

## **Appendix 17a**

Site Photos

– Wharf Area

## Site Photographs – Wharf Area



Photo 1 View of wharf, road, pipeline and Hopedale Harbour (looking southeast)



Photo 2 View of road, pipeline and Hopedale Harbour (looking east)

## Site Photographs – Wharf Area

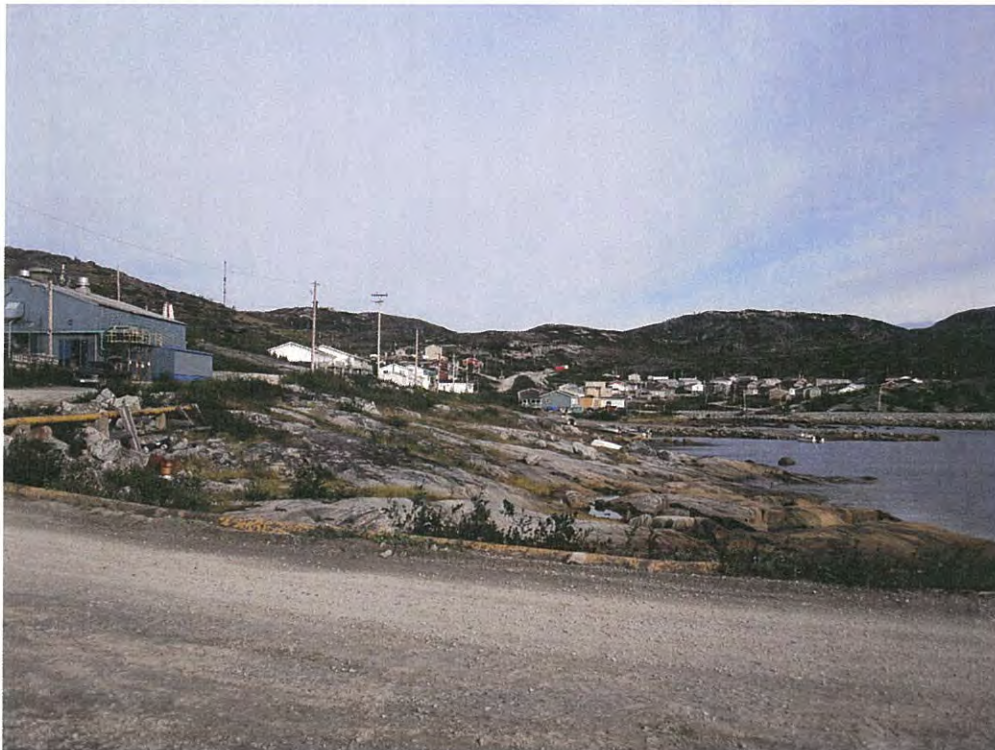


Photo 3 View of road, pipeline, town infrastructure and Hopedale Harbour (looking northeast)

## **Appendix 17b**

Sample Coordinates

– Wharf Area



**Sample Coordinates - Wharf Area**  
**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-1	0675694	6148925
SED-2	0675648	6148937
SED-3	0675596	6148953
SED-4	0675575	6148970
SED-5	0675602	6149026
SED-6	0675613	6149104
SED-7	-	-
SED-8	0675565	6149065
SED-9	0675528	6149087
SED-10	-	-
SED-11	0675485	6149135
SED-72	296104.9248	6150346.4525
SED-73	296115.3560	6150351.1163
SED-74	296125.1323	6150353.5682
SED-75	296098.3728	6150390.4809
SED-76	296097.2302	6150420.6552
SED-77	296088.3716	6150450.7858

**Notes:**

"-" = Coordinates not recorded

## **Appendix 17c**

Soil Vapour Concentrations

– Wharf Area

**Sample Tipping Results - Wharf Area**  
**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-1	-	No	1.8
SED-2	-	No	0.8
SED-3	-	No	0.7
SED-4	-	No	1.4
SED-5	-	Yes	1.3
SED-6	-	No	0.8
SED-7	-	-	1.8
SED-8	-	-	50
SED-9	-	-	4.4
SED-10	-	-	6.1
SED-11	-	-	3.6
SED-72	-	-	-
SED-73	-	-	-
SED-74	-	-	-
SED-75	-	-	-
SED-76	-	-	-
SED-77	-	-	-

**Notes:**

"-" = Value not recorded

## **Appendix 17d**

Laboratory Analytical Results Summary Tables

– Wharf Area



**Table 17.1 Results of Laboratory Analysis of TPH/BTEX in Sediment - Wharf Area**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Sample ID	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
<b>RDL</b>	0.03	0.03	0.03	0.05	3	15	15	20	-
<b>Units</b>	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
<b>Criteria<sup>1</sup></b>	-	-	-	-	-	-	-	1,500	-
<b>SEDIMENT</b>									
SED-1	<0.03	<0.03	<0.03	<0.05	<3	27	37	65	OP F/L
SED-4	<0.03	<0.03	<0.03	<0.05	<3	<15	22	22	Possible LO
SED-7	<0.03	<0.03	<0.03	<0.05	<3	31	18	50	OP F/L, WFO
SED-8	<0.03	<0.03	<0.03	<0.05	<3	72	28	100	WFO, Possible LO
SED-9	<0.03	<0.03	<0.03	<0.05	<3	73	28	100	WFO, LO
SED-10	<0.03	<0.03	<0.03	<0.05	<3	120	37	160	WFO, LO
SED-11	<0.03	<0.03	<0.03	<0.05	<3	59	46	100	WFO, Possible LO
SED-11 Lab-Dup	<0.03	<0.03	<0.03	<0.05	<3	-	-	-	-
SED-72	<0.03	<0.03	<0.03	<0.05	<3	130	87	210	WFO, OP F/L
SED-72 Lab-Dup	<0.03	<0.03	<0.03	<0.05	<3	130	96	-	-
SED-73	<0.03	<0.03	<0.03	<0.05	<3	95	52	150	WFO, OP F/L
SED-74	<0.03	<0.03	<0.03	<0.05	<3	450	120	570	WFO, OP F/L
SED-75	<0.03	<0.03	<0.03	<0.05	<3	210	140	350	WFO, OP F/L, (1)
SED-76	<0.03	0.05	<0.03	<0.05	<3	120	300	420	OP F/L, (1)
SED-77	<0.03	<0.03	<0.03	<0.05	<3	640	530	1,200	FO, OP F/L, (2)

**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 marine sediment

2 = Modified TPH - Tier I does not include BTEX

RDL = Reportable Detection Limit for routine analysis; nd = Not detected above standard RDL

Lab-dup = laboratory duplicate sample

< # = Not detected above RDL noted

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

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

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

Table 17.2 Results of Laboratory Analysis of PCBs in Sediment- Wharf Area  
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>	0.0215
Criteria <sup>2</sup>	0.189
<b>SEDIMENT</b>	
SED-1	<b>0.44</b>
SED-8	<0.05
SED-10	<0.1
SED-72	<b>0.34</b>
SED-73	0.14
SED-74	<b>0.3</b>
SED-75	<b>0.38</b>
SED-76	<b>0.2</b>
SED-77	<b>0.46</b>

**Notes:**

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

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

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

Shaded = Value exceeds CCME ISQG

Shaded/ Bold = Value exceeds CCME ISQG and CCME PEL

**Table 17.3 Results of Laboratory Analysis of VOCs in Sediment - Wharf Area**  
**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-73
1,2-Dichlorobenzene	30	ug/kg	-	-	<30
1,3-Dichlorobenzene	30	ug/kg	-	-	<30
1,4-Dichlorobenzene	30	ug/kg	-	-	<30
Chlorobenzene	30	ug/kg	-	-	<30
1,1,1-Trichloroethane	30	ug/kg	-	-	<30
1,1,2,2-Tetrachloroethane	30	ug/kg	-	-	<30
1,1,2-Trichloroethane	30	ug/kg	-	-	<30
1,1-Dichloroethane	30	ug/kg	-	-	<30
1,1-Dichloroethylene	30	ug/kg	-	-	<30
1,2-Dichloroethane	30	ug/kg	-	-	<30
1,2-Dichloropropane	30	ug/kg	-	-	<30
Benzene	30	ug/kg	-	-	<30
Bromodichloromethane	30	ug/kg	-	-	<30
Bromoform	30	ug/kg	-	-	<30
Bromomethane	200	ug/kg	-	-	<200
Carbon Tetrachloride	30	ug/kg	-	-	<30
Chloroethane	30	ug/kg	-	-	<30
Chloroform	30	ug/kg	-	-	<30
Chloromethane	30	ug/kg	-	-	<30
cis-1,2-Dichloroethylene	30	ug/kg	-	-	<30
cis-1,3-Dichloropropene	30	ug/kg	-	-	<30
Dibromochloromethane	30	ug/kg	-	-	<30
Ethylbenzene	30	ug/kg	-	-	<30
Ethylene Dibromide	30	ug/kg	-	-	<30
Methylene Chloride(Dichloromethane)	30	ug/kg	-	-	<30
o-Xylene	30	ug/kg	-	-	<30
p+m-Xylene	30	ug/kg	-	-	<30
Styrene	30	ug/kg	-	-	<30
Tetrachloroethylene	30	ug/kg	-	-	<30
Toluene	30	ug/kg	-	-	<30
trans-1,2-Dichloroethylene	30	ug/kg	-	-	<30
trans-1,3-Dichloropropene	30	ug/kg	-	-	<30
Trichloroethylene	30	ug/kg	-	-	<30
Trichlorofluoromethane (FREON 11)	30	ug/kg	-	-	<30
Vinyl Chloride	30	ug/kg	-	-	<30

**Notes:**

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

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

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

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



Table 17.4 Results of Lab Analysis of Available Metals in Sediment - Wharf Area  
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-1	SED-4	SED-7	SED-8	SED-9	SED-10	SED-72	SED-74	SED-76
Aluminum	10	mg/kg	-	-	10,000	3,100	2,300	2,800	3,200	3,500	4,300	5,300	13,000
Antimony	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	7.24	41.6	3	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5	mg/kg	-	-	650	22	7	5	8	9	12	13	38
Beryllium	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	-	10	<5	<5	<5	<5	<5	<5	<5	6
Cadmium	0.3	mg/kg	0.7	4.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	2	mg/kg	52.3	160	19	7	6	6	8	12	12	12	25
Cobalt	1	mg/kg	-	-	6	2	2	2	3	2	2	4	6
Copper	2	mg/kg	18.7	108	15	4	44	5	4	5	5	9	52
Iron	50	mg/kg	-	-	12,000	3,800	3,200	4,200	5,100	5,100	5,600	7,400	12,000
Lead	0.5	mg/kg	30.2	112	40	2.9	1.3	2.5	3.1	3.2	2.3	11	7.9
Lithium	2	mg/kg	-	-	10	4	4	4	5	5	7	7	11
Manganese	2	mg/kg	-	-	150	45	46	53	62	61	61	70	140
Mercury	0.1	mg/kg	0.13	0.7	<0.1	<0.1	<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	<2	<2
Nickel	2	mg/kg	-	-	15	5	5	5	7	9	7	9	17
Rubidium	2	mg/kg	-	-	9	3	3	<2	3	4	5	6	12
Selenium	2	mg/kg	-	-	<2	<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	<0.5
Strontium	5	mg/kg	-	-	41	13	7	11	9	10	13	16	32
Thallium	0.1	mg/kg	-	-	<0.1	<0.1	<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	4	4
Uranium	0.1	mg/kg	-	-	0.6	0.2	<0.1	0.1	0.4	0.2	0.5	0.5	0.6
Vanadium	2	mg/kg	-	-	25	10	6	7	10	10	10	14	28
Zinc	5	mg/kg	124	271	68	12	10	13	18	17	19	36	75

Notes:

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

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

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

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

Shaded = Value exceeds CCME ISQG

Shaded/ Bold = Value exceeds CCME ISQG and CCME PEL

## **Appendix 18a**

Site Photos

– Old Dam

Site Photographs – Old Dam



Photo 1 View of Old Dam



## **Appendix 18b**

Sample Coordinates

– Old Dam

Sample Coordinates - Old Dam  
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
SEDIMENT		
SED-49	0676081	6149633
SED-50	0676082	6149634
SED-51	0676091	6149634
SED-52	0676073	6149660
SED-53	0676019	6149697

## **Appendix 18c**

Soil Vapour Concentrations

– Old Dam

Sample Tipping Results - Old Dam  
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-49	-	No	-
SED-50	-	No	-
SED-51	-	No	-
SED-52	-	No	-
SED-53	-	No	-

**Notes:**

"-" = Value not recorded

## **Appendix 18d**

Laboratory Analytical Results Summary Tables

– Old Dam

**Table 18.1 Results of Laboratory Analysis of TPH/BTEX in Sediment - Old Dam Area**  
**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
<b>RDL</b>	0.03	0.03	0.03	0.05	3	15	15	20	-
<b>Units</b>	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	-
<b>Criteria<sup>1</sup></b>	-	-	-	-	-	-	-	1,500	-
<b>SEDIMENT</b>									
SED-49	<0.03	0.07	<0.03	<0.05	<3	32	71	100	OP F/L
SED-50	<0.03	<0.03	<0.03	<0.05	<3	29	62	91	OP F/L
SED-51	<0.03	<0.03	<0.03	<0.05	<3	<15	20	<20	DNR
SED-52	<0.03	<0.03	<0.03	<0.05	<3	36	47	83	OP F/L
SED-53	<0.03	<0.03	<0.03	<0.05	<3	310	690	1,000	OP F/L

**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= Did not resemble petroleum products; OP F/L=One product in the fuel/lube oil range



**Table 18.2 Results of Laboratory Analysis of PCBs in Sediment - Old Dam Area**  
**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
SEDIMENT	
SED-49	<0.05
SED-50	<0.05
SED-51	<0.05
SED-52	<0.05
SED-53	<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 18.3 Results of Lab Analysis of Available Metals in Sediment - Old Dam Area**  
**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-49	SED-50	SED-51	SED-52	SED-53
Aluminum	10	mg/kg	-	-	8,400	9,400	7,800	3,900	5,900
Antimony	2	mg/kg	-	-	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	5.9	17.0	<2	<2	<2	<2	<2
Barium	5	mg/kg	-	-	20	21	15	7	32
Beryllium	2	mg/kg	-	-	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	-	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	-	<5	<5	<5	<5	<5
Cadmium	0.3	mg/kg	0.6	3.5	<0.3	<0.3	<0.3	<0.3	0.3
Chromium	2	mg/kg	37.3	90.0	16	20	18	13	15
Cobalt	1	mg/kg	-	-	5	6	4	4	9
Copper	2	mg/kg	35.7	197	6	10	6	3	13
Iron	50	mg/kg	-	-	9,100	11,000	10,000	9,000	26,000
Lead	0.5	mg/kg	35.0	91.3	6.0	5.8	4.4	7.4	77
Lithium	2	mg/kg	-	-	6	7	6	4	3
Manganese	2	mg/kg	-	-	95	110	97	79	170
Mercury	0.1	mg/kg	0.17	0.486	<0.1	<0.1	<0.1	<0.1	0.1
Molybdenum	2	mg/kg	-	-	<2	<2	<2	<2	<2
Nickel	2	mg/kg	-	-	12	14	12	9	26
Rubidium	2	mg/kg	-	-	4	5	4	2	6
Selenium	2/ 5 <sup>3</sup>	mg/kg	-	-	<2	<2	<2	<2	<5 <sup>3</sup>
Silver	0.5	mg/kg	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	-	17	18	12	8	32
Thallium	0.1	mg/kg	-	-	<0.1	<0.1	<0.1	<0.1	0.1
Tin	2	mg/kg	-	-	<2	<2	<2	<2	<2
Uranium	0.1	mg/kg	-	-	0.3	0.4	0.3	0.2	1.7
Vanadium	2	mg/kg	-	-	19	26	24	18	22
Zinc	5	mg/kg	123	315	46	25	22	16	47

**Notes:**

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

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

3 = Elevated reporting limit due to sample matrix

RDL = Reportable Detection Limit

nd = Not detected above standard RDL

< = Not detected above RDL noted

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

Shaded = Value exceeds CCME ISQG

# Appendix 19a

Site Photos

– Reservoir



## Site Photographs - Reservoir



Photo 1 View of Reservoir (looking northwest)



Photo 2 View of Reservoir (looking north)



## Site Photographs - Reservoir



Photo 3 View of Reservoir (looking northeast)



Photo 4 View of rip-rap and rubble protecting the dam at the Reservoir



## Site Photographs - Reservoir



Photo 5 View of structure near the Reservoir (looking north)



Photo 6 View of water line from the Reservoir



## **Appendix 19b**

Sample Coordinates

– Reservoir

**Sample Coordinates - Reservoir**  
**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-38	0674437	6149474
SED-39	0674482	6149509
SED-40	0674491	6149560
SED-41	-	-
SED-42	0674573	6149424
SED-43	0674464	6149556
SED-44	0674333	6149657
SED-45	0674579	6149481
<b>SURFACE WATER</b>		
SW-4	0674353	6149639
SW-5	0674482	6149509
SW-6	0674573	6149424
<b>FISH</b>		
FISH-5	0674597	6149472
<b>BENTHIC</b>		
BENTHIC-2	0674482	6149509

**Notes:**

"-" = Coordinates not recorded

## **Appendix 19c**

Soil Vapour Concentrations

– Reservoir

Sample Tipping Results - Reservoir  
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-38	-	No	1.1
SED-39	-	-	0.4
SED-40	-	-	0.5
SED-41	-	-	1.1
SED-42	-	-	0.6
SED-43	-	No	0.6
SED-44	-	No	1.1
SED-45	-	No	0.9

**Notes:**

"-" = Value not recorded

## **Appendix 19d**

Laboratory Analytical Results Summary Tables

– Reservoir

**Table 19.1 Results of Laboratory Analysis of PCBs in Sediment - Reservoir  
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-38	<0.05
SED-39	<0.05
SED-40	<0.05
SED-41	<0.05
SED-41 Lab-Dup	<0.05
SED-42	<0.05
SED-43	<0.05
SED-44	<0.05
SED-45	<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

Lab-dup = laboratory duplicate sample

Shaded = Value exceeds CCME ISQG



Table 19.2 Results of Lab Analysis of Available Metals in Sediment - Reservoir  
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-38	SED-39	SED-39 Lab-Dup	SED-40	SED-41	SED-42	SED-43	SED-44	SED-45
Aluminum	10	mg/kg	-	-	2,900	19,000	21,000	11,000	25,000	4,100	20,000	3,800	1,400
Antimony	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	5.9	17.0	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5	mg/kg	-	-	14	33	37	19	31	20	34	6	5
Beryllium	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.3	mg/kg	0.6	3.5	<0.3	0.6	0.6	0.3	0.4	<0.3	0.4	<0.3	<0.3
Chromium	2	mg/kg	37.3	90.0	40	44	43	37	58	8	57	10	5
Cobalt	1	mg/kg	-	-	2	15	16	7	13	2	11	4	<1
Copper	2	mg/kg	35.7	197	<2	35	37	17	35	4	38	5	9
Iron	50/500 <sup>3</sup>	mg/kg	-	-	3,700	43,000	44,000 <sup>3</sup>	13,000	73,000 <sup>3</sup>	14,000	24,000	5,900	2,200
Lead	0.5	mg/kg	35.0	91.3	0.8	12	13	7.8	17	2.9	14	1.4	3.1
Lithium	2	mg/kg	-	-	4	4	4	6	8	4	7	5	<2
Manganese	2	mg/kg	-	-	60	500	490	170	480	82	220	70	22
Mercury	0.1	mg/kg	0.17	0.486	<0.1	0.2	0.2	<0.1	0.1	<0.1	0.1	<0.1	<0.1
Molybdenum	2	mg/kg	-	-	<2	5	5	<2	8	<2	4	<2	<2
Nickel	2	mg/kg	-	-	15	17	18	20	18	3	25	8	2
Rubidium	2	mg/kg	-	-	8	3	3	3	5	3	6	<2	3
Selenium	2	mg/kg	-	-	<2	<5	<5	<2	2	<2	3	<2	<2
Silver	0.5	mg/kg	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	-	<5	16	17	10	12	6	17	8	<5
Thallium	0.1	mg/kg	-	-	<0.1	0.2	0.2	<0.1	0.1	<0.1	0.1	<0.1	<0.1
Tin	2	mg/kg	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<2
Uranium	0.1	mg/kg	-	-	<0.1	5.5	5.7	2	5.3	0.9	4.9	0.2	0.1
Vanadium	2	mg/kg	-	-	6	43	43	25	95	53	52	10	4
Zinc	5	mg/kg	123	315	14	60	66	51	140	16	77	17	16

Notes:

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

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

3 = Elevated RDL to sample matrix

RDL = Reportable Detection Limit

< = Not detected above RDL noted

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

"\*\*\*" = Analyzed with field screening kit only

Shaded = Value exceeds CCME ISQG

**Table 19.3 Results of Laboratory Analysis of TOC and Grain Size in Sediment - Reservoir**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Parameters	Units	SEDIMENT					
		SED-39	RDL	SED-42	RDL	SED-44	RDL
Organic Carbon (TOC)	g/kg	130	2	36	1	1.8	0.2
<-4 Phi (16 mm)	%	100	0.1	100	0.1	100	0.1
<-3 Phi (8mm)	%	100	0.1	100	0.1	100	0.1
<-2 Phi (4mm)	%	100	0.1	100	0.1	100	0.1
<-1 Phi (2mm)	%	100	0.1	96	0.1	77	0.1
0 Phi (1mm)	%	95	0.1	83	0.1	56	0.1
<+1 Phi (0.5 mm)	%	76	0.1	56	0.1	30	0.1
<+2 Phi (0.25 mm)	%	58	0.1	33	0.1	9.7	0.1
<+3 Phi (0.12 mm)	%	48	0.1	21	0.1	1.8	0.1
<+4 Phi (0.062 mm)	%	44	0.1	16	0.1	1.1	0.1
<+5 Phi (0.031 mm)	%	42	0.1	15	0.1	0.6	0.1
<+6 Phi (0.016 mm)	%	40	0.1	13	0.1	0.5	0.1
<+7 Phi (0.0078 mm)	%	29	0.1	7.5	0.1	0.5	0.1
<+8 Phi (0.0039 mm)	%	21	0.1	5.9	0.1	0.5	0.1
<+9 Phi (0.0020 mm)	%	14	0.1	5	0.1	0.4	0.1
Gravel	%	0.2	0.1	3.7	0.1	23	0.1
Sand	%	56	0.1	80	0.1	76	0.1
Silt	%	23	0.1	10	0.1	0.6	0.1
Clay	%	21	0.1	5.9	0.1	0.5	0.1

**Notes:**

RDL = Reportable Detection Limit

**Table 19.4 Results of Laboratory Analysis of PCBs in Surface Water - Reservoir**  
**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	ug/L
Criteria <sup>1</sup>	na
SURFACE WATER	
SW-4	<0.05
SW-5	<0.05
SW-6	<0.05

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit

na = No applicable guideline

< = Not detected above RDL noted



**Table 19.5 Results of Lab Analysis of Available Metals in Surface Water - Reservoir**  
**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 WATER		
				SW-4	SW-5	SW-6
Aluminum	5	ug/L	200	81.4	86.0	82.4
Antimony	2	ug/L	6	<2.0	<2.0	<2.0
Arsenic	2	ug/L	10	<2.0	<2.0	<2.0
Barium	5	ug/L	1,000	<5.0	<5.0	<5.0
Beryllium	2	ug/L	-	<2.0	<2.0	<2.0
Bismuth	2	ug/L	-	<2.0	<2.0	<2.0
Boron	5	ug/L	5,000	<5.0	<5.0	<5.0
Cadmium	0.017	ug/L	5	<0.017	<0.017	<0.017
Chromium	1	ug/L	50	<1.0	<1.0	<1.0
Cobalt	0.4	ug/L	-	<0.40	<0.40	<0.40
Copper	2	ug/L	1,000 <sup>AO</sup>	<2.0	<2.0	<2.0
Iron	50	ug/L	300 <sup>AO</sup>	90	90	93
Lead	0.5	ug/L	10	<0.50	<0.50	<0.50
Manganese	2	ug/L	50 <sup>AO</sup>	7.3	6.9	6.6
Molybdenum	2	ug/L	-	<2.0	<2.0	<2.0
Nickel	2	ug/L	-	<2.0	<2.0	<2.0
Selenium	1	ug/L	10	<1.0	<1.0	<1.0
Silver	0.1	ug/L	-	<0.10	<0.10	<0.10
Strontium	5	ug/L	-	<5.0	<5.0	<5.0
Thallium	0.1	ug/L	-	<0.10	<0.10	<0.10
Tin	2	ug/L	-	<2.0	<2.0	<2.0
Titanium	2	ug/L	-	<2.0	<2.0	<2.0
Uranium	0.1	ug/L	20	<0.10	<0.10	<0.10
Vanadium	2	ug/L	-	<2.0	<2.0	<2.0
Zinc	5	ug/L	5000 <sup>AO</sup>	<5.0	<5.0	5.1

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

AO = guideline based on aesthetic criteria

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

Shaded = Value exceeds applicable criteria

**Table 19.6 Results of Laboratory Analysis of General Chemistry in Surface Water - Reservoir  
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 WATER			
				SW-4	SW-5	SW-6	SW-6 Lab-Dup
<b>Calculated Parameters</b>							
Anion Sum	N/A	me/L	-	0.1	0.1	0.1	-
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	1	mg/L	-	<1	<1	<1	-
Calculated TDS	1	mg/L	500 <sup>AO</sup>	9	9	9	-
Carb. Alkalinity (as CaCO <sub>3</sub> )	1	mg/L	-	<1	<1	<1	-
Cation Sum	N/A	me/L	-	0.2	0.21	0.21	-
Hardness (as CaCO <sub>3</sub> )	1	mg/L	500	4	4	4	-
Ion Balance (% Difference)	N/A	%	-	33.3	35.5	35.5	-
Langelier Index (@20°C)	-	N/A	-	NC	NC	NC	-
Langelier Index (@4°C)	-	N/A	-	NC	NC	NC	-
Nitrate (as N)	0.05	mg/L	10	<0.05	<0.05	<0.05	-
Saturation pH (@20°C)	-	N/A	-	NC	NC	NC	-
Saturation pH (@4°C)	-	N/A	-	NC	NC	NC	-
<b>Inorganics</b>							
Total Alkalinity (as CaCO <sub>3</sub> )	5	mg/L	-	<5	<5	<5	-
Dissolved Chloride (Cl)	1	mg/L	250 <sup>AO</sup>	4	4	4	-
Colour	5	TCU	15 <sup>AO</sup>	28	<5	<5	-
Nitrate + Nitrite	0.05	mg/L	45	<0.05	<0.05	<0.05	-
Nitrite (N)	0.01	mg/L	3.2	<0.01	<0.01	<0.01	-
Nitrogen (Ammonia Nitrogen)	0.05	mg/L	-	<0.05	<0.05	<0.05	-
Total Organic Carbon (C)	0.5	mg/L	-	5.6	4.7	5	-
Orthophosphate (P)	0.01	mg/L	-	<0.01	<0.01	<0.01	-
pH	N/A	pH	6.5-8.5 <sup>AO</sup>	6.41	6.26	6.39	6.37
Reactive Silica (SiO <sub>2</sub> )	0.5	mg/L	-	0.7	0.6	0.6	-
Dissolved Sulphate (SO <sub>4</sub> )	2	mg/L	500 <sup>AO</sup>	<2	<2	<2	-
Turbidity	0.1	NTU	1.0	1.1	0.9	0.9	-
Conductivity	1	uS/cm	-	22	22	22	22
<b>Metals</b>							
Calcium	0.1	mg/L	-	1.0	1.0	1.0	-
Magnesium	0.1	mg/L	-	0.4	0.4	0.4	-
Phosphorus	0.1	mg/L	-	<0.1	<0.1	<0.1	-
Potassium	0.1	mg/L	-	0.2	0.2	0.3	-
Sodium	0.1	mg/L	200 <sup>AO</sup>	2.6	2.7	2.7	-

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit

AO = guideline based on aesthetic criteria

< # = Not detected above RDL noted

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



**Table 19.7 Results of Laboratory Analysis of PCBs in Fish - Reservoir  
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
<b>FISH</b>	
FISH-5	0.37

**Notes:**

RDL = Reportable Detection Limit

< # = Not detected above RDL noted

**Table 19.8 Results of Laboratory Analysis of Available Metals in Fish - Reservoir  
Phase II/III ESA, HHERA and RAP/RMP  
Former US Military Site and Residential Subdivision, Hopedale, NL  
Project No. 121410103**

Parameters	RDL	Units	FISH
			FISH-5
Aluminum	2.5	mg/kg	3.9
Antimony	0.5	mg/kg	<0.50
Arsenic	0.5	mg/kg	<0.50
Barium	1.5	mg/kg	5
Beryllium	0.5	mg/kg	<0.50
Boron	1.5	mg/kg	<1.5
Cadmium	0.05	mg/kg	0.084
Chromium	0.5	mg/kg	<0.50
Cobalt	0.2	mg/kg	<0.20
Copper	0.5	mg/kg	2.38
Iron	15	mg/kg	25
Lead	0.18	mg/kg	<0.18
Lithium	0.5	mg/kg	<0.50
Manganese	0.5	mg/kg	10.4
Molybdenum	0.5	mg/kg	<0.50
Nickel	0.5	mg/kg	<0.50
Selenium	0.5	mg/kg	0.69
Silver	0.12	mg/kg	<0.12
Strontium	1.5	mg/kg	15.7
Thallium	0.02	mg/kg	<0.020
Tin	0.5	mg/kg	<0.50
Uranium	0.02	mg/kg	<0.020
Vanadium	0.5	mg/kg	<0.50
Zinc	1.5	mg/kg	76.5

**Notes:**

RDL = Reportable Detection Limit

< # = Not detected above RDL noted

## **Appendix 20a**

Site Photos

– Second Reservoir



Site Photographs – Second Reservoir



Photo 1 View of Secondary Reservoir



Photo 2 View of Secondary Reservoir



Site Photographs – Second Reservoir



Photo 3 View of Secondary Reservoir

# **Appendix 20b**

Sample Coordinates

– Second Reservoir

Sample Coordinates - Second Reservoir  
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-54	0673890	6149367
SED-55	0673813	6149342
SED-56	0673844	6149290
SED-57	0673796	6149309
SED-58	0673756	6149390
<b>SURFACE WATER</b>		
SW-7	0673890	6149367
SW-8	0673813	6149342
SW-9	0673844	6149290
<b>BENTHIC</b>		
BENTHIC-3	0673813	6149342

## **Appendix 20c**

Soil Vapour Concentrations

– Second Reservoir



Sample Tipping Results - Second Reservoir  
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)
SEDIMENT			
SED-54	-	No	-
SED-55	-	No	-
SED-56	-	No	-
SED-57	-	-	-
SED-58	-	-	-

**Notes:**

"-" = Value not recorded

## **Appendix 20d**

Laboratory Analytical Results Summary Tables

– Second Reservoir

**Table 20.1 Results of Laboratory Analysis of PCBs in Sediment - Second Reservoir**  
**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-54	<0.05
SED-55	<0.05
SED-56	<0.05
SED-56 Lab-Dup	<0.05
SED-57	<0.05
SED-58	<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

Lab-dup = laboratory duplicate sample

Shaded = Value exceeds CCME ISQG

**Table 20.2 Results of Laboratory Analysis of Available Metals in Sediment - Second Reservoir**  
**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-54	SED-55	SED-56	SED-57	SED-58
Aluminum	10	mg/kg	-	-	16,000	26,000	14,000	24,000	9,800
Antimony	2	mg/kg	-	-	<2	<2	<2	<2	<2
Arsenic	2	mg/kg	5.9	17.0	<2	<2	<2	<2	<2
Barium	5	mg/kg	-	-	23	26	18	21	14
Beryllium	2	mg/kg	-	-	<2	<2	<2	<2	<2
Bismuth	2	mg/kg	-	-	<2	<2	<2	<2	<2
Boron	5	mg/kg	-	-	<5	<5	<5	<5	<5
Cadmium	0.3	mg/kg	0.6	3.5	0.3	1.3	<0.3	0.7	<0.3
Chromium	2	mg/kg	37.3	90.0	20	26	20	27	13
Cobalt	1	mg/kg	-	-	4	8	6	8	6
Copper	2	mg/kg	35.7	197	17	38	23	36	16
Iron	50	mg/kg	-	-	11,000	11,000	11,000	12,000	9,400
Lead	0.5	mg/kg	35.0	91.3	11	4.3	2.6	3.7	2.4
Lithium	2	mg/kg	-	-	4	3	6	3	6
Manganese	2	mg/kg	-	-	140	180	91	140	84
Mercury	0.1	mg/kg	0.17	0.486	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	2	mg/kg	-	-	<2	<2	<2	<2	<2
Nickel	2	mg/kg	-	-	14	21	20	20	18
Rubidium	2	mg/kg	-	-	<2	<2	4	<2	3
Selenium	2	mg/kg	-	-	<2	2	<2	3	<2
Silver	0.5	mg/kg	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	-	16	15	15	14	10
Thallium	0.1	mg/kg	-	-	<0.1	0.1	<0.1	0.2	<0.1
Tin	2	mg/kg	-	-	<2	<2	<2	<2	<2
Uranium	0.1	mg/kg	-	-	3.3	8.2	2.9	8.8	2
Vanadium	2	mg/kg	-	-	23	45	27	56	21
Zinc	5	mg/kg	123	315	38	160	29	160	35

**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

Shaded = Value exceeds CCME ISQG



**Table 20.3 Results of Laboratory Analysis of TOC and Grain Size in Sediment - Second Reservoir**  
**Phase II/III ESA, HHERA and RAP/RMP**  
**Former US Military Site and Residential Subdivision, Hopedale, NL**  
**Project No. 121410103**

Parameters	Units	SEDIMENT									
		SED-54	RDL	SED-55	RDL	SED-56	RDL	SED-57	RDL	SED-58	RDL
Organic Carbon (TOC)	g/kg	100	2	160	0.8	5.4	0.2	160	0.9	5	0.2
<-4 Phi (16 mm)	%	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1
<-3 Phi (8mm)	%	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1
<-2 Phi (4mm)	%	100	0.1	100	0.1	100	0.1	100	0.1	100	0.1
<-1 Phi (2mm)	%	71	0.1	96	0.1	77	0.1	77	0.1	77	0.1
0 Phi (1mm)	%	55	0.1	83	0.1	56	0.1	56	0.1	56	0.1
<+1 Phi (0.5 mm)	%	45	0.1	56	0.1	30	0.1	30	0.1	30	0.1
<+2 Phi (0.25 mm)	%	37	0.1	33	0.1	9.7	0.1	9.7	0.1	9.7	0.1
<+3 Phi (0.12 mm)	%	29	0.1	21	0.1	1.8	0.1	1.8	0.1	1.8	0.1
<+4 Phi (0.062 mm)	%	23	0.1	16	0.1	1.1	0.1	1.1	0.1	1.1	0.1
<+5 Phi (0.031 mm)	%	20	0.1	15	0.1	0.6	0.1	0.6	0.1	0.6	0.1
<+6 Phi (0.016 mm)	%	15	0.1	13	0.1	0.5	0.1	0.5	0.1	0.5	0.1
<+7 Phi (0.0078 mm)	%	9.5	0.1	7.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1
<+8 Phi (0.0039 mm)	%	7.5	0.1	5.9	0.1	0.5	0.1	0.5	0.1	0.5	0.1
<+9 Phi (0.0020 mm)	%	6	0.1	5	0.1	0.4	0.1	0.4	0.1	0.4	0.1
Gravel	%	29	0.1	3.7	0.1	23	0.1	23	0.1	23	0.1
Sand	%	48	0.1	80	0.1	76	0.1	76	0.1	76	0.1
Silt	%	16	0.1	10	0.1	0.6	0.1	0.6	0.1	0.6	0.1
Clay	%	7.5	0.1	5.9	0.1	0.5	0.1	0.5	0.1	0.5	0.1

**Notes:**

RDL = Reportable Detection Limit

**Table 20.4 Results of Laboratory Analysis of PCBs in Surface Water - Second Reservoir**  
**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	ug/L
Criteria <sup>1</sup>	na
SURFACE WATER	
SW-7	<0.05
SW-7 Lab-Dup	<0.05
SW-8	<0.05
SW-9	<0.05

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit

< # = Not detected above RDL noted

na = No applicable guideline

**Table 20.5 Results of Laboratory Analysis of Available Metals in Surface Water - Second Reservoir  
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 WATER		
				SW-7	SW-8	SW-9
Aluminum	5	ug/L	200	48.7	46	44.7
Antimony	2	ug/L	6	<2.0	<2.0	<2.0
Arsenic	2	ug/L	10	<2.0	<2.0	<2.0
Barium	5	ug/L	1,000	<5.0	<5.0	<5.0
Beryllium	2	ug/L	-	<2.0	<2.0	<2.0
Bismuth	2	ug/L	-	<2.0	<2.0	<2.0
Boron	5	ug/L	5,000	<5.0	<5.0	<5.0
Cadmium	0.017	ug/L	5	<0.017	<0.017	<0.017
Chromium	1	ug/L	50	<1.0	<1.0	<1.0
Cobalt	0.4	ug/L	-	<0.40	<0.40	<0.40
Copper	2	ug/L	1,000 <sup>AO</sup>	<2.0	<2.0	<2.0
Iron	50	ug/L	300 <sup>AO</sup>	<50	<50	<50
Lead	0.5	ug/L	10	0.76	<0.50	0.67
Manganese	2	ug/L	50 <sup>AO</sup>	3.3	2.9	3
Molybdenum	2	ug/L	-	<2.0	<2.0	<2.0
Nickel	2	ug/L	-	<2.0	<2.0	<2.0
Selenium	1	ug/L	10	<1.0	<1.0	<1.0
Silver	0.1	ug/L	-	<0.10	<0.10	<0.10
Strontium	5	ug/L	-	<5.0	<5.0	<5.0
Thallium	0.1	ug/L	-	<0.10	<0.10	<0.10
Tin	2	ug/L	-	<2.0	<2.0	<2.0
Titanium	2	ug/L	-	<2.0	<2.0	<2.0
Uranium	0.1	ug/L	20	<0.10	<0.10	<0.10
Vanadium	2	ug/L	-	<2.0	<2.0	<2.0
Zinc	5	ug/L	5000 <sup>AO</sup>	<5.0	<5.0	<5.0

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit for routine analysis

< # = Not detected above RDL noted

AO = guideline based on aesthetic criteria

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



**Table 20.6 Results of Laboratory Analysis of General Chemistry in Surface Water - Second Reservoir**  
**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 WATER				
				SW-7	SW-7 Lab-Dup	SW-8	SW-9	SW-9 Lab-Dup
<b>Calculated Parameters</b>								
Anion Sum	N/A	me/L	-	0.09	-	0.16	0.09	-
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	1	mg/L	-	<1	-	<1	<1	-
Calculated TDS	1	mg/L	500 <sup>AO</sup>	7	-	10	7	-
Carb. Alkalinity (as CaCO <sub>3</sub> )	1	mg/L	-	<1	-	<1	<1	-
Cation Sum	N/A	me/L	-	0.18	-	0.17	0.17	-
Hardness (as CaCO <sub>3</sub> )	1	mg/L	500	4	-	3	3	-
Ion Balance (% Difference)	N/A	%	-	33.3	-	3.03	30.8	-
Langelier Index (@20°C)	-	N/A	-	NC	-	NC	NC	-
Langelier Index (@4°C)	-	N/A	-	NC	-	NC	NC	-
Nitrate (as N)	0.05	mg/L	10	<0.05	-	<0.05	<0.05	-
Saturation pH (@20°C)	-	N/A	-	NC	-	NC	NC	-
Saturation pH (@4°C)	-	N/A	-	NC	-	NC	NC	-
<b>Inorganics</b>								
Total Alkalinity (as CaCO <sub>3</sub> )	5	mg/L	-	<5	-	<5	<5	<5
Dissolved Chloride (Cl)	1	mg/L	250 <sup>AO</sup>	3	-	3	3	3
Colour	5	TCU	15 <sup>AO</sup>	7	-	<5	9	7
Nitrate + Nitrite	0.05	mg/L	45	<0.05	-	<0.05	<0.05	<0.05
Nitrite (N)	0.01	mg/L	3.2	<0.01	-	<0.01	<0.01	<0.01
Nitrogen (Ammonia Nitrogen)	0.05	mg/L	-	<0.05	-	<0.05	<0.05	-
Total Organic Carbon (C)	0.5	mg/L	-	2.2	-	2.5	1.9	-
Orthophosphate (P)	0.01	mg/L	-	<0.01	-	<0.01	<0.01	<0.01
pH	N/A	pH	6.5-8.5 <sup>AO</sup>	6.62	6.43	6.45	6.36	-
Reactive Silica (SiO <sub>2</sub> )	0.5	mg/L	-	<0.5	-	<0.5	<0.5	<0.5
Dissolved Sulphate (SO <sub>4</sub> )	2	mg/L	500 <sup>AO</sup>	<2	-	3	<2	<2
Turbidity	0.1	NTU	1.0	0.5	-	0.5	0.5	0.3
Conductivity	1	uS/cm	-	18	20	20	17	-
<b>Metals</b>								
Calcium	0.1	mg/L	-	0.8	-	0.8	0.7	-
Magnesium	0.1	mg/L	-	0.4	-	0.3	0.3	-
Phosphorus	0.1	mg/L	-	<0.1	-	<0.1	<0.1	-
Potassium	0.1	mg/L	-	0.1	-	0.2	0.1	-
Sodium	0.1	mg/L	200 <sup>AO</sup>	3	-	2	2	-

**Notes:**

1 = Health Canada Guidelines for Canadian Drinking Water Quality (2008)

RDL = Reportable Detection Limit

AO = guideline based on aesthetic criteria

< # = Not detected above RDL noted

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

Shaded = Value exceeds applicable guideline