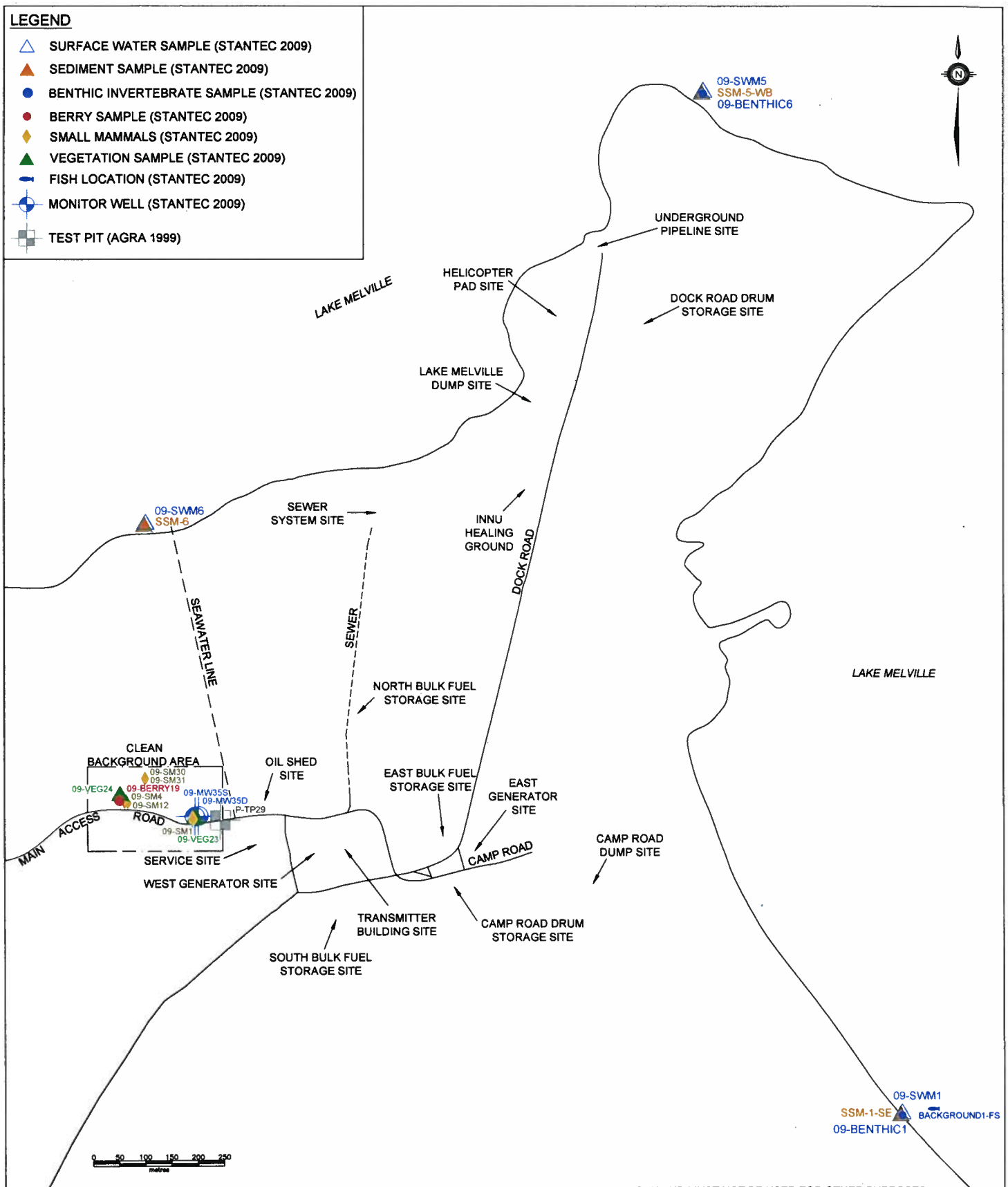
Appendix 19a

Site Drawings

– Clean Background Area



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

CLIENT:
NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

PROJECT TITLE:
PHASE III ESA, HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENTS, REMEDIAL ACTION PLAN FOR THE FORMER U.S. MILITARY FACILITY OF NORTHWEST POINT, NL

DRAWING TITLE:
SITE PLAN - CLEAN BACKGROUND AREA

SCALE: 1:10,000	DATE: JUNE 18, 2010
DRAWN BY: N.M.	CHECKED BY: A.R.
EDITED BY: -	REV. No. 0
DRAWING No: 121410105-EE-19A	
CAD FILE: 1044857-EE-19.DWG	

Stantec

18JUN10 10:00AM

Appendix 19b

Sample Coordinates

– Clean Background Area

Sample Coordinates - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample ID	Coordinates (NAD27)	
	Easting	Northing
MONITOR WELLS		
09-MW35S	694005	5931198
09-MW35D	694005	5931198
SURFACE WATER / SEDIMENT / BENTHIC		
09-SWM1, 09-SSM1, 09-BENTHIC1	695363	5930657
09-SWM5, 09-SSM5, 09-BENTHIC6	Not recorded	
09-SWM6, 09-SSM6	693901	5931754
VEGETATION		
09-VEG20	694624	5931860
09-VEG23	694007	5931196
09-VEG24	693862	5931236
BERRIES		
09-BERRY16	694624	5931859
09-BERRY19	693861	5931226
SMALL MAMMALS		
09-SM1	693853	5931240
09-SM4	693874	5931222
09-SM12	693874	5931222
RABBITS		
09-SM30	693908	5931268
09-SM31	693908	5931268
FISH		
BACKGROUND1-FS	695422	5930668

Appendix 19c

Monitor Well Records

– Clean Background Area

MONITOR WELL RECORD

Stantec

BOREHOLE No. **09-MW35S**
PAGE **1** of **1**
PROJECT No. **121410105**
DRILLING METHOD **Auger**
SIZE **100mm HS**
DATUM

CLIENT **NL Department of Enviroment and Conservation**
PROJECT **Phase III ESA, HHRA & ERA, Former US Military Facility**
LOCATION **Northwest Point, NL**
DATES (mm-dd-yy): BORING **8-12-09** WATER LEVEL **1.83m** **8-12-09**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD %	HYDROCARBON ODOUR	APPARENT MOISTURE CONTENT	PID (ppm)	TPH (ppm)	WELL CONSTRUCTION DETAILS (0.61 m STICK UP)
0													CAST IRON WELL HEAD
		Brown, SAND (SP); some cobbles			SS	1	150	7	0		0.0	-	
		Grey, SAND (SP)			SS	2	560	10	0		0.0	-	BENTONITE
1		Grey, SILT (ML)											
		Grey, SAND (SP)		▼	SS	3	355	24	0	M	0.0	-	
2		Grey to brown, SILT (ML)			SS	4	560	37	0		0.0	-	50 mm DIAMETER No. 10 SLOT PVC SCREEN IN No. 2 SILICA SAND PACK
		Grey, silty SAND (SM)			SS	5	560	52	0	M	0.0	-	
3		Grey, SAND (SP)											
		Grey, silty SAND (SM); trace of orange sand			SS	6	510	70	0	M	0.0	-	
		Grey, SAND (SP)			SS	7	510	41	0		0.0	-	
4					SS	8	255	104/280	0	S	0.0	-	
													END CAP
					SS	9	355	40	0	M	0.0	-	
5					SS	10	380	65	0		0.0	-	
					SS	11	405	33	0	M	0.0	-	
6					SS	12	355	58	0	M	0.0	-	
		End of Borehole											
7													
8													
9													
10													

MONITOR WELL RECORD

BOREHOLE No. **09-MW35D**
PAGE **1** of **2**
PROJECT No. **121410105**
DRILLING METHOD **Auger**
SIZE **100mm HS**
DATUM

CLIENT **NL Department of Enviroment and Conservation**
PROJECT **Phase III ESA, HHRA & ERA, Former US Military Facility**
LOCATION **Northwest Point, NL**
DATES (mm-dd-yy): BORING **8-12-09** WATER LEVEL **1.83m** **8-12-09**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD %	HYDROCARBON ODOUR	APPARENT MOISTURE CONTENT	PID (ppm)	TPH (ppm)	WELL CONSTRUCTION DETAILS (0.61 m STICK UP)
0													CAST IRON WELL HEAD
0		Brown, SAND (SP); some cobbles			SS	1	150	7	0		0.0	-	
		Grey, SAND (SP)			SS	2	560	10	0		0.0	-	
1		Grey, SILT (ML)											
		Grey, SAND (SP)		▼	SS	3	355	24	0	M	0.0	-	
2		Grey to brown, SILT (ML)			SS	4	560	37	0		0.0	-	
		Grey, silty SAND (SM)			SS	5	560	52	0	M	0.0	-	
3		Grey, SAND (SP)											
		Grey, silty SAND (SM); trace of orange sand			SS	6	510	70	0	M	0.0	-	BENTONITE
4		Grey, SAND (SP)			SS	7	510	41	0		0.0	-	
					SS	8	255	104/280	0	S	0.0	nd	
5					SS	9	355	40	0	M	0.0	-	
					SS	10	380	65	0		0.0	-	
6					SS	11	405	33	0	M	0.0	-	
					SS	12	355	58	0	M	0.0	-	
7													50 mm DIAMETER No. 10 SLOT PVC SCREEN IN No. 2
8													
9													
10													

MONITOR WELL RECORD

Stantec

BOREHOLE No. **09-MW35D**
PAGE **2** of **2**
PROJECT No. **121410105**
DRILLING METHOD **Auger**
SIZE **100mm HS**
DATUM

CLIENT **NL Department of Enviroment and Conservation**
PROJECT **Phase III ESA, HHRA & ERA, Former US Military Facility**
LOCATION **Northwest Point, NL**
DATES (mm-dd-yy): BORING **8-12-09** WATER LEVEL **1.83m** **8-12-09**

DEPTH (m)	ELEVATION (m)	DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES N-VALUE OR RQD %	HYDROCARBON ODOUR	APPARENT MOISTURE CONTENT	PID (ppm)	TPH (ppm)	WELL CONSTRUCTION DETAILS
		Continued from Previous Page					mm						
10													SILICA SAND PACK END CAP
		End of Borehole											
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

Appendix 19d

Laboratory Analytical Results Summary Tables

– Clean Background Area

Table 19.1 Results of Laboratory Analysis of TPH/BTEX in Soil - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Sample Depth (m)	Benzene	Toluene	Ethyl-benzene	Xylenes	C_6-C_{10} (Gas Range)	C_{10}-C_{21} (Fuel Range)	C_{21}-C_{32} (Lube Range)	Modified TPH - Tier I[2]	Resemblance
RDL		0.03	0.03	0.03	0.1	3	15	15	20	-
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Tier I RBSLs[1]		0.16	14	58	17	-	-	-	140	-
2009 Sampling (Stantec)										
09-MW35D-SS8	5.2 - 5.5	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-

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, fuel 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

Table 19.2 Results of Laboratory Analysis of TPH/BTEX in Groundwater - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Benzene	Toluene	Ethylbenzene	Xylenes	C_6-C_{10} (Gas Range)	C_{10}-C_{21} (Fuel Range)	C_{21}-C_{32} (Lube Range)	Modified TPH - Tier I[2]	Resemblance
RDL	0.001	0.001	0.001	0.002	0.01	0.05	0.1	0.1	-
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	-
Tier I RBSLs[1]	1	20	20	20	-	-	-	12/20/20	-
2009 Sampling (Stantec)									
09-MW35D	<0.001	<0.001	<0.001	<0.002	<0.01	0.1	0.7	0.8	LO

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, fuel 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

Table 19.3 Results of Laboratory Analysis of Dissolved Metals in Groundwater - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameter	RDL	Units	Criteria[1]	2009 Sampling (Stantec)
				09-MW35D
Aluminum	5.0	ug/L	-	162
Antimony	2.0	ug/L	20,000	<2.0
Arsenic	2.0	ug/L	1,900	<2.0
Barium	5.0	ug/L	29,000	35.9
Beryllium	2.0	ug/L	67	<2.0
Bismuth	2.0	ug/L	-	<2.0
Boron	5.0	ug/L	45,000	34.3
Cadmium	0.017	ug/L	2.7	0.108
Chromium	1.0	ug/L	810	<1.0
Cobalt	0.40	ug/L	66	<0.40
Copper	2.0	ug/L	87	2.8
Iron	50	ug/L	-	174
Lead	0.50	ug/L	25	0.90
Manganese	2.0	ug/L	-	93.8
Mercury	0.02	ug/L	0.29	<0.02
Molybdenum	2.0	ug/L	9,200	30.8
Nickel	2.0	ug/L	490	<2.0
Selenium	1.0	ug/L	63	<1.0
Silver	0.10	ug/L	1.5	<0.10
Strontium	5.0	ug/L	-	91.3
Thallium	0.10	ug/L	510	<0.10
Tin	2.0	ug/L	-	<2.0
Titanium	2.0	ug/L	-	13.5
Uranium	0.10	ug/L	420	2.48
Vanadium	2.0	ug/L	250	<2.0
Zinc	5.0	ug/L	1,100	7.9

Notes:

1 = Ontario Ministry of the Environment (MOE) Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. July 27, 2009. Table 3: full depth generic site condition standards in a non-potable groundwater condition, coarse-grained soil

< # = Not detected above RDL noted

"-" = No applicable guideline

Table 19.4 Results of Laboratory Analysis of General Chemistry in Groundwater - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameter	RDL	Units	Criteria[1]	2009 Sampling (Stantec)
				09-MW35D
Metals				
Dissolved Calcium	0.1	mg/L	-	21
Dissolved Magnesium	0.1	mg/L	-	12
Dissolved Phosphorus	0.1	mg/L	<0.004 to >0.1[3]	<0.1
Dissolved Potassium	0.1	mg/L	-	14
Dissolved Sodium	0.1	mg/L	-	26
Calculated Parameters				
Anion Sum	N/A	me/L	-	3.25
Bicarb. Alkalinity (calc. as $CaCO_3$)	1	mg/L	-	129
Calculated TDS	1	mg/L	-	190
Carb.Alkalinity (calc. as $CaCO_3$)	1	mg/L	-	1
Cation Sum	N/A	me/L	-	3.58
Hardness ($CaCO_3$)	1	mg/L	-	100
Ion Balance (% Difference)	N/A	%	-	4.83
Langelier Index (@ 20C)	-	N/A	-	0.00100
Langelier Index (@ 4C)	-	N/A	-	-0.249
Nitrate (N)	0.05	mg/L	2.9	<0.05
Saturation pH (@20C)	-	N/A	-	7.95
Saturation pH (@4C)	-	N/A	-	8.20
Inorganics				
Total Alkalinity (Total as $CaCO_3$)	30	mg/L	-	130
Dissolved Chloride (Cl)	1	mg/L	-	9
Colour	5	TCU	-	11
Nitrate + Nitrite	0.05	mg/L	-	<0.05
Nitrite (N)	0.01	mg/L	0.06	<0.01
Nitrogen (Ammonia Nitrogen)	0.05	mg/L	-	<0.05
Total Organic Compound	5	mg/L	-	<5(3)
Orthophosphate (P)	0.01	mg/L	-	<0.01
pH	N/A	pH	6.5 - 9	7.95
Reactive Silica (SO_2)	0.5	mg/L	-	9.5
Dissolved Sulphate (SO_4)	2	mg/L	-	19
Turbidity	1	NTU	Narritive[2]	95
Conductivity	1	uS/cm	-	310

Notes:
1 = CCME Water Quality Guidelines for the protection of freshwater aquatic life (2007)
2 = Maximum increase of 8 NTUs from background levels when background levels are between 8 and 80 NTUs
3 = Phosphorous guideline is dependant on trophic status of the freswater environment
RDL = Reportable Detection Limit
< # = Not detected above RDL noted
"-" = indicates value is not available or does not apply
(3) Elevated detection limit due to matrix interference
Lab-dup = Laboratory duplicate sample
Shaded = Value exceeds applicable criteria

Table 19.5 Results of Laboratory Analysis of TPH/BTEX in Surface Water - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Benzene	Toluene	Ethylbenzene	Xylenes	C_6-C_{10} (Gas Range)	C_{11}-C_{20} (Fuel Range)	C_{21}-C_{32} (Lube Range)	Modified TPH - Tier I[2]	Resemblance
RDL	0.001	0.001	0.001	0.002	0.01	0.05	0.1	0.1	-
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	-
Criteria[1]	0.37	0.002	0.09	-	-	-	-	-	-
2009 Sampling (Stantec)									
09-SWM1	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	<0.1	<0.1	-
09-SWM5	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	<0.1	<0.1	-
09-SWM6	<0.001	<0.001	<0.001	<0.002	<0.01	<0.05	<0.1	<0.1	-

Notes:
1 = CCME Water Quality Guidelines for the protection of freshwater aquatic life (2007)
2 = Modified TPH - Tier I does not include BTEX
"-" = Value is not available or does not apply
RDL = Reportable Detection Limit for routine analysis
< # = Not detected above RDL noted

Table 19.6 Results of Lab Analysis of Dissolved Metals in Surface Water - Background
Phase III ESA, HHERA and RAP/RMP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Limited Project No. 121410105

Parameters	Units	Criteria[1]	2009 Sampling (Stantec)					
			09-SWM1	RDL	09SWM5	RDL	09-SWM6	RDL
Aluminum	ug/L	5-100[2]	<50	50	<500	500	312	5.0
Antimony	ug/L	-	<20	20	<200	200	<2.0	2.0
Arsenic	ug/L	5	<20	20	<200	200	<2.0	2.0
Barium	ug/L	-	<50	50	<500	500	<5.0	5.0
Beryllium	ug/L	-	<20	20	<200	200	<2.0	2.0
Bismuth	ug/L	-	<20	20	<200	200	<2.0	2.0
Boron	ug/L	-	367	50	2310	500	<5.0	5.0
Cadmium	ug/L	0.017[3]	<0.17	0.17	<1.7	1.7	0.017	0.017
Chromium	ug/L	8.9	<10	10	<100	100	23.6	1.0
Cobalt	ug/L	-	<4.0	4.0	<40	40	<0.40	0.40
Copper	ug/L	2 to 4[4]	<20	20	<200	200	<2.0	2.0
Iron	ug/L	300	1150	500	<5000	5000	523	50
Lead	ug/L	1-7[5]	<5.0	5.0	<50	50	<0.50	0.50
Magnesium	ug/L	-	-	-	-	-	-	-
Manganese	ug/L	-	158	20	<200	200	10.0	2.0
Mercury	ug/L	0.026	<0.013	0	0.015	0.013	<0.013	0.0
Molybdenum	ug/L	73	<20	20	<200	200	<2.0	2.0
Nickel	ug/L	25-150[6]	<20	20	<200	200	<2.0	2.0
Phosphorous	ug/L	<0.004 to >0.1[7]	-	-	-	-	-	-
Potassium	ug/L	-	-	-	-	-	-	-
Selenium	ug/L	1	<10	10	<100	100	<1.0	1.0
Silver	ug/L	0.1	<1.0	1.0	<10	10	<0.10	0.10
Strontium	ug/L	-	615	50	3870	500	6.9	5.0
Thallium	ug/L	0.8	<1.0	1.0	<10	10	<0.10	0.10
Tin	ug/L	-	<20	20	<200	200	<2.0	2.0
Titanium	ug/L	-	<20	20	<200	200	8.9	2.0
Uranium	ug/L	-	<1.0	1.0	<10	10	<0.10	0.10
Vanadium	ug/L	-	<20	20	<200	200	<2.0	2.0
Zinc	ug/L	30	<50	50	<500	500	16.9	5.0
General Chemistry								
pH	-	6.5 - 9	7.44	1	7.68	1	4.55	1
Hardness ($CaCO_3$)	mg/L	-	480	-	3,100	-	3	-

Notes:

1 = CCME Water Quality Guidelines for the protection of freshwater aquatic life (2007)

2 = Aluminum guideline = 5 µg/L at pH<6.5
= 100 µg/L at pH>=6.5

3 = Cadmium guideline = 10^{0.86[log(hardness)]-3.2}
= 0.026 mg/L at a water hardness of 75 mg/L as $CaCO_3$

4 = Copper guideline = 2 µg/L at water hardness of 0-120 mg/L as $CaCO_3$
= 3 µg/L at water hardness of 120-180 mg/L as $CaCO_3$
= 4 µg/L at water hardness >180 mg/L as $CaCO_3$

5 =Lead guideline = 1 µg/L at water hardness of 0-60 mg/L as $CaCO_3$
= 2 µg/L at water hardness of 60-120 mg/L as $CaCO_3$
= 4 µg/L at water hardness of 120-180 mg/L as $CaCO_3$
= 7 µg/L at water hardness >180 mg/L as $CaCO_3$

6 = Nickel guideline = 25 µg/L at water hardness of 0-60 mg/L as $CaCO_3$
= 65 µg/L at water hardness of 60-120 mg/L as $CaCO_3$
= 110 µg/L at water hardness of 120-180 mg/L as $CaCO_3$
= 150 µg/L at water hardness >180 mg/L as $CaCO_3$

7 = Phosphorous guideline is dependant on trophic status of the freshwater environment

"-" = Not analysed or no applicable guideline

< # = Not detected above RDL noted

Shaded = Value exceeds CCME freshwater aquatic life guideline

Table 19.7 Results of Laboratory Analysis of General Chemistry in Surface Water - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameter	Units	Criteria[1]	2009 Sampling (Stantec)				
			09-SWM1	09-SWM5	09-SWM5 Lab-Dup	09-SWM6	RDL
Metals							
Dissolved Calcium	mg/L	-	39	200	-	0.6	0.1
Dissolved Magnesium	mg/L	-	92	650	-	0.3	0.1
Dissolved Phosphorus	mg/L	<0.004 to >0.1[2]	<1	<1(1)	-	<0.1	0.1
Dissolved Potassium	mg/L	-	36	210	-	0.5	0.1
Dissolved Sodium	mg/L	-	850	6,000	-	1.6	0.1
Dissolved Sulphur	mg/L	-	67	470	-	<0.5	-
Calculated Parameters							
Anion Sum	me/L	-	52.7	313	-	0.0700	N/A
Bicarb. Alkalinity (calc. as $CaCO_3$)	mg/L	-	84	67	-	<1	1
Calculated TDS	mg/L	-	2,960	18,500	-	12	1
Carb.Alkalinity (calc. as $CaCO_3$)	mg/L	-	<1	<1	-	<1	1
Cation Sum	me/L	-	47.6	329	-	0.190	N/A
Hardness ($CaCO_3$)	mg/L	-	480	3,100	-	3	1
Ion Balance (% Difference)	%	-	5.05	2.57	-	46.2	N/A
Langelier Index (@ 20C)	N/A	-	-0.752	-0.0950	-	NC	-
Langelier Index (@ 4C)	N/A	-	-0.994	-0.333	-	NC	-
Nitrate (N)	ug/L	3	<0.05	0.10	-	<0.05	0.05
Saturation pH (@20C)	N/A	-	8.19	7.78	-	NC	-
Saturation pH (@4C)	N/A	-	8.43	8.01	-	NC	-
Inorganics							
Total Alkalinity (Total as $CaCO_3$)	mg/L	-	84	67	66	<5	5
Dissolved Chloride (Cl)	mg/L	-	1,600	10,000	10,000	2	1
Colour	TCU	Narrative	36	14	15	210	80
Nitrate + Nitrite	mg/L	-	<0.05	0.10	0.10	<0.05	0.05
Nitrite (N)	ug/L	0.06	<0.01	<0.01	<0.01	<0.01	0.01
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.17	<0.05	-	<0.05	0.05
Total Organic Compound	mg/L	-	3.3 (0.5)	<5 (5)	-	21 (1)	1 - 50
Orthophosphate (P)	mg/L	-	0.02	0.01	0.01	<0.01	0.01
pH	pH	6.5 - 9	7.44	7.68	7.63	4.55	N/A
Reactive Silica (SiO_2)	mg/L	-	15	1.5	1.5	6.4	0.5
Dissolved Sulphate (SO_4)	mg/L	-	220	1400	1400	<2	2
Turbidity	NTU	Narrative[3]	3.6	0.2	-	0.6	1
Conductivity	uS/cm	-	5,400	28,000	28,000	36	1

Notes:
1 = CCME Water Quality Guidelines for the protection of freshwater aquatic life (2007)
2 = Phosphorous guideline is dependant on trophic status of the freswater environment
3 = Maximum increase of 8 NTUs from background levels when background levels are between 8 and 80 NTUs
RDL = Reportable Detection Limit; () = RDL for TOC shown in brackets
Lab-dup = Laboratory duplicate sample
"-" = indicates value is not available or does not apply
< # = Not detected above RDL noted
Shaded = Value exceeds CCME freshwater aquatic life guideline

Table 19.8 Results of Laboratory Analysis of TPH/BTEX in Sediment - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Benzene	Toluene	Ethylbenzene	Xylenes	C_6-C_{10} (Gas Range)	C_{10}-C_{21} (Fuel Range)	C_{21}-C_{32} (Lube Range)	Modified TPH - Tier I[2]	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[1]	-	-	-	-	-	-	-	1,500	-
2009 Sampling (Stantec)									
SSM-1-SE	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-
SSM-5-WB	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-
SSM-6-SCB	<0.03	<0.03	<0.03	<0.05	<3	<15	<15	<20	-

Notes:
1 = Ontario Ministry of Environment Guideline for sediments to be used as lake fill material (1993). 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
< # = Not detected above RDL noted
"-" = Indicates value is not available or does not apply

Table 19.9 Results of Laboratory Analysis of Metals in Sediment - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameters	RDL	Units	Criteria[1]	Criteria[2]	2009 Sampling (Stantec)		
					SSM-1 SE	SSM-5 WB	SSM-6 SCB
Aluminum	10	mg/kg	-	-	12,000	1,300	1,000
Antimony	2	mg/kg	-	-	<2	<2	<2
Arsenic	2	mg/kg	5.9	17	<2	<2	<2
Barium	5	mg/kg	-	-	160	9	7
Beryllium	2	mg/kg	-	-	<2	<2	<2
Bismuth	2	mg/kg	-	-	<2	<2	<2
Boron	5	mg/kg	-	-	<5	<5	<5
Cadmium	0.3	mg/kg	0.6	3.5	<0.3	<0.3	<0.3
Chromium	2	mg/kg	37.3	90	26	<2	<2
Cobalt	1	mg/kg	-	-	9	<1	<1
Copper	2	mg/kg	35.7	197	18	2	<2
Iron	50	mg/kg	-	-	17,000	2,300	1,500
Lead	0.5	mg/kg	35	91.3	2.8	0.6	0.8
Lithium	2	mg/kg	-	-	11	3	<2
Manganese	2	mg/kg	-	-	280	30	19
Mercury	0.1	mg/kg	-	-	<0.1	<0.1	<0.1
Molybdenum	2	mg/kg	-	-	<2	<2	<2
Nickel	2	mg/kg	-	-	17	<2	<2
Rubidium	2	mg/kg	-	-	27	<2	<2
Selenium	2	mg/kg	-	-	<2	<2	<2
Silver	0.5	mg/kg	-	-	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	-	30	6	<5
Thallium	0.1	mg/kg	-	-	0.1	<0.1	<0.1
Tin	2	mg/kg	-	-	<2	<2	<2
Uranium	0.1	mg/kg	-	-	0.5	0.1	<0.1
Vanadium	2	mg/kg	-	-	40	3	4
Zinc	5	mg/kg	123	315	49	7	<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 for routine analysis
< # = Not detected above RDL noted
"-" = No applicable guideline

Table 19.10 Results of Laboratory Analysis of PCBs in Vegetation - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Polychlorinated Biphenyls (PCBs)
RDL	0.05
Units	ug/L
Criteria	na
2009 Sampling (Stantec)	
09-VEG-22	<0.3
09-VEG-24	<0.3

Notes:
RDL = Reportable Detection Limit
na = No applicable guideline
< # = Not detected above RDL noted

Table 19.11 Results of Laboratory Analysis of PCBs/Crude Fat in Small Mammal and Rabbit Tissue Samples - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Polychlorinated Biphenyls (PCBs)	Crude Fat
RDL	0.05	0.5
Units	ug/g	%
Criteria	na	na
2009 Sampling (Stantec) - Small Mammals		
09-SM1	<0.05	-
09-SM4	<0.05	3.5
09-SM12	<0.05	2.6
2009 Sampling (Stantec) - Rabbits		
09-SM30	<0.05	1.9
09-SM30 Lab-Dup	<0.05	-
09-SM31	<0.05	2.1

Notes:
RDL = Reportable Detection Limit
na = No applicable guideline
< # = Not detected above RDL noted
"-" = Not analyzed

Table 19.12 Results of Laboratory Analysis of Metals in Small Mammals and Rabbits - Clean Background Area
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameter	RDL	Units	Criteria	2009 Sampling (Stantec) - Small Mammals		2009 Sampling (Stantec) - Rabbits
				09-SM1	09-SM4	09-SM30
Aluminum	2.5	mg/kg	na	3.3	-	-
Antimony	0.50	mg/kg	na	<0.50	-	-
Arsenic	0.50	mg/kg	na	<0.50	-	-
Barium	1.5	mg/kg	na	11.5	-	-
Beryllium	0.50	mg/kg	na	<0.50	-	-
Boron	1.5	mg/kg	na	<1.5	-	-
Cadmium	0.050	mg/kg	na	<0.050	-	-
Chromium	0.50	mg/kg	na	<0.50	-	-
Cobalt	0.20	mg/kg	na	<0.20	-	-
Copper	0.50	mg/kg	na	4.05	-	-
Iron	15	mg/kg	na	73	-	-
Lead	0.18	mg/kg	na	<0.18	-	-
Lithium	0.50	mg/kg	na	<0.50	-	-
Manganese	0.50	mg/kg	na	8.98	-	-
Mercury	0.10	mg/kg	na	-	<0.1	<0.1
Molybdenum	0.50	mg/kg	na	<0.50	-	-
Nickel	0.50	mg/kg	na	<0.50	-	-
Selenium	0.50	mg/kg	na	<0.50	-	-
Silver	0.12	mg/kg	na	<0.12	-	-
Strontium	1.5	mg/kg	na	7.7	-	-
Thallium	0.020	mg/kg	na	<0.020	-	-
Tin	0.50	mg/kg	na	<0.50	-	-
Uranium	0.020	mg/kg	na	<0.020	-	-
Vanadium	0.50	mg/kg	na	<0.50	-	-
Zinc	1.5	mg/kg	na	23.9	-	-

Notes:
RDL = Reportable Detection Limit
na = No applicable guideline
< # = Not detected above RDL noted
"-" = Not analyzed

Table 19.13 Results of Laboratory Analysis of PCBs/Crude Fat in Fish Samples - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Sample Location	Polychlorinated Biphenyls (PCBs)	Crude Fat
RDL	0.05	-
Units	ug/g	%
Criteria	na	na
2009 Sampling (Stantec)		
BACKGROUND 1 - FS1	<0.05	9.2
BACKGROUND 1 - FS5	<0.05	8.6
BACKGROUND 1 - FS9	<0.05	10

Notes:
RDL = Reportable Detection Limit
na = No applicable guideline
< # = Not detected above RDL noted
"-" = Not analyzed

Table 19.14 Results of Laboratory Analysis of Available Metals in Fish - Background
Phase III ESA, HHERA and RAP
Former U.S Military Facility, Northwest Point, NL
Stantec Consulting Ltd. Project No. 121410105

Parameters	RDL	Units	2009 Sampling (Stantec)		
			BACKGROUND 1 - FS1	BACKGROUND 1 - FS5	BACKGROUND 1 - FS9
Aluminum	2.5	mg/kg	38.4	10.1	30.7
Antimony	0.5	mg/kg	<0.50	<0.50	<0.50
Arsenic	0.5	mg/kg	1.7	1.56	1.75
Barium	1.5	mg/kg	<1.5	1.8	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	1.37	1.13	1.57
Iron	15	mg/kg	96	53	139
Lead	0.18	mg/kg	<0.18	<0.18	0.19
Lithium	0.5	mg/kg	<0.50	<0.50	<0.50
Manganese	0.5	mg/kg	7.57	8.65	8.33
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	50.1	67.3	60.4
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	46.1	51.9	43.1

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

Appendix 19e

Results of Hydraulic Response (Bail-Down) Test

– Clean Background Area

Stantec Consulting Ltd.
607 Torbay Road
St. John's, NL, A1A 4Y6
Stantec Tel: (709) 576-1458

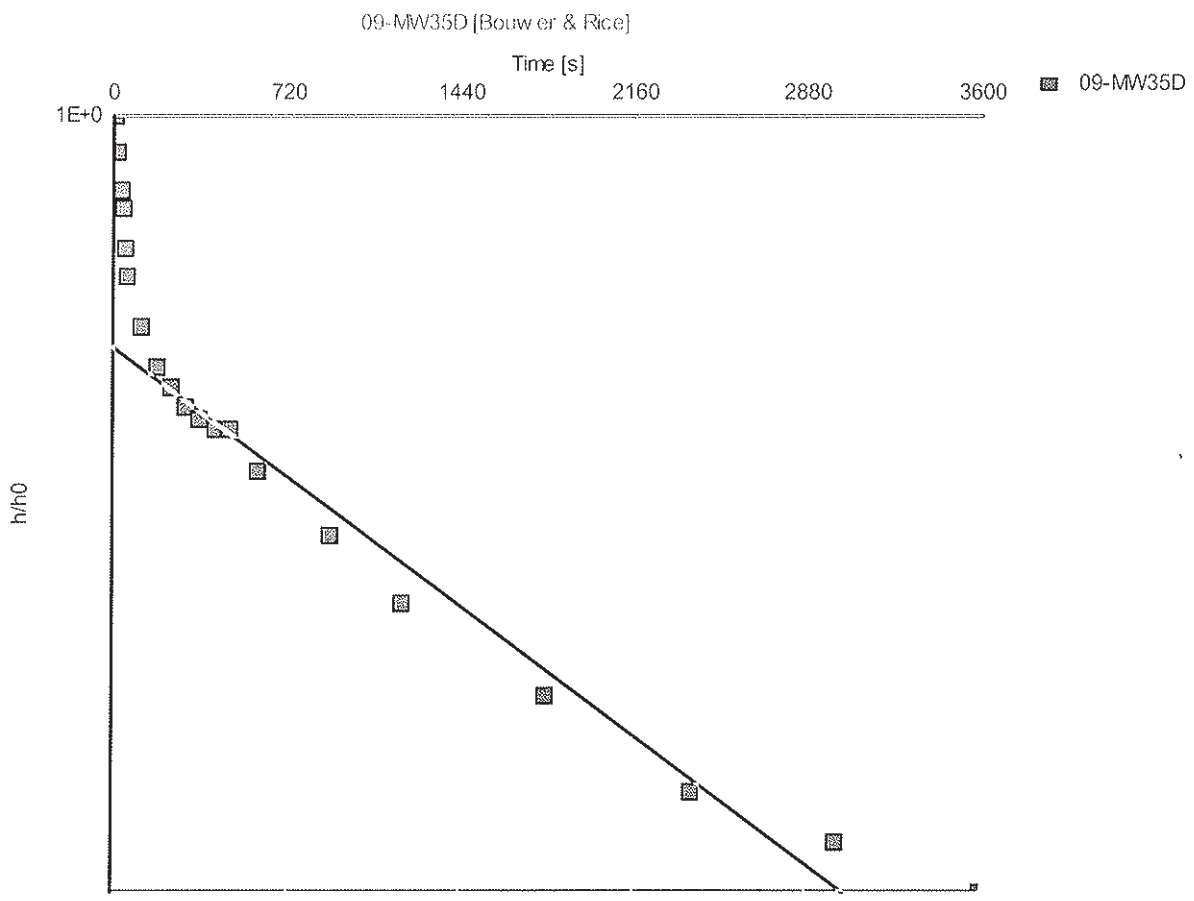
Slug Test Data Report
Project: Northwest Point
Number: 121410105
Client: NLDEC

Test Well:	**09-MW35D**	**Slug Test:**	**09-MW35D**
		Test Well:	09-MW35D
Depth to Static WL:	9.52 [m]	Casing radius:	0.025 [m]
Location:		Boring radius:	0.05 [m]
Recorded by:	Stantec	Screen length:	1.52 [m]
Date:	8/26/2009	Aquifer Thickness:	1.84 [m]

	Time [s]	Depth to WL [m]	Drawdown [m]
1	10	10.76	1.24
2	20	10.74	1.22
3	30	10.72	1.20
4	40	10.71	1.19
5	50	10.69	1.17
6	60	10.68	1.16
7	120	10.65	1.13
8	180	10.63	1.11
9	240	10.62	1.10
10	300	10.61	1.09
11	360	10.61	1.09
12	420	10.60	1.08
13	480	10.60	1.08
14	600	10.58	1.06
15	900	10.55	1.03
16	1200	10.52	1.00
17	1800	10.48	0.96
18	2400	10.44	0.92
19	3000	10.42	0.90
20	3600	10.40	0.88

Stantec Consulting Ltd.
607 Torbay Road
St. John's, NL, A1A 4Y6
Stantec Tel: (709) 576-1458

Slug Test Analysis Report
Project: Northwest Point
Number: 121410105
Client: NLDEC



Slug Test: **09-MW35D**

Analysis Method: **Bouwer & Rice**

Analysis Results:

Conductivity: 4.46E-8 [m/s]

Test parameters:

Test Well:	09-MW35D	Aquifer Thickness:	1.84 [m]
Casing radius:	0.025 [m]	Gravel Pack Porosity (%)	25
Screen length:	1.52 [m]		
Boring radius:	0.05 [m]		
r(eff):	0.033 [m]		

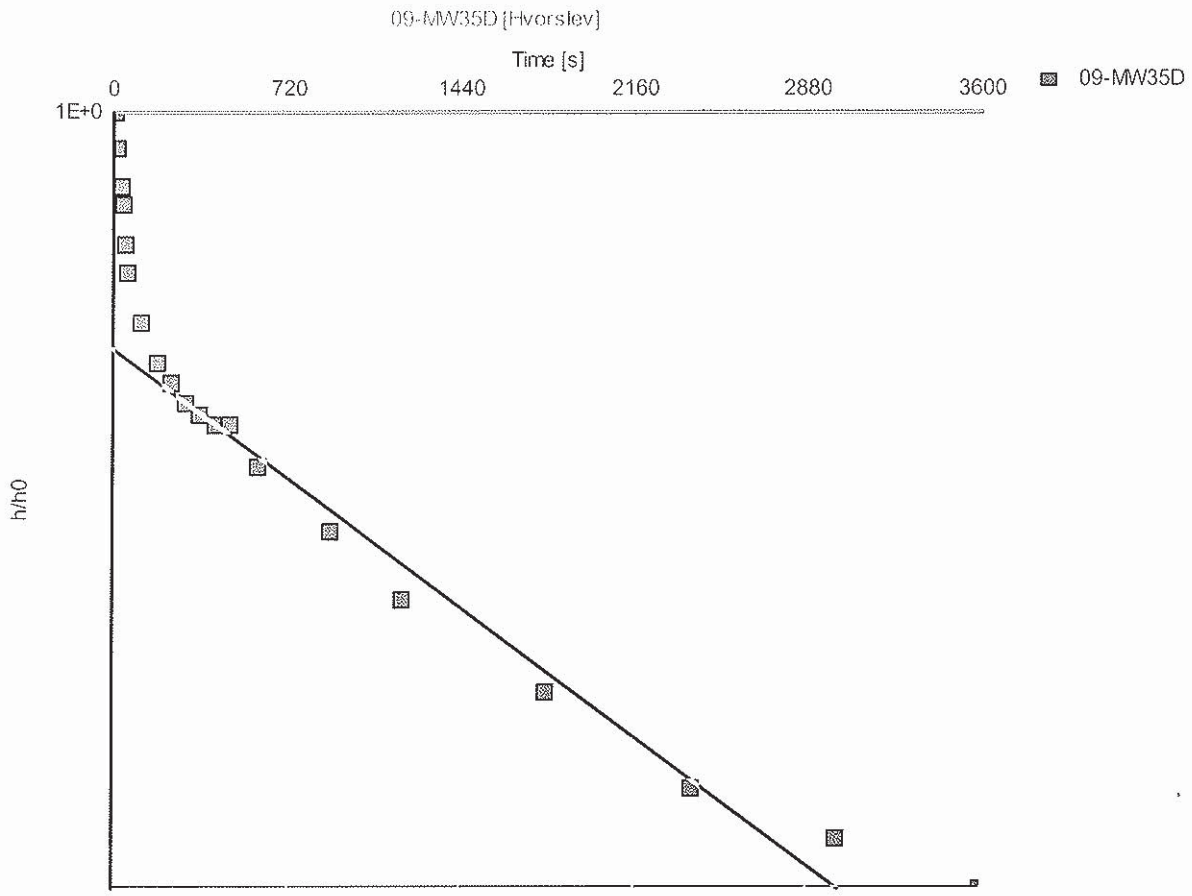
Comments:

Evaluated by: AR
Evaluation Date: 6/9/2010

Stantec Consulting Ltd.
607 Torbay Road
St. John's, NL, A1A 4Y6
Tel: (709) 576-1458

Slug Test Analysis Report

Project: Northwest Point
Number: 121410105
Client: NLDEC



Slug Test: **09-MW35D**

Analysis Method: **Hvorslev**

Analysis Results:

Conductivity: 5.59E-8 [m/s]

Test parameters:

Test Well:	09-MW35D	
Casing radius:	0.025 [m]	
Screen length:	1.52 [m]	
Boring radius:	0.05 [m]	
		Aquifer Thickness: 1.84 [m]

Comments:

Evaluated by: AR

Evaluation Date: 6/9/2010