



INAC, Nunavut District
Box 100
Iqaluit, NU
X0A 0H0

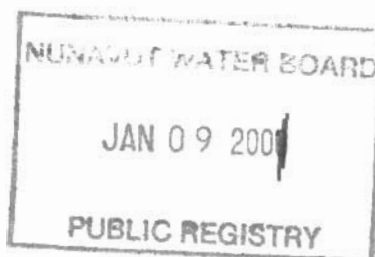
 CANADA REMEMBERS
LE CANADA SE SOUVIENT
tel.: (867) 979-1275
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Your file / Votre référence

0413-0640

December 12, 2000.

Don Pickle
Senior Administrative Officer
Municipality of Qikiqtarjuaq
P.O. Box 4
Qikiqtarjuaq, NU X0A 0B0



August 22, 2000 Water Licence Inspection - Report

Firstly, I wish to thank Leslie Kunilusi for the much appreciated time and assistance provided during the tour of the Municipality's water use and waste disposal facilities. Attached for your records is the Municipal Water Use Inspection Report pertaining to the August 22, 2000 inspection; generally, the facilities are managed in an adequate manner. However, the following considerations were noted, and will need to be addressed:

- **Sewage waste disposal:** During the inspection, no concerns regarding the sewage lagoon itself were noted (figure 2). Attached are the analytical results relating to the discharge from the sewage disposal facility (figure 3). While the concentrations of a few tested substances appear slightly elevated, the regulated parameters lie well within Water licence's effluent quality thresholds. Nonetheless, the Microtox sample, which constitutes a reliable indicator of the biological toxicity attributed to an associated discharge, indicates significant toxicity: half of light-producing bacteria were inhibited by a sample concentration of 9.1%, whereas 45% and over is considered non-toxic.
- **Solid waste disposal:** Recent undertakings, such as the capping of the bulky/metal wastes area and the addition of sealift container dedicated to hazardous wastes (figure 4), have significantly contributed to the improvement of the solid waste disposal facility. And while a fair quantity of refuse remains exposed at the toe of the dump (figure 5), particularly in the vicinity of the honey bag pit, minimal windblown material was apparent and no leachate from the facility was observed.

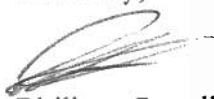
Although the operation of the adjacent solid waste disposal facility is quite adequate, the waste oil storage and burn areas (figure 6) pose substantial concerns. The burn bucket in which waste oil is disposed of leaks considerably (figure 7). So much so, in fact, that a path of oil runoff can distinctively be identified (figure 8).

This constitutes an outstanding issue, on which the Licensee has not noticeably improved upon since the last inspection (figure 9). Accordingly, the Inspector requests that the Licensee file a spill report, thereby formally acknowledging the release from the waste oil burn area as an unauthorized discharge of waste. Further, the ground along the runoff path from the burn bucket is to be considered as hydrocarbon-contaminated soil, and consequently disposed of ensuring that waste does not migrate into waters.

- **Operation and Maintenance (O&M) plan:** While an O&M plan for the sewage and waste disposal facilities was due by July 1, 1996, the Licensee has yet to submit the relevant information to the Nunavut Water Board (NWB). As has been mentioned on numerous occasions since the issuance of Water licence N4L3-0640, INAC and/or other implicated agencies can render assistance in the completion of the task. This being said, the Inspector wishes to specify that the O&M plan submission is by no means a facultative licence condition.
- **Abandonment and Restoration (A&R) plan:** An A&R plan for the abandoned waste disposal facilities was due by January 1, 1997. The Licensee has not provided the NWB such a document, although reclamation work on the beach landfill has since been undertaken. In light of the partial resurfacing of waste through the fill material, the Inspector recommends that the Licensee provide the NWB with an outline of the restoration performed at the site. The need, or extent, of monitoring or further reclamation work could then more properly be assessed. As a side note, the attached analytical results hint to the favourable quality of the surface runoff in the area.

Please feel free to contact me at (867) 975-4298 or lavalleep@inac.gc.ca should any questions/comments arise.

Sincerely,



Philippe Lavallée
Water Resources Officer
INAC, Nunavut District

- c.c. - Nunavut Water Board, Gjoa Haven
 - CG&T, Iqaluit (Doug Sitland)
 - Baffin Health & Social Services, Iqaluit (Bonnie Segal)
 - EC Environmental Protection, Yellowknife (Anne Wilson)



Indian and Northern Affairs Canada
Affaires Indiennes et du Nord Canada

MUNICIPAL WATER USE INSPECTION FORM

Date: 2000/08/22 Licensee Rep. (Name/Title): Leslie Kunilusi / Foreman
Licensee: Municipality of Qikiqtarjuaq Licence No.: N4L3-0640

WATER SUPPLY

Source(s): Tulugak River / Reservoir Quantity used: meter @ 584 563 000
Owner:/Operator: Municipality

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected
Intake Facilities: A Storage Structure: NA Treatment Systems: A Chemical Storage: A
Flow Meas. Device: A Convey. Lines: A Pumping Stations: A

Comments: Work undertaken to lower the drain line in order to allow the complete emptying/ cleaning of the reservoir; only partly possible at the moment. No concerns noted with the intake facility. Chlorination in use.

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.): primary; lagoon, overland to ocean
Natural Water Body: Continuous Discharge (land or water):
Seasonal Discharge: x Wetlands Treatment: limited Trench:
Solid Waste: Owner/Operator: Municipality
Landfill: Burn & Landfill: x Other:

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected
Discharge Quality: sampled Decant Structure: A Erosion: U
Discharge Meas. Device: none Dyke Inspection: none Seepages: A
Dams, Dykes: A Freeboard: A Spills: none reported
Construction: NA O&M Plan: U A&R Plan: U
Periods of Discharge: A Effluent Discharge Rate: not measured

Comments: No noticeable seepage from the sewage lagoon. Segregation occurs at the solid waste disposal facility; no leachate observed. Bulky wastes portion of the dump recently capped. Signs of erosion at the reclaimed beach dump were noted; waste material is beginning to resurface. Ongoing waste oil management concerns. Overdue Operation and Maintenance (O&M) and Abandonment and Restoration (A&R) plans.

FUEL STORAGE

Owner/Operator:
Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected
Berms & Liners: Water within Berms: Evidence of Leaks:
Drainage Pipes: Pump Station & Catchment Berm:
Pipeline Condition: Not Applicable: x Condition of Tanks:

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected Hamlet: to be taken later in the summer
INAC: reclaimed beach dump (0640-4), sewage lagoon discharge (0640-6)
Signs Posted SNP: yes Warning: yes
Records & Reporting: O&M and A&R plans not submitted
Geotechnical Inspection: none required

Non-Compliance of Act or Licence: O&M and A&R plans not yet submitted; due by 1996/07/01 and 1997/01/01, respectively. Improper waste oil management translates into an ongoing unauthorized discharge of waste, potentially into waters.

Philippe Lavallée

Inspector's Name

Inspector's Signature

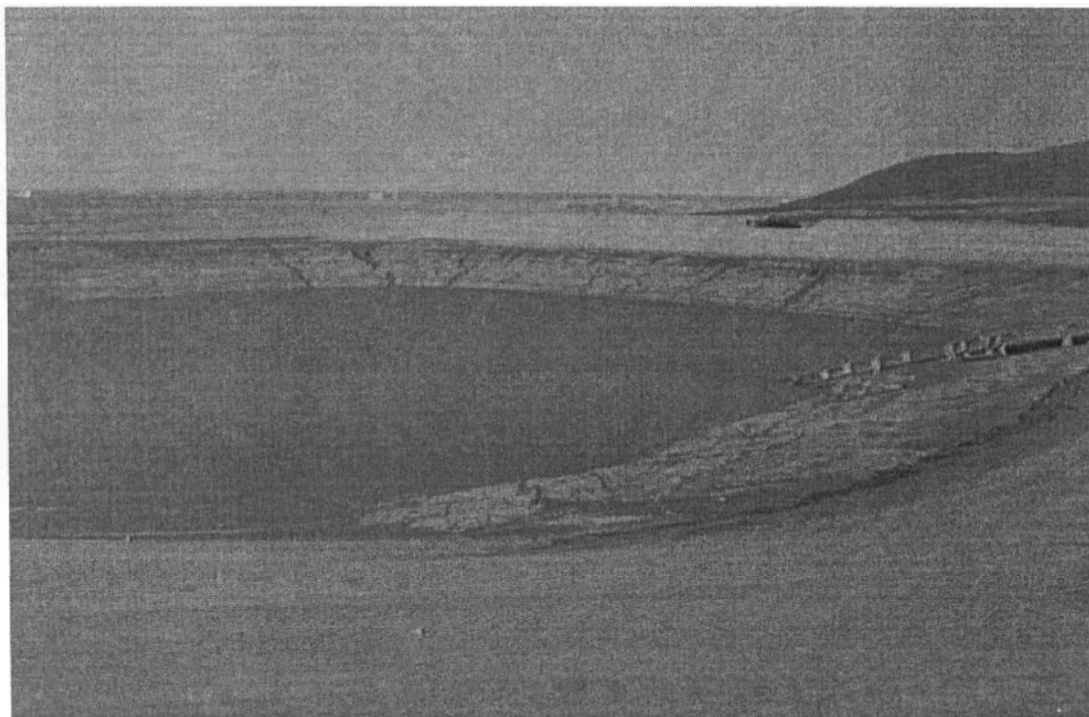


figure 1. Partially drained water supply facility; 2000/08/22.



figure 2. Sewage disposal facility; 2000/08/22.

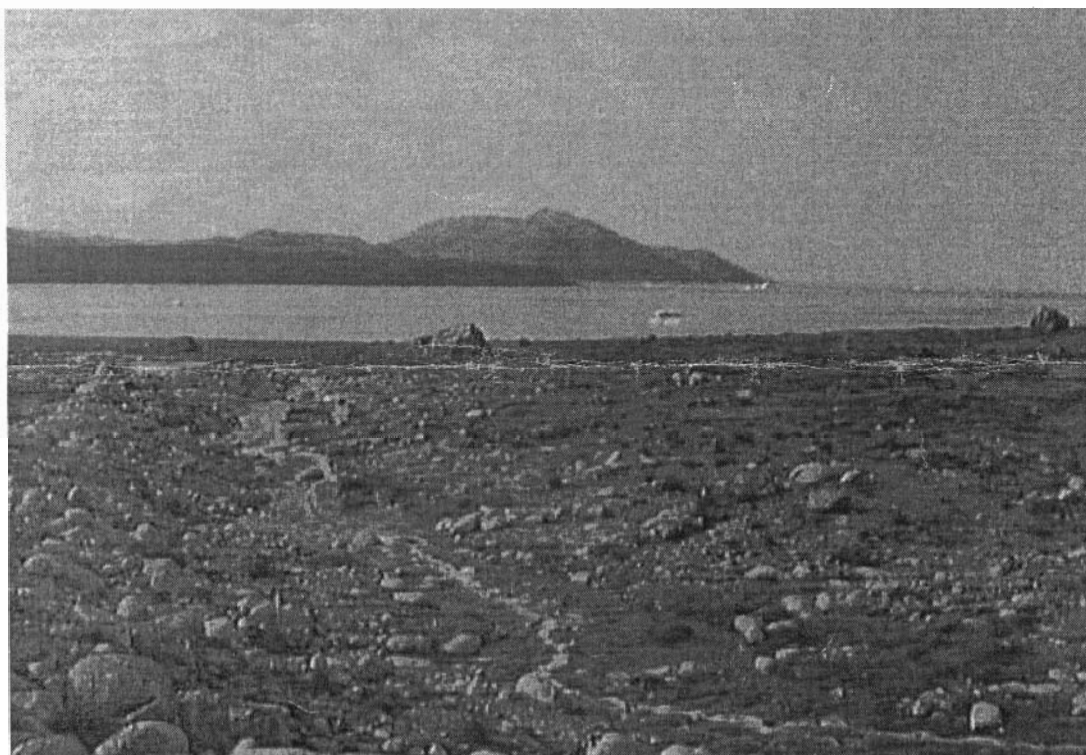


figure 3. Path of discharge from the sewage disposal facility; 2000/08/22.

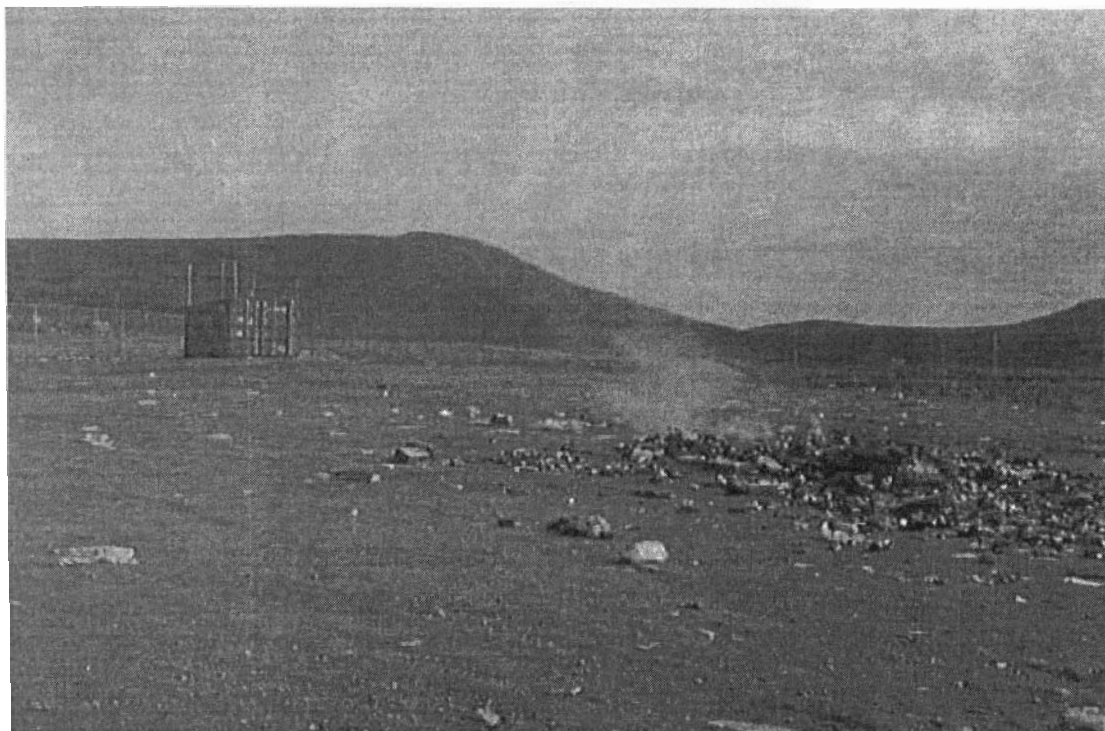


figure 4. Burn pile, with hazardous waste containment in background; 2000/08/22.



figure 5. Toe of the solid waste disposal facility; 2000/08/22.

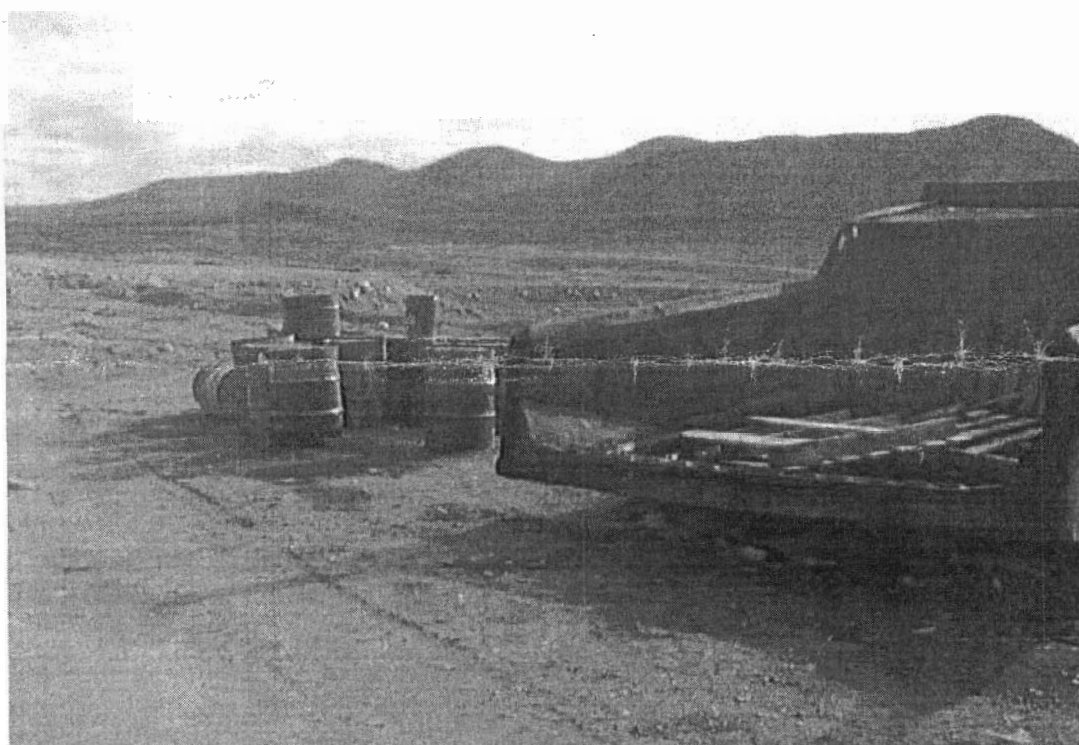


figure 6. Waste oil storage and burn areas; 2000/08/22.



figure 7. Leakage from the waste oil burn bucket; 2000/08/22.



figure 8. Waste oil contaminated soil downslope of burn bucket; 2000/08/22.



figure 9. Waste oil contaminated soil downslope of burn bucket; 1998/08/11.

TAIGA ENVIRONMENTAL LABORATORY

Dept. Indian Affairs & Northern Development

4601-52 nd Ave., Box 1500

Yellowknife, NT. X1A 2R3

Tel. (867) 669-2788

Fax: (867) 669-2718

To: NUNAVUT

Operations Directorate, DIAND

BOX 100

IQALUIT

X0A 0H0

Att'n: Philippe Lavallee

LAB# 201709

SAMPLE INFORMATION

Our Lab#: 201709

Your Sample ID: 0640-6 lagoon discharge

Sample Matrix: sewage

Collection:

Location: Qikiqtarjuaq lagoon

Date: 8/22/00

By: Philippe Lavallee

PROJECT:

Received Date: 8/23/00

Report Date: 29-Sep-00

Approved By: W. Wood**RECEIVED**

J 001112000

D. J. N. D.
IQALUIT, NT**- SAMPLE ANALYSIS REPORT -**

Lab#	Test	Result	Units	Detection Limit	Analysis Date	Analytical Method
201709	Calcium	5.56	mg/L	0.05	8/28/2000	EC20003
	Magnesium	2.80	mg/L	0.01	8/28/2000	012102
	Tot-Hardness	25.4	mg/L	0.17	8/28/2000	010602
	Sodium	71.9	mg/L	0.02	8/28/2000	011102
	Potassium	18.3	mg/L	0.03	8/28/2000	EC19102
	Chloride	49.6	mg/L	0.2	8/29/2000	17206
	Sulphate	4	mg/L	3	8/30/2000	016306
	Tot-Suspended-Solids	73	mg/L	3	8/29/2000	EC10406
	NO3-N+NO2-N	0.187	mg/L	0.008	9/15/2000	07110
	Ammonia-N	66.5	mg/L	0.005	9/06/2000	EC7557
	Ortho-Phosphorous	8.95	mg/L	0.002	9/09/2000	015259
	Bio-Oxy-Demand	154	mg/L	2	8/24/2000	08208
	Faecal_Coliform	250000	CFU/dL	1	8/23/2000	036014

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BOX 100

IQALUIT

X0A 0H0

Att'n: Philippe Lavallee

LAB# 201709

Tot-Cadmium(ICP-MS)	0.3	ug/L	0.3	8/25/2000	ICP-MS
Tot-Cobalt(ICP-MS)	< 1	ug/L	1	8/25/2000	ICP-MS
Tot-Chromium(ICP-MS)	4	ug/L	3	8/25/2000	ICP-MS
Tot-Copper(ICP/MS)	72	ug/L	2	8/25/2000	ICP-MS
Tot-Iron(AA)	1.24	mg/L	0.03	8/30/2000	ICP-MS
Tot-Manganese(ICP-MS)	44	ug/L	1	8/25/2000	ICP-MS
Tot-Nickel(ICP-MS)	4	ug/L	1	8/25/2000	ICP-MS
Tot-Lead(ICP-MS)	5	ug/L	1	8/25/2000	ICP-MS
Tot-Zinc(ICP-MS)	96	ug/L	10	8/25/2000	ICP-MS
Tot-Aluminum(ICP-MS)	858	ug/L	30	8/25/2000	EPA 200.8
Phenols	NA no bottle	ug/L	2.00	9/20/2000	006536
Oil&Grease	10.9	mg/L	0.2	8/30/2000	006524

Field Data (00/08/22) 0640-6**Temperature:** 7.0 °C**Conductivity:** 896 µS**pH:** 7.8**Time:** 13:54

MICROTOX DATA REPORT
Basic Test

FILE: 00082503.K15

Qikiqtarjuag Sewage Runoff sample 0640-6 - collected Aug 25/00
@ 13:45

Test Time: 15 minutes

Osmotic Adjustment: OAS

NUMBER	IO/IT	CONC.	CR/GAMMA	% EFFECT
Control	95.01/ 73.64	0.0	0.7751 #	
1	90.21/ 44.97	5.0250	0.555 #	35.7
2	97.62/ 33.42	11.2500	1.264 #	55.8
3	101.71/ 15.78	22.5000	3.996 #	80.0
4	94.74/ 2.22	45.0000	32.077 #	97.0

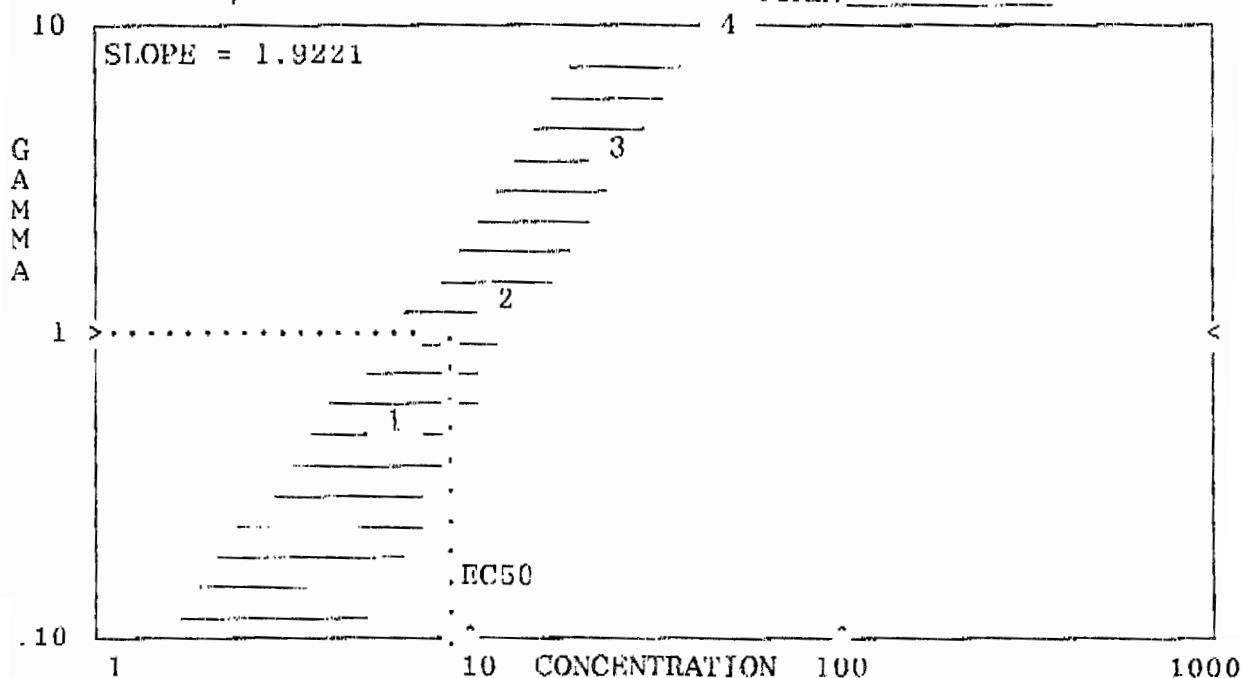
CR = Control Ratio
// Used for calculations

CORRECTION FACTOR = 0.7751

EC50 9.097 % (95% CONFIDENCE RANGE: 4.897 TO %16.899)

Signature U. Romando

TEST DATE: Aug 25/00
TIME: _____



ESTIMATING EQUATION: $\text{LOG } C = 0.4970 \times \text{LOG } \Gamma + 0.9589$
95% CONFIDENCE FACTOR: 1.85758 FOR EC50
COEFFICIENT OF DETERMINATION: $R^2 = 0.95534$

PH 7.2

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To: NUNAVUT

Operations Directorate, DIAND

BOX 100

IQALUIT

X0A 0H0

Att'n: Philippe Lavallee

LAB# 201710

SAMPLE INFORMATION

Our Lab#: 201710

Your Sample ID: runoff from reclaimed dump

Sample Matrix: sewage

Collection:

Location: Qikiqtarjuaq abandonne

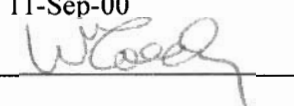
Date: 8/22/00

By: Philippe Lavallee

PROJECT:

Received Date: 8/23/00

Report Date: 11-Sep-00

Approved By: 

RECEIVED

OCT 11 2000

L.A.N.D.
IQALUIT, NT**- SAMPLE ANALYSIS REPORT -**

Lab#	Test	Result	Units	Detection Limit	Analysis Date	Analytical Method
201710	Tot-Suspended-Solids	< 3	mg/L	3	8/29/2000	EC10406
	Ammonia-N	< 0.005	mg/L	0.005	9/06/2000	EC7557
	Total Arsenic(w)-GFAA	< 1	ug/L	1	9/06/2000	GFAA
	Tot-Cadmium(ICP-MS)	< 0.3	ug/L	0.3	8/25/2000	ICP-MS
	Tot-Cobalt(ICP-MS)	< 1	ug/L	1	8/25/2000	ICP-MS
	Tot-Chromium(ICP-MS)	< 3	ug/L	3	8/25/2000	ICP-MS
	Tot-Copper(ICP/MS)	< 2	ug/L	2	8/25/2000	ICP-MS
	Tot-Iron(AA)	0.57	mg/L	0.03	8/30/2000	ICP-MS
	Tot-Manganese(ICP-MS)	11	ug/L	1	8/25/2000	ICP-MS
	Tot-Nickel(ICP-MS)	< 1	ug/L	1	8/25/2000	ICP-MS
	Tot-Lead(ICP-MS)	< 1	ug/L	1	8/25/2000	ICP-MS
	Tot-Zinc(ICP-MS)	10	ug/L	10	8/25/2000	ICP-MS
	Tot-Mercury(water)	< 0.01	ug/L	0.01	9/08/2000	080314

Field Data (00/08/22) Dump @ beach

Temperature: 14.5 °C

Conductivity: 104 µS

pH: 8.3

Time: 15:40

131

MICROTOX DATA REPORT
Basic Test

FILE: 00082504.K15

Qikiqtarjuag Dump Leachate sample 0640-7 - collected Aug 22/00

@ 15:35

Test Time: 15 minutes

Osmotic Adjustment: OAS

NUMBER	IO/IT	CONC.	CR/GAMMA	% EFFECT
Control	94.60/ 86.57	0.0	0.9151 #	
1	102.31/ 79.97	5.6250	0.171 #	14.6
2	98.75/ 76.19	11.2500	0.186 #	15.7
3	98.72/ 78.87	22.5000	0.145 #	12.7
4	102.41/ 76.45	45.0000	0.226 #	18.4

CR = Control Ratio
Used for calculations

CORRECTION FACTOR = 0.9151

EC50 IS GREATER THAN HIGHEST CONCENTRATION

PH 6.6