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QIKIQTAALUK CORPORATION

Montréal, 21 February 2003

Philippe di Pizzo
Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0E 1J0
tel.: (867) 360-6338
fax.: (867) 360-6369


RE: NWB Permit No. NWB5RES9803 - Annual Report

Mr di Pizzo:

Please find enclosed three (3) copies of the annual report prepared in accordance to the General Conditions of the water licence for the Resolution Island project. A copy of *Summary of 2002 Activities - Resolution Island Project* prepared by QC/Sinanni, supporting the annual report, is also provided. Also as a supporting document, a copy of *Scientific Investigations - Resolution Island 2002* prepared by Queen's University ASU, not yet published, will be provided in the next few weeks.

Should you have any questions regarding the submitted documents, please contact us.

Sincerely,

 for H.F.

Harry Flaherty
Director, Environmental Services

cc Philippe Simon, Sinanni
Natalie Plato, INAC, Iqaluit



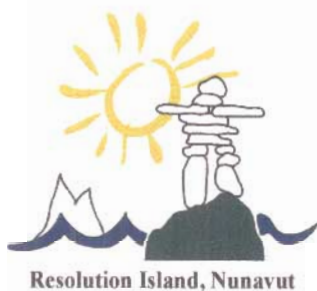
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030221NWB5RES Annual Report-ILAE

ANNUAL REPORT

Water Licence Permit No. NWB5RES9803

RESOLUTION ISLAND PROJECT



Report submitted to:



by:



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QIKIQTAALUK CORPORATION



February 2003

EXECUTIVE SUMMARY

Qikiqtaaluk Corporation (QC) holds a Water Licence (NWB5RES9803) from the Nunavut Water Board (NWB) on behalf of Indian and Northern Affairs Canada (INAC) for the Resolution Island Project. The annual report presents various information in the following sections:

- a. Fresh Water Quantities
- b. Sewage Water Quantities
- c. Waste Discharge
- d. Summary of Construction Work
- e. Surveillance Network Program
- f. Environmental Monitoring Program
- g. Anticipated Work
- h. Studies Requested
- i. Unauthorized Discharges
- j. Communication Exercises
- k. Operation and Maintenance Plan
- l. Contingency Plan Revisions
- m. Trenches and Sumps
- n. Clean Up Procedures
- o. Public Consultation
- p. Concerns Addressed
- q. Other Details
- r. Inuktitut Executive Summary

In reference to this annual report, several documents are appended. In summary, all conditions of the Water Licence were complied with.

GENERAL CONDITIONS

As a licensee, Qikiqtaaluk Corporation (QC) has implemented various procedures to comply with conditions described in the Water Licence (issued July 31st 1998) related to the Resolution Island Project. The following document summarizes water use data and describes various activities conducted on-site as required by the General Conditions of the Permit.

a. Fresh Water Quantities

Lower Lake, used as the water supply lake, is located in a relatively undisturbed area (Lower Lake borrow pit nearby was last used in 2001) at approximately 3.2 km (in a straight line) from camp and 1.6 km from the nearest traffic and construction activities. During the work season fresh water was pumped from the supply lake into an 11 m³ water truck and delivered to 3 (5,265-litre) polyethylene tanks located in the core camp. Fresh water was mainly used for sanitary and kitchen uses and for fire drills. The following table presents the monthly and annual quantities of fresh water used for the project. Estimates are based on the average number of truck loads per week.

Period	June	July	August	September
Water volume used (m ³)	0	330	385	0
Total volume (m ³)	715			

The permit stipulates that no more than 400 m³ of fresh water per month be used. This requirement was met.

b. Sewage Water Quantities

Sewage water was discharged from the core camp through a single pipe into the sewage lagoon. Monthly and annual estimates are presented in the following table.

Period	June	July	August	September
Sewage volume generated (m ³)	0	240	320	0
Total volume (m ³)	560			

c. Waste Discharge

Solid waste produced during on-site activities was transferred to a covered metal vault outside the core camp on a daily basis and incinerated using a double chamber forced-air Westland incinerator. Solid waste mainly originated from the kitchen operations and from discarded packaging of materials and supplies. The following table presents the monthly and annual quantities of solid waste managed during the 2002 field season at Resolution Island. Estimates are based on the assumption that every person in the camp generated, on average, approximately 2.5 kg of solid waste per day.

Period	June	July	August	September
Waste generated (M.T.)	0	1.70	2.50	0
Total (M.T.)	4.20			

d. Summary of Construction Work

Construction activities conducted at Resolution Island during the 2002 season are summarized in a report submitted to Indian and Northern Affairs Canada (INAC) in November 2002 by Qikiqtaaluk Corporation and Sinanni Inc. (see appended document: *Summary of 2002 Activities - Resolution Island Project*).

e. Surveillance Network Program

Field activities that could generate environmental impacts have been evaluated and are presented in the document entitled *Environmental Screening Report* submitted with the permit application. As part of the Surveillance Network Program (SNP), water from the new supply lake (sampling station # RES-1) was sampled and analyzed. Runoff water from both active solid waste disposal sites (sampling stations # RES-4 and # RES-5) could not be sampled and analyzed because no water was found to discharge from these sites.

The SNP analytical results are presented in Table I at the end of this document. These results can also be found in the document entitled *Resolution Island 2002 - Scientific Investigations* prepared by Queen's University Analytical Services Unit (ASU) (see appended document). Furthermore, the Quality Assurance and Quality Control (QA/QC) program used for the SNP is also included in this appended document.

Because of low pH values in the drinking water, pH adjustment was carried out throughout the season by adding sodium carbonate to the water storage tanks thereby increasing the pH value to within the required range of 6.5 - 8.5.

f. Environmental Monitoring Program

Details of the Environmental Monitoring Program conducted during the 2002 season are described in the document entitled *Resolution Island 2002 - Scientific Investigations* prepared by Queen's University ASU (see appended document).

g. Anticipated Work

The tasks anticipated for the 2003 field season are listed below:

1. Open Roads / Camp Set up
 - 1.1. remove snow, repair roads
 - 1.2. camp start up and maintenance
2. PCB Soil Excavation and Removal
 - 2.1. PCB CEPA soil excavation
 - complete the removal of CEPA soil from the upper S1/S4 valley area
 - initiate and complete the removal of CEPA soil from the lower S1/S4 valley
 - initiate and complete the removal of CEPA soil from the Airstrip Dump
 - initiate and complete the removal of CEPA soil from the DND Helipad
 - operate the contaminated screening plant staged at the summit area
 - 2.2. CEPA soil containerization
 - containerize soil from Main PCB storage facility
 - move remaining soil from Main PCB storage facility to Beach storage facility
3. Tier II Landfill Construction
 - 3.1 Produce approximately 17,500 m³ of sand and gravel from borrow pits
 - 3.2 Construct berms on two sides, stockpile sand for bottom liner
4. POL / Drum Management and NH landfill
 - 4.1. Incinerate POL products
 - complete the incineration of remaining waste POL
 - operate the transfer station, drum washing system, and water treatment unit
 - 4.2. Consolidate and manage drums scattered all over the site
 - 4.3. Complete the consolidation of POL products to be shipped south
 - 4.4. Shred cleaned/empty drums and metallic debris
 - haul empty drums and debris to beach non-hazardous landfill
 - shred and landfill non-hazardous waste
 - 4.5. Continue to operate the beach and summit non-hazardous landfills as material is being placed and compacted
5. Sealift
 - 5.1. On-Site Shipping
 - prepare barging area
 - stage/handle material and equipment

5.2. Off-site Shipping

- stage CEPA soil containers at the beach area, ready for off-site shipment
- initiate off-site disposal contract

5.3. Wet Sea-lift

- prepare the tank farm for fuel resupply

6. Other Tasks**6.1. Comply with Nunavut Water Board Licence**

- continue to implement pH control of drinking water, if necessary
- continue Surveillance Network Program (SNP)

6.2. Demolish Main PCB Storage facility

- haul demolished building materials to NH landfill
- shred and landfill debris

6.3. Prepare Beach PCB Storage Facility

- transfer contents of Beach Hazardous Waste storage facility
- install HDPE liner on floor

6.4. Complete road to S1/S4 beach area (including stream crossing)**h. Studies Requested**

No studies related to waste disposal, water use or reclamation were requested by the Board.

i. Unauthorized Discharges

No unauthorized discharges of liquid or solid waste were observed and/or recorded during the 2002 field season at Resolution Island. However, an accidental discharge (*i.e.*, spill) of waste oil occurred at the incineration platform. Approximately 0.7 m³ of oil was spilled on the ground. The incident was immediately reported to the Government of Nunavut Environmental Protection Service. The entire volume of spilled oil and oily soils were recovered.

j. Communication Exercises

All site workers (including sub-contractors) were instructed on camp rules and safety requirements. Drills were conducted for fire emergency and spill prevention events. Fire safety and spill contingency plans were implemented.

k. Operation and Maintenance Plan

Details of the operation and maintenance (O&M) plan were initially presented in the project Specifications and Environmental Protection Plan submitted with the permit application. No revisions to the initial plan have been implemented.

I. Contingency Plan Revisions

Details of the contingency plan were initially presented in the project Specifications and Environmental Protection Plan and submitted with the permit application. A Spill Contingency plan was submitted to NWB in September 1998 and was revised at the end of the 1999 field season and resubmitted. Further revisions were added during the 2001 season and an improved version was submitted to the NWB in October 2001.

m. Trenches and Sumps

No new trenches or sumps were excavated during the 2002 season.

n. Clean Up Procedures

During the 2002 season, remedial activities included:

- Clean up of the Lead Beach dump
- Clean up of the New Beach dump
- Clean up of the PCL dump
- Removal of PCB CEPA soil from the upper S1/S4 valley
- Containerization of PCB CEPA soil in 234 steel containers
- Stockpiling of PCB CEPA soil inside the Main PCB Storage Facility
- Operation of a drum staging/sorting/pumping/washing station
- Management of an oil-water separation and water treatment system
- Waste oil and grease incineration
- Shredding and disposal of non-hazardous waste into the beach NH landfill site

Details on these activities are summarized in a report submitted to Indian and Northern Affairs Canada in November 2002 by Qikiqtaaluk Corporation and Sinanni Inc. (see appended document: *Summary of 2002 Activities - Resolution Island Project*).

o. Public Consultation

No public consultations or meetings were held with local organizations or residents of nearby communities this past year.

p. Concerns Addressed

No concerns or deficiencies related to the project were addressed during this past year.

q. Other Details

No other details on water use or waste disposal were requested by the Board

r. Inuktitut Executive Summary

The executive summary in Inuktitut of *Resolution Island Water Licence Annual Report 2002*, QC/Sinanni, is presented at the beginning of this report. The executive summary in Inuktitut of *Summary of 2002 Activities - Resolution Island Project*, QC/Sinanni, is presented as part of that report and attached to the current document. The executive summary of *Resolution Island 2002 - Scientific Investigations*, Queen's University ASU is being translated in Inuktitut and will be forwarded to NWB within the next few weeks.

TABLE I: SNP Sampling Results

Parameter	Units	CCME Water Quality Guidelines	Station Numbers (top) / Sample ID (bottom)				
			RES-1	RES-2 ¹	RES-3 ¹	RES-4 ²	RES-5 ²
			W004	-	-	-	-
Copper	mg/L	1.0	0.011	-	-	-	-
Iron	mg/L	0.3	< 0.05	-	-	-	-
Lead	mg/L	0.01	< 0.005	-	-	-	-
Manganese	mg/L	0.05	< 0.05	-	-	-	-
Mercury	mg/L	0.001	< 0.0005	-	-	-	-
Cadmium	mg/L	0.005	< 0.001	-	-	-	-
Nickel	mg/L	-	0.064	-	-	-	-
Chromium	mg/L	0.05	< 0.005	-	-	-	-
Cobalt	mg/L	-	0.014	-	-	-	-
Zinc	mg/L	5	0.034	-	-	-	-
Phenols	µg/L	-	< 1.0	-	-	-	-
pH	-	6.5-8.5	4.0	-	-	-	-
TSS	mg/L	< 500	5.6	-	-	-	-
Nitrate	mg/L	< 10 ⁽³⁾	< 0.05	-	-	-	-
Nitrite	mg/L	< 1.0 ⁽³⁾	< 0.05	-	-	-	-
Oil and Grease	mg/L	-	< 1.0	-	-	-	-
BOD	mg/L	-	< 3.0	-	-	-	-
Faecal Coliforms	Cts/100 mL	0 ⁽³⁾	0; 0	-	-	-	-

TSS: Total Suspended Solids

BOD: Biological Oxygen Demand

Notes: Certificate of analysis presented on following page

¹ Sampling and analysis not required² No sampling and analysis carried out because of absence of runoff water at these sampling locations³ Ontario Ministry of the Environment (MOE) criteria



ASU #: 5346
 Client: DIAND

Report I.D. RI Lake Water ASU5346
 Date Submitted: 13-Aug-02
 Date Analysis Initiated: 13-Aug-02
 Date Reported: 26-Aug-02
 Matrix: Water

Method: Standard Methods

Parameter	Units	W004	BLANK	QC	QC TARGET
Copper	mg/L	0.011	<0.005	7.8	8.0
Iron	mg/L	<0.05	<0.05	16.0	16.0
Lead	mg/L	<0.005	<0.005	39.2	40.0
Manganese	mg/L	<0.05	<0.05	15.8	16.0
Mercury	mg/L	<0.0005	<0.0005	0.0022	0.0020
Cadmium	mg/L	<0.001	<0.001	4.1	4.0
Nickel	mg/L	0.064	<0.005	8.0	8.0
Chromium	mg/L	<0.005	<0.005	4.0	4.0
Cobalt	mg/L	0.014	<0.005	8.0	8.0
Zinc	mg/L	0.034	0.018	14.5	15.0
Phenols	ug/L	<1.0	<1.0	9.0	10.0
pH	-	4.0	-	-	-
TSS	mg/L	5.6	-	-	-
Nitrate	mg/L	<0.05	<0.05	0.96	1.00
Nitrite	mg/L	<0.05	<0.05	0.89	1.00
Oil and Grease	mg/L	<1.0	<1.0	-	-
BOD	mg/L	<3.0	-	-	-
Faecal Coliforms	Cts/100 mL	0; 0	-	-	-

Prepared by:

Paula Whitley

Authorization:

John S. Poland

John S. Poland, D. Phil
 Director

Resolution Island 2002 Scientific Investigations

Prepared by

Analytical Services Unit
Queen's University
Kingston, Ontario



Canada

Indian and Northern
Affairs Canada

Affaires indiennes
et du Nord Canada

G. Drinking Water

1. Analysis

A thorough testing of the drinking water at Resolution Island was performed twice during the summer. In addition, the new drinking water lake was sampled and analyzed to comply with the water board requirements.

2. Methods

Water samples were collected in 1 litre polyethylene bottles for general water quality parameters and inorganic elements analysis and in 1 litre teflon bottles for PCB analysis. For the analysis of phenols, a bottle containing an aliquot of phosphoric acid was used, for mercury, a bottle with an aliquot of sodium dichromate solution was used and, for bacteriological measurements, a sterile bottle was employed. Upon receipt in the laboratory, all samples were stored at 4 °C. Tests were performed using standard laboratory procedures

3. Drinking Water

Analytical results are shown in Table III-11. None of the parameters measured, with the exception of one of the pH readings were above the OME guidelines. The water at Resolution Island contains no buffering capacity and is quite acidic. Addition of sodium carbonate was undertaken this year and pH values were measured daily. The pH values ranged from 4.4 to 8.6 with a mean value of 5.9. pH results were obtained from 35 samples.

Table III-11: Drinking Water Results and Guidelines

Parameter	Units	W001 30 July	W002 12 August	OME Guidelines
Alkalinity	mg/L	<1	<1	30-500
Ammonia	mg/L	<0.1	<0.1	-
Calcium	mg/L	6.6	7.5	-
COD	mg/L	<3	<3	-
Conductivity	uS/cm	83	104	-
Copper	mg/L	0.163	0.086	<1.0

Parameter	Units	W001 30 July	W002 12 August	OME Guidelines
Hardness	mg/L	27.2	31.5	80-100
Iron	mg/L	<0.05	<0.05	<0.30
Lead	mg/L	<0.010	<0.010	<0.010
Magnesium	mg/L	2.6	3.1	-
PCB	ug/L	<3	<3	< 3.0
pH	-	6.4	5.4	6.5-8.5
Phenols	ug/L	<1.0	<1.0	-
Potassium	mg/L	2.6	<0.2	-
Sodium	mg/L	<1.0	6.4	<200
Sulphate	mg/L	35	37	<500
Nitrate	mg/L	<0.05	<0.05	<10
Nitrite	mg/L	<0.05	<0.05	<1.0
Chloride	mg/L	4.0	4.5	<250
TDS	mg/L	1.2	<1.0	<500
TKN	mg/L	0.03	0.04	-
TSS	mg/L	1.4	14.7	<500
Zinc	mg/L	0.066	0.055	5
Total Coliforms	Cts/100 mL	-	0; 0	5
Faecal Coliforms	Cts/100 mL		0; 0	0
Faecal Streptococci	Cts/100 mL		<2; <2	0
E coli	Cts/100 mL		0; 0	0
Standard Plate Ct (48hrs)	Cts/1 mL	-	2; 2	500
Background Count	Cts/100 mL	-	0; 40	250

H. Lake Water

In order to comply with the water board licence, water samples were required to be collected from the water lake and runoff from the new non-hazardous landfills. However, there was no runoff from the two non-hazardous landfills so only results from the water lake are presented here. A sample of lake water was collected on 11 August, 2002 and analyzed to give the results presented in Table III-12.

Table III-12: Lake Water Results

Parameter	Unit	Lake Water
Copper	mg/L	0.011
Iron	mg/L	<0.05
Lead	mg/L	<0.005
Manganese	mg/L	<0.05
Mercury	mg/L	<0.0005
Cadmium	mg/L	<0.001
Nickel	mg/L	0.064
Chromium	mg/L	<0.005
Cobalt	mg/L	0.014
Zinc	mg/L	0.034
Phenols	ug/L	<1.0
pH	-	4.0
TSS	mg/L	5.6
Nitrate	mg/L	<0.05
Nitrite	mg/L	<0.05
Oil and Grease	mg/L	<1.0
BOD	mg/L	<3.0
Faecal Coliforms	Cts/100 mL	0; 0