draft for discussion

Anvil Range, 2003 Project 18b, Assessment of Tailings Outside of Containment

prepared for:

Deloitte & Touche Inc.
In their capacity as Interim Receiver for Anvil Range Mining Corporation.

prepared by:

Gartner Lee Limited

reference: GLL 40436

date: December 2004

distribution:

- e Deloitte & Touche Inc.
- e Gartner Lee Limited

Gartner Lee

Gartner Lee Limited

December 15, 2004

Doug Sedgwick
Deloitte & Touche Inc.
Toronto, ON

draft for discussion

Dear Mr. Sedgwick
:

Re: 40436 – Tailings Outside of Containment – Draft Report

Gartner Lee Limited is pleased to provide our draft report on the above noted project. Please note at this time, we have received all analytical data for the Down Valley area (Area 2) with the exception of the acid/base accounting results. Analytical results for Areas 1, 3 and 4 are also in progress.

Please feel free to contact me if you have any questions.

Yours very truly,
GARTNER LEE LIMITED

Forest Pearson, B.Sc., P.Eng.
Geological Engineer

2251 2nd Avenue, Whitehorse, Yukon, Y1A 5W1 tel 867.633.6474 fax 867.633.6321
www.gartnerlee.com

Table of Contents

Letter of Transmittal

List of Figures

List of Tables

Appendices

1. Introduction

In 2003 an Environmental Assessment (Deloitte & Touche Inc. and Gartner Lee Limited 2003) was completed for the Anvil Range Mine's Water Licence Renewal (Water Licence QZ03-059). The Environmental Assessment identified four area at the Faro Mine Site where mine process tailings were known to exist outside of containment facilities (e.g. the tailings impoundment). The purpose of this project it to identity the extent of these tailings deposits and their potential impact on the environment.

Details of the Anvil Range Mine complex history, development and environment is presented in the 2002 Baseline Information report that accompanies the 2002 Project Description (Gartner Lee Limited 2002)

1.1 Objective

The goal of this study is assess whether the tailings themselves, or tailings impact soils at the four areas of concern are having an effect on the environment. Furthermore, the objective is to determine mitigation measures are warranted in the short term while the Final Closure and Reclamation Plan is being developed. The specific objectives identified in the Water Licence Application for this project are:

1. Delineate the extent and depth of tailings (outside of containment)
2. Provide a geochemical characterization of the tailings; and
3. Evaluate the current impacts on water quality short term mitigation measures.

1.2 Scope of Work

The four areas where tailings are known to exist outside of containment and investigated as part of this project consist of (see Figure 1):

- Area 1: Emergency Tailings Areas adjacent to and below the mill site;
- Area 2: Down Valley Areas below the Cross Valley Dam (potentially impacted by the 1975 tailings spill);
- Area 3: East side of Original Impoundment (adjacent to the former copper sulphate/Bulk Explosives plant site and the North Fork Rose Creek diversion); and
- Area 4: Adjacent Rose Creek Diversion (between the upper length of the Rose Creek Diversion Canal and the Second Impoundment Dam).

The scope of work included in this project consisted of:

1. Background review and interview with personnel familiar with site history (information used to develop the detailed work plan).
2. Design field investigations (represented by the work summarized herein).
3. Completion of field investigations, including:
   - Excavation of test pits using a rubber tired backhoe and collect of soil samples from Areas 1, 3 and 4;
   - Excavation of hand test pits and collection of soil samples in Area 2, the Down Valley area.
4. Analytical testing, including soil quality testing, leachability tests and acid/base accounting.
5. Completion of data analysis and reporting.

Specific project methodologies are presented in Appendix A of this report.

1.3 Regulatory Framework

Mine sites exist because of natural concentrations of metals in the environment—when these metal concentrations become high enough, a mineral deposit is defined and is the target of the mining activity. Therefore, it is expected that elevated concentrations of metals in soil will be found in the vicinity of the mineral occurrence or deposit. However, mining activities often exacerbate the distribution and mobility of the metals in the surrounding environment. Given this context, generic soil quality objectives are not applicable the site. Either site specific soil quality objectives (e.g. CCME Tier 2) or risk based soil quality objectives (e.g. CCME Tier 3) need to developed to determine acceptable concentrations of metals in the environment at the site. It is our understanding that this is being done through the closure planning process. In the interim and for the purposes of comparison and providing context, metal concentrations in soil have been compared to the CCME Tier 1 Soil Quality Guidelines (2002) and the Yukon Contaminated Site Regulation Soil Standards (Department of Environment 2002).

For Areas 1, 3 and 4, Industrial Land Use criteria are used. For Area 2, the Down Valley Area, the Parkland/Residential Land criteria have been used in consideration of the more un-controlled and undisturbed (wild land) nature of the Down Valley area. The soil quality guidelines and Standards used in this assessment are summarized in Table 1.

To assess mobility of contaminants of concern, a select subset of the soil samples were subjected to the Toxicity Characteristic Leach Procedure (TCLP). Under the Yukon's Special Waste Regulations, soils that produce leachate (from the TCLP) with concentrations of lead 5mg/L or greater are classified as a Special Waste. The Yukon does not have a leachate quality standard for zinc; for illustrative purposes only Alberta's leachate quality standard for zinc has been used.

LEGEND:

Areas of investigation

SOURCES OF DATA:

Basemap: Orthoshop, November 2003.
Prepared for SKR Consulting. Based on August 2003 aerial photography. Calgary AB.

DRAWING INFORMATION:

CREATED BY:	FKP
REVIEWED BY:	EJD
DATE ISSUED:	OCTOBER 31, 2004
PROJECT NUMBER:	40436
FILE NAME:	40436_F2_6_7.WOR
REVISION:	0
DATA PROJECTION:	UTM ZONE 8, NAD 27

Project: Assessment of Tailings Outside Containment
Location: Anvil Range Mine Site, Yukon
Client: Deloitte & Touche Inc.

Areas of Investigation

Gartner Lee

FIGURE NO.

1

Table 1. Soil Quality Guidelines and Standards

Standard	CCME		Yukon Contaminated Site Regulation		Special Waste Regulation
Land Use	**Parkland**	**Industrial**	**Parkland [1]**	**Industrial [1]**	
Soil Quality					
Lead	140	600	150/250/500 [2]	150/250/2000 [2]	-
Zinc	200	360	150/300/450 [3]	150/250/550 [3]	-
Leachate Quality					
Lead	-	-	-	-	5 mg/L
Zinc	-	-	-	-	500 mg/L (guideline only) [4]

Notes: [1] *Controlling site specific factor is groundwater flow to surface water used by aquatic life*

[2] *Standard is soil pH dependant: <5.5 / 5.5-6.0 / >6.0 respectively*

[3] *Standard is soil pH dependant: <6.0 / 6.0-6.5 / >6.5 respectively*

[4] *From Alberta Special Waste Regulation. Leachate Quality Standards.*

It is interesting to note that typically, the CCME guidelines tend to be more stringent than the Yukon's Contaminated Site Regulation Standards (YCSR). However, due to the low soil pHs found in many of the samples analyzed as part of this study, the YCSR Standards are frequently the more stringent soil quality objective.

2. Tailings Investigations

2.1 Area 1 –Emergency Tailings Area

The emergency tailings area is located south and east of the Faro Mill. The tailings are deposited in the former Faro Creek valley and are contained by the Mine's access road (Figure 2). The surface area of tailings is approximately 39,000 m^2. Of this, approximately one third has been cover with 0.3 to 0.6 m of granular fill. Seepage from the Faro rock dumps, via the former Faro Creek channel (e.g. flow from X23) flows across the southern edge of the emergency tailings area.

2.1.1 Emergency Tailings Area Investigation

Volume of tailings in this area was determined by calculating the surface elevation difference between the 2003 site mapping (Orthoshop 2003) and the 1967 pre-mining contour mapping (provided by Robertson Geoconsultants). The tailings thickness is shown on Figure 2. Total tailings volume in the emergency tailing area is estimated at 86,500 m^3 (including a 10% contingency)

A series of 9 test pits were excavated using a rubber tire mounted backhoe in the western portion of the emergency tailings area were excavated to confirm tailings thickness. Due to poor weather conditions at the time of the investigation, the remainder of the tailings area could not be accessed (equipment was sinking into the tailings and getting stuck). Test pit logs are provided in Appendix B.

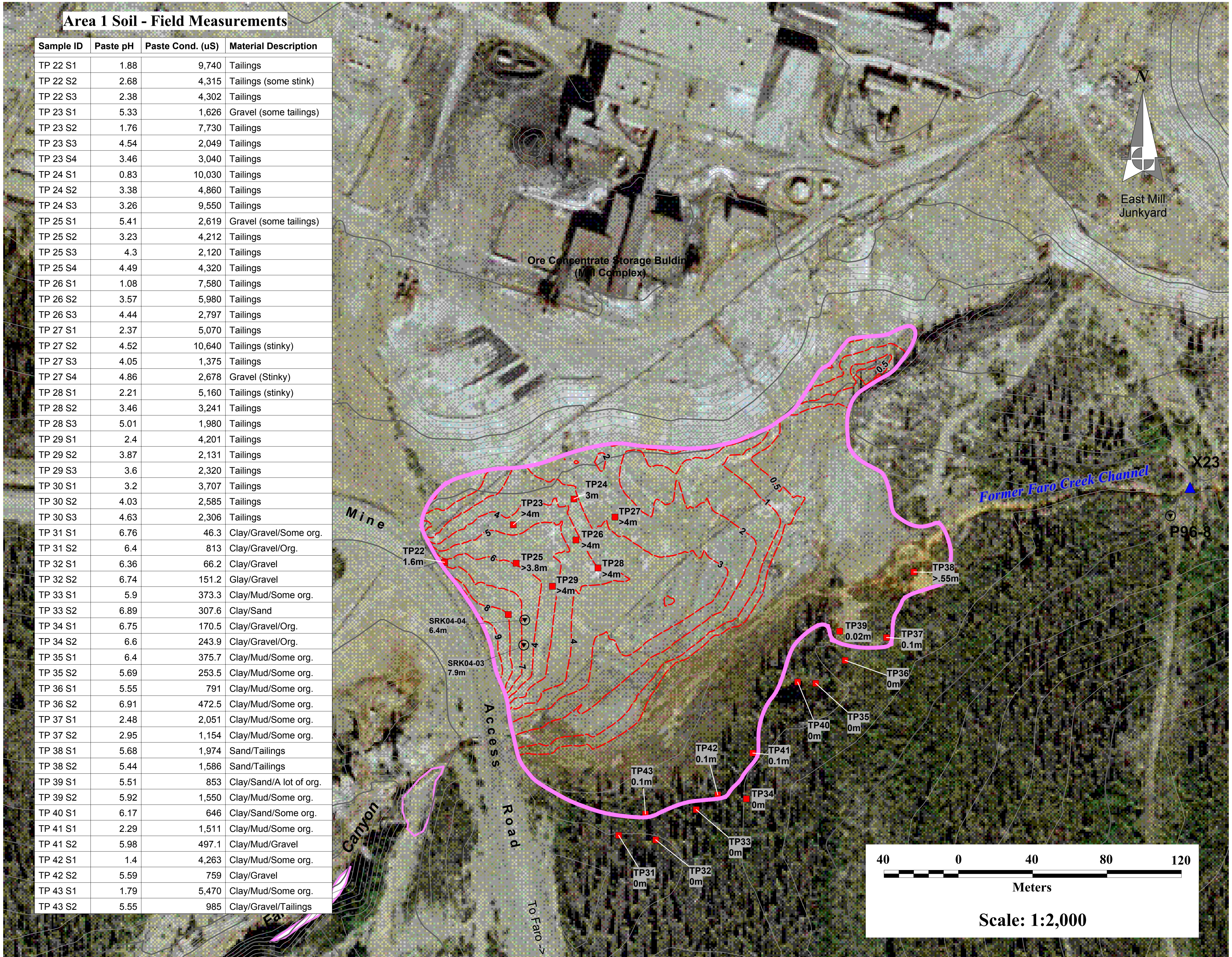
A series of 13 hand test pits were dug along the southern extent of the emergency tailings area to determine the lateral extent. Thickness of tailings in these test pits are also shown on Figure 2. Samples of the tailings and underlying native soil (if encountered) were collected for measurement of paste pH and paste conductivity. A select subset were submitted for chemical analysis (see Section 2.1.2).

2.1.2 Soil Quality Results

Soil quality testing results are still in progress and are not available at this time.

Area 1 Soil - Field Measurements

Sample ID	Paste pH	Paste Cond. (uS)	Material Description
TP 22 S1	1.88	9,740	Tailings
TP 22 S2	2.68	4,315	Tailings (some stink)
TP 22 S3	2.38	4,302	Tailings
TP 23 S1	5.33	1,626	Gravel (some tailings)
TP 23 S2	1.76	7,730	Tailings
TP 23 S3	4.54	2,049	Tailings
TP 23 S4	3.46	3,040	Tailings
TP 24 S1	0.83	10,030	Tailings
TP 24 S2	3.38	4,860	Tailings
TP 24 S3	3.26	9,550	Tailings
TP 25 S1	5.41	2,619	Gravel (some tailings)
TP 25 S2	3.23	4,212	Tailings
TP 25 S3	4.3	2,120	Tailings
TP 25 S4	4.49	4,320	Tailings
TP 26 S1	1.08	7,580	Tailings
TP 26 S2	3.57	5,980	Tailings
TP 26 S3	4.44	2,797	Tailings
TP 27 S1	2.37	5,070	Tailings
TP 27 S2	4.52	10,640	Tailings (stinky)
TP 27 S3	4.05	1,375	Tailings
TP 27 S4	4.86	2,678	Gravel (Stinky)
TP 28 S1	2.21	5,160	Tailings (stinky)
TP 28 S2	3.46	3,241	Tailings
TP 28 S3	5.01	1,980	Tailings
TP 29 S1	2.4	4,201	Tailings
TP 29 S2	3.87	2,131	Tailings
TP 29 S3	3.6	2,320	Tailings
TP 30 S1	3.2	3,707	Tailings
TP 30 S2	4.03	2,585	Tailings
TP 30 S3	4.63	2,306	Tailings
TP 31 S1	6.76	46.3	Clay/Gravel/Some org.
TP 31 S2	6.4	813	Clay/Gravel/Org.
TP 32 S1	6.36	66.2	Clay/Gravel
TP 32 S2	6.74	151.2	Glay/Gravel
TP 33 S1	5.9	373.3	Clay/Mud/Some org.
TP 33 S2	6.89	307.6	Clay/Sand
TP 34 S1	6.75	170.5	Clay/Gravel/Org.
TP 34 S2	6.6	243.9	Clay/Gravel/Org.
TP 35 S1	6.4	375.7	Clay/Mud/Some org.
TP 35 S2	5.69	253.5	Clay/Mud/Some org.
TP 36 S1	5.55	791	Clay/Mud/Some org.
TP 36 S2	6.91	472.5	Clay/Mud/Some org.
TP 37 S1	2.48	2,051	Clay/Mud/Some org.
TP 37 S2	2.95	1,154	Clay/Mud/Some org.
TP 38 S1	5.68	1,974	Sand/Tailings
TP 38 S2	5.44	1,586	Sand/Tailings
TP 39 S1	5.51	853	Clay/Sand/A lot of org.
TP 39 S2	5.92	1,550	Clay/Mud/Some org.
TP 40 S1	6.17	646	Clay/Sand/Some org.
TP 41 S1	2.29	1,511	Clay/Mud/Some org.
TP 41 S2	5.98	497.1	Clay/Mud/Gravel
TP 42 S1	1.4	4,263	Clay/Mud/Some org.
TP 42 S2	5.59	759	Clay/Gravel
TP 43 S1	1.79	5,470	Clay/Mud/Some org.
TP 43 S2	5.55	985	Clay/Gravel/Tailings



LEGEND:

- Test pit location
- Extent of tailings on surface
- Tailings thickness contours (1m)
- Groundwater monitoring well
- Surface water monitoring station
- Index contour (10m)
- Intermediate controur (2m)

EXAMPLE TEST PIT LABEL:

TP24 — Test pit name
0.4 m — Tailings thickness

SOURCES OF DATA:
Basemap: Orthoshop, November 2003.
Prepared for SKR Consulting. Based on August 2003 aerial photography. Calgary AB.

Tailings thickness determined from 1967 premining contour mapping. Provided by Robertson Geoconsultants.

DRAWING INFORMATION:

CREATED BY:	FKP
REVIEWED BY:	EJD
DATE ISSUED:	DECEMBER 14, 2004
PROJECT NUMBER:	40436
FILE NAME:	40436_F2_6_7.WOR
REVISION:	1
DATA PROJECTION:	UTM ZONE 8, NAD 27

Project: Assessment of Tailings Outside Containment
Location: Anvil Range Mine Site, Yukon
Client: Deloitte & Touche Inc.

Area 1 Tailings Investigation Emergency Tailings Area

Gartner Lee

FIGURE NO.
2

2.1.3 Field Measurements

Results of paste pH and paste conductivity are shown on Figure 2. Paste pH of the tailings samples from this area ranged from 1.7 to 5.0. Soils underlying the tailings, where encountered, also had low pH, ranging 4.8 to 5.4. Furthermore, these underlying soils had realatively high paste conductivity, suggesting they are impacted by the overlying soils.

Soil along the south margin of Area 1 (test pits 31 to 36) had paste pH ranging from 5.5 to 6.9. Soils underlying shallow tailings in this area (test pits 37 to 43) also had low pH, suggesting impact by the overlying tailings.

2.1.3.1 Chemical Analysis Results

Chemical analytical results are not available at this time.

2.1.3.2 Leachability Testing

Results of leachability testing are not available at this time.

2.1.3.3 Acid/Base Accounting

Results of acid/base accounting are not available at this time.

2.2 Area 2 – Down Valley Area

For the purposes of this report, the Down Valley area refers to the Rose Creek valley downstream of the Cross Valley Dam. This area has been impacted by a major tailings spill that occurred in March 1975. This spill occurred when the Second Impoundment Dam failed, releasing a slurry of tailings and dam core material down the valley. As the landscape was snow and ice covered at the time, the spill moved down the valley, over the ice, spreading across the low lying land adjacent to the creek. In many location, the spill often cutting across meanders and generally flowing a direct path down the valley (as opposed to following the meandering stream channel). The spill was observed to have moved very far down stream, and could be detected in Rose Creek channel as far downstream as Anvil Creek. (G. Whitley, pers. comm, 2004).

Today, there are obvious areas of killed and stressed vegetation (kill zones) in the area between the Cross Valley Dam and the end of the Rose Creek Diversion (X14). The extent of the major kill zone areas are shown on Figure 3. Further downstream of X14, there are many areas of stressed vegetation and dead trees that appear to also have been impacted by the spill. These areas are identified as "Intermittent Kill Zones" on Figure 3.

2.2.1 Down Valley Area Investigation

A series of 10 transects across the valley were completed in early October 2004. The first transect ("Line A") was in the undisturbed area at the toe of the Cross Valley Dam. The last transect completed ("Line O") was approximately 1.1 km downstream of the Cross Valley Dam. Along each transect, hand test pits were excavated approximately every 125 m. At each location, two or three soil samples were collected. The first sample was always collected from the top 0.1 m.

The largest kill zone extends from the end of the spillway, along the former Rose Creek channel to the end of the Rose Creek Diversion (X10 site). Over most of this area, all vegetation has been killed and there is no new re-growth. Soils are bare and very rusty coloured at depth. No visible tailings were found anywhere in the Down Valley area. It is assumed that originally a thin veneer of tailings were deposited during the spill, and now these tailings have completed oxidized such that they are not visibly distinguishable from the underlying native soil. In some areas such as Test Pit E3, a 0.1 m thick layer of light grey clayey silt was observed overlying a fibrous organic layer. It is assumed that this overlying soil represents the weathered tailings spill material.

2.2.2 Down Valley Soil Quality Results

Preliminary results of soil quality testing are presented on Figure 3.

2.2.2.1 Chemical Analysis Results

Samples from most test pits were analyzed for soil pH and lead and zinc concentrations. Five samples, representing a range of site conditions and lead/zinc contamination were analyzed for a suite of metals. Overall, soils were observed to be very acidic (see Table 5). For purposes of description, soils have been grouped into four broad categories at this time:

- Surface soils from kill zones (top 0.1 m)
- Deep soils from kill zones (samples from below 0.1 m)
- Surface soils from non-kill zones (top 0.1 m)
- Deep soils from non-kill zones (samples from below 0.1 m).

Soil pH from kill zones were quite low, with a median pH of 4.0 to 3.6 and an lower quartile pH of 3.3 to 2.8 (surface and deeper soils respectively). The deeper soils are slightly more acidic that the surface soils, so it appear that the deeper soils have been impacted from acidic leachate from the surficial tailings spill. Surface soil samples (19 samples) from the areas that did not appear to be obvious kill zones (e.g. upland areas) had a median pH of 6.6 and an upper and lower quartile of 8.3 and 5.8 respectively. So, generally non-kill zone soil samples are slightly acidic, but not to the degree seen in the kill zone area.

LEGEND:

- Groundwater Monitoring Well
- Surface Water Monitoring Station
- Major Kill Zone
- Intermittent Kill Zone
- Test Pit Location (no samples exceed guidelines and standards)
- Sample Exceeds YCSR Standard
- Sample Exceeds CCME Guidelines

Yukon Contaminated Sites Regulation Parkland Standards* and CCME Parkland Guidelines

	YCSR	CCME
Pb	150/250/500[1]	140
Zn	150/300/450[2]	200

(all units in ppm)

Notes:

* Site specific factor is groundwater flow to surface water used by aquatic life

[1] Standard is soil pH dependent: <5.5/5.5 - 6.0/>6.0 respectively

[2] Standard is soil pH dependent: <6.0/6.0 - 6.5/>6.5 respectively

Example Label:

Test Pit ID
Upper Sample
TPA1
0.1m 8.2pH 213Pb 244Zn
0.35m 4.8pH <50Pb 140Zn
Lower Sample Depth | Soil pH | Lead Concentration (ppm) | Zinc Concentration (ppm)

IP indicates analysis in progress

DATA SOURCES AND DISCLAIMERS:

Basemap: Orthoshop, Calgary, AB, November 2003. Prepared for SRK Consulting. Based on August 2003 aerial photography.

Sample site locations determined by field Global Positioning System (GPS) locations recorded in UTM Zone 8, NAD83. All sample locations recorded by Gartner Lee Ltd.

Created By: AS
Reviewed By: FP
Date Issued: December 14, 2004
Project Number: 40436
File Name: 40436_24x36_Faro_Exceed_14Dec2004.mxd
Revision: 3
Projection: UTM Zone 8 NAD83

0 25 50 100 150 Meters
Scale 1: 2 000
Contour Interval: 2 m

Deloitte.

Project: Assessment of Tailings Outside Containment
Location: Anvil Range Mine Site, Yukon
Client: Deloitte & Touche Inc.

Soil Quality in Area 2
Down Valley Area

Gartner Lee

Figure No. 3

A total of 85 soils samples from this area have been analyzed to date. Of these, 34 samples exceed the Yukon Contaminated Sites Regulation (YCSR) Parkland Use Standard for Lead (31 samples exceeded the CCME Parkland guideline). Due to low soil pH, the YCSR Standards are typically more stringent than the CCME guidelines. 34 samples exceed the YCSR Parkland Use Standard for Zinc (31 samples exceeded the CCME Parkland guideline). Location of samples exceeding guidelines/Standards are highlighted on Figure 3.

The statistical distribution of lead and zinc concentrations in soils are illustrated on Figure 4 and Figure 5 respectively. Components of these statistical distribution figures are as follows:

- Metal concentrations grouped by the four main soil categories (kill zones surface, kill zones deep, non-kill zones surface and non-kill zones deep).
- The purple bars represents the upper and lower quartiles of contaminant concentrations (e.g. 50% of samples).
- The whiskers illustrate maximum and minimum concentrations observed.
- Median and mean concentrations are shown with a horizontal bar and a dot respectively.
- CCME parkland and industrial soil quality guidelines as red horizontal lines.
- The YCSR Parkland Standards are shown as a yellow shaded area as the Standard varies with soil pH.

From these figures, a number of observations can be drawn:

Lead in Soil

- 75% of samples from the surface soils in kill zones contained lead concentrations in excess of the CCME parkland guideline and YCSR parkland Standards.
- 75% of deep soil samples form this kill zones did not exceed the lead guideline/Standard. This indicates that the lead deposited by the tailings spill appears to remain in the top 0.1 m of soil and has not migrated downward, impacting underlying soils.
- In the non-kill zones, 25% of samples exceeded the lead guideline/Standard.

Zinc in Soil

- 60% of samples from the surface soils in kill zones contained zinc concentrations in excess of the CCME parkland guideline and YCSR parkland Standards.
- 75% of deep soil samples from the kill zones did *not* exceed the zinc guideline/Standard.
- 40% of samples from the surface soils in non-kill zones contained zinc concentrations in excess of the CCME parkland guideline and YCSR parkland Standards.
- 70% of deep soil samples from the non-kill zones did *not* exceed the zinc guideline/Standard.
- The median concentration of zinc in surface soils is imilar in kill zone areas and non-kill zone areas (186 and 215 ppm respectively).

- Surface soils in non-kill zones had a wider range of zinc concentrations relative to kill-zones. The highest zinc in soil concentration were 659 and 743 ppm, collected from test pits C2 and C3. Both of these are located the former Rose Creek channel, and are identified as an "intermittent kill zone".
- Overall, zinc concentrations are low, relative to the zinc concentration in the source (e.g. original zinc concentration in tailings). This suggest that the majority of the zinc in surface soils impacted by tailings has been leached out. This is consistent with the low soil pH observed.
- The elevated zinc concentrations in non-kill zones is likely due to either:
  a) Tailings spill impacts to areas that do not show obvious signs of impact (e.g. no sign of stressed vegetation); and/or
  b) Air-born deposition of zinc to upland (non-kill zone) areas;

Total Metals

Five samples were analyzed for a larger suite of metals. Results are summarized on Table 5b. From these samples, the following observations are made:

- All five samples exceed the CCME guideline for arsenic; only sample TP3-S2 did not exceed the YCSR Parkland Standard for arsenic. Highest arsenic concentrations (214 and 111 ppm) corresponded to the samples with the highest lead concentrations (6,260 and 2,240 ppm lead for samples TPE3-S1 and TP I2-S1 respectively).
- Two samples had exceedence in barium, however these corresponded with the samples with relatively lower concentration of other metals (arsenic, copper and lead). This suggest the barium maybe naturally occurring.
- All five samples exceed the CCME guideline for copper. Two samples, TP3-S2 and TPM1-S1 did not exceed the YCSR Parkland Standard for copper. Highest copper concentrations (162 and 124 ppm) corresponded to the samples with the highest lead concentrations (6,260 and 2,240 ppm lead for samples TPE3-S1 and TP I2-S1 respectively).
- Mercury exceeded the YCSR Parkland Standard (but not the CCME Parkland guideline) for sample TPE3-S1. This was also the sample with the highest lead concentration.
- Both antimony and molybdenum exceeded both the YCSR and CCME Standards/guidelines in sample TPC3-S2. However, this sample had relatively low concentrations of other metals of concern. As this sample was collected from the bed of the former Rose Creek channel, it could be related of natural fluvial deposition in the area. .

Figure 4. Lead Concentrations in Down Valley Area

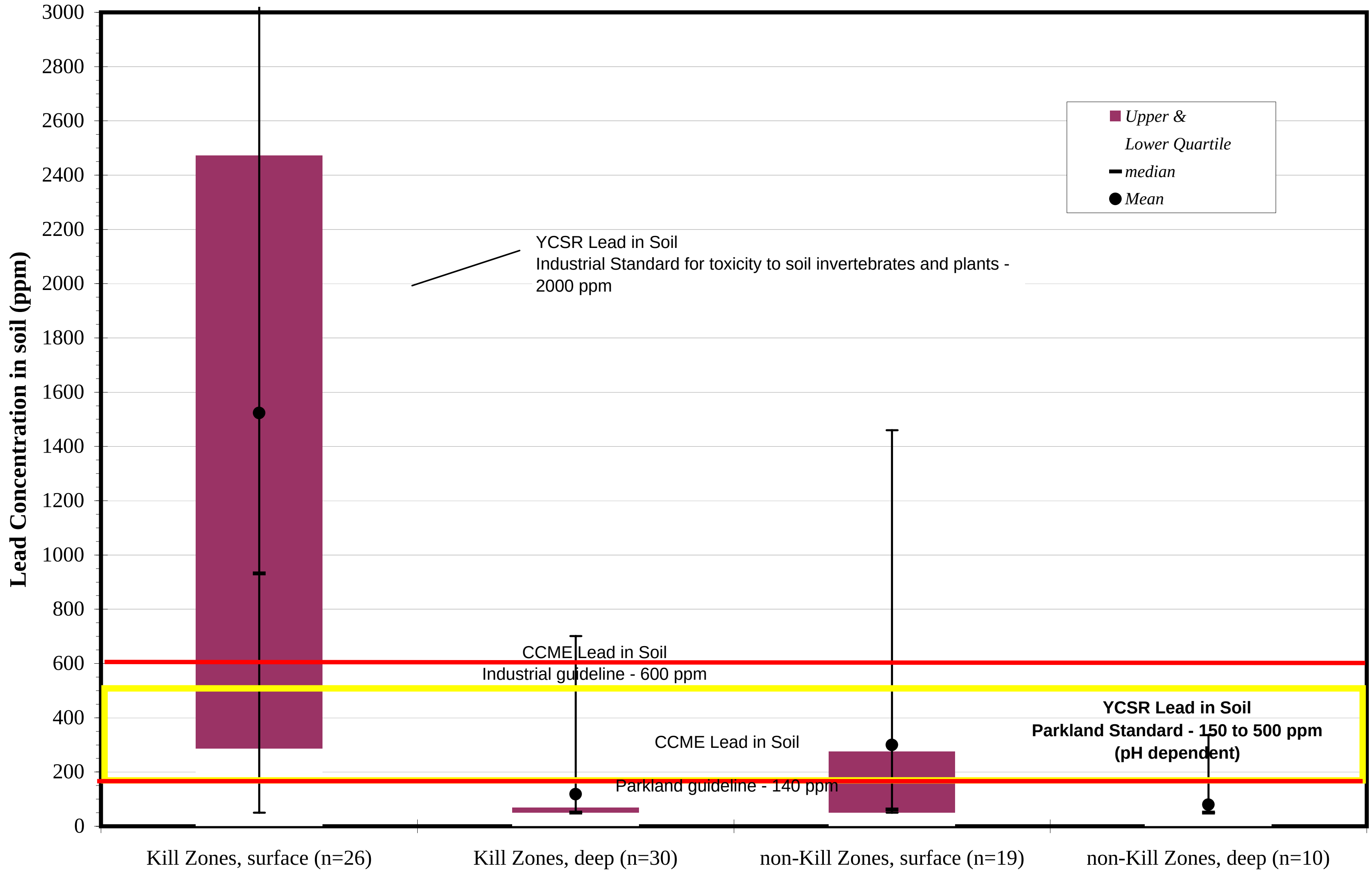
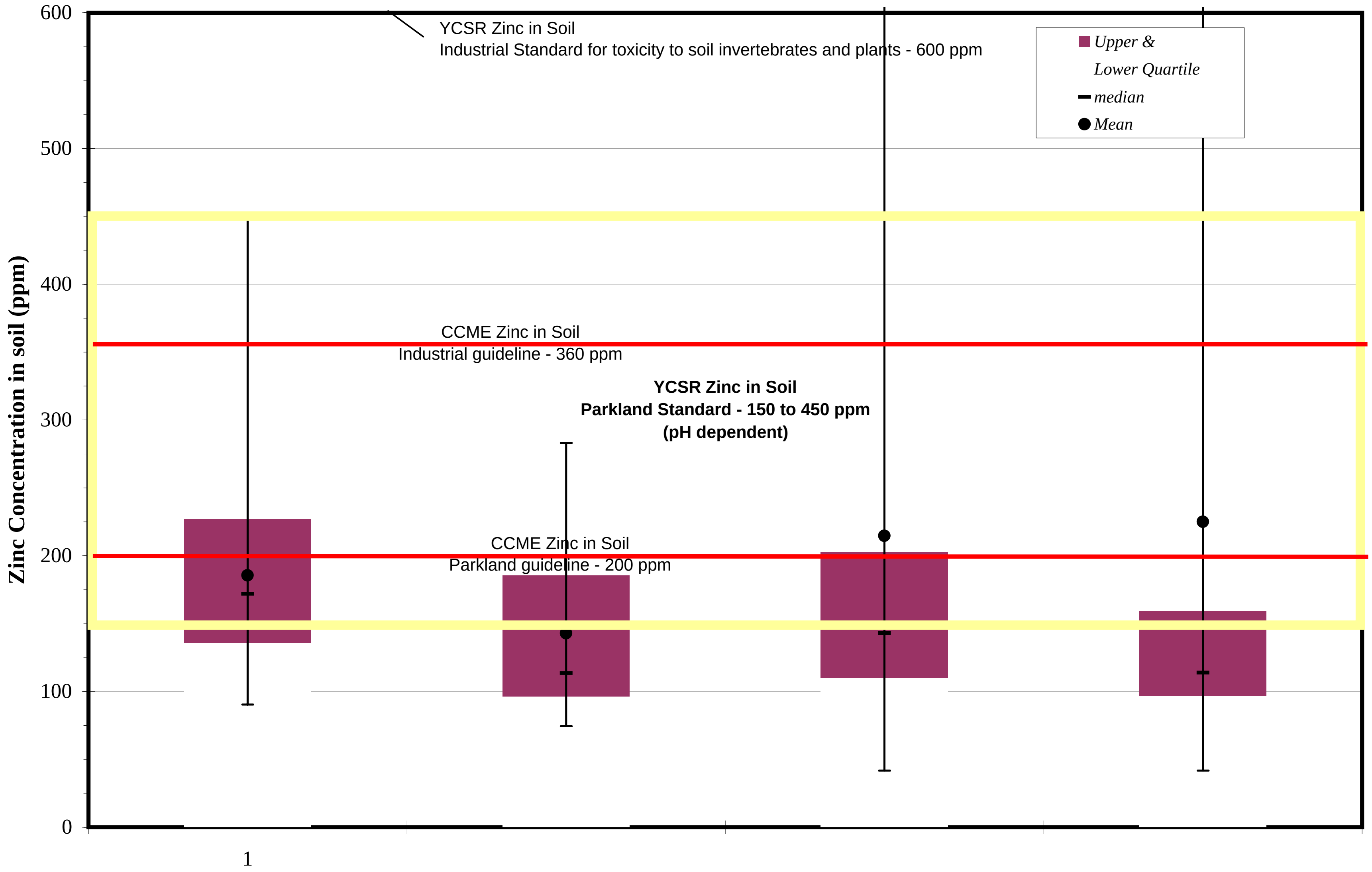


Figure 5. Zinc Concentrations in Down Valley Area



2.2.2.2 Leachability Testing

Five samples were submitted for metal leabaility testing. The samples represent a range of contamination found in the Down Valley area. Samples were submitted to the Toxicity Characteristic Leach Procedure (TCLP). The TCLP and criteria defined by the Transportation of Dangerous Goods Act is used to define soils as "Special Waste" under the Yukon's Special Waste Regulation. For parameters that are not inluded in the TDG, the Alberta Waste Control Regulation leachate critera were used for comparative purposes. Results of the testing are presented in Table 6 along with the applicable Standards and guidelines.

No samples analyzed from the Down Valley area produced a leachate with concentrations of metals of concern greater than the applicable Standards/guidelines. The reason for this lack of extractable metals could be that all mobile and leachable metals have already been leached from the soil (due to the low soil pH), and the remaining metals are relatively immobile. This suggests that leaving contaminated soils in-situ may be a viable remedial alternative that should be considered.

2.2.2.3 Acid/Base Accounting

Results of acid/base accounting are not available at this time.

2.2.3 Down Valley Area Summary

Overall, this investigation found that soils in low land areas and obvious kill zones areas have very low pH. The most significant kill zones lie between the Cross Valley Dam and X14, however the furthest downstream transect (1.1 km down from the dam) identified stressed vegetation and killed undergrowth in the forest. The terrestrial impact from this spill likely extends to low lying and depositional sites further downstream than the area covered in the current investigation. Although there are many indicators of tailings impact (stressed and dead vegetation, rusty coloured soil, etc.), no visibly obvious tailings were found. Approximately 48 ha of major kill zones have been identified. An additional 43 ha of "intermittent kill zones" exist between the Cross Valley Dam and X14.

Elevated zinc concentrations are observed across the down valley area and do not appear to be limited to areas obviously impacted by the tailings spill. High lead concentrations are observed in kill zone areas and appears to be generally limited to the top 0.1 m of soil. Elevated metal concentrations in the soil appear to be relatively immobile and all leachable metals appear to have been removed from the soil at this time. Using a surface area of 48 ha, it is estimated that the in-situ volume contaminated soil volume of the major kill zones is at least 5,000 m^3.

Area 3 –East Side of Original Impoundment

Area 3 is located between eastern Original Tailings Impoundment dyke and the former BXL & Copper Sulphate plant sites. The tailings are primarily drifted against the dyke. (Figure 2). The surface area of tailings spill in this area is approximately 2,100 m^2. In the BXL yard, elevated lead and zinc concentrations in soils were found. This could potentially be related to drifting, speading and tracking of tailings across the BXL yard from the exposed tailings at Area 3.

2.2.4 East of Original Impoundment Area Investigation

A series of 12 test pits were excavated using a rubber tire mounted backhoe in the areas of exposed tailings to determine tailings thickness. Test pits were excavated until underlying ("native") soils were encountered such that these soils could be sampled. Testpits 10 through 12 were excavated to determine the eastward extent of impacted soil in the area. Test pit logs are provided in Appendix B.

Thickness of tailings observed in test pits is shown on Figure 6. The volume of tailings in this area is estimated at 740 m^3.

Samples of the tailings and underlying native soil (if encountered) were collected for measurement of paste pH and paste conductivity. A select subset were submitted for chemical analysis.

2.2.5 Soil Quality Results

Soil quality testing results are still in progress and are not available at this time.

2.2.6 Field Measurements

Results of paste pH and paste conductivity are shown on Figure 6. Paste pH of the tailings samples from this area were typically on the order of 1.5 (test pits 1 through 9). Soils underlying the tailings were often a mix of gravel and tailings and also had low pH. Furthermore, these underlying soils had relatively high paste conductivity, suggesting they are impacted by the overlying soils.

Soil along the southeast side of Area 3 (test pits 10, 11 and 12) had paste pH ranging from 1.8 to 4.3. The paste conductivity of samples from these three pits were significantly lower than the tailings area. The low pH of the soils, particularly the surface samples, suggest spreading and dispersion of the tailings across the former BXL plant yard to the southeast.

2.2.6.1 Chemical Analysis Results

Chemical analytical results are not available at this time.

2.2.6.2 Leachability Testing

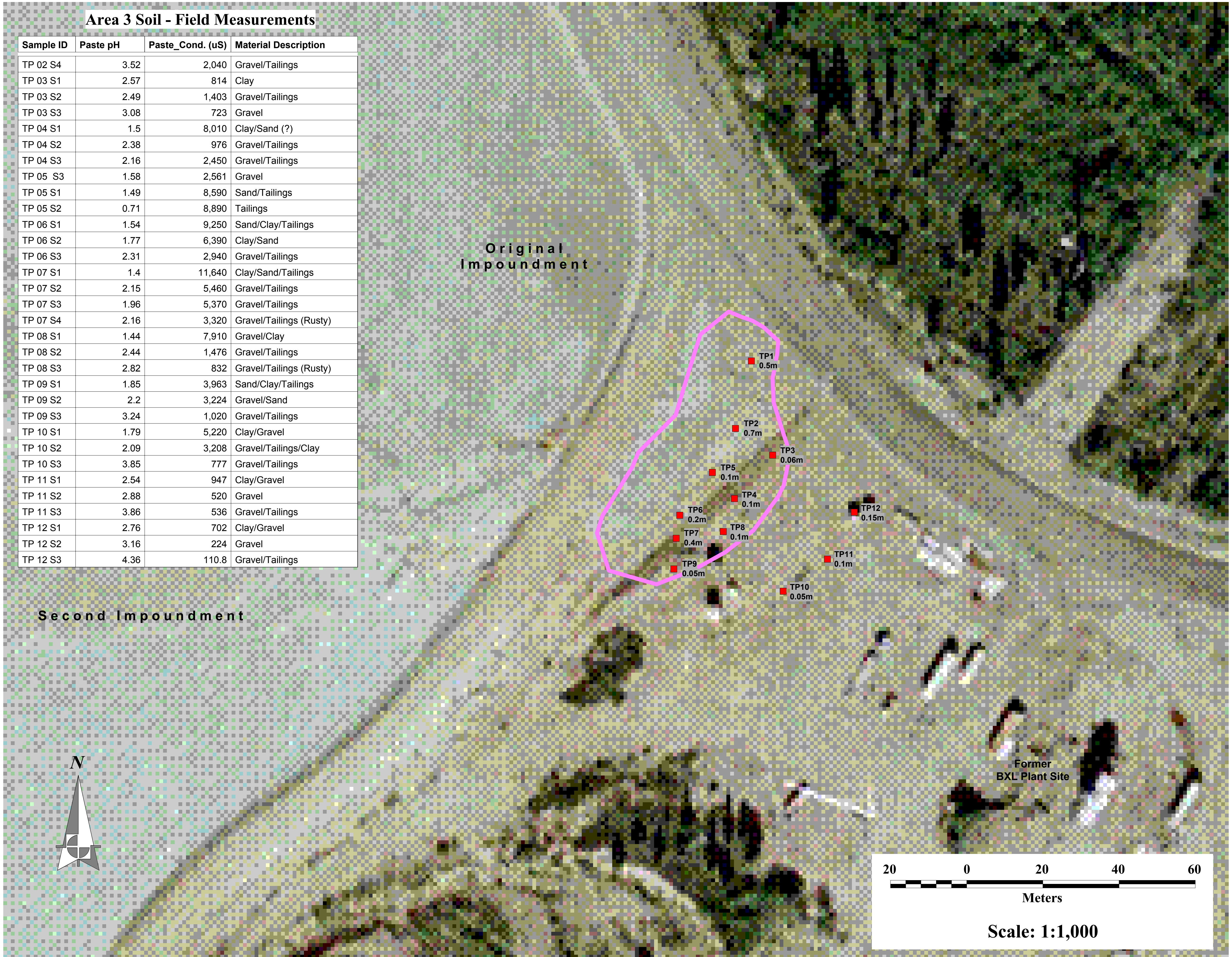
Results of leachability testing are not available at this time.

2.2.6.3 Acid/Base Accounting

Results of acid/base accounting are not available at this time.

Area 3 Soil - Field Measurements

Sample ID	Paste pH	Paste_Cond. (uS)	Material Description
TP 02 S4	3.52	2,040	Gravel/Tailings
TP 03 S1	2.57	814	Clay
TP 03 S2	2.49	1,403	Gravel/Tailings
TP 03 S3	3.08	723	Gravel
TP 04 S1	1.5	8,010	Clay/Sand (?)
TP 04 S2	2.38	976	Gravel/Tailings
TP 04 S3	2.16	2,450	Gravel/Tailings
TP 05 S3	1.58	2,561	Gravel
TP 05 S1	1.49	8,590	Sand/Tailings
TP 05 S2	0.71	8,890	Tailings
TP 06 S1	1.54	9,250	Sand/Clay/Tailings
TP 06 S2	1.77	6,390	Clay/Sand
TP 06 S3	2.31	2,940	Gravel/Tailings
TP 07 S1	1.4	11,640	Clay/Sand/Tailings
TP 07 S2	2.15	5,460	Gravel/Tailings
TP 07 S3	1.96	5,370	Gravel/Tailings
TP 07 S4	2.16	3,320	Gravel/Tailings (Rusty)
TP 08 S1	1.44	7,910	Gravel/Clay
TP 08 S2	2.44	1,476	Gravel/Tailings
TP 08 S3	2.82	832	Gravel/Tailings (Rusty)
TP 09 S1	1.85	3,963	Sand/Clay/Tailings
TP 09 S2	2.2	3,224	Gravel/Sand
TP 09 S3	3.24	1,020	Gravel/Tailings
TP 10 S1	1.79	5,220	Clay/Gravel
TP 10 S2	2.09	3,208	Gravel/Tailings/Clay
TP 10 S3	3.85	777	Gravel/Tailings
TP 11 S1	2.54	947	Clay/Gravel
TP 11 S2	2.88	520	Gravel
TP 11 S3	3.86	536	Gravel/Tailings
TP 12 S1	2.76	702	Clay/Gravel
TP 12 S2	3.16	224	Gravel
TP 12 S3	4.36	110.8	Gravel/Tailings



LEGEND:

- Test pit location
- Extent of tailings on surface

EXAMPLE TEST PIT LABEL:

TP24 — Test pit name
0.4 m — Tailings thickness

SOURCES OF DATA:

Basemap: Orthoshop, November 2003. Prepared for SKR Consulting. Based on August 2003 aerial photography. Calgary AB.

DRAWING INFORMATION:

CREATED BY:	FKP
REVIEWED BY:	EJD
DATE ISSUED:	DECEMBER 14, 2004
PROJECT NUMBER:	40436
FILE NAME:	40436_F2_6_7.WOR
REVISION:	1
DATA PROJECTION:	UTM ZONE 8, NAD 27

Project: Assessment of Tailings Outside Containment
Location: Anvil Range Mine Site, Yukon
Client: Deloitte & Touche Inc.

Area 3 Tailings Investigation East of Original Impoundment

FIGURE NO.

6

2.3 Area 4 –Adjacent Rose Creek Diversion

Area 4 is located between the Second Tailings Impoundment dyke and the original Rose Creek Diversion canal. The tailings are primarily drifted against the dyke (Figure 7) and are report to have been deposited during a spill which occurred during the night when the tailings overtopped the dam (B. McAlpine, pers. comm., 2004). The surface area of tailings spill in this area is approximately 780 m^2.

2.3.1 Adjacent Rose Creek Diversion Investigation

A series of 9 test pits were excavated using a rubber tire mounted backhoe in the areas of exposed tailings to determine tailings thickness. Test pits were excavated until underlying ("native") soils were encountered such that these soils could be sampled. Testpits 17 through 21 were excavated to determine the lateral extent of impact soil in the area. Test pit logs are provided in Appendix B.

Thickness of tailings observed in test pits is shown on Figure 7. The volume of tailings in this area is estimated at 580 m^3.

Samples of the tailings and underlying native soil (if encountered) were collected for measurement of paste pH and paste conductivity. A select subset were submitted for chemical analysis.

2.3.2 Soil Quality Results

Soil quality testing results are still in progress and are not available at this time.

2.3.3 Field Measurements

Results of paste pH and paste conductivity are shown on Figure 7. Paste pH of the tailings samples from this area were ranged from 1.7 to 2.8 (test pits 13 through 16). Soils underlying the had paste pH rangine from 2.8 to 3.3. The low paste pH and suggests underlying soils are impacted by the overlying tailings.

Soil outside the extent of observed tailings in Area 4 (test pits 19 to 21) had paste pH ranging from 2.1 to 3.6. The paste conductivity of samples from these step-out test pits were similar to soil samples collected from beneath the spilled tailings. The low pH of the soils and high conductivity of the surface samples suggest that spreading and dispersion of the tailings across this area.

2.3.3.1 Chemical Analysis Results

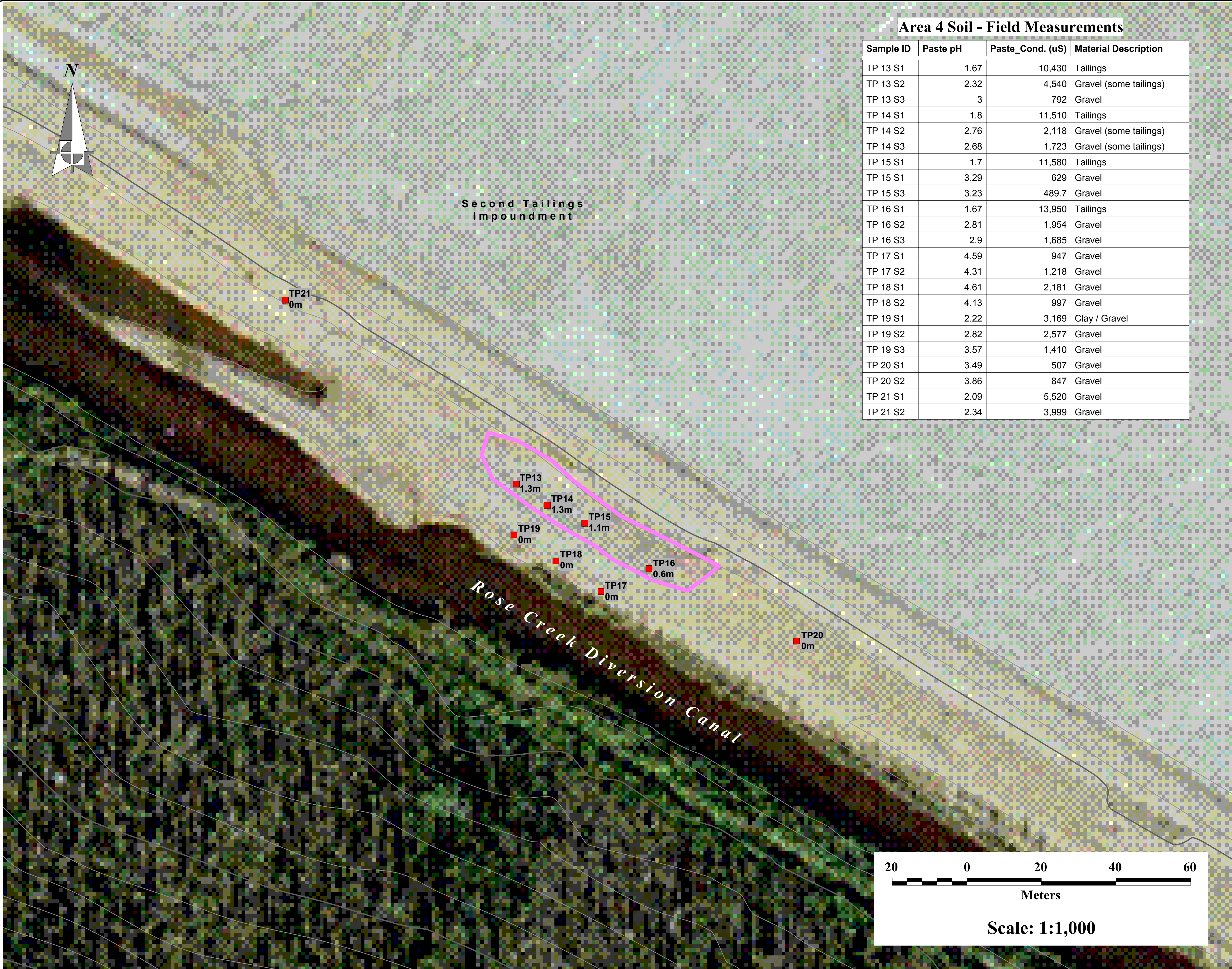
Chemical analytical results are not available at this time.

2.3.3.2 Leachability Testing

Results of leachability testing are not available at this time.

2.3.3.3 Acid/Base Accounting

Results of acid/base accounting are not available at this time.



Area 4 Soil - Field Measurements

Sample ID	Paste pH	Paste_Cond. (uS)	Material Description
TP 13 S1	1.67	10,430	Tailings
TP 13 S2	2.32	4,540	Gravel (some tailings)
TP 13 S3	3	792	Gravel
TP 14 S1	1.8	11,510	Tailings
TP 14 S2	2.76	2,118	Gravel (some tailings)
TP 14 S3	2.68	1,723	Gravel (some tailings)
TP 15 S1	1.7	11,580	Tailings
TP 15 S1	3.29	629	Gravel
TP 15 S3	3.23	489.7	Gravel
TP 16 S1	1.67	13,950	Tailings
TP 16 S2	2.81	1,954	Gravel
TP 16 S3	2.9	1,685	Gravel
TP 17 S1	4.59	947	Gravel
TP 17 S2	4.31	1,218	Gravel
TP 18 S1	4.61	2,181	Gravel
TP 18 S2	4.13	997	Gravel
TP 19 S1	2.22	3,169	Clay / Gravel
TP 19 S2	2.82	2,577	Gravel
TP 19 S3	3.57	1,410	Gravel
TP 20 S1	3.49	507	Gravel
TP 20 S2	3.86	847	Gravel
TP 21 S1	2.09	5,520	Gravel
TP 21 S2	2.34	3,999	Gravel

LEGEND:

- Test pit location
- Extent of tailings on surface

EXAMPLE TEST PIT LABEL:

TP24 — Test pit name
0.4 m — Tailings thickness

SOURCES OF DATA:

Basemap: Orthoshop, November 2003. Prepared for SKR Consulting. Based on August 2003 aerial photography. Calgary AB.

DRAWING INFORMATION:

CREATED BY:	FKP
REVIEWED BY:	EJD
DATE ISSUED:	DECEMBER 14, 2004
PROJECT NUMBER:	40436
FILE NAME:	40436_F2_6_7.WOR
REVISION:	1
DATA PROJECTION:	UTM ZONE 8, NAD 27

Project: Assessment of Tailings Outside Containment
Location: Anvil Range Mine Site, Yukon
Client: Deloitte & Touche Inc.

Area 4 Tailings Investigation Adjacent Rose Creek Diversion

Gartner Lee

FIGURE NO. 7

3. Conclusions and Recommendations

3.1 Conclusions

3.1.1 Area 1 – Emergency Tailing Area

Approximately 86,500 m^3 of tailings lie in the emergency a tailings area (Area 1). Along the eastern edge of the tailings, soils underlying the tailings have a low pH, suggesting impact by the overlying tailings. All water from Area 1 is flowing to the Intermediate tailings pond.

3.1.2 Area 2 – Down Valley Area

Soils in low land areas and obvious kill zones areas of Area 2 have very low soil pH.

- Although there are many indicators of tailings impact (stressed and dead vegetation, rusty coloured soil, etc.), no visibly obvious tails were found.
- The most significant kill zones lie between the Cross Valley Dam and X14, and is approximately 48 ha in area.
- Intermittent kill zones extend more than 1.1 km downstream from the Cross Valley Dam. The total downstream extent of land areas impacted by the tailing spill has not been determined.
- Elevated zinc concentrations are observed across the Down Valley area and do not appear to be limited to areas obviously impacted by the tailings spill.
- High lead concentrations are observed in kill zone areas and appears to be generally limited to the top 0.1 m of soil.
- Elevated metal concentrations in the soil appear to be relatively immobile and all leachable metals appear to have been removed from the soil at this time. Leachate extract from the TCLP test did not contain concentrations of metals, lead in particular, greater than the applicable Standards and guidelines.
- All five sample analyzed for arsenic and copper exceed the CCME Parkland guideline for this parameter.
- Elevated concentrations of arsenic, copper and mercury appear to be associated with elevated lead concentrations in soil
- It is estimated that the in-situ volume contaminated soil volume of the major kill zones is at least 5,000m^3 (using a surface area of 48 ha.)

3.1.3 Area 3 – East of Original Impoundment

- The volume of tailings outside of containment at Area 3 area is estimated at 740 m^3.

3.1.4 Area 4 – Adjacent Rose Creek Diversion

- The volume of tailings outside of containment at Area 4 area is estimated at 580 m^3.

3.2 Recommendations

Based on the interim conclusions of this study, it is recommended that:

1. Site specific or risk based soil quality objectives be determined for this site in order to meaningfully assess soil quality impact. We understand that this is being undertaken through the closure planning process.

2. A restorations options assessment be completed for the Down Valley area. The focus of any restoration planing in this area should initially focus on the major kill zone area. Options could include removal, in-situ stabilization (soil amendment) and/or capping. This could include test plots in the affected area to assess in-situ remediation methods.

3. Management of the Emergency Tailings Area tailings should be assessed as part of the long-term site management plan. As impacted water from this area is currently and will continue to be collected and treated, other short-term management options for this area are not likely warranted. However, the area maybe suitable for field testing of methods.

4. Tailings lying outside of containment in Areas 3 and 4 should be excavated and placed inside the tailings impoundment. The volume of tailings in these areas are relatively small and therefore simple relocation and backfilling with clean fill is the recommended interim management option.

4. References

Canadian Council of Ministers of the Environment, 2002:
Canadian Soil Quality Guidelines. Canadian Environmental Quality Guidelines. Winnipeg, MB.

Deloitte & Touch Inc. and Gartner Lee Limited, 2003:
2004 to 2008 Water Licence Renewal – Environmental Assessment Report. Prepared for Delloite & Touche Inc. in their capacity as Interim Receiver for Anvil Range Mining Corporation. Calgary, Alberta.

Department of Environment, 2000:
Special Waste Regulations. Yukon Environment Act (OIC 2002/171). Government of Yukon. Whitehorse, Yukon

Department of Environment, 2002:
Contaminated Sites Regulation. Yukon Environment Act (OIC 2002/171). Government of Yukon. Whitehorse, Yukon

Gartner Lee Limited, 2002:
2002 Baseline Environmental Information. Volume 2 of 2. Anvil Range Mine Complex 2002 Project Description. Prepared for Delloite & Touche Inc. in their capacity as Interim Receiver for Anvil Range Mining Corporation. Whitehorse, Yukon.

Gartner Lee

Table 4. Lead and Zinc in Soil - Down Valley Area

Assessment of Tailings Outside of Containment - Faro Mine

Transect A

Sample ID	Parkland Guidelines/Standards		TPA1-S1	TPA2-S1	TPA3-S1	TPA3-S2	TPA4-S1	TPA4-S2	TPA5-S1	TPA6-S1	TPA7-S1
Date Sampled			9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004
Sample Depth (m)	CCME	YCSR	0.1	0.1	0.1	0.35	0.1	0.4	0.01	0.1	0.1
Is sample from kill zone?					kill	kill	kill	kill			
Physical Tests											
pH			8.31	8.27	3.80	4.80	3.77	4.12	6.43	7.34	6.38
Total Metals											
Lead T-Pb	140	150/250/500 [1]	**213**	82	<50	<50	<50	<50	<50	<50	**171**
Zinc T-Zn	200	150/300/450 [2]	**244**	143	107	140	144	109	168	156	**245**

Transect C

Sample ID	Parkland Guidelines/Standards		TPC1-S1	TPC2-S1	TPC3-S1	TPC3-S2	TPC4-S1
Date Sampled			9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004
Sample Depth	CCME	YCSR	0.1	0.1	0.1	0.25	0.1
Is sample from kill zone?							
Physical Tests							
pH			8.47	8.79	5.16	8.06	-
Total Metals							
Lead T-Pb	140	150/250/500 [1]	53	69	<50	**336**	-
Zinc T-Zn	200	150/300/450 [2]	124	**518**	*187*	**659**	-

Transect E

Sample ID	Parkland Guidelines/Standards		TPE1-S1	TPE2-S1	TPE2-S2	TPE3-S1	TPE3-S2	TPE4-S1	TPE4-S2	TPE5-S1
Date Sampled			9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004
Sample Depth	CCME	YCSR	0.1	0.1	0.25	0.1	0.2	0.1	0.5	0.1
Is sample from kill zone?				kill	kill	kill	kill	kill	kill	
Physical Tests										
pH			6.47	2.98	3.69	2.56	2.59	3.40	4.96	6.35
Total Metals										
Lead T-Pb	140	150/250/500 [1]	<50	**336**	<50	**6260**	61	**4510**	**330**	<50
Zinc T-Zn	200	150/300/450 [2]	139	*177*	*152*	*158*	75.2	94.5	*178*	106

Transect G

Sample ID	Parkland Guidelines/Standards		TPG1-S1	TPG2-S1	TPG2-S2	TPG3-S1	TPG3-S2	TPG4-S1	TPG4-S2	TPG5-S1	TPG5-S2	TPG6-S1
Date Sampled			9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004	9/28/2004
Sample Depth	CCME	YCSR	0.1	0.1	0.2	0.1	0.35	0.1	0.25	0.05	0.1	0.1
Is sample from kill zone?				kill	kill	kill	kill	kill	kill	kill	kill	
Physical Tests												
pH			4.09	3.18	3.21	4.21	3.95	2.42	2.75	2.81	2.83	4.99
Total Metals												
Lead T-Pb	140	150/250/500 [1]	**712**	**449**	**701**	**513**	**275**	**794**	<50	**1100**	<50	**224**
Zinc T-Zn	200	150/300/450 [2]	*169*	**241**	**283**	*193*	*183*	**228**	**214**	90.4	97.9	118

Transect I

Sample ID	Parkland Guidelines/Standards		TPI1-S1	TPI2-S1	TPI3-S1	TPI3-S2	TPI4-S1	TPI4-S1R	TPI5-S1	TPI6-S1
Date Sampled			9/28/2004	9/29/2004	9/28/2004	9/28/2004	9/29/2004	9/29/2004	9/29/2004	9/29/2004
Sample Depth	CCME	YCSR	0.1	0.1	0.1	0.25	0.1	0.1	0.1	0.1
Is sample from kill zone?				kill	kill	kill				
Physical Tests										
pH			8.31	2.67	2.92	2.70	8.29	8.32	8.31	4.54
Total Metals										
Lead T-Pb	140	150/250/500 [1]	<50	**2240**	**1270**	<50	<50	<50	<50	**379**
Zinc T-Zn	200	150/300/450 [2]	123	**268**	**300**	96.5	110	125	174	118

Transect J

List of Tables

Sample ID Date Sampled Sample Depth	Parkland Guidelines/Standards CCME	YCSR	TPJ1-S1 9/29/2004 0.05	TPJ1-S2 9/29/2004 0.15	TPJ2-S1 9/29/2004 0.1	TPJ2-S1R 9/29/2004 0.1	TPJ3-S1 9/29/2004 0.1	TPJ3-S2 9/29/2004 0.25	TPJ4-S1 9/29/2004 0.1	TPJ4-S2 9/29/2004 0.25	TPJ5-S1 9/29/2004 0.1	TPJ5-S2 9/29/2004 0.3
Is sample from kill zone?			kill	kill	kill	kill	kill	kill	kill	kill	kill	kill
Physical Tests												
pH			2.44	2.65	3.40	3.41	2.62	3.72	3.93	4.52	3.71	5.14
Total Metals												
Lead T-Pb	140	150/250/500 [1]	**2550**	<50	**269**	50	**3790**	70	**2930**	87	**3500**	<50
Zinc T-Zn	200	150/300/450 [2]	**275**	95.6	96.9	111	*145*	80.0	**225**	**272**	**257**	*192*

Transect K

Sample ID Date Sampled Sample Depth	Parkland Guidelines/Standards CCME	YCSR	TPK1-S1 9/29/2004 0.1	TPK2-S1 9/29/2004 0.1	TPK2-S2 9/29/2004 0.4	TPK3-S1 9/29/2004 0.1	TPK3-S2 9/29/2004 0.4	TPK4-S1 9/29/2004 0.1	TPK4-S2 9/29/2004 0.4
Is sample from kill zone?				kill	kill			kill	kill
Physical Tests									
pH			4.41	2.87	3.22	3.36	3.57	4.01	5.38
Total Metals									
Lead T-Pb	140	150/250/500 [1]	**459**	**399**	<50	**882**	<50	**3570**	51
Zinc T-Zn	200	150/300/450 [2]	**215**	103	95.1	*167*	116	134	129

Transect L

Sample ID Date Sampled Sample Depth	Parkland Guidelines/Standards CCME	YCSR	TPL1-S1 9/29/2004 0.1	TPL1-S1R 9/29/2004 0.1	TPL2-S1 9/29/2004 0.1	TPL2-S2 9/29/2004 0.4
Is sample from kill zone?			kill	kill	kill	kill
Physical Tests						
pH			3.65	3.72	4.34	6.01
Total Metals						
Lead T-Pb	140	150/250/500 [1]	**217**	**358**	**250**	<50
Zinc T-Zn	200	150/300/450 [2]	140	*176*	*177*	137

Transect M

Sample ID Date Sampled Sample Depth	Parkland Guidelines/Standards CCME	YCSR	TPM1-S1 9/29/2004 0.1	TPM2-S1 9/29/2004 0.1	TPM3-S1 9/29/2004 0.1	TPM3-S2 9/29/2004 0.4	TPM4-S1 9/29/2004 0.1	TPM4-S1R 9/29/2004 0.1	TPM5-S1 9/29/2004 0.1
Is sample from kill zone?			kill		kill	kill	kill	kill	kill
Physical Tests									
pH			5.71	5.57	3.15	3.85	3.31	3.44	5.03
Total Metals									
Lead T-Pb	140	150/250/500 [1]	**1070**	74	**1460**	62	**590**	75	118
Zinc T-Zn	200	150/300/450 [2]	**452**	*183*	*184*	144	*167*	132	**221**

Transect O

Sample ID Date Sampled Sample Depth	Parkland Guidelines/Standards CCME	YCSR	TPO1-S1 9/29/2004 0.1	TPO1-S2 9/29/2004 0.4	TPO2-S1 9/29/2004 0.1	TPO2-S2 9/29/2004 0.4
Is sample from kill zone?			kill	kill	kill	kill
Physical Tests						
pH			3.20	3.68	3.60	4.36
Total Metals						
Lead T-Pb	140	150/250/500 [1]	104	55	**1210**	<50
Zinc T-Zn	200	150/300/450 [2]	108	93.9	140	100

Notes:

Results are expressed as milligrams per dry kilogram except where noted.

< *indicates less than the detection limit indicated.*

[1] *Standard is pH dependant <5.5/5.5-6.0/>6.0*

[2] *Standard is pH dependant <6.0/6.0-6.5/>6.5*

bold *Exceedance of CCME*

italic *Exceedance of YCSR*

Gartner Lee

Table 5b. Total Metals in Soil - Down Valley Area

Assessment of Tailings Outside of Containment - Faro Mine

Sample ID / *Date Sampled* / *Sample Depth (m)*	Parkland Guidelines/Standards CCME	Parkland Guidelines/Standards YCSR	TPC3-S2 9/28/2004 0.25	TPE3-S1 9/29/2004 0.1	TPG2-S2 9/29/2004 0.2	TPI2-S1 9/29/2004 0.1	TPM1-S1 9/29/2004 0.1
pH			8.06	2.56	3.21	2.67	5.71
Antimony T-Sb	20	20	***21***	17	<10	13	<10
Arsenic T-As	12	35	***26.0***	***214***	***55.4***	***111***	***44.8***
Barium T-Ba	500	500	***577***	252	192	398	***1780***
Beryllium T-Be	4	4	0.76	<0.50	<0.50	<0.50	0.85
Cadmium T-Cd	10	1.5/2.58/35 [1]	0.79	<0.50	<0.50	<0.50	1.36
Chromium T-Cr	64	60	55.1	16.6	20.3	28.5	35.1
Cobalt T-Co	50	50	15.6	3.3	7.8	6.8	14.1
Copper T-Cu	63	90/100/150 [2]	***139***	***162***	***93.2***	***124***	***94.1***
Lead T-Pb	140	150/250/500 [3]	***336***	***6260***	***701***	***2240***	***1070***
Mercury T-Hg	6.6	2	0.204	*4.87*	0.865	1.81	0.863
Molybdenum T-Mo	10	10	***12.0***	5.2	<4.0	<4.0	<4.0
Nickel T-Ni	100	100	57.1	13.7	18.4	22.9	35.5
Selenium T-Se	3	3	2.5	2.4	<2.0	<2.0	2.4
Silver T-Ag	20	20	<2.0	14.5	2.3	4.0	<2.0
Tin T-Sn	50	50	<5.0	<5.0	<5.0	<5.0	<5.0
Vanadium T-V	130	200	48.3	54.6	26.4	43.7	33.9
Zinc T-Zn	200	150/200/450 [4]	***659***	*158*	***283***	***268***	***452***

Notes: ***bold, itallics*** *Parameter exceed CCME Parkland Guideline*

itallics *Parameter exceed YCSR Parkland Standard only*

[1] *IF pH <6.0/6.0-<6.5/6.5-<7.0/>=7.0*

[2] *IF pH <5.0/5.0-<5.5/>=5.5*

[3] *IF pH <5.5/5.5-<6.0/>=6.0*

[4] *IF pH <6.0/6.0-<6.5/>=6.5*

Gartner Lee

Table 6. Leachability Testing Results in Area 2 – Down Valley Area

Assessment of Tailings Outside of Containment - Faro Mine

Sample ID *Date Sampled*	Leachate Extract Standards/Guidelines		TPE3-S1 9/28/2004	TPJ2-S1 9/29/2004	TPM3-S1 9/29/2004	TP01-S1 9/29/2004	TPI2-S1 9/29/2004
	Yukon [1]	Alberta [2]					
Antimony Sb	-	500	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic As	2.5	5	<1.0	<1.0	<1.0	<1.0	<1.0
Barium Ba	100	100	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium Be	-	5	<0.025	<0.025	<0.025	<0.025	<0.025
Boron B	500	500	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium Cd	0.5	1	<0.050	<0.050	<0.050	<0.050	<0.050
Calcium Ca	-	-	3.71	1.47	1.64	1.68	0.66
Chromium Cr	5	5	<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt Co	-	100	<0.050	<0.050	<0.050	<0.050	<0.050
Copper Cu	-	100	<0.050	<0.050	<0.050	<0.050	<0.050
Iron Fe	-	1000	0.62	0.35	0.53	0.26	<0.15
Lead Pb	5	5	0.48	<0.25	<0.25	<0.25	<0.25
Magnesium Mg	-	-	1.11	<0.50	<0.50	<0.50	<0.50
Mercury Hg	0.1	0.2	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel Ni	-	5	<0.25	<0.25	<0.25	<0.25	<0.25
Selenium Se	1	1	<1.0	<1.0	<1.0	<1.0	<1.0
Silver Ag	-	5	<0.25	<0.25	<0.25	<0.25	<0.25
Thallium Tl	-	5	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium V	-	100	<0.15	<0.15	<0.15	<0.15	<0.15
Zinc Zn	-	500	<0.50	<0.50	<0.50	<0.50	<0.50

Notes: *all units in mg/L unless otherwise noted*

[1] *From Appendix 4 of the Transportation of Dangerous Goods Regulations*

[2] *From Table 2 - Alberta Waste Control Regulation Schedule 1*