

R E P O R T

SECHELT FIRST NATION

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



20-Nov-02
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Certificate of Analysis

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

ORIGINAL FAX

Reported To : _____

SUNSHINE COAST REGIONAL DISTRICT

Client Code WS

5477 WHARF ROAD
BOX 800
SECHELT, BC
V0N 3A0

Attention : STEVE LEE
Phone : (604) 885-2261
FAX : (604) 885-7909

Project Information :

Project ID : W.Q. CHAPMAN
Submitted By: SHANE WALKEY

Requisition Forms :

Form 08120204 logged on 7-Nov-02 completed on 20-Nov-02

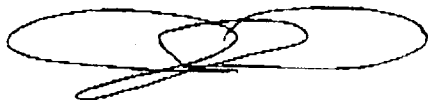
Remarks : _____

- ☒ 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
- ☒ 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 CCME and/or BC CSR results met required criteria unless otherwise stated in the report. All data on final reports are validated by technical personnel. Signature on file at laboratory. Deviations from Reference Method for the Canadian-wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method:
 - F1 data - None
 - F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction
- ☒ All Groundwater samples except BTEX/VOC's or Purgable 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 Philip 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 Philip for a period of 30 days from receipt of data or as per contract.

PHILIP Project Manager: James Teshima



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ANALYTICAL REPORT Form 08120204

Client : SUNSHINE COAST REGIONAL DISTRICT
Project : W.Q. CHAPMAN

Philp ID :	12079297	12079298	12079299	12079300
Client ID :	1A CHAPMAN RAW	7.0 R.C. PUMP	2.2 CALETA	1.0 SCAD OFFICE

Sparcode	Parameter	Unit	MDL				
PHYSICAL							
00041220	pH	pH units	0.1	7.8	7.5	7.5	7.3
00021300	Color True	Col. Unit	5	10	< 5	< 5	< 5
00111160	Specific Conductance	uS/cm	1	36	39	39	39
00151140	Turbidity	NTU	0.10	0.28	0.13	0.18	0.12
0107CALC	Hardness Total -T	mg/L		13.5	13.8	14.0	13.9
ANIONS							
11041334	Chloride Dissolved	mg/L	0.5	1.1	2.5	2.7	2.8
11061341	Fluoride Dissolved	mg/L	0.01	0.03	0.03	0.02	0.02
NITROGEN							
1110CALC	Nitrate Nitrogen Dissolved (N)	ug/L		0.03	0.08	0.05	0.05
11091350	Nitrate+Nitrite (N)	mg/L	0.02	0.03	0.08	0.05	0.05
11111354	Nitrite Nitrogen (N)	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
SULFATE							
11211405	Sulfate	mg/L	0.5	1.9	1.7	2.3	1.7
METALS TOTAL							
Al-T0031	Aluminum	mg/L	0.02	0.03	0.02	0.03	0.02
Sb-TMS31	Antimony	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
As-TMS31	Arsenic	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ba-T0031	Barium	mg/L	0.001	0.004	0.004	0.004	0.004
B--T0031	Boron	mg/L	0.008	< 0.008	< 0.008	< 0.008	< 0.008
Cd-TMS31	Cadmium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ca-T0031	Calcium	mg/L	0.05	4.37	4.48	4.56	4.51
Cr-T0031	Chromium	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Co-T0031	Cobalt	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cu-T0031	Copper	mg/L	0.005	< 0.005	0.018	0.006	0.009
Fe-T0031	Iron	mg/L	0.005	0.079	0.045	0.047	0.041
Pb-TMS31	Lead	ug/L	0.0005	< 0.0005	0.0016	< 0.0005	< 0.0005
Mg-T0031	Magnesium	mg/L	0.05	0.62	0.63	0.64	0.65
Mn-T0031	Manganese	mg/L	0.001	0.005	< 0.001	< 0.001	0.001
Mo-T0031	Molybdenum	ug/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Ni-T0031	Nickel	mg/L	0.008	< 0.008	< 0.008	< 0.008	< 0.008
K__T0031	Potassium	mg/L	1	< 1	< 1	< 1	< 1

Matrix :	Water	Water	Water	Water
Sampled on:	02/11/06 09:00	02/11/06 10:30	02/11/06 11:00	02/11/06 11:30

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**ANALYTICAL REPORT
Form 08120204**

Client : SUNSHINE COAST REGIONAL DISTRICT
Project : W.Q. CHAPMAN

Philip ID :	12079297	12079298	12079299	12079300
Client ID :	1A CHAPMAN RAW	7.0 R.C. PUMP	2.2 CALETA	1.0 SCAD OFFICE

Sparecode	Parameter	Unit	MDL				
Se-TMS31	Selenium	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ag-T0031	Silver	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Na_T0031	Sodium	mg/L	0.05	1.53	1.59	1.60	1.62
U-TLLMS	Uranium	mg/L	0.00001	0.00007	0.00004	0.00004	0.00002
V-T0031	Vanadium	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zn-T0031	Zinc	mg/L	0.005	< 0.005	< 0.005	0.015	< 0.005

BACTERIOLOGY

04512501	Coliform - Total	Pres/Abs		Present	Absent	Absent	Absent
04502501	Coliform - Fecal	Pres/Abs		Present	Absent	Absent	Absent

Matrix :	Water	Water	Water	Water
Sampled on:	02/11/06 09:00	02/11/06 10:30	02/11/06 11:00	02/11/06 11:30

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DUPLICATE SUMMARY Form 08120204

Parameter	Client ID	Philip ID	Sample Conc.	Duplicate Conc.	MDL	Unit	Relative % Diff.
Nitrate+Nitrite (N)	1A CHAPMAN RAW	12079297	0.03	0.03	0.02	mg/L	0.00
Nitrite Nitrogen (N)	1A CHAPMAN RAW	12079297	< 0.005	< 0.005	0.005	mg/L	0.00
Silver	2.2 CALETA	12079299	< 0.01	< 0.01	0.01	mg/L	0.00
Aluminum	2.2 CALETA	12079299	0.03	0.03	0.02	mg/L	0.00
Boron	2.2 CALETA	12079299	< 0.008	< 0.008	0.008	mg/L	0.00
Barium	2.2 CALETA	12079299	0.004	0.004	0.001	mg/L	0.00
Calcium	2.2 CALETA	12079299	4.56	4.59	0.05	mg/L	-0.66
Cobalt	2.2 CALETA	12079299	< 0.005	< 0.005	0.005	mg/L	0.00
Chromium	2.2 CALETA	12079299	< 0.005	< 0.005	0.005	mg/L	0.00
Copper	2.2 CALETA	12079299	0.006	0.005	0.005	mg/L	18.18
Iron	2.2 CALETA	12079299	0.047	0.048	0.005	mg/L	-2.11
Potassium	2.2 CALETA	12079299	< 1	< 1	1	mg/L	0.00
Magnesium	2.2 CALETA	12079299	0.64	0.65	0.05	mg/L	-1.55
Manganese	2.2 CALETA	12079299	< 0.001	< 0.001	0.001	mg/L	0.00
Molybdenum	2.2 CALETA	12079299	< 0.005	< 0.005	0.005	mg/L	0.00
Sodium	2.2 CALETA	12079299	1.60	1.61	0.05	mg/L	-0.62
Nickel	2.2 CALETA	12079299	< 0.008	< 0.008	0.008	mg/L	0.00
Vanadium	2.2 CALETA	12079299	< 0.005	< 0.005	0.005	mg/L	0.00
Zinc	2.2 CALETA	12079299	0.015	0.015	0.005	mg/L	0.00
Fluoride Dissolved	1.0 SCAD OFFICE	12079300	0.02	0.02	0.01	mg/L	0.00

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SPIKE SUMMARY
Form 08120204

Parameter	Client ID	Philip ID	Sample Conc.	Sample & Spike Conc.	Spike Amount	Unit	Percent Recovery
pH	Blank Spike. Batch :	24405640	< 0.1	6.1	6	pH units	101
Turbidity	Blank Spike. Batch :	24405723	< 0.10	1.98	2	NTU	95
Specific Conductance	Blank Spike. Batch :	24405641	2	992	1010	uS/cm	98
Fluoride Dissolved	Blank Spike. Batch :	24103161	< 0.01	0.50	.5	mg/L	100
Nitrate+Nitrite (N)	1A CHAPMAN RAW	12079297	0.03	0.44	.4	mg/L	102
Nitrate-Nitrite (N)	Blank Spike. Batch :	24103216	< 0.02	1.01	1	mg/L	101
Nitrite Nitrogen (N)	1A CHAPMAN RAW	12079297	< 0.005	0.105	.1	mg/L	102
Nitrite Nitrogen (N)	Blank Spike. Batch :	24103216	0.006	0.206	.2	mg/L	100
Sulfate Dissolved	Blank Spike. Batch :	24103272	< 0.5	106	100	mg/L	106
Chloride Dissolved	Blank Spike. Batch :	24103271	< 0.5	109	100	mg/L	108
Arsenic	Blank Spike. Batch :	24203678	< 0.001	0.019	.02	mg/L	96
Cadmium	Blank Spike. Batch :	24203678	< 0.0001	0.0186	.02	mg/L	93
Lead	Blank Spike. Batch :	24203678	< 0.0005	0.0199	.02	mg/L	99
Selenium	Blank Spike. Batch :	24203678	< 0.001	0.020	.02	mg/L	98
Cobalt	2.2 CALETA	12079299	< 0.005	2.03	2	mg/L	102
Chromium	2.2 CALETA	12079299	< 0.005	2.06	2	mg/L	103
Copper	2.2 CALETA	12079299	0.006	2.07	2	mg/L	103
Manganese	2.2 CALETA	12079299	< 0.001	2.01	2	mg/L	100
Zinc	2.2 CALETA	12079299	0.015	2.09	2	mg/L	104
Fluoride Dissolved	1.0 SCAD OFFICE	12079300	0.02	0.49	.5	mg/L	94

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**ANALYSIS DATES
Form 08120204**

	Philip ID:	12079297	12079298	12079299	12079300
	Client ID:	1A CHAPMAN RAW	7.0 R.C. PUMP	2.2 CALETA	1.0 SCAD OFFICE
00041220	pH	10-NOV-2002	10-NOV-2002	10-NOV-2002	10-NOV-2002
00021300	Color True	13-NOV-2002	13-NOV-2002	13-NOV-2002	13-NOV-2002
00111160	Specific Conductance	10-NOV-2002	10-NOV-2002	10-NOV-2002	10-NOV-2002
00151140	Turbidity	14-NOV-2002	14-NOV-2002	14-NOV-2002	14-NOV-2002
11041334	Chloride Dissolved	16-NOV-2002	16-NOV-2002	16-NOV-2002	16-NOV-2002
11061341	Fluoride Dissolved	07-NOV-2002	07-NOV-2002	07-NOV-2002	07-NOV-2002
11091350	Nitrate + Nitrite (N)	14-NOV-2002	14-NOV-2002	14-NOV-2002	14-NOV-2002
11111354	Nitrite Nitrogen (N)	14-NOV-2002	14-NOV-2002	14-NOV-2002	14-NOV-2002
11211405	Sulfate	16-NOV-2002	16-NOV-2002	16-NOV-2002	16-NOV-2002
MET-DWS	Public Metals ICP/HGA	12-NOV-2002	12-NOV-2002	12-NOV-2002	12-NOV-2002
04512501	Coliform - Total	07-NOV-2002	07-NOV-2002	07-NOV-2002	07-NOV-2002
04502501	Coliform - Fecal	07-NOV-2002	07-NOV-2002	07-NOV-2002	07-NOV-2002
	Matrix:	Water	Water	Water	Water
	Sampled on:	6-NOV-2002	6-NOV-2002	6-NOV-2002	6-NOV-2002

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**BATCH NUMBERS
Form 08120204**

	Philip ID:	12079297	12079298	12079299	12079300
	Client ID:	1A CHAPMAN RAW	7.0 R.C. PUMP	2.2 CALETA	1.0 SCAD OFFICE
00041220	pH	24405640	24405640	24405640	24405640
00021300	Color True	24103213	24103213	24103213	24103213
00111160	Specific Conductance	24405641	24405641	24405641	24405641
00151140	Turbidity	24405723	24405723	24405723	24405723
11041334	Chloride Dissolved	24103271	24103271	24103271	24103271
11061341	Fluoride Dissolved	24103161	24103161	24103161	24103161
11091350	Nitrate+Nitrite (N)	24103216	24103216	24103216	24103216
11111354	Nitrite Nitrogen (N)	24103216	24103216	24103216	24103216
11211405	Sulfate	24103272	24103272	24103272	24103272
MET-DWS	Public Metals ICP/HGA	24203678	24203678	24203678	24203678
04512501	Coliform - Total	24701979	24701979	24701979	24701979
04502501	Coliform - Fecal	24701979	24701979	24701979	24701979
	Matrix:	Water	Water	Water	Water
	Sampled on:	6-NOV-2002	6-NOV-2002	6-NOV-2002	6-NOV-2002

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BLANK SUMMARY
Form 08120204

All method blanks were less than MDL, except the following:

Parameter	Batch	Sparcode	Blank Conc	MDL	Unit
Specific Conductance	24405641	00111160	2	1	uS/cm
Nitrite Nitrogen (N)	24103216	11111354	0.006	0.005	mg/L



PSC ANALYTICAL SERVICES

8577 Commerce Court
Burnaby, B.C. V5A 4N5

Phone: (604) 444-4808
Fax: (604) 444-4511
Toll Free: 1-800-440-4808

ANALYSIS REQUEST

8120204

SUBSTRATE COAST
REGIONAL DISTRICT

PH. #: 604-885-2261
FAX #: 604-885-7909

COMPANY ADDRESS
Box 800
5477 WHARF RD
SECHLET B.C. V0N 3A7

CLIENT PROJECT ID: (#)
W.Q. CHAPMAN

SAMPLER NAME (PRINT):
SHANE WALKER

PROJECT MANAGER:
STEVE LOE

FIELD SAMPLE ID	MATRIX	MATRIX				# CONTAINERS	SAMPLING		HEADSPACE VAPOUR
		GROUND WATER	SURFACE WATER	SOIL	OTHER		DATE	TIME	
1 IA CHAPMAN RAY			X			4	NOV 6/02	9:00	
2 7.0 R.C. DUMP			X			4		10:30	
3 2.2 CALETA			X			4		11:00	
4 1.0 SLAD OFFICE			X			4		11:30	
5									
6									
7									
8									
9									
10									
11									
12									

DW SUB PACKAGE

TAT (Turnaround Time)
45 DAY TAT MUST HAVE PRIOR APPROVAL
* some exceptions apply please contact lab

STANDARD 10 BUSINESS DAYS
STANDARD 5 BUSINESS DAYS
RUSH 2 BUSINESS DAYS
URGENT 1 BUSINESS DAY

OTHER BUSINESS DAYS
CUSTODY RECORD

RO. NUMBER / QUOTE NUMBER
SPECIAL DETECTION LIMITS / CONTAMINANT TYPE

ACCOUNTING CONTACT:
SPECIAL REPORTING OR BILLING INSTRUCTIONS

COMF
 CSR
 ALBERTA (IER 1)
 OTHER
JARS USED

LAB USE ONLY
ARRIVAL TEMPERATURE °C
LAB INFORMATION
1, 2, 1
102
Nov 21/02
DW

RELINQUISHED BY:	DATE: Nov 6/02	TIME: 12:00	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE: 11/07/02	TIME: 11:05	RECEIVED BY LABORATORY:

006056

Page(s) 006057 to\à 006066

Is(are) under consultation



can test ltd.

2068

SUITE 200 1523 WEST 3rd AVENUE, VANCOUVER, B.C. V6J 1J8

TELEPHONE (604) 734-7276

TELEX 04-54210

Report On Analysis of Water Sample File No. 1745G

Government of Canada, Health and Welfare Report No. Disk#6 (Govt)

Reported To Medical Services, #540 - 757 W. Hastings St. P.O. # Feb. 5/87

Vancouver, B.C. V6C 3E6 Date cc: Health and Welfare
South Mainland Zone

Attention: _____

We have tested the sample submitted by you and report as follows:

PROJECT NAME: Sechelt Band

SUMMARY:

For the chemical parameters tested, the sample did not meet all the limits set by the "British Columbia Drinking Water Quality Standards, 1982", Province of B.C., Ministry of Health and "Guidelines for Canadian Drinking Water Quality, 1978", published by authority of Health and Welfare, Canada as indicated in the "Results of Testing".

The parameter that did not meet the limit was pH.

SAMPLE IDENTIFICATION:

The sample was identified as:

DATE SAMPLED: January 22, 1987
DATE SUBMITTED: January 23, 1987
TYPE OF CONTAINER: 1L Plastic

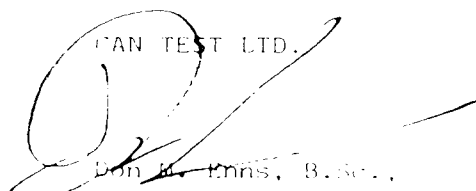
With further identification in "Results of Testing".

METHOD OF TESTING:

The metals were determined using Inductively Coupled Plasma Spectrographic analysis, direct or graphite furnace atomic absorption spectrophotometry.

The analyses were carried out in accordance with procedures described in "Standard Methods for the Examination of Water and Wastewater" 15th Edition, 1980; 16th Edition, 1985, published by the American Public Health Association.

CAN TEST LTD.



Don W. Enns, B.Sc.,
Supervisor
Water Quality Laboratory

BRE/csd

SAMPLE IDENTIFICATION AND RESULTS OF TESTING:

SAMPLE #	1		MAXIMUM ACCEPTABLE CONC.***
CLIENT SAMPLE I.D.	Band Office-Com. W/S		
PHYSICAL TESTS			
pH	5.00x		6.5-8.5
Conductivity (micromhos/cm)	28.1		-
True Color [Pt-Co Scale](CU)	5.		15.
Turbidity (NTU)	0.75		5.
Hardness (mg/L)	7.3		-
DISSOLVED ANIONS (mg/L)			
Alkalinity: Bicarbonate	HC03	1.45	-
Carbonate	C03	Nil	-
Hydroxide	OH	Nil	-
Chlorides	Cl	3.00	250.
Sulfates	S04	3.5	500.
Nitrates and Nitrites	N	0.66	10.**
Fluorides	F	L 0.030	1.5
DISSOLVED METALS (mg/L)			
Calcium	Ca	2.36	-
Magnesium	Mg	0.33	-
Sodium	Na	0.93	-
Potassium	K	0.11	-
Iron	Fe	0.12	0.30
Manganese	Mn	L 0.003	0.05
Silicon	Si02	5.67	-
TOTAL METALS (mg/L)			
Iron	Fe	0.14	0.30
Manganese	Mn	0.004	0.05
Arsenic	As	L 0.001	0.05
Barium	Ba	0.002	1.0
Cadmium	Cd	L 0.001	0.005
Chromium	Cr	L 0.003	0.05
Copper	Cu	0.39	1.0
Lead	Pb	L 0.001	0.05
Zinc	Zn	0.073	5.0

mg/L = milligrams per liter; L = Less than = not detected

** = total nitrate and nitrite nitrogen

*** = Maximum Acceptable concentration as set by "B.C. Drinking Water Quality Standards, 1982" and "Guidelines for Canadian Drinking Water Quality, 1978"

x = Exceeded the "Guidelines"