Table SS-25-2. South Shore Area Remediation Confirmation Soil Samples - Metals

				Location	South Shore					
				Sample ID	Shore-12001-F-C	Shore-12002-F-C	Shore-12003-F-C	Shore-12037-F-C	Shore-12067-W-C	Shore-12071-W-D
				Date Sampled	18-Jul-04	18-Jul-04	18-Jul-04	23-Jul-04	26-Jul-04	26-Jul-04
				ALS File Number	U6530r	U6530r	U6530r	U6364	U6530r	U6530r
		Polaris Mine Soil Quality Remediation Objectives[a]		Field Screen Pb (ppm)[b]	773	693	896	250	1248	540
				Field Screen Zn (ppm)[b]	1208	1306	1530	1652	2064	1074
Parameter		**Site Specific**	**CEQG (PL)[c]**	**Units**	**Analytical Results**					
pH		-	-	-	-	-	-	-	-	-
Total Metals										
Antimony	T-Sb	-	20[d]	mg/kg		-	-	-		
Arsenic	T-As	-	12	mg/kg		-			-	
Barium	T-Ba	-	500	mg/kg	-	-	-	-	-	-
Beryllium	T-Be	-	4[d]	mg/kg	-	-	-	-	-	-
Cadmium	T-Cd	-	10	mg/kg	-	-	-	-	-	-
Chromium	T-Cr	-	64	mg/kg	-	-	-	-		
Cobalt	T-Co	-	50[d]	mg/kg	-	-	-		-	-
Copper	TCu	-	63	mg/kg	-	-	-	-	-	-
Lead	T-Pb	2000	-	mg/kg	279	244	314	<100	537	295
Mercury	T-Hg	-	7	mg/kg	-	-	-	-	-	-
Molybdenum	T-Mo	-	10[d]	mg/kg	-	-	-	-	-	-
Nickel	T-Ni	-	50	mg/kg	-	-	-	-	-	-
Selenium	T-Se	-	1	mg/kg	-	-	-	-	-	-
Silver	T-Ag	-	20[d]	mg/kg	-	-	-	-	-	-
Tin	T-Sn	-	50[d]	mg/kg	-	-	-	-	-	-
Vanadium	T-V	-	130	mg/kg	-	-	-	-	-	-
Zinc	T-Zn	10000	-	mg/kg	331	321	403	462	760	473

Bold *Concentration greater than or equal to the Soil Quality Remediation Objective (SQRO) for the Polaris Mine Site.*

Notes:

"<" = Less than analytical method detection limit.

"-" = Analysis not conducted, or no guideline.

a) The Soil Quality Remediation Objectives (SQROs) for the Polaris Mine Site are based on Canadian Council of Ministers of the Environment (CCME) standards and guidelines. The CCME provides criteria based on land use activities and applies the most strigent criteria based on site-specific receptors and exposure pathways.

b) Field screening results are measured using a Niton Xli 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

c) Canadian Environmental Quality Guidelines (CEQG) for Parkland (PL) Land Use. The site-specific factors used for determining the soil quality guidelines were: soil ingestion, soil contact and nutrient cycling.

d) Interim Remediation Criterion. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given parameter.

Table SS-25-2. South Shore Area Remediation Confirmation Soil Samples - Metals

				Location	South Shore		
				Sample ID	Shore-12072-W-C	Shore-12073-W-C	Shore-12074-W-C
				Date Sampled	28-Jul-04	28-Jul-04	28-Jul-04
				ALS File Number	U6530r	U6530r	U6530r
		Polaris Mine Soil Quality Remediation Objectives[a]		Field Screen Pb (ppm)[b]	194	293	-
				Field Screen Zn (ppm)[b]	590	1290	-
Parameter		**Site Specific**	**CEQG (PL)[c]**	**Units**	**Analytical Results**		
pH		-	-	-	-	-	-
Total Metals							
Antimony	T-Sb	-	20[d]	mg/kg	-	-	-
Arsenic	T-As	-	12	mg/kg	-	-	-
Barium	T-Ba	-	500	mg/kg	-	-	-
Beryllium	T-Be	-	4[d]	mg/kg	-	-	-
Cadmium	T-Cd	-	10	mg/kg	-	-	-
Chromium	T-Cr	-	64	mg/kg	-	-	-
Cobalt	T-Co	-	50[d]	mg/kg	-	-	-
Copper	TCu	-	63	mg/kg	-	-	-
Lead	T-Pb	2000	-	mg/kg	<50	94	93
Mercury	T-Hg	-	7	mg/kg	-	-	-
Molybdenum	T-Mo	-	10[d]	mg/kg	-	-	-
Nickel	T-Ni	-	50	mg/kg	-	-	-
Selenium	T-Se	-	1	mg/kg	-	-	-
Silver	T-Ag	-	20[d]	mg/kg	-	-	-
Tin	T-Sn	-	50[d]	mg/kg	-	-	-
Vanadium	T-V	-	130	mg/kg	-	-	-
Zinc	T-Zn	10000	-	mg/kg	134	298	361

Bold *Concentration greater than or equal to the Soil Quality Remediation Objective (SQRO) for the Polaris Mine Site*

Notes:

"<" = Less than analytical method detection limit.

"-" = Analysis not conducted, or no guideline.

a) The Soil Quality Remediation Objectives (SQROs) for the Polaris Mine Site are based on Canadian Council of Ministers of the Environment (CCME) standards and guidelines. The CCME provides criteria based on land use activities and applies the most strigent criteria based on site-specific receptors and exposure pathways.

b) Field screening results are measured using a Niton Xli 700 Series portable X-Ray Fluorescence (XRF) elemental analyser.

c) Canadian Environmental Quality Guidelines (CEQG) for Parkland (PL) Land Use. The site-specific factors used for determining the soil quality guidelines were: soil ingestion, soil contact and nutrient cycling.

d) Interim Remediation Criterion. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given parameter.

Table SS-25-3. South Shore Area Remediation Confirmation Soil Samples - Polycyclic Aromatic Hydrocarbons (PAHs)

	Polaris Mine Soil Quality Remediation Objectives[a]	Location	South Shore
		Sample ID	Shore-12037-F-C
		Date Sampled	7/23/2004
		ALS File Number	U6364
		Field Screen (ppm)[b]	5
Parameter	**CEQG[c]**	**Units**	**Analytical Results**
Polycyclic Aromatic Hydrocarbons			
Acenaphthene		mg/kg	<0.06
Acenaphthylene		mg/kg	<0.05
Anthracene	-	mg/kg	<0.05
Benz(a)anthracene	1[c]	mg/kg	<0.05
Benzo(a)pyrene	0.7	mg/kg	<0.05
Benzo(b)fluoranthene	1[c]	mg/kg	<0.05
Benzo(g,h,I)perylene	-	mg/kg	<0.05
Benzo(k)fluoranthene	1[c]	mg/kg	<0.05
Chrysene	-	mg/kg	<0.05
Dibenz(a,h)anthracene	1[c]	mg/kg	<0.05
Fluoranthene	-	mg/kg	<0.05
Fluorene	-	mg/kg	0.128
Indeno(1,2,3,-c,d)pyrene	1[c]	mg/kg	<0.05
Napthalene	0.6	mg/kg	0.177
Phenanthrene	5[c]	mg/kg	0.074
Pyrene	10[c]	mg/kg	<0.05

Bold *Concentration greater than or equal to the Soil Quality Remediation Objective (SQRO) for the Polaris Mine Site.*

Notes:

"<" = Less than analytical method detection limit.

"-" = Analysis not conducted, or no guideline.

a) The Soil Quality Remediation Objectives (SQROs) for the Polaris Mine Site are based on Canadian Council of Ministers of the Environment (CCME) standards and guidelines. The CCME provides criteria based on land use activities and applies the most strigent criteria based on site-specific receptors and exposure pathways.

b) Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.

c) Canadian Environmental Quality Guidelines (CEQG) for Parkland (PL) Land Use. The site-specific factors used for determining the soil quality guidelines were: soil ingestion, soil contact and nutrient cycling.

d) Interim Remediation Criterion. Soil Quality Guidelines based on the CCME soil protocol have not yet been developed for a given parameter.

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				Location	South Shore							
				Sample ID	Shore-5-F-C	Shore-6-F	Shore-55-F	Shore-61-F-C	Shore-71-W-D	Shore-77-F	Shore-80-F-C	Shore-84-F-Q
				Duplicate ID	Shore 45-F-Q	QC# 342557	QC# 346418	Shore-53-F-Q	Shore-107-W-Q	QC# 346792	Shore-72-F-Q	QC# 347684
Parameter	**Units**	**MDL**	**PQL**		**Analytical Results**							
On Site Field Screening Duplicates												
Lead (Pb)												
Sample Result	mg/kg	70	350		607	-	-	-	4925	-	-	-
Duplicate Result	mg/kg	70	350		530	-	-	-	3635	-	-	-
RpD	**%**				**13%**				**30%**			
Zinc (Zn)												
Sample Result	mg/kg	150	750		3379	-	-	-	53208	-	-	-
Duplicate Result	mg/kg	150	750		3318	-	-	-	40596	-	-	-
RpD	**%**				**2%**				**27%**			
Analytical Laboratory Duplicates												
Lead (Pb)												
Sample Result	mg/kg	100	500		-	-	-	<100	-	-	346	-
Duplicate Result	mg/kg	100	500		-	-	-	<100	-	-	471	-
RpD	**%**							na			na	
Zinc (Zn)												
Sample Result	mg/kg	3	15		-	-	-	431	-	-	1050	-
Duplicate Result	mg/kg	3	15		-	-	-	495	-	-	1640	-
RpD	**%**							**14%**			**44%**	
Analytical Laboratory Replicates												
Lead (Pb)												
Sample Result	mg/kg	100	500		-	496	2040	-	-	166	-	214
Duplicate Result	mg/kg	100	500		-	1360	1290	-	-	143	-	201
RpD	**%**					na	**45%**			na		na
Zinc (Zn)												
Sample Result	mg/kg	3	15		-	3760	6160	-	-	527	-	812
Duplicate Result	mg/kg	3	15		-	4850	4020	-	-	568	-	779
RpD	**%**					**25%**	**42%**			**7%**		**4%**

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL.*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				Location	South Shore							
				Sample ID	Shore-86-F-C	Shore-110-F-C	Shore-122-I-C	Shore-126-F-C	Shore-127-F-C	Shore-143-F-C	Shore-159-F-C	Shore-418-F-C
				Duplicate ID	Shore-84-F-Q	Shore-108-F-Q	QC# 351114	Shore 31-F-Q	Shore 32-F-Q	Shore 146-F-Q	QC# 351116	Shore 43-F-Q
Parameter	**Units**	**MDL**	**PQL**		**Analytical Results**							
On Site Field Screening Duplicates												
Lead (Pb)												
Sample Result	mg/kg	70	350		156	-	-	857	527	-	-	720
Duplicate Result	mg/kg	70	350		273	-	-	727	843	-	-	446
RpD	**%**				na			**16%**	**46%**			**0**
Zinc (Zn)												
Sample Result	mg/kg	150	750		272	-	-	4948	2169	-	-	10133
Duplicate Result	mg/kg	150	750		845	-	-	4230	2441	-	-	5775
RpD	**%**				na			**16%**	**12%**			**1**
Analytical Laboratory Duplicates												
Lead (Pb)												
Sample Result	mg/kg	100	500		<100	676	-	-	-	428	-	-
Duplicate Result	mg/kg	100	500		214	717	-	-	-	553	-	-
RpD	**%**				na	**6%**				na		
Zinc (Zn)												
Sample Result	mg/kg	3	15		120	2410	-	-	-	1270	-	-
Duplicate Result	mg/kg	3	15		812	2530	-	-	-	1330	-	-
RpD	**%**				**148%**	**5%**				**5%**		
Analytical Laboratory Replicates												
Lead (Pb)												
Sample Result	mg/kg	100	500		-	-	755	-	-	-	282	-
Duplicate Result	mg/kg	100	500		-	-	932	-	-	-	283	-
RpD	**%**						**21%**				na	
Zinc (Zn)												
Sample Result	mg/kg	3	15		-	-	3640	-	-	-	1100	-
Duplicate Result	mg/kg	3	15		-	-	3310	-	-	-	1120	-
RpD	**%**						**9%**				**0**	

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

Location				South Shore						
Sample ID				Shore-419-F-C	Shore-436-F-C	Shore482-F-C	Shore-10204-BH-C	Shore-10205-BH-C	Shore-10779-F-D	Shore-10820-F-C
Duplicate ID				Shore 44-F-Q	Shore-420-F-Q	QC# 361123	Shore-10216-BH-Q	Shore-10217-BH-Q	QC# 390728	Shore-10849-F-Q
Parameter	**Units**	**MDL**	**PQL**	**Analytical Results**						
On Site Field Screening Duplicates										
Lead (Pb)										
Sample Result	mg/kg	70	350	1083	-	-	43	373	-	-
Duplicate Result	mg/kg	70	350	494	-	-	57	459	-	-
RpD	**%**			**75%**			na	**21%**		
Zinc (Zn)										
Sample Result	mg/kg	150	750	7514	-	-	336	1437	-	-
Duplicate Result	mg/kg	150	750	6527	-	-	248	1481	-	-
RpD	**%**			**14%**			na	**3%**		
Analytical Laboratory Duplicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	411	-	-	-	-	520
Duplicate Result	mg/kg	100	500	-	485	-	-	-	-	520
RpD	**%**				na					0
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	2740	-	-	-	-	566
Duplicate Result	mg/kg	3	15	-	2510	-	-	-	-	719
RpD	**%**				**9%**					0
Analytical Laboratory Replicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	-	890	-	-	680	-
Duplicate Result	mg/kg	100	500	-	-	1070	-	-	790	-
RpD	**%**					**18%**			0	
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	-	3980	-	-	1190	-
Duplicate Result	mg/kg	3	15	-	-	4450	-	-	1110	-
RpD	**%**					**11%**			0	

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

Location				South Shore						
Sample ID				Shore-11220-F-C	Shore-11223-F-C	Shore-11229-F-C	Shore-11303-F-C	Shore-11305-F-C	Shore-11317-F-D	Shore-11339-F-D
Duplicate ID				QC# 389862	Shore-11486-F-Q	QC# 391524	QC# 389243	Shore-11309-F-Q	QC# 394459	Shore-10491-F-Q
Parameter	**Units**	**MDL**	**PQL**	**Analytical Results**						
On Site Field Screening Duplicates										
Lead (Pb)										
Sample Result	mg/kg	70	350	-	-	-	-	-	-	240
Duplicate Result	mg/kg	70	350	-	-	-	-	-	-	227
RpD	**%**									na
Zinc (Zn)										
Sample Result	mg/kg	150	750	-	-	-	-	-	-	1423
Duplicate Result	mg/kg	150	750	-	-	-	-	-	-	1807
RpD	**%**									0
Analytical Laboratory Duplicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	550	-	-	130	-	-
Duplicate Result	mg/kg	100	500	-	650	-	-	170	-	-
RpD	**%**				17%			na		
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	494	-	-	527	-	-
Duplicate Result	mg/kg	3	15	-	415	-	-	486	-	-
RpD	**%**				17%			8%		
Analytical Laboratory Replicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	340	-	230	1170	-	<100	-
Duplicate Result	mg/kg	100	500	340	-	220	1530	-	<100	-
RpD	**%**			na		na	0		na	
Zinc (Zn)										
Sample Result	mg/kg	3	15	1010	-	2340	3130	-	241	-
Duplicate Result	mg/kg	3	15	925	-	2180	2690	-	547	-
RpD	**%**			9%		0	0		na	

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				Location	South Shore						
				Sample ID	Shore-11343-F-D	Shore-11353-F-D	Shore-11368-F-C	Shore-11400-F-D	Shore-11402-F-D	Shore-11475-F-C	Shore-11576-F-C
				Duplicate ID	Shore-10492-F-Q	Shore-10493-F-Q	Shore-11369-F-Q	Shore-10494-F-Q	Shore-11750-F-Q	Shore-11585-F-Q	QC# 392656
Parameter	**Units**	**MDL**	**PQL**		**Analytical Results**						
On Site Field Screening Duplicates											
Lead (Pb)											
Sample Result	mg/kg	70	350		866	195	-	6697	356	-	-
Duplicate Result	mg/kg	70	350		1110	246	-	8796	357	-	-
RpD	**%**				**25%**	**na**		**0**	**0%**		
Zinc (Zn)											
Sample Result	mg/kg	150	750		22435	351	-	28062	637	-	-
Duplicate Result	mg/kg	150	750		22790	349	-	36829	543	-	-
RpD	**%**				**2%**	**na**		**0**	**na**		
Analytical Laboratory Duplicates											
Lead (Pb)											
Sample Result	mg/kg	100	500		-	-	310	-	-	<50	-
Duplicate Result	mg/kg	100	500		-	-	210	-	-	<50	-
RpD	**%**						**na**			**na**	
Zinc (Zn)											
Sample Result	mg/kg	3	15		-	-	1630	-	-	139	-
Duplicate Result	mg/kg	3	15		-	-	1370	-	-	142	-
RpD	**%**						**17%**			**2%**	
Analytical Laboratory Replicates											
Lead (Pb)											
Sample Result	mg/kg	100	500		-	-	-	-	-	-	250
Duplicate Result	mg/kg	100	500		-	-	-	-	-	-	160
RpD	**%**										**na**
Zinc (Zn)											
Sample Result	mg/kg	3	15		-	-	-	-	-	-	330
Duplicate Result	mg/kg	3	15		-	-	-	-	-	-	203
RpD	**%**										**na**

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL.*

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

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

MDL *Method Detection Limit of analysis*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				South Shore						
Location				Shore-11641-F-D	Shore-11649-F-D	Shore-11659-F-D	Shore-11670-F-C	Shore-11676-F-C	Shore-11767-F-C	Shore-11816-F-C
Sample ID				Shore-11713-F-Q	Shore-11715-F-Q	Shore-11717-F-Q	QC# 393170	QC# 393917	Shore-11768-F-Q	Shore-11817-F-Q
Duplicate ID										
Parameter	**Units**	**MDL**	**PQL**	**Analytical Results**						
On Site Field Screening Duplicates										
Lead (Pb)										
Sample Result	mg/kg	70	350	69	270	220	-	190	-	-
Duplicate Result	mg/kg	70	350	94	351	246	-	210	-	-
RpD	**%**			na	na	na		na		
Zinc (Zn)										
Sample Result	mg/kg	150	750	491	843	716	-	509	-	-
Duplicate Result	mg/kg	150	750	367	1122	824	-	603	-	-
RpD	**%**			na	0	na		na		
Analytical Laboratory Duplicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	-	-	-	-	480	<50
Duplicate Result	mg/kg	100	500	-	-	-	-	-	520	<50
RpD	**%**								na	na
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	-	-	-	-	786	97
Duplicate Result	mg/kg	3	15	-	-	-	-	-	1050	157
RpD	**%**								29%	0
Analytical Laboratory Replicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	-	-	78	-	-	-
Duplicate Result	mg/kg	100	500	-	-	-	77	-	-	-
RpD	**%**						na			
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	-	-	198	-	-	-
Duplicate Result	mg/kg	3	15	-	-	-	229	-	-	-
RpD	**%**						na			

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

Location				South Shore						
Sample ID				Shore-11821-F-C	Shore-11987-F-D	Shore-11988-F-D	Shore-11996-F-C	Shore-11997-F-Q	Shore-11998-F-C	Shore-12002-F-C
Duplicate ID				QC# 394458	Shore-11778-F-Q	Shore-11779-F-Q	Shore-11997-F-Q	QC# 399152	Shore-11999-F-Q	QC# 399318
Parameter	**Units**	**MDL**	**PQL**	**Analytical Results**						
On Site Field Screening Duplicates										
Lead (Pb)										
Sample Result	mg/kg	70	350	-	-	-	-	-	-	-
Duplicate Result	mg/kg	70	350	-	-	-	-	-	-	-
RpD	**%**									
Zinc (Zn)										
Sample Result	mg/kg	150	750	-	-	-	-	-	-	-
Duplicate Result	mg/kg	150	750	-	-	-	-	-	-	-
RpD	**%**									
Analytical Laboratory Duplicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	-	2600	210	<100	-	<100	-
Duplicate Result	mg/kg	100	500	-	140	<100	<100	-	280	-
RpD	**%**				**na**	**na**	**na**		**na**	
Zinc (Zn)										
Sample Result	mg/kg	3	15	-	4400	424	36	-	51	-
Duplicate Result	mg/kg	3	15	-	365	207	39	-	363	-
RpD	**%**				**169%**	**69%**	**6%**		**151%**	
Analytical Laboratory Replicates										
Lead (Pb)										
Sample Result	mg/kg	100	500	228	-	-	-	<100	-	244
Duplicate Result	mg/kg	100	500	314	-	-	-	<100	-	246
RpD	**%**			**na**				**na**		**na**
Zinc (Zn)										
Sample Result	mg/kg	3	15	616	-	-	-	39	-	321
Duplicate Result	mg/kg	3	15	653	-	-	-	38	-	321
RpD	**%**			**na**				**na**		**na**

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL.*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				Location	South Shore						
				Sample ID	Shore-12013-S-D	Shore-12014-S-D	Shore-12015-S-D	Shore-12016-S-D	Shore-12017-S-D	Shore-12018-S-D	Shore-12019-S-D
				Duplicate ID	Shore-12308-S-Q	Shore-12309-S-Q	Shore-12310-S-Q	Shore-12311-S-Q	Shore-12312-S-Q	Shore-12313-S-Q	Shore-12314-S-Q
Parameter	**Units**	**MDL**	**PQL**		**Analytical Results**						
On Site Field Screening Duplicates											
Lead (Pb)											
Sample Result	mg/kg	70	350		5544	9553	1748	3408	1027	2093	3702
Duplicate Result	mg/kg	70	350		5309	9221	1675	3600	883	1966	4679
RpD	**%**				**0**	**0**	**4%**	**5%**	**15%**	**6%**	**0**
Zinc (Zn)											
Sample Result	mg/kg	150	750		15801	28170	5867	18193	3276	5249	7894
Duplicate Result	mg/kg	150	750		15546	27128	5381	18453	3023	4838	9938
RpD	**%**				**0**	**0**	**9%**	**1%**	**8%**	**8%**	**0**
Analytical Laboratory Duplicates											
Lead (Pb)											
Sample Result	mg/kg	100	500		-	-	-	-	-	-	-
Duplicate Result	mg/kg	100	500		-	-	-	-	-	-	-
RpD	**%**										
Zinc (Zn)											
Sample Result	mg/kg	3	15		-	-	-	-	-	-	-
Duplicate Result	mg/kg	3	15		-	-	-	-	-	-	-
RpD	**%**										
Analytical Laboratory Replicates											
Lead (Pb)											
Sample Result	mg/kg	100	500		-	-	-	-	-	-	-
Duplicate Result	mg/kg	100	500		-	-	-	-	-	-	-
RpD	**%**										
Zinc (Zn)											
Sample Result	mg/kg	3	15		-	-	-	-	-	-	-
Duplicate Result	mg/kg	3	15		-	-	-	-	-	-	-
RpD	**%**										

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes:

na *RpD value is not applicable because one or both results are less than the PQL.*

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

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

MDL *Method Detection Limit of analysis.*

Table SS 25-4. South Shore Area Quality Assurance and Quality Control Remediation Soil Samples - Metals

				South Shore					
			Location						
			Sample ID	Shore-12020-S-D	Shore-12067-W-C	Shore-12068-W-C	Shore-12069-W-C	Shore-12070-W-C	Shore-12071-W-D
			Duplicate ID	Shore-12315-S-Q	Shore-12332-W-Q	Shore-12331-W-Q	Shore-12333-W-Q	Shore-12330-W-Q	Shore-12334-W-Q
Parameter	**Units**	**MDL**	**PQL**	**Analytical Results**					
On Site Field Screening Duplicates									
Lead (Pb)									
Sample Result	mg/kg	70	350	2242	1248	2854	988	5756	540
Duplicate Result	mg/kg	70	350	2260	1404	3338	1168	4778	846
RpD	**%**			0	0	**16%**	**17%**	**19%**	**44%**
Zinc (Zn)									
Sample Result	mg/kg	150	750	4594	2064	6241	2061	8968	1074
Duplicate Result	mg/kg	150	750	4946	2354	6160	2239	7451	1631
RpD	**%**			0	0	**1%**	**8%**	**18%**	**41%**
Analytical Laboratory Duplicates									
Lead (Pb)									
Sample Result	mg/kg	100	500	-	-	-	-	-	-
Duplicate Result	mg/kg	100	500	-	-	-	-	-	-
RpD	**%**								
Zinc (Zn)									
Sample Result	mg/kg	3	15	-	-	-	-	-	-
Duplicate Result	mg/kg	3	15	-	-	-	-	-	-
RpD	**%**								
Analytical Laboratory Replicates									
Lead (Pb)									
Sample Result	mg/kg	100	500	-	-	-	-	-	-
Duplicate Result	mg/kg	100	500	-	-	-	-	-	-
RpD	**%**								
Zinc (Zn)									
Sample Result	mg/kg	3	15	-	-	-	-	-	-
Duplicate Result	mg/kg	3	15	-	-	-	-	-	-
RpD	**%**								

Bold *RpD Value is greater than or equal to 50% and the concentrations of both samples are greater than the PQL.*

Notes.

na *RpD value is not applicable because one or both results are less than the PQL.*

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

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

MDL *Method Detection Limit of analysis.*


LEGEND:
SOURCE OF DRAWING(S):
DRAWING INFORMATION:
DRAWN BY: AL
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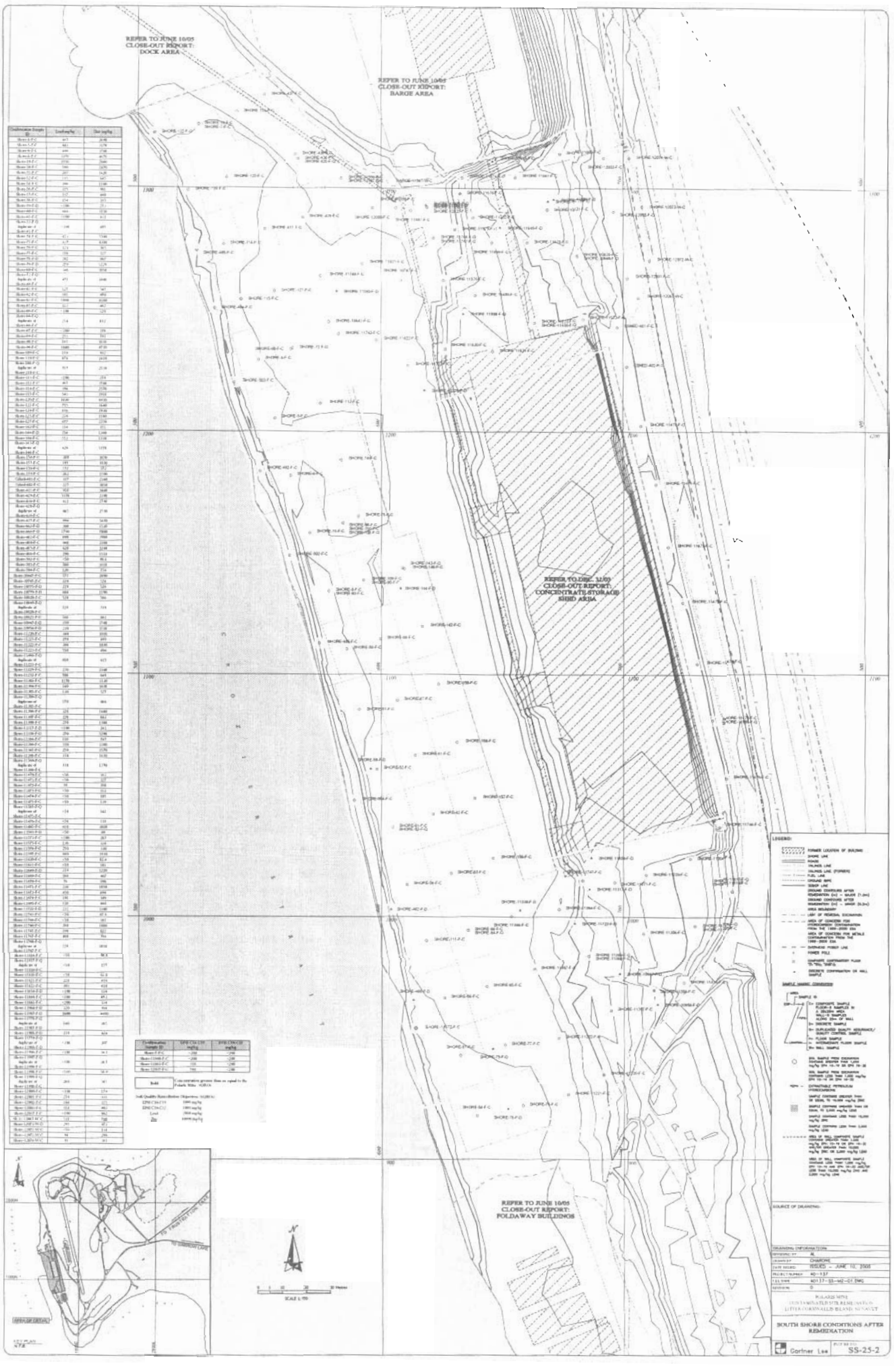
DATE ISSUED: ISSUED - JUNE 10, 2005
PROJECT NUMBER: 40-137
FILE NAME: 40137-SS-M1-01 (M6)
REVISION: 0
POLARIS MINE
CONTAMINATED SITE REMEDIATION
LITTLE CORMACK LAKE, NUNAVUT
SOUTH SHORE CONDITIONS BEFORE REMEDIATION
Gartner Lee
DRAWING NO.
SS-25-1


REFER TO JUNE 10/05
CLOSE-OUT REPORT:
DOCK AREA
REFER TO JUNE 10/05
CLOSE-OUT REPORT:
BARGE AREA
REFER TO DSC 12/03
CLOSE-OUT REPORT:
CONCENTRATE STORAGE
SHED AREA
REFER TO JUNE 10/05
CLOSE-OUT REPORT:
FOLDAWAY BUILDINGS
LEGEND:
SOURCE OF DRAWING:
DRAWING INFORMATION
SOUTH SHORE CONDITIONS AFTER REMEDIATION
Gartner Lee
SS-25-2

Appendix J

North Shore

June 10, 2005

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

Dear Mr. Donald:

Re: 40137 – Polaris Mine Operations Contaminated Soil Remediation
Close Out Report: North Shore

BACKGROUND

The North Shore area (shown as Area 26 on Figure 1: *Contaminated Soils Remediation Progress Plan, December 31, 2003* and on Figure 2: *Contaminated Soils Remediation Progress Plan, December 31, 2004*) is located north of the sewer line and dock along Crozier Strait. The area was bound by the sewage line to the south, the exploration stockpile to the north and the firehall and main portal to the east.

The North Shore area housed a temporary shop, an ore stockpile and contained part of the berthing lagoon excavated to float the Process Barge into place during the construction of the mine. The temporary shop was located in front of the main portal, and was used to service equipment during the development of the underground workings. A cofferdam was constructed across the entrance to the lagoon, the sea water was pumped out and the excavation backfilled once the Process Barge was in place. Rock obtained from the mine workings was used to backfill the berthing lagoon and to build up the shoreline during the construction and to repair eroded areas during the operation of the mine.

The Environmental Site Assessment (ESA) conducted in 1999 and 2000 identified metal contamination at the North Shore. Three (3) surface samples were collected, one (1) test pit excavated and three (3) boreholes drilled during the ESA. The sample results indicated that elevated metal concentrations were present from surface up to a depth of at least 1.5 m in the backfilled areas. Metals contamination was observed in boreholes and test pit samples. No indication of hydrocarbon contamination was encountered during the ESA. Figure NS-26-01: *North Shore Conditions Before Remediation* illustrates the original topography of the area as well as the sample results from the ESA.

METHODOLOGY

Delineation

Between July 6, 2003 and July 8, 2003, the preliminary boundary of the area to be remediated, identified in the ESA as an "Area of Concern" was further delineated for excavation through the collection and analysis of field screening samples from twenty six (26) boreholes advanced with an air rotary quarry drill. Gartner Lee Limited (GLL) sampled the soil in accordance with standard GLL and Teck Cominco Limited (TCL) sampling procedures and protocols. Three hundred fifty nine (359) composite samples were collected from the boreholes. Each hole was drilled until bedrock was encountered; depths ranged from 1.0 m to 9.5 m and composite soil samples were collected over 0.5 m intervals. The soil samples were collected from the drill returns that accumulated at the mouth of the borehole. Following the collection of each sample the surface surrounding the borehole was cleared of the drill cuttings.

The visual appearance, odour of the soil and field screening measurements obtained from the borehole samples were used to delineate the area to be excavated. Based on the results of the field screening sampling, GLL modified the boundaries of the area to be remediated and directed excavation. The field screening measurements for hydrocarbons were obtained using a portable photo-ionization detector (PID) to measure the concentrations of organic vapours in the headspace of the sample bags. Metals concentrations were analysed using a Niton portable X-Ray Fluorescence (XRF) elemental analyzer. Field screening results from the drilling indicated that both metal and hydrocarbon contamination was present in sub-areas at depths ranging from 1.0 m to 4.5 m. No hydrocarbon contamination was encountered within 25 m of the shoreline.

Excavation

The excavation of the North Shore area started in August 2003 and it was completed in July 2004. In 2003, excavation of metal contaminated soil commenced adjacent to the shoreline. A berm, approximately 10 m wide was left intact between the ocean and the excavation to limit the interaction with the foreshore environment. The berm provided protection from the ocean flooding the worksite as well as protection from the water washing fine sand and silt into the marine environment. Total suspended solids (TSS) levels were monitored daily during periods of work in the foreshore along the shoreline at predetermined stations in accordance with approved site procedures and protocols.

The excavation was left open over the winter months and work recommenced in the spring of 2004. Removal of the berm took place in July 2004 while ice still bound the marine foreshore and interaction with the marine foreshore was minimal.

To direct the excavation activities, soil samples were collected across the excavation area in accordance with standard GLL and TCL sampling procedures and protocols. Field screening using the PID for hydrocarbons and the XRF analyzer for Lead and Zinc was used to determine where additional excavation was required to meet the Site Quality Remediation Objectives (SQRO). Excavation of the North Shore was completed on July 10, 2004. The limits of the excavation are shown on Figure NS-26-02: *North Shore Conditions After Remediation*. This material was disposed of in the underground mine working in accordance with regulatory approvals.

Confirmation Sampling

Upon receipt of field screening results that indicated that the soil remaining in the excavation would meet the SQROs confirmation soil samples were collected. The excavation area was sub divided into individual composite sampling areas approximately 25 m x 25 m or less as required to cover the area to be sampled. Wall samples were composited over a length of 25 m on the wall of the excavation. Composite samples were created by collecting four or five evenly spaced allocates of soil with in the individual composite sample area. A single allocate of soil from a specific point is a discrete sample.

The soil samples were collected at the excavation limits and submitted to ALS Environmental (ALS) for Extractable Petroleum Hydrocarbons (EPH), Polycyclic Aromatic Hydrocarbons (PAH) and metals. Additional excavation was undertaken in areas where the laboratory analytical results did not meet the Soil Quality Remediation Objectives (SQROs) and additional confirmatory samples were taken upon completion of excavation. Upon receipt of analytical results that met the SQROs the final excavation limits were surveyed.

ANALYTICAL RESULTS

Analytical laboratory results for EPH, metals and PAH are summarised in Tables NS-26-1, NS-26-2 and NS-26-3 along with the approved Polaris Mine SQRO's for petroleum hydrocarbons and metals. A total of thirty eight (38) hydrocarbon remediation confirmation samples were submitted from the North Shore area: twenty four (24) composite floor samples, seven (7) discrete samples, and seven (7) quality assurance quality control (QA/QC) samples. Of the metals remediation confirmation samples there were fifty four (54) confirmation samples submitted: thirty four (34) composite floor samples, thirteen (13) discrete samples, two (2) composite wall samples, and five (5) quality assurance quality control (QA/QC) samples. The soil quality results and lateral limits of the excavation are shown on Figure NS-26-2.

Quality Assurance/Quality Control (QA/QC)

Relative percent differences have been calculated and compiled in Table NS-26-4 for EPH and Table NS-26-5 for Lead and Zinc. There are a total of seven (7) analytical laboratory duplicates and four (4) analytical laboratory duplicates for EPH. Of the metals, there are twenty three (23) onsite field screened duplicates, nine (9) analytical laboratory duplicates, and six (6) analytical laboratory replicates for a total forty nine (49) QA/QC samples.

Forty seven (47) of the sample results and their duplicate/replicate results returned RpDs below the practical quantitation limit (PQL), in which case the RpD value has been identified as "na" (not applicable), or returned acceptable RpDs, below the site specific remediation protocol of 50%. Two analytical laboratory duplicates returned RpDs greater than the objective for Lead. The variance between the sample and its duplicate is considered indicative of sample heterogeneity, especially at low concentrations of Lead.

Polaris Mine Soil Quality Remediation Objectives

Twenty four (24) hydrocarbon remediation confirmation composite samples and thirty six (36) metal remediation confirmation composite samples were collected across the floor and the wall of the excavation. All of the remediation confirmation composite samples returned results below the Polaris Mines SQRO's for EPH. Two (2) remediation confirmation composite samples returned results above the Polaris Mine SQRO's for Lead and/or Zinc. Shore-10135-F-C had a Lead concentration of 2320 mg/kg and Shore-10588-F-C had a Lead concentration of 2,140 mg/kg and a Zinc concentration of 10,700 mg/kg. The exceedances are less than two times the SQRO. The SQRO's for Lead and Zinc are 2,000 mg/kg and 10,000 mg/kg respectively. The approved site-specific remedial objectives allow for minor exceedances in a small percentage of the confirmatory sample area, as long as the concentration is less than twice the remedial target.

Discrete samples were collected in addition to the composite samples to discern the homogeneity of the sample areas represented by the composite samples. The results are shown on the tables below and generally confirm that there is reasonable homogeneity within the sample areas with the exception of EPH C_{19}-C_{32} and Zinc concentrations in sample Shore-10800-F-D.

Summary of Discrete Hydrocarbon Sample Results Compared to Corresponding Composite Sample Results

Composite Sample ID	EPH_{10-19} (mg/kg)	EPH_{19-32} (mg/kg)	Discrete Sample ID	EPH_{10-19} (mg/kg)	EPH_{19-32} (mg/kg)
Shore-10051-F-C	<200	<200	Shore-10042-F-D	<200	<200
Shore-10082-F-C	<200	<200	Shore-10073-F-D	<200	<200
Shore-10080-F-C	<200	<200	Shore-10076-F-D	220	<200
Shore-10080-F-C	<200	<200	Shore-10079-F-D	<200	<200
Shore-10846-F-C	640	490	Shore-10794-F-D	370	460
Shore-10845-F-C	940	370	Shore-10800-F-D	**1180**	**1010**

Summary of Discrete Metals Sample Results Compared to Corresponding Composite Sample Results

Composite Sample ID	Lead (mg/kg)	Zinc (mg/kg)	Discrete Sample ID	Lead (mg/kg)	Zinc (mg/kg)
Shore-10051-F-C	<150	19	Shore-10042-F-D	<150	31
Shore-10082-F-C	<150	16	Shore-10073-F-D	<150	9
Shore-10080-F-C	<150	8	Shore-10076-F-D	<150	7
Shore-10080-F-C	<150	8	Shore-10079-F-D	<150	7
Shore-10134-F-C	<150	11	Shore-10116-F-D	160	623
Shore-10846-F-C	<100	153	Shore-10794-F-D	<100	72
Shore-10845-F-C	140	387	Shore-10800-F-D	230	1190

Generic Federal Soil Quality Guidelines for Parkland Land Use

Eight (8) hydrocarbon samples were analysed for polycyclic aromatic hydrocarbons (PAH) and eight (8) metal samples were analyzed for total metals. The PAH results were below the generic Canadian Council of Ministers of Environment (CCME) Canadian Environmental Quality Guideline (CEQG) for Parkland Land use. Three confirmation samples returned Barium concentrations greater than the CCME CEQG for Parkland Land use of 500 mg/kg for Barium in soil. Barium concentrations in the samples analyzed from the North Shore ranged from 286 mg/kg to 727 mg/kg. The CCME recognizes that local geological conditions may result in elevated background levels of metals above the guidelines.

Barium is a common mineral associated with lead sulphides, and it is found in cavities in limestone and dolostone. Soil samples collected during the 2004 vegetation sampling program at Polaris, as documented in the November 24, 2004 Memorandum *2004 Vegetation Sampling Results*, are considered to be representative of background conditions. Samples were collected at the following intervals surface to 0.01 m, 0.01 m to 0.05 m, and 0.05 m to 0.1 m. Concentrations