

Water Licence 1BR-RES0916 Amendment Application June 2010

Application Deficiencies Response

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Appendix A

Executive Summary of Water Licence 1BR-RES0916 Application Amendment

Resolution Island BAF-5 is located at the south-eastern tip of Baffin Island, approximately 310 km southeast of Iqaluit and just outside Frobisher Bay. It was part of the Pole Vault Line, used to transmit intercepted northern signals to southern military stations. This site was operated from 1953 to 1972 when the site was vacated by the U.S. Air Force. The site occupies an area of approximately 3 square km, and while in operation, over 200 people were stationed there. Over 20 buildings, eight dump sites, over 4000 barrels, and large amounts of visible debris were left on site. A series of environmental assessments conducted from 1985-1997 identified and delineated contamination on the site. The site was highly contaminated with PCBs from electrical equipment in the communications complex buildings, many buildings contained asbestos, and soils contaminated with hydrocarbons, lead, cobalt, mercury, and copper were also found. From 1997 to 2005 the site was under active remediation.

In 2006, following the clean-up and remediation of the site, a 25-year long-term monitoring program was implemented based on the plan approved by the Nunavut Water Board titled *Resolution Island Long Term Monitoring Program (December, 2003)*. Since 2006 annual monitoring of the site has been conducted.

The amendment request is to permit the use of water for sampling monitoring wells and for domestic use by personnel staying in a camp. The camp will accommodate up to ten (10) people for a maximum of four (4) weeks in July and August. Maximum water use per day will be less than 100 cu. metres. This amendment applies to the current Water Licence (1BR-RES0916).

Appendix B

Spill Contingency and Emergency Response Plan

(Provided as separate document)

Appendix C

GPS Co-ordinates of Monitoring Wells.

GPS coordinates for monitoring wells are provided in Table 1. Figures 1-3 show locations of the various point sampling sites associated with the Tier II Landfill, Airstrip Landfill and Maintenance Dump monitoring wells.

Table 1. GPS Locations of Monitoring Wells

Source Description	Latitude			Longitude		
	Deg °	Min ,	Sec "	Deg °	Min ,	Sec "
Monitoring Well (MW) 1A	61	35	48.11	64	38	39.75
MW 1B	61	35	48.37	64	38	36.92
MW 2	61	35	45.66	64	38	42.96
MW 3A	61	35	43.93	64	38	48.18
MW 3B	61	35	44.01	64	38	48.06
MW 4	61	35	44.71	64	38	48.91
MW 5A	61	35	43.47	64	38	50.54
MW 5B	61	35	43.43	64	38	50.75
MW 6	61	35	42.65	64	38	53.88
MW 11	61	35	51.36	64	39	40.99
MW 12	61	35	54.67	64	39	45.85
MW 13	61	35	53.55	64	39	48.01
MW 14	61	35	54.5	64	39	48.27
MW 21	61	35	43.15	64	38	58.8
MW 22	61	35	43.1	64	38	59.06

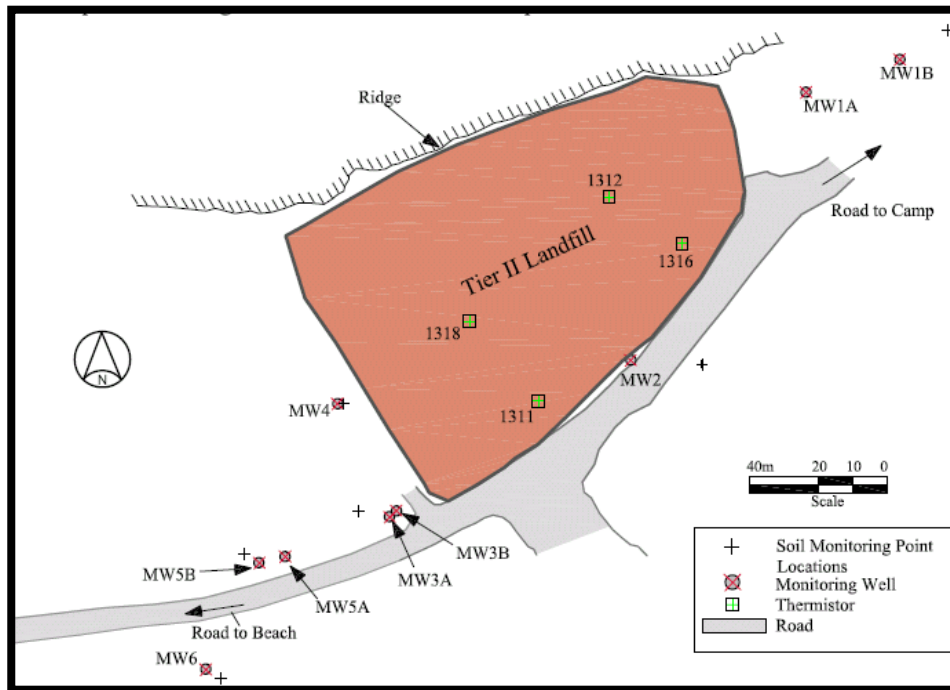


Figure 1. Tier II Landfill Soil and Water Monitoring Point Locations

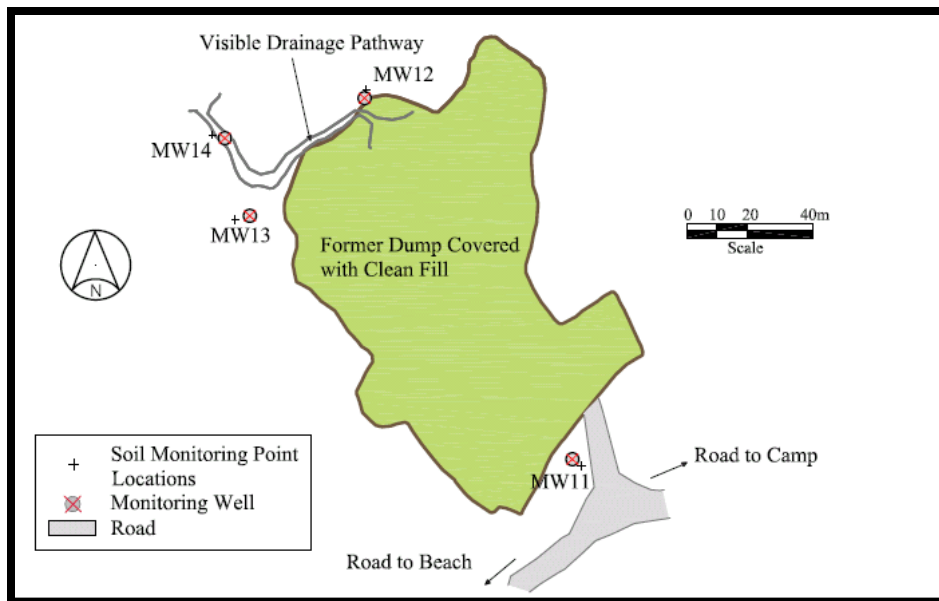


Figure 2. Airstrip Landfill Soil and Water Monitoring Point Locations

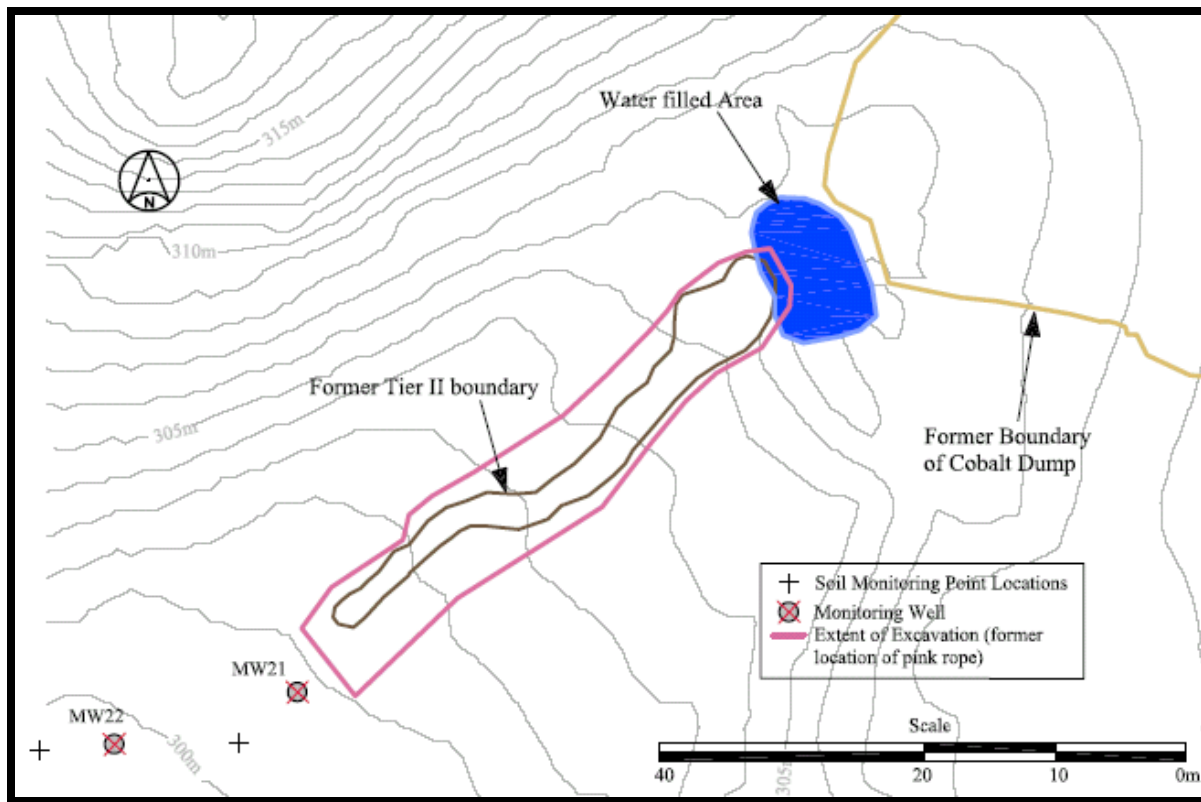


Figure 3. Maintenance Dump Monitoring Point Locations

Appendix D

Request for information on monitoring threshold limits; modified Table 1; sampling information pertaining to contact water with Landfarms; and responses to EC comments.

Item D1: “Provide threshold limits for monitoring where facilities will be considered to have failed”

Response D1: Evaluation of threshold limits for residual contaminants will be based on criteria described in the Abandoned Military Site Remediation Protocol (AMSRP), 2008. The performance of facilities will be evaluated with respect to their intended application in the five year review to be undertaken following the 2010 field season.

Item D2: “Update Table 1” (*Resolution Island Long-Term Monitoring Plan, December 2003*)

Response D2: All sites referred to in Table 1 have been remediated. Table 1 was used to describe the site conditions prior to completion of remediation works. No further work on these facilities is planned, unless otherwise indicated during the course of long-term monitoring.

Item D3: “Include Sampling Information for any contact water with the Landfarm”

Response D3: Tabular results from water samples taken from the drainage pathway ponds and barrier downgradient from the decommissioned landfarm from 2004-2008 are provided in Table 19 of the 2008 Monitoring and Research Report. This report was submitted to NWB as Appendix A of the 2009 Annual Report.

Item D4: “Table 2 outlines the proposed monitoring requirements for both new and old dumps. However, details regarding the parameters to be monitored are not provided. EC recommends that the monitoring program encompasses the same constituents that were the focus of the remediation activities at site.”

Response D4: The monitoring program encompasses the same parameters that were the focus of the initial remediation, primarily PCB’s, hydrocarbons and Arctic Suite Metals (As, Cd, Co, Cr, Cu, Ni, Pb, Zn).

Item D5: “Given the plan was originally submitted in 2003, EC recommends that the location of all monitoring points be verified against as-built-drawings”.

Response D5: As built drawings stamped by Qikiktaaluk Environmental were provided to the NWB in INAC’s 2009 Annual Report, Appendix 3. This was provided to NWB on March 26, 2010. These drawings indicated the location of monitoring wells. Please see Appendix C for detailed locations of other sample locations relative to built structures.

Item D6: “Section 1.1 New Landfills

The Plan states that remediation steps will be required if analytical results show a “significant increase” in contamination. EC recommends that the Plan quantify what constitutes a significant increase. It is recommended that if the analytical results reveal contamination levels higher than the initial remediation criteria, that remedial action be put into place.”

Response D6: Evaluation for remedial action will be based on AMSRP criteria for remediation. AMSRP provides guidance for the evaluating thresholds based on trends and other parameters. Further delineation of triggers and identified need for remedial action will be addressed in the five year review.

Item D7: “Indian and Northern Affairs Canada should ensure that equipment is available to mobilize to site if required, if monitoring reveals that any earthworks are required (i.e. due to settling, erosion, etc.. at landfills”.

Response D7: The remote location of the site dictates that significant logistical planning is required for mobilizing equipment and personnel. INAC would procure the services of a qualified contractor to perform any earthworks at the site.

Item D8: “Section 1.3 – Interceptor Barriers

The Monitoring Plan should clearly indicate that any silt collected by the barriers will be shipped off site for treatment/disposal, as all landfills on site are now closed.”

Response D8: Sediments collected by the Interceptor Barriers are manually excavated and placed in approved containers. The sediments are analyzed and the results of these analyses dictate storage conditions and final disposal of collected sediment. Containers with sediments found to have concentrations of PCBs in excess of 50 mg/kg are securely stored in an on-site temporary PCB storage area to await shipment and subsequent destruction at a certified facility. Containers with Tier I [1-5 mg/kg] PCBs and Tier II [5-50 mg/kg] sediments are also stored on-site until transport to a southern disposal facility is arranged.

Item D9: “Section 1.5 – Monitoring Schedule

EC recommends that the full review of the monitoring data that will occur in the fifth year be submitted to the Nunavut Water Board and circulated to the distribution list for comment. Consequently, EC recommends that the INAC 2003 Long-Term Monitoring Plan be updated to include the above original recommendations.”

Response D9: The Annual Long-term Monitoring Report will include a five year review of the long-term monitoring submitted to the NWB as part of annual reporting.

Item D10: Table 1 in the INAC 2003 Long-Term Monitoring Plan outlines the status of the estimated PCB mass on Resolution Island. EC recommends that this table be updated for each subsequent monitoring report.

Response D10: Please see Item D2 of this Appendix.

Item D11: “Even though the 2005 review mentioned that the locations for the monitoring points are to be verified against as-built drawings, EC recommends specifically that the maps of the sampling locations be included in an appendix. These maps should indicate photograph locations and the direction for all visual sampling locations.”

Response D11: Please see Appendix C of this submission for sample point locations and maps and associated GPS co-ordinates. As part of the five year review a systematic photographic record will be taken and reported.

Item D12: “In addition, the INAC 2003 Long-Term Monitoring Plan should include at least the following elements: monitoring frequency”

Response D12: Monitoring has occurred on an annual basis since remediation was completed. Any necessary modification to monitoring frequency will be evaluated in the five year review in conjunction with applicable AMSRP protocols and included in the five year review.

Item D13: “analytical parameters (should monitor for contaminants of concern or potential contaminants), appropriate detection limits (for comparison with appropriate guidelines and/or legislation), sampling methods and QA/QC procedures.”

Response D13: Please see Appendix E to this application.

Item D14: EC noted that there are no references in the INAC 2003 Long-Term Monitoring Plan. Therefore, EC recommends that the guidelines and standards (i.e. OME Guidelines, Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated sites, etc.) that the project falls under be included in the appendix of the updated plan.

Response D14: Protocols for remediation of contaminated military sites have been developed and incorporated into the Abandoned Military Site Remediation Protocol, 2008. This and any additional guidelines or regulations that apply will be referenced in the Five Year Review.

Appendix E

E1. Letter from Accredited Laboratory
(Provided as separate document)

E2. Quality Assurance/Quality Control Plan
(Provided as separate document)

Appendix F

Executive Summaries in Inuktitut

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Appendix G

Letter from NPC to INAC, December 22, 2008
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