



former shed, where the soil meets the remediation criteria, the cover thickness is thinner and graded to blend in with the existing ground surface. Surveying was undertaken by SNC Lavalin to document the elevations of the excavation limits and the boundaries of the impacted areas that have been delineated. Placement of the cover material over the impacted areas was completed to a survey controlled thickness. A final survey of the finished surface following remediation of the adjacent remaining contaminated soils is to be completed in 2004.

Drainage Control

The slope of the final cover over the floor of the former concentrate storage shed has been contoured to ensure that the area will drain. To further limit the amount of runoff that traverses the cover surface, it is proposed that the area upslope of the former shed will be graded to deflect the flow around the cover.

Once the reclamation of the area upslope of the former concentrate storage shed has been completed, final contouring of the area will be done to provide a more aesthetically pleasing appearance to the area. Any contouring will result in additional native materials being placed over top of the soil cover and in no instances will the contouring reduce the thickness of the soil cover.

CONCLUSIONS

The soil remediation of the area west of the former concentrate storage shed, the western portion of the floor, and the east wall of the former shed, has been completed to meet the Polaris Mine remedial targets, as documented in the approved Polaris Mine Decommissioning and Remediation Plan, March 2001.

It has not been practical to remove concentrate in the fractures of the limestone bedrock surface in this area. An alternate method has been implemented to mitigate these residual concentrates..

Furthermore, it is inappropriate to apply the SQROs to the concentration of fines that are bound in the interstices of the fractured bedrock surface. Applying these soil criteria in this situation is beyond the original intent of the risk assessment and the soil remediation targets that were developed as a result of the risk assessment. The current situation can be best explained as a minor quantity of concentrate dust that remains within the fractured bedrock surface. It is



recognized that the confirmatory test results for samples obtained at the bedrock surface do not accurately reflect the effectiveness of the remediation due to the overstatement of the residual concentrations.

In recognition of these issues, GLL recommended mitigation measures to limit human or ecological contact. Isolation under a durable cover of naturally occurring sand and gravel material that is available nearby was determined to be the most practical and effective. The cover constructed is composed of native gravels that were obtained near to the Operational Landfill area. This gravel has a suitable gradation to resist erosion from wind and surficial runoff. This natural material will also blend in with the natural surroundings and will contribute to enhancing the aesthetics of the resulting surface.

The following recommendations are provided planning of completion of the site remediation in 2004:

- Upon completion of the excavation of the remaining contaminated soils present to the north, east and south of the former concentrate storage shed area, contouring of the cover material should be undertaken to blend in with the natural surroundings.
- The hillside upslope of the Concentrate Shed will be contoured to effectively divert the majority of runoff water around the covered area.
- Confirmation of the cover thickness should be confirmed by survey data and/or test pits.
- The follow up site monitoring program to be initiated at the conclusion of the remediation should include cover stability monitoring. Results of this inspection should be included in the reporting and submitted to the regulators.

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.



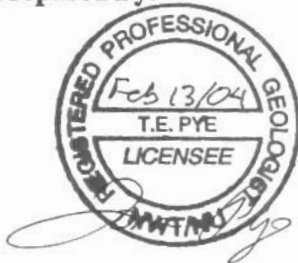
The scope of Gartner Lee Limited's work was limited to that described in this report. The confirmation of environmental conditions at the site of the remedial work is based on sampling at specific wall and floor locations within the excavation limits. Gartner Lee Limited has used judgement in the interpretation 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.

If you should have any questions or comments with any of the aspects of this technical letter, please call the undersigned at your convenience

Yours very truly,

GARTNER LEE LIMITED

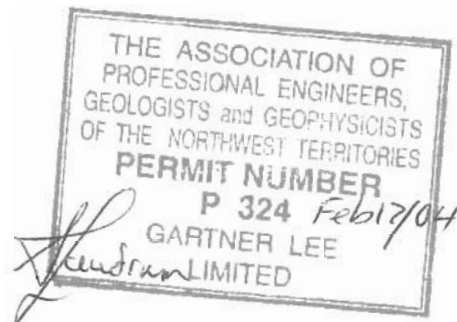
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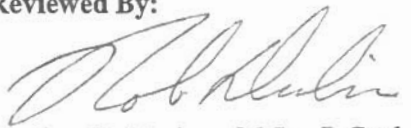
Tom Pye, M.Sc., P.Geol.
Senior Hydrogeologist



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



Reviewed By:

For 
Stephen R. Morison, M.Sc., P.Geol.
Principal



ATTACHMENTS

Tables

Table CSHED-03-1: Concentrate Storage Shed Remediation Confirmation Soil Samples- Metals

Table CSHED-03-2: Concentrate Storage Shed Remediation Confirmation Rock Samples-
Metals

Table CSHED-03-3: Concentrate Storage Shed Quality Assurance and Quality Control Samples

Figures

Figure CSHED-03-1: Concentrate Storage Shed Conditions Before Remediation
(December 31, 2003)

Figure CSHED-03-2: Concentrate Storage Shed Conditions After Remediation
(December 31, 2003)

Figure CSHED-03-3: Concentrate Storage Shed –Soil Cover

Table CSHEd-03-1. Concentrate Storage Shed Remediation Confirmation Soil Samples - Metals

Gartner Lee		Location		Concentrate Storage Shed													
		Sample ID	Date Sampled	Analytical Results													
				Field Screen Pb * (ppm)													
				Field Screen Zn * (ppm)													
Parameter	Units	Federal CCME ^a		CSHED-255-F-C	CHED-256-F-C	CSHED-257-F-C	CSHED-316-F-D	CSHED-352-F-D	CSHED-358-F-C	CSHED-359-F-C	CSHED-360-F-C	CSHED-361-F-C					
		CEQG (PL) ^b	SQRO ^c	31-08-03 na na	31-08-03 na na	31-08-03 na na	02-09-03 700.74 3788.79	02-09-03 285.95 830.27	02-09-03 na na	02-09-03 na na	02-09-03 na na	02-09-03 na na	02-09-03 na na				
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														
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														

Associated ALS Analytics files: T5093, T4027, T4377, T4624, T4625, T4626, T4627, T4628, T4629, T4630, T4631, T4632, T4633, T4634, T4635, T4636, T4637, T4638, T4639, T4640, T4641, T4642, T4643, T4644, T4645, T4646, T4647, T4648, T4649, T4650, T4651, T4652, T4653, T4654, T4655, T4656, T4657, T4658, T4659, T4660, T4661, T4662, T4663, T4664, T4665, T4666, T4667, T4668, T4669, T4670, T4671, T4672, T4673, T4674, T4675, T4676, T4677, T4678, T4679, T4680, T4681, T4682, T4683, T4684, T4685, T4686, T4687, T4688, T4689, T4690, T4691, T4692, T4693, T4694, T4695, T4696, T4697, T4698, T4699, T4700, T4701, T4702, T4703, T4704, T4705, T4706, T4707, T4708, T4709, T4710, T4711, T4712, T4713, T4714, T4715, T4716, T4717, T4718, T4719, T4720, T4721, T4722, T4723, T4724, T4725, T4726, T4727, T4728, T4729, T4730, T4731, T4732, T4733, T4734, T4735, T4736, T4737, T4738, T4739, T4740, T4741, T4742, T4743, T4744, T4745, T4746, T4747, T4748, T4749, T4750, T4751, T4752, T4753, T4754, T4755, T4756, T4757, T4758, 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T6189, T6190, T6191, T6192, T6193, T6194, T6195, T6196, T6197, T6198, T6199, T6200, T6201, T6202, T6203, T6204, T6205, T6206, T6207, T6208, T6209, T6210, T6211, T6212, T6213, T6214, T6215, T6216, T6217, T6218, T6219, T6220, T6221, T6222, T6223, T6224, T6225, T6226, T6227, T6228, T6229, T6230, T6231, T6232, T6233, T6234, T6235, T6236, T6237, T6238, T6239, T6240, T6241, T6242, T6243, T6244, T6245, T6246, T6247, T6248, T6249, T6250, T6251, T6252, T6253, T6254, T6255, T6256, T6257, T6258, T6259, T6260, T6261, T6262, T6263, T6264, T6265, T6266, T6267, T6268, T6269, T6270, T6271, T6272, T6273, T6274, T6275, T6276, T6277, T6278, T6279, T6280, T6281, T6282, T6283, T6284, T6285, T6286, T6287, T6288, T6289, T6290, T6291, T6292, T6293, T6294, T6295, T6296, T6297, T6298, T6299, T6300, T6301, T6302, T6303, T6304, T6305, T6306, T6307, T6308, T6309, T6310, T6311, T6312, T6313, T6314, T6315, T6316, T6317, T6318, T6319, T6320, T6321, T6322, T6323, T6324, T6325, T6326, T6327, T6328, T6329, T6330, T6331, T6332, T6333, T6334, T6335, T6336, T6337, T6338, T6339, T6340, T6341, T6342, T6343, T6344, T6345, T6346, T

Associated ALS Analytics files: T5093, T4927, T4772, T4634, T4151, T4079, T3583

Bold	Concentration greater than or equal to the CCME generic soil quality guideline for Parkland (PL) land use.
Bold	Concentration greater than or equal to the Site-Specific Risk-Based CCME SQRO for the Polaris Mine site

Notes:

- ^a = Less than analytical method detection limit
- ^b = No analysis performed for given parameter, or no guideline
- ^c = No field screening result available
- a) Canadian Council of Ministers of the Environment (CCME) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathway.
- b) CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (PL) land use.
- The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.
- c) Site-Specific Risk-Based CCME Tier 3 Soil Quality Remediation Objective (SQRO) for the Polaris Mine site.
- d) CCME CEQG Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.
- e) Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser.
- f) The analytical method detection limit (MDL) exceeds the Generic CCME CEQG for Parkland (PL) land use.

Table CSHED-03-1. Concentrate Storage Shed Remediation Confirmation Soil Samples - Metals

 Gartner Lee		Location		Concentrate Storage Shed									
		Sample ID	Date Sampled	CSHED-362-F-C	CSHED-363-F-C	CSHED-364-F-C	CSHED-365-F-C	CSHED-366-F-C	CSHED-367-F-C	CSHED-403-F-C	CSHED-404-F-C	CSHED-429-F-C	
		Field Screen Pb * (ppm)	Field Screen Zn * (ppm)	02-09-03	02-09-03	02-09-03	02-09-03	02-09-03	02-09-03	01-09-03	01-09-03	01-09-03	
Parameter	Units	Federal CCME ^a Guidelines	Analytical Results										
	CEQG (PL) ^b	SQRO ^c	na	na	na	na	na	na	na	na	na		
Physical Tests													
pH	-	-	-	-	-	-	-	8.48	-	-	-		
Total Metals													
Antimony T-Sb	mg/kg	20 ^d	-	-	-	-	-	<20 ^f	-	-	-		
Arsenic T-As	mg/kg	12	-	-	-	-	-	<10	-	-	-		
Barium T-Ba	mg/kg	500	-	-	-	-	-	631	-	-	-		
Beryllium T-Be	mg/kg	4 ^d	-	-	-	-	-	<1	-	-	-		
Cadmium T-Cd	mg/kg	10	-	-	-	-	-	2	-	-	-		
Chromium T-Cr	mg/kg	64	-	-	-	-	-	5	-	-	-		
Cobalt T-Co	mg/kg	50 ^d	-	-	-	-	-	<4	-	-	-		
Copper T-Cu	mg/kg	63	-	-	-	-	-	10	-	-	-		
Lead T-Pb	mg/kg	-	2000	321	139	113	266	<100	133	<100	118		
Mercury T-Hg	mg/kg	6.6	-	-	-	-	-	<0.05	-	-	-		
Molybdenum T-Mo	mg/kg	10 ^d	-	-	-	-	-	<8	-	-	-		
Nickel T-Ni	mg/kg	50	-	-	-	-	-	<10	-	-	-		
Selenium T-Se	mg/kg	1	-	-	-	-	-	<4 ^f	-	-	-		
Silver T-Ag	mg/kg	20 ^d	-	-	-	-	-	<4	-	-	-		
Tin T-Sn	mg/kg	50 ^d	-	-	-	-	-	<10	-	-	-		
Vanadium T-V	mg/kg	130	-	-	-	-	-	33	-	-	-		
Zinc T-Zn	mg/kg	-	10000	917	469	290	1060	441	404	684	442		
											2140		

Associated ALS Analytics files: T5093, T4927, T4772, T4634, T4151, T4079, T4071, T3583

Bold	Concentration greater than or equal to the CCME generic soil quality guideline for Parkland (P1) land use.
Bold	Concentration greater than or equal to the Site-Specific Risk-Based CCME SQRO for the Polaris Mine site

Notes:

- ^a - " " = Less than analytical method detection limit
- ^b " " = No analysis performed for given parameter, or no guideline
- ^c "na" = no field screening result available
- ^d CCME (Council of Ministers of the Environment (CME)) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathway.
- ^e CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (P1) land use.
- ^f The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.
- ^g Site-Specific Risk-Based CCME Tier 3 Soil Quality Remediation Objective (SQRO) for the Polaris Mine site.
- ^h CCME (CEQG) Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.
- ⁱ Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser.
- ^j The analytical method detection limit (MDL) exceeds the Generic CCME CEQG for Parkland (P1) land use.

Table CSHED-03-1. Concentrate Storage Shed Remediation Confirmation Soil Samples - Metals

Location			Concentrate Storage Shed								
Parameter	Units	Sample ID	CSHED-497-W-C	CSHED-498-W-C	CSHED-499-W-C	CSHED-500-W-C	CSHED-501-W-C	CSHED-502-W-C	CSHED-503-W-C	CSHED-506-W-C	
		Date Sampled	26-09-03	26-09-03	26-09-03	26-09-03	26-09-03	26-09-03	26-09-03	26-09-03	29-09-03
		Field Screen Pb * (ppm)	98.38	261.19	68.47	325.56	84.25	67.75	31.84	na	na
		Field Screen Zn * (ppm)	850.45	4148.73	661.99	7402.38	1174.38	1233.88	378.09	na	
Federal CCME *		Analytical Results									
Guidelines											
CEQG (µl), ^b	SORO ^c										
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	101	1150	<100	301	<100	<100	<100	
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	459	5250	274	4530	1030	712	196	1070	

Associated ALS Analytics files: T3093, T4927, T4772, T4634, T4151, T4079, T4071, T3583

Bold	Concentration greater than or equal to the CCME generic soil quality guideline for Parkland (PL) land use.
Bold	Concentration greater than or equal to the Site-Specific Risk-Based CCME SORO for the Polaris Mine site.

Notes:

- < = Less than analytical method detection limit
- "n" = No analysis performed for given parameter, or no guideline
- "na" = no field screening result available
- a) Canadian Council of Ministers of the Environment (CCME) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathways.
- b) CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (PL) land use.
- c) The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.
- d) CCME CEQG Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.
- e) Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser
- f) The analytical method detection limit (MDL) exceeds the Generic CCME CEQG for Parkland (PL) land use.

Table CSBED-03-1. Concentrate Storage Sheds Remediation Confirmation Soil Samples - Metals

Gartner Lee		Location		Concentrate Storage Shed							
		Sample ID		CSHED-514-F-C 03-10-03 60.53 342.54	CSHED-515-F-C 03-10-03 58.83 404.77	CSHED-520-F-C 04-10-03 141.24 565.54	CSHED-530-F-C 03-10-03 178.47 4517.23	CSHED-531-F-C 03-10-03 106.13 1666.95	CSHED-534-F-D 03-10-03 265.92 1813.42	CSHED-546-F-D 04-10-03 50.76 269.11	
		Date Sampled									
		Field Screen Pb* (ppm)	Field Screen Zn* (ppm)								
Parameter	Units	Federal CCME ¹		Analytical Results							
		Guidelines	SORO ²								
		CEQG (PL) ³									
Physical Tests											
pH		-	-	8.1	8.12	-	8.42	-	-	-	-
Total Metals											
Antimony T-Sb	mg/kg	20 ^d	-	<20 ^f	<20 ^f	-	<20 ^f	-	-	-	-
Arsenic T-As	mg/kg	12	-	<10	<10	-	<10	-	-	-	-
Barium T-Ba	mg/kg	500	-	399	413	-	161	-	-	-	-
Beryllium T-Be	mg/kg	4 ^d	-	<1	<1	-	<1	-	-	-	-
Cadmium T-Cd	mg/kg	10	-	<1	<1	-	6	-	-	-	-
Chromium T-Cr	mg/kg	64	-	7	6	-	4	-	-	-	-
Cobalt T-Co	mg/kg	50 ^d	-	<4	<4	-	<4	-	-	-	-
Copper T-Cu	mg/kg	63	-	6	6	-	6	-	-	-	-
Lead T-Pb	mg/kg	-	2000	<100	<100	236	127	111	478	-	<100
Mercury T-Hg	mg/kg	6.6	-	<0.05	<0.05	-	<0.05	-	-	-	-
Molybdenum T-Mo	mg/kg	10 ^d	-	<8	<8	-	<8	-	-	-	-
Nickel T-Ni	mg/kg	50	-	12	12	-	<10	-	-	-	-
Selenium T-Se	mg/kg	1	-	<4 ^f	<4 ^f	-	<4 ^f	-	-	-	-
Silver T-Ag	mg/kg	20 ^d	-	<4	<4	-	<4	-	-	-	-
Tin T-Sn	mg/kg	50 ^d	-	<10	<10	-	<10	-	-	-	-
Vanadium T-V	mg/kg	130	-	22	29	-	17	-	-	-	-
Zinc T-Zn	mg/kg	-	10000	183	226	353	2270	1620	1540	-	150

Associated ALS Analytics files: T5093, T4927, T4772, T4634, T4151, T4079, T4071, T3583

Bold
Concentration greater than or equal to the CCME generic soil quality guideline for Parkland (PL) land use.

Bold
Concentration greater than or equal to the Site-Specific Risk-Based CCME SQRO for the Polaris Mine site

Notes:

<= Less than analytical method detection limit

"n/a" = No analysis performed for given parameter, or no guideline

"nd" = no field screening result available

a) Canadian Council of Ministers of the Environment (CCME) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathway.

b) CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (PL) land use.

The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

c) Site-Specific Risk-Based CCME Tier 3 Soil Quality Remediation Objective (SQRO) for the Polaris Mine site.

d) CCME CEEQ Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.

e) Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser.

f) The analytical method detection limit (MDL) exceeds the Generic CCME CEEQ for Parkland (PL) land use.

Table CSHED-03-2. Concentrate Storage Shed Remediation Confirmation Rock Samples - Metals

Gartner Lee		Location		Concentrate Storage Shed									
		Sample ID	Date Sampled	Federal CCME ^a Guidelines									
				CEQG (PL) ^b		SQRO ^c		Analytical Results					
Parameter	Units			CSHED-516-F-C	CSHED-517-F-C	CSHED-518-F-C	CSHED-521-F-C	CSHED-522-F-C	CSHED-523-F-C	CSHED-524-F-C	CSHED-525-F-C	CSHED-526-F-C	
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	10100	23300	1970	1880	10800	6680	221	565	447	
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	4840	20000	15300	1290	23500	9450	4880	20700	10500	

Associated ALS Analytics files: T5093, T4927, T4772, T4634, T4151, T4079, T4071, T3583

Bold	Concentration greater than or equal to the CCME generic soil quality guideline for Parkland (PL) land use.
Bold	Concentration greater than or equal to the Site-Specific Risk-Based CCME SQRO for the Polaris Mine site

Notes:

- a) <= Less than analytical method detection limit
- b) "u" = No analysis performed for given parameter, or no guideline
- c) "na" = no field screening result available
- d) Canadian Council of Ministers of the Environment (CCME) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathway.
- e) CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (PL) land use.
- f) The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.
- g) Site-Specific Risk-Based CCME Tier 3 Soil Quality Remediation Objective (SQRO) for the Polaris Mine site.
- h) CCME CEEQ Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.
- i) Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser.
- j) The analytical method detection limit (MDL) exceeds the Generic CCME CEEQ for Parkland (PL) land use.

Table CSHED-03-2. Concentrate Storage Shed Remediation Confirmation Rock Samples - Metals

Gartner Lee		Location		Concentrate Storage Shed													
		Sample ID		CSHED-527-F-C	CSHED-528-F-C	CSHED-529-F-C	CSHED-532-F-C	CSHED-533-F-C	CSHED-535-F-D	CSHED-536-F-D	CSHED-537-F-C	CSHED-544-F-D	CSHED-545-F-D				
		Date Sampled															
		Field Screen Pb* (ppm)	Field Screen Zn* (ppm)														
Parameter	Units	Federal CCME ^a		Analytical Results													
		CEQG (PL) ^b	SQRO ^c														
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	646	626	822	567	716	653	172	1120	6720	<100	-	-	-	-
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	31900	7800	34100	17800	29100	20700	5950	1980	9260	-	-	-	-	132

Associated ALS Analytics files: T5093, T4927, T4772, T4634, T4151, T4079, T4071, T3583

Bold
Bold

Notes:

< = Less than analytical method detection limit

* = No analysis performed for given parameter, or no guideline

"no" = no field screening result available

a) Canadian Council of Ministers of the Environment (CCME) standards and guidelines provides criteria based on land use activities and applies the most stringent criteria based on site-specific receptors and exposure pathway.

b) CCME Canadian Environmental Quality Guidelines (CEQG) Tier 1 Soil Quality Guidelines for Parkland (PL) land use.

The site specific factors used for determining the soil quality guideline include: soil ingestion, soil contact, and nutrient cycling.

c) Site-Specific Risk-Based CCME Tier 3 Soil Quality Remediation Objective (SQRO) for the Polaris Mine site.

d) CCME CEEQG Tier 1 PL land use interim remediation criteria for soil. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given chemical.

e) Field screening measurements are from the Niton portable X-Ray Fluorescence (XRF) elemental analyser.

f) The analytical method detection limit (MDL) exceeds the Generic CCME CEEQG for Parkland (PL) land use.

Table CSHED-03-3. Concentrate Storage Shed Quality Assurance and Quality Control Samples

 Gartner Lee	Parameter		Pb		Zn		Pb		RpD^a (%)	Zn		RpD^a (%)
	Relative Percent Difference (RpD)^a	Duplicate ID	MDL	PQL^b	MDL	PQL^b	Sample	Duplicate		Sample	Duplicate	
Sample ID	On Site Field Screening Duplicates											
CSHED-265-I-D	CSHED-561-I-Q	70	350	150	750		1039.43	1282.39	20.9	15353.33	20150.07	27.0
CSHED-277-I-D	CSHED-562-I-Q	70	350	150	750		291.32	416.70	na	2464.36	3557.9	36.3
CSHED-289-I-D	CSHED-563-I-Q	70	350	150	750		882.72	996.04	12.1	1799.25	2147.82	17.7
CSHED-302-I-D	CSHED-564-I-Q	70	350	150	750		503.14	466.81	7.5	1813.45	1547.64	15.8
CSHED-335-I-D	CSHED-565-I-Q	70	350	150	750		101.91	92.78	na	580.10	723.04	na
CSHED-346-I-D	CSHED-566-I-Q	70	350	150	750		53.55	44.07	na	333.88	329.32	na
CSHED-393-I-D	CSHED-567-I-Q	70	350	150	750		50.64	79.35	na	551.86	600.28	na
CSHED-449-I-D	CSHED-568-I-Q	70	350	150	750		100.17	119.53	na	1104.99	1594.15	36.2
CSHED-467-W-D	CSHED-569-W-Q	70	350	150	750		885.26	709.95	22.0	13309.28	11821.18	11.8
CSHED-478-W-D	CSHED-570-W-Q	70	350	150	750		49.75	73.62	na	267.29	324	na
CSHED-489-W-D	CSHED-571-W-Q	70	350	150	750		152.50	183.06	na	2751.98	4248	42.8
CSHED-43-W-D	CSHED-574-W-Q	70	350	150	750		379.34	334.00	na	1958.45	1736	12.0
CSHED-194-I-D	CSHED-575-I-Q	70	350	150	750		550.24	423.82	na	6083.64	4638	27.0
CSHED-205-I-D	CSHED-576-I-Q	70	350	150	750		122071.22	125311.18	2.6	839056.75	829004	1.2
CSHED-206-I-D	CSHED-577-I-Q	70	350	150	750		757.22	692.51	8.9	3685.68	3399	8.1
CSHED-217-I-D	CSHED-578-I-Q	70	350	150	750		3506.13	3427.62	2.3	908.04	853	6.2
CSHED-218-I-D	CSHED-579-I-Q	70	350	150	750		3694.48	4937.02	28.8	962.66	1153	18.0
CSHED-225-I-D	CSHED-580-I-Q	70	350	150	750		2678.75	2434.17	9.6	78068.78	74599	4.5
CSHED-233-I-D	CSHED-581-I-Q	70	350	150	750		1308.80	1356.69	3.6	91405.45	95032	3.9
CSHED-355-F-C	CSHED-583-F-Q	70	350	150	750		6959.30	6160.91	12.2	119372.92	106503	11.4
Analytical Laboratory Duplicates												
CSHED-465-F-C	CSHED-466-F-C	100	500	2	10		618	653	5.5	2350	1920	20.1
Analytical Laboratory Replicates												
CSHED-534-F-D	QC# 358812	100	500	2	10		478	225	na	1540	1070	36
CSHED-514-F-C	QC# 358194	100	500	2	10		<100	<100	na	183	150	20
CSHED-520-F-C	QC# 358195	100	500	2	10		236	162	na	353	250	34
CSHED-500-W-C	QC# 357530	100	500	2	10		301	242	na	4530	3690	20
CSHED-463-F-C	QC# 356998	100	500	2	10		170	<100	na	305	334	9
CSHED-359-F-C	QC# 355056	100	500	2	10		622	647	4	2050	1350	41
CSHED-401-F-C	QC# 355053	100	500	2	10		327	314	na	2140	2160	0.9

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

Notes:

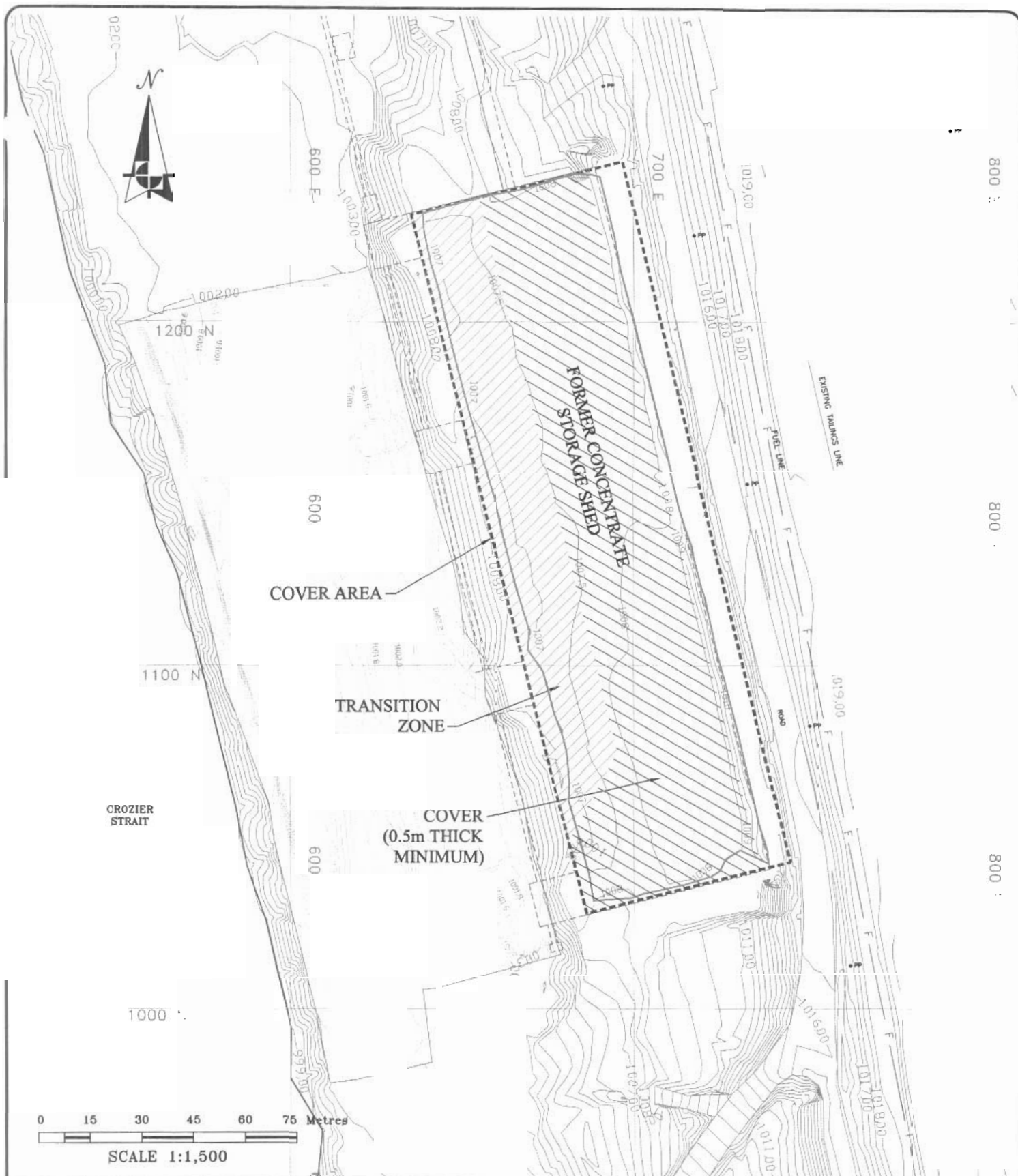
^ana^o = RpD value is not applicable because one or both results are less than the practical quantitation limit (PQL).

^ana^o = no result for given parameter

^a< na^o = less than analytical method detection limit

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

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



LEGEND:

- GROUND CONTOURS AREAS NOT REMEDIATED (m)
- CONTOURS - BACKFILL (m)
- CONTOURS BASE OF EXCAVATION (m)
- SOIL COVER (0.5m THICK MINIMUM)
- TRANSITION ZONES (VARIABLE THICKNESS)

teckcomingo

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CONTAMINATED SOIL REMEDIATION
 2003 CLOSE OUT REPORT
 POLARIS MINE, NUNAVUT

CONCENTRATE STORAGE SHED - SOIL COVER



Gartner Lee

FIGURE NO.

CSHED-03-3

Appendix B

**Polaris Mine Operations Contaminated Soil Remediation
Close Out Report: Cemented Rock Fill (CRF) Plant Fuel
Storage Tank**





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: Cemented Rock Fill (CRF) Plant Fuel Storage Tank Area**

BACKGROUND

The Cemented Rock Fill (CRF) plant (shown as Area 4 on Figure 1: *Contaminated Soils Remedial Progress Plan*) was located south of the old quarry between 3300E and 1980E on the mine grid. The CRF was used to produce quarried limestone backfill material for the underground mine. Contaminant sources at the CRF plant include two above ground storage tanks (ASTs) used for storage and dispensing diesel fuel.

The 1999 Environmental Site Assessment (ESA) revealed hydrocarbon contamination in the direct vicinity of the ASTs located at the west and south wall of the CRF plant. In 2000, three step-out test pits were excavated to determine the extent of the contamination. Sample test results from the test pits did not show any hydrocarbon contamination.

METHODOLOGY

Excavation

The excavation of the CRF plant fuel storage area proceeded, based on the results of the ESA data gathered in 1999 and 2000, that identified localised hydrocarbon contamination as shown in Figure CRF-04-1. No further delineation work was conducted in 2003.



Excavation of hydrocarbon contamination at the CRF plant occurred on June 27, 2003 in two isolated areas. The limits of the excavation are outlined in Figure CRF-04-2 and soils were removed to a depth of 1.0 m. A very weak olfactory indication of hydrocarbon impacted soil was detected from one of the two areas. The soil excavated from this area was disposed of in the underground mine workings in accordance with regulatory approvals. Upon completion of the excavation, composite samples were collected in accordance with standard GLL and TCL sampling procedures and protocols. The samples were deposited into sealable polyethylene bags and the field screening measurements were obtained using a portable photoionization detector (PID) to measure the concentrations of organic vapours in the headspace of the sample bags. The field screening results did not detect elevated organic vapour concentrations, so these samples were sent to Aurora Laboratory Services Ltd. (ALS) as confirmation samples.. Sample locations are located in Figure CRF-04-2.

ANALYTICAL RESULTS

Approximately 40 m³ of contaminated soil was removed from the CRF plant area. Laboratory results for the CRF plant excavation are summarized in Table CRF-04-1. A total of five (5) samples were submitted for this area: one (1) discrete wall, two (2) discrete floors and two (2) composite floors. All samples submitted returned concentrations below the Polaris Mine SQRO.

Quality Assurance/ Quality Control (QA/QC)

QA/QC was performed on one analytical laboratory replicate from the former CRF plant fuel storage area. Since the lab results were below the practical quantitation limit this QA/QC result could not be assessed, as summarized in Table CRF-04-2.

CONCLUSIONS

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



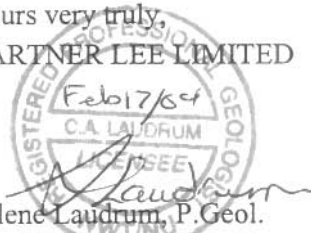
LIMITATIONS

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.

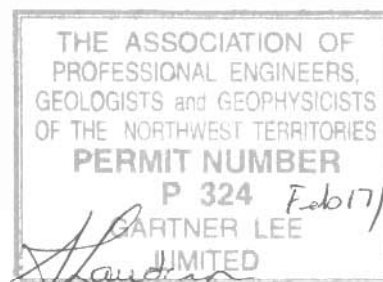
Yours very truly,

GARTNER LEE LIMITED


Arlene Laudrum, P.Geol.

Remediation Supervisor, Polaris Mine Project

AL:KT





ATTACHMENTS

Tables

- Table CRF-04-1: Cemented Rock Fill Plant Remediation Confirmation Soil Samples - Hydrocarbons
- Table CRF-04-2: Cemented Rock Fill Plant Quality Assurance and Quality Control Remediation Soil Samples

Figures

- Figure CRF-04-1: Cemented Rock Fill Plant Area Conditions Before Remediation (December 31, 2003)
- Figure CRF-04-2: Cemented Rock Fill Plant Area Conditions After Remediation (December 31, 2003)

Table CRF-04-1. Cemented Rock Fill Pant Remediation Confirmation Soil Samples - Hydrocarbons

Gartner Lee		Location	Cemented Rock Fill (CRF) Plant					
Parameter	Units	Sample ID	CRF-4-F-C	CRF-6-F-D	CRF-12-F-Q (duplicate of CRF-6-F-D)	CRF-7-W-D	CRF-8-F-C	CRF-11-W-D
Physical Tests		Date	6/28/03	6/28/03	6/28/03	6/28/03	6/28/03	6/28/03
Moisture		Field Screen (ppm) ^b	15	20	na	na	10	20
Extractable Hydrocarbons		Polaris Mine SQROs ^a	Analytical Results					
		-	6.4	4.8	7.6	5.9	5.2	5.2
EPH C ₁₀ -C ₁₉	mg/kg	1000 ^d	<200	<200	<200	<200	<200	<200
EPH C ₁₉ -C ₃₂	mg/kg	1000 ^d	<200	<200	<200	<200	<200	<200
LEPH	mg/kg	1000	-	-	-	-	-	-
HEPH	mg/kg	1000	-	-	-	-	-	-

Associated ALS Analytics Files: S9892

Notes:

Bold

Concentration exceeds the Soil Quality Remediation Objective (SQRO) for the Polaris Mine Site

"<" = less than analytical method detection limit

"-" = no result for given parameter, or no guideline

"na" = no field screening result

a) The Soil Quality Remediation Objective for the Polaris Mine Site is based on the Yukon Territorial

Contaminated Sites Regulation (CSR) for Parkland Land Use

b) Field screening measurements are based on the 'dry headspace' method using a combustible gas meter calibrated to

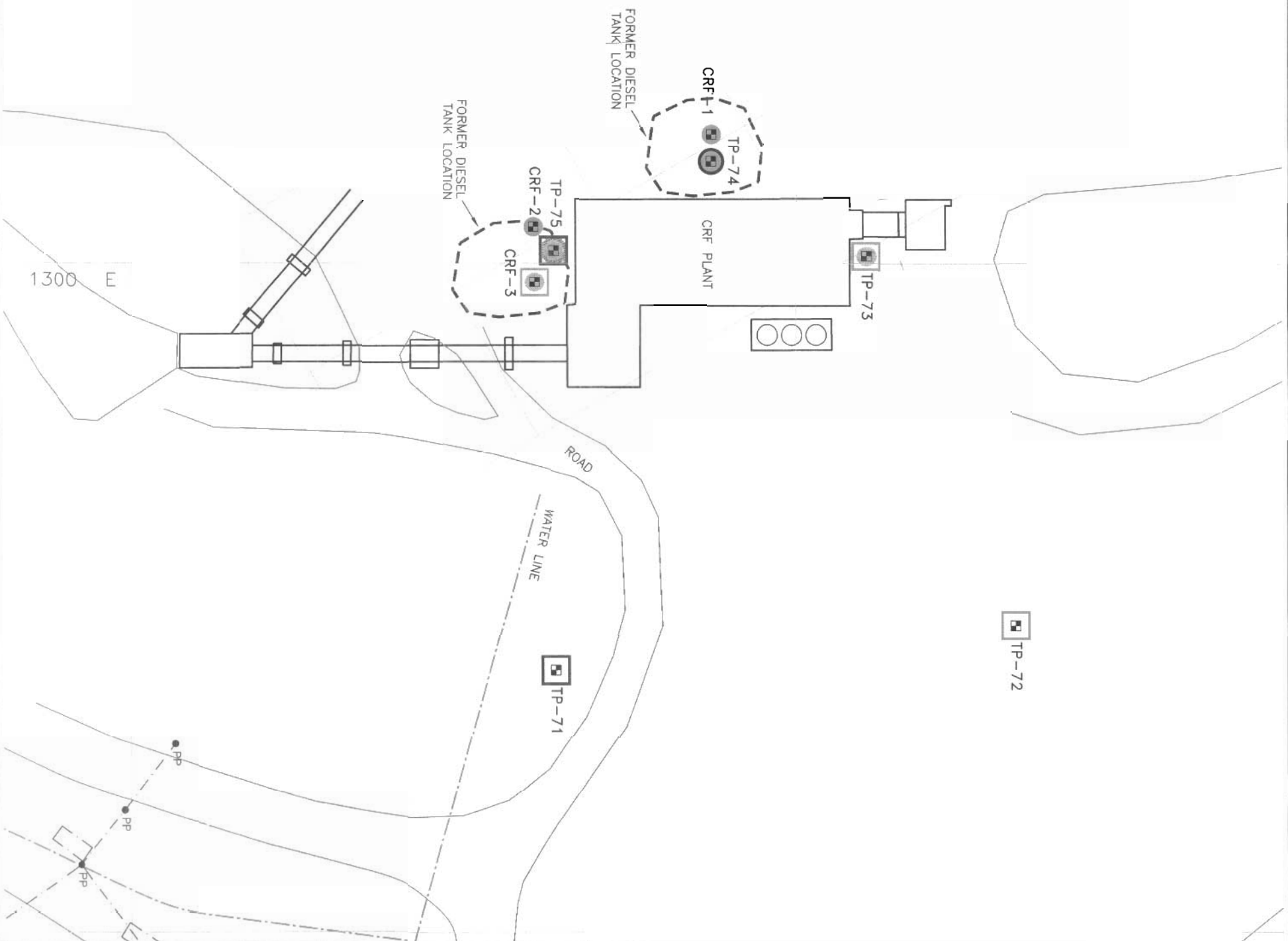
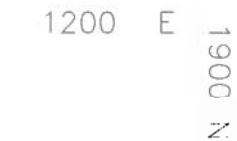
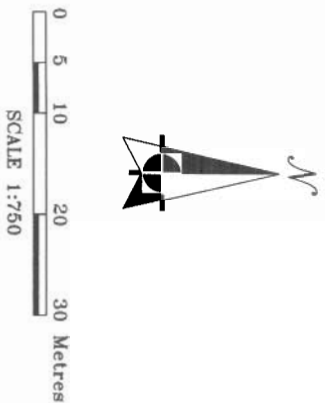
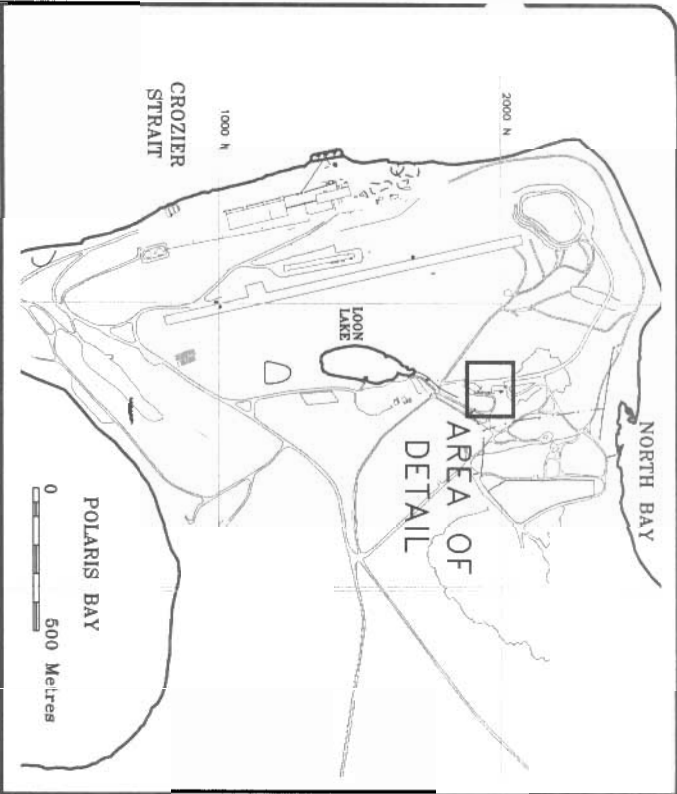
a hexane standard.

c) EPH stands for extractable petroleum hydrocarbon

d) LEPH and HEPH stand for light and heavy extractable petroleum hydrocarbons.

e) LEPH/HEPH is determined by subtracting polycyclic aromatic hydrocarbons (PAH) from EPH, therefore use of the

EPH remediation objective is conservative.



LEGEND:

- LOCATION OF EXISTING STRUCTURE AND/OR FACILITY
- WATER LINE
- POWER LINE
- POWER POLE
- ROADS
- EXCAVATION GRID
- CREST OF SLOPE
- AREA OF CONCERN FOR HYDROCARBON CONTAMINATION FROM THE 1999-2000 ENVIRONMENTAL SITE ASSESSMENT (ESA)
- TEST PIT - 1999 AND 2000 ENVIRONMENTAL SITE ASSESSMENTS

TP-72

ZINC CONCENTRATION IN SOILS (1999 & 2000 DATA)

- 0-1,000 PPM
- 1,000-5,000 PPM
- 5,000-10,000 PPM
- >10,000 PPM

LEAD CONCENTRATION IN SOILS (1999 & 2000 DATA)

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

EPH 10-19 OR EPH 19-32 CONCENTRATION IN SOIL GREATER THAN OR EQUAL TO 1,000 mg/kg

EPH 10-19 OR EPH 19-32 CONCENTRATION IN SOIL LESS THAN 1,000 mg/kg

NOTE:

THIS IS AREA 4 SHOWN ON FIGURE 1 "CONTAMINATED SOILS REMEDIATION PROGRESS PLAN, DECEMBER 31, 2003"

SOURCE OF DRAWING:

SITE SURVEYS PROVIDED BY SNC L'AVALLIN SEPTEMBER, 2003

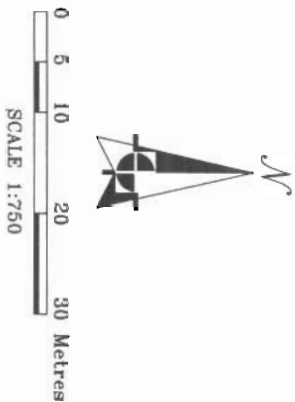
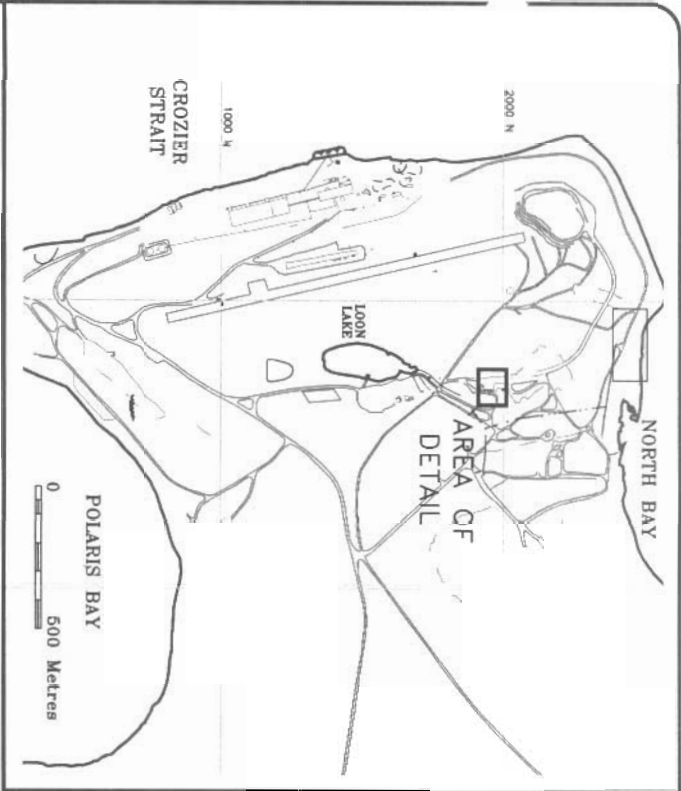
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CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

CEMENTED ROCK FILL PLANT AREA
CONDITIONS BEFORE REMEDIATION
(DECEMBER 31, 2003)



2003 CONFIRMATION SAMPLES
FLOOR SAMPLES

Sample ID	EPH10-19 (mg/kg)	EPH19-32 (mg/kg)
CRF-4-F-D	<200	<200
CRF-6-F-D	<200	<200
CRF-12-F-Q	<200	<200
Duplicate of CRF-6-F-D		
CRF-8-F-C	<200	<200

WALL SAMPLES

Sample ID	EPH10-19 (mg/kg)	EPH19-32 (mg/kg)
CRF-7-W-D	<200	<200
CRF-11-W-D	<200	<200

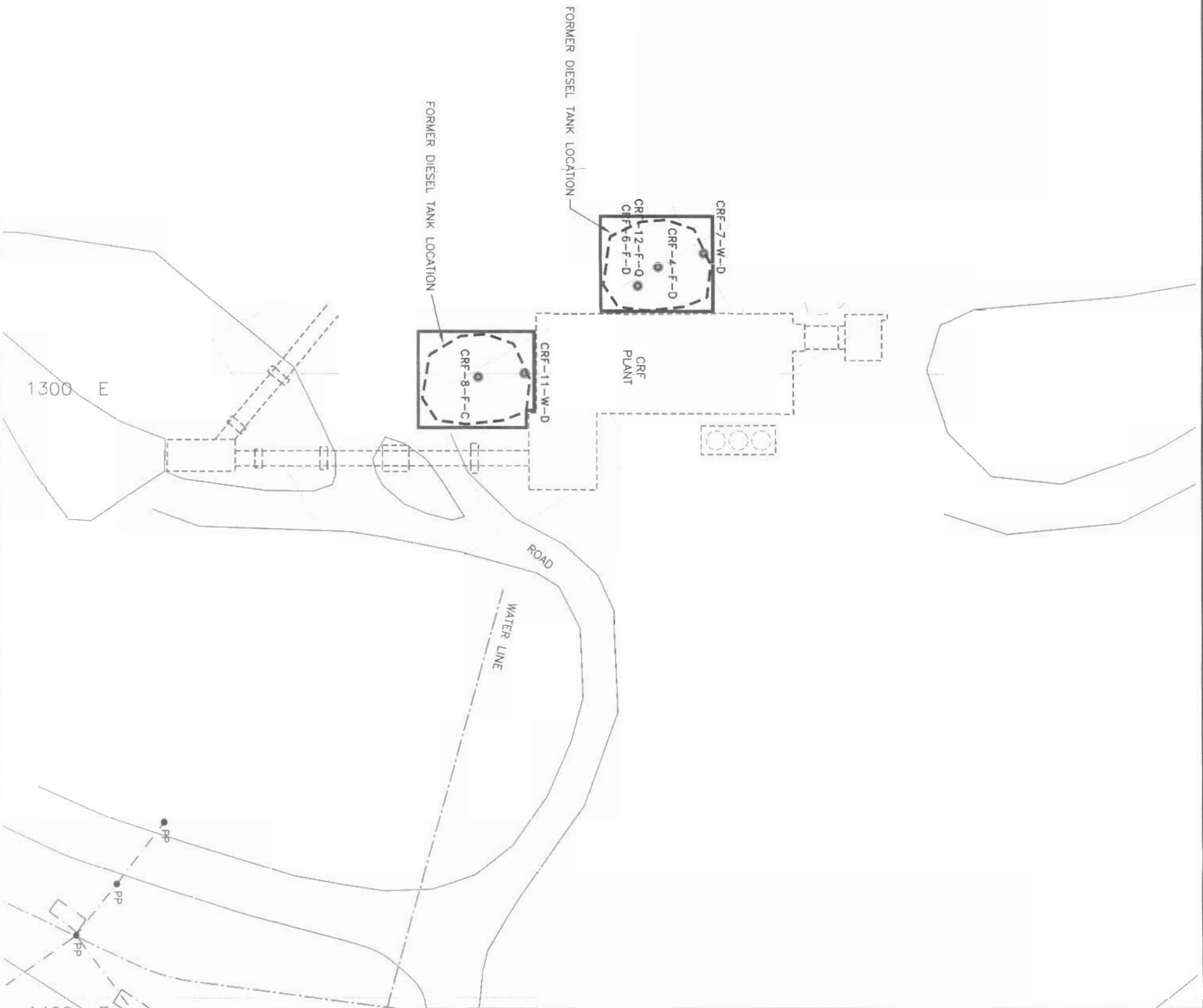
NOTES:

<200 Less than detection limit

EHF10-19 Extractable Petroleum Hydrocarbon
(Carbon fraction 10-19) concentration
obtained from ALS analytical
laboratory

EPH19-32 Extractable Petroleum Hydrocarbon
(Carbon fraction 19-32) concentration
obtained from ALS analytical
laboratory

1900 N
1200 E



LEGEND:

- FORMER LOCATION OF BUILDINGS AND FACILITIES (REMOVED)
- CREST OF SLOPE
- POWER LINE
- WATER LINE
- ROADS
- EXCAVATION GRID
- AREA OF HYDROCARBON CONCERN FROM 1999-2000 ENVIRONMENTAL SITE ASSESSMENT
- APPROXIMATE LIMIT OF 2003 EXCAVATION
- POWER POLE

2003 SAMPLES

- CONFIRMATORY FLOOR OR WALL SAMPLE

SAMPLE NAMING CONVENTION

- AREA
- SAMPLE ID

CRF-7-W-D

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

EPH10-19

EPH19-32

SOIL SAMPLE FROM EXCAVATION
CONTAINS LESS THAN 1,000 mg/kg
EPH 10-19 OR EPH 19-32

NOTE:

THIS IS AREA 4 SHOWN ON FIGURE 1
"CONTAMINATED SOILS REMEDIATION PROGRESS
PLAN, DECEMBER 31, 2003"

SOURCE OF DRAWING:

SITE SURVEYS PROVIDED BY SNC LAVALIN
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CONTAMINATED SOIL REMEDIATION
2003 CLOSE OUT REPORT
POLARIS MINE, NUNAVUT

CEMENTED ROCK FILL PLANT AREA
CONDITIONS AFTER REMEDIATION
(DECEMBER 31, 2003)



Garther Lee

Figure No.

CRF-04-2