Table CR-15-1. Old Crusher Area Remediation Confirmation Soil Samples - Metals

Gartner Lee

Parameter	Units	Federal CCME Guidelines		Location: Old Crusher										
				Sample ID	CR-66-F-C	CR-67-F-C	CR-79-F-Q* (duplicate of CR-67-F-C)	CR-68-F-C	CR-69-F-C	CR-70-W-C	CR-71-W-C	CR-72-W-C	CR-73-W-C	CR-74-W-C	CR-75-W-C
				Date Sampled	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03	8/10/03
				Field Screen Pb (ppm)[c]	150.59	186.06	29.63	208.03	153.41	48.37	37.11	92.77	17.18	107.2	36.87
				Field Screen Zn (ppm)[c]	341.99	416.65	283.37	430.14	395	271.84	212.81	256.59	207.59	409.4	268.28
		CEQG (PL)[a]	SQRO[b]	Analytical Results											
Physical Tests															
pH		-		8.81	-	-	-	-	-	-	-	-	-	-	-
Total Metals															
Antimony T-Sb	mg/kg	20[d]		<20	-	-	-	-	-	-	-	-	-	-	-
Arsenic T-As	mg/kg	12		11	-	-	-	-	-	-	-	-	-	-	-
Barium T-Ba	mg/kg	500		798	-	-	-	-	-	-	-	-	-	-	-
Beryllium T-Be	mg/kg	4[d]		<1	-	-	-	-	-	-	-	-	-	-	-
Cadmium T-Cd	mg/kg	10		<1	-	-	-	-	-	-	-	-	-	-	-
Chromium T-Cr	mg/kg	64		12	-	-	-	-	-	-	-	-	-	-	-
Cobalt T-Co	mg/kg	50[d]		4	-	-	-	-	-	-	-	-	-	-	-
Copper T-Cu	mg/kg	63		18	-	-	-	-	-	-	-	-	-	-	-
Lead T-Pb	mg/kg		2000	<200	209	328	235	<200	<200	<200	<200	<200	<200	<200	<200
Mercury T-Hg	mg/kg	6.6		0.07	-	-	-	-	-	-	-	-	-	-	-
Molybdenum T-Mo	mg/kg	10[d]		<8	-	-	-	-	-	-	-	-	-	-	-
Nickel T-Ni	mg/kg	50		21	-	-	-	-	-	-	-	-	-	-	-
Selenium T-Se	mg/kg	1		<3[e]	-	-	-	-	-	-	-	-	-	-	-
Silver T-Ag	mg/kg	20[d]		<4	-	-	-	-	-	-	-	-	-	-	-
Tin T-Sn	mg/kg	50[d]		<10	-	-	-	-	-	-	-	-	-	-	-
Vanadium T-V	mg/kg	130		61	-	-	-	-	-	-	-	-	-	-	-
Zinc T-Zn	mg/kg		10000	155	170	400	228	141	55	52	65	49	108	85

Associated ALS Analytics files: T2886

Notes:

Bold	*Exceeds the CCME Tier 1 Soil Quality Guidelines for Parkland Land Use*
Bold	*Exceeds the CCME Tier 3 Risk-Based Soil Soil Quality Remedial Objectives for the Polaris Mine Site*

<= Less than analytical method detection limit

"-" = No analysis performed for given parameter, or no guideline

na = No field screening result available

a) Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) - Tier 1 soil quality remediation guidelines for parkland land use (PL). The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

b) Canadian Council of Ministers of Environment (CCME) Tier 3 Risk based soil quality remedial objective (SQRO) for the Polaris Mine Site.

c) Field screening measurements are based on the Niton XLi 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

d) Canadian Council of Ministers of Environment (CCME) Tier 1 parkland land use interim remediation criteria, where soil quality gudelines based on the CCME soil protocol have not been developed yet.

e) The analytical method detection limit (MDL) exceeds the CCME Tier 1 Soil Quality Remediation Guidelines for parkland land use (PL).

**Sample CR-79-F-Q is recorded as CR-79-F-C in ALS report T2886*

Table CR-15-1. Old Crusher Area Remediation Confirmation Soil Samples - Metals

Gartner Lee

Parameter	Units	Location	Old Crusher		
		Sample ID	CR-76-W-C	CR-77-F-D*	CR-78-F-D**
		Date Sampled	8/10/03	8/10/03	8/10/03
		Field Screen Pb (ppm)[c]	292.62	290.15	308.5
		Field Screen Zn (ppm)[c]	535.48	683.87	560.14
		Federal CCME Guidelines			
		CEQG (PL)[a]	SQRO[b]	Analytical Results		
Physical Tests						
pH		-		-	-	-
Total Metals						
Antimony T-Sb	mg/kg	20[d]		-	-	-
Arsenic T-As	mg/kg	12		-	-	-
Barium T-Ba	mg/kg	500		-	-	-
Beryllium T-Be	mg/kg	4[d]		-	-	-
Cadmium T-Cd	mg/kg	10		-	-	-
Chromium T-Cr	mg/kg	64		-	-	-
Cobalt T-Co	mg/kg	50[d]		-	-	-
Copper T-Cu	mg/kg	63		-	-	-
Lead T-Pb	mg/kg		2000	227	<200	184
Mercury T-Hg	mg/kg	6.6		-	-	-
Molybdenum T-Mo	mg/kg	10[d]		-	-	-
Nickel T-Ni	mg/kg	50		-	-	-
Selenium T-Se	mg/kg	1		-	-	-
Silver T-Ag	mg/kg	20[d]		-	-	-
Tin T-Sn	mg/kg	50[d]		-	-	-
Vanadium T-V	mg/kg	130		-	-	-
Zinc T-Zn	mg/kg		10000	202	331	201

Associated ALS Analytics files: T2886

Notes:

Bold	*Exceeds the CCME Tier 1 Soil Quality Guidelines for Parkland Land Use*
Bold	*Exceeds the CCME Tier 3 Risk-Based Soil Soil Quality Remedial Objectives for the Polaris Mine Site*

<= Less than analytical method detection limit

"-" = No analysis performed for given parameter, or no guideline

na = No field screening result available

a) Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) - Tier 1 soil quality remediation guidelines for parkland land use (PL). The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

b) Canadian Council of Ministers of Environment (CCME) Tier 3 Risk based soil quality remedial objective (SQRO) for the Polaris Mine Site.

c) Field screening measurements are based on the Niton XLi 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

d) Canadian Council of Ministers of Environment (CCME) Tier 1 parkland land use interim remediation criteria, where soil quality gudelines based on the CCME soil protocol have not been developed yet.

e) The analytical method detection limit (MDL) exceeds the CCME Tier 1 Soil Quality Remediation Guidelines for parkland land use (PL).

**Sample CR-77-F-D is recorded as CR-77-D in ALS report T2886*

***Sample CR-78-F-D is recorded incorrectly as CR-78-F-D in ALS report T2886*

Table CR-15-2. Old Crusher Area Quality Assurance and Quality Control Remediation Soil Samples

Gartner Lee	Parameter	Pb		Zn		Total Pb			Total Zn		
	Relative Percent Difference (RpD)[a]	MDL	PQL[b]	MDL	PQL[b]	Sample Pb	Duplicate Pb	RpD[a] (%)	Sample Zn	Duplicate Pb	RpD[a] (%)
Sample ID	**Duplicate ID**										
On Site Field Screening Duplicates											
CR-12-I-D	CR-64-I-Q	20	100	60	300	483	376	25.1	818	681	18.3
CR-23-I-D	CR-37-I-Q	20	100	60	300	182	395	**74.1**	659	1701	**88.3**
CR-47-I-D	CR-63-I-D	20	100	60	300	422	285	38.9	752	648	14.8
CR-49-I-D	CR-65-I-D	20	100	60	300	498	453	9.6	961	954	0.7
Analytical Laboratory Duplicate											
CR-67-F-C	CR-79-F-Q	200	1000	4	20	209	328	na	170	400	**80.7**
Analytical Laboratory Replicates											
CR-76-W-C	QC# 350293	200	1000	4	20	227	223	na	202	185	8.8

Notes:

Bold — *RpD value is greater than or equal to 50% and the concentrations of both samples are greater than the practical quantitation limit (PQL)*

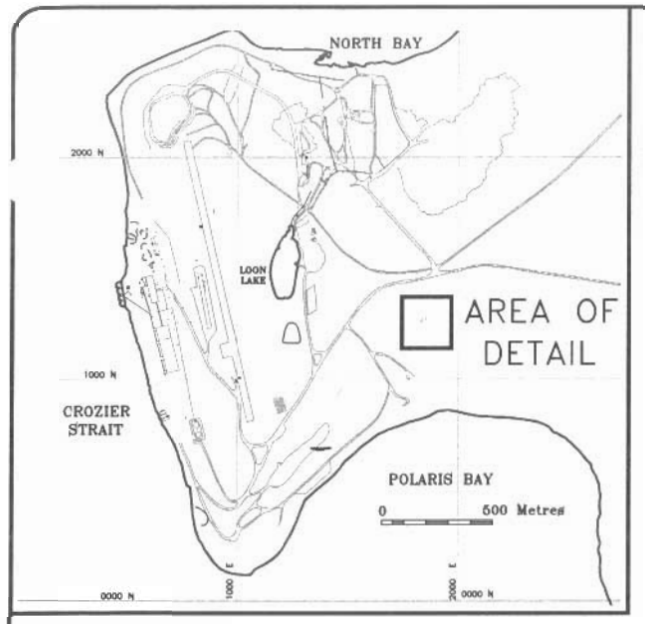
"na" = RpD value is not applicable because one or both results are less than the practical quantitation limit (PQL).

"-" = no result for given parameter

"<" = less than analytical method detection limit

*a) Relative Percent Difference = RpD = (Difference/Average) * 100*

*b) Practical Quantitation Limit (PQL)=5 * Method Detection Limit (MDL)*



N

0 5 10 20 30 Metres

SCALE 1:750

LEGEND:

- LOCATION OF EXISTING BUILDING AND/OR FACILITY
- LIMIT OF 2003 EXCAVATION
- EXCAVATION GRID
- GROUND CONTOURS BEFORE REMEDIATION (m)
- AREA OF CONCERN FOR METALS CONTAMINATION FROM THE 1999–2000 ENVIRONMENTAL SITE ASSESSMENT (ESA)
- SS 22 — SURFACE SAMPLE (1999/2000 ENVIRONMENTAL SITE ASSESSMENT
- CR-7-I-D — FIELD SCREENING SURFACE SAMPLE (2003)

2003 SAMPLE NAMING CONVENTION

CR-7-I-D: AREA; SAMPLE ID; TYPE (C= COMPOSITE SAMPLE FLOOR-5 SAMPLES IN A 25x25m AREA WALL-5 SAMPLES ALONG 25m OF WALL; D= DISCRETE SAMPLE; Q= DUPLICATED QUALITY ASSURANCE/ QUALITY CONTROL SAMPLE); LOCATION (F= FLOOR SAMPLE; I= INTERMEDIATE FLOOR SAMPLE; W= WALL SAMPLE)

ZINC CONCENTRATION IN SOILS (1999 & 2000 DATA)

- 0–1000 PPM

LEAD CONCENTRATION IN SOILS (1999 & 2000 DATA)

- 0–1,000 PPM
- FIELD SCREENING RESULTS USING NITON XRF ANALYZER INDICATE LEAD CONCENTRATIONS IN SOIL ≥ 1,500 ppm AND/OR ZINC CONCENTRATIONS IN SOIL ≥ 8,500 ppm
- FIELD SCREENING RESULTS USING NITON XRF ANALYZER INDICATE LEAD CONCENTRATIONS IN SOIL < 1,500 ppm AND/OR ZINC CONCENTRATIONS IN SOIL < 8,500 ppm

SOURCE OF DRAWING:
SITE SURVEYS PROVIDED BY SNC LAVALIN SEPTEMBER, 2003

NOTE:
THIS IS AREA 15 SHOWN ON FIGURE 1 "CONTAMINATED SOILS REMEDIATION PROGRESS PLAN, DECEMBER 31, 2003"

DRAWING INFORMATION:

REVIEWED BY:	KT/AL
DRAWN BY:	CPW
DATE ISSUED:	13 FEBRUARY, 2004
PROJECT NUMBER:	23-305
FILE NAME:	23305-6F-03.DWG
REVISION:	0

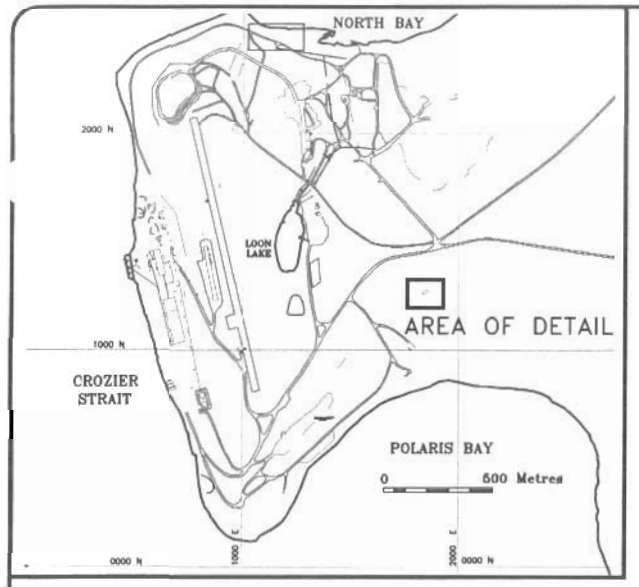
teckcominco

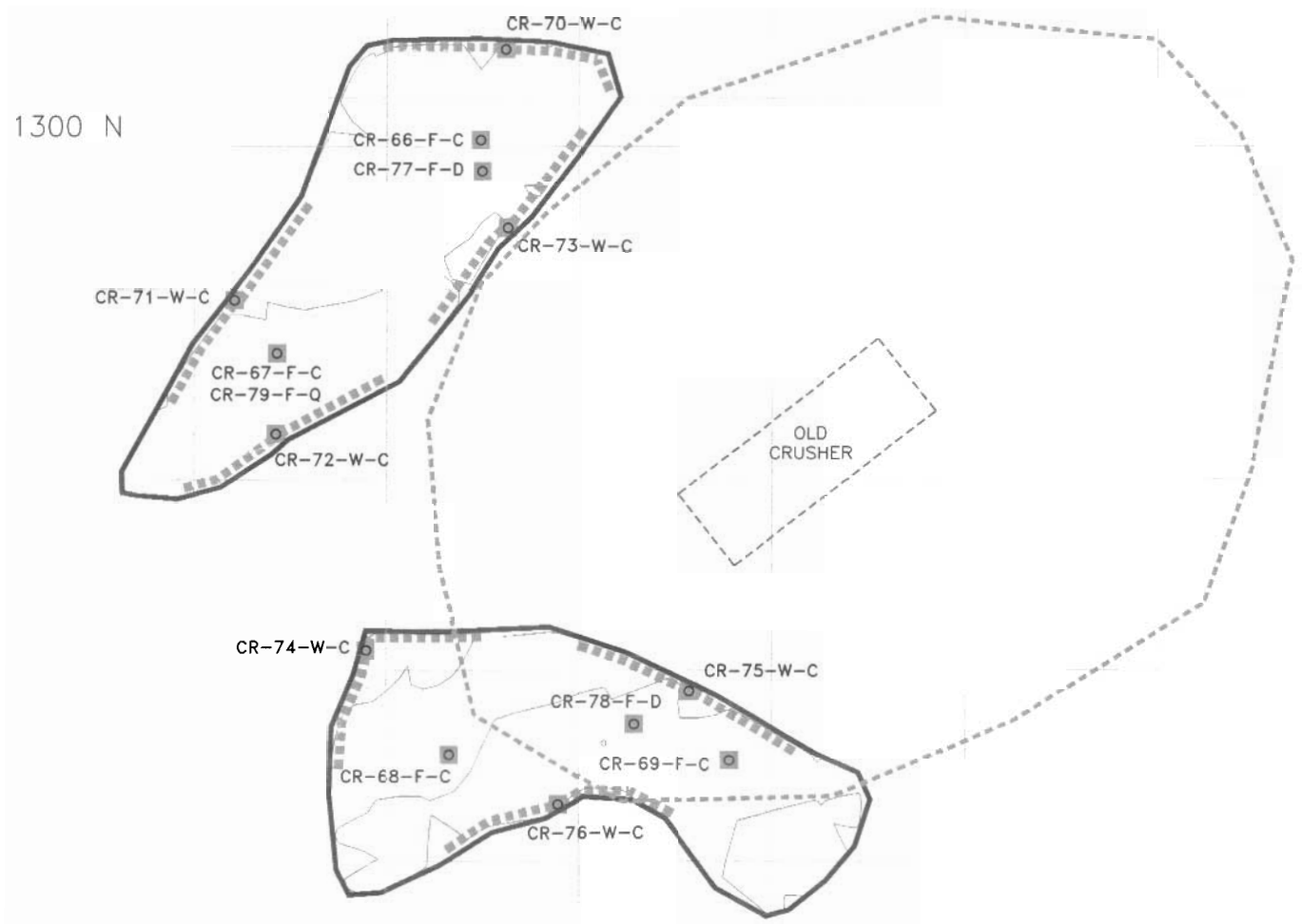
CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

OLD CRUSHER AREA CONDITIONS BEFORE REMEDIATION (DECEMBER 31, 2003)

Gartner Lee

Figure No. CR-15-1





N

0 5 10 20 30 Metres

SCALE 1:750

2003 CONFIRMATION SAMPLES

FLOOR SAMPLES

Sample ID	Pb (mg/kg)	Zn (mg/kg)
CR-66-F-C	<200	155
CR-67-F-C	209	170
CR-79-F-Q Duplicate of CR-67-F-C	328	400
CR-68-F-C	235	228
CR-69-F-C	<200	141
CR-77-F-D	<200	331
CR-78-F-D	184	201

WALL SAMPLES

Sample ID	Pb (mg/kg)	Zn (mg/kg)
CR-70-W-C	<200	55
CR-71-W-C	<200	52
CR-72-W-C	<200	65
CR-73-W-C	<200	49
CR-74-W-C	<200	108
CR-75-W-C	<200	85
CR-76-W-C	227	202

NOTES:

<200 Less than detection limit

Pb, Zn Lead or Zinc concentrations obtained from ALS analytical laboratory

LEGEND:

- FORMER LOCATION OF BUILDINGS AND FACILITES (REMOVED)
- ROADS
- EXCAVATION GRID
- LIMIT OF 2003 EXCAVATION
- CONTOURS - BASE OF EXCAVATION (m)
- AREA OF METAL CONCERN FROM 1999-2000 ENVIRONMENTAL SITE ASSESSMENT

2003 SAMPLES

- CONFIRMATORY FLOOR OR WALL SAMPLE

SAMPLE NAMING CONVENTION

CR-73-W-C

- AREA
- SAMPLE ID
- TYPE C= COMPOSITE SAMPLE
  - FLOOR-5 SAMPLES IN A 25x25m AREA
  - WALL-5 SAMPLES ALONG 25m OF WALL
  - D= DISCRETE SAMPLE
  - Q= DUPLICATED QUALITY ASSURANCE/ QUALITY CONTROL SAMPLE
- LOCATION F= FLOOR SAMPLE
  - I= INTERMEDIATE FLOOR SAMPLE
  - W= WALL SAMPLE

- SAMPLE CONTAINS LESS THAN 10,000 mg/kg ZINC
- SAMPLE CONTAINS LESS THAN 2,000 mg/kg LEAD
- AREA OF WALL COMPOSITE WALL SAMPLE CONTAINS LESS THAN 10,000 mg/kg ZINC OR 2,000 mg/kg LEAD

NOTE:
THIS IS AREA 15 SHOWN ON FIGURE 1 "CONTAMINATED SOILS REMEDIATION PROGRESS PLAN, DECEMBER 31, 2003"

SOURCE OF DRAWING:
SITE SURVEYS PROVIDED BY SNC LAVALIN SEPTEMBER, 2003

REVIEWED BY:	KT/AL
DRAWN BY:	CPW
DATE ISSUED:	13 FEBRUARY, 2004
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REVISION:	0

teckcominco

CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

OLD CRUSHER AREA CONDITIONS AFTER REMEDIATION (DECEMBER 31, 2003)

Gartner Lee

Figure No. CR-15-2

Appendix G

Polaris Mine Operations Contaminated Soil Remediation Close Out Report: Main Snow Dump

Gartner Lee

Gartner Lee Limited

December 31, 2003

Mr. Bruce Donald
Teck Cominco Limited
Bag 2000
Kimberley, BC V1A 3E1

Dear Mr. Donald:

Re: 23305 – Polaris Mine Operations Contaminated Soil Remediation
Close Out Report: Main Snow Dump

BACKGROUND

The main snow dump (shown as Area 17 shown Figure 1: *Contaminated Soils Remediation Progress Plan*) was one of four locations used for the storage of snow that had been collected from travel routes on the Polaris mine site. The snow dumps were identified as areas of environmental concern in the Environmental Site Assessment (ESA), due to the inclusion of particulates with elevated lead and zinc concentrations. Prior to the ESA, snow dumping at the main snow dump had ceased, and any remaining snow had been removed.

The main snow dump (MSD) was located at the southern tip of the mine site peninsula. Once the Snow Dump was removed, five test pits were excavated in the underlying soils during the Environmental Site Assessment (ESA) conducted in 1999 and 2000 as shown in Figure SD-17-1. Test pits MSD-1 through MSD-4 were excavated downslope between the former Snow Dump and the ocean. Test pit MSD-5 was excavated upslope of the former Snow Dump to provide background metal concentrations in soils for the area.

The ESA testpit results are as follows:

- the stratigraphy in the vicinity of the main snow dump consists of beach gravels, sands and stones, underlain by bedrock at depths ranging from 0.2 m to 0.55 m below ground surface;
- MSD-1 intersected lead and zinc concentrations greater than the soil quality remediation objective (SQRO) of 2,000 mg/kg for lead and 10,000 mg/kg for zinc from 0.1 m to 0.5 m;
- MSD-2 intersected lead and zinc concentrations greater than the SQROs from 0.1 m to 0.3 m;
- MSD-3 intersected lead and zinc concentrations greater than the SQROs from 0.1 m to 0.3 m;

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www.gartnerlee.com

- MSD-5 background concentrations of lead and zinc were: 652 mg/kg of lead and 788 of mg/kg zinc; and
- MSD-4 located to the west of the Snow Dump did not intersect elevated concentrations of lead or zinc indicating that the contamination did not extend outside the immediate area of the snow dump face.

Total metal analysis of the samples collected at the snow dump showed that cadmium concentrations were greater than the generic Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) for Parkland land use in test pits MSD-1, 2, 3, located at the snow dump face.

METHODOLOGY

Excavation

The excavation of the main snow dump proceeded based on the results of the 1999/2000 ESA data.

Three 25 m x 25 m square blocks were excavated to a depth of 0.5 m using MSD-1, MSD-2 and MSD-3 as their respective center points. The initial excavation was completed on August 13, 2003, and 18 samples were collected the same day. Soil samples from the initial excavation were prepared and field screened with the Niton X-Ray Fluorescence (XRF) elemental analyzer.

The contaminated portions of the floors and walls were identified and an additional 0.3m of material was excavated from the floor. The excavation limits surrounding MSD-3 and MSD-1 were also expanded as follows:

- The 25 m x 25 m square block around MSD-3 was stepped out 10m to the north and 15 m to the south, creating a 50 m x 25 m block; and
- The 25 m x 25 m square block surrounding MSD-1 was stepped out 10m to the north and 10 m to the east, creating a 35 m x 35 m block.

The second sampling event occurred on August 19, 2003, and a total of fourteen (14) floor and wall samples were collected. Results of this sampling event indicated that, while the majority of the samples met the SQROs, some metal contamination remained in the floor.

The third excavation of 0.3 m was completed on August 24, 2003, and samples were taken on the same day. A total of six (6) confirmation samples were collected, and all of them passed the field screening.

The limits of the excavation are outlined in Figure SD-17-2 and soils were removed to a maximum depth of 0.9 m in some areas. This material was disposed of in the underground workings in accordance with regulatory approvals. Sample locations are also shown in Figure SD-17-2.

ANALYTICAL RESULTS

Laboratory results for the main snow dump are located in Table SD-17-1. A total of 17 confirmatory samples were submitted for this area: two (2) discrete wall; one (1) discrete floor; seven (7) composite floors; and seven (7) composite walls. All samples submitted returned lead and zinc concentrations below the Polaris Mine SQRO's.

Total metal analyses were performed on four (4) composite confirmatory samples. The approved site specific remedial objectives allow for minor exceedances in a small percentage (less than 5%) of the confirmatory samples, so long as the concentration is less than twice the remedial target. One floor sample, located in the southernmost excavation grid cell, returned a nickel concentration of 63 mg/kg, which is greater than the generic CCME, CEQG for Parkland land use, 50 mg/kg. The total metal analyses and leachate analyses conducted during the ESA did not identify nickel as a contaminate of concern.

Given the immobile nature of nickel encountered on site, demonstrated by the leachate results and relatively low level of concentrations, no further remedial excavation work is considered necessary to meet the approved closure plan objectives.

Quality Assurance and Quality Control (QA/QC)

Relative percent differences (RpD) have been calculated and compiled in table SD-17-2 for five (5) on site field screening duplicates and two (2) analytical laboratory duplicates of confirmatory samples.

The analytical laboratory replicate QA/QC results provide confidence that the SQROs have been met despite the RpD value above 50% for two QA/QC sets. All sample results and replicate results were well below the SQRO. The variance between the sample and its replicate may be a result of sample inhomogeneity as the material sampled was very coarse.

Three of the RpDs generated from the field screening duplicates are above the site specific protocol of 50%. These include the field screening sample and duplicate results from:

- SD-25-W-C and SD-36-W-Q for lead;
- SD-25-W-C and SD-36-W-Q for zinc; and
- SD-43-F-C and SD-44-F-Q for zinc.

In each instance, the field screening sample and its duplicate both returned Niton XRF results well below the SQRO suggesting that these sample results are acceptable in meeting the remedial objectives. However, it indicates the variability. The variance between the sample and its duplicate is likely a result of sample heterogeneity.

CONCLUSION

Based on confirmatory sampling consistent with good practice and the approved site specific sampling procedures and protocols, the remediation of the main snow dump area has been completed to meet the Polaris Mine remedial targets, as documented in the approved Polaris Mine Decommissioning and Remediation Plan, March 2001.

LIMITATIONS

This report has been prepared by Gartner Lee Limited and the information in this report is intended for the use of Teck Cominco Metals Limited during the decommissioning and reclamation program currently underway at the Polaris Mine Site. Any use which a third party makes of this report, or any reliance on or decisions made on the basis of the information in this report is the responsibility of such third parties. Gartner Lee Limited accepts no responsibility for damages, if any, suffered by the third party, based on the use of or reliance on any information contained in this report.

The scope of Gartner Lee Limited's work was limited to that described in this report. The confirmation of environmental conditions at the site of the remedial work is based on sampling at specific wall and floor locations within the excavation limits. Gartner Lee Limited has used judgement in the interpretation of the available information but subsurface physical and/or chemical characteristics may vary between or beyond sampling locations. Gartner Lee Limited is not a guarantor of the environmental condition of the site but warrants only that its work was undertaken and its report prepared in a manner consistent with the level of skill and diligence normally exercised by competent environmental professionals practicing in the Nunavut Territory.

Yours very truly,
GARTNER LEE LIMITED

Feb17/04

Arlene Laudrum, P.Geol.
Remediation Supervisor, Polaris Mine Project

Karlette Tunaley, EIT
Field Scientist

AL:KT

THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS and GEOPHYSICISTS OF THE NORTHWEST TERRITORIES
PERMIT NUMBER
P 324 Feb17/04
GARTNER LEE LIMITED

ATTACHMENTS

Tables

Table SD-17-1: Main Snow Dump Remediation Confirmation Soil Samples - Metals
Table SD-17-2: Main Snow Dump Quality Assurance and Quality Control Remediation Soil Samples

Figures

Figure SD-17-1: Main Snow Dump Area Conditions, Before Remediation (December 31, 2003)
Figure SD-17-2: Main Snow Dump Area Conditions, After Remediation (December 31, 2003)

Table SD-17-1. Main Snow Dump Remediation Confirmation Soil Samples - Metals

Gartner Lee

Parameter	Units	Federal CCME Guidelines		Location: Snow Dump									
				Sample ID	SD-7-F-C*	SD-8-F-D**	SD-10-W-C	SD-12-W-C	SD-13-F-C	SD-22-F-C	SD-24-W-C	SD-28-W-C	SD-33-F-C	SD-34-W-C
				Date Sampled	8/18/03	8/18/03	8/18/03	8/18/03	8/18/03	8/19/03	8/19/03	8/19/03	8/19/03	8/19/03
				Field Screen Pb [c] (ppm)	159.32	205.84	256.07	363.77	136.37	290.02	224.46	256.96	301.51	287.42
				Field Screen Zn [c] (ppm)	934.42	1058.66	1141.67	386.82	573.55	369.9	354.53	299.97	444.73	336.33
		CEQG (PL)[a]	SQRO[b]	Analytical Results										
Physical Tests														
pH			-	-	-	-	-	-	8.25	9.4	9.22	-	-	-
Total Metals														
Antimony T-Sb	mg/kg	20[d]	-	-	-	-	-	-	<30[e]	<20	<20	-	-	-
Arsenic T-As	mg/kg	12	-	-	-	-	-	-	<20[e]	<10	<10	-	-	-
Barium T-Ba	mg/kg	500	-	-	-	-	-	-	469	318	274	-	-	-
Beryllium T-Be	mg/kg	4[d]	-	-	-	-	-	-	<2	<1	<1	-	-	-
Cadmium T-Cd	mg/kg	10	-	-	-	-	-	-	<2	<1	<1	-	-	-
Chromium T-Cr	mg/kg	64	-	-	-	-	-	-	<6	5	4	-	-	-
Cobalt T-Co	mg/kg	50[d]	-	-	-	-	-	-	<6	<4	<4	-	-	-
Copper T-Cu	mg/kg	63	-	-	-	-	-	-	<3	9	7	-	-	-
Lead T-Pb	mg/kg	-	2000	<200	<200	<200	250	<200	194	200	181	239	189	
Mercury T-Hg	mg/kg	6.6	-	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	
Molybdenum T-Mo	mg/kg	10[d]	-	-	-	-	-	<20[e]	<8	<8	-	-	-	
Nickel T-Ni	mg/kg	50	-	-	-	-	-	<20	<10	<10	-	-	-	
Selenium T-Se	mg/kg	1	-	-	-	-	-	<2[e]	<3[e]	<3[e]	-	-	-	
Silver T-Ag	mg/kg	20[d]	-	-	-	-	-	<6	<4	<4	-	-	-	
Tin T-Sn	mg/kg	50[d]	-	-	-	-	-	<20	<10	<10	-	-	-	
Vanadium T-V	mg/kg	130	-	-	-	-	-	11	34	31	-	-	-	
Zinc T-Zn	mg/kg	-	10000	316	433	215	2480	101	110	101	95	129	110	

Associated ALS Analytics files: T4634, T4071, T3279, T3191, T3069

Notes:

Bold	*Exceeds the CCME Tier 1 Soil Quality Guidelines for Parkland Land Use*
Bold	*Exceeds the CCME Tier 3 Risk-Based Soil Soil Quality Remedial Objectives for the Polaris Mine Site*

<= Less than analytical method detection limit

"-" = No analysis performed for given parameter, or no guideline

na = No field screening result available

a) Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) - Tier 1 soil quality remediation guidelines for parkland land use (PL). The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

b) Canadian Council of Ministers of Environment (CCME) Tier 3 Risk based soil quality remedial objective (SQRO) for the Polaris Mine Site.

c) Field screening measurements are based on the Niton XLi 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

d) Canadian Council of Ministers of Environment (CCME) Tier 1 parkland land use interim remediation criteria, where soil quality gudelines based on the CCME soil protocol have not been developed yet.

e) The analytical method detection limit (MDL) exceeds the CCME Tier 1 Soil Quality Remediation Guidelines for parkland land use (PL).

**Sample SD-7-F-C is recorded as SD-07-F-C in ALS report T3191* ***Sample SD-8-F-D is recorded as SD-08-F-D in ALS report T3191*

Table SD-17-1. Main Snow Dump Remediation Confirmation Soil Samples - Metals

Gartner Lee

Parameter	Units	Federal CCME Guidelines		Location	Snow Dump				
				Sample ID	SD-37-W-C	SD-38-W-D*	SD-39-W-C	SD-40-W-D	SD-41-F-C	SD-47-F-C
				Date Sampled	8/24/03	8/24/03	8/24/03	8/24/03	8/24/03	9/27/03
				Field Screen Pb [c] (ppm)	58.5	91.03	73.12	269.84	269.38	na
				Field Screen Zn [c] (ppm)	295.15	1048.22	573.7	1306.18	827.22	na
		CEQG (PL)[a]	SQRO[b]	Analytical Results						
Physical Tests										
pH			-	-	-	-	-	-	8.48	-
Total Metals										
Antimony T-Sb	mg/kg	20[d]	-	-	-	-	-	-	<10	-
Arsenic T-As	mg/kg	12	-	-	-	-	-	-	10	-
Barium T-Ba	mg/kg	500	-	-	-	-	-	-	83	-
Beryllium T-Be	mg/kg	4[d]	-	-	-	-	-	-	0.7	-
Cadmium T-Cd	mg/kg	10	-	-	-	-	-	-	3.5	-
Chromium T-Cr	mg/kg	64	-	-	-	-	-	-	46	-
Cobalt T-Co	mg/kg	50[d]	-	-	-	-	-	-	18	-
Copper T-Cu	mg/kg	63	-	-	-	-	-	-	16	-
Lead T-Pb	mg/kg	-	2000	<50	93	265	859	231	1120
Mercury T-Hg	mg/kg	6.6	-	-	-	-	-	-	<0.05	-
Molybdenum T-Mo	mg/kg	10[d]	-	-	-	-	-	-	<4	-
Nickel T-Ni	mg/kg	50	-	-	-	-	-	-	**63**	-
Selenium T-Se	mg/kg	1	-	-	-	-	-	-	<2[e]	-
Silver T-Ag	mg/kg	20[d]	-	-	-	-	-	-	<2	-
Tin T-Sn	mg/kg	50[d]	-	-	-	-	-	-	<5	-
Vanadium T-V	mg/kg	130	-	-	-	-	-	-	46	-
Zinc T-Zn	mg/kg	-	10000	200	638	1020	1040	1090	2920

Associated ALS Analytics files: T4634, T4071, T3279, T3191, T3069

Notes:

Bold	*Exceeds the CCME Tier 1 Soil Quality Guidelines for Parkland Land Use*
Bold	*Exceeds the CCME Tier 3 Risk-Based Soil Soil Quality Remedial Objectives for the Polaris Mine Site*

<= Less than analytical method detection limit

"-" = No analysis performed for given parameter, or no guideline

na = No field screening result available

a) Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) - Tier 1 soil quality remediation guidelines for parkland land use (PL). The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

b) Canadian Council of Ministers of Environment (CCME) Tier 3 Risk based soil quality remedial objective (SQRO) for the Polaris Mine Site.

c) Field screening measurements are based on the Niton XLi 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

d) Canadian Council of Ministers of Environment (CCME) Tier 1 parkland land use interim remediation criteria, where soil quality gudelines based on the CCME soil protocol have not been developed yet.

e) The analytical method detection limit (MDL) exceeds the CCME Tier 1 Soil Quality Remediation Guidelines for parkland land use (PL).

**Sample SD-38-W-D is recorded incorrectly as SD-38-W-C in ALS report T3279*

Table SD-17-2. Main Snow Dump Quality Assurance Quality Control Remediation Soil Samples

Gartner Lee	Parameter	Pb		Zn		Total Pb			Total Zn		
	Relative Percent Difference (RpD)[a]	MDL	PQL[b]	MDL	PQL[b]	Sample Pb	Duplicate Pb	RpD[a] (%)	Sample Zn	Duplicate Zn	RpD[a] (%)
Sample ID	Duplicate ID										
On Site Field Screening Duplicates											
SD-3-W-C	SD-19-W-Q	70	350	150	750	523	682	26.4	1806	1808	0.1
SD-12-W-C	SD-35-W-Q	70	350	150	750	364	330	na	387	352	na
SD-25-W-C	SD-36-W-Q	70	350	150	750	476	1166	**84.1**	1704	4401	**88.4**
SD-41-F-C	SD-45-F-Q	70	350	150	750	269	135	na	827	409	na
SD-43-F-C	SD-44-F-Q	70	350	150	750	2779	2653	4.7	4224	1901	**75.8**
Analytical Laboratory Replicates											
SD-34-W-C	QC# 351553	100	500	2	10	189	194	na	110	138	22.6
SD-12-W-C	QC# 351520	100	500	2	10	250	226	na	2480	255	**162.7**

Notes:

Bold — *RpD value is greater than or equal to 50% and the concentrations of both samples are greater than the practical quantitation limit (PQL)*

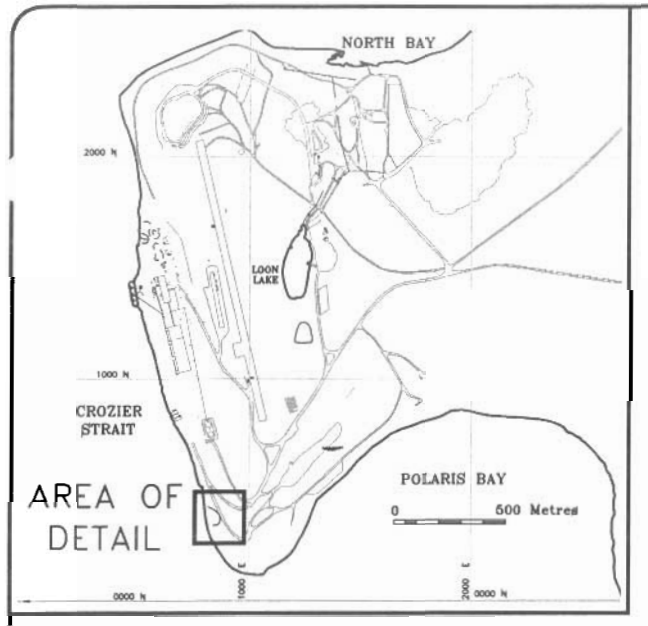
"na" = RpD value is not applicable because one or both results are less than the practical quantitation limit (PQL).

"-" = no result for given parameter

"<" = less than analytical method detection limit

*a) Relative Percent Difference = RpD = (Difference/Average) * 100*

*b) Practical Quantitation Limit (PQL)=5 * Method Detection Limit (MDL)*



MSD-4

MSD-3

MSD-5

MSD-2

SS MS-B

MSD-1

TAILINGS LINE

ROAD

LIMIT OF FORMER SNOW DUMP

PRELIMINARY BOUNDARY OF THE REMEDIAL AREA FROM THE 1999-2000 ENVIRONMENTAL SITE ASSESSMENT

SS 37

CROZIER STRAIT

400 N

300 N

800 E

900 E

N

0 5 10 20 30 Metres

SCALE 1:750

LEGEND:

- SHORE LINE
- TAILINGS LINE
- ROADS
- LIMIT OF 2003 EXCAVATION
- EXCAVATION GRID
- GROUND CONTOURS BEFORE REMEDIATION (m)
- LIMIT OF FORMER SNOW DUMP
- AREA OF CONCERN FOR METALS CONTAMINATION FROM THE 1999-2000 ENVIRONMENTAL SITE ASSESSMENT (ESA)
- MSD-5 TEST PIT - 1999 AND 2000 ENVIRONMENTAL SITE ASSESSMENTS
- SS 22 SURFACE SAMPLE (1999/2000 ENVIRONMENTAL SITE ASSESSMENT)

ZINC CONCENTRATION IN SOILS (1999 & 2000 DATA)

- 0-1000 PPM
- 1000-5000 PPM
- 5000-10,000 PPM
- >10,000 PPM

LEAD CONCENTRATION IN SOILS (1999 & 2000 DATA)

- 0-1,000 PPM
- 1,000-2,000 PPM
- > 2,000 PPM

NOTE:
THIS IS AREA 17 SHOWN ON FIGURE 1 "CONTAMINATED SOILS REMEDIATION PROGRESS PLAN, DECEMBER 31, 2003"

SOURCE OF DRAWING:
SITE SURVEYS PROVIDED BY SNC LAVALIN SEPTEMBER, 2003

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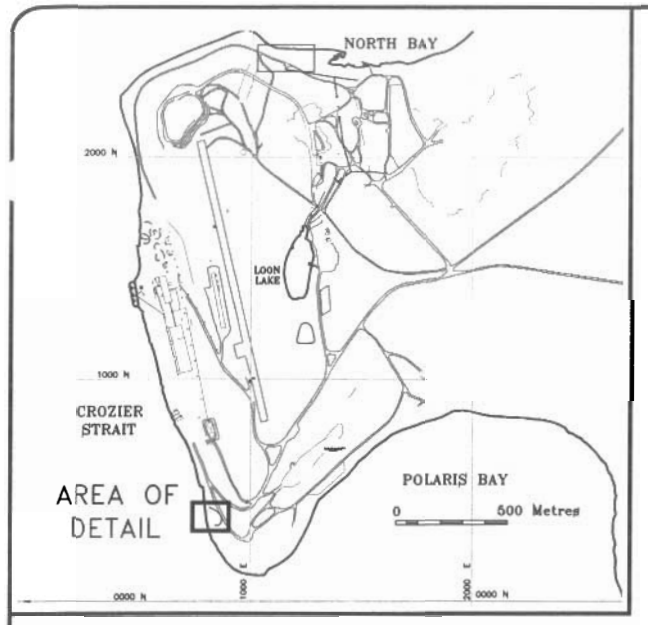
CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

MAIN SNOW DUMP AREA CONDITIONS BEFORE REMEDIATION (DECEMBER 31, 2003)

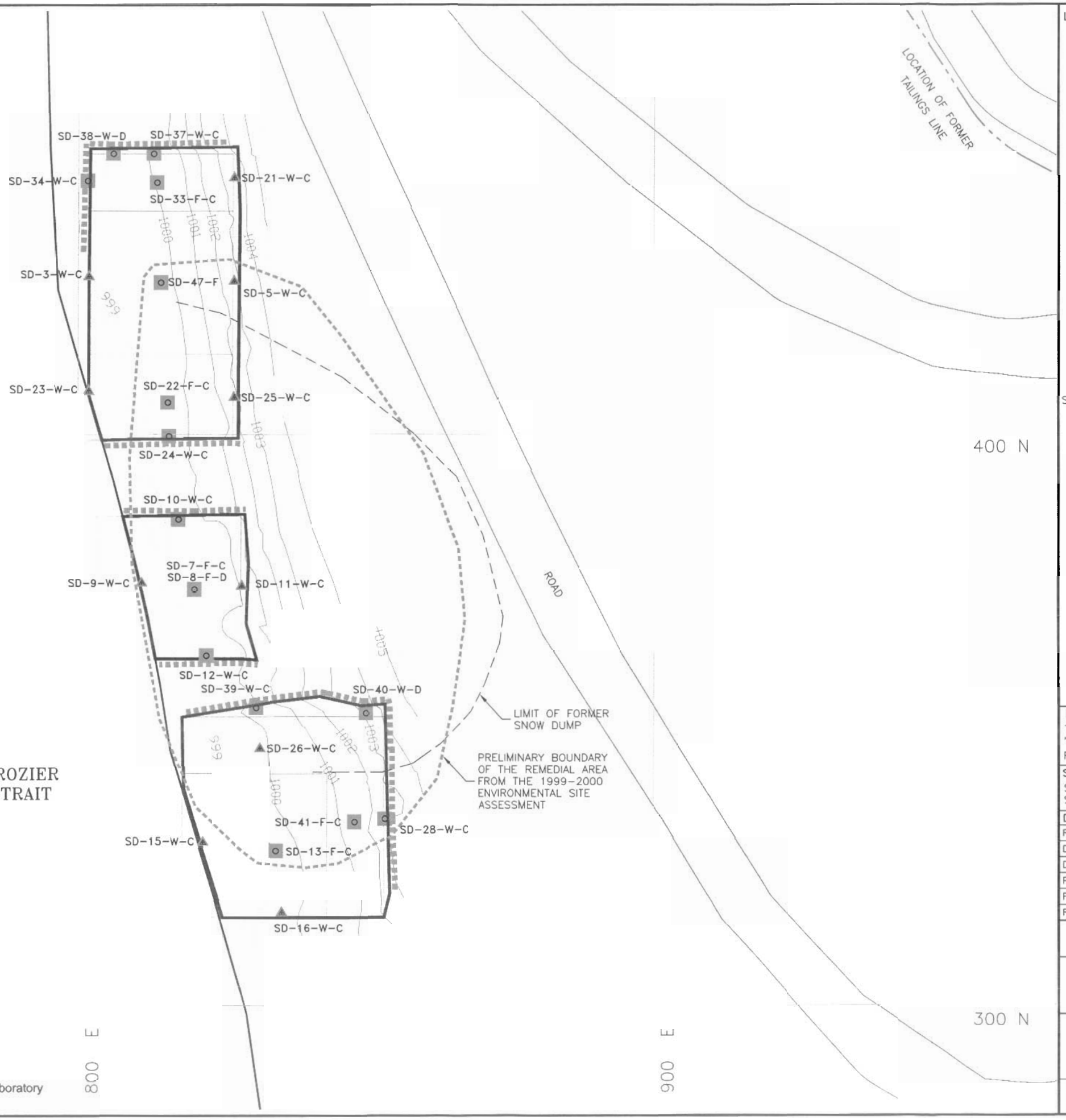
Gartner Lee

Figure No. SD-17-1



0 5 10 20 30 Metres

SCALE 1:750



LEGEND:

- SHORE LINE – LOW TIDE
- LIMIT OF FORMER SNOW DUMP
- LOCATION OF FORMER TAILINGS LINE
- ROADS
- EXCAVATION GRID
- LIMIT OF 2003 EXCAVATION
- CONTOURS – BASE OF EXCAVATION (m)
- LIMIT OF EXCAVATION SURVEY
- AREA OF METAL CONCERN FROM 1999-2000 ENVIRONMENTAL SITE ASSESSMENT

2003 SAMPLES

- ○ CONFIRMATORY FLOOR OR WALL SAMPLE
- ▲ FIELD SCREENING SAMPLE

2003 SAMPLE NAMING CONVENTION

SD-8-F-C
- AREA
- SAMPLE ID
- TYPE C= COMPOSITE SAMPLE FLOOR-5 SAMPLES IN A 25x25m AREA WALL-5 SAMPLES ALONG 25m OF WALL
  D= DISCRETE SAMPLE
  Q= DUPLICATED QUALITY ASSURANCE/ QUALITY CONTROL SAMPLE
- LOCATION F= FLOOR SAMPLE I= INTERMEDIATE FLOOR SAMPLE W= WALL SAMPLE

- SAMPLE CONTAINS LESS THAN 10,000 mg/kg ZINC
- SAMPLE CONTAINS LESS THAN 2,000 mg/kg LEAD
- AREA OF WALL COMPOSITE WALL SAMPLE CONTAINS LESS THAN 10,000 mg/kg ZINC OR 2,000 mg/kg LEAD
- ▲ FIELD SAMPLE RESULTS FROM NITON XRF ANALYSIS SHOW LEAD CONCENTRATION LESS THAN 1750 mg/kg AND ZINC CONCENTRATION LESS THAN 7500 mg/kg

2003 CONFIRMATION SAMPLES

FLOOR SAMPLES

Sample ID	Lead (mg/kg)	Zinc (mg/kg)
SD-7-F-C	<200	316
SD-8-F-D	<200	433
SD-13-F-C	<200	101
SD-22-F-C	194	110
SD-33-F-C	239	129
SD-41-F-C	231	1090
SD-47-F	1120	2920

WALL SAMPLES

Sample ID	Lead (mg/kg)	Zinc (mg/kg)
SD-10-W-C	<200	215
SD-12-W-C	250	2480
SD-24-W-C	200	101
SD-28-W-C	181	95
SD-34-W-C	189	110
SD-37-W-C	<50	200
SD-38-W-D	93	638
SD-39-W-C	265	1020
SD-40-W-D	859	1040

NOTES:

<200 Less than detection limit

Lead, Zinc Lead or Zinc concentrations obtained from ALS analytical laboratory

NOTE:
THIS IS AREA 17 SHOWN ON FIGURE 1 "CONTAMINATED SOILS REMEDIATION PROGRESS PLAN, DECEMBER 31, 2003"

SOURCE OF DRAWING:
SITE SURVEYS PROVIDED BY SNC LAVALIN SEPTEMBER, 2003

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CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

MAIN SNOW DUMP AREA CONDITIONS AFTER REMEDIATION (DECEMBER 31, 2003)

Gartner Lee

Figure. SD-17-2