Aboriginal Affairs and Northern Development Canada
Affaires autochtones et Développement du Nord Canada

Nunavut Regional Office (NRO)
P.O. Box 2200
Iqaluit, NU, X0A 0H0

August 5, 2015

Mr. Thomas Kabloona
The Chair, Nunavut Water Board
P.O. Box 119, Gjoa Haven,
NU X0B 1J0

Dear Mr. Kabloona:

RE: Ennadai Lake Remediation Project: 2014 Annual Report for Water Licence No: 1BR-ELR1419

Please find attached the 2014 annual report for the Water licence No: 1BR-ELR1419 issued for the remediation of the Ennadai Lake Remediation Project.

If you have any questions or comments, please contact the undersigned or the Project Manager, Dele Morakinyo at dele.morakinyo@aandc-aadnc.gc.ca, or by telephone at (819) 934-9224

Sincerely,

Charlotte Lamontagne
A/Director, Lands & Contaminated Sites (NRO)
Tel: (867) 975-4578
Fax: (867) 975-4736
Email: charlotte.lamontagne@aandc-aadnc.gc.ca

CC: Nunavut Impact Review Board (NIRB), Cambridge Bay, Nunavut

NWB Annual Report **Year being reported:** 2014

License No: 1BR-ELR1419 **Issued Date:** MARCH 31, 2014
Expiry Date: MARCH 30, 2019

Project Name: Ennadai Lake Remediation Project

Licensee: Indian and Northern Affairs Canada Contaminated Sites program

Mailing Address:
PO Box 2200
Iqaluit NU
X0A 0H0

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

N/A

General Background Information on the Project (*optional):

The Ennadai Lake Remediation Project (the Project) is located in Southwestern Nunavut approximately 380km west of the community of Arviat within the Kivalliq Region.

The Project was a former weather station at Ennadai Lake (the Site). It operated as either a manned or unmanned station from 1949 to 1979. The Site was abandoned in the late 1980s to early 1990s.

Aboriginal Affairs and Northern Development Canada (AANDC) has assumed responsibilities of the site through the Contaminated Sites Program (CSP). As part of the Federal Contaminated Sites Action Plan (FCSAP) the CSP is to clean up federally owned contaminated sites and to address the environmental liabilities associated with those sites.

Licence Requirements: the licensee must provide the following information in accodance with

Part B | Item 1

A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management.

Water Source(s): Freshwater Lake (within the site)

Water Quantity:

6/day	Quantity Allowable Domestic (cu.m)
3.795/day (max)	Actual Quantity Used Domestic (cu.m)
N/A	Quantity Allowable Drilling (cu.m)
N/A	Total Quantity Used Drilling (cu.m)

Waste Management and/or Disposal

- [x] Solid Waste Disposal
- [x] Sewage
- [ ] Drill Waste
- [x] Greywater
- [x] Hazardous
- [ ] Other:

Additional Details:

None

A list of unauthorized discharges and a summary of follow-up actions taken.

Spill No.: none (as reported to the Spill Hot-line)
Date of Spill: none
Date of Notification to an Inspector: N/A
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

No spills were recorded in 2014.

Spill No.: None
Date of Spill: None
Date of Notification to an Inspector: N/A
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

None

Revisions to the Spill Contingency Plan

SCP submitted and approved - no revision required or proposed

Additional Details:

None

Revisions to the Abandonment and Restoration Plan

AR plan submitted and approved - no revision required or proposed

Additional Details:

None

Progressive Reclamation Work Undertaken

Additional Details (i.e., work completed and future works proposed)

WORK COMPLETED:

The works completed to date on the Ennadai Lake Remediation Project include the following:

- Environmental Site Assessments (ESA) completed to identify the contaminants of concerns at the site.
- RAP Development - Based on the findings of the ESAs, a Remedial Action Plan (RAP) was developed for the clean-up of the site.
- Environmental Impact Assessment that investigated the impact of the proposed development (RAP) on the environment.
- Site remediation comprising of the followings:

  - Mobilization of equipment and materials to site
  - Roads and the airstrip re-constructed and repaired as required;
  - A camp to support site operations established;
  - Existing site infrastructure demolished, demolition wastes segregated into hazardous and non-hazardous materials and disposed of properly;

  - Non-hazardous wastes including scattered debris and partially buried debris put in the constructed non-hazardous landfill;
  - All Hazardous wastes disposed of, at an off-site licensed disposal facility;
  - Contaminated soils handled as described in the RAP; and
  - Several borrow sources developed and the material used during the remediation work.
  - Winter demobilization of the wastes, materials and equipment to Arviat

FUTURE WORKS PROPOSED UNDER THIS LICENCE:

- Final Site Inspection at Ennadai Lake.
-Final demobilization from Arviat to the south by sealift.

Results of the Monitoring Program including:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;

Details attached

Additional Details:

See GPS Co-ordinates below

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Details attached

Additional Details:

See GPS Co-ordinates below

Results of any additional sampling and/or analysis that was requested by an Inspector

No additional sampling requested by an Inspector or the Board

Additional Details: (date of request, analysis of results, data attached, etc)

Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

No additional sampling requested by an Inspector or the Board

Additional Details: (Attached or provided below)

Any responses or follow-up actions on inspection/compliance reports

No inspection and/or compliance report issued by INAC

Additional Details: (Dates of Report, Follow-up by the Licensee)

Any additional comments or information for the Board to consider

None

Date Submitted:	August 5, 2015	
Submitted/Prepared by:	Dele Morakinyo	
Contact Information:	**Tel:**	(819) 934-9224
	Fax:	(819) 934-9229
	email:	dele.morakinyo@aandc-aadnc.gc.ca

GPS Coordinates for water sources utilized

Source Description	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec
Freshwater Lake	61	7	51.62	100	53	26.88

GPS Locations of areas of waste disposal

Location Description (type)	Latitude			Longitude		
	° Deg	' Min	" Sec	° Deg	' Min	" Sec
Treated Sewage Outfall	61	8	12	100	51	43

Appendix A:

ENNADAI LAKEREMEDIATION PROJECT

EXECUTIVE SUMMARY

ENNADAI LAKE REMEDIATION PROJECT
EXECUTIVE SUMMARY

1. PROJECT BACKGROUND & LOCATION

The Government of Canada has initiated the Federal Contaminated Sites Action Plan (FCSAP) to clean up federally owned contaminated sites and to address the environmental liabilities associated with each site. The FCSAP program provides funding for the remediation of contaminated sites posing risks to human health and/or the environment. Aboriginal Affairs and Northern Development Canada (AANDC) applied for, and secured, funds under this program for the investigation and remediation of the former Weather Station at Ennadai Lake.

The Ennadai Lake Weather Station site is located approximately 380 km west of Arviat (the nearest community) and 500 km southwest of Rankin Inlet, Nunavut, at approximately 61° 07' 51" N latitude and 100° 53’ 14” W longitude. The site was a weather station as of the 1950s. It was operated either as a manned or unmanned station, at different times since its inception and was abandoned in the late 1980s to early 1990s.

The Ennadai Lake Remediation Project covers approximately 58 hectares. It was an operational weather station from 1949 to 1979. It consists of thirteen intact buildings, five large above ground storage tanks (ASTs), pipelines (including one overhead), an unmaintained airstrip, trails, five drum caches, several upright and laying metal towers, a main debris area, and several small debris areas. The main building cluster and the airstrip are on Inuit-owned land (IOL), and the remainder of the site is Crown land.

Contamination at site is a result of the historical weather station activities. The contaminants identified at the site include debris, heavy metals, asbestos, lead and PCB amended paint and Petroleum Hydrocarbons.

2. PROJECT ACTIVITIES & SCHEDULE

The Phase III Environmental Site Assessment (ESA) to identify the contaminations at the site was completed in the summer of 2012. A Remedial Action Plan (RAP) providing the strategies for cleaning up the site was developed and finalized in 2012.

In October 2013, heavy equipment, camp facilities, material and all consumables were delivered by sealift to Arviat. AANDC applied for and obtained the necessary licences and permits required for the completion of the remediation works at Ennadai between late 2013 and early 2014. These licences/permits include the Nunavut Water Board (NWB)’s water licence, AANDC Lands’ land use permit (LUP) and the Inuit owned lands (IOL) exemption certificate.

All equipment, material and consumables required to achieve the remediation project were transported by CAT train during the winter 2014 from Arviat to the Ennadai Lake Remediation Site.

The following remedial activities were completed, at the Ennadai Lake site, during the summer of 2014 and Winter 2015:

- Improvement of site access.
- Establishment of a camp to support site operations.
- Existing site infrastructure were demolished and demolition wastes were segregated into hazardous and non-hazardous materials and disposed of properly.
- All hazardous materials were packaged and shipped out of site to Arviat scheduled for disposal at an off-site licensed disposal facility.
- Non-hazardous wastes were put in the non-hazardous waste landfill constructed on site.
- Existing debris areas at this site were remediated as described in the RAP.
- A landfarm was constructed and used for the treatment of hydrocarbon contaminated soil.
- Metals and PCB contaminated soils were packaged and shipped off-site for disposal at licensed disposal facility.
- Barrels with like contents were consolidated, depending on test results the contents were either incinerated on-site or shipped off site for disposal. Empty barrels were crushed and put into the on-site non-hazardous waste landfill.
- Scattered surface debris and partially buried debris (non-hazardous) were collected and disposed of in the on-site non-hazardous waste landfill.
- Site roads and the airstrip were re-constructed and repaired as required.
- Several borrow sources were developed and the material were used during the remediation work.
- Site remediation activities took place on both Crown Land and Inuit Owned Land (IOL).
- Overland demobilization to Arviat took place in winter 2015. All equipment and Materials were hauled by CAT train and stored up in Arviat ready for sealift to the south during the summer of 2015.

3. SOCIAL IMPACT OF THE PROJECT

Wherever possible, the project adopted solutions tailored to the northern environment and its inhabitants by using local knowledge and including the unique needs of northerners and their environments in the remediation work plan.

A Community Consultation was held in December of 2012 in Arviat. During this Meeting, the results of the assessment and the various remediation options being considered for the site were presented and input was solicited as to the

community's preferred remedial options. The community meeting was used to complete the following objectives:

- To share information on the project with the community;
- To hear site-specific concerns from local people who are familiar with current conditions at the site or were familiar with on-site activities during facility operation;
- To identify the issues and concerns the communities had with the site and the proposed work;
- To identify resources (labour and equipment) in the nearest communities that would be able to assist in the execution of the project; and
- To develop a better remediation plan.

Prior to the start of the 2014 remediation fieldwork, another community meeting was held in three nearby communities (Arviat, Whale Cove and Rankin Inlet). These meetings were used to:

- Introduce the contractor and subcontractor to the community;
- Update the community on the project; and
- Inform the community of upcoming employment opportunities and potential subcontracting opportunities (Arviat only)

A Final community meeting will be held at all three communities, upon completion of the project, to inform people on the results of the project.

The contract for the project also specifies target levels for Inuit Employment and Inuit-Owned Subcontracting. The contractor guaranteed an Inuit Employment level of 51% and an Inuit-Owned Subcontracting level of 71%; he is currently meeting these targets.

Appendix B:

ENNADAI LAKE REMEDIATION PROJECT

EXECUTIVE SUMMARY

(INUKTITUT)

ᐊᑎᖃᑐᓂᐊᖏᖅᑎᑦ ᑕᓯᓂᑎ ᓴᓗᒪᖃᖅᐳᐃᓂᕐᒥᐅᑦ ᐱᓕᕆᐊᖓᔪᓂ ᐊᐅᓚᓱᓕᔪᓂ ᐅᓂᒃᑲᓕᑕᐅᔪᓐᓇᖅ ᓇᐃᐸᖅᑕᐅᓯᒪᔪᖅ

1. ᐱᓕᕆᐊᖓᔪᓐᓇᖅᑐᑦ ᑕᐅᔭᓂ ᖃᓄᖅ ᐱᑎᐊᓕᐅᖏᓐᓇᑎᑦ ᐊᒻᒪᓗ ᓇᓂᓕᐅᖏᓐᓇᑎᑦ

ᑲᓇᑕᐅᑦ ᓚᖓᒪᒃᑯᓕᑦ ᐱᑎᐊᖅᑎᕆᓕᓕᐅᖏᓐᓇᒪᑦ ᑲᓇᑕᒥ ᓯᕗᖅᑎᖅᑕᐅᔪᓕᕐᓂᒃ ᓄᓇᓂᒃ ᐱᓕᕆᐊᖃᕈᑎᓂᖅ ᐸᖏᓐᓄᑐᒃ ᓴᓗᒪᖏᖅᑕᐅᔪᓕᕐᓂᖅᓯᓕᕐᓂᑦ ᑲᕗᑎᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓂᖓᓂ ᐊᒻᒪᓗ ᖃᓄᖅᑐᐃᓇᐅᑕᐅᔪᓕᕐᓂᖅᓯᓕᕐᓂᑦ ᐊᐊᑎᒥᐅ ᐅᓗᓚᐊᓇᕈᑎᖃᖅᑐᓇᖅᑐᑦ ᐊᑐᓂ. ᑕᐃᒃᑯᐊ ᑲᓇᑕᐅᑦ ᓴᖅᓯᒪᒃᑯᓕᑦᑐᓂᓕᖅᑐᓂᒃᑐᑦ, ᓯᕗᖅᓯᒪᔪᓂᒃ ᓄᓇᓂᒃ ᐱᓕᕆᐊᖃᕈᑎᖃᓕᓂ, ᑭᓇᐅᔭᖏᓴᒃᓯᒪᔪᓐᓇᒪᑦ ᓴᓗᒪᓴᖅᑕᐅᓕᕐᓂᓐᓄᑦ ᓯᕗᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᓯᕗᖅᓇᖅᑐᖅᑐᖅᑐᓗᓐᓂᑦ ᐅᓗᓚᐊᓇᕐᓇᖅᑐᖅᑐᓗᓐᓂᑦ ᐃᓄᖓᓂ ᖃᓄᖅᑐᐃᓇᐅᑕᐅᔪᓕᕐᓂᖅᑐᓗᓐᓂᑦ ᐊᐊᑎᖅᑐᓂᒃ/ᐅᕐᔪᓗᓐᓂᑦ ᐊᐊᑎᖅᑐᓂᒃᓄᑦ. ᓄᓇᖅᑎᖅᑎᖅᑕᓕᓴᐅᔪᑦ ᐅᑭᐅᖅᑕᖅᑐᒃ ᐱᕐᓕᕆᐊᕐᓕᓴᐅᔪᑦ ᑲᓇᑕᒥ ᐅᑎᖅᑕᐅᔪᓕᕐᓂᖅ, ᐱᓕᕆᐊᓇᖅᓯᓗᑎᓗ ᐊᐅᓚᑦᑎᓯᒪᔪᖅ ᐊᑐᓂᖅᑐᑦ ᑕᐃᔨᓯᒪᓂ ᖃᖅᖁᓕᖅᑐᖅ ᐊᒻᒪᓗ ᓴᓗᒪᖏᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᑕᐃᔨᓯᒪᓂ ᖃᖅᖁᓕᖅᑐᖅ ᐊᐊᑎᖅᑐᓂᒃᓄᑦ ᑕᑯᔪᒪᓂᖅ ᐊᒻᒪᓗ ᓴᓗᒪᖏᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᑕᐃᔨᓯᒪᓂ 1950–ᖁᓕᓂᖅ. ᐊᐅᓚᑕᐅᔪᖃᑕᖅᑐᓯᒪᓕᕐᓇᖅ ᐃᓄᖓᖃᖅᑐᓚᐅᔪᖃᖅᓯᓂ ᐅᕐᔪᓗᓐᓂᑦ ᐃᓄᖓᖃᖅᑐᔪᓐᓇᖅᑐᑦ, ᐊᔨᑎᖓᕆᔨᑐᑎᐅᔪᓂᖅ ᐃᖃᖅᑲᓇᑕᖃᑎᒌᒃᓴᖅ ᐊᑐᓂᖅᑐᑦ ᐃᓄᖓᖃᖅᑐᔪᓐᓇᖅᑐᑦ ᐃᓯᖅᑐᔪᓐᓇᖅᑐᑦ 1980–ᖁᓕᓂ ᐊᒻᒪᓗ ᐱᑎᐊᓕᓴᖅᓂᖅᓯᓕᕐᓂᖅ 1990–ᖁᓕᓂ ᐊᔪᕿᒧᓕᓂᖅ.

ᐊᑎᖅᑐᔪᓂᐊᖏᖅᑎᑦ ᓴᓗᒪᖏᖅᑕᐅᔪᓴᒪᓕᑦ ᐱᓕᕆᐊᑦ ᐊᖓᑕᓂᖅᑲᑎᑎᕐᒪᒪᓕᑕ 58 ᐄᐊᐅᑐᓕᖅᑐᒃ ᐅᖅᑐᔪᐅᑎᓂᓕᑦ ᓄᓇᖓᓂᒃ. ᐊᐅᓚᕆᑎᐃᐅᓕᓕᐅᖏᓐᓇᖅᑐᖅ ᑕᐃᓐᓇ ᓯᓚᓕᖅᖁᐃᓕᑐᓂ 1949–ᒥᒃ 1979–ᒧᑦ ᑎᑭᓕᔭᒪᔪᓄ. ᑕᐃᓐᓇ ᐃᓚᖃᓚᐅᖏᓐᓇᖅᑐᑦ 13-ᖁᓕᓂᖅᓴᑐᑐᓂᒃ ᓯᕆᖏᑎᖃᓯᒪᖁᓕᑐᑐᓂᒃ ᐃᓗᔭᓂᒃ, ᑕᑦᓚᒪᓂᒃ 5 ᐊᖁᓕᓱᓂᒃ ᓄᓇᒋᑐᑐᓂᒃ ᑐᖅᑯᖃᓯᓯᒪᖅᓚᖁᓕᓂᒃ ᐅᖏᓯᐊᓚᖃᑎᒌᑎᓂᒃ, ᓯᑦᔭᑦᐊᓚᖁᓕᓂᒃ (ᐊᑕᐅᓯᕆᔭ ᖃᑯᓪᓚᑐᖅᑐᖅ), ᐊᖏᕈᐅᒪᑎᒌᓂᖅᓯᓯᒪᓕᒥᒃ, ᐱᓯᕐᓚᖁᓕᓂᒃᓄᑦ/ᐊᖃᑯᖏᑎᐊᕐᖁᓕᓂᒃᔭᓂᒃᓂ, ᑕᑦᓚᒪᓂᒃ ᖃᖅᑎᑕᐅᔪᓕᕐᓂᖅᓯᓯᒪᓕᖅᓂᒃᓂᒃ, ᐊᒥᓯᓂᒃ ᒪᑭᑕᐊᓂᒃ ᐃᓕᖁᓂᒃ ᐊᒻᒪᓗ ᑲᑕᓯᓚᕆᔭᓯᒪᖁᓕᓂᒃᑐᖅ ᓴᖅᑭᑎᓂᒃ, ᑕᒪᐃᔾᔪᑦ ᐱᕐᑯᖃᓯᒪᓕᒥᒃ, ᐊᒻᒪᓗ ᐊᒥᓯᓂᒃ ᐊᓯᖁᑦᑐᓂᒃ ᐱᕐᑯᖃᓯᒪᓕᕐᓂᖅᑐᑦ. ᑕᐃᓐᓇ ᐊᖁᓕᓂᐊᖏᖅᑎᑦ ᐊᑕᖃᑕᐅᑎᓯᒪᓕᐅᖏᓐᓇᖅᑐᖅ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐊᒻᒪᓗ ᐅᖏᓯᐊᓚᖃᑎᒌᒃᓴᖅ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐊᒻᒪᓗ ᐅᖏᓯᐊᓚᖃᑎᒌᒃᓴᖅ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ (ᐊᓴᐳᑦᑐᓴᓂᒃ), ᐊᖏᕈᑐᓴᖅ, ᐊᒻᒪᓗ ᓄᓯᔨᐃᑦᑐᑕᓂᒃ ᐃᓕᓴᐅᔪᓂ ᒥᓯᐊᕈᑎᓂ ᐊᒻᒪᓗ ᐅᖏᓯᐊᓚᖃᑎᒌᒃᓴᖅ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐊᒻᒪᓗ ᐅᖏᓯᐊᓚᖃᑎᒌᒃᓴᖅ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ (ᐊᓴᐳᑦᑐᓴᓂᒃ), ᐊᖏᕈᑐᓴᖅ, ᐊᒻᒪᓗ ᓄᓯᔨᐃᑦᑐᑕᓂᒃ ᐃᓕᓴᐅᔪᓂ ᒥᓯᐊᕈᑎᓂ ᐊᒻᒪᓗ ᐅᖏᓯᐊᓚᖃᑎᒌᒃᓴᖅ ᐊᒥᓯᓂᒃ ᑲᑎᕋᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ ᐃᓗᓕᖃᖅᑎᖅᑕᐅᔪᓕᕐᓂᖅᑐᑦ

ᐊᐳᑐᐱᓗ 2013-ᒥ, ᖃᓄᐱᓕᕐᑐᑦ ᓄᓇᒃᑯᑐᑦ ᐱᓕᓴᐃᑎᒃᓴᐃᓪᓚᑦ, ᓄᓇᕗᖅᓱᒪᓴᐅᑎᐊᖅᑐᑦ, ᐱᖃᓄᑦᓯ ᑕᒪᖏᖅ ᐊᑐᖅᑕᐅᔨᓚᐊᖃᖅᓯᑎᐊᖅᑐᑦ ᐊᓴᖃᖅᑕᐅᓕᐅᑦᓴᑦ ᐅᒥᐊᖃᓕᒃᑯᑦ ᐊᖃᐊᓄᑦ. ᓄᓇᖃᖅᑲᖅᑐᑕᓚᓴᒃᑯᑦ ᐅᐳᑐᓕᐅᖅᑐᑦ ᐱᑎᑕᐅᓕᓴᑎᓪᓗᓐᓄᓪ ᑕᒪᐃᓐᓂᐅᑦ ᐊᓕᖅᑕᐅᑎᖃᖅᑐᐅᑦ ᓕᐃᓴᓐᓇᑦ ᐊᓚᒪᓪ ᐱᓐᓇᓂᐅᑎᐅᑦ ᐱᑕᖃᖅᑎᑦᓯᓂᖅᑐᐅᑦ ᐱᐊᓂᑕᐅᓕᕐᓂᐊᖅᑐᐅᑦ ᐱᐊᓂᑕᐅᓕᕐᓂᐊᖅᑐᐅᑦ ᐱᑕᖃᖅᑎᑦᓯᓂᖅᑐᑦ ᐊᑎᖅᑐᑦᓂᐊᕐᓇᖅᒥ ᐊᑯᓂᖅᑐᓂᓂᐅᑦ 2013 ᐊᖅᓴᐸ ᐃᓱᐊᓂ ᐊᓚᒪᓗ ᐱᑎᐊᓕᓵᖅᓂᖅᓱᓂ ᐊᖅᓴᐸ 2014. ᑕᐃᐅᑯᐊ ᓕᐃᓴᓐᓇᐅᔪᓂ/ᐱᔪᓂᐅᑎᑦᓗ ᐃᓕᖃᖅᓴᑦ ᓄᓇᕕᒥ ᐃᓕᖅᓂᐅᑦ ᐊᑐᐸᓂᕐᓂᖅᑐᑦ ᑲᑎᒪᔨᑦ ᐊᑐᐸᓂᕐᓂᖅᑐᑦ ᓕᐃᓴᓐᓇᑦ (ᐱᔪᓂᐅᑎᓂᐅᑦ ᓄᓇᒥᐅ ᐊᑐᐸᓂᕐᓂᖅ ᐊᓚᒪᓗ ᐃᓄᓐᓄᑦ ᐱᖃᓄᑦᓯᐊᐳᑎᓂᐅᑦ ᓄᓇᓂᐅᑦ ᒪᓕᑐᓐᓂᐸᓂᕐᓂᖅᑐᑦᓂᑦ ᓇᓗᓇᐃᑲᔪᖃᕐᓂᖅᑐᑦᓂᑦ.

ᑕᒪᖏᖅ ᐱᓇᖏᑎᒃᓴᑦ, ᐱᖃᓄᑦᓯ ᐊᓚᒪᓗ ᐊᑐᓚᒃᓴᑦ ᐱᑕᖃᖅᑕᐅᔨᓚᐊᖃᖅᑐᑦ ᑲᑎᒪᔨᒃᑲᖅᑕᐅᔪᓕᕐᓂᐊᕐᓇᖅᓯᑎᐊᖅᑐᑦ ᐃᓵᖅᑎᑦᓯᓂᖅᑐᑦ ᑲᓇᑕᖅᑐᑦᓯᓂᖅᑐᑦ ᐊᑐᐸᓂᕐᓂᖅᑐᑦ ᐅᑭᐅᖅᑖᑦ 2014–ᒥᒃ ᐊᖃᕐᓇᐊᓂᒃ ᑕᐃᔪᖓ ᐊᑐᖅᑐᑦᓂᐊᖃᕐᓇᖅᓱᒪᓂᖅ ᑲᑎᒪᔨᒃᑲᐃᕐᓇᖅᓱᒪᓂᖅ.

ᐅᔪᐊ ᑕᑯᓂ ᑲᑎᒪᔨᒃᑲᑕᐅᓕᕆᓕᐅᖅᑐᑦᓂᓐ ᐱᓕᐊᒃᑲᓂᒃ ᐱᐊᓂᒃᑕᐅᓕᕆᓕᐅᖅᑐᑦᓂᖅ, ᐊᑐᖅᑐᑦᓇᓵᖅᑐᑦᓂᖃᕐᓂᖅ, ᐊᐅᖅᓱᔪᓂ 2014–ᒥᒃ ᐊᖃᕐᓇᐊᓂᒃ ᐅᑭᐅᖅᑖᑦ 2015–ᒥ:

- ᐱᐅᔪᓕᐊᖅᑎᑕᐅᓂᖅᓯᑦ ᑎᑭᑕᐅᔨᓴᓂᖅᓱᒃ ᓄᓇᓕ.
- ᑲᖏᑎᖅᑎᓕᐅᖅᑐᑦ ᓄᓇᒥᐅᖅᓱᒪᖅᓯᒪᓂᒃ ᐃᑲᔪᑕᐅᓂᖅᓯᑦ ᑕᐅᖅᓂ ᐊᐅᓕᑕᐅᔨᑦ.
- ᐃᓴᓇᐅᔨᔪᖅ ᓄᓇᒥᑦᑐᓂᒃ ᑕᐅᖅᓂ ᐱᖏᓂᕆᔨᓴᐃᓪᓚᑦ ᔪᑕᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦ ᐋᓱᖅᑕᐅᓕᓪᓚᑎᒃ ᐊᓚᒪᓗ ᔪᑕᖅᑎᖅᑕᐅᔪᓚᔨᑦ ᐊᐅᑕᑯᖓᖅᑐᑦ ᐊᐅᓕᑕᐅᔨᑦ ᐅᓪᓗᓇᐊᓇᖅᑐᖅᑐᑦᓂᓐ ᐊᐅᑕᐅᓇᖅᑐᖅᑐᓂᓕᕐᓂᖅᑐᑦ ᐅᓪᓗᓇᐊᓇᖅᑐᖅᑐᓂᓕᕐᓂᖅᑐᑦ, ᑕᐃᒃᑯᐊ ᐊᐅᑕᖅᑕᐅᑎᐊᓕᖅᑎᒃ.
- ᑕᒪᖏᖅ ᐅᓪᓗᓇᐊᓇᖅᑐᓪᓕ ᐱᖃᓄᑦᓯᐊᓂᒃ ᐊᐅᓪᓕᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦ ᐊᐅᓪᓕᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦᓂᓐ ᓄᓇᖅ ᐊᖏᔪᓂ, ᐊᓯᔪᓂ ᐊᐅᓪᓕᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦ ᑕᐅᖅᓂ ᓄᓇᑦᑎᓯᒋᖅᓴ ᐃᑲᔪᑕᐅᓂᖅᑐᑦ ᐊᑕᕐᓇᖅᑐᖅᑐᑦ ᑕᒪᐃᓐᓂᐅᑦ.
- ᐅᓇᓚᐊᓇᖅᑐᖅᓯᒪᓂᖅ ᐊᑕᐅᔪᐃᓂᖅ ᐃᓕᓴᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦ ᐅᓇᓚᐊᓇᖅᑐᖅᑐᓂᓕᕐᓂᖅᑐᑦ ᐊᑕᐅᔪᐃᓂᖅ ᑕᐅᖅᓂ ᐱᓇᓱᐊᓕᕐᓂᖅᑐᑦ ᐃᓕᓴᖅᑎᖅᑕᐅᓕᐅᖅᑐᑦᓂᓐ ᐊᑕᕐᓇᖅᑐᖅᑐᓂᓕᕐᓂᖅᑐᑦ ᑕᒪᐃᓐᓂᐅᑦ.
- ᐃᓴᓇᐅᔨᔪᖅ ᑕᐃᓐᓇᐃᑦ ᐱᖃᓄᑦᓯᐊᖅᑎᓂᖅᑕᐅᓕᐅᖅᑐᑦ ᑲᑎᒪᔨᒃᑲᖅᑕᐅᓕᐅᖅᑐᑦᓂᓐ ᑕᐃᓐᓇᐃᑦ ᒪᓕᒃᑕᐅᔨᑦᓯᓂᒃ ᐊᑕᕐᓇᖅᑐᖅᑐᑦ ᑲᑎᒪᔨᒃᑲᐃᓕᓴᐅᑦ ᐱᖓᓱᒃᑐᑦ ᐊᑕᕐᓇᖅᑐᖅᑐᑦ ᐊᑕᕐᓇᖅᑐᖅᑐᓂᓕᕐᓂᖅ

- ᓄᓇᖅᓯᓂ ᑕᐅᖏᓂ ᓴᓗᒪᖅᓴᖅᑕᐅᓪᓚᐅᖅᑐᑦ ᑕᒪᐃᓂᓂᑦ ᑲᓇᑕᐅᑦ ᑲᑎᒪᔨᕐᓯᓂᓄᑦ ᓄᓇᕗᑎᑎᕐᓴᐅᔪᓂ ᐊᒪᓚᓗ ᐃᓄᖅᓄᑦ ᐱᕐᕕᑎᑎᕐᓴᐅᔪᓂ ᓄᓇᓂ.
- ᓄᓇᖅᑭᖅᓯᐅᑎᖅ ᓇᑕᐅᑎᐊᓪᓚᐅᖅᑐᑦ ᐊᖏᕐᕕᐊᓄᑦ ᐱᐊᓂᖅᒪᑕ ᐅᑭᐅᖅᑭᓂ 2015–ᒥ. ᑕᒪᖏᖅ ᓴᓇᖅᑭᐅᑏᑦᓗ ᐱᕐᕕᑏᑦᓗ ᑲᑕᐅᑕᐅᖅᑐᑦ ᑲᑕᓚᐊᓗᖅᓄᑦ ᓄᓇᖅᑭᑎᑎᖅᑭᑦ ᑐᕐᕕᖅᑕᐅᓗᑎᖅᓗ ᐊᖏᕐᕕᖏᓂᖅ, ᐊᑐᐃᓂᒋᔭᐅᖅᑎᑦᑎᓂᒃ ᐅᓂᒃᑳᖅᑎᑦᑎᓂᒃ ᐅᑭᐅᖅᑭᑐᑦᑎᓂᒃ ᐃᓄᐃᑦ ᓴᐅᐅᓚᕐᔪᐊᖅᑐᑦ ᐊᖏᕐᕕᖏᓂᖅ 2015–ᒥ.

3. ᐃᓅᓴᕆᑎᕋᖅᑐᑦ ᐊᑲᖅᑕᐅᓱᒪᓂᖅᓯᓂ ᐱᑕᕆᐊᖓᒍᐅᖅᑐᓄᑦ

ᓴᖅᖃᑐᐃᓐᓇᖅ ᐊᔨᖅᓇᖅᑎᑐᐊᖅᓴᖅᑎᑕ, ᐱᑕᕆᐊᒃᓴᐃᑦ ᐊᖏᑭᐅᐊᖅᑕᐅᓱᒪᓴᖅᑭᑦᑕᒪᐅᖅᑐᑦ ᐅᓚᒪᓇᖅᓱᒪᑎᐊᖅᓱᑎᑦ ᐅᑭᐅᖅᑕᖅᑐᑦ ᐊᖏᕐᕕᑎᑦ, ᐃᓄᖅᓀᖅᑎᓂᖅᓂᓪᓗᓂ, ᐊᑐᖅᑕᐅᖅᑎᑦᑎᓂᖅᓱᑎᑦ ᐃᓄᐃᑦ ᓴᐅᐅᔪᒪᔭᖅᑎᖅᓯᓂ ᑕᐅᖏᓂᕐᒥᐅᑕᐅᓂᖅᓯᓂ, ᐊᒪᓚᓗ ᐃᑕᓴᑕᐅᖅᓱᑎᑦ ᐊᓕᐅᖅᓯᓂᑦᑐᓂᑦ ᐱᑕᓴᑕᓚᐊᖅᑐᖅᑐᑦ ᐅᑭᐅᖅᑕᖅᑐᑦᑎᓪᓗᐅᑕᐅᓂᖅᓯᓂᖅᓄᑦ ᐊᖏᕐᕕᑎᑎᓪᓗᓂᑦᑐᓂᑦ ᐊᑐᖅᑕᐅᖅᑎᑦᑎᓂᖅᓱᑎᑦ ᑲᓇᑕᐅᓴᖅᑭᑦᑕᒪᐅᖅᓯᓂᖅᓄᑦ ᐊᖏᕐᕕᑎᑎᓪᓗᓂᑦᑐᓂᑦ ᐃᓄᐃᑦ ᐱᑕᕆᐊᖓᒍᐅᖅᑐᓄᑦ ᐃᓕᓴᕐᕕᖏᓂᖅᓯᓂ ᐃᓕᓴᕐᕕᖏᓂᖅᓯᓂᑦ ᐊᑐᖅᑕᐅᖅᑎᑦᑎᓂᖅᓱᑎᑦ ᐃᓄᐃ

Appendix C:

ENNADAI LAKEREMEDIATION PROJECT

SUMMARY OF CAMP WATER USAGE

Table 1: Camp Water Usage Summary (Monthly) – Year 2014

Month	Volume Usage (L)
June	40,756
July	75,854
August	49,644
September	47,135
Total	**213,389**

Total water usage in Year 2014 = 213.389 m^3

Maximum Daily water usage = 3.795 m^3 (see table 3 below)

Average daily water usage ~ 213.389/122 ~ 1.75 m^3

Table 2
Summary of Physical Parameters of Ennadai Lake at Collection Location
Ennadai Site Remediation
Public Works Government Services Canada

Physical Parameters	Units	Measurement Date						
		18-Jun-14	4-Jul-14	13-Jul-14	21-Jul-14	2-Aug-14	21-Aug-14	30-Aug-14
Metals								
Temperature	°C	8.89	11.47	13.31	13.5	18.38	13.41	15.16
pH	pH units	7.43	5.67	7.09	7.5	7.95	8.28	8.72
pH	mV	-43	68	-8	-29	NM	-64	-94
ORP	mV	159	303	184	127	160	-80	78
Conductivity	mS/cm	0.026	0.044	0.035	0.032	0.039	0.04	0.054
Turbidity	NTU	NM	0	0	0	NM	0	NM
Dissolved Oxygen	mg/L	12.32	12.29	13.08	12.3	11.55	15.16	19.65
Dissolved Oxygen	%	109.5	115.1	130.4	120	126	149	149.1
TDS	g/L	0.017	0.027	0.023	0.021	0.025	0.025	0.034

Notes

ORP	Oxidation-Reduction Potential
TDS	Total Dissolved Soilds
NTU	nephelometric turbidity unit

Table 3
Summary of Camp Daily Water Usage
Ennadai Site Remediation
Public Works Government Services Canada

Date	Usage (L)	Water Tank Filled	Comments	Date	Usage (L)	Water Tank Filled	Comments	Date	Usage (L)	Water Tank Filled	Comments
1-Jun-14	NM	yes		11-Jul-14	3340			21-Aug-14	1516		
2-Jun-14	NM			12-Jul-14	4032			22-Aug-14	1516	yes	
3-Jun-14	NM			13-Jul-14	4532			23-Aug-14	1516	yes	
4-Jun-14	NM			14-Jul-14	1100			24-Aug-14	1516	yes	
5-Jun-14	NM			15-Jul-14	3200	yes		25-Aug-14	1705	yes	
6-Jun-14	1150	yes	600 L of rinse water from fuel tanks	16-Jul-14	2200	yes		26-Aug-14	1705	yes	
7-Jun-14	2180		600 L of rinse water from fuel tanks	17-Jul-14	5000		Water usage for July 17 and 18. Camp did not record usage on the 17th	27-Aug-14	1895	yes	
8-Jun-14	2274			18-Jul-14		yes		28-Aug-14	1895		
9-Jun-14	1137	yes		19-Jul-14	2300	yes		29-Aug-14	1516		
10-Jun-14	1895			20-Jul-14	3030			30-Aug-14	1516		
11-Jun-14	950			21-Jul-14	1900	yes		31-Aug-14	1516	yes	
12-Jun-14	950	yes		22-Jul-14	3400	yes		1-Sep-14	1516		
13-Jun-14	1515			23-Jul-14	2274			2-Sep-14	1703		
14-Jun-14	1137			24-Jul-14	2274			3-Sep-14	1516		
15-Jun-14	3795	yes		25-Jul-14	1705.5	yes		4-Sep-14	2271	yes	
16-Jun-14	1895	yes		26-Jul-14	1516	yes		5-Sep-14	2271		
17-Jun-14	1895			27-Jul-14	1705			6-Sep-14	1892		
18-Jun-14	2274			28-Jul-14	3032	yes		7-Sep-14	6435		
19-Jun-14	1516	yes		29-Jul-14	1516	yes		8-Sep-14			Water usage for Sept 7 and 8th
20-Jun-14	2,274			30-Jul-14	2080			9-Sep-14	1514	yes	
21-Jun-14	1,516	yes		31-Jul-14	1135			10-Sep-14	1514	yes	
22-Jun-14	1,895	yes		1-Aug-14	1516			11-Sep-14	1514	yes	
23-Jun-14	2,895	yes	additional 1000L for dust suppression	2-Aug-14	1895	yes		12-Sep-14	1140	yes	
24-Jun-14	2,516	yes	additional 1000L for dust suppression	3-Aug-14	1516	yes		13-Sep-14	1514		
25-Jun-14	1,895	yes		4-Aug-14	1705	yes		14-Sep-14	1514		
26-Jun-14	1,895	yes		5-Aug-14	1705			15-Sep-14	1135		
27-Jun-14	1,705	yes		6-Aug-14	1705			16-Sep-14	1135	yes	
28-Jun-14	1,705	yes		7-Aug-14	1326	yes		17-Sep-14	1135		
29-Jun-14	1,327	yes		8-Aug-14	1705			18-Sep-14	1135		
30-Jun-14	1,705			9-Aug-14	1516			19-Sep-14	1135	yes	
1-Jul-14	2,080	yes		10-Aug-14	1516	yes		20-Sep-14	1135		
2-Jul-14	2,274			11-Aug-14	1705			21-Sep-14	378		
3-Jul-14	1895			12-Aug-14	1705			22-Sep-14	3032	yes	
4-Jul-14	1895	yes		13-Aug-14	1895			23-Sep-14	1893		
5-Jul-14	1516			14-Aug-14	1706			24-Sep-14	1135		
6-Jul-14	2274	yes		15-Aug-14	1516	yes		25-Sep-14	1135		
7-Jul-14	3032	yes		16-Aug-14	1137			26-Sep-14			
8-Jul-14	3032			17-Aug-14	1516	yes		27-Sep-14	3028		Consumption between September 25 and September 28.
9-Jul-14	3192			18-Aug-14	1516			28-Sep-14			
10-Jul-14	3392			19-Aug-14	1895			29-Sep-14	2272		Water usage for September 29 and 30th.
				20-Aug-14	1137			30-Sep-14			

NM - Volume of water consumed was not noted on the contractor's form in the water tank room.

Appendix D:

ENNADAI LAKE REMEDIATION PROJECT

Camp Wastewater

Grey water and wastewater from camp activities were pumped into the Bionest treatment system located on the south side of the camp. The Bionest treatment system was used in conjunction with two holding ponds. The holding ponds were erected or constructed as summarized in table 4 below.

The treated effluent from the combination of the Bionest-holding ponds treatment process was sampled and sent to the laboratory for analysis. As the laboratory results meet the discharge criteria specified in the water licence, the effluent is discharged to the environment. A summary of effluent sampling dates, the discharge dates and volumes is shown in Table 5 below.

Table 4: Camp Wastewater Ponds

Pond	Construction	Decommissioning Date	Approximate Volume (m3)	Comment
1	June 10, 2014	September 29, 2014	12	Inflatable Pool
2	June 10,2014	September 29, 2014	12	Inflatable Pool
3	June 21, 2014	September 29, 2014	59	Excavated and lined pond
4	June 21, 2014	September 29, 2014	69	Excavated and lined pond
5	August 6. 2014	September 30, 2014	75	Excavated and lined pond

Table 5: Wastewater Sampling and Discharge

Ponds	Sampling Date	Discharge Date	Met Discharge Criteria?	Approximate Volume (m3)
1,2	June 5, 2014[1]	N/A	No	0
1,2,3	July 1,2014	July 12, 2014	Yes	74
4	July 9, 2014	July 12, 2014[2]	Yes[2]	60
1,2	August 13, 2014	August 19, 2014	Yes	24
3,5	September 10, 2014	September 20, 2014	Yes	125
4	September 17, 2014	September 27, 2014	Yes	60
5	N/A[3]	September 30, 2014	N/A[3]	75

Notes:

[1.] Effluent from the Bionest was sampled on June 5, 2014 and did not meet applicable guidelines. The UV filter was replaced and the stored effluent was treated with chlorine. The treated effluent in Ponds 1 and 2 was resampled on July 1, 2014.

[2.] Pond 4 was discharged on July 12 before analytical results had been received. The nonconformance With procedure (i.e. receive satisfactory result before discharge) was documented and the subsequent analytical results indicated that the effluent met discharge guidelines.

[3.] Residual effluent from the Bionest was pumped into Pond 5 for further treatment during decommissioning. The effluent was treated with alum and lime but was not sampled prior to discharge, as discussed with and approved by Stantec.