

# **Appendix 7a**

Site Photos

– Valley Drainage Ponds

## Site Photographs – Valley Drainage Ponds



Photo 1 View of valley (looking north from road at intersection near Pallet Line)



Photo 2 View of valley (looking southwest from north of Main Base site). The BMEWS site and Aliant tower are apparent in the background

**Site Photographs – Valley Drainage Ponds**



Photo 3 View of Valley Drainage Ponds (looking north from the BMEWS site)



Photo 4 View of Valley Drainage Ponds (looking south)

## **Appendix 7b**

Sample Coordinates

– Valley Drainage Ponds

**Sample Coordinates - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Coordinates	
	Easting	Northing
<b>SEDIMENT</b>		
SED-12	0674791	6150169
SED-13	0674787	6150239
SED-14	0674814	6150385
SED-15	0674838	6150507
SED-16	0674151	6150134
SED-17	0674062	6150239
SED-18	0674016	6150354
<b>VEGETATION</b>		
VEG-1	0674791	6150169
VEG-2	0674787	6150239
VEG-3	0674814	6150385
VEG-4	0674838	6150507
VEG-5	0674151	6150134
VEG-6	0674062	6150239
VEG-7	0674016	6150354
<b>BERRY</b>		
BERRY-20	0674776	6150169
BERRY-21	0674807	6150256
BERRY-22	0674801	6150391
BERRY-23	0674862	6150499
BERRY-24	0674136	6150131
BERRY-25	0674081	6150243
BERRY-26	0674006	6150363
<b>SMALL MAMMAL</b>		
SM-45	0674176	6149966
SM-46	0674788	6149908
SM-47	0674786	6149878
SM-48	0674776	6150013
SM-49	0674776	6149980
SM-50	0674175	6149965
SM-51	0674733	6150161
SM-52	0674818	6150212

## **Appendix 7c**

Soil Vapour Concentrations

– Valley Drainage Ponds

Sample Tipping Results - Valley Drainage Ponds  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103

Sample ID	Sample Depth (mbgs)	Hydrocarbon Odour	Soil Vapour Concentration (ppm)
<b>SEDIMENT</b>			
SED-12	0.08	No	3.3
SED-13	0.12	No	2.7
SED-14	0.1	No	2.6
SED-15	0.13	No	3.6
SED-16	0.05	No	1.8
SED-17	0.1	No	2.4
SED-18	0.15	No	2.1

## **Appendix 7d**

Laboratory Analytical Results Summary Tables

– Valley Drainage Ponds



**Table 7.1 Results of Laboratory Analysis of TPH/BTEX in Sediment - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Benzene	Toluene	Ethyl Benzene	Xylenes	C <sub>6</sub> -C <sub>10</sub> (Gas Range)	C <sub>10</sub> -C <sub>21</sub> (Fuel Range)	C <sub>21</sub> -C <sub>32</sub> (Lube Range)	Modified TPH <sup>2</sup>	Resemblance
RDL	0.03	0.03	0.03	0.05	3	15	15	20	-
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Criteria <sup>1</sup>	-	-	-	-	-	-	-	1,500	-
SEDIMENT									
SED-12	<0.03	<0.03	<0.03	<0.05	4	31	71	110	DNR
SED-13	<0.03	<0.03	<0.03	<0.05	<3	74	290	360	OP F/L
SED-13- Lab-Dup	-	-	-	-	-	77	330	-	-
SED-13 (silica gel re-run)	<0.03	<0.03	<0.03	<0.05	<3	<15	150	150	DNR
SED-14	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-
SED-15	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-
SED-16	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-
SED-17	<0.03	<0.03	<0.03	<0.05	<3	31	67	98	OP F/L
SED-18	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-

**Notes:**

1 = Ontario Ministry of Environment Guidelines for oil and grease in Freshwater Sediment. There are no federal or provincial guidelines for TPH or BTEX in freshwater sediment

2 = Modified TPH - Tier I does not include BTEX

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

DNR=No resemblance to petroleum products; OP F/L=One product in the fuel/lube range

**Table 7.2 Results of Laboratory Analysis of PCBs in Sediment - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Polychlorinated Biphenyls (PCBs)
RDL	0.05
Units	mg/kg
Criteria <sup>1</sup>	0.0341
Criteria <sup>2</sup>	0.277
<b>SEDIMENT</b>	
SED-12	<0.05
SED-13	<0.05
SED-14	<0.05
SED-15	<0.05
SED-16	<0.05
SED-17	<0.05
SED-18	<0.05

**Notes:**

1 = CCME Interim Sediment Quality Guidelines (ISQGs) for freshwater sediment (2002)

2 = CCME Probable Effects Levels (PELs) for freshwater sediment (2002)

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

Shaded = Value exceeds CCME ISQG

**Table 7.3 Results of Laboratory Analysis of VOCs in Sediment - Valley Drainage Ponds  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	Criteria <sup>1</sup>	Criteria <sup>2</sup>	SEDIMENT							
					SED-12	SED-13	SED-13 - Lab-Dup	SED-14	SED-15	SED-16	SED-17	SED-18
1,1,1-Trichloroethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,1,2,2-Tetrachloroethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,1,2-Trichloroethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,1-Dichloroethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,1-Dichloroethylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,2-Dichlorobenzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,2-Dichloroethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,2-Dichloropropane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,3-Dichlorobenzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
1,4-Dichlorobenzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Benzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Bromodichloromethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Bromoform	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Bromomethane	200	ug/kg	-	-	<200	<200	<200	<200	<200	<200	<200	<200
Carbon Tetrachloride	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Chlorobenzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Chloroform	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Chloromethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
cis-1,2-Dichloroethylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
cis-1,3-Dichloropropene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Dibromochloromethane	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Ethylbenzene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Ethylene Dibromide	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Methylene Chloride(Dichloromethane)	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
o-Xylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
p+m-Xylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Styrene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Tetrachloroethylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Toluene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
trans-1,2-Dichloroethylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
trans-1,3-Dichloropropene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Trichloroethylene	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Trichlorofluoromethane (FREON 11)	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30
Vinyl Chloride	30	ug/kg	-	-	<30	<30	<30	<30	<30	<30	<30	<30

**Notes:**

1 = CCME Interim Sediment Quality Guidelines (ISQGs) for freshwater sediment (2002)

2 = CCME Probable Effects Levels (PELs) for freshwater sediment (2002)

RDL = Reportable Detection Limit for routine analysis

Lab-dup = laboratory duplicate sample

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

**Table 7.4 Results of Lab Analysis of Available Metals in Sediment - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Parameters	RDL	Units	Criteria <sup>1</sup>	Criteria <sup>2</sup>	SEDIMENT							
					SED-12	SED-13	SED-14	SED-15	SED-16	SED-17	SED-18	
Aluminum	10	mg/kg	-	-	3,600	5,700	2,300	2,900	2,300	1,500	1,400	
Antimony	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Arsenic	2	mg/kg	5.9	17.0	<2	<2	<2	<2	<2	<2	<2	
Barium	5	mg/kg	-	-	11	13	<5	7	<5	<5	<5	
Beryllium	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Bismuth	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Boron	5	mg/kg	-	-	<5	<5	<5	<5	<5	<5	<5	
Cadmium	0.3	mg/kg	0.6	3.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Chromium	2	mg/kg	37.3	90.0	10	14	6	7	6	3	2	
Cobalt	1	mg/kg	-	-	4	2	2	3	2	<1	<1	
Copper	2	mg/kg	35.7	197	4	10	4	4	<2	2	<2	
Iron	50	mg/kg	-	-	12,000	14,000	5,000	7,400	6,600	1,600	2,900	
Lead	0.5	mg/kg	35.0	91.3	5.6	8.3	2.3	1.9	3.0	1.8	1.1	
Lithium	2	mg/kg	-	-	4	4	3	3	4	<2	2	
Manganese	2	mg/kg	-	-	170	65	51	51	58	16	20	
Mercury	0.1	mg/kg	0.17	0.486	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Molybdenum	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Nickel	2	mg/kg	-	-	7	7	5	6	4	2	<2	
Rubidium	2	mg/kg	-	-	4	3	<2	<2	<2	<2	<2	
Selenium	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Silver	0.5	mg/kg	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Strontium	5	mg/kg	-	-	<5	6	5	8	7	<5	<5	
Thallium	0.1	mg/kg	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Tin	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	
Uranium	0.1	mg/kg	-	-	0.4	1.2	0.3	0.2	0.2	0.4	<0.1	
Vanadium	2	mg/kg	-	-	25	24	11	11	11	4	8	
Zinc	5	mg/kg	123	315	14	14	9	11	10	5	5	

**Notes:**

1 = CCME Interim Sediment Quality Guidelines (ISQGs) for freshwater sediment (2002)

2 = CCME Probable Effects Levels (PELs) for freshwater sediment (2002)

RDL = Reportable Detection Limit

nd = Not detected above standard RDL

< = Not detected above RDL noted

"-" = indicates value is not available or does not apply

**Table 7.5 Results of Laboratory Analysis of PCBs in Vegetation - Valley Drainage Ponds  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Sample ID	Polychlorinated Biphenyls (PCBs)
RDL	0.3
Units	mg/kg
VEGETATION	
VEG-1	<0.3
VEG-2	<0.3
VEG-3	<0.3
VEG-4	<0.3
VEG-5	<0.3
VEG-6	<0.3
VEG-7	<0.3

**Notes:**  
RDL = Reportable Detection Limit  
< # = Not detected above RDL noted

**Table 7.6 Results of Laboratory Analysis of Available Metals in Vegetation - Valley Drainage Ponds  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	VEGETATION							
			VEG-1	VEG-2	VEG-3	VEG-4	VEG-4 Lab-Dup	VEG-5	VEG-6	VEG-7
Aluminum	10	mg/kg	540	770	800	1,400	1,400	240	1,100	640
Antimony	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5	mg/kg	29	34	24	21	21	24	25	25
Beryllium	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5	mg/kg	7	7	6	<5	<5	<5	<5	6
Cadmium	0.3	mg/kg	<0.3	<0.3	0.4	<0.3	<0.3	0.4	<0.3	0.5
Chromium	2	mg/kg	<2	<2	<2	<2	2	<2	2	<2
Cobalt	1	mg/kg	<1	<1	1	<1	<1	<1	1	<1
Copper	2	mg/kg	7	7	6.00	7	7	4	8	5
Iron	50	mg/kg	240	390	1,000	1,900	2,000	320	1,600	1,500
Lead	0.5	mg/kg	3.2	3.6	5.8	4.9	4.8	1.6	7.4	2.2
Manganese	2	mg/kg	74	78	88	25	26	81	30	88
Molybdenum	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	2	mg/kg	<2	<2	<2	2	2	<2	2	<2
Selenium	2	mg/kg	<2	<2	<2	<2	<2	<2	<2	<2
Silver	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	38	37	29	25	25	36	30	20
Thallium	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	0.1	mg/kg	0.1	0.2	0.2	0.4	0.3	0.2	0.4	<0.1
Vanadium	2	mg/kg	<2	<2	<2	2	2	<2	2	2
Zinc	5	mg/kg	57	56	34	17	17	23	20.0	21

**Notes:**

RDL = Reportable Detection Limit  
 Lab-dup = laboratory duplicate sample  
 < # = Not detected above RDL noted

**Table 7.7 Results of Laboratory Analysis of PCBs in Berries - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Polychlorinated Biphenyls (PCBs)
<b>RDL</b>	0.05
<b>Units</b>	mg/kg
BERRIES	
BERRY-20	<0.05
BERRY-21	<0.05
BERRY-22	<0.05
BERRY-23	<0.05
BERRY-24	<0.05
BERRY-25	<0.05
BERRY-26	<0.05

**Notes:**  
RDL = Reportable Detection Limit  
< # = Not detected above RDL noted

**Table 7.8 Results of Laboratory Analysis of Available Metals in Berries - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Parameters	RDL	Units	BERRIES								
			BERRY-20	BERRY-21	BERRY-22	BERRY-23	BERRY-24	BERRY-25	BERRY-25 Lab-Dup	BERRY-26	
Aluminum	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Antimony	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Barium	1.5	mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Beryllium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron	1.5	mg/kg	<1.5	<1.5	<1.5	3.1	<1.5	2.3	2	<1.5	<1.5
Cadmium	0.05	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	0.2	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Copper	0.5	mg/kg	1.12	1.01	1.10	2.55	1.24	0.95	0.93	1.23	1.23
Iron	15	mg/kg	<15	<15	<15	<15	<15	<15	<15	<15	<15
Lead	0.18	mg/kg	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Lithium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Manganese	0.5	mg/kg	6.88	2.93	2.58	3.46	3.25	1.91	1.56	3.93	3.93
Molybdenum	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Selenium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	0.12	mg/kg	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Strontium	1.5	mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Thallium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tin	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Vanadium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	1.5	mg/kg	<1.5	<1.5	<1.5	3.3	<1.5	3.2	2.9	<1.5	<1.5

**Notes:**

RDL = Reportable Detection Limit

Lab-dup = laboratory duplicate sample

< # = Not detected above RDL noted



**Table 7.9 Results of Laboratory Analysis of PCBs in Small Mammals - Valley Drainage Ponds**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Polychlorinated Biphenyls (PCBs)
RDL	0.05
Units	mg/kg
<b>SMALL MAMMALS</b>	
SM-45	0.12
SM-46	3.6
SM-47	2.6
SM-48	0.9
SM-49	0.1
SM-50	<0.05
SM-51	<0.05
SM-52	0.95

**Notes:**

RDL = Reportable Detection Limit

< # = Not detected above RDL noted

**Table 7.10 Results of Laboratory Analysis of Available Metals in Small Mammals - Valley Drainage Ponds  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	SMALL MAMMALS		
			SM-45	SM-46	SM-52
Aluminum	2.5	mg/kg	4.3	5.3	6.4
Antimony	0.5	mg/kg	<0.50	<0.50	<0.50
Arsenic	0.5	mg/kg	<0.50	<0.50	<0.50
Barium	1.5	mg/kg	9.6	3.1	1.6
Beryllium	0.5	mg/kg	<0.50	<0.50	<0.50
Boron	1.5	mg/kg	<1.5	<1.5	<1.5
Cadmium	0.05	mg/kg	<0.050	<0.050	<0.050
Chromium	0.5	mg/kg	<0.50	<0.50	<0.50
Cobalt	0.2	mg/kg	<0.20	<0.20	<0.20
Copper	0.5	mg/kg	4.04	3.04	3.58
Iron	15	mg/kg	75	55	72
Lead	0.18	mg/kg	0.55	0.46	<0.18
Lithium	0.5	mg/kg	<0.50	<0.50	<0.50
Manganese	0.5	mg/kg	1.36	3.36	3.15
Molybdenum	0.5	mg/kg	<0.50	<0.50	<0.50
Nickel	0.5	mg/kg	<0.50	<0.50	<0.50
Selenium	0.5	mg/kg	<0.50	<0.50	<0.50
Silver	0.12	mg/kg	<0.12	<0.12	<0.12
Strontium	1.5	mg/kg	11	4.5	2.2
Thallium	0.02	mg/kg	<0.020	<0.020	<0.020
Tin	0.5	mg/kg	<0.50	<0.50	<0.50
Uranium	0.02	mg/kg	<0.020	<0.020	<0.020
Vanadium	0.5	mg/kg	<0.50	<0.50	<0.50
Zinc	1.5	mg/kg	37.2	26.1	25.7

**Notes:**

RDL = Reportable Detection Limit

< # = Not detected above RDL noted

# **Appendix 8a**

Site Photos

– Mid-Canada Line

## Site Photographs – Mid-Canada Line



Photo 1 View of Mid-Canada Line site, including two antennae (looking west)



Photo 2 View of antenna at Mid-Canada Line site

## **Appendix 8b**

Sample Coordinates

– Mid-Canada Line

Sample Coordinates - Mid-Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103

Sample ID	Coordinates	
	Easting	Northing
<b>SURFACE SOIL</b>		
BS133	0675799	6150109
BS134	0675791	6150119
BS135	0675791	6150119
BS136	0675835	6150008
BS137	0675814	6150002
BS138	0675807	6149993
BS139	0675811	6149990
BS140	0675816	6149990
BS141	0675826	6150003
BS142	0675834	6149994
BS143	0675828	6149982
BS144	0675830	6144973
BS145	0675782	6149962
BS257	0675864	6150000
BS258	0675862	6150013
BS259	0675865	6149982
BS260	0675798	6150127
BS261	0675793	6150121
<b>VEGETATION</b>		
VEG-42	-	-
VEG-43	-	-
VEG-44	675796	6150113
VEG-45	675838	6149988
VEG-46	675816	6150010
<b>BERRIES</b>		
BERRY-33	-	-
BERRY-34	-	-
BERRY-35	0675801	6150102
BERRY-36	0675840	6149984
BERRY-37	0675817	6150010
<b>SMALL MAMMALS</b>		
SM-29	0675791	6150110
SM-30	0675718	6150009
SM-31	0675775	6150011
SM-32	0675779	6150002
SM-33	0675835	6159977
SM-34	0675829	6149975
SM-35	0675826	6149972
SM-36	0675770	6149965
SM-37	0675760	6149970
SM-38	0675754	6149978

**Notes:**

"-" = Coordinates not recorded

## **Appendix 8c**

Soil Vapour Concentrations

– Mid-Canada Line

**Sample Tipping Results - Mid-Canada Line**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Sample Depth (mbgs)	Hydrocarbon Odour	Soil Vapour Concentration (ppm)
<b>SURFACE SAMPLES</b>			
BS133	0.00-0.05	No	3.8
BS134	0.00-0.05	No	4.1
BS135	0.00-0.10	No	5.0
BS136	0.00-0.02	No	5.5
BS137	0.00-0.06	No	6.0
BS138	0.00-0.04	No	6.5
BS139	0.00-0.05	No	7.0
BS140	0.00-0.05	No	7.1
BS141	0.00-0.05	No	7.5
BS142	0.00-0.07	No	7.3
BS143	0.00-0.05	No	8.0
BS144	0.00-0.10	No	8.6
BS145	0.00-0.05	No	9.0
BS257	-	-	-
BS258	-	-	-
BS259	-	-	-
BS260	-	-	-
BS261	-	-	-

**Notes:**

"-" = Value not recorded



## **Appendix 8d**

Laboratory Analytical Results Summary Tables

– Mid-Canada Line

**Table 8.1 Results of Laboratory Analysis of TPH/BTEX in Soil - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Sample ID	Sample Depth (m)	Benzene	Toluene	Ethylbenzene	Xylenes	C <sub>6</sub> -C <sub>10</sub> (Gas Range)	C <sub>10</sub> -C <sub>21</sub> (Fuel Range)	C <sub>21</sub> -C <sub>32</sub> (Lube Range)	Modified TPH - Tier I <sup>2</sup>	Resemblance
	RDL	0.03	0.03	0.03	0.05	3	15	15	20	-
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
	Tier I RBSLs <sup>1</sup>	0.16	14	58	17	-	-	-	690	-
<b>SURFACE SAMPLES</b>										
BS137	0.00 - 0.02	<0.03	<0.03	<0.03	<0.05	<3	<15	37	37	LO
BS140	0.00 - 0.05	<0.03	<0.03	<0.03	<0.05	<3	<15	39	39	Possible LO
BS145	0.00 - .0.05	<0.03	<0.03	<0.03	<0.05	<3	<15	24	24	DNR

**Notes:**

1 = Partnership in RBCA (Risk-Based Corrective Action) Implementation (PIRI) Tier I Risk Based Screening Levels (RBSLs) for a residential site with non-potable groundwater and coarse grained soil, lube oil impacts (September, 2003)

2 = Modified TPH - Tier I does not include BTEX

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

LO = Lube oil; DNR = No resemblance to petroleum products

**Table 8.2 Results of Laboratory Analysis of PCBs in Soil - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Sample ID	Sample Depth (m)	Polychlorinated Biphenyls (PCBs)
	RDL	0.05
	Units	mg/kg
	Criteria <sup>1</sup>	1.3
SURFACE SAMPLES		
BS134	0.00 - 0.05	<0.05
BS137	0.00 - 0.06	0.40
BS138	0.00 - 0.04	<0.05
BS139	0.00 - 0.05	0.17
BS142	0.00 - 0.07	0.70
BS144	0.00 - 0.10	0.45

**Notes:**

1 = CCME Canadian Soil Quality Guidelines for a Residential/Parkland Site (2007)

RDL = Reportable Detection Limit for routine analysis

Lab-dup = Laboratory duplicate sample

< # = Not detected above RDL noted

**Table 8.3 Results of Laboratory Analysis of Available Metals in Soil - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	Criteria <sup>1</sup>	SURFACE SAMPLES										
				BS135	BS139	BS140	BS142	BS144	BS145	BS257	BS258	BS259	BS260	BS261
Aluminum	10	mg/kg	-	7,900	4,700	2,100	6,500	3,900	3,700	10,000	2,800	10,000	7,000	6,200
Antimony	2	mg/kg	20	<2	<2	5	2	<2	<2	<2	<2	<2	<2	2
Arsenic	2	mg/kg	12	4	2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5	mg/kg	500	32	25	17	52	36	13	9	18	21	36	33
Beryllium	2	mg/kg	4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.3	mg/kg	10	13	4.9	<0.3	0.7	<0.3	<0.3	<0.3	<0.3	<0.3	0.5	1.9
Chromium	2	mg/kg	64	1,200	15	12	23	14	21	64	6	27	10	23
Cobalt	1	mg/kg	50	11	4	5	4	3	3	2	1	4	1	2
Copper	2	mg/kg	63	210	10	140	59	43	21	3	8	9	9	130
Iron	50	mg/kg	-	15,000	9,200	6,900	8,700	8,500	7,100	33,000	3,200	12,000	4,200	9,300
Lead	0.5/5 <sup>2</sup>	mg/kg	140	3,200 <sup>2</sup>	16	57	440	24	11	4.1	6.0	7.8	8.9	82
Lithium	2	mg/kg	-	10	8	3	10	7	5	3	<2	13	2	5
Manganese	2	mg/kg	-	270	130	78	250	85	59	25	8	83	22	67
Mercury	0.1	mg/kg	6.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	0.1
Molybdenum	2	mg/kg	10	81	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	2	mg/kg	50	14	14	13	14	11	14	10	4	14	4	14
Rubidium	2	mg/kg	-	6	4	3	13	11	6	4	2	9	2	8
Selenium	2	mg/kg	1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2
Silver	0.5	mg/kg	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	64	11	<5	31	<5	<5	<5	9	5	<5	8
Thallium	0.1	mg/kg	1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	2	mg/kg	50	2	<2	23	4	<2	<2	<2	<2	<2	<2	<2
Uranium	0.1	mg/kg	23	0.6	0.2	0.1	0.7	0.2	0.2	1.4	0.5	0.6	2.5	1.3
Vanadium	2	mg/kg	130	19	13	8	19	12	17	39	5	27	13	17
Zinc	5	mg/kg	200	22,000	84	470	450	110	44	10	28	34	26	57

**Notes:**

1 = CCME Canadian Soil Quality Guidelines for a Residential/Parkland Site (2007)

2 = Elevated RDL

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

Shaded = Value exceeds applicable criteria

**Table 8.4 Results of Lab Analysis of Available Metals in Vegetation - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	VEGETATION				
			VEG-42	VEG-43	VEG-44	VEG-45	VEG-46
Aluminum	10	mg/kg	880	500	350	21	78
Antimony	2	mg/kg	<2	<2	4	<2	<2
Arsenic	2	mg/kg	<2	<2	<2	<2	<2
Barium	5	mg/kg	24	21	42	48	22
Beryllium	2	mg/kg	<2	<2	<2	<2	<2
Boron	5	mg/kg	<5	30	39	12	19
Cadmium	0.3	mg/kg	1.3	18	51	3.6	1.4
Chromium	2	mg/kg	3	2	28	<2	<2
Cobalt	1	mg/kg	4	1	1	<1	<1
Copper	2	mg/kg	64	35	96	9	14
Iron	50	mg/kg	2300	860	540	52	200
Lead	0.5	mg/kg	21	17	170	5.6	3.5
Manganese	2	mg/kg	100	110	58	140	88
Molybdenum	2	mg/kg	<2	2	7	6	<2
Nickel	2	mg/kg	8	4	4	<2	2
Selenium	2	mg/kg	<2	<2	<2	<2	<2
Silver	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	17	81	99	52	18
Thallium	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	2	mg/kg	3	<2	<2	<2	<2
Zinc	5	mg/kg	230	730	610	220	180

**Notes:**

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

**Table 8.5 Results of Laboratory Analysis of Available Metals in Berries - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	BERRIES				
			BERRY-33	BERRY-34	BERRY-35	BERRY-36	BERRY-37
Aluminum	2.5	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5
Antimony	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Barium	1.5	mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5
Beryllium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Boron	1.5	mg/kg	<1.5	2	<1.5	<1.5	<1.5
Cadmium	0.05	mg/kg	<0.050	<0.050	0.083	<0.050	<0.050
Chromium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	0.2	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
Copper	0.5	mg/kg	0.51	0.64	0.92	0.62	0.62
Iron	15	mg/kg	<15	<15	<15	<15	<15
Lead	0.18	mg/kg	<0.18	<0.18	<0.18	<0.18	<0.18
Lithium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Manganese	0.5	mg/kg	4.22	2.15	1.65	1.93	1.4
Molybdenum	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Selenium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	0.12	mg/kg	<0.12	<0.12	<0.12	<0.12	<0.12
Strontium	1.5	mg/kg	<1.5	<1.5	<1.5	<1.5	<1.5
Thallium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020
Tin	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020
Vanadium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	1.5	mg/kg	<1.5	3.1	3.2	3.4	2.9

**Notes:**

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

**Table 8.6 Results of Laboratory Analysis of PCBs in Small Mammals - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Sample ID	Polychlorinated Biphenyls (PCBs)
RDL	0.05
Units	mg/kg
<b>SMALL MAMMALS</b>	
SM-29	<0.05
SM-30	<0.05
SM-31	<0.05
SM-31 Lab Dup	<0.05
SM-32	0.16
SM-34	0.15
SM-36	0.09
SM-37	0.13

**Notes:**

RDL = Reportable Detection Limit for routine analysis

Lab-Dup = Laboratory duplicate sample

< # = Not detected above RDL noted

**Table 8.7 Results of Laboratory Analysis of Available Metals in Small Mammals - Mid Canada Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	SMALL MAMMALS							
			SM-29	SM-29 Lab-Dup	SM-30	SM-31	SM-32	SM-34	SM-36	SM-37
Aluminum	2.5	mg/kg	<2.5	<2.5	11.4	12.9	10.5	3.2	2.7	6.3
Antimony	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Barium	1.5	mg/kg	<1.5	3.3	<1.5	9.1	<1.5	3.7	7.2	4.1
Beryllium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron	1.5	mg/kg	<1.5	<1.5	1.8	<1.5	<1.5	<1.5	<1.5	<1.5
Cadmium	0.05	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	0.2	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Copper	0.5	mg/kg	3.90	3.04	4.35	2.65	2.97	2.67	2.30	2.60
Iron	15	mg/kg	67	67	57	93	50	48	41	58
Lead	0.18	mg/kg	<0.18	0.34	0.45	1.33	0.20	0.27	<0.18	0.55
Lithium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Manganese	0.5	mg/kg	3.08	2.03	5.48	3.25	5.75	3.12	5.21	5.27
Molybdenum	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Selenium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	0.12	mg/kg	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Strontium	1.5	mg/kg	<1.5	4.1	<1.5	11.0	<1.5	11.4	7.3	5.0
Thallium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tin	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.02	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Vanadium	0.5	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	1.5	mg/kg	23.6	23.8	23.1	28.5	23.4	25.8	23.7	24.8

**Notes:**

RDL = Reportable Detection Limit for routine analysis

Lab-dup = Laboratory duplicate sample

< # = Not detected above RDL noted



# **Appendix 9a**

Sample Coordinates

– Pallet Line

Sample Coordinates - Pallet Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103

Sample ID	Coordinates	
	Easting	Northing
<b>SURFACE SOIL</b>		
BS114	0674901	6149894
BS115	0674899	6149887
BS116	0674896	6149889
BS117	0674899	6149877
BS118	0674876	6149875
BS119	0674936	6149922
BS120	0674951	6149929
BS146	0674954	6149935
BS147	0674957	6149931
BS148	0674961	6149934
BS149	0674964	6149931
BS150	0674974	6149930
BS151	0674977	6149930
BS156	0674911	6149928
BS157	0674918	6149917
BS158	0674913	6149927

## **Appendix 9b**

Soil Vapour Concentrations

– Pallet Line

**Sample Tipping Results - Pallet Line**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Sample Depth (mbgs)	Hydrocarbon Odour	Soil Vapour Concentration (ppm)
<b>SURFACE SOIL</b>			
BS114	0.00-0.15	No	0.0
BS115	0.00-0.10	No	0.0
BS116	0.00-0.15	No	0.0
BS117	0.00-0.10	No	0.0
BS118	0.00-0.20	No	0.0
BS119	0.00-0.30	No	0.0
BS120	0.00-0.12	No	0.0
BS146	0.00-0.05	No	0.0
BS147	0.00-0.08	No	0.0
BS148	0.00-0.04	No	0.0
BS149	0.00-0.13	No	0.0
BS150	0.00-0.06	No	0.0
BS151	0.00-0.12	No	0.0
BS156	0.00-0.05	No	0.0
BS157	0.00-0.10	No	0.0
BS158	0.00-0.09	No	0.0

## **Appendix 9c**

Laboratory Analytical Results Summary Tables

– Pallet Line

**Table 9.1 Results of Laboratory Analysis of TPH/BTEX in Soil - Pallet Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Sample ID	Sample Depth (m)	Benzene	Toluene	Ethylbenzene	Xylenes	C <sub>6</sub> -C <sub>10</sub> (Gas Range)	C <sub>10</sub> -C <sub>21</sub> (Fuel Range)	C <sub>21</sub> -C <sub>32</sub> (Lube Range)	Modified TPH - Tier I <sup>2</sup>	Resemblance
	RDL	0.03	0.03	0.03	0.05	3	15	15	20	-
	RDL <sup>3</sup>	0.1	0.1	0.1	0.3	10	15	15	20	-
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
	Tier I RBLS <sup>1</sup>	0.16	14	58	17	-	-	-	690	-
<b>SURFACE SAMPLES</b>										
BS116	0.00 - 0.15	<0.03	<0.03	<0.03	<0.05	<3	450	2,100	2,600	OP F/L, (1)
BS146	0.00 - 0.05	<0.03	<0.03	<0.03	<0.05	<3	35	220	260	OP F/L, LO
BS147	0.00 - 0.08	<0.03	<0.03	<0.03	<0.05	<3	89	600	690	OP F/L, LO
BS149	0.00 - 0.13	<0.03	<0.03	<0.03	<0.05	<3	91	370	460	LO, (2)
BS151 <sup>3</sup>	0.00 - 0.12	<0.1	<0.1	<0.1	<0.3	<10	120	430	540	Possible LO, (1)
BS157	0.00 - 0.10	<0.03	<0.03	<0.03	<0.05	<3	83	210	290	LO, (2)

**Notes:**

1 = Partnership in RBCA (Risk-Based Corrective Action) Implementation (PIRI) Tier I Risk Based Screening Levels (RBLS) for a residential site with non-potable groundwater and coarse grained soil, lube oil impacts (September, 2003)

2 = Modified TPH - Tier I does not include BTEX

3,4 = Elevated RDL(s) due to sample dilution

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

LO = Lube oil fraction; OP F/L= One product in fuel/lube oil range

(1)= Unidentified compound(s) in fuel/lube range; (2)= Unidentified compound(s) in fuel oil range

Shaded = Value exceeds generic criteria for a residential site with non-potable groundwater, coarse grained soil and lube oil impacts

**Table 9.2 Results of Laboratory Analysis of PCBs in Soil - Pallet Line**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	Sample Depth (m)	Polychlorinated Biphenyls (PCBs)
	RDL	0.05
	Units	mg/kg
	Criteria <sup>1</sup>	1.3
<b>SURFACE SAMPLES</b>		
BS117	0.00 - 0.10	<0.05
BS146	0.00 - 0.05	2.1
BS149	0.00 - 0.13	0.46
BS157	0.00 - 0.10	<0.05

**Notes:**

1 = CCME Canadian Soil Quality Guidelines for a Residential/Parkland Site (2007)

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

Shaded = Value exceeds applicable criteria

**Table 9.3 Results of Laboratory Analysis of Available Metals in Soil - Pallet Line  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	Criteria <sup>1</sup>	SURFACE SAMPLES					
				BS117	BS146	BS147	BS149	BS151	BS157
Aluminum	10	mg/kg	-	2,700	4,500	4,700	4,000	4,400	2,600
Antimony	2	mg/kg	20	<2	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	12	<2	<2	<2	<2	<2	<2
Barium	5	mg/kg	500	7	17	22	20	15	13
Beryllium	2	mg/kg	4	<2	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	<2	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	<5	<5	<5	<5	<5	<5
Cadmium	0.3	mg/kg	10	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	2	mg/kg	64	5	12	14	10	9	8
Cobalt	1	mg/kg	50	<1	4	5	3	2	2
Copper	2	mg/kg	63	6	18	24	33	40	13
Iron	50	mg/kg	-	4,500	8,500	8,600	7,000	7,100	7,100
Lead	0.5	mg/kg	140	5.3	23	25	24	11	11
Lithium	2	mg/kg	-	<2	8	7	5	4	3
Manganese	2	mg/kg	-	19	110	150	120	50	43
Mercury	0.1	mg/kg	6.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	2	mg/kg	10	<2	<2	<2	<2	<2	<2
Nickel	2	mg/kg	50	2	9	10	8	6	4
Rubidium	2	mg/kg	-	3	8	9	5	4	6
Selenium	2	mg/kg	1	<2	<2	<2	<2	<2	<2
Silver	0.5	mg/kg	20	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	<5	7	6	8	5	<5
Thallium	0.1	mg/kg	1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Tin	2	mg/kg	50	<2	<2	<2	<2	<2	<2
Uranium	0.1	mg/kg	23	1.4	0.3	0.5	0.6	0.9	0.4
Vanadium	2	mg/kg	130	17	19	18	18	19	20
Zinc	5	mg/kg	200	46	73	93	74	26	23

**Notes:**

1 = CCME Canadian Soil Quality Guidelines for a Residential/Parkland Site (2007)

2 = Elevated RDL due to matrix interfaces

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

"-" = indicates value is not available or does not apply

Shaded = Value exceeds applicable criteria