ASSESSMENT STUDY OF WATER AND WASTEWATER SYSTEMS AND ASSOCIATED WATER MANAGEMENT PRACTICES AT SKEETCHESTN FIRST NATION

A
REPORT
TO
INDIAN AND NORTHERN AFFAIRS CANADA
BC REGION

NovaTec Consultants Inc.
Environmental Engineers and Scientists

Appendix C

Water Testing Results

Page(s) 006863 to\à 006870

Is(are) under consultation

SAMPLE INTEGRITY RECORD - The following bottles were received for the below project.

Client: Heath Consultants Date: 01/10/17 Initial: SB C of C #: 8053705

Sample #	125ML CLEAR GLASS	250ML CLEAR GLASS	1L AMBER GLASS	1L CLEAR GLASS	1L PLASTIC	500ML AMBER GLASS	500ML PLASTIC	250ML PLASTIC	250ML PLASTIC FILTERED	250ML PLASTIC HENOS	250ML PLASTIC FILTERENOS	250ML PLASTIC H2SO4	250 ML PLASTIC FILTERED/H2SO4	250 ML PLASTIC NaOH	250ML PLASTIC NaOH/ZnAc	Microbiology Bottle	100ml AMBER GLASS K2Cr2O7/H2SO4	40ML AMBER VIALS	PLASTIC BAG	5gr SAMPLE	OTHER:	PRESERVATIVE CHECK
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Sample Submission Compliance List

Item No.		
1.		Custody Seal Intact
2.		Temp <10 degrees C
3.		Broken Bottle in Transit
4.		No C of C
5.		C of C information incomplete
6.		C of C not signed/dated by consultant
7.		Non current C of C
8.		Bottles listed on C of C, but not in shipment
9.		Bottles in shipment, but not listed on C of C
10.		Analysis Requirements absent/not clear
11.		Labelling Issue (missing and/or incorrect)
12.		Samples received >5 days after sampling
13.		Samples received after hold time
14.		Wrong bottle(s) used
15.		Incorrect Preservation or Headspace present
16.		Insufficient # of bottles (no flag by consultant if insufficient sample was available in field)
17.		Incorrect Task Order No. provided to the lab
18.		Anomalies
19.		Insufficient Sample

Item numbers checked off indicate non-compliance

COMMENTS: poured off onions

006871

PHILIP SERVICES

PHILIP ANALYTICAL SERVICES
8577 Commerce Court
Burnaby, B.C. V5A 4N5
Phone: (604) 444-4808
Fax: (604) 444-4511
Toll Free: 1-800-440-4808

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

PAGE 1 OF 1

ANALYSIS REQUEST 8053705

COMPANY NAME: HEALTH CANADA
PH # 250 851 4834
FAX # 250 851 4838
COMPANY ADDRESS: 202 - 1315 Summit Dr Kamloops, BC V2C 5R9
CLIENT PROJECT ID. (#) SKEETCHESTN BAND
SAMPLER NAME (PRINT) DANIELLE AUBET
PROJECT MANAGER JAMES TASHEVA

	FIELD SAMPLE ID	PHILIP LAB # (Lab Use Only)	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE	SAMPLING: TIME	HEADSPACE VAPOUR	Total Chemical
s.19(1)		68171	✓					16 Oct 01	AM		
2	Private well.										
3											
4											
5											
6											
7											
8											
9											
11											
12											

TAT
Two Week ☑
One Week ☐
48 Hours ☐
24 Hours ☐
Other: _____

P.O. NUMBER / QUOTE NUMBER:

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE

ACCOUNTING CONTACT

SPECIAL REPORTING OR BILLING INSTRUCTIONS

EDT ☐

LAB USE ONLY
ARRIVAL TEMPERATURE C: 9°
LAB INFORMATION: 7 Oct 24 ☑

CUSTODY RECORD

	DATE	TIME	
RELINQUISHED BY SAMPLER			RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY
RELINQUISHED BY	DATE Oct 17/01	TIME 11:30	RECEIVED BY LABORATORY: 006872

ORIGINAL - PHILIP YELLOW - PHILIP PINK - CLIENT

Page(s) 006873 to\à 006890

Is(are) under consultation

TRUE
CONSULTING GROUP

January 10, 2001 Our Ref: 367-151

Skeetchestn Indian Band
P.O. Box 178
Savona, B.C. V0K 2J0

Attention: Sandra Trawin, Capital Manager

Dear Sandra:

Re: *Village Water System Upgrading – Feasibility Study*
I.N.A.C. CPMS #4002
Addendum No. 1

In response to I.N.A.C. Funding Services review comments of the above noted study, dated November 14, 2000, see copy following, we respond to each of the review comments as follows:

1. This correspondence hereby confirms that the Skeetchestn Indian Band Village Water System, as described in Sections 1.0 and 2.0 of the study, is separate and distinct from the Benchlands Subdivision water system. The original village water system was upgraded in 1983 with the construction of the existing 182m^3 (40,000 Igal) water storage reservoir and associated watermains, and well construction in 1987. The Benchlands Subdivision water system which is located approximately 5 kilometers south of the main village was constructed in 1995 with its own well supply, pumphouse, water storage reservoir and water distribution system.

2. As noted in Section 4.1 Water Supply – Community Wells, page 11, paragraph 1 of the feasibility study, the current village population was estimated to be 150. An average annual growth rate of 3% over a 20 year design period results in a design population of 270. It has since been determined by head count that the actual village population is approximately 123. A review of population growth and population projection information provided in the Skeetchestn Indian Band 1997 P.D.P., see copy attached, indicate a growth rate of over 4.0%. Applying a 4% growth rate results in a 20 year design population of approximately 270. These calculations justify the use of a design population of 270.

3. The following table provides a list of water meter readings taken at the Benchlands Subdivision pumphouse between May 11, 1998 and November 7, 2000. It can be seen that the average daily demand in the subdivision over the past 2½ years has exceeded 70m^3. Based upon a current population of 93, the average per capita per day water demand exceeds 760 l. This confirms that the proposed average daily demand of 270 lpcd used in the feasibility study is low. It should be noted that while the Benchlands Subdivision does consist, generally, of larger houses and yards with higher irrigation requirements, it would not be unreasonable to expect that per capita consumption should be similar in the village.

.../2

APPENDIX C

Analytical Chemistry Certificate
Water Quality Guidelines

Parameter	CDWQG 1996 - Drinking Water MAC = Maximum Acceptable Concentration AO = Aesthetic Concentration	BCWQG 1998	
		Drinking Water	Aquatic Life Freshwater
pH (units)	6.5 - 8.5 AO	6.5 - 8.5	6.5 - 9.0
Colour (TCU)	<15 AO	≤15	-
Specific Conductance (uS/cm)	-	<700	-
Total Dissolved Solids (mg/L)	<500 AO	500 AO	-
Turbidity (NTU)	1 MAC ≤5 AO	1	5
Total Hardness (mg/L)	-	≤500	-
Total Alkalinity (mg/L)	-	30 – 250[3]	<10
Total Organic Carbon (mg/L)	-	<4	-
Chloride (mg/L)	≤250 AO	≤250	-
Fluoride (mg/L)	1.5 MAC	1.5	0.3[4]
Nitrate (mg/L)	45[1] MAC	10	200
Nitrite (mg/L)	3.2 MAC	1	0.06
Ammonia Nitogen (mg/L)	-	-	[9]
Sulfate [8] (mg/L)	≤500 AO	≤500 AO	100
Total Coliform (CFU/100mL)	0/100mL MAC	10	-
Fecal Coliform (CFU/100mL)	0/100mL MAC	0	≤14
Standard Plate Count (HPC/mL)	500/mL MAC	-	-
Background Count (CFU/100mL)	200/100mL MAC	-	-
METALS (mg/L)			
Aluminum [8]	-	0.2	0.1[5]
Antimony	-	0.006	0.03
Arsenic	0.025 IMAC	0.025 IMAC	0.05
Barium	1 MAC	1	5 MAC
Beryllium	-	-	0.0053
Boron	5 IMAC	5	-
Calcium [8]	-	-	<8
Cadmium	0.005 MAC	0.005	0.0018[6]
Cobalt	-	-	0.05
Chromium	0.05 MAC	0.05	0.002
Copper	≤1.0 AO	≤1.0	0 – 0.002[6]
Iron	≤0.3 AO	≤0.3	0.3
Lead	0.01[2] MAC	≤0.05	0.003 – 0.3[6]
Lithium	-	-	-
Magnesium [8]	-	<700	-
Manganese	≤0.05 AO	≤0.05	0.1 – 1.0
Mercury	0.001	0.001	0.0001
Molybdenum	-	0.25	2
Nickel	-	0.2	0.005–0.015[7]
Phosphorus	-	0.01[7]	-
Potassium	-	-	-
Selenium	0.01 MAC	0.01	0.001
Silicon	-	-	-
Silver	-	-	0.0001[6]
Sodium	≤200 AO	≤200 AO	-
Strontium	-	-	-
Sulphur	-	-	-
Tin	-	-	-
Titanium	-	0.1	0.1
Uranium	0.1 MAC	0.1	0.3
Vanadium	-	0.1	-
Zinc	≤5.0[2] AO	≤5	0.03[6]

- CDWQG = Canadian Drinking Water Quality Guidelines – 6th Edition, 1996
- BCWQG = BC Environment Water Quality Guidelines - 1998
- [1] Equivalent to 10mg/L as nitrate-nitrogen
- [2] At the point of consumption
- [3] Food Processing - Dependent on Process
- [4] Where hardness is ≥ 50 mg/L as $CaC0_3$
- [5] At pH ≥6.5
- [6] Dependent on hardness
- [7] Lake Water Only
- [8] Dissolved guideline as per BCWQG 1998 guideline
- [9] Dependent on pH and temperature

NORWEST LABS

Surrey Ph (604) 514-3322 FAX (604) 514-3323
Edmonton Ph (403) 438-5522 FAX (403) 438-0396
Calgary Ph (403) 291-2022 FAX (403) 291-2021
Lethbridge Ph (403) 329-9266 FAX (403) 327-8527
Winnipeg Ph (204) 982-8630 FAX (204) 275-6019

Client Code: KALGRO

Name: KALA GROUNDWATER CONS. LTD.	Workorder: **54019**
Address: #207, 220 - 4TH AVE.,	WO (Other): 63255
KAMLOOPS	PO Num:
BC V2C 3N6	Project: 00297 Skeetchestn Band
Attn: PAUL BLACKETT	Date Sampled: May 29, 2000
Phone: (250) 372-9194	Date Received: May 30, 2000
Fax: (250) 372-9398	Date Reported: Jun 29, 2000

Metal Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
Graphite Furnace-Dis Arsenic-Water			
Arsenic	0.003	mg/L	<0.003
Graphite Furnace-Dis Selenium-Water			
Selenium	0.002	mg/L	<0.002
Graphite Furnace-Total Arsenic-Water			
Arsenic	0.003	mg/L	<0.003
Graphite Furnace-Total Selenium-Water			
Selenium	0.002	mg/L	<0.002

Accredited By: CANADIAN ASSOCIATION FOR ENVIRONMENTALANALYTICAL LABORATORIES (CAEAL)

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Client Code: KALGRO

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Metal Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
ICP Semi-Trace Scan - Dissolved Metals in Water			
Aluminum	0.01	mg/L	<0.01
Antimony	0.02	mg/L	<0.02
Arsenic	0.02	mg/L	<0.02
Barium	0.0005	mg/L	0.0534
Beryllium	0.0002	mg/L	<0.0002
Bismuth	0.02	mg/L	<0.02
Cadmium	0.0005	mg/L	<0.0005
Calcium	0.01	mg/L	45.3
Chromium	0.001	mg/L	<0.001
Cobalt	0.001	mg/L	<0.001
Copper	0.002	mg/L	<0.002
Iron	0.003	mg/L	0.009
Lead	0.005	mg/L	<0.005
Lithium	0.002	mg/L	<0.002
Magnesium	0.01	mg/L	28.7
Manganese	0.0005	mg/L	0.0559
Molybdenum	0.005	mg/L	<0.005
Nickel	0.002	mg/L	<0.002
Phosphorus	0.06	mg/L	<0.06
Potassium	0.2	mg/L	4.9
Selenium	0.02	mg/L	<0.02
Silicon	0.05	mg/L	19.1
Silver	0.001	mg/L	<0.001
Sodium	0.05	mg/L	14.7
Strontium	0.005	mg/L	0.247
Sulphur	0.1	mg/L	16.1
Thorium	0.005	mg/L	<0.005
Tin	0.005	mg/L	<0.005
Titanium	0.001	mg/L	<0.001
Uranium	0.06	mg/L	<0.06
Vanadium	0.002	mg/L	<0.002
Zinc	0.001	mg/L	0.013
Zirconium	0.001	mg/L	<0.001

006895

na = not available

Accredited By: CANADIAN ASSOCIATION FOR ENVIRONMENTALANALYTICAL LABORATORIES (CAEAL)

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KAMLOOPS
BC V2C 3N6
Attn: PAUL BLACKETT
Phone: (250) 372-9194
Fax: (250) 372-9398

Workorder: **54019**
WO (Other): 63255
PO Num:
Project: 00297 Skeetchestn Band
Date Sampled: May 29, 2000
Date Received: May 30, 2000
Date Reported: Jun 29, 2000

Metal Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
ICP Semi-Trace Scan - Total Metals in Water			
Aluminum	0.01	mg/L	0.04
Antimony	0.02	mg/L	<0.02
Arsenic	0.02	mg/L	<0.02
Barium	0.0005	mg/L	0.0534
Beryllium	0.0002	mg/L	<0.0002
Bismuth	0.02	mg/L	<0.02
Cadmium	0.0005	mg/L	<0.0005
Calcium	0.01	mg/L	45.3
Chromium	0.001	mg/L	<0.001
Cobalt	0.001	mg/L	<0.001
Copper	0.002	mg/L	0.019
Iron	0.003	mg/L	0.127
Lead	0.005	mg/L	<0.005
Lithium	0.002	mg/L	0.002
Magnesium	0.01	mg/L	28.7
Manganese	0.0005	mg/L	0.0559
Mercury	0.0001	mg/L	<0.0001
Mercury	0.0001	mg/L	<0.0001
Molybdenum	0.005	mg/L	<0.005
Nickel	0.002	mg/L	<0.002
Phosphorus	0.06	mg/L	<0.06
Potassium	0.2	mg/L	4.9
Selenium	0.02	mg/L	<0.02
Silicon	0.05	mg/L	19.1
Silver	0.001	mg/L	<0.001
Sodium	0.05	mg/L	14.7
Strontium	0.005	mg/L	0.247
Sulfur	0.1	mg/L	16.1
Thorium	0.005	mg/L	<0.005
Tin	0.005	mg/L	<0.005
Titanium	0.001	mg/L	0.002
Uranium	0.06	mg/L	<0.06
Vanadium	0.002	mg/L	<0.002
Zinc	0.001	mg/L	0.015
Zirconium	0.001	mg/L	<0.001

Approved By:

John Davidson, Dipl. T., C.P.H.I. (C)
Supervisor, Inorganics Lab

006896

NORWEST LABS

Surrey Ph (604) 514-3322 FAX (604) 514-3323
Edm ı Ph (403) 438-5522 FAX (403) 438-0396
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Winnipeg Ph (204) 982-8630 FAX (204) 275-6019

Client Code: KALGRO

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Microbiological Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
Background Count			
Background Count	1	cfu/100 mL	2200
Bacterial Identification			
Bacterial Identification			Pseudomonas stutzeri Pseudomonas puticle Comamonas acidovorans
Standard Plate Count			
Standard Plate Count	1	cfu/mL	555
Total and Fecal Coliforms (MF)			
Total Coliforms	1	cfu/100 mL	<1
Fecal Coliforms	1	cfu/100 mL	<1

Approved By:

John Davidson, Dipl. T., C.P.H.I. (C)
Supervisor, Inorganics Lab

006897

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Water Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
Alkalinity - total			
Total Alkalinity	5	mg CaCO3/L	196
Chloride in Water by IEC			
Chloride	0.05	mg/L	9.3
Colour - True			
Colour	5	TCU	<5
Electrical Conductivity			
Electrical Conductivity	0.01	µS/cm	510
Fluoride in Water			
Fluoride	0.04	mg/L	0.11
Gross Alpha			
Gross Alpha	0.15	Bq/L	<0.15
Gross Beta			
Gross Beta		Bq/L	0.15±0.10
Hardness			
Hardness (CaCO3 equiv)	5	mg/L	231
Nitrogen - Nitrate in Water			
Nitrate-N	0.004	mg/L	0.035
Nitrogen - Nitrite + Nitrate in Water			
Nitrate-N (+ Nitrite-N)	0.005	mg/L	0.035
Nitrogen - Nitrite in Water			
Nitrite-N	0.002	mg/L	<0.002
pH in Water			
pH	0.01	pH	8.13
Solids - Dissolved			
Total Dissolved Solids	5	mg/L	338

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Water Analysis

	Detection Limit	Units	54019-1 TW00-01 May 29/00 12:00
Sulphate in Water			
Sulphate	1	mg/L	58
Turbidity			
Turbidity	1	NTU	<1

Approved By:

John Davidson, Dipl. T., C.P.H.I. (C)
Supervisor, Inorganics Lab

006899

QA/QC for WO# 54019-1

input data

Al	0	CO3	0
Ca	45.3	HCO3	196
Fe	0.009	EC	510
Mg	28.7	TDS	338
Mn	0.0559	F	0.11
K	4.9	Cl	9.3
Si	19.1	NO2-N	0
Na	14.7	NO3-N	0.035
NH3-N	0	SO4	58

ionic balance

cation sum =	5.39			
anion sum =	5.40			
difference =	-0.01	meq/L or	0.06 %	
	difference (+/-)		if anion sum	
acceptable =	0.2	meq/L	0 - 3	
acceptable =	2	%	3 - 10	PASS
acceptable =	2.5	%	10 - 800	

NORWEST LABS

Control Number E 22333

Environmental Sample Information Sheet

NOTE Proper completion of this form is required in order to proceed with analysis
See reverse for your nearest Norwest location and proper sampling protocol

Billing Address:
Company: KALA Groundwater Consulting
Address: 207-220-4th Ave.
Kamloops B.C.
V2C 3N6
Attention: Paul J. Blackett
Phone (250) 372-9194
Fax: (250) 372-9398
Cell:
e-mail:

Report To: ✓
QA/QC Report ☐
Report Result: Fax ☐ Mail ☐ Courier ☐ e-mail ✓

Copy of Report To:
Company:
Address:
Attention:
Phone:
Fax:
Cell:
e-mail:

Copy of invoice: ☐
Mail Invoice to this address for approval ☐

54019

Report Result: Fax ☐ Mail ☐ Courier ☐ e-mail ☐

Information to be included on Report and Invoice

Project ID: 00297
Project Name: Sketchestn Band
Project Location:
Legal Location:
PO#: 00297
Proj. Acct. Code:
Agreement ID:

RUSH Please contact the laboratory to confirm rush dates and times before submitting samples.
Upon filling out this section, client accepts that surcharges will be attached to this analysis
Required on: all analyses or as indicated ☐ or ☐
Date Required:
Signature:
Norwest Authorization:

Sample Custody (Please Print)
Sampled by: Sean C. Date May 29/00
Company KALA Signature
Relinquished by:
Company Date
Waybill number:
Received by:
Company Date
Processed by:
Norwest Labs May 30/00 Date

Special Instructions / Comments

Please Call to Confirm Analysis Requirements.

	Sample Identification	Location	Depth	Date / Time Sampled	Matrix	Sampling Method	Number of Containers (Backlogs)	Enter tests above (✓ relevant samples below)
1	Gross Alpha and Beta	TW00-01	—	May 29/12:00			1	✓
2	Metals	TW00-01	—	May 29/12:00			2	✓
3	Microbiology	TW00-01	—	May 29/12:00			2	✓
4	Routine	TW00-01	—	May 29/12:00			1	✓
5			—					
6			—					
7			—					
8			—					
9			—					
10			—					
11			—					
12			—					
13			—					
14			—					

NOTE: All hazardous samples must be labelled according to WHMIS guidelines.

Page 1 of 1

006901

M.L.S. SERVICES

Sewer and Water
Trouble Shooting and Repair

6508 Swanson St.
Chilliwack, B.C.
V2R 1R2

Tel/Fax: (604) 858-1717
Toll Free 1-800-981-8011
Cell: (604) 240-7978

April 27, 2001.

Mr. Carl Simon, Public Works Manager,
Skeetchestn Indian Band,
P. O. Box 178,
Savona, B. C.
V0K 2J0

Re: Circuit Rider Visit of April 24 → 26

Projects:

Clean reservoir after vermin discovered in reservoir

Trainees

Jessie Jules, Labourer
Gerry Denault, Maintenance

I arrived on site after the crew had found a large pack rat and a mouse in the Benchland reservoir during routine water sampling. A Boil Water Advisory had been issued by the Band and Carl had initiated draining the reservoir. I advised Carl that we would require 7 X 20litres of Sodium Hypochlorite 12% and 3 bags of Sodium Thiosulphate for de-chlorinating. Three containers of hypochlorite were on site and Carl picked up the additional 4 in Kamloops. The reservoir was basically clean, we used squeegees to clean the floor and had it completed by the time Carl returned with the sodium hypochlorite. The well pump delivered 50 gal/min which didn't create much movement in the 50,000 gal reservoir, consequently we emptied 4 containers at the back side of the reservoir to ensure distribution in that area, the remaining 3 were dumped from the access hatch. Re-filling took from 7:00pm on the 24th until 7:00pm on the 25th. I wanted to retain the solution as high as possible in the reservoir so kept the pump running to the overflow. We left the pump running on hand at a low rate overnight to allow the residents water from the well and had a residual of 75ppm at 9:00am on the 26th. Due to the extended time required to re-fill I felt an initial residual of 100ppm would allow us a shorter time to hold the solution. Sodium thiosulphate had been ordered on the 25th and received in time to drain the solution from 3 locations; reservoir drain, fire hydrant by pump house and fire hydrant at the lower level.

After draining the reservoir, it was interesting to find a jaw bone, small bone, sections of cactus, (fresh) and droppings, in nesting materials forced out the drain, (8"). It appeared

the pack rat must have had a den above the wye of the drain line since it wasn't pushed out during the draining of the reservoir, and apparently the overflow caused the material to be forced out. The drain line now has a screen protecting the exposed end and Carl is checking the other two reservoirs for similar habitation.

While waiting for the reservoir to fill we were able to finish the 5 fire hydrants on the main reserve, one main valve and one drain gasket were required in addition to the usual servicing kit.

Respectfully submitted,

Mike Skulsky,
MLS Services

Cc: Mr. Sid Smith,
Asset Management Officer,
Indian and Northern Affairs Canada,
1138 Melville Street,
Suite 600,
Vancouver, BC V6E 4S3

6508 Swanson St.
Chilliwack, B.C.
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VAN-E 4300-9-687

April 12, 2001.

Mr. Carl Simon, Maintenance Supervisor,
Skeetchestn First Nation,
P. O. Box 178,
Savona, B. C.
V0K 2J0

Re: Circuit Rider visit March 27 – April 10, 2001

Projects:
Check pressure reducing station
Service fire hydrants

Trainee: Jessie Jules

We checked the PVR chamber for complaints of high pressure. The up stream gauges read 150# and the down stream read 140#. The D.S gauge did not drop when the gate valves in the chamber were closed. I had the crew flow the D.S. hydrant to ensure the pressure had been released. We attached M.L.S.'s pressure gauge on the down stream hydrant and had a reading of 145lbs from the 2" supply with the 6" isolating gate valves in the station shut off. We were able to adjust the control valve on the bypass to restrain pressure to 60 P.S.I. However, the control valve on the mainline would not open to maintain that pressure. The valve had two controls for opening and closing. Two sensing lines were connected from the upstream line via ball valves and one from the downstream side. These valves are used in numerous applications and I was reluctant to turn the control valves off. The line on the backside of the valve connected directly to the D.S control. Shutting that line down allowed us to re calibrate the valve and put the system back on line at 60 PSI. Carl purchased new gauges and isolating valves. There were no shut off valves for the gauges, consequently we had to shut down and drain the supply line to replace the gauges, shut off valves were installed at this time.

We did receive a complaint from a residence regarding separation of a supply line in a mobile home, probably from the excessive pressure. Carl arranged for repair.

We also removed the extra control line from the PVR to eliminate the possibility of the ball valve being left in the open position.

We checked the pump house at I. R. O Bench land subdivision,

Hour Meter reading	8419.15		
Flow meter	97568		
Pressure gauges U S.	39lbs	Pump side	100lbs

CDMS#

Carl was concerned about the discharge from the pump side air release valve staining the wall. I suggested we use tubing and route it to the drain. Further investigation revealed a problem within the valve. Disassembly showed a crushed float and torn gasket, possibly from freezing. Carl was able to purchase a new one and it was installed along with the new pressure gauges.

We checked the reservoirs at both the main village and the Bench land Subdivision. The main village had some rust residue, which should be cleaned in our next program. The subdivision reservoir appeared clean, however a "chip board" cover was installed under the access hatch and had mouse droppings on it. It also had a build up of mould. I suggest a better seal be found for the hatch and the filler piece, if required, be made of aluminium plate. The roof of the structure has no back fill, consideration should be given to covering it a foot or two as protection from freezing.

We serviced the hydrants at the Subdivision and into the main village. The valve box between houses 74 and 75 was filled with rock and debris, which we were fortunate to clear with M.L.S.'s "cherry picker". These valves should have extension and rock guards. We also raised the valve box by the shop for easier access. A number of the Canada valve Hydrants required additional parts from operating stems being cracked and causing leakage. Two of the top operating nuts had sustained damage to the lower threads which impaired operation, they have been replaced. We were not able to complete the hydrants above the ball field. They should be considered for next years program. We were fortunate to remove the rocks from the hydrant opposite Jessie's house. The cap had been left off and it appeared rocks had been inserted through the port.

The bearing race on the hydrant servicing the Band Office should also be replaced. We changed the bearing, however, the race was badly pitted, and is noticeable during operation.

Respectfully submitted,

Mike Skulsky,
M L S Services

CC Mr. Sid Smith,
Asset Management Officer
Indian and Northern Affairs, Canada
1138 Melville Street, Suite 600,
Vancouver, B. C.
V6E 4S3

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JUN 7 2000 9-689-4

June 30, 2000.

Mr Carl Simon, Maintenance Supervisor,
Skeetchestn First Nation,
P.O. Box 178,
Savona, BC V0K 2J0.

Re: Circuit Rider Visit of June 27, 2000
Project: Start up water system along Trans Canada Highway.
Trainee: Gerry Denault

The system utilizes well and pump through filter system into wet well, then re-pumping to reservoir. During initial start up a tank on the filter side was over flowing with no apparent control. The filter requires a key for operation which was not available during my visit. Two points came to mind:

1. Since this system, at this time, is only required for minor irrigation - bypass the filtration via the ball valves at the intake side of the wet well.
2. Check the operators manual for correct position of ball valves for back flushing. I suspect an open valve in the wrong position..

In regard to point 1, if this system is put into use for domestic needs, the wet well and reservoir will have to be cleaned and chlorinated. The location of the wet well under the floor of the treatment building also requires vigilance to ensure a clean environment within the filtration building. Gerry also suggested the possibility of servicing the hydrants, especially the one besides the works garage.

I will be doing a similar contract on the Mid Coast for the next two months and expect to be in your area this September to begin the program.

I trust this meets with your approval.

Best regards,

Mike Skulsky,
M.L.S. Services.

CC Mr Sid Smith,
Asset Management Officer,
Public Works and Government Services Canada,
450 - 1550 Alberni Street,
Vancouver, BC V6G 3C5.

Transwater Services

3308 - 3A Street South, Cranbrook, B.C. V1C 5W8
Tel: (250) 489-2379 - Fax: (250) 489-5332

COPY

4300-9-687

May 4, 2000

Carl Simon
Maintenance Foreman
Skeetchesn Indian Band
PO Box 178
Savona, BC V0K 2J0

Attention: Carl Simon

RE: 1999/2000 Circuit Rider Program Report

Enclosed find one copy of the Circuit Rider Program report for training and work completed in the 1999/2000 program year. The report addresses the areas we covered during my visit to the Skeetchesn Indian Band.

I recommend that all maintenance personnel and trainees attend the BC Water and Waste Association meetings at least once a year; which are held are held three or four times a year and are very informative meetings for water and sewer systems repairs and maintenance updates.

Please contact me for any water and/or sewer related information and advice. I look forward to the opportunity to work with the Skeetchesn Indian Band for next year's Circuit Rider Program.

Sincerely,

Anthony Deo
Transwater Services

cc: Attention: Mr. Sid Smith
Asset Management Officer
PWGSC-RPS for Indian and Northern Affairs Canada
450- 1550 Alberni Street
Vancouver, BC V6G 3C5

Skeetchesn Indian Band
1999/2000 Circuit Rider Program Report

Transwater Services
3308-3A Street South
Cranbrook, BC
V1C 5W8
Phone: (250) 489-2379
Fax: (250) 489-5332

TABLE OF CONTENTS

1. GENERAL CONDITIONS ENCOUNTERED 1

1.1. Water System Deficiencies 1

1.2. Sanitary Sewage System Deficiencies 1

2. NAMES OF PERSONNEL TRAINED AND TYPE OF TRAINING PROVIDED 1

3. PERSONNEL TRAINED 1

3.2. The 6 Day Training Period Included: 1

3.3. The Following Items Were Reviewed Over The 6 Day Training Period: 2

4. RECOMMENDATIONS FOR THE IMPROVEMENT OF THE BAND'S MAINTENANCE PROCEDURES 2

5. SUGGESTED GENERAL REPAIRS OR MAINTENANCE 3

6. SUGGESTED LIST OF MATERIALS AND TOOLS TO BE PURCHASED BY THE BAND 3

6.1. Tools 3

1. General Conditions Encountered

1.1. Water System Deficiencies

1. Water main and services are not all accessible.
2. Fire hydrants need to be extended that are too low.
3. Piping in pump house rusting.
4. Clear brush and vegetation around reservoir.

1.2. Sanitary Sewage System Deficiencies

1. Sewer on septic system is properly maintained.

2. Names of Personnel Trained and Type of Training Provided

3. Personnel Trained

1. Gerry Denault
2. George Jules
3. Jesse Jules

3.2. The 6 Day Training Period Included:

1. Orientation of the site accompanied by the band's maintenance personnel and trainees to identify any immediate problem areas and to highlight training priorities.
2. Service fire hydrants; breakdown, rebuild and flush. See attached fire hydrant service procedure in Appendix A.
3. Assist the band in obtaining parts and materials.
4. Assist in the repairs of noted problem areas.
    1. Worked on ~~ARCS~~ ACRS report.
    2. Clean out and disinfect both reservoirs and water distribution systems.
    3. Dig out and clean valve boxes for future access.
    4. Paint piping in pump house at subdivision.
    5. Service pressure reducers.

3.3. The Following Items Were Reviewed Over The 6 Day Training Period:

1. Available engineering drawings, studies, asset reports and maintenance plans.
2. The operation of the water and sewer system components including: well pump, chlorinator and reservoir controls; operator safety including proper safety of pump controls, preventive maintenance; core maintenance skills; system repairs; record keeping; and testing procedures for quality control and monitoring of water quality.
3. WCB regulation and guidelines: standard practice for confined space entry for manholes and reservoirs; the safe handling and storage of hazardous chemicals the use of safety equipment and protective clothing; electrical safety; and work in and around excavations.
4. Identify confined space hazards.
5. The maintenance procedures of the water and sewer system components including: well pump, chlorinator and reservoir controls; flushing of the water and sewer mains; inspection and cleaning of water storage reservoirs and sewage lift stations; and the inspection and maintenance of water wells, intakes, treatment plants, and sewage lagoons when applicable to each Band.

4. Recommendations for the Improvement of the Band's Maintenance Procedures

1. Flush all sanitary sewer mains. Based on the conditions encountered during flushing, a schedule should be compiled indicating sewer mains which require flushing annually and which sewer mains can be flushed less often.
2. Develop a program for annual disinfection and cleaning of the reservoir, wells and water mains.
3. Develop a program for the annual flushing of water mains.
4. Develop a program for the annual service of fire hydrants.
5. Develop a program to check the water intake monthly and to clean as required.
6. Develop a program to check sanitary sewer manholes monthly for blockages.
7. Develop a program to check sewage lift station weekly. Clean and flush as required.
8. Develop a program to clean septic tanks every one to three years.
9. Develop a program to annually cut grass and clean around the lagoons.
10. Maintain dates and records of:
    1. Fire hydrant servicing;
    2. Disinfection and flushing of water mains, wells and reservoir;
    3. Sanitary sewer main flushing;
    4. Any repairs or maintenance of water and sewer systems; include the location of the repair or maintenance.
    5. Water consumption from flow meter readings;
    6. Hours pump operation from hour meters.

5. Suggested General Repairs or Maintenance

1. Locate buried mainline water valves and curb stops; raise to grade as required.
2. Raise fire hydrants that are too low.
3. Landscape and clean out pump house at new subdivision.
4. Raise manhole with controls by reservoir in new subdivision; as snow and water would enter and damage.
5. Cut grass and shrubs around reservoir.

6. Suggested List of Materials and Tools to be Purchased by the Band

6.1. Tools

1. Hydrant servicing tools for hydrants and for Terminal City hydrants and Canada valve.
2. Power auger for cleaning sanitary sewer services.
3. Steel sewer snake for locating sewer blockages.
4. Metal detector.

The Band has its own suppliers with competitive pricing.

Appendix A: Transwater Fire Hydrant Service Procedure

1. Hydrants are tested for smooth operation.

   [illegible] and checked for:

   a. Leaks on caps.

   b. Pumper caps.

   c. Head gaskets.

   d. Packings and O-rings.

   e. Draining

3. Main hydrant valves are accessible and in operating condition.

4. Rubbers and gaskets are checked and replaced on caps and pumper caps where required.

5. Heads are taken apart and checked for wear on packings, O-rings and bearings.

6. Parts are cleaned and replaced where required.

7. Hydrant interiors are pulled out of the barrel and checked for wear and broken parts on couplings, pins, main rubbers and drain mechanism. Interior parts are replaced where necessary and greased.

8. Hydrants are completely flushed out before reassembling.

9. Hydrants are reassembled and re-tested for leaks and operation.

10. Hydrants are painted.

11. Test reports are recorded, filed and submitted to proper authorities.