

R E P O R T

NUCHATLAHT FIRST NATION

Assessment Studies of Water and Wastewater Systems and Associated Water Management Practices at Selected First Nation Communities

Analysis Report



CANTEST LTD.

Professional
Analytical
Services

4606 Canada Way
Burnaby, B.C.
V5G 1K5

FAX: 604 731 2386

TEL: 604 734 7276

1 800 665 8566

REPORT ON: Analysis of Water Samples

REPORTED TO: Associated Engineering Ltd.
Suite 300
4940 Canada Way
Burnaby, B.C.
V5G 4M5

Att'n: Mr. Robert Blakeney

CHAIN OF CUSTODY: 108187
PROJECT NAME: INAC Risk Assessments
PROJECT NUMBER: 022276

NUMBER OF SAMPLES: 2

REPORT DATE: October 23, 2002

DATE SUBMITTED: October 11, 2002

GROUP NUMBER: 31011013

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples submitted.

TEST METHODS:

Conventional Parameters - analyses were performed using procedures based on those described in "British Columbia Environmental Laboratory Manual For the Analysis of Water, Wastewater, Sediment and Biological Materials" (1994 Edition), Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" 20th Edition, (1998), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 1631, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS) or Graphite Furnace Atomic Absorption Spectrophotometry.

TEST RESULTS:

(See following pages)

CANTEST LTD.

Richard S. Jornitz
Supervisor, Inorganic Testing

A Member of the **CANAM** Group
www.testing-labs.com

Page 1 of 4

005649

REPORTED TO: Associated Engineering Ltd.



REPORT DATE: October 23, 2002

GROUP NUMBER: 31011013

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:		Nuchatlaht (Oclucje I.R. #7)	Ehattesah Chanakint I.R. #12		
DATE SAMPLED:		Oct 7/02	Oct 8/02		
CANTEST ID:		210110090	210110091	DETECTION LIMIT	UNITS
Conductivity		33	-	1	μ S/cm
Turbidity		0.20	0.47	0.1	NTU
Hardness (Total)	CaCO3	9	-	1	mg/L
Total Dissolved Solids		33	164	10	mg/L
Total Suspended Solids		-	<	1	mg/L
Total Alkalinity	CaCO3	11.1	-	0.5	mg/L
Bicarbonate Alkalinity	HCO3	13.5	-	0.5	mg/L
Carbonate Alkalinity	CO3	<	-	0.5	mg/L
Hydroxide Alkalinity	OH	<	-	0.5	mg/L

μ S/cm = microsiemens per centimeter

NTU = nephelometric turbidity units

mg/L = milligrams per liter

< = Less than detection limit

REPORTED TO: Associated Engineering Ltd.



REPORT DATE: October 23, 2002

GROUP NUMBER: 31011013

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		Nuchatlaht (Oclucje I.R. #7)		
SAMPLE PREPARATION:		TOTAL		
DATE SAMPLED:		Oct 7/02		
CANTEST ID:		210110090		
			DETECTION LIMIT	UNITS
Aluminum	Al	0.15	0.005	mg/L
Antimony	Sb	<	0.001	mg/L
Arsenic	As	<	0.001	mg/L
Barium	Ba	0.004	0.001	mg/L
Beryllium	Be	<	0.001	mg/L
Bismuth	Bi	<	0.001	mg/L
Boron	B	<	0.05	mg/L
Cadmium	Cd	<	0.0002	mg/L
Calcium	Ca	2.10	0.05	mg/L
Chromium	Cr	<	0.001	mg/L
Cobalt	Co	<	0.001	mg/L
Copper	Cu	0.033	0.001	mg/L
Iron	Fe	0.12	0.05	mg/L
Lead	Pb	0.001	0.001	mg/L
Lithium	Li	<	0.001	mg/L
Magnesium	Mg	0.83	0.05	mg/L
Manganese	Mn	0.003	0.001	mg/L
Mercury	Hg	<	0.02	µg/L
Molybdenum	Mo	0.0018	0.0005	mg/L
Nickel	Ni	<	0.001	mg/L
Phosphorus	PO4	0.07	0.01	mg/L
Potassium	K	0.32	0.01	mg/L
Selenium	Se	<	0.001	mg/L
Silicon	SiO2	5.25	0.05	mg/L
Silver	Ag	<	0.0001	mg/L
Sodium	Na	3.94	0.05	mg/L
Strontium	Sr	0.007	0.001	mg/L
Tellurium	Te	<	0.001	mg/L
Thallium	Tl	<	0.0001	mg/L
Thorium	Th	<	0.0005	mg/L
Tin	Sn	<	0.001	mg/L

(Continued on next page)

REPORTED TO: Associated Engineering Ltd.



REPORT DATE: October 23, 2002

GROUP NUMBER: 31011013

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		Nuchatlaht (Oclucje I.R. #7)		
SAMPLE PREPARATION:		TOTAL		
DATE SAMPLED:		Oct 7/02		
CANTEST ID:		210110090		
			DETECTION LIMIT	UNITS
Titanium	Ti	<	0.001	mg/L
Uranium	U	<	0.0005	mg/L
Vanadium	V	<	0.001	mg/L
Zinc	Zn	0.030	0.005	mg/L
Zirconium	Zr	<	0.01	mg/L

mg/L = milligrams per liter
< = Less than detection limit

µg/L = micrograms per liter

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed : 2002 SEP 30

Requisition : A2WW034690

Submitter Ref :

HEALTH CANADA (CAMPBELL RIVER) - 342
OCCUPATIONAL & ENVIRONMENTAL HEALTH
1180 IRONWOOD ST SUITE 119
CAMPBELL RIVER BC V9W 5P7

Specimen Submitter

: 342-HEALTH CANADA (CAMPBELL RI*

Site Information

Code/Name : 02W4285 - 02W4285
Site Desc : OCLUCJE BAND OFFICE
City/Area :
Source : Lake Type : COM.W.S.

Specimen

Treatment: UNTREATED Ph Level: Free Chlorine Level: ppm
Nature : WATER Exams Req : Total Coliform
ID : D. HAYES : Fecal Coliform

Collected: 2002 SEP 26

Received: 2002 SEP 27

RESULTS

Reported on 2002 SEP 30

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L: LESS THAN		

Specimen was 24 hours in transit
Coliform test may NOT be valid if specimen was more than 30 hrs in transit

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed : 2002 SEP 28

Requisition : A2WW034691

Submitter Ref :

HEALTH CANADA (CAMPBELL RIVER) - 342
OCCUPATIONAL & ENVIRONMENTAL HEALTH
1180 IRONWOOD ST SUITE 119
CAMPBELL RIVER BC V9W 5P7

Specimen Submitter

: 342-HEALTH CANADA (CAMPBELL RI*

s.19(1)

Site Information

Code/Name : 02W4286 - 02W4286
Site Desc : (MICHAEL'S COPIED FROM SAMPLE BOTTLE LABEL)
City/Area : Type : COM.W.S.
Source : Well

Specimen

Treatment: UNTREATED Ph Level: Free Chlorine Level: ppm
Nature : WATER Exams Req : Total Coliform
NO : D.HAYES : Fecal Coliform

Collected: 2002 SEP 26

Received: 2002 SEP 27

RESULTS

Reported on 2002 SEP 28

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L: LESS THAN		

Specimen was 24 hours in transit
Coliform test may NOT be valid if specimen was more than 30 hrs in transit

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed : 2002 MAR 23

Requisition : **ALWW064249**

Submitter Ref :

HEALTH CANADA (CAMPBELL RIVER) - 342
OCCUPATIONAL & ENVIRONMENTAL HEALTH
1180 IRONWOOD ST SUITE 119
CAMPBELL RIVER BC V9W 5P7

Specimen Submitter

: 342-HEALTH CANADA (CAMPBELL RI*

Site Information

Code/Name : 02T2649 - 02T2649
Site Desc : OCLUCJE BAND OFFICE
City/Area :
Source : Well Type : COM.W.S.

specimen

Treatment: UNTREATED
Nature : WATER
Ph Level: Free Chlorine Level: ppm
Exams Req : Total Coliform
EHO : D. HAYES : Fecal Coliform

Collected: 2002 MAR 21
Received : 2002 MAR 22

RESULTS

Reported on 2002 MAR 23

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L: LESS THAN		

Coliform test may NOT be valid if specimen was more than 30 hrs in transit
Specimen was 24 hours in transit

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed :2002 MAR 23

Requisition :A1WW064248

Submitter Ref :

HEALTH CANADA (CAMPBELL RIVER) - 342
OCCUPATIONAL & ENVIRONMENTAL HEALTH
1180 IRONWOOD ST SUITE 119
CAMPBELL RIVER BC V9W 5P7

Specimen Submitter

:342-HEALTH CANADA (CAMPBELL RI*

Site Information

Code/Name :02T2647 - 02T2647
Site Desc :OCLUCJE, [REDACTED] s.19(1)
City/Area : Type :COM.W.S.
Source :Well

Specimen

Treatment:UNTREATED Ph Level: Free Chlorine Level: ppm
Nature :WATER Exams Req :Total Coliform
EHO :D. HAYES :Fecal Coliform

Collected:2002 MAR 21
Received :2002 MAR 22

RESULTS

Reported on 2002 MAR 23

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L:LESS THAN		

Specimen was 24 hours in transit
Coliform test may NOT be valid if specimen was more than 30 hrs in transit

Page(s) 005657 to\à 005662

Is(are) under consultation



ANALYTICAL SERVICES

Philip Analytical Services Inc.
8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

INVOICE BC056282

Invoice date 07-MAY-02
Page 1 of 2

*Z-haftesahl OK
Oktuja . OK*

Forms included : 08098790

HEALTH CANADA
#119 - 1180 IRONWOOD STREET
CAMPBELL RIVER, BC
V9W 5P7

Client type : 0 Client code : F6
Sampler : SANDRA GREEN
Client project ID :
Purchase Order No : 357028
Quote code : BC02-020-JW
Client account # : 28353

Attention of

No.	Description of work	Unit Price	Factor	Basis for factor	Quantity	Extended Price	Reference Code
1	VOC's P&T GC/MS	\$85.00			2	\$170.00	FVOC-W1 FW
2	PH	\$2.50			2	\$5.00	S00041220 FW
3	Residue Nonfilt.	\$7.00			2	\$14.00	S00081071 FW
4	Specific Conductance	\$2.50			2	\$5.00	S00111160 FW
5	Turbidity	\$5.00			2	\$10.00	S00151140 FW
6							
7	Res. Filterable 1.0u	\$15.00			2	\$30.00	S007H1035 FW
8	Alkalinity Phen. 8.3	\$7.00			2	\$14.00	S01011211 FW
9	Sulfide Total	\$15.00			2	\$30.00	S0125LLHS FW
10	Nitrate+Nitrite (N)	\$5.00			2	\$10.00	S11091350 FW
11							
12	Nitrite-NO2 (N)	\$5.00			2	\$10.00	S11111354 FW
13	CN(SAD) + SCN	\$15.00			2	\$30.00	S2105AA04 FW
14	Chlorinated Phenols	\$110.00			2	\$220.00	FCPWAGCMS FW
15	Public Metals ICP/HGA	\$65.00			2	\$130.00	FMET-DWS FW
16							
17	15004 Sparg/Ox-Mem Color	\$8.00			2	\$16.00	FTOC-W FW
18	Color True	\$5.00			2	\$10.00	S00021300 FW
19	Chloride Dissolved	\$5.00			2	\$10.00	S11041334 FW
20	Fluoride Dissolved	\$5.00			2	\$10.00	S11061341 FW

Total this page : \$724.00 (Page 1 of 2)

TERMS

Net 30 days after date of invoice
2% per month interest charged on
all overdue accounts.

Please remit payment to:
Philip Analytical Services Inc.



ANALYTICAL SERVICES

Philip Analytical Services Inc.
8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

INVOICE BC056282

Invoice date 07-MAY-02
Page 2 of 2

Forms included : 08098790

HEALTH CANADA
#119 - 1180 IRONWOOD STREET
CAMPBELL RIVER, BC
V9W 5P7

Client type : 0 Client code : P6
Sampler : SANDRA GREEN
Client project ID :

Purchase Order No : 357028
Quote code : BC02-02#-JM
Client account # : 28353

Attention of

No.	Description of work	Unit Price	Factor	Basis for factor	Quantity	Extended Price	Referenc Code
21	Ammonia (N)	\$5.00			2	\$10.00	911081351 FW
22	Sulfate Dissolved	\$5.00			2	\$10.00	811211405 FW
23	AMPA	\$100.00			2	\$200.00	8A001P012 FW
24	Benzo(a)pyrene	\$65.00			2	\$130.00	8PA05MH02 FW

Date Received : 23-MAR-2002
Date Reported : 03-MAY 2002

Total this page : \$350.00 (Page 2 of 2)

Invoice Total : \$1074.00

GST @ 7% : \$75.18

886262724RT0001

Other taxes @ 0% :

Amount Due : \$1149.18

TERMS

Net 30 days after date of invoice
2% per month interest charged on
all overdue accounts.

Please remit payment to:
Philip Analytical Services Inc.



ANALYTICAL SERVICES

06-May-02
Page 1 of 13

Certificate of Analysis

8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

Reported To :

HEALTH CANADA

Client Code F6

#119 - 1180 IRONWOOD STREET
CAMPBELL RIVER, BC
V9W 5P7

Phone : (250) 286-5870
FAX : (250) 286-5872

Project Information :

Submitted By: SANDRA GREEN

Requisition Forms :

Form 08098790 logged on 23-Mar-02 completed on 4-May-02

Remarks :

- + All organic data is blank corrected except for PCDD/F, Hi-res MS and CLP volatile analyses
- + 'MDL' = Method Detection Limit, '<' = Less than MDL, '---' = Not analyzed
- + 'CDWG' = Canadian Drinking Water Guidelines
- + Solids results are based on dry weight except Biota Analyses & Special Waste Oil & Grease
- + Organic analyses are not corrected for extraction recovery standards except for Isotope Dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)
- + All Groundwater samples except BTEX/VOC's or Purgeable Hydrocarbons are decanted and/or filtered prior to analysis unless otherwise mandated by regulatory agency
- + This report shall not be reproduced except in full, without the written approval of the laboratory

Methods used by Phillip are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', 20th Edition, published by the American Public Health Association, or on US EPA protocols found in the 'Test Methods For Evaluating Solid Waste, Physical/Chemical Method, SW846', 3rd Edition. Other procedures are based on methodologies accepted by the appropriate regulatory agency. Methodology briefs are available by written request.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Liability for any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Phillip for a period of 30 days from receipt of data or as per contract.

PHILIP Project Manager: James Teshima

SRC ANALYTICAL

422 Downey Road
Saskatoon, Saskatchewan S7N 4N1
(306) 933-6932 1-800-240-8808

Health Canada E.H.S. Pacific
220-177 Victoria Street
Prince George, British Columbia V2L 5R8
Attn: Ian Baird

Apr-11-2002

Date Samples Received: Mar-26-2002 Client P.O.:

SAMPLE	CLIENT DESCRIPTION
4890	3/21/02 EHATTESAHT *WATER*
4891	3/21/02 OCLUCJE BAND *WATER*

ANALYTE	UNITS	4890	4891
RADIO CHEMISTRY			
Gross alpha	Bq/L	<0.04	<0.02
Gross beta	Bq/L	<0.03	<0.02

"<": not detected at level stated above

cc: Peter Mazey(fax)

CHEMICAL ANALYSIS REPORT

Date: INTERIM
ALS File No. P7007
Report On: Water Analysis
Report To: **Village of Zeballos**
P.O. Box 127
Zeballos, BC
V0P 2A0
Attention: **Ms. Holli Bellavie**
Received: July 16, 2002

ALS ENVIRONMENTAL
per:

Frederick Chen, B.Sc. - Special Projects Manager

RESULTS OF ANALYSIS - Water

File No. P7007

Sample ID Water

Total Metals

Aluminum	T-Al	0.04
Antimony	T-Sb	<0.001
Arsenic	T-As	<0.001
Barium	T-Ba	0.004
Beryllium	T-Be	<0.005
Bismuth	T-Bi	<0.005
Cadmium	T-Cd	<0.0005
Calcium	T-Ca	14.1
Chromium	T-Cr	<0.005
Cobalt	T-Co	<0.001
Copper	T-Cu	0.005
Iron	T-Fe	0.57
Lead	T-Pb	<0.001
Magnesium	T-Mg	1.57
Manganese	T-Mn	0.001
Mercury	T-Hg	<0.001
Molybdenum	T-Mo	<0.001
Nickel	T-Ni	<0.005
Phosphorus	T-P	<0.3
Potassium	T-K	<0.5
Selenium	T-Se	<0.01
Silver	T-Ag	<0.0001
Sodium	T-Na	2.4
Strontium	T-Sr	0.031
Thallium	T-Tl	<0.001
Tin	T-Sn	<0.001
Titanium	T-Ti	<0.01
Uranium	T-U	0.0001
Vanadium	T-V	<0.01
Zinc	T-Zn	0.035

Results are expressed as milligrams per litre except where noted.
 < = Less than the detection limit indicated.

DRAFT

North Island



Laboratories

2755 B Moray Avenue, Courtenay, B.C. V9N 8M9

Tel: (250) 338-7786

Fax: (250) 338-7553

Report To: Holli Bellavie
 Village of Zeballos
 Box 127
 Zeballos, BC
 V0P 2A0

Lab Number: 25299
Date Reported: 31/05/02
Date Received: 28/05/02 11:30:00
Date Collected: 27/05/02

Collected by: T. M.
Source: Water Samples
Sample point:

Water Analysis Results

Analysis	Result	Units	Method	Drinking Water Guidelines
25299-01 Mid Island Ice				
Total Coliforms/Fecal Coliforms				
Total Coliforms	1	CFU/100	MF	<1
Fecal Coliforms	< 1	CFU/100	MF	<1
Non-Coliform Background	1	CFU/100	MF	<200
25299-02 Weston Enterprises				
Total Coliforms/Fecal Coliforms				
Total Coliforms	< 1	CFU/100	MF	<1
Fecal Coliforms	< 1	CFU/100	MF	<1
Non-Coliform Background	2	CFU/100	MF	<200
25299-03 Store				
Total Coliforms/Fecal Coliforms				
Total Coliforms	< 1	CFU/100	MF	<1
Fecal Coliforms	< 1	CFU/100	MF	<1
Non-Coliform Background	< 1	CFU/100	MF	<200
25299-04 Public Washrooms				
Total Coliforms/Fecal Coliforms				
Total Coliforms	< 1	CFU/100	MF	<1
Fecal Coliforms	< 1	CFU/100	MF	<1
Non-Coliform Background	4	CFU/100	MF	<200

< = Less than > = greater than

Fax Results 761-4331

for
control

BCCDC LABORATORY SERVICES
655 12th Avenue West
Vancouver, B.C. V5Z 4R4

Fax: (604)660-6073

ENVIRONMENTAL
BACTERIOLOGY

Phone Number :

Printed :2002 SEP 28

Requisition :A2WW034691

Submitter Ref :

HEALTH CANADA (CAMPBELL RIVER) - 342
OCCUPATIONAL & ENVIRONMENTAL HEALTH
1180 IRONWOOD ST SUITE 119
CAMPBELL RIVER BC V9W 5P7

Specimen Submitter

:342-HEALTH CANADA (CAMPBELL R)

Site Information

Code/Name :02W4286 - 02W4286
Site Desc :OCLUCJE CHIEF'S HOUSE, (MICHAEL'S COPIED FROM SAMPLE BOTTLE LABEL
City/Area : Type :COM.W.S.
Source :Well

Specimen

Treatment:UNTREATED Ph Level: Free Chlorine Level: ppm
Nature :WATER Exams Req :Total Coliform

EHO :D.HAYES :Fecal Coliform

Collected:2002 SEP 26

Received :2002 SEP 27

RESULTS

Reported on 2002 SEP 28

<u>Test</u>	<u>Result</u>	<u>Units</u>
1. Total Coliform (Membrane Filtration)	L1	TC Count/100ml
2. Fecal Coliform (Membrane Filtration)	L1	FC Count/100ml
L:LESS THAN		

Specimen was 24 hours in transit
Coliform test may NOT be valid if specimen was more than 30 hrs in transit

BCCDC LABORATORY SERVICES

The Province's centre of expertise in communicable disease control and provider of specialty health support services.