05	0.94	0.1		<2.5	2.5	<2.5	2.5	<2.5	2.5	<2.5	2.5	<2.5	2.5	<1.0	1	<2.5	2.5	ns	ns	mg/L
Selenium (Se)-Leachable	<0.0010	0.001	<0.0025	0.0025	<0.00050	0.0005	<0.0010	0.001		<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.010	0.01	<0.025	0.025	ns	ns	mg/L
Silicon (Si)-Leachable	0.783	0.05	0.931	0.05	0.626	0.05	0.804	0.05		0.986	0.05	4.99	0.05	5.73	0.05	0.932	0.05	0.851	0.05	0.533	0.05	0.704	0.05	ns	ns	mg/L
Silver (Ag)-Leachable	<0.00010	0.0001	<0.00025	0.00025	<0.000050	0.00005	<0.00010	0.0001		<0.0025	0.0025	<0.0025	0.0025	<0.0025	0.0025	<0.0025	0.0025	<0.0025	0.0025	<0.0010	0.001	<0.0025	0.0025	ns	0.1	mg/L
Sodium (Na)-Leachable	<0.10	0.1	<0.25	0.25	0.061	0.05	<0.10	0.1		<2.5	2.5	<2.5	2.5	<2.5	2.5	<2.5	2.5	<2.5	2.5	<1.0	1	<2.5	2.5	ns	ns	mg/L
Strontium (Sr)-Leachable	0.0379	0.001	0.0314	0.0025	0.0303	0.0005	0.0288	0.001		0.247	0.025	0.039	0.025	0.074	0.025	0.118	0.025	0.401	0.025	0.12	0.01	0.445	0.025	ns	ns	mg/L
Thallium (Tl)-Leachable	<0.00020	0.0002	<0.00050	0.0005	<0.00010	0.0001	<0.00020	0.0002		<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0050	0.005	<0.0020	0.002	<0.0050	0.005	ns	ns	mg/L
Tin (Sn)-Leachable	<0.0010	0.001	<0.0025	0.0025	<0.00050	0.0005	<0.0010	0.001		<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.010	0.01	<0.025	0.025	ns	ns	mg/L
Titanium (Ti)-Leachable	<0.010	0.01	<0.010	0.01	<0.010	0.01	<0.010	0.01		<0.010	0.01	<0.010	0.01	<0.010	0.01	<0.010	0.01	<0.010	0.01	<0.010	0.01	<0.010	0.01	ns	ns	mg/L
Uranium (U)-Leachable	<0.000020	0.00002	<0.000050	0.00005	<0.000010	0.00001	<0.000020	0.00002		<0.00050	0.0005	<0.00050	0.0005	<0.00050	0.0005	<0.00050	0.0005	<0.00050	0.0005	<0.00020	0.0002	<0.00050	0.0005	10	ns	mg/L
Vanadium (V)-Leachable	<0.0020	0.002	<0.0050	0.005	<0.0010	0.001	<0.0020	0.002		<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.050	0.05	<0.020	0.02	<0.050	0.05	ns	ns	mg/L
Zinc (Zn)-Leachable	5.28	0.02	13.8	0.05	3.43	0.01	7.97	0.02		185	0.5	131	0.5	184	0.5	95	0.5	192	0.5	70.1	0.2	168	0.5	ns	0.5	mg/L

[a] *Canadian Environmental Act* ; *"Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations" 2005 Schedule 6: Hazardous Constituents Controlled Under Leachate Test and Regulation Limits.*

Table 6 Test Pit Depths

Mackeno	
Test Pit No.	Tailings Depth (cm)
TP1	200
TP2	120
TP3	70
TP4	35
TP5	45
TP6	45
TP7	none
TP8	none
TP9	none
TP10	none
TP11	none

avg	volume
85.83333	4689.075

Wernecke	
Test Pit No.	Tailings Depth (cm)
TP1	1.3
TP2	1.15
TP3	none
TP4	none
TP5	†not recorded
TP6	†not recorded*
TP7	†not recorded*
TP8	none

†Hand dug with shovel, total depth not reached

*Possible tailings

Appendix B

Selected Photographs

Photo #1: Excavating test pits at Wernecke tailings

Photo #2: Looking up at Wernecke tailings

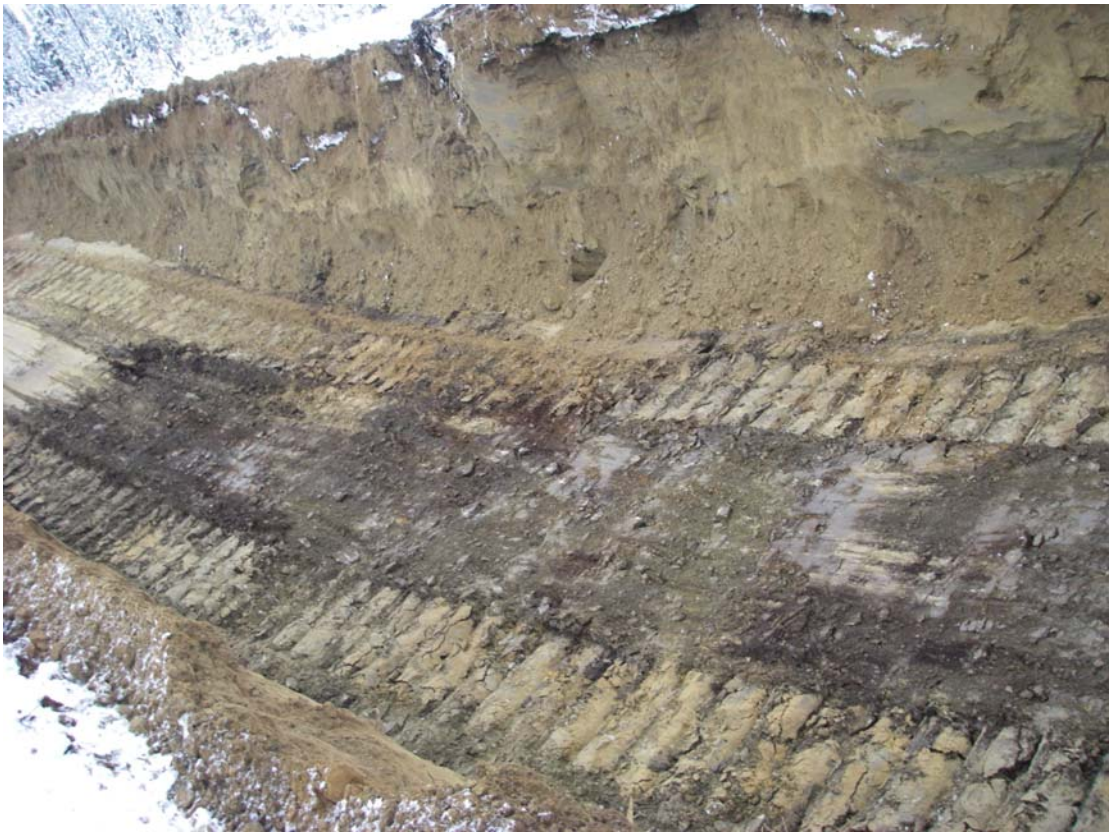

Photo #3: Topsoil below tailings in test pits at Wernecke

Photo #4: Topsoil layer in test pit at Wernecke tailings

Photo #5: Hand excavated test pit below Wernecke tailings

Photo #6: A view of Wernecke tailings after test pitting, unknown lake in background

Photo #7: Test pit 1 at Mackeno tailings

Photo #8: Tailing material at Mackeno

Photo #9: Topsoil layer below tailings material at Mackeno

Photo #10: Hand excavated test pit near Christal Lake

Photo #11: Compacting tailings after test pit excavations

Appendix C

Laboratory Analytical Results

ALS Chemex
EXCELLENCE IN ANALYTICAL CHEMISTRY
ALS Canada Ltd.
212 Brooksbank Avenue
North Vancouver BC V7J 2C1
Phone: 604 984 0221 Fax: 604 984 0218 www.alschemex.com

To: **ACCESS CONSULTING GROUP**
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Finalized Date: 28-NOV-2008
Account: ACCONS

CERTIFICATE VA08152140

Project: Tailings Alex-08-ESP-01K

P.O. No.: 4698-ACG

This report is for 29 Sediment samples submitted to our lab in Vancouver, BC, Canada on 21-OCT-2008.

The following have access to data associated with this certificate:

KURT NEUNHERZ

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
Pb-OG46	Ore Grade Pb - Aqua Regia	VARIABLE
Zn-OG46	Ore Grade Zn - Aqua Regia	VARIABLE
OA-VOL08	Basic Acid Base Accounting	
S-IR08	Total Sulphur (Leco)	LECO
OA-ELE07	Paste pH	
S-CAL06	Sulfide Sulfur (calculated)	LECO
S-GRA06	Sulfate Sulfur-carbonate leach	LECO
C-GAS05	Inorganic Carbon (CO2)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	
ME-ICP41	35 Element Aqua Regia ICP-AES	ICP-AES
Ag-OG46	Ore Grade Ag - Aqua Regia	VARIABLE
ME-OG46	Ore Grade Elements - AquaRegia	ICP-AES

To: **ACCESS CONSULTING GROUP**
ATTN: KURT NEUNHERZ
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature: 

Colin Ramshaw, Vancouver Laboratory Manager

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To: **ACCESS CONSULTING GROUP**
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Finalized Date: 28-NOV-2008
Account: ACCONS

Project: Tailings Alex-08-ESP-01K

CERTIFICATE OF ANALYSIS VA08152140

Sample Description	Method	WEI-21	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Recvd Wt.	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga
	Units	kg	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm
	LOR	0.02	0.2	0.01	2	10	10	0.5	2	0.01	0.5	1	1	1	0.01	10
Wermecke TP1 0-0.8m		1.70	>100	0.10	182	<10	60	<0.5	3	1.24	410	2	<1	124	22.8	<10
Wermecke TP1 0.8-1.4m		1.98	97.8	0.12	115	<10	100	<0.5	3	1.51	418	3	<1	130	19.2	<10
Wermecke TP1 composite		2.28	>100	0.08	186	<10	70	<0.5	5	1.07	377	2	<1	141	23.9	<10
Wermecke TP1 base		1.26	4.3	1.04	18	<10	160	<0.5	<2	0.29	6.3	7	24	22	2.46	<10
Wermecke TP2 0.0.7m		1.24	79.7	0.13	170	<10	80	<0.5	<2	1.66	333	3	1	102	18.7	<10
Wermecke TP2 0.7-1.2m		1.96	70.3	0.12	187	<10	80	<0.5	4	1.32	216	1	<1	93	20.3	<10
Wermecke TP2 composite		1.76	92.0	0.12	155	<10	70	<0.5	3	1.52	323	4	1	109	20.0	<10
Wermecke TP2 base		1.38	2.7	1.22	19	<10	160	<0.5	<2	0.35	17.4	9	27	26	2.56	<10
Wermecke TP 4		0.90	6.5	1.23	29	<10	160	<0.5	<2	0.41	41.1	8	26	28	3.01	<10
Wermecke TP 5		0.90	>100	0.13	175	<10	60	<0.5	4	1.46	182.5	2	<1	111	21.3	<10
Wermecke TP 6		0.68	61.3	0.37	193	<10	170	<0.5	<2	0.71	128.5	6	5	49	14.85	<10
Wermecke TP 7		0.96	49.4	0.27	160	<10	160	<0.5	2	0.95	111.0	3	4	50	17.5	<10
Mackeno TP1 0-0.4m		2.02	>100	0.09	2950	<10	10	<0.5	4	0.14	844	3	3	231	9.98	<10
Mackeno TP1 0.4-1.5m		1.46	2.4	0.64	57	<10	160	<0.5	<2	0.23	30.9	7	14	28	1.81	<10
Mackeno TP1 1.5-2.2m		0.92	0.6	0.63	38	<10	150	<0.5	<2	0.34	37.9	7	14	30	1.84	<10
Mackeno TP1 base		1.12	1.1	1.01	23	<10	200	<0.5	<2	0.43	70.4	10	21	43	2.06	<10
Mackeno TP1 composite		1.72	62.9	0.42	1410	<10	70	<0.5	<2	0.16	101.5	5	9	79	4.49	<10
Mackeno TP2 0-0.9m		2.10	>100	0.08	8520	<10	<10	<0.5	8	0.19	>1000	16	1	461	16.7	<10
Mackeno TP2 0.9-1.2m		1.76	>100	0.09	2720	<10	<10	<0.5	3	0.12	806	2	4	190	8.99	<10
Mackeno TP2 base		1.58	>100	0.24	3330	<10	10	<0.5	2	0.18	620	4	9	189	8.33	<10
Mackeno TP2 composite		1.88	>100	0.09	4890	<10	<10	<0.5	2	0.15	>1000	9	2	304	11.65	<10
Mackeno TP3 0-0.45m		1.18	>100	0.11	2780	<10	10	<0.5	2	0.17	782	6	3	231	9.39	<10
Mackeno TP3 0.45-0.7m		1.30	>100	0.13	2490	<10	10	<0.5	<2	0.09	411	1	7	167	7.08	<10
Mackeno TP3 composite		1.50	>100	0.12	2750	<10	10	<0.5	2	0.12	519	3	5	193	8.73	<10
Mackeno TP4 0-0.35m		1.74	>100	0.07	6430	<10	<10	<0.5	4	0.15	>1000	6	2	366	16.9	<10
Mackeno TP5 0-0.45m		1.42	>100	0.05	>10000	<10	<10	<0.5	<2	0.13	>1000	15	<1	449	19.0	<10
Mackeno TP6 0-0.45m		1.82	>100	0.05	6960	<10	<10	<0.5	5	0.17	>1000	6	<1	422	17.4	<10
Mackeno TP10		0.86	>100	0.23	2310	<10	20	<0.5	3	0.15	265	7	6	673	11.60	<10
Mackeno TP11		1.92	>100	0.05	>10000	<10	<10	<0.5	7	0.23	>1000	24	5	329	20.4	<10

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To: ACCESS CONSULTING GROUP
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Finalized Date: 28-NOV-2008
Account: ACCONS

Project: Tailings Alex-08-ESP-01K

CERTIFICATE OF ANALYSIS VA08152140

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th
	Units	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOR	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2	1	1	20
Wermecke TP1 0-0.8m		<1	0.03	<10	2.06	>50000	<1	0.02	3	250	2070	0.75	121	3	15	<20
Wermecke TP1 0.8-1.4m		1	0.03	<10	1.90	>50000	1	<0.01	1	390	2180	0.88	148	3	21	<20
Wermecke TP1 composite		1	0.02	<10	2.18	>50000	1	<0.01	<1	230	1920	0.68	144	3	15	<20
Wermecke TP1 base		<1	0.03	10	0.41	1080	2	<0.01	14	730	71	0.04	7	3	17	<20
Wermecke TP2 0.0.7m		1	0.03	<10	1.86	49300	1	<0.01	1	400	1590	0.77	103	3	22	<20
Wermecke TP2 0.7-1.2m		<1	0.03	<10	1.92	>50000	2	<0.01	<1	370	1570	0.70	93	3	21	<20
Wermecke TP2 composite		1	0.03	<10	1.93	>50000	1	<0.01	3	360	1660	0.74	112	3	20	<20
Wermecke TP2 base		<1	0.04	10	0.45	1590	2	<0.01	19	750	102	0.04	7	3	19	<20
Wermecke TP 4		<1	0.04	10	0.47	2690	2	<0.01	17	900	162	0.04	10	3	18	<20
Wermecke TP 5		<1	0.02	<10	1.99	>50000	1	<0.01	<1	380	2260	0.62	135	3	23	<20
Wermecke TP 6		<1	0.03	<10	1.44	41400	1	<0.01	6	570	1390	0.29	70	3	14	<20
Wermecke TP 7		2	0.03	<10	1.62	43400	<1	<0.01	6	490	1290	0.28	57	3	15	<20
Mackeno TP1 0-0.4m		3	0.01	<10	0.17	29600	<1	<0.01	11	240	8740	3.69	358	1	4	<20
Mackeno TP1 0.4-1.5m		1	0.02	10	0.29	703	<1	<0.01	18	840	108	0.08	4	2	16	<20
Mackeno TP1 1.5-2.2m		<1	0.03	10	0.33	744	2	0.01	22	950	34	0.07	2	2	19	<20
Mackeno TP1 base		<1	0.04	10	0.49	1075	1	0.01	40	930	72	0.12	2	3	25	<20
Mackeno TP1 composite		1	0.02	<10	0.18	2720	<1	<0.01	14	600	4040	0.83	102	1	11	<20
Mackeno TP2 0-0.9m		4	<0.01	<10	0.24	44500	<1	<0.01	28	170	>10000	9.65	1840	<1	5	<20
Mackeno TP2 0.9-1.2m		3	<0.01	<10	0.14	23400	<1	<0.01	9	220	6680	3.07	278	1	5	<20
Mackeno TP2 base		1	0.01	<10	0.15	23300	<1	<0.01	16	340	>10000	3.37	425	1	8	<20
Mackeno TP2 composite		3	<0.01	<10	0.17	33000	<1	<0.01	20	210	>10000	6.02	734	<1	6	<20
Mackeno TP3 0-0.45m		2	<0.01	<10	0.21	35000	<1	<0.01	15	240	>10000	3.63	488	1	6	<20
Mackeno TP3 0.45-0.7m		1	0.01	<10	0.07	10550	<1	<0.01	10	330	7270	2.19	229	1	6	<20
Mackeno TP3 composite		1	0.01	<10	0.13	23600	<1	<0.01	10	300	8260	3.08	318	1	6	<20
Mackeno TP4 0-0.35m		4	<0.01	<10	0.22	41600	<1	<0.01	20	150	>10000	8.70	903	1	4	<20
Mackeno TP5 0-0.45m		5	<0.01	<10	0.20	35700	<1	<0.01	24	80	>10000	>10.0	1090	<1	2	<20
Mackeno TP6 0-0.45m		6	<0.01	<10	0.24	41200	<1	<0.01	17	100	>10000	9.20	647	<1	4	<20
Mackeno TP10		2	0.01	<10	0.20	43600	<1	<0.01	24	340	>10000	2.20	1020	1	15	<20
Mackeno TP11		3	<0.01	<10	0.32	>50000	<1	<0.01	40	110	>10000	>10.0	772	1	4	<20

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To: ACCESS CONSULTING GROUP
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Finalized Date: 28-NOV-2008
Account: ACCONS

Project: Tailings Alex-08-ESP-01K

CERTIFICATE OF ANALYSIS VA08152140

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	Ag-OG46	Pb-OG46	Zn-OG46	OA-VOL08	OA-VOL08	OA-VOL08	OA-VOL08	OA-ELE07	OA-VOL08
	Analyte	Ti	Tl	U	V	W	Zn	Ag	Pb	Zn	MPA	FIZZ RAT	NNP	NP	pH	Ratio (N
	Units	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%	tCaCO3/1000t	Unity	tCaCO3/1000t	tCaCO3/1000t	Unity	Unity
	LOR	0.01	10	10	1	10	2	1	0.01	0.01	0.3	1	1	1	0.1	0.01
Wermecke TP1 0-0.8m		<0.01	<10	10	11	10	>10000				55.6	2	-3	53	7.3	0.95
Wermecke TP1 0.8-1.4m		<0.01	<10	10	11	<10	>10000				53.4	2	4	57	7.4	1.07
Wermecke TP1 composite		<0.01	<10	10	11	<10	>10000	112		3.62						
Wermecke TP1 base		0.04	<10	<10	40	<10	1430				1.6	1	3	5	4.7	3.20
Wermecke TP2 0.0.7m		<0.01	<10	10	10	<10	>10000				40.9	2	20	61	7.5	1.49
Wermecke TP2 0.7-1.2m		<0.01	<10	10	11	<10	>10000				27.8	2	32	60	7.6	2.16
Wermecke TP2 composite		<0.01	<10	10	10	<10	>10000			2.94						
Wermecke TP2 base		0.04	<10	<10	44	<10	2550				1.3	1	6	7	5.8	5.60
Wermecke TP 4		0.03	<10	<10	44	<10	3980				1.6	1	4	6	6.0	3.84
Wermecke TP 5		<0.01	<10	10	12	10	>10000				20.3	2	47	67	7.5	3.30
Wermecke TP 6		0.01	<10	<10	16	<10	8310				8.1	2	26	34	7.2	4.18
Wermecke TP 7		0.01	<10	<10	14	<10	7970				9.7	2	41	51	7.5	5.26
Mackeno TP1 0-0.4m		<0.01	<10	<10	3	10	>10000				225.6	1	-211	15	5.8	0.07
Mackeno TP1 0.4-1.5m		0.03	<10	<10	23	<10	1470				2.2	1	2	4	4.2	1.83
Mackeno TP1 1.5-2.2m		0.03	<10	<10	26	<10	1695				2.2	1	1	3	4.7	1.37
Mackeno TP1 base		0.04	<10	<10	33	<10	3030				3.8	1	2	6	4.9	1.60
Mackeno TP1 composite		0.01	<10	<10	14	<10	7300									
Mackeno TP2 0-0.9m		<0.01	<10	<10	2	40	>10000				582.8	1	-565	18	6.1	0.03
Mackeno TP2 0.9-1.2m		<0.01	<10	<10	2	10	>10000				187.5	1	-175	13	5.5	0.07
Mackeno TP2 base		<0.01	<10	<10	4	<10	>10000				132.8	1	-114	19	5.6	0.14
Mackeno TP2 composite		<0.01	<10	<10	2	20	>10000	249	1.31	8.34						
Mackeno TP3 0-0.45m		<0.01	<10	<10	2	10	>10000				228.1	1	-207	21	6.3	0.09
Mackeno TP3 0.45-0.7m		<0.01	<10	<10	3	<10	>10000				96.9	1	-89	8	5.2	0.08
Mackeno TP3 composite		<0.01	<10	<10	3	10	>10000	152		4.02						
Mackeno TP4 0-0.35m		<0.01	<10	<10	2	40	>10000				556.3	1	-545	11	6.1	0.02
Mackeno TP5 0-0.45m		<0.01	<10	<10	2	30	>10000				796.9	1	-786	11	6.0	0.01
Mackeno TP6 0-0.45m		<0.01	<10	<10	2	30	>10000				662.5	1	-646	17	5.7	0.03
Mackeno TP10		<0.01	<10	<10	4	20	>10000				60.9	2	-31	30	6.4	0.49
Mackeno TP11		<0.01	<10	<10	2	40	>10000				581.3	1	-568	13	5.8	0.02

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To: **ACCESS CONSULTING GROUP**
#3-151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Finalized Date: 28-NOV-2008
Account: ACCONS

Project: Tailings Alex-08-ESP-01K

CERTIFICATE OF ANALYSIS VA08152140

Sample Description	Method Analyte Units LOR	S-IR08 S % 0.01	S-GRA06 S % 0.01	S-GRA06a S % 0.01	S-CAL06 S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2
Wermecke TP1 0-0.8m		1.78	0.03	<0.01	1.75	7.07	25.9
Wermecke TP1 0.8-1.4m		1.71	0.04	0.01	1.67	5.84	21.4
Wermecke TP1 composite							
Wermecke TP1 base		0.05	0.05	<0.01	<0.01	0.05	0.2
Wermecke TP2 0.0.7m		1.31	0.03	0.01	1.28	6.18	22.6
Wermecke TP2 0.7-1.2m		0.89	0.03	<0.01	0.86	6.04	22.1
Wermecke TP2 composite							
Wermecke TP2 base		0.04	<0.01	<0.01	0.04	<0.05	<0.2
Wermecke TP 4		0.05	<0.01	<0.01	0.05	<0.05	<0.2
Wermecke TP 5		0.65	<0.01	<0.01	0.65	7.20	26.4
Wermecke TP 6		0.26	<0.01	0.01	0.26	4.60	16.9
Wermecke TP 7		0.31	<0.01	0.01	0.31	5.40	19.8
Mackeno TP1 0-0.4m		7.22	0.14	0.07	7.08	1.59	5.8
Mackeno TP1 0.4-1.5m		0.07	0.02	0.02	0.05	<0.05	<0.2
Mackeno TP1 1.5-2.2m		0.07	0.04	0.04	0.03	<0.05	<0.2
Mackeno TP1 base		0.12	0.13	0.12	<0.01	<0.05	<0.2
Mackeno TP1 composite							
Mackeno TP2 0-0.9m		18.65	0.15	0.12	18.50	2.37	8.7
Mackeno TP2 0.9-1.2m		6.00	0.26	0.19	5.74	1.28	4.7
Mackeno TP2 base		4.25	0.43	0.29	3.82	1.23	4.5
Mackeno TP2 composite							
Mackeno TP3 0-0.45m		7.30	0.10	0.01	7.20	1.98	7.2
Mackeno TP3 0.45-0.7m		3.10	0.19	0.18	2.91	0.44	1.6
Mackeno TP3 composite							
Mackeno TP4 0-0.35m		17.80	0.28	0.08	17.50	2.53	9.3
Mackeno TP5 0-0.45m		25.5	0.29	0.17	25.2	2.07	7.6
Mackeno TP6 0-0.45m		21.2	0.20	0.11	21.0	2.30	8.4
Mackeno TP10		1.95	0.09	0.04	1.86	2.13	7.8
Mackeno TP11		18.60	0.07	0.04	18.55	3.17	11.6

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

ACCESS CONSULTING GROUP LTD.

ATTN: SCOTT KEESEY

#3 CALCITE BUSINESS CENTRE
151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Reported On: 07-JAN-09 04:10 PM

Lab Work Order #: L695972 **Date Received:** 14-OCT-08

Project P.O. #:
Job Reference: TAILINGS ASSESSMENT ALEX-08-ESP-01-K
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Please note that ABA-PKG05 & Fire Assay analysis are reported and billed directly fromy ALS CHEMEX.

The detection limits for some of the metals may have been increased for the samples reported due to interferences encountered during analysis.

Selam Worku
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L695972-1 Description: Sampled Date: 30-SEP-08 Sampled Time: Client ID: Wernecke TP1 0-0.8m	L695972-2 30-SEP-08 Wernecke TP1 0.8-1.4m	L695972-5 30-SEP-08 Wernecke TP2 0-0.7m	L695972-6 30-SEP-08 Wernecke TP2 0.7-1.2m	L695972-13 01-OCT-08 MacKeno TP1 0-0.4m
SOIL						
Physical Tests	% Moisture (%)	7.78	10.4	10.2	16.1	20.2
Leachable Anions & Nutrients	pH (pH)	7.55	7.46	7.74	7.55	5.54
Leachable Metals	Aluminum (Al)-Leachable (mg/L)	0.047	<0.025	<0.0050	<0.010	<0.25
	Antimony (Sb)-Leachable (mg/L)	0.00143	0.00148	0.00131	0.00214	<0.0050
	Arsenic (As)-Leachable (mg/L)	<0.0020	<0.0050	<0.0010	<0.0020	<0.050
	Barium (Ba)-Leachable (mg/L)	0.0603	0.0545	0.0580	0.0594	<0.050
	Beryllium (Be)-Leachable (mg/L)	<0.0010	<0.0025	<0.00050	<0.0010	<0.025
	Bismuth (Bi)-Leachable (mg/L)	<0.0010	<0.0025	<0.00050	<0.0010	<0.025
	Boron (B)-Leachable (mg/L)	<0.020	<0.050	<0.010	<0.020	<0.50
	Cadmium (Cd)-Leachable (mg/L)	0.105	0.257	0.0708	0.176	3.81
	Calcium (Ca)-Leachable (mg/L)	29.7	27.2	26.0	23.9	10.1
	Chromium (Cr)-Leachable (mg/L)	<0.0010	<0.0025	<0.00050	<0.0010	<0.025
	Cobalt (Co)-Leachable (mg/L)	0.00145	0.00398	0.00225	0.00196	0.0443
	Copper (Cu)-Leachable (mg/L)	<0.0020	<0.0050	0.0049	0.0025	<0.050
	Iron (Fe)-Leachable (mg/L)	<0.030	<0.030	<0.030	<0.030	4.62
	Lead (Pb)-Leachable (mg/L)	0.0174	0.0917	0.0362	0.0262	2.56
	Lithium (Li)-Leachable (mg/L)	<0.010	<0.025	<0.0050	<0.010	<0.25
	Magnesium (Mg)-Leachable (mg/L)	4.54	5.43	5.35	5.97	11.6
	Manganese (Mn)-Leachable (mg/L)	0.970	3.50	1.60	2.43	188
	Mercury (Hg)-Leachable (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Leachable (mg/L)	0.00023	<0.00050	0.00053	0.00064	<0.0050
	Nickel (Ni)-Leachable (mg/L)	0.0027	0.0055	0.00175	0.0022	0.102
	Phosphorus (P)-Leachable (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Leachable (mg/L)	1.43	1.39	1.16	0.94	<2.5
	Selenium (Se)-Leachable (mg/L)	<0.0010	<0.0025	<0.00050	<0.0010	<0.025
	Silicon (Si)-Leachable (mg/L)	0.783	0.931	0.626	0.804	0.986
	Silver (Ag)-Leachable (mg/L)	<0.00010	<0.00025	<0.000050	<0.00010	<0.0025
	Sodium (Na)-Leachable (mg/L)	<0.10	<0.25	0.061	<0.10	<2.5
	Strontium (Sr)-Leachable (mg/L)	0.0379	0.0314	0.0303	0.0288	0.247
	Thallium (Tl)-Leachable (mg/L)	<0.00020	<0.00050	<0.00010	<0.00020	<0.0050
	Tin (Sn)-Leachable (mg/L)	<0.0010	<0.0025	<0.00050	<0.0010	<0.025
	Titanium (Ti)-Leachable (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Leachable (mg/L)	<0.000020	<0.000050	<0.000010	<0.000020	<0.00050
	Vanadium (V)-Leachable (mg/L)	<0.0020	<0.0050	<0.0010	<0.0020	<0.050
	Zinc (Zn)-Leachable (mg/L)	5.28	13.8	3.43	7.97	185

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

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L695972-14 Description: Sampled Date: 01-OCT-08 Sampled Time: Client ID: MacKeno TP1 0.4-1.5m	L695972-15 01-OCT-08 MacKeno TP1 1.5-2.2m	L695972-18 01-OCT-08 MacKeno TP2 0-0.9m	L695972-19 01-OCT-08 MacKeno TP2 0.9-1.2m	L695972-22 01-OCT-08 MacKeno TP3 0-0.45m
SOIL						
Physical Tests	% Moisture (%)	14.1	19.3	5.96	20.0	11.7
Leachable Anions & Nutrients	pH (pH)	4.46	5.09	6.71	5.80	6.87
Leachable Metals	Aluminum (Al)-Leachable (mg/L)	0.50	0.54	<0.25	<0.25	<0.10
	Antimony (Sb)-Leachable (mg/L)	<0.0050	<0.0050	0.0088	<0.0050	0.0026
	Arsenic (As)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.020
	Barium (Ba)-Leachable (mg/L)	<0.050	<0.050	0.054	<0.050	0.028
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.010
	Bismuth (Bi)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.010
	Boron (B)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.20
	Cadmium (Cd)-Leachable (mg/L)	2.70	2.93	3.85	6.92	2.90
	Calcium (Ca)-Leachable (mg/L)	6.7	46.7	6.8	15.0	3.5
	Chromium (Cr)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.010
	Cobalt (Co)-Leachable (mg/L)	0.0145	0.0168	0.0195	0.0343	0.0089
	Copper (Cu)-Leachable (mg/L)	0.059	0.051	<0.050	<0.050	<0.020
	Iron (Fe)-Leachable (mg/L)	<0.030	0.047	<0.030	1.65	<0.030
	Lead (Pb)-Leachable (mg/L)	0.0135	0.0246	2.55	2.19	0.700
	Lithium (Li)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.10
	Magnesium (Mg)-Leachable (mg/L)	5.0	6.6	<2.5	14.6	<1.0
	Manganese (Mn)-Leachable (mg/L)	38.4	44.1	24.4	195	12.2
	Mercury (Hg)-Leachable (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Molybdenum (Mo)-Leachable (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020
	Nickel (Ni)-Leachable (mg/L)	0.035	0.110	0.083	0.068	0.024
	Phosphorus (P)-Leachable (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<1.0
	Selenium (Se)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.010
	Silicon (Si)-Leachable (mg/L)	4.99	5.73	0.932	0.851	0.533
	Silver (Ag)-Leachable (mg/L)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010
	Sodium (Na)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<1.0
	Strontium (Sr)-Leachable (mg/L)	0.039	0.074	0.118	0.401	0.120
	Thallium (Tl)-Leachable (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020
	Tin (Sn)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.010
	Titanium (Ti)-Leachable (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Leachable (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020
	Vanadium (V)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.020
	Zinc (Zn)-Leachable (mg/L)	131	184	95.0	192	70.1

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

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L695972-23				
	Description					
	Sampled Date	01-OCT-08				
	Sampled Time					
	Client ID	MacKeno TP3 0.45-0.7m				
Grouping	**Analyte**					
SOIL						
Physical Tests	% Moisture (%)	19.2				
Leachable Anions & Nutrients	pH (pH)	6.15				
Leachable Metals	Aluminum (Al)-Leachable (mg/L)	<0.25				
	Antimony (Sb)-Leachable (mg/L)	<0.0050				
	Arsenic (As)-Leachable (mg/L)	<0.050				
	Barium (Ba)-Leachable (mg/L)	<0.050				
	Beryllium (Be)-Leachable (mg/L)	<0.025				
	Bismuth (Bi)-Leachable (mg/L)	<0.025				
	Boron (B)-Leachable (mg/L)	<0.50				
	Cadmium (Cd)-Leachable (mg/L)	5.73				
	Calcium (Ca)-Leachable (mg/L)	12.7				
	Chromium (Cr)-Leachable (mg/L)	<0.025				
	Cobalt (Co)-Leachable (mg/L)	0.0381				
	Copper (Cu)-Leachable (mg/L)	<0.050				
	Iron (Fe)-Leachable (mg/L)	0.123				
	Lead (Pb)-Leachable (mg/L)	2.00				
	Lithium (Li)-Leachable (mg/L)	<0.25				
	Magnesium (Mg)-Leachable (mg/L)	6.1				
	Manganese (Mn)-Leachable (mg/L)	100				
	Mercury (Hg)-Leachable (mg/L)	<0.000050				
	Molybdenum (Mo)-Leachable (mg/L)	<0.0050				
	Nickel (Ni)-Leachable (mg/L)	0.076				
	Phosphorus (P)-Leachable (mg/L)	<0.30				
	Potassium (K)-Leachable (mg/L)	<2.5				
	Selenium (Se)-Leachable (mg/L)	<0.025				
	Silicon (Si)-Leachable (mg/L)	0.704				
	Silver (Ag)-Leachable (mg/L)	<0.0025				
	Sodium (Na)-Leachable (mg/L)	<2.5				
	Strontium (Sr)-Leachable (mg/L)	0.445				
	Thallium (Tl)-Leachable (mg/L)	<0.0050				
	Tin (Sn)-Leachable (mg/L)	<0.025				
	Titanium (Ti)-Leachable (mg/L)	<0.010				
	Uranium (U)-Leachable (mg/L)	<0.00050				
	Vanadium (V)-Leachable (mg/L)	<0.050				
	Zinc (Zn)-Leachable (mg/L)	168				

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

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Qualifiers for Sample Submission Listed:

Qualifier	Description
ISCR:ST	Improper Sample Container Received: Subsamples Taken - Samples 1-29 - 125mL Plastic Sublet

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
HG-SHKFLSK-CVAFS-VA	Soil	Mercury by CVAFS (SHAKEFLASK)	BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-SHKFLSK-ICP-VA	Soil	Metals by ICPOES (SHAKEFLASK)	BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-SHKFLSK-MS-VA	Soil	Metals by ICPMS (SHAKEFLASK)	BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using inductively coupled plasma - mass spectrophotometry (EPA Method 6020A).

MOISTURE-VA	Soil	Moisture content	ASTM METHOD D2794-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

MOISTURE-VA	Soil		ASTM METHOD D2794-00

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PH-SHKFLSK-PCT-VA	Soil	pH by PCT (SHAKEFLASK)	BC MINISTRY OF ENERGY AND MINES

This analysis is based upon the extraction procedure outlined in "Guidelines and Recommended Methods for the Prediction of Metal Leaching and Acid Rock Drainage at Minesites in British Columbia" BC Ministry of Energy and Mines, (Dr. William A. Price, 1997). In summary, the sample is extracted at a 3:1 liquid to solids ratio for 24 hours using deionized water . The extract is then allowed to settle and subsequently filtered through a 0.45 micron membrane filter and analysed using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

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

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

Reference Information

Methods Listed (if applicable):

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

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

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

L695972

ALS Environmental

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Fort Nelson, BC 30-A Piper Road, Fort Nelson Airport, V0C 1R0 Tel: 250-774-3023 Fax: 250-774-3024
Fort St. John, BC #2 - 8820 100th Street, V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
Calgary, AB #2 -21 Highfield Circle SE, T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
Burlington, ON #5 - 5420 Mainway Drive, L7L 6A4 Tel: 905-331-3111 Toll Free: 1-888-257-3684 Fax: 905-331-4567

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Access Consulting Group			ATTN:	Kurt Neunherz
ADDRESS:	#3 - Calcite Business Center 151 Industrial Rd.				
CITY:	Whitehorse	PROV:	YT	POSTAL CODE:	Y1A 2V3
TEL:	(867) 668-6463	FAX:	(867) 667-6680	SAMPLER:	Kurt Neunherz
PROJECT NAME AND NO.:	Tailings Assessment ALEX-08-ESP-01-K			QUOTE NO:	
PO NO.:	4698-ACG	ALS CONTACT:			

REPORT FORMAT: ☐ HARDCOPY ☑ EMAIL - ADDRESS: kurt@accessconsulting.ca ☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:

ANALYSIS REQUESTED:

FOR LAB USE ONLY	WO#	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	ICP Metals	Acid Base Accounting (ABA-PKG05)	Shake Flask (metal leaching)	Fire Assay on OVER Limits - Ag, Pb, Zn (+)-0046 - Ag, Pb, Zn	NOTES (sample specific comments, due dates, etc.)
		Wernecke TP1 0-0.8m	2008-09-30	PM	sediment/soil	x	x	x		
		Wernecke TP1 0.8-1.4m	2008-09-30	PM	sediment/soil	x	x	x		
		Wernecke TP1 Composite	2008-09-30	PM	sediment/soil	x			x	
		Wernecke TP1 Base	2008-09-30	PM	sediment/soil	x	x			
		Wernecke TP2 0-0.7m	2008-09-30	PM	sediment/soil	x	x	x		
		Wernecke TP2 0.7-1.2m	2008-09-30	PM	sediment/soil	x	x	x		
		Wernecke TP 2 Composite	2008-09-30	PM	sediment/soil	x			x	
		Wernecke TP 2 Base	2008-09-30	PM	sediment/soil	x	x			
		Wernecke TP 4	2008-09-30	PM	sediment/soil	x	x			
		Wernecke TP5	2008-09-30	PM	sediment/soil	x	x			
		Wernecke TP 6	2008-09-30	PM	sediment/soil	x	x			
		Wernecke TP 7	2008-09-30	PM	sediment/soil	x	x			

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

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

INVOICE FORMAT: ☐ HARDCOPY ☐ PDF ☐ FAX

SPECIAL INSTRUCTIONS:
Fire Assay only to be run on ICP over limits for Silver, Lead and Zinc
Extend Hold Times
Salem Wong of ALS is our Customer Service Rep.

RELINQUISHED BY:	DATE: Oct 10/08	RECEIVED BY:	DATE: Oct 14, 08	
	TIME: 2pm		TIME: 10:29	
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:	
	TIME:		TIME:	

FOR LAB USE ONLY

Cooler Seal Intact? ___Yes ___No ___N/A
Sample Temperature: 5 °C Frozen? ___Yes ___No
Cooling Method? ___Icepacks ___Ice ___None

L695972

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Fort St. John, BC #2 - 8820 100th Street, V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286
Calgary, AB #2 -21 Highfield Circle SE, T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
Burlington, ON #5 - 5420 Mainway Drive, L7L 6A4 Tel: 905-331-3111 Toll Free: 1-888-257-3684 Fax: 905-331-4567

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Access Consulting Group			ATTN:	Kurt Neunherz
ADDRESS:	#3 - Calcite Business Center 151 Industrial Rd.				
CITY:	Whitehorse	PROV:	YT	POSTAL CODE:	Y1A 2V3
TEL:	(867) 668-6463	FAX:	(867) 667-6680	SAMPLER:	Kurt Neunherz
PROJECT NAME AND NO.:	Tailings Assessment ALEX-08-ESP-01-K			QUOTE NO:	
PO NO.:	4698-ACG	ALS CONTACT:			
REPORT FORMAT:	☐ HARDCOPY ☑ EMAIL - ADDRESS: kurt@accessconsulting.ca ☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY	WO#	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	ICP Metals	Acid Base Accounting (ABA-PKG05)	Shake Flask (metal leaching)	Fire Assay OVER Limits - Ag, Pb, Zn	(3) - OVER Limits - Ag, Pb, Zn	NOTES (sample specific comments, due dates, etc.)
		MacKeno TP1 0-0.4m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP1 0.4-1.5m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP1 1.5-2.2m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP1 Base	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP1 Composite	2008-10-01	PM	sediment/soil	X			X		
		MacKeno TP2 0-0.9m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP2 0.9-1.2m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP2 Base	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP2 Composite	2008-10-01	PM	sediment/soil	X			X		
		MacKeno TP3 0-0.45m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP3 0.45-0.7m	2008-10-01	PM	sediment/soil	X	X	X			
		MacKeno TP 3 Composite	2008-10-01	PM	sediment/soil	X			X		
		MacKeno TP 4 0-0.35m	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP5 0-0.45m	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP6 0-0.45m	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP10	2008-10-01	PM	sediment/soil	X	X				
		MacKeno TP11	2008-10-01	PM	sediment/soil	X	X				

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH **SPECIFY DATE:** _____ (surcharge may apply)	RELINQUISHED BY:	DATE: Oct 10/08	RECEIVED BY:	DATE: Oct 14/08
			TIME: 2 pm		TIME: 10:21
SEND INVOICE TO:	☐ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
INVOICE FORMAT:	☐ HARDCOPY ☐ PDF ☐ FAX		TIME:		TIME:

SPECIAL INSTRUCTIONS: * Fire Assay only to be run on ICP over limits for Silver, Lead and Zinc
Extend Hold Times
Salem Warku of ALS is our Customer Service Rep.

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: 5 °C	Cooling Method?
___Yes ___No ___N/A	Frozen? ___Yes ✓No	___Icepacks ___Ice ___None