



**Sä Dena Hes Mine  
2004 Annual Report  
Yukon Production Licence QML - 0004**



Prepared by  
Bruce Donald  
March 2005

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## **1.0 SUMMARY**

A Joint Venture consisting of Teck Cominco Limited (25%), Teck Cominco Metals Ltd. (25%), and Pan-Pacific Metal Mining Corporation (50%) (a wholly owned subsidiary of Korea Zinc) formed the Sä Dena Hes Operating Corporation which purchased the Sä Dena Hes Mine from Coopers and Lybrand Ltd. the appointed Court Receiver, in March 1994. Teck Cominco Ltd. operates the mine under an Agreement with the Joint Venture Partners. Full-time security and property management is provided by Teck Cominco Ltd. through on-site personnel. The mine operation continued to be maintained on a 'Temporary Closure' basis throughout 2004. In 2001 Sä Dena Hes was granted a Yukon Quartz Mining Production Licence QML-0004 ('Production Licence'). This report is submitted in compliance with Section 13 of the Production Licence.

## **2.0 PRODUCTION DATA**

The mine was under 'Temporary Closure' status throughout 2004.

### **2.1 Ore & Waste Mined**

Ore Produced .....	0 tonnes
Waste Produced .....	0 tonnes

### **2.2 Head Grades Processed**

Zinc Grade .....	N. A.
Lead Grade.....	N. A.

### **2.3 Concentrate Production**

Zinc Concentrate .....	0 tonnes
Lead Concentrate .....	0 tonnes

### **2.4 Stockpiles**

Ore Stockpiles .....	0 tonnes
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## **3.0 FORECAST MINE LIFE**

Expected mine life is approximately 4 years based on current resources. The Mineral Resources have not changed from 2004 and are as follows (Appendix A – Memorandum from W.P. Armstrong to Bruce Donald Re: Sä Dena Hes Resources March 8, 2005):

### **Mineral Resources**

Indicated .....	2,190,000 tonnes
Zinc .....	10.4%
Lead .....	2.6%

#### **4.0 BACKFILL PLACED UNDERGROUND**

There was no backfill placed underground during 2004.

#### **5.0 MINE PLANS**

Mine plans and sections were submitted with the Production Licence 2001 Annual Report. They are not being resubmitted as there have been no changes to the plans in 2004.

#### **6.0 RECLAMATION**

The site was in Temporary Closure throughout the year awaiting return of economic metal prices. Site reclamation activities were related to study activity.

##### **6.1 Reclamation Plan**

During 2001, the CEAA screening of the "Sä Dena Hes Mine Detailed Decommissioning & Reclamation Plan – February 2000" ('Reclamation Plan') was completed. The Production Licence requires the Plan to be up dated prior to the end of 2005 during Temporary Closure or within two years of resumption of production. This requirement is consistent with requirements of the Type A Water Licence for the site (QZ99-045).

##### **6.2 Revegetation Studies**

The Reclamation Plan proposed Revegetation studies in Section 3.6 of the report. The Production Licence requires that the testing proposed in Section 3.6 and 3.6.2.1 be conducted.

In 2000, the initial work related to Revegetation was initiated to obtain basic information for use in designing the revegetation test work. In 2001 and 2002 revegetation studies continued and the information reported on an annual basis. In 2003 progress monitoring of the vegetation program was continued by Access Consulting Group and the results were reported in the 2003 report. In 2004, Access Consulting continued with progress monitoring and results from this program are included in Appendix B.

#### **7.0 SOLID WASTE DISPOSAL**

##### **7.1 Solid Waste Disposal & Recycling**

The site is in Temporary Closure with one person living on-site. All putrescible waste has been stored in animal proof containers prior to disposal. The site generates waste oil from onsite power generation and mobile equipment. During Temporary Closure the quantity of used oil generated is limited. The oil is held in storage containers on site pending proper disposal and/or recycling offsite.

**7.2 Inventory of Wastes Placed in the Landfill**

There were no wastes placed into the landfill in 2004. Putrescible wastes from the caretaker were taken to the local municipal landfill on a regular basis.

**8.0 WILDLIFE OBSERVATIONS**

The Production Licence requires that sightings of wildlife at the mine site are reported on an annual basis. The caretaker who resides at the site records wildlife sightings in a log book retained at the site and a summary of this information has been compiled and is attached in Appendix C.

**9.0 PRODUCTION PLANS FOR 2005**

The mine remained in Temporary Closure throughout 2004. Metal prices strengthened during the year. In the 4th quarter of 2003 Teck Cominco's realized metals prices for zinc were 0.43 US\$/lb and for lead was 0.27 US\$/lb. In comparison for the 4th quarter of 2004, the realized prices for zinc were 0.51 US\$/lb and for lead were 0.43 US\$/lb. While these prices are still not sufficient to justify re-starting mining operations, the supply-demand balance of metals on the world markets has been improving which is starting to be reflected in the commodity prices.

Teck Cominco Limited remains committed to re-open and operate the mine once metals prices return to economic levels.

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Bruce J. Donald, P. Eng. (B.C.)  
Reclamation Manager,  
Environment and Corporate Affairs  
Teck Cominco Limited

## **APPENDIX A**

**MEMORANDUM REGARDING**

**Sä DENA HES RESOURCES –**

**DECEMBER 31<sup>ST</sup>, 2004**

## **MEMORANDUM**


**TO:** Bruce Donald  
**FROM:** General Manager, Resource Evaluation (WPA)  
**DATE:** Tuesday, March 08, 2005  
**SUBJECT:** Sa Dena Hes Resources December 31, 2004

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### **Sa Dena Hes**

<b><u>Ore Body</u></b>	<b><u>Indicated Resources</u></b>			
	<b><u>Tonnes</u></b>	<b><u>% Zn</u></b>	<b><u>% Pb</u></b>	<b><u>g/t Ag</u></b>
Burnick	1,170,000	10.4	0.6	40
Jewel Box	630,000	9.9	5.9	45
Attila	390,000	11.5	3.1	60
<b>Total:</b>	<b>2,190,000</b>	<b>10.4</b>	<b>2.6</b>	<b>45</b>

This property was acquired from Curragh Inc. in 1994. Resources are contained in three ore zones Attila, Burnick and Jewel Box. Curragh had operated the mine until 1992 and prior to closure had mined 726,758 tonnes grading 11.7% Zn, 7.2% Pb from the Jewel Box ore body. Resources are based on an 8% Pb plus Zn cut-off. Estimates for individual ore zones have been completed over a seven year period. The Attila resource was calculated by Curragh in 1992 and confirmed by Cominco in 1995. The Burnick resource was calculated by Cominco in November 1995 following the completion of 5900 metres of drilling and development of a preliminary mine plan. The Jewel Box resources were recalculated by Cominco in 2001.

  
**W.P. Armstrong, P Eng**  
**British Columbia, Qualified Person**

## **APPENDIX B**

# **RESULTS SUMMARY OF PHASE II REVEGETATION TEST PROGRAM - 2004**

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**SÄ DENA HES MINE  
LAND RECLAMATION AND REVEGETATION PLAN**

***RESULTS SUMMARY OF  
Phase II Revegetation Test Program - 2004***

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**Prepared for:**

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#600-200 Burrard Street  
Vancouver, B.C.  
V6C 3L9

March 2005

**Prepared by:**



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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

In February 2000, Cominco Ltd. (Cominco) submitted a Detailed Decommissioning & Reclamation Plan (“DDRP”) for the Sä Dena Hes mine, to the Yukon Territory Water Board. As part of the DDRP, a land reclamation and revegetation plan and test program was proposed with the overall goal of preparing the site for closure so that revegetation efforts would assist in returning the site to a state that existed prior to mining activities.

Figure 1 shows the general location of the mine in the Yukon.

The primary objectives of the revegetation test program are to:

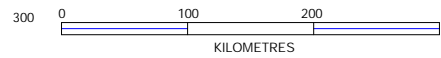
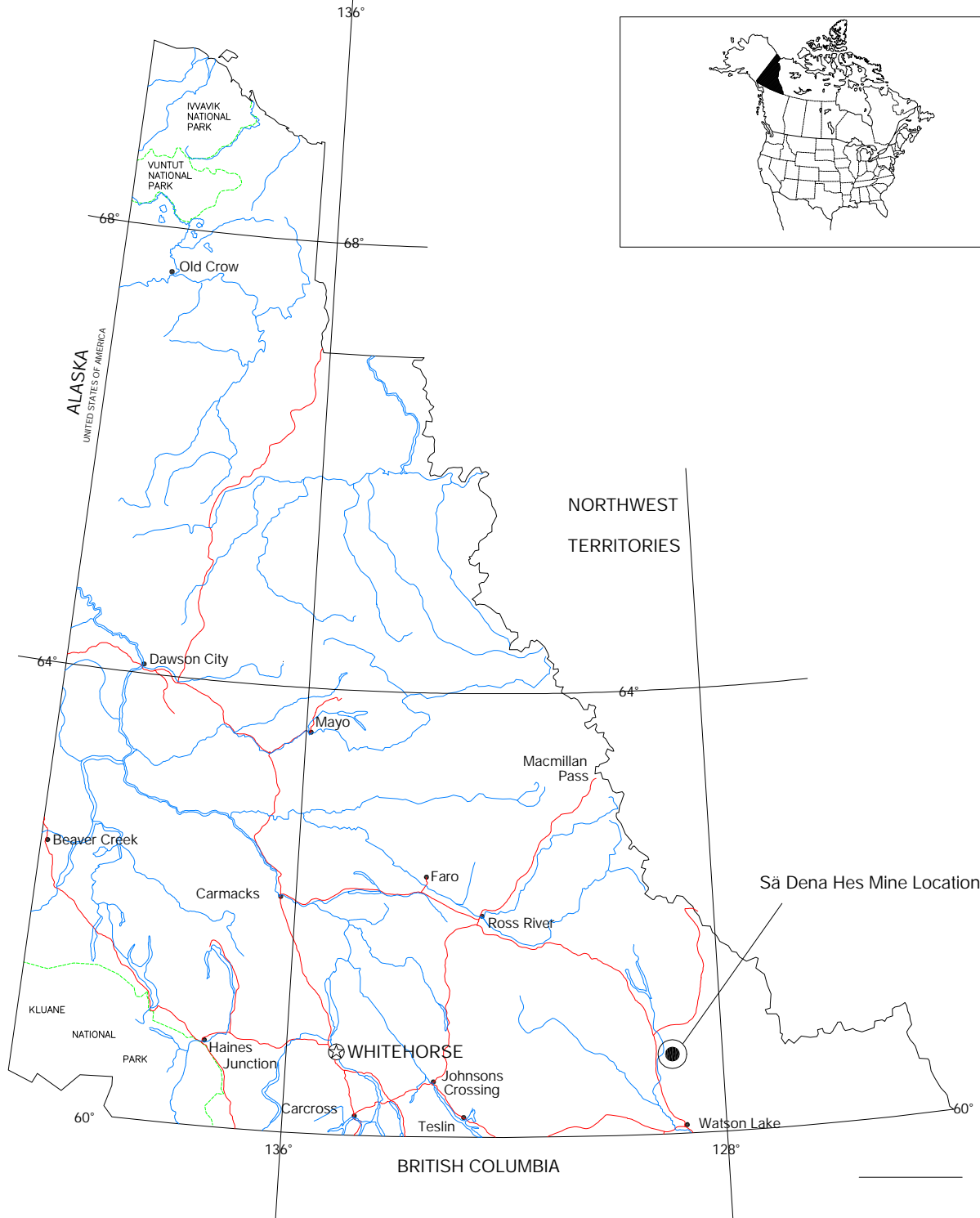
- Determine seed mixtures that will provide short-term soil stability while allowing the natural invasion of local plant species;
- Determine fertilizer applications optimal for sustaining the healthy growth of seeded species without inhibiting colonization by indigenous plant species;
- Investigate methods of encouraging natural plant succession on reclaimed surfaces; and
- Determine potential success rates of revegetation at test plots on different areas of the mine site, in particular the tailings management facility.

The revegetation and reclamation program for the site is being undertaken in phases, with the results of the initial program used to further define subsequent phases. The DDRP outlined a program of additional data collection and test work in order to support the overall revegetation and reclamation components of the DDRP. The program included:

#### Phase I:

- Completing an inventory of soils around the site necessary to provide revegetative soil covers for various mine site components;
- Testing the available nutrients in soils; and
- Establishing initial shrub propagation trials.

# Yukon Territory



Lambert Conformal Conic Projection  
with Standard Parallels at 49°N and 77°N

• *Populated Settlements*

☆ *Territorial Capital*



TeckCominco Ltd. Sä Dena Hes Mine  
Land Reclamation & Revegetation Plan:  
2004 Test Program Summary Report

General Location Map (Map of Yukon)

**teckcominco**

DRAWN BY: JEA

CHECKED BY: TR

DATE: 12-31-2004

SCALE 1: 6 000 000

**Figure 1**

**Phase II:**

- Establishing test plots using revegetation seed mixes; and
- Determining the metal uptake of the seeded plants.

The Phase I program, conducted in 2000, completed some of the tasks identified above, specifically, the soils inventory and nutrient testing. Test plots for shrub propagation trials were also established at two locations on the property. Recommendations resulting from the Phase I program detailed further efforts that would be required to successfully implement the DDRP and to complete the remaining revegetation test program tasks listed above. Results from the Phase I program are presented in a report prepared by Access Mining Consultants Ltd. (AMCL) in 2001 (AMCL 2001), and are briefly described below.

## **2.0 PHASE II PROGRAM**

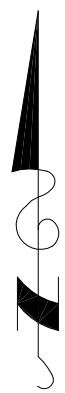
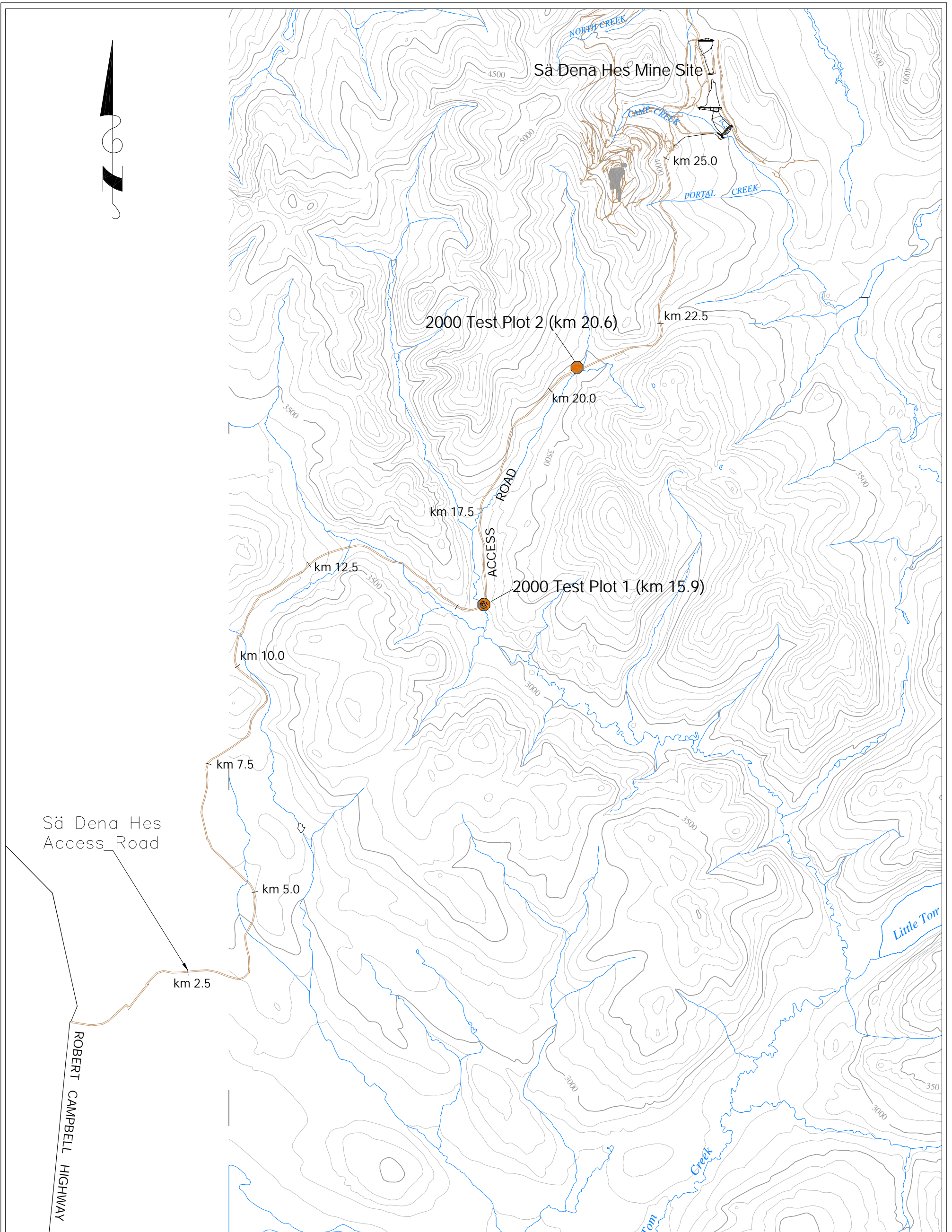
### ***2.1 2001 PROGRAM***

The Phase II program was initiated in the fall of 2001. The goal of the Phase II program was to implement the reclamation and revegetation activities identified in the DDRP. As mentioned in Section 1.0, the objectives were to:

- Establish test plots using revegetation seed mixes; and
- Determine the metal uptake of the seeded plants.

AMCL, operating as Access Consulting Group, prepared a report in early 2002 describing the methods and results of the work conducted in 2001 (AMCL 2002). The report included a description of the seed test plots established in the fall of 2001 and the monitoring results of the shrub test plots established in 2000. The metal uptake analysis was not initiated until 2003.

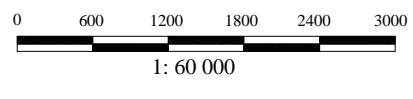
Figures 2 and 3 show the seed test plot locations.






Sä Dena Hes Access Road

ROBERT CAMPBELL HIGHWAY

CONTOUR INTERVAL 100 FEET



NOTE  
 BASE TOPOGRAPHY FROM NORTH AMERICAN DATUM 1983  
 ALL SURFACE FACILITIES AND BOUNDARIES HAVE BEEN  
 ADJUSTED FROM NAD 1927

- Legend:
-  Access Road
  -  Watercourse
  -  Test plot area



Teck Cominco Ltd. Sä Dena Hes Mine Land Reclamation & Revegetation Plan:  
 2004 Revegetation Test Program

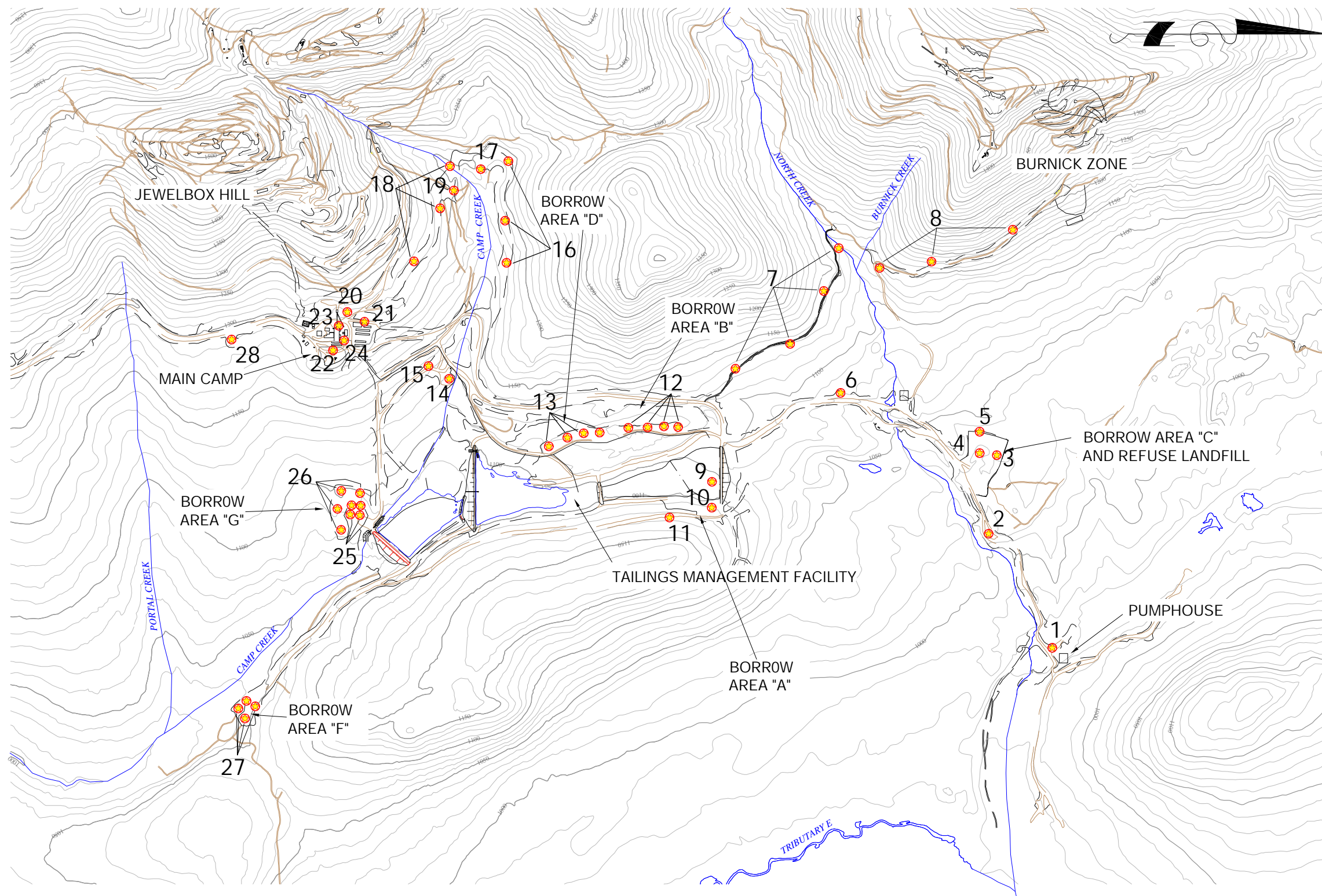
Figure 2: Test Plot Locations - Mine Access Road







Drawn By: JEA	Checked By: TR
Date: 12-31-2004	Project Number: COM-01

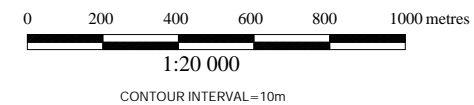
File: D:\Project\cominco\sdh\Revegprgm\Fig5.dwg /layout1

Teck Cominco Ltd. Sä Dena Hes Mine  
 Land Reclamation & Revegetation  
 Plan: 2004 Revegetation Test  
 Program



Legend:

-  Soil Sample Location (2000)
-  Watercourse
-  Road within cleared area
-  Topography



**NOTE**  
 BASE TOPOGRAPHY FROM NORTH AMERICAN DATUM 1983  
 ALL SURFACE FACILITIES AND BOUNDARIES HAVE BEEN  
 ADJUSTED FROM NAD 1927

Figure 3:  
 Test Plot Locations - Mine Site / Tailings Area

Drawn By: JEA

Checked By: TR

Project Number: COM-01

Date: 12-31-2004



## **2.2 2002 PROGRAM**

The specific objectives for the 2002 season were to:

- Examine the test plots for vegetative growth;
- Assess the application rates of seed and fertilizer; and
- Provide recommendations for future action.

A report prepared by Access Consulting Group in early 2003 (AMCL 2003) describes the methods and results of the 2002 monitoring program and recommends action for the 2003 season.

## **2.3 2003 PROGRAM**

The specific objectives for the 2003 season were to:

- Examine the test plots for vegetative growth;
- Assess the application rates of seed and fertilizer and reapply seed and fertilizer as deemed appropriate; and
- Provide recommendations for future action.

A report prepared by Access Consulting Group in March 2004 (AMCL 2004) describes the methods and results of the 2003 monitoring program and recommends action for the 2004 season.

## **2.4 2004 PROGRAM**

The specific objectives for the 2004 season were to:

- Examine the test plots for vegetative growth;
- Analyze seeded vegetation for the uptake of metals;
- Evaluate the results of the Phase II Program over the period from 2001 to 2004, and develop conclusions regarding the relative successes of the various revegetation protocols; and
- Provide recommendations for future action.

The following report sections describe the methods and results of the 2004 program, provides an evaluation of the results from 2001 to 2004, and includes recommendations for future action.

### 3.0 PROJECT METHODS

#### 3.1 SEED TEST PLOT MONITORING

The revegetation test plots were surveyed on September 3, 2004. The weather was cool and windy at the time of the survey. The ground was frozen but had no snow cover. At each site, the total vegetative cover was estimated and an assessment of the growth of each seeded species was made. The results are presented in Section 4.1.

#### 3.2 SHRUB TEST PLOT MONITORING

The two shrub test plots established in the fall of 2000 were surveyed. The number of surviving willow species was counted. The results are shown in Section 4.2.

#### 3.3 VEGETATION AND SOIL SAMPLING FOR METAL CONCENTRATIONS

Samples of plant tissue were collected from two locations for metal analysis. These included an off-site location (Site 1 - km 22 main access road) and an on-site tailings location (Site 5A -TMF<sup>1</sup> with 200 mm soil base). At each site, tissue samples from each species were composited from the four test plots. Approximately 20 grams of each plant species (stem and leaves) were collected. Samples were taken from the following species:

Km 22 Main Access Road	Violet Wheatgrass
	Tufted Hairgrass
	Ticklegrass
	Alpine bluegrass
	Sheep Fescue
	Alfalfa
TMF with 200 mm Soil	Violet Wheatgrass
	Tufted Wheatgrass
	Ticklegrass
	Alpine Bluegrass
	Rocky Mountain Fescue
	Alfalfa

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<sup>1</sup> TMF - tailings management facility

Soil samples were also collected from each of the four test plots at the two sites.

Vegetation and soil samples were collected with latex gloves, placed in Ziploc bags, and shipped to Norwest Labs in Surrey, British Columbia, for metals analysis. The analysis results are discussed in Section 4.3.

Plant tissue samples were also collected from two unseeded plant species that were observed growing in a wet area of the TMF near Site 5C (TMF site with a base of 500 mm rock and 300 mm soil). These species include Water Sedge (*Carex aquatilis*) and Blue-joint Reedgrass (*Calamagrostis canadensis*).

#### **4.0 2004 MONITORING RESULTS**

Following are the results of the 2004 monitoring program.

##### ***4.1 SEED TEST PLOT OBSERVATIONS***

The 2004 revegetation test plot observations are summarized in the following tables.

For the applied seed mixes and fertilizer formulations, see 2001 and 2003 Summary Reports (AMCL 2002 and 2004).

**Km 22 Main Access Road (Site 1)**

Plot #1	Plot #2	Plot #3	Plot #4
<p>2001: 24 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>2003: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>Estimated total cover 60%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● Good distribution over plot</li> <li>● Approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● most plants in seed</li> </ul>	<p>2001: 24 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 50 kg/ha seed &amp; 180 kg/ha fertilizer</p> <p>Estimated total cover 70%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse and patchy distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● most plants in seed</li> </ul>	<p>2001: 12 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 75 kg/ha seed &amp; 240 kg/ha fertilizer</p> <p>Estimated total cover 60%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● most plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 15 cm high</li> <li>● most plants in seed</li> </ul>	<p>Control (no seed or fertilizer)</p> <p>Plot bare except from naturally invading Balsam Poplar, Willows, Fireweed and occasional Trisetum and Luzula</p>

Results Summary of Sä Dena Hes Mine Phase II Revegetation Test Program – 2004

<p>Alfalfa</p> <p>See additional comments below</p> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Alfalfa, Showy Locoweed or Bear Root</li> <li>ticklegrass (probably from wind-blown seed) thriving between plots 1 and 3</li> </ul>	<p>Alfalfa</p> <ul style="list-style-type: none"> <li>very sparse distribution over plot</li> <li>approximately 30 cm high</li> <li>a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> </ul>	<p>Alfalfa</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 20 cm high</li> <li>a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> </ul>	
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**Jewel Box Haul Road near Treeline (Site 2)**

Plot #1	Plot #2	Plot #3	Plot #4
<p>2001: 26 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>2003: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>Estimated total cover 70%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>light and patchy distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	<p>2001: 26 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 50 kg/ha seed &amp; 180 kg/ha fertilizer</p> <p>Estimated total cover 80%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>light distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	<p>2001: 13 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 75 kg/ha seed &amp; 240 kg/ha fertilizer</p> <p>Estimated total cover 95%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>some plants in seed</li> </ul> <p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>light distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	<p>Control (no seed or fertilizer)</p> <p>Plot bare except for scattered occurrences of Fireweed</p>

<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Alfalfa, Showy Locoweed or Bear Root</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● light and patchy distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● moderate but patchy distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● moderate but patchy distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> <li>● occurrence of Foxtail Barley (unseeded weedy species)</li> </ul>	
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**Landfill (Site 3)**

Plot #1	Plot #2	Plot #3	Plot #4
<p>2001: 26 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>2003: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p>	<p>2001: 26 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 50 kg/ha seed &amp; 180 kg/ha fertilizer</p>	<p>2001: 13 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 75 kg/ha seed &amp; 240 kg/ha fertilizer</p>	<p>Control (no seed or fertilizer)</p>

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Estimated total cover 95%	Estimated total cover 90%	Estimated total cover 90%	Plot bare
<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● All plants in seed</li> </ul>	<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● most plants in seed</li> </ul>	
<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 60 cm high</li> <li>● all plants in seed</li> </ul>	
<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse and patchy distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	
<p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	<p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	<p>Sheep Fescue</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	
<p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● most plants in seed</li> </ul>	<p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● most plants in seed</li> </ul>	<p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● most plants in seed</li> </ul>	
<p>Alfalfa</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul>	<p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 30 cm high</li> <li>● a few plants in flower</li> </ul>	<p>Alfalfa</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul>	

<p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> <li>lots of dead grass from previous year</li> </ul>	<p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> <li>lots of dead grass from previous year</li> </ul>	<p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> </ul>	
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**TMF with 200 mm Soil (Site 5A)**

Plot #1	Plot #2	Plot #3	Plot #4
<p>2001: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p>	<p>2001: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p>	<p>2001 12 kg/ha seed &amp; 60 kg/ha fertilizer</p>	<p>Control (no seed or fertilizer)</p>
<p>2003: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p>	<p>2003: 50 kg/ha seed &amp; 180 kg/ha fertilizer</p>	<p>2003: 75 kg/ha seed &amp; 240 kg/ha fertilizer</p>	
<p>Estimated total cover 70%</p>	<p>Estimated total cover 60%</p>	<p>Estimated total cover 80%</p>	<p>Plot bare except for scattered occurrences of Violet Wheatgrass and Ticklegrass (presumably from wind-blown seed)</p>
<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>dense growth and good distribution over plot</li> <li>approximately 10 cm high</li> <li>some plants in seed</li> </ul>	
<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 40 cm high</li> <li>all plants in seed</li> </ul>	
<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Ticklegrass</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	
<p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 20</li> </ul>	<p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 20</li> </ul>	<p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>moderate distribution over plot</li> <li>approximately 20</li> </ul>	

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<p>cm high</p> <ul style="list-style-type: none"> <li>all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 20 cm high</li> <li>all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 20 cm high</li> <li>a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> <li>one occurrence of Alsike Clover (not a seeded species)</li> </ul>	<p>cm high</p> <ul style="list-style-type: none"> <li>all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>sparse distribution over plot</li> <li>approximately 20 cm high</li> <li>all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 30 cm high</li> <li>a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> </ul>	<p>cm high</p> <ul style="list-style-type: none"> <li>all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>dense growth and good distribution over plot</li> <li>approximately 10 cm high</li> <li>very few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>very sparse distribution over plot</li> <li>approximately 20 cm high</li> <li>a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>no evidence of Showy Locoweed or Bear Root</li> <li>Violet Wheatgrass and Alpine Bluegrass have dense growth but plants are poorly developed</li> </ul>	
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**TMF with 300 mm Soil (Site 5B)**

<p>Plot #1</p> <p>2001: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>2003: 25 kg/ha seed &amp; 120 kg/ha fertilizer</p> <p>Estimated total cover 70%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Plot #2</p> <p>2001: 25 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 50 kg/ha seed &amp; 180 kg/ha fertilizer</p> <p>Estimated total cover 70%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>good distribution over plot</li> <li>approximately 25 cm high</li> <li>all plants in seed</li> </ul>	<p>Plot #3</p> <p>2001: 12 kg/ha seed &amp; 60 kg/ha fertilizer</p> <p>2003: 75 kg/ha seed &amp; 240 kg/ha fertilizer</p> <p>Estimated total cover 80%</p> <p>Violet Wheatgrass</p> <ul style="list-style-type: none"> <li>dense growth and good distribution over plot</li> <li>approximately 10 cm high</li> <li>most plants in seed</li> </ul>	<p>Plot #4</p> <p>Control (no seed or fertilizer)</p> <p>Plot bare except for scattered occurrences of Violet Wheatgrass and Ticklegrass (presumably from wind-blown seed)</p> <p>Occurrence of Foxtail Barley (unseeded weedy species) noted</p>
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<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 40 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 15 cm high</li> <li>● a few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 40 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> <li>● growth heaviest in depressions in soil</li> </ul>	<p>Tufted Hairgrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 40 cm high</li> <li>● all plants in seed</li> </ul> <p>Ticklegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul> <p>Rocky Mountain Fescue</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul> <p>Alpine Bluegrass</p> <ul style="list-style-type: none"> <li>● dense growth and good distribution over plot</li> <li>● approximately 10 cm high</li> <li>● all plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> <li>● Violet Wheatgrass and Alpine Bluegrass have dense growth but plants are poorly developed</li> </ul>	
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**TMF with 500 mm Rock and 300 mm Soil (Site 5C)**

Plot #1	Plot #2	Plot #3	Plot #4
2001: 24 kg/ha seed & 120 kg/ha fertilizer	2001: 24 kg/ha seed & 60 kg/ha fertilizer	2001: 12 kg/ha seed & 60 kg/ha fertilizer	Control (no seed or fertilizer)
2003: 25 kg/ha seed & 120 kg/ha fertilizer	2003: 50 kg/ha seed & 180 kg/ha fertilizer	2003: 75 kg/ha seed & 240 kg/ha fertilizer	
Estimated total cover 80%	Estimated total cover 70%	Estimated total cover 70%	Plot bare except for some Violet Wheatgrass, Ticklegrass and low, tufted Kentucky Bluegrass (presumably from wind-blown seed)
Violet Wheatgrass	Violet Wheatgrass	Violet Wheatgrass	
<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● most plants in seed</li> </ul>	
Tufted Hairgrass	Tufted Hairgrass	Tufted Hairgrass	
<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 70 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 70 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 70 cm high</li> <li>● all plants in seed</li> </ul>	
Ticklegrass	Ticklegrass	Ticklegrass	
<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 25 cm high</li> <li>● all plants in seed</li> </ul>	
Rocky Mountain Fescue	Rocky Mountain Fescue	Rocky Mountain Fescue	
<ul style="list-style-type: none"> <li>● light distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● all plants in seed</li> </ul>	
Red Fescue	Red Fescue	Red Fescue	
<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 30 cm high</li> <li>● some plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 30 cm high</li> <li>● some plants in seed</li> </ul>	<ul style="list-style-type: none"> <li>● heavy distribution over plot</li> <li>● approximately 10 cm high</li> <li>● very few plants in seed</li> </ul>	
Alpine Bluegrass	Alpine Bluegrass	Alpine Bluegrass	

<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in seed</li> </ul> <p>Kentucky Bluegrass</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 30 cm high</li> <li>● very few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● moderate distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in seed</li> </ul> <p>Kentucky Bluegrass</p> <ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 30 cm high</li> <li>● very few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> <li>● some Foxtail Barley</li> </ul>	<ul style="list-style-type: none"> <li>● good distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in seed</li> </ul> <p>Kentucky Bluegrass</p> <ul style="list-style-type: none"> <li>● heavy distribution over plot</li> <li>● approximately 15 cm high</li> <li>● very few plants in seed</li> </ul> <p>Alfalfa</p> <ul style="list-style-type: none"> <li>● very sparse distribution over plot</li> <li>● approximately 20 cm high</li> <li>● a few plants in flower</li> </ul> <p><b>additional comments</b></p> <ul style="list-style-type: none"> <li>● no evidence of Showy Locoweed or Bear Root</li> <li>● Red Fescue and Kentucky Bluegrass have dense growth but plants are poorly developed</li> </ul>	
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From an examination of the 2004 monitoring results, the following assessment of the seeded species can be made:

**Violet Wheatgrass (northern native grass seeded at all sites in 2001 and 2003)**

This species has been the most successful of all the seeded grasses. It is fairly well distributed over most of the test plots and most plants were in seed at the time of 2004 monitoring. At the higher rate of seeding (Plot 3) Violet Wheatgrass plants are less well developed, with a lower growth and fewer plants in seed. This was most noticeable on the TMF Sites 5A and 5B and may be the result of the higher application rates of seed and/or fertilizer.

**Tufted Hairgrass (northern native grass seeded at all sites in 2001)**

Although this species was not seeded in 2003 (seed not available at time of seeding), it has persisted from its initial seeding in 2001 with a moderate to good distribution at all sites. Tufted Hairgrass plants appear to be well developed and are producing seed.

**Ticklegrass (northern native grass seeded at all sites in 2001 and 2003)**

Ticklegrass has a sparse to moderate distribution over the test plots. It is not competing well with the other grasses, and because it has very small seeds that are easily wind-blown, ticklegrass is found growing in patches away from the seeded plots. Plants are well developed and producing seed.

**Alpine Bluegrass (northern native grass seeded at Sites 2 and 3 in 2001 and at all sites in 2003)**

This bluegrass species has a moderate to good distribution over the test plots at all sites. Its' best showing is at Site 2 (Jewel Box haul road site) where it is one of the dominant species, along with Violet Wheatgrass. The plants here are mostly all in seed. On plot 3 at TMF Sites 5A and 5B, Alpine Bluegrass has a dense growth, but the plants are poorly developed with few producing seed. This may be indicative of too high an application rate of seed and/or fertilizer.

**Glaucous Bluegrass (northern native grass seeded at Sites 1, 5A, 5B and 5C in 2001)**

Glaucous Bluegrass was not identified at any of the test plots in 2004, although this species can easily be confused with Alpine Bluegrass if not in flower or seed.

**Kentucky Bluegrass (non-native grass seeded at Site 5C in 2003)**

Kentucky Bluegrass is well distributed over the plots at Site 5C. It has a dense growth on plot 3, but these plants are poorly developed with few in seed (this agronomic turf-forming species is a good soil binder and, although it can grow to 70 cm or more high, it can withstand close cropping and is used to form sod and lawns).

**Sheep Fescue (northern native grass seeded at Sites 1, 2 and 3 in 2001)**

This species has been surviving since the 2001 seeding but is not thriving. It has a sparse to moderate distribution at the three sites where it was seeded. All plants observed in 2004 were in seed.

**Rocky Mountain Fescue (northern native grass seeded at Sites 5A, 5B and 5C in 2001)**

Rocky Mountain Fescue has a light to good distribution over the three TMF sites where it was seeded in 2001. Like Sheep Fescue, it is not a major component of the vegetative cover. All plants observed in 2004 were in seed.

**Red Fescue (non-native grass seeded at Site 5C in 2003)**

Red Fescue is well distributed over the plots at Site 5C. It has a dense growth on plot 3, but these plants are poorly developed with few in seed (like Kentucky Bluegrass, this agronomic species is sod-forming and has the potential to choke out less competitive grass species).

**Showy Locoweed (northern native legume seeded at all sites in 2001)**

There was no evidence of Showy Locoweed growing at any of the test sites in 2004 (it had not been observed during earlier monitoring surveys either).

**Bear Root (northern native legume seeded at all sites in 2001)**

There is no evidence of Bear Root growing at any of the test sites in 2004 (like Showy Locoweed, this legume species had not been observed during earlier monitoring surveys).

**Alfalfa (non-native legume seeded at all sites in 2003)**

This legume has a very sparse to moderate distribution at all test sites. Some of the plants observed were in flower. Alfalfa does not constitute a major component of the vegetative cover but, as the only surviving nitrogen-fixing species, it may be an important contributor to the long-term revegetation process.

**Conclusions**

The following provisional conclusions can be made about the revegetation test plots:

- Violet Wheatgrass, Tufted Hairgrass, and Alpine Bluegrass are the most successful of the northern native grass species seeded at the test plots. The success of Alpine Bluegrass was most notable at the Site 2 (Jewel Box haul road near treeline).
- Ticklegrass, Rocky Mountain Fescue and Sheep Fescue, all northern native species, are surviving but are not major components of the vegetative cover on the plots.

- Glaucous Bluegrass (a northern native species seeded in 2001) was not successful.
- The northern native legume species seeded at the test plots (Showy Locoweed and Bear Root seeded in the fall of 2001) were not successful. This may be the result of an unviable batch of seeds, or the seeds may have required mechanical or chemical scarification (softening of the hard seed coats by abrasion or with acid) prior to seeding, and/or these species were inappropriate for the local climate and/or soil conditions. The non-native legume, Alfalfa (seeded in the spring of 2003) has survived two growing seasons, but has a limited presence.
- The two non-native agronomic grass species (Red Fescue and Kentucky Bluegrass), seeded at the TMF Site 5C in 2003, are growing well. These aggressive, rhizomatous, turf-forming species may inhibit the growth of the less competitive native species, but their soil-binding properties may be an asset for revegetating more difficult areas of the TMF.
- The highest rates of seeding (Plot 3) at the TMF sites may be inhibiting the development and seed production of some species, particularly Violet Wheatgrass and Alpine Bluegrass.
- The two TMF sites with soil covers (a 200 mm cap at Site 5A and a 300 mm cap at Site 5B) have similar plant species compositions and densities. The cap thickness, so far, has no noticeable effect on plant growth.

#### **4.2 SHRUB TEST PLOT OBSERVATIONS**

Following are the observations of the two shrub test plots (located at km 16 and at km 22 of the main access road):

<b>Site</b>	<b>Number of Cuttings Established in 2000</b>	<b>Number of Plants Surviving in 2004</b>
Access Road km 16	40	21
Access Road km 22	40	18

Although the number of surviving willows has dropped, the survivors appear healthier than in previous years, particularly at the km 16 site. This may reflect the long period required for cuttings to become rooted on these well-drained, nutrient-poor sites.

#### 4.3 PLANT TISSUE AND SOILS METALS ANALYSIS

The soil metal analysis results show that some soil metal concentrations are noticeably higher at Site 1 (km 22 Main Access Road), including arsenic, barium, cadmium, molybdenum and selenium, while other soil metal levels are higher at Site 5A (TMF site with 200 mm soil cap), including aluminum, calcium, iron, cobalt, lead, magnesium and strontium. A comparison of soil zinc concentrations between the two sites is inconclusive. Zinc at Site 1 ranges from 132 µg/g to 150 µg/g, while zinc at site 5A is lower (88 to 112 µg/g) except for Plot 3 which has zinc level of 1900 µg/g.

The plant tissue analysis results show that changes in some plant tissue metal concentrations correspond to changes in soil metal levels. The metals/plant species that show this correlation are indicated in the following table:

	Alpine Bluegrass	Alfalfa	Ticklegrass	Violet Wheatgrass	Tufted Hairgrass	Sheep/Rocky Mountain Fescue
Aluminum	•		•	•	•	•
Arsenic						
Barium	•	•	•	•	•	•
Beryllium	•					
Cadmium	•	•		•		•
Calcium	•	•	•	•	•	•
Iron	•	•	•	•	•	•
Cobalt	•	•				
Lead	•	•	•	•	•	•
Magnesium						
Molybdenum	•	•			•	•
Selenium						
Strontium	•	•	•	•	•	

The results of the laboratory analysis for metals are shown in Appendix A.

## 5.0 RECOMMENDATIONS

- Further monitoring of the seed test plots is recommended. Only through continued annual monitoring can the success of appropriate revegetation seed formulations (particularly for the TMF) be determined.
- A further metal uptake sampling program be initiated as requested by the company. Monitoring would be similar to the 2004 program for soil and plant tissues, including additional background monitoring stations. Additional data sets are required to assess the significance of metal levels in plant tissue at the site, particularly at stations to be established near and representative of the TMF.
- Once additional background data is collected and a representative data set available, a review and investigation of northern plant tissue metal levels with respect to toxicity to local wildlife and ranges of metal levels in plant tissue at other locations is recommended. This would involve consultations with contaminant specialists and a literature review.
- A program to optimize the timing for seed application is recommended. This program would involve applying proven native seed mix during a separate spring and fall application period. New test plots would be established at existing off-site and two on-site locations (landfill, Jewel Box). The purpose of this test plot would be to determine the optimum seeding application period. This work would be coordinated with other revegetation monitoring and equipment installation at the site.
- Native legume seed mixes have not been seeded successfully at the site. It is recommended that native legume seed mixes be applied again at new test plots using a variety of seed scarification techniques. These techniques could include pre-application seed coat roughing (mechanical tumbler, acid treatment) or other techniques. Legume application should also be optimized as part of the spring/fall seed application trials.

## 6.0 REFERENCES

Access Mining Consultants Ltd. 2004. *Results Summary of Sä Dena Hes Mine Phase II Revegetation Test Program - 2003*. Prepared for TeckCominco Ltd.

Access Mining Consultants Ltd. 2003. *Results Summary of Sä Dena Hes Mine Phase II Revegetation Test Program - 2002*. Prepared for TeckCominco Ltd.

Access Mining Consultants Ltd. 2002. *Results Summary of Sä Dena Hes Mine Phase II Revegetation Test Program - 2001*. Prepared for TeckCominco Ltd.

Access Mining Consultants Ltd. 2001. *Land Reclamation and Revegetation Plan Preliminary Test Program Summary Report - 2000*. Prepared for Cominco Ltd.

Cominco Ltd. 2000. *Sä Dena Hes Mine Detailed Decommissioning and Reclamation Plan*. Prepared by Access Mining Consultants Ltd. and SRK Ltd.



## **Sä Dena Hes Mine**

Land Reclamation and Revegetation Plan

Results Summary of

***Phase II Revegetation Test Program - 2004***

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### *Appendix A*

Laboratory Results of

Plants Tissue and Soils Metal Analysis



## Environmental Sample Information Sheet

NOTE: Proper completion of this form is required in order to proceed with analysis  
See reverse for your nearest Norwest location and proper sampling protocol

<b>Billing Address:</b> Company: <u>ACCESS CONSULTING Group</u> Address: <u>#303 Calcutta Business Centre</u> <u>151 Industrial Rd.</u> Attention: <u>Whitehorse, Yukon</u> Phone: <u>Y1A 2V3</u> Fax: <u>Ph: 867-668-6463</u> Cell: e-mail: <u>travis@accessconsulting.ca</u>		<b>Copy of Report To:</b> Company: Address: Attention: Phone: Fax: Cell: e-mail:	<b>Copy of invoice:</b> <input type="checkbox"/> Mail invoice to this address for approval <input type="checkbox"/>  <b>Report Result:</b> Fax <input type="checkbox"/> Mail <input type="checkbox"/> Courier <input type="checkbox"/> e-mail <input checked="" type="checkbox"/> e-Service <input checked="" type="checkbox"/>
--	--	---	---

<b>Information to be included on Report and Invoice</b> Project ID: <u>COM-01</u> Project Name: <u>Sa'ana Hes Test Program</u> Project Location: Legal Location: PO#: Proj. Acct. Code: Agreement ID:	<b>RUSH</b> Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses or as indicated <input type="checkbox"/> or <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	<b>Sample Custody (Please Print)</b> Relinquished by: <u>J. RITCHIE</u> Company: <u>ACG</u> Signature: _____ I authorize Norwest Labs to proceed with the work indicated on this form: Date: <u>Sept. 7/04</u> Initial: <u>JR</u> Received by: <input type="checkbox"/> Coolers Waybill: <u>04-26734923</u> <input type="checkbox"/> Boxes Company: _____ Time: <input type="checkbox"/> Samples Received By: <u>Donna</u> Date: <u>Sept 13/04</u> Company: <u>332136</u> Time: _____
--	--	---

**Special Instructions / Comments**  Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)

TISSUE Metals Analysis  
by ICP-MS

G3  
A26  
A1  
FID

Composite

Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Number of Containers ↓	Enter tests above (✓ relevant samples below)				
							Tot Metals	Nitrogen (FID)	At, Cond	PSI	
1 Site 1-1			Sept. 03/04 pm	Soil	Grabs	1	✓	✓	✓	✓	
2 " 1-2						1	✓	✓	✓		
3 " 1-3						1	✓	✓	✓		
4 " 1-4						1	✓	✓	✓		
5 " 5A-1						1	✓	✓	✓	✓	
6 5A-2						1	✓	✓	✓		
7 5A-3						1	✓	✓	✓		
8 5A-4						1	✓	✓	✓		
9 Festuca ovina	Site 1			Plant Tissue		1	✓				
10 Poa alpina	Site 1					1	✓				
11 "	5A					1	✓				
12 Medicago Sativa	Site 1					1	✓				
13 Medicago Sativa	5A					1	✓				
14 Agrostis scabra	Site 1					1	✓				
15 Agrostis scabra	5A					1	✓				

NOTE: All hazardous samples must be labelled according to WHMIS guidelines.  
Accredited by the Standards Council of Canada for specific tests

NWL008 (08/03)



## Environmental Sample Information Sheet

NOTE: Proper completion of this form is required in order to proceed with analysis  
See reverse for your nearest Norwest location and proper sampling protocol

<b>Billing Address:</b>		<b>Copy of Report To:</b>		<b>Copy of invoice:</b> <input type="checkbox"/>	
Company: <u>ACCESS Consulting Group</u>		Company:		Mail invoice to this <input type="checkbox"/>	
Address: <u>#3 Calate Business Centre</u>		Address:		address for approval <input type="checkbox"/>	
<u>151 Industrial Road</u>					
<u>Whitehorse, Yukon Y1A</u>					
Attention: <u>T. RITCHIE</u>		Attention:		Report Result: <input type="checkbox"/>	
Phone: <u>867-668-6463</u>		Phone:		Fax <input type="checkbox"/>	
Fax:		Fax:		Mail <input type="checkbox"/>	
Cell:		Cell:		Courier <input type="checkbox"/>	
e-mail: <u>Travis@accessconsulting.ca</u>		e-mail:		e-mail <input type="checkbox"/>	
QA/QC Report <input checked="" type="checkbox"/>		Report Result:		e-service <input type="checkbox"/>	
Report Result: <u>2 V3</u>					

<b>Information to be included on Report and Invoice</b>	<b>RUSH</b> Please contact the laboratory to confirm rush dates and times before submitting samples.	<b>Sample Custody (Please Print)</b>
	Upon filling out this section, client accepts that surcharges will be attached to this analysis	Relinquished by: <u>T. RITCHIE</u>
Project ID: <u>COM.01</u>	Required on: all analyses <input type="checkbox"/> or <input type="checkbox"/>	Company: <u>ACG</u> Signature: <u>[Signature]</u>
Project Name: <u>Sa Denas Test</u>	Date Required: _____	I authorize Norwest Labs to proceed with the work indicated on this form:
Project Location: <u>Reveg. Program</u>	Signature: _____	Date: <u>Sept 7/04</u>
Legal Location:	Norwest Authorization: _____	Initial: <u>TR</u>
PO#:		Received by: _____ <input type="checkbox"/> Coolers
Proj. Acct. Code:		Waybill # _____ Date <input type="checkbox"/> Boxes
Agreement ID:		Company _____ Time <input type="checkbox"/> Samples

**Special Instructions / Comments**  Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)

Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Number of Containers	Enter tests above <input checked="" type="checkbox"/> relevant samples below													
							↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓		
1 <u>Agropyron vidaceum</u>	<u>Site 1</u>	—	<u>Sept. 03/04 pm</u>	<u>Plant tissue</u>	<u>grab</u>	1	✓													
2 " "	<u>5A</u>	—	"			1	✓													
3 <u>Deschampsia caespitosa</u>	<u>Site 1</u>	—	"			1	✓													
4 " "	<u>5A</u>	—	"			1	✓													
5 <u>Festuca saximontana</u>	<u>5A</u>	—	"			1	✓													
6 <u>Calamagrostis canadensis</u>	<u>Adjacent Site SC</u>	—	"	"	"	1	✓													
7 <u>Carex aquatilis</u>	"	—	"	"	"	1	✓													
8		—																		
9		—																		
10		—																		
11		—																		
12		—																		
13		—																		
14		—																		
15		—																		

NW1008 (08/03)



# Report Transmission Cover Page

Norwest Labs  
#104, 19575-55 A Ave.  
Surrey, BC. V3S 8P8  
Phone: (604) 514-3322  
Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
# 3 Calcite Business Centre  
151 Industrial Road  
Whitehorse, YT, Canada  
Y1A 2V3  
Attn: Travis Ritchie  
Sampled By: T.Ritchie  
Company: ACG

**Project ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

Contact	Company	Address
Travis Ritchie Web x Email Notification x	Access Mining Consultants Ltd.	# 3 Calcite Business Centre, 151 Industrial Road Whitehorse, YT Y1A 2V3 Phone: (867) 668-6463 Fax: (867) 667-6680 Email: travis@accessconsulting.ca
<u>Copies</u>	<u>Delivery Strategy</u>	<u>Format</u>

NOTE: **P** indicates a preliminary report is required  
NOTE: **A** indicates report is delivered using automated delivery

\_\_\_\_\_ # OF PAGES IN THIS TRANSMISSION

## Report Transmission Notes

Agreement Notes

Lot Notes

Sample Notes:

**Notes to Clients**

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

## Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
594448 Envir2QC 3 Smp & DL		

## Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

9/21/04 594448 21-Sep-2004



# Sample Custody

Norwest Labs  
#104, 19575-55 A Ave.  
Surrey, BC. V3S 8P8  
Phone: (604) 514-3322  
Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
# 3 Calcite Business Centre  
151 Industrial Road  
Whitehorse, YT, Canada  
Y1A 2V3  
Attn: Travis Ritchie  
Sampled By: T.Ritchie  
Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
Control Number: E 191111  
Date Received: Sep 13, 2004  
Date Reported: Sep 21, 2004  
Report Number: 594448

## Sample Disposal Date: Oct 21, 2004

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

\_\_\_\_\_ **Extend Sample Storage Until** \_\_\_\_\_ (MM/DD/YY)

The following charges apply to extended sample storage:

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

\_\_\_\_\_ **Return Sample, collect, to the address below via:**

- \_\_\_\_\_ Greyhound
- \_\_\_\_\_ Loomis
- \_\_\_\_\_ Purolator
- \_\_\_\_\_ Other (Specify) \_\_\_\_\_

Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Fax: \_\_\_\_\_  
 Signature: \_\_\_\_\_

If no other arrangements have been made, samples will be disposed of on Oct 21, 2004.



# Analytical Report

Norwest Labs  
 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
 Phone: (604) 514-3322  
 Fax: (604) 514-3323

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**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Page: 1 of 20

Analyte	Units	NWL Number 332136-1		NWL Number 332136-2		NWL Number 332136-3	
		Sample Description Site 1 - 1 / 03-Sept-04		Sample Description Site 1 - 2 / 03-Sept-04		Sample Description Site 1 - 3 / 03-Sept-04	
		Matrix	Soil - general	Soil - general	Soil - general		
<b>Available Nutrients</b>							
Ammonium - N	Available-dry basis	mg/kg	0.4	0.5	0.5	0.3	
Nitrate - N	Available	mg/kg	<1	<1	2	1	
Phosphorus	Available	mg/kg	42	130	29	5	
Potassium	Available	mg/kg	78	118	40	10	
Sulphate-S	Available	mg/kg	7	4	4	1	
<b>Metals Strong Acid Extractable</b>							
Mercury	Strong Acid Extractable	ug/g	0.08	0.08	0.10	0.01	
Aluminum	Strong Acid Extractable	ug/g	4690	5970	4650	0.4	
Antimony	Strong Acid Extractable	ug/g	4.8	5.1	4.7	0.3	
Arsenic	Strong Acid Extractable	ug/g	22.3	21.6	19.0	0.5	
Barium	Strong Acid Extractable	ug/g	160	172	156	0.01	
Beryllium	Strong Acid Extractable	ug/g	0.36	0.39	0.35	0.03	
Bismuth	Strong Acid Extractable	ug/g	0.4	<0.3	<0.3	0.4	
Cadmium	Strong Acid Extractable	ug/g	1.43	1.36	1.43	0.03	
Calcium	Strong Acid Extractable	ug/g	11600	11600	14400	10	
Chromium	Strong Acid Extractable	ug/g	24.4	18.5	21.8	0.04	
Cobalt	Strong Acid Extractable	ug/g	5.50	5.58	5.25	0.04	
Copper	Strong Acid Extractable	ug/g	22.4	23.1	21.2	0.05	
Iron	Strong Acid Extractable	ug/g	15400	16800	15000	0.2	
Lead	Strong Acid Extractable	ug/g	11.5	11.6	13.8	0.1	
Magnesium	Strong Acid Extractable	ug/g	6580	6690	8680	3	
Manganese	Strong Acid Extractable	ug/g	183	194	190	0.01	
Molybdenum	Strong Acid Extractable	ug/g	6.44	6.17	6.21	0.05	
Nickel	Strong Acid Extractable	ug/g	48.6	44.5	43.6	0.05	
Phosphorus	Strong Acid Extractable	ug/g	731	1030	851	2	
Selenium	Strong Acid Extractable	ug/g	0.9	0.9	1.1	0.2	
Silicon	Strong Acid Extractable	ug/g	744	1370	1250	0.2	
Silver	Strong Acid Extractable	ug/g	0.44	0.40	0.28	0.05	
Strontium	Strong Acid Extractable	ug/g	19.8	21.0	23.2	0.005	
Sulphur	Strong Acid Extractable	ug/g	236	100	142	0.4	
Thallium	Strong Acid Extractable	ug/g	0.7	0.5	0.4	0.2	
Tin	Strong Acid Extractable	ug/g	0.3	0.3	0.3	0.2	
Titanium	Strong Acid Extractable	ug/g	68.4	88.5	56.1	0.02	
Vanadium	Strong Acid Extractable	ug/g	36.9	43.3	41.0	0.05	
Zinc	Strong Acid Extractable	ug/g	145	142	132	0.03	
Zirconium	Strong Acid Extractable	ug/g	6.08	5.72	7.04	0.05	



# Analytical Report

Norwest Labs  
 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
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**Bill to:** Access Mining Consultants Ltd.  
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 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Units	332136-1		332136-2		332136-3	
		Site 1 - 1 / 03-Sept-04	Matrix	Site 1 - 2 / 03-Sept-04	Matrix	Site 1 - 3 / 03-Sept-04	Matrix
<b>Soil Acidity</b>							
pH	1:2 Soil:Water	pH	8.1	pH	8.0	pH	8.2



# Analytical Report

Norwest Labs  
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**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Units	NWL Number	332136-4	332136-6	332136-7	Detection Limit
		Sample Description	Site 1 - 4 / 03-Sept-04	Site 5A - 1 / 03-Sept-04	Site 5A - 1 - 2 / 03-Sept-04	
		Matrix	Soil - general	Soil - general	Soil - general	
<b>Available Nutrients</b>						
Ammonium - N	Available-dry basis	mg/kg	0.4	0.4	0.5	0.3
Nitrate - N	Available	mg/kg	<1	<1	<1	1
Phosphorus	Available	mg/kg	11	17	27	5
Potassium	Available	mg/kg	22	53	107	10
Sulphate-S	Available	mg/kg	2	15	22	1
<b>Metals Strong Acid Extractable</b>						
Mercury	Strong Acid Extractable	ug/g	0.08	0.02	0.01	0.01
Aluminum	Strong Acid Extractable	ug/g	4960	16500	13100	0.4
Antimony	Strong Acid Extractable	ug/g	3.5	1.7	2.5	0.3
Arsenic	Strong Acid Extractable	ug/g	21.4	10.1	15.1	0.5
Barium	Strong Acid Extractable	ug/g	177	105	92.3	0.01
Beryllium	Strong Acid Extractable	ug/g	0.38	0.54	0.61	0.03
Bismuth	Strong Acid Extractable	ug/g	0.4	0.5	1.8	0.4
Cadmium	Strong Acid Extractable	ug/g	1.64	0.45	13.0	0.03
Calcium	Strong Acid Extractable	ug/g	11000	46600	51700	10
Chromium	Strong Acid Extractable	ug/g	19.1	21.8	18.2	0.04
Cobalt	Strong Acid Extractable	ug/g	5.68	10.4	9.14	0.04
Copper	Strong Acid Extractable	ug/g	22.8	21.8	28.3	0.05
Iron	Strong Acid Extractable	ug/g	15800	34300	31400	0.2
Lead	Strong Acid Extractable	ug/g	14.4	31.9	1240	0.1
Magnesium	Strong Acid Extractable	ug/g	6660	11700	9240	3
Manganese	Strong Acid Extractable	ug/g	183	276	646	0.01
Molybdenum	Strong Acid Extractable	ug/g	7.18	0.95	2.75	0.05
Nickel	Strong Acid Extractable	ug/g	47.9	27.4	25.6	0.05
Phosphorus	Strong Acid Extractable	ug/g	807	723	762	2
Selenium	Strong Acid Extractable	ug/g	1.4	<0.2	0.4	0.2
Silicon	Strong Acid Extractable	ug/g	691	2100	1450	0.2
Silver	Strong Acid Extractable	ug/g	0.33	0.08	1.21	0.05
Strontium	Strong Acid Extractable	ug/g	18.7	142	104	0.005
Sulphur	Strong Acid Extractable	ug/g	106	110	685	0.4
Thallium	Strong Acid Extractable	ug/g	0.3	0.3	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.2	0.3	0.5	0.2
Titanium	Strong Acid Extractable	ug/g	36.1	188	249	0.02
Vanadium	Strong Acid Extractable	ug/g	42.3	24.9	23.9	0.05
Zinc	Strong Acid Extractable	ug/g	150	88.2	1900	0.03



# Analytical Report

Norwest Labs  
 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
 Phone: (604) 514-3322  
 Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Units	Matrix	NWL Number	332136-4	332136-6	332136-7	Detection Limit
			Sample Description	Site 1 - 4 / 03-Sept-04	Soil - general	Site 5A - 1 / 03-Sept-04	
<b>Metals Strong Acid Extractable - Continued</b>							
Zirconium		Strong Acid Extractable	ug/g	7.64	6.71	5.44	0.05
<b>Soil Acidity</b>							
pH		1:2 Soil:Water	pH	8.3	8.1	8.0	

Analyte	Units	Matrix	NWL Number	332136-5	332136-10	Results	Detection Limit
			Sample Description	COMPOSITE / Site 1 - 1,2,3 & 4 - Composite / 03-Sept-04	COMPOSITE / Site 5A - 1 - 1,2,3, & 4 - Composite / 03-Sept-04		
<b>Physical and Aggregate Properties</b>							
Texture				Loamy Sand	Sandy Loam		
Sand		Soil Texture	% by weight	75.0	63.4		0.1
Silt		Soil Texture	% by weight	20.4	26.0		0.1
Clay		Soil Texture	% by weight	4.6	10.6		0.1



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**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
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**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Units	Results		Detection Limit
		332136-8	332136-9	
<b>Available Nutrients</b>				
Ammonium - N	Available-dry basis	mg/kg	0.3	0.3
Nitrate - N	Available	mg/kg	<1	1
Phosphorus	Available	mg/kg	10	<5
Potassium	Available	mg/kg	48	193
Sulphate-S	Available	mg/kg	18	92
<b>Metals Strong Acid Extractable</b>				
Mercury	Strong Acid Extractable	ug/g	0.01	0.02
Aluminum	Strong Acid Extractable	ug/g	16900	16000
Antimony	Strong Acid Extractable	ug/g	2.3	1.8
Arsenic	Strong Acid Extractable	ug/g	10.1	9.6
Barium	Strong Acid Extractable	ug/g	102	95.2
Beryllium	Strong Acid Extractable	ug/g	0.55	0.53
Bismuth	Strong Acid Extractable	ug/g	<0.3	0.5
Cadmium	Strong Acid Extractable	ug/g	0.56	0.55
Calcium	Strong Acid Extractable	ug/g	53500	55600
Chromium	Strong Acid Extractable	ug/g	25.5	21.6
Cobalt	Strong Acid Extractable	ug/g	10.9	10.9
Copper	Strong Acid Extractable	ug/g	23.1	22.8
Iron	Strong Acid Extractable	ug/g	36700	35300
Lead	Strong Acid Extractable	ug/g	50.1	38.3
Magnesium	Strong Acid Extractable	ug/g	12300	11500
Manganese	Strong Acid Extractable	ug/g	290	280
Molybdenum	Strong Acid Extractable	ug/g	1.16	1.11
Nickel	Strong Acid Extractable	ug/g	29.9	27.9
Phosphorus	Strong Acid Extractable	ug/g	784	658
Selenium	Strong Acid Extractable	ug/g	<0.2	<0.2
Silicon	Strong Acid Extractable	ug/g	1380	2080
Silver	Strong Acid Extractable	ug/g	0.07	0.05
Strontium	Strong Acid Extractable	ug/g	151	155
Sulphur	Strong Acid Extractable	ug/g	113	193
Thallium	Strong Acid Extractable	ug/g	0.3	<0.2
Tin	Strong Acid Extractable	ug/g	0.2	0.4
Titanium	Strong Acid Extractable	ug/g	213	202
Vanadium	Strong Acid Extractable	ug/g	24.5	24.7
Zinc	Strong Acid Extractable	ug/g	112	97.9



# Analytical Report

Norwest Labs  
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**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
# 3 Calcite Business Centre  
151 Industrial Road  
Whitehorse, YT, Canada  
Y1A 2V3  
Attn: Travis Ritchie  
Sampled By: T.Ritchie  
Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
Control Number: E 191111  
Date Received: Sep 13, 2004  
Date Reported: Sep 21, 2004  
Report Number: 594448

	NWL Number	332136-8	332136-9		
	Sample Description	Site 5A - 1 - 3 / 03-Sept-04	Site 5A - 1 - 4 / 03-Sept-04		
	Matrix	Soil - general	Soil - general		
Analyte	Units	Results	Results	Results	Detection Limit
<b>Metals Strong Acid Extractable - Continued</b>					
Zirconium	Strong Acid Extractable	ug/g	7 . 65	7 . 37	0 . 05
<b>Soil Acidity</b>					
pH	1:2 Soil:Water	pH	8 . 2	8 . 1	



# Analytical Report

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 Y1A 2V3  
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**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Units	NWL Number	332136-11	332136-12	332136-13	Detection Limit
		Sample Description	Festuca Ovina - Site 1 / Sampled: 03-Sept-04	Poa Alpina - Site 1 / Sampled: 03-Sept-04	Poa Alpina - Site 5A / Sampled: 03-Sept-04	
		Matrix	Tissue	Tissue	Tissue	
<b>Metals Total</b>						
Aluminum	Total	ug/g	15.0	9.6	20.2	1
Antimony	Total	ug/g	<2	<2	<4	2
Arsenic	Total	ug/g	<4	<4	<8	4
Barium	Total	ug/g	99.8	76.2	49.7	0.05
Beryllium	Total	ug/g	<0.05	<0.05	<0.09	0.05
Bismuth	Total	ug/g	<2	<2	<4	2
Cadmium	Total	ug/g	0.969	0.22	0.098	0.05
Calcium	Total	ug/g	4600	2200	4580	1
Chromium	Total	ug/g	5.31	1.38	0.56	0.1
Cobalt	Total	ug/g	<0.1	<0.1	<0.2	0.1
Copper	Total	ug/g	1.86	3.10	4.05	0.1
Iron	Total	ug/g	91.8	39.5	47.9	0.2
Lead	Total	ug/g	<1	<1	<2	1
Lithium	Total	ug/g	<0.6	<0.6	<1	0.6
Magnesium	Total	ug/g	956	578	303	1
Manganese	Total	ug/g	83.1	42.9	78.0	0.05
Molybdenum	Total	ug/g	2.8	2.9	<2	1
Nickel	Total	ug/g	0.62	1.2	1.2	0.2
Phosphorus	Total	ug/g	654	1980	6140	5
Potassium	Total	ug/g	4840	3700	13700	100
Selenium	Total	ug/g	<10	<10	<20	10
Silicon	Total	ug/g	548	463	348	5
Silver	Total	ug/g	<0.2	<0.2	<0.4	0.2
Sodium	Total	ug/g	5.7	<5.0	<9	5
Strontium	Total	ug/g	6.20	3.6	30.1	0.5
Tin	Total	ug/g	3.4	3.1	6.7	1
Titanium	Total	ug/g	1.1	0.58	1.5	0.4
Uranium	Total	ug/g	<6	<6	<10	6
Vanadium	Total	ug/g	1.49	1.20	1.9	0.1
Zinc	Total	ug/g	12.3	19.8	34.9	0.1
Zirconium	Total	ug/g	<0.5	<0.5	<0.9	0.5



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 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

Analyte	Matrix	Units	NWL Number	332136-14	332136-15	332136-16	Detection Limit
			Sample Description	Medicago Sativa - Site 1 / Sampled: 03-Sept-04 Tissue	Medicago Sativa - Site 5A / Sampled: 03-Sept-04 Tissue	Agrostis Scabra - Site 1 / Sampled: 03-Sept-04 Tissue	
<b>Metals Total</b>							
Aluminum	Total	ug/g		17.2	12.6	23.4	1
Antimony	Total	ug/g		<2	<2	<2	2
Arsenic	Total	ug/g		<4	<4	<4	4
Barium	Total	ug/g		254	16.4	33.4	0.05
Beryllium	Total	ug/g		<0.05	<0.05	<0.05	0.05
Bismuth	Total	ug/g		<2	<2	<2	2
Cadmium	Total	ug/g		0.613	0.35	0.25	0.05
Calcium	Total	ug/g		49400	56600	2070	1
Chromium	Total	ug/g		0.49	0.40	4.82	0.1
Cobalt	Total	ug/g		<0.1	0.14	<0.1	0.1
Copper	Total	ug/g		4.89	5.53	3.58	0.1
Iron	Total	ug/g		64.0	90.0	79.5	0.2
Lead	Total	ug/g		<1	1.3	<1	1
Lithium	Total	ug/g		<0.6	<0.6	<0.6	0.6
Magnesium	Total	ug/g		5000	1770	838	1
Manganese	Total	ug/g		51.3	66.1	53.8	0.05
Molybdenum	Total	ug/g		6.1	1.4	1.9	1
Nickel	Total	ug/g		1.6	0.95	1.9	0.2
Phosphorus	Total	ug/g		1520	1770	1240	5
Potassium	Total	ug/g		8780	11400	4800	100
Selenium	Total	ug/g		<10	<10	<10	10
Silicon	Total	ug/g		52.6	68.7	400	5
Silver	Total	ug/g		<0.2	<0.2	<0.2	0.2
Sodium	Total	ug/g		<5.1	67.9	<5.1	5
Strontium	Total	ug/g		81.3	148	2.7	0.5
Tin	Total	ug/g		3.6	3.6	2.0	1
Titanium	Total	ug/g		0.54	1.1	1.0	0.4
Uranium	Total	ug/g		<6	<6	<6	6
Vanadium	Total	ug/g		0.93	0.79	0.96	0.1
Zinc	Total	ug/g		19.5	34.0	21.0	0.1
Zirconium	Total	ug/g		<0.5	<0.5	<0.5	0.5



# Analytical Report

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**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Matrix	Units	NWL Number	332136-17	332136-18	332136-19	Detection Limit
			Sample Description	Agrostis Scabra - Site 5A / Sampled: 03-Sept-04 Tissue	Agropyron Violaceum - Site 1 / Sampled: 03-Sept-04 Tissue	Agropyron Violaceum - Site 5A / Sampled: 03-Sept-04 Tissue	
<b>Metals Total</b>							
Aluminum	Total	ug/g		68.6	5.9	23.2	1
Antimony	Total	ug/g		<2	<2	<2	2
Arsenic	Total	ug/g		<4	<4	<4	4
Barium	Total	ug/g		13.5	50.4	24.3	0.05
Beryllium	Total	ug/g		<0.05	<0.05	<0.05	0.05
Bismuth	Total	ug/g		<2	<2	<2	2
Cadmium	Total	ug/g		1.03	0.40	0.33	0.05
Calcium	Total	ug/g		3060	1370	2320	1
Chromium	Total	ug/g		3.10	1.69	3.06	0.1
Cobalt	Total	ug/g		<0.1	<0.1	<0.1	0.1
Copper	Total	ug/g		3.69	2.14	1.46	0.1
Iron	Total	ug/g		129	26.6	57.4	0.2
Lead	Total	ug/g		8.0	<1	1.7	1
Lithium	Total	ug/g		<0.6	<0.6	<0.6	0.6
Magnesium	Total	ug/g		560	710	237	1
Manganese	Total	ug/g		114	17.2	45.6	0.05
Molybdenum	Total	ug/g		3.2	<1	<1	1
Nickel	Total	ug/g		1.7	0.82	0.89	0.2
Phosphorus	Total	ug/g		896	1790	790	5
Potassium	Total	ug/g		4580	6480	5620	100
Selenium	Total	ug/g		<10	<10	<10	10
Silicon	Total	ug/g		561	507	500	5
Silver	Total	ug/g		<0.2	<0.2	<0.2	0.2
Sodium	Total	ug/g		<5.0	43	<5	5
Strontium	Total	ug/g		9.65	2.3	9.72	0.5
Tin	Total	ug/g		1.2	3.3	2.2	1
Titanium	Total	ug/g		2.1	0.45	0.93	0.4
Uranium	Total	ug/g		<6	<6	<6	6
Vanadium	Total	ug/g		0.91	0.68	0.67	0.1
Zinc	Total	ug/g		68.1	20.9	13.6	0.1
Zirconium	Total	ug/g		<0.5	<0.5	<0.5	0.5



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 151 Industrial Road  
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 Y1A 2V3  
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 Company: ACG

**Project ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Matrix	NWL Number	332136-20	332136-21	332136-22	Detection Limit
		Sample Description	Deschanpsia Caespitosa - Site 1 / Sampled: 03-Sept-04	Deschanpsia Caespitosa - Site 5A / Sampled: 03-Sept-04	Festuca Saximontana - Site 5A / Sampled: 03-Sept-04	
	Units	Results	Results	Results		
<b>Metals Total</b>						
Aluminum	Total	ug/g	3.9	16.3	38.8	1
Antimony	Total	ug/g	<2	<2	<2	2
Arsenic	Total	ug/g	<4	<4	<4	4
Barium	Total	ug/g	43.2	18.9	46.2	0.05
Beryllium	Total	ug/g	<0.05	<0.05	<0.05	0.05
Bismuth	Total	ug/g	<2	<2	<2	2
Cadmium	Total	ug/g	0.13	0.14	0.16	0.05
Calcium	Total	ug/g	1350	1900	5770	1
Chromium	Total	ug/g	1.82	2.89	1.55	0.1
Cobalt	Total	ug/g	<0.1	<0.1	<0.1	0.1
Copper	Total	ug/g	2.66	2.18	2.62	0.1
Iron	Total	ug/g	30.9	44.8	86.2	0.2
Lead	Total	ug/g	<1	1.5	7.9	1
Lithium	Total	ug/g	<0.6	<0.6	<0.6	0.6
Magnesium	Total	ug/g	466	129	408	1
Manganese	Total	ug/g	38.3	67.6	100	0.05
Molybdenum	Total	ug/g	1.6	<1	<1	1
Nickel	Total	ug/g	1.6	0.75	1.0	0.2
Phosphorus	Total	ug/g	1060	685	1260	5
Potassium	Total	ug/g	4130	4510	4050	100
Selenium	Total	ug/g	<10	<10	<10	10
Silicon	Total	ug/g	466	509	372	5
Silver	Total	ug/g	<0.2	<0.2	<0.2	0.2
Sodium	Total	ug/g	<5.0	17	<5.0	5
Strontium	Total	ug/g	2.3	10.2	33.2	0.5
Tin	Total	ug/g	2.7	3.1	2.5	1
Titanium	Total	ug/g	<0.4	0.57	1.7	0.4
Uranium	Total	ug/g	<6	<6	<6	6
Vanadium	Total	ug/g	0.38	0.36	0.40	0.1
Zinc	Total	ug/g	17.8	15.8	40.6	0.1
Zirconium	Total	ug/g	<0.5	<0.5	<0.5	0.5



# Analytical Report

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 151 Industrial Road  
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 Attn: Travis Ritchie  
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**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
 Control Number: E 191111  
 Date Received: Sep 13, 2004  
 Date Reported: Sep 21, 2004  
 Report Number: 594448

Analyte	Matrix	Units	NWL Number	332136-23	332136-24	Results	Detection Limit
			Sample Description	Calamagrostis Canadensis - Adjacent Site 5C / Sampled: 03-Sept-04	Carex Aquatilis - Adjacent Site 5C / Sampled: 03-Sept-04		
<b>Metals Total</b>							
Aluminum	Total	ug/g		22.3	17.7		1
Antimony	Total	ug/g		<2	<2		2
Arsenic	Total	ug/g		<4	<4		4
Barium	Total	ug/g		24.2	9.29		0.05
Beryllium	Total	ug/g		<0.05	<0.05		0.05
Bismuth	Total	ug/g		<2	<2		2
Cadmium	Total	ug/g		6.64	0.42		0.05
Calcium	Total	ug/g		5670	8760		1
Chromium	Total	ug/g		2.51	0.97		0.1
Cobalt	Total	ug/g		<0.1	<0.1		0.1
Copper	Total	ug/g		8.84	7.26		0.1
Iron	Total	ug/g		138	99.7		0.2
Lead	Total	ug/g		38.6	8.3		1
Lithium	Total	ug/g		<0.6	<0.6		0.6
Magnesium	Total	ug/g		1600	1680		1
Manganese	Total	ug/g		236	361		0.05
Molybdenum	Total	ug/g		4.2	2.2		1
Nickel	Total	ug/g		0.98	0.76		0.2
Phosphorus	Total	ug/g		705	912		5
Potassium	Total	ug/g		11600	11400		100
Selenium	Total	ug/g		<10	<10		10
Silicon	Total	ug/g		505	399		5
Silver	Total	ug/g		<0.2	<0.2		0.2
Sodium	Total	ug/g		<5.0	14		5
Strontium	Total	ug/g		21.8	33.5		0.5
Tin	Total	ug/g		2.6	3.2		1
Titanium	Total	ug/g		1.8	1.1		0.4
Uranium	Total	ug/g		<6	<6		6
Vanadium	Total	ug/g		0.30	0.29		0.1
Zinc	Total	ug/g		378	243		0.1
Zirconium	Total	ug/g		<0.5	<0.5		0.5



## Analytical Report

Norwest Labs  
#104, 19575-55 A Ave.  
Surrey, BC. V3S 8P8  
Phone: (604) 514-3322  
Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
# 3 Calcite Business Centre  
151 Industrial Road  
Whitehorse, YT, Canada  
Y1A 2V3  
Attn: Travis Ritchie  
Sampled By: T.Ritchie  
Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
Control Number: E 191111  
Date Received: Sep 13, 2004  
Date Reported: Sep 21, 2004  
Report Number: 594448

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Approved by:

Bill Warning, B.Sc.  
Lab Operations Manager

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## Quality Control

**Norwest Labs**  
 #104, 19575-55 A Ave.  
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**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
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### Available Nutrients

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/kg	<1	0	0	0	✓
Phosphorus	mg/kg	<5	0	0	0	✓
Potassium	mg/kg	<10	0	-1	2	✓
Sulphate-S	mg/kg	0	0	-1	1	✓
Material Used: Edmonton Method Blank						
Date Acquired: Sep 17, 2004						
Acquired By: Amanda Mitchell						
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Nitrate - N	mg/kg	1	1	10	0	✓
Ammonium - N	mg/kg	1330	1420	10.0	0.1	✓
Material Used: Edmonton Duplicate						
Date Acquired: Sep 16, 2004						
Acquired By: Darren Crichton						
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Nitrate - N	mg/kg	10	8	6	11	✓
Phosphorus	mg/kg	29	34	27	40	✓
Potassium	mg/kg	224	244	200	288	✓
Sulphate-S	mg/kg	9	8	4	11	✓
Ammonium - N	mg/kg	9.8	9.8	6.4	13.3	✓
Material Used: 2001 Farm Soil Standard						
Date Acquired: Sep 16, 2004						
Acquired By: Darren Crichton						



## Quality Control

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 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
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**P.O.:**  
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**NWL Lot ID:** 332136  
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**Date Received:** Sep 13, 2004  
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### Metals Strong Acid Extractable

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Mercury	ug/g	<0.00	0.00	0.00	0.00	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Sep 16, 2004					
Acquired By:	Fernando Maelalane					
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Mercury	ug/g	0.23	0.23	9.99	0.03	✓
Aluminum	ug/g	18800	19900	30.0	1.2	✓
Antimony	ug/g	2.6	2.4	30.0	0.9	✓
Arsenic	ug/g	9.3	7.9	30.0	1.5	✓
Barium	ug/g	900	921	30.00	0.03	✓
Beryllium	ug/g	0.50	0.48	30.00	0.09	✓
Bismuth	ug/g	0.4	0.6	30.0	1.2	✓
Cadmium	ug/g	1.01	0.98	30.00	0.09	✓
Calcium	ug/g	44200	44600	30	30	✓
Chromium	ug/g	25.1	28.6	30.00	0.12	✓
Cobalt	ug/g	10.3	10.0	30.00	0.12	✓
Copper	ug/g	166	166	30.00	0.15	✓
Iron	ug/g	33000	30000	30.0	0.6	✓
Lead	ug/g	334	351	30.0	0.3	✓
Magnesium	ug/g	5420	5840	30	9	✓
Manganese	ug/g	728	757	30.00	0.03	✓
Molybdenum	ug/g	1.05	1.04	30.00	0.15	✓
Nickel	ug/g	34.3	36.1	30.00	0.15	✓
Phosphorus	ug/g	3600	3680	30	6	✓
Selenium	ug/g	<0.2	<0.2	30.0	0.6	✓
Silicon	ug/g	1410	1800	30.0	0.6	✓
Silver	ug/g	0.61	0.67	30.00	0.15	✓
Strontium	ug/g	444	467	30.000	0.015	✓
Sulphur	ug/g	955	969	30.0	1.2	✓
Thallium	ug/g	<0.2	<0.2	30.0	0.6	✓
Tin	ug/g	22.8	23.0	30.0	0.6	✓
Titanium	ug/g	809	880	30.00	0.06	✓
Vanadium	ug/g	47.2	48.3	30.00	0.15	✓
Zinc	ug/g	544	554	30.00	0.09	✓
Zirconium	ug/g	4.13	4.38	30.00	0.15	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Sep 16, 2004					
Acquired By:	Fernando Maelalane					



## Quality Control

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 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
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 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
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**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

### Metals Strong Acid Extractable (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Mercury	ug/g	1.52	1.45	1.18	1.72	✓
Aluminum	ug/g	28900	23838	15648	32028	✓
Antimony	ug/g	1.8	3.1	0.2	6.0	✓
Arsenic	ug/g	15.8	16.7	14.5	18.9	✓
Barium	ug/g	378	415	352	478	✓
Beryllium	ug/g	0.76	0.77	0.65	0.89	✓
Bismuth	ug/g	0.6	1.0	0.3	1.6	✓
Cadmium	ug/g	0.36	0.39	0.33	0.44	✓
Calcium	ug/g	13000	14275	12190	16360	✓
Chromium	ug/g	73.5	68.0	51.1	84.9	✓
Cobalt	ug/g	10.8	11.5	10.2	12.8	✓
Copper	ug/g	31.7	33.7	28.6	38.8	✓
Iron	ug/g	36100	34279	25531	43027	✓
Lead	ug/g	12.5	12.9	10.8	15.0	✓
Magnesium	ug/g	13000	13112	10787	15437	✓
Manganese	ug/g	437	483	411	555	✓
Molybdenum	ug/g	1.16	1.37	0.81	1.93	✓
Nickel	ug/g	72.4	76.4	67.7	85.1	✓
Phosphorus	ug/g	598	595	433	757	✓
Selenium	ug/g	0.4	1.2	-0.7	3.2	✓
Silicon	ug/g	3320	1351	-983	3685	✓
Silver	ug/g	0.28	0.35	0.16	0.54	✓
Strontium	ug/g	98.5	105	94	116	✓
Sulphur	ug/g	869	907	777	1037	✓
Thallium	ug/g	<0.2	0.2	0.0	0.4	✓
Tin	ug/g	1.0	0.8	0.2	1.3	✓
Titanium	ug/g	457	431	257	605	✓
Vanadium	ug/g	74.3	63.9	50.2	77.6	✓
Zinc	ug/g	77.5	89.4	73.3	105.5	✓
Zirconium	ug/g	5.07	4.18	2.30	6.06	✓

Material Used: Metals Soils  
 Date Acquired: Sep 16, 2004  
 Acquired By: Fernando Maelalane



## Quality Control

**Norwest Labs**  
 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
 Phone: (604) 514-3322  
 Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

### Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	uq/q	<1.0	0.00	-0.01	0.01	✓
Antimony	uq/q	<2	0.00	-0.02	0.02	✓
Arsenic	uq/q	<4	0.00	-0.04	0.04	✓
Barium	uq/q	0.064	0.0000	-0.0005	0.0005	✓
Beryllium	uq/q	<0.05	0.0000	-0.0005	0.0005	✓
Bismuth	uq/q	<2	0.00	-0.02	0.02	✓
Cadmium	uq/q	<0.05	0.0000	-0.0005	0.0005	✓
Calcium	uq/q	<1.0	0.00	-0.01	0.01	✓
Chromium	uq/q	0.15	0.000	-0.001	0.001	✓
Cobalt	uq/q	<0.1	0.000	-0.001	0.001	✓
Copper	uq/q	0.32	0.000	-0.001	0.001	✓
Iron	uq/q	0.40	0.000	-0.002	0.002	✓
Lead	uq/q	<1	0.000	-0.010	0.010	✓
Lithium	uq/q	<0.6	0.000	-0.006	0.006	✓
Magnesium	uq/q	<1	0.00	-0.01	0.01	✓
Manganese	uq/q	0.30	0.0000	-0.0005	0.0005	✓
Molybdenum	uq/q	<1	0.0	0.0	0.0	✓
Nickel	uq/q	<0.2	0.000	-0.002	0.002	✓
Phosphorus	uq/q	69.0	0.00	-0.05	0.05	✓
Potassium	uq/q	<100	0.0	-1.0	1.0	✓
Selenium	uq/q	<10	0.00	-0.10	0.10	✓
Silicon	uq/q	<5	0.00	-0.05	0.05	✓
Silver	uq/q	<0.2	0.000	-0.002	0.002	✓
Sodium	uq/q	<5.0	0.00	-0.05	0.05	✓
Strontium	uq/q	<0.5	0.000	-0.005	0.005	✓
Sulphur	uq/q	<100	0.0	-1.0	1.0	✓
Thorium	uq/q	n	0.000	-0.005	0.005	✓
Tin	uq/q	3.3	0.000	-0.010	0.010	✓
Titanium	uq/q	<0.4	0.000	-0.004	0.004	✓
Uranium	uq/q	<6	0.00	-0.06	0.06	✓
Vanadium	uq/q	0.23	0.000	-0.001	0.001	✓
Zinc	uq/q	0.50	0.0000	-0.0010	0.0010	✓
Zirconium	uq/q	<0.5	0.000	-0.005	0.005	✓

Material Used: Metals Blank - solids  
 Date Acquired: Sep 15, 2004  
 Acquired By: Darren Crichton



## Quality Control

**Norwest Labs**  
 #104, 19575-55 A Ave.  
 Surrey, BC. V3S 8P8  
 Phone: (604) 514-3322  
 Fax: (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

### Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	uq/g	3.9	17.8	30.00	0.05	✓
Antimony	uq/g	<2	<2	30.00	0.10	✓
Arsenic	uq/g	<4	<4	30.00	0.20	✓
Barium	uq/g	43.2	9.07	30.0000	0.0025	✓
Beryllium	uq/g	<0.05	<0.05	30.0000	0.0025	✓
Bismuth	uq/g	<2	<2	30.00	0.10	✓
Cadmium	uq/g	0.13	0.44	30.0000	0.0025	✓
Calcium	uq/g	1350	8970	30.00	0.05	✓
Chromium	ug/g	1.82	0.95	30.000	0.005	✓
Cobalt	uq/g	<0.1	<0.1	30.000	0.005	✓
Copper	ug/g	2.66	7.56	30.000	0.005	✓
Iron	uq/g	30.9	98.3	30.000	0.020	✓
Lead	ug/g	<1	8.1	30.000	0.050	✓
Lithium	uq/g	<0.6	<0.6	30.000	0.030	✓
Magnesium	ug/g	466	1720	30.00	0.05	✓
Manganese	uq/g	38.3	367	30.0000	0.0025	✓
Molybdenum	uq/g	1.6	2.2	30.0	0.1	✓
Nickel	uq/g	1.6	0.88	30.000	0.010	✓
Phosphorus	uq/g	1060	976	30.00	0.25	✓
Potassium	uq/g	4130	11700	30.0	5.0	✓
Selenium	uq/g	<10	<10	30.00	0.50	✓
Silicon	uq/g	466	519	30.00	0.25	✓
Silver	uq/g	<0.2	<0.2	30.000	0.010	✓
Sodium	ug/g	<5	17	30.00	0.25	✓
Strontium	uq/g	2.3	33.7	30.000	0.025	✓
Sulphur	ug/g	360	2370	30.0	5.0	✓
Thorium	uq/g	n	n	30.000	0.025	✓
Tin	ug/g	2.7	3.3	30.000	0.050	✓
Titanium	uq/g	<0.4	1.0	30.000	0.020	✓
Uranium	ug/g	<6	<6	30.00	0.30	✓
Vanadium	uq/g	0.38	0.27	30.000	0.005	✓
Zinc	uq/g	17.8	250	30.0000	0.0050	✓
Zirconium	uq/g	<0.5	<0.5	30.000	0.025	✓

Material Used: Metals Int. Duplicate - solids  
 Date Acquired: Sep 15, 2004  
 Acquired By: Darren Crichton



## Quality Control

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 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

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**NWL Lot ID: 332136**  
 Control Number: E 191111  
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### Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	µg/g	322	598	508	688	✓
Antimony	µg/g	<2	0.06	0.05	0.07	✓
Arsenic	µg/g	<4	0.11	0.10	0.13	✓
Cadmium	µg/g	1.50	1.52	1.29	1.75	✓
Calcium	µg/g	48900	50500	42925	58075	✓
Chromium	µg/g	1.65	1.99	1.69	2.29	✓
Cobalt	µg/g	0.49	0.570	0.485	0.656	✓
Copper	µg/g	5.05	4.70	4.00	5.41	✓
Iron	µg/g	313	368	313	423	✓
Manganese	µg/g	233	246	209	283	✓
Nickel	µg/g	1.7	1.59	1.35	1.83	✓
Phosphorus	µg/g	2200	2160	1836	2484	✓
Potassium	µg/g	25200	27000	22950	31050	✓
Selenium	µg/g	<10	0.05	0.05	0.06	✓
Sodium	µg/g	87.1	136	116	156	✓
Vanadium	µg/g	0.57	0.835	0.709	0.961	✓
Zinc	µg/g	32.2	30.9	26.3	35.6	✓

Material Used: S0157 NIST 1573a - metals in tomato leaves  
 Date Acquired: Sep 15, 2004  
 Acquired By: Marie England

Aluminum	µg/g	162	249	212	286	✓
Arsenic	µg/g	<4	0.06	0.05	0.07	✓
Barium	µg/g	117	124	105	143	✓
Cadmium	µg/g	<0.05	0.0260	0.0221	0.0299	✓
Calcium	µg/g	15600	15600	13260	17940	✓
Copper	µg/g	3.93	3.70	3.15	4.26	✓
Iron	µg/g	219	218	185	251	✓
Lead	µg/g	<1	0.870	0.740	1.001	✓
Magnesium	µg/g	3940	4320	3672	4968	✓
Manganese	µg/g	92.8	98.0	83.3	112.7	✓
Nickel	µg/g	0.58	0.690	0.585	0.795	✓
Phosphorus	µg/g	1320	1370	1165	1576	✓
Potassium	µg/g	23300	24300	20655	27945	✓
Selenium	µg/g	<10	0.12	0.10	0.14	✓
Sodium	µg/g	<5	24.0	20.4	27.6	✓
Strontium	µg/g	58.1	53.0	45.1	61.0	✓
Vanadium	µg/g	0.51	0.370	0.315	0.426	✓
Zinc	µg/g	18.3	17.9	15.2	20.6	✓

Material Used: S0167 NIST 1547 - metals in peach leaves  
 Date Acquired: Sep 15, 2004  
 Acquired By: Marie England



## Quality Control

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 Phone: (604) 514-3322  
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**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
 # 3 Calcite Business Centre  
 151 Industrial Road  
 Whitehorse, YT, Canada  
 Y1A 2V3  
 Attn: Travis Ritchie  
 Sampled By: T.Ritchie  
 Company: ACG

**Project**  
**ID:** COM\*01  
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**Location:**  
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**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
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**Report Number:** 594448

### Physical and Aggregate Properties

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Moisture	%	37.5	27.3	10.0		✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Sep 16, 2004					
Acquired By:	Marlon Pataenon					
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Sand	% by weight	33.0	33.9	28.9	38.9	✓
Silt	% by weight	36.4	36.5	31.6	41.4	✓
Clay	% by weight	30.6	29.6	24.1	35.1	✓
Material Used:	2000-Physical Standard					
Date Acquired:	Sep 20, 2004					
Acquired By:	Kevin Zhang					

### Soil Acidity

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.4	6.5	5.0	8.0	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Sep 17, 2004					
Acquired By:	Cristian Arce					
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH	pH	8.3	8.3	0.3	0.3	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Sep 17, 2004					
Acquired By:	Cristian Arce					
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.4	6.3	6.1	6.6	✓
Material Used:	2001 Farm Soil Standard					
Date Acquired:	Sep 17, 2004					
Acquired By:	Cristian Arce					



## Methodology and Notes

Norwest Labs  
#104, 19575-55 A Ave.  
Surrey, BC. V3S 8P8  
**Phone:** (604) 514-3322  
**Fax:** (604) 514-3323

**Bill to:** Access Mining Consultants Ltd.  
**Report to:** Access Mining Consultants Ltd.  
# 3 Calcite Business Centre  
151 Industrial Road  
Whitehorse, YT, Canada  
Y1A 2V3  
Attn: Travis Ritchie  
Sampled By: T.Ritchie  
Company: ACG

**Project ID:** COM\*01  
**Name:** SaDewaltes TestReveg. Program  
**Location:**  
**LSD:**  
**P.O.:**  
**Acct. Code:**

**NWL Lot ID:** 332136  
**Control Number:** E 191111  
**Date Received:** Sep 13, 2004  
**Date Reported:** Sep 21, 2004  
**Report Number:** 594448

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### Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Ammonium-N (Extractable) in Soil	McKeague	* Nitrate and Ammonium Extractable by 2N KCl, 4.35	16-Sep-04	Norwest Labs Edmonton
Mercury (Hot Block) in Soil	US EPA	* Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	17-Sep-04	Norwest Labs Edmonton
Metals SemiTrace (Total) in vegetation (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	17-Sep-04	Norwest Labs Surrey
Metals Trace (BCMOE SALM) in soil	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	16-Sep-04	Norwest Labs Edmonton
Metals Trace (BCMOE SALM) in soil	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	16-Sep-04	Norwest Labs Edmonton
Nutrients in General Soil	Comm. Soil Sci. Pl. Anal.	* Modified Kelowna Soil Test, Vol 26, 1995	17-Sep-04	Norwest Labs Edmonton
Particle Size Analysis - GS	Carter	* Hydrometer Method, 47.3	21-Sep-04	Norwest Labs Edmonton
pH and Conductivity in general soil 1:2	McKeague	1:2 Soil:Water Ratio, 4.12	17-Sep-04	Norwest Labs Edmonton
Sulfate in General Soil	McKeague	* Sulfate Extractable by 0.1M CaCl <sub>2</sub> , 4.47	17-Sep-04	Norwest Labs Edmonton

\* Norwest method(s) is based on reference method

### References:

APHA	Standard Methods for the Examination of Water and Wastewater
Carter	Soil Sampling and Methods of Analysis
Comm. Soil Sci. Pl. Anal.	Communications in Soil Science and Plant Analysis
McKeague	Manual on Soil Sampling and Methods of Analysis
US EPA	US Environmental Protection Agency Test Methods

### Comments:

Please direct any inquiries regarding this report to our Client Services group.  
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



## **Sä Dena Hes Mine**

Land Reclamation and Revegetation Plan

Results Summary of

### ***Phase II Revegetation Test Program - 2004***

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## *Appendix B*

2004 Revegetation

Test Program Photos

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**Km 22 Main Access Road**



**Jewel Box Haul Road**



**Landfill**



**Natural Revegetation (Sedges and Grasses) on TMF**



**TMF with 200 mm Soil**



**TMF with 200 mm Soil - Plot 2 (Note patchy growth of Alfalfa)**



**TMF with 300 mm Soil**



**TMF with 200 mm Soil - Plot 3 (Note stunted growth of Alpine Bluegrass)**



**TMF with 500 mm Rock Base and 300 mm Soil**



**Shrub Test Plot At Km 15 Main Access Road**

**(Note natural revegetation occurring on sides of borrow pit but not on hard compacted bottom)**

**APPENDIX C**

**LISTING OF**

**2004 WILDLIFE SIGHTINGS**

**AT THE MINE SITE**

## SA DENA HES MINE SITE - WILDLIFE SIGHTINGS - 2004

### ARCTIC LOONS

### BLACK BEAR

01-Jun-04	3	Burnick Road - Black bear with 2 cubs
12-Jun-04	3	Reclaim Pond - Black bear with 2 cubs
03-Jul-04	1	km 20
16-Sep-04	1	Reclaim Pond

### GEESE

17-Jul-04	200	Tailings and Reclaim Ponds - forced out of their nesting area by forest fires
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### GROUSE

### LYNX

19-Jul-04	1	km 17
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### MOOSE

19-Jan-04	2	km 6 & 13
22-Jan-04	2	km 8 & 15
19-Feb-04	1	km 6
21-Jun-04	1	Reclaim Pond - Cow moose
12-Aug-04	1	Caretaker shot moose at 7:00am at km 15 - 5 year old with 58" rack
30-Aug-04	1	Hunters shot moose at km 18 - 2 year old
21-Dec-04	2	Cow and calf at km 16 - Cow standing in ditch, snow above belly - calf laying on road, half starved and weak - didn't move when caretaker drove by
28-Dec-04		Looks like wolves killed calf previously mentioned on Dec.21/04 - blood and pieces of hide on road - mother gone.

### OSPREY

20-Jul-04	3	Nesting at Reclaim Pond - two chicks - only one survived
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### OTTER

### PORCUPINE

### WOLF

### WOLVERINE

05-Jun-04	1	km 14
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