

**Assessment Study of  
Water and Wastewater Systems and  
Associated Water Management Practices  
at the Neskonlith First Nation Community**

**for the  
Indian and Northern Affairs Canada  
BC Region**



**August, 2002**

# **Appendix C**

## **Water Quality Test Results**

**Page(s) 005439 to\à 005445**

**Is(are) under consultation**



ANALYTICAL SERVICES

30-Nov-01  
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ANALYTICAL REPORT  
Form 08091802

Client : HEALTH CANADA  
Sampling site :  
Submitted by : IAN MCLEAN

Philip ID : 11079089  
Client ID : NESKONLITH  
IND. BAND

Sparcode	Parameter	Unit	MDL	CDWG	
<b>PHYSICAL</b>					
00041220	pH	pH units	0.1		
00021300	Color True	Col.Unit	5	6.5-8.5	7.5
00111160	Specific Conductance	uS/cm	1	15	5
SCCACALC	Computed Conductance	uS/cm		---	85
CCPDCALC	Conductance % Diff.	%		---	87
007H1035	Residue Filterable 1.0u (TDS)	mg/L	10	---	2.4
CTDSCALC	Computed TDS	mg/L		500	52
TDSRCALC	TDS % Diff.	%		---	45
00151140	Turbidity	NTU		---	-13.9
0107CALC	Hardness Total -T	mg/L	0.10	1.0	0.15
				500	40.0
<b>GENERAL INORGANICS</b>					
01011211	Alkalinity Phen. 8.3 as CaCO3	mg/L	1		
01021210	Alkalinity Total as CaCO3	mg/L	1	---	< 1
CO3-CALC	Carbonate as CO3=	mg/L		---	37
HCO3CALC	Bicarbonate as HCO3-	mg/L		---	< 0.5
OH-CALC	Hydroxide as OH-	mg/L		---	45.1
				---	< 0.5
<b>ANIONS</b>					
11041334	Chloride Dissolved	mg/L	1.0	< 250	< 1.0
11061341	Fluoride Dissolved	mg/L	0.10	1.5	< 0.10
IonBCALC	Ion Balance	%		---	0.5
AnnsCALC	Total Anions	meq/L		---	0.88
CtnsCALC	Total Cations	meq/L		---	0.89
LangCALC	Langelier Index	pH units		---	-1.2
pHSACALC	Saturation pH	pH units		---	8.7
<b>NITROGEN</b>					
1110CALC	Nitrate Nitrogen Dissolved (N)	mg/L		10.0	0.03
11091350	Nitrate + Nitrite (N)	mg/L	0.02	10.0	0.03
11111354	Nitrite Nitrogen (N)	mg/L	0.005	1.0	< 0.005

Matrix : Water  
Sampled on: 01/11/21 17:00

CONTINUED on page 3



ANALYTICAL SERVICES

30-Nov-01  
Page 3 of 7

ANALYTICAL REPORT  
Form 08091802

Client : HEALTH CANADA  
Sampling site :  
Submitted by : IAN MCLEAN

Philip ID : 11079089  
Client ID : NESKONLITH  
IND. BAND

Sparcode	Parameter	Unit	MDL	CDWG	
SULFATE					
11211405	Sulfate	mg/L	1.0	< 500	5.7
METALS TOTAL					
Al-T0031	Aluminum	mg/L	0.02	---	0.02
As-TMS31	Arsenic	mg/L	0.001	0.025	< 0.001
Ba-T0031	Barium	mg/L	0.001	1.0	0.009
B--T0031	Boron	mg/L	0.008	5.0	< 0.008
Cd-TMS31	Cadmium	mg/L	0.0001	0.005	< 0.0001
Ca-T0031	Calcium	mg/L	0.05	---	12.9
Cr-T0031	Chromium	mg/L	0.002	0.05	0.011
Cu-T0031	Copper	mg/L	0.001	1.0	0.019
Fe-T0031	Iron	mg/L	0.005	0.3	0.025
Pb-TMS31	Lead	mg/L	0.001	0.01	< 0.001
Mg-T0031	Magnesium	mg/L	0.05	---	1.88
Mn-T0031	Manganese	mg/L	0.001	0.05	0.005
Hg-T0310	Mercury	mg/L	0.00005	0.001	< 0.00005
K_T0031	Potassium	mg/L	0.4	---	0.7
Se-TMS31	Selenium	mg/L	0.001	0.01	< 0.001
Na-T0031	Sodium	mg/L	0.010	200	1.73
U--TLLMS	Uranium	mg/L	0.00001	0.1	0.00031
Zn-T0031	Zinc	mg/L	0.002	5.0	0.014

Matrix : Water  
Sampled on: 01/11/21 17:00

**Page(s) 005448 to\à 005458**

**Is(are) under consultation**

Neskonlith Water Treatment Plant  
Treatment Plant Performance Record

Date	Operator	Flows				Turbidity				Filter Level				Total Cl Residual	
		Raw l/s	Filter 1 l/s	Filter 2 l/s	Treated l/s	Raw NTU	Plate Pre-treated NTU	Filter 1 NTU	Filter 2 NTU	Filter 1 inlet m	Filter 1 outlet m	Filter 2 inlet m	Filter 2 outlet m	Treated water mg/l	Distribution water mg/l
May 01	Ken	2.00	1.00	1.00	1.00			3.20	3.54	358.290	358.160	358.290	358.160	0.12	0.02
02	Ken				Did	Not	show up	this	day - worked at						
03	Ken	2.00	1.00	1.00	1.12	3.1		2.99	3.82	358.290	358.160	358.290	358.120	0.04	
07	Ken	2.00	1.00	1.00	1.00	1.3		2.77	3.03	358.290	358.160	358.290	358.100	0.02	0.01
08	Ken	2.03	1.00	1.00		1.0		2.72	2.90	358.290	358.160	358.290	358.100	0.04	0.00
15	Ken	2.05	1.10	1.08	1.04	2.1	1.7	2.18	2.25	358.290	358.030	358.290	358.020		0.00
16	GORD/RAV	2.12	1.10	1.09	0.0	1.3		1.84	1.88						0.00
17	Ken	2.10	1.08	1.09		1.2	0.9	1.87	1.97	358.290	357.970	358.290	357.450		0.01
22	Ken	2.07	1.05	1.05	1.00	98.2	51.5	1.72	9.78	358.290	357.860	358.290	357.740	0.02	0.02
23	Ken	2.00	1.00	1.00	0.00	6.1	32.3	4.42	4.87	358.290	357.640	358.290	357.560	0.00	0.03
27	GORD/RAV	2.87	1.25	1.25	0.00	18.7	11.9	1.51	1.71	357.520	358.290	358.280	357.440	0.00	0.00
28	GORD/RAV	1.97	1.04	1.05	1.15	15.2	10.1	1.39	1.61	358.290	357.600	358.290	357.490		

Neskonlith Water Treatment Plant  
Treatment Plant Performance Record

Date	Operator	Flows			Turbidity			Filter Level			Total Cl Residual				
		Raw l/s	Filter 1 l/s	Filter 2 l/s	Treated l/s	Raw NTU	Pre-treated NTU	Filter 1 NTU	Filter 2 NTU	Filter 1 inlet m	Filter 1 outlet m	Filter 2 inlet m	Filter 2 outlet m	Treated water mg/l	Distributive water mg/l
2002															
Apr. 01	Ken														
Apr. 02	Ken	4.26	1.88	1.88	0.47	0.6	4.85	5.10	DOWN -	JUST CALIBRATING	358.010	358.010	357.930	0.02	0.00
Apr. 03	Ken	4.24	3.03	3.02	0.48	0.5	5.14	5.51			358.170	358.200	358.290	0.03	0.00
Apr. 04	Ken	4.19	3.03	2.03	0.48	0.5	5.78	6.11			358.280	358.220	358.200	0.01	0.03
Apr. 05	Ken	4.12	2.03	2.03	0.48	0.6	6.13	6.40			358.280	358.220	358.210	0.02	0.03
Apr. 06	Ken	4.17	2.03	2.03	0.43	0.6	6.90	7.15			358.280	358.220	358.210	0.03	0.02
Apr. 07	Ken	4.13	2.03	2.02	0.43	0.5	7.35	7.57			358.290	358.220	358.220	0.02	0.00
Apr. 08	Ken	3.00	1.00	1.01	0.47	0.7	8.59	7.27			358.290	358.240	358.230	0.00	0.04
Apr. 09	Ken	3.00	1.00	1.00	0.46	3.3	11.26	10.85			358.270	358.220	358.210	0.00	0.04
Apr. 10	Ken	2.00	1.00	1.00	0.41	1.4	11.53	11.25			358.240	358.240	358.240	0.02	0.00
Apr. 11	Ken	2.02	1.00	1.01	0.46	1.2	10.73	10.71			358.290	358.240	358.240	0.03	0.00
Apr. 12	Ken	2.05	1.00	1.00	0.47	1.0	10.04	10.11			358.240	358.230	358.220	0.01	0.04
Apr. 13	Ken	3.95	2.01	2.02	3.00	1.2	7.30	7.36			358.290	358.190	358.190	0.07	0.05
Apr. 14	Ken	3.75	2.00	2.00	3.00	1.5	5.17	5.78			358.290	358.180	358.180	0.81	0.00
Apr. 15	Ken	3.64	2.00	2.00	3.00	1.2	4.65	4.95			358.290	358.170	358.170	0.19	0.03
Apr. 16	Ken	3.69	2.00	2.00	3.01	1.3	4.13	4.39			358.290	358.160	358.160	0.02	0.02
Apr. 17	Ken	3.69	2.00	2.00	3.04	1.1	3.85	4.10			358.290	358.140	358.140	0.04	0.03
Apr. 18	Ken	2.00	1.00	1.00	1.00	1.3	3.43	3.67			358.290	358.200	358.150	0.11	0.00
Apr. 19	Ken	2.00	1.00	1.00	1.02	0.7	3.60	3.70			358.190	358.080	358.080	0.15	0.00
Apr. 20	Ken	2.00	1.00	1.00	1.00	1.2	3.36	3.68			358.170	358.070	358.030	0.01	0.03
Apr. 21	Ken													0.06	0.03
Apr. 22															
Apr. 23															
Apr. 24															
Apr. 25															
Apr. 26															
Apr. 27															
Apr. 28															
Apr. 29															
Apr. 30															

Neskonlith Water Treatment Plant  
Treatment Plant Performance Record

Date	Operator	Flows			Turbidity			Filter Level				Total Cl Residual			
		Raw l/s	Filter 1 l/s	Filter 2 l/s	Treated l/s	Raw NTU	Pre-treated NTU	Filter 1 NTU	Filter 2 NTU	Filter 1 inlet m	Filter 1 outlet m	Filter 2 inlet m	Filter 2 outlet m	Treated water mg/l	Distribution water mg/l
11/03/02	Ken	0.50	0.39	0.40	0.46	0.5		0.69	0.92	358.190	358.115	358.185	358.165	0.24	0.00
11/03/02	Ken	0.52	0.37	0.40	0.42	0.4		0.92	1.30	358.180	358.165	358.185	358.165	0.04	0.00
12/03/02	Ken	0.53	0.40	0.40	0.41	0.4		1.09	1.54	358.180	358.165	358.195	358.190	0.04	0.00
13/03/02	Ken	0.52	0.40	0.40	0.41	0.4		1.40	1.87	358.190	358.165	358.185	358.145	0.02	0.00
14/03/02	Gordon	0.82	0.40	0.40	0.40	0.4		1.80	2.43	358.180	358.170	358.190	358.175	0.01	0.00
15/03/02	Gordon	0.83	0.40	0.40	0.40	0.4		2.40	3.18	358.180	358.175	358.180	358.170	0.02	0.00
18/03/02	Ken	0.52	0.40	0.40	0.38	0.4		3.45	4.35	358.180	358.170	358.190	358.180	0.01	0.00
19/03/02	Ken	0.52	0.40	0.40	0.38	0.4		3.30	3.76	358.190	358.180	358.190	358.180	0.00	0.00
20/03/02	Ken	0.52	0.40	0.40	0.38	0.4		3.30	3.76	358.190	358.180	358.190	358.180	0.00	0.00
21/03/02	Ken	4.17	2.04	2.04	0.62	0.6	chlorinator - set	1.48	1.60	358.180	358.150	358.190	358.180	0.05	0.02
22/03/02	Ken	4.15	2.04	2.04	0.62	0.5		1.42	1.28	358.180	358.150	358.190	358.180	0.20	0.01
25/03/02	Ken	4.09	2.04	2.04	0.58	0.4		1.65	1.75	358.190	358.160	358.190	358.150	0.41	0.00
26/03/02	Ken	4.06	2.04	2.05	0.00	0.4		1.93	2.01	358.190	358.150	358.190	358.140	0.40	0.03
27/03/02	Ken	4.04	2.04	2.04	0.55	0.5		2.13	2.24	358.190	358.150	358.190	358.180	0.33	0.00
28/03/02	Ken	4.12	2.04	2.04	0.55	0.5		2.55	3.54	358.190	358.150	358.190	358.180	0.18	0.02

005461



# WATER SAMPLE REPORTS METFORD DAM

Sample Date	pH (units)	Conductivity at 25 deg C (umhos/cm)	Dissolved Solids (Total) mg/L	Suspended Solids mg/L	Hardness (Total) mg/L as CaCO3	Nitrate mg/L as N	Nitrite mg/L as N	Fluoride mg/L	Chloride mg/L	Sulphate mg/L	Total Coliform (Colonies/100mL)	Fecal Coliform (Colonies/100mL)	Arsenic (Total) mg/L	Barium (Total) mg/L	Boron (Total) mg/L	Cadmium (Total) mg/L	Calcium (Total) mg/L	Chromium (Total) mg/L	Copper (Total) mg/L	Iron (Total) mg/L	Lead (Total) mg/L	Magnesium (Total) mg/L	Manganese (Total) mg/L	Mercury (Total) mg/L	Selenium (Total) mg/L	Sodium (Total) mg/L	Zinc (Total) mg/L	Heterotrophic Plate Count (colonies/mL)	
Dec-94	7.8	400	190	1.2	204	<0.05	<0.05	<0.05	<0.05	28.3	2	<1	<0.005	0.44	0.16	<0.002	65.1	<0.005	0.003	0.03	<0.005	10.1	<0.01	<0.0001	<0.0001	<0.005	<0.01	<0.01	
Dec-95	7.66	360	130	<1	161	<0.03	<0.03	0.06	<2	17	<1	<1	<0.0050	0.22	0.17	<0.001	55.1	<0.005	<0.002	0.07	<0.005	5.6	<0.005	<0.0001	<0.005	<1	<0.01		
Mar-96																													
Jan-97	8.08	370	200	<1	220	<0.05	<0.05	<0.05	<2	17.1	<1	<1	<0.005	0.11	<0.05	<0.001	72.9	<0.005	0.004	0.03	<0.01	8.6	<0.01	<0.0001	<0.005	2	<0.01		
Feb-98	7.31	410	250	<1	240	<0.05	<0.05	0.13	<2	28	12	<1	<0.02	0.13	<0.05	0.001	79.7	0.008	0.034	0.19	<0.01	10.9	<0.01	<0.0001	<0.005	4	<0.01		
Dec-98	7.32	580	380	2	267.5	0.28	0.28	0.3	26	33	40	<1	<0.02	0.0509	<0.01	<0.0005	87	<0.001	0.011	0.098	<0.005	12.2	0.0173	<0.0001	<0.01	10.8	0.013	32	
1999	8.08	445	273		192	<0.003	<0.003	0.2	<0.50	37	0	0	<0.001	0.08	<0.01	<0.0005	61	<0.004	<0.005	<0.01	<0.001	10.2	<0.005	<0.05	<0.01	2.78	<0.002		
2000	8.4	380	241	<1	226	0.01	<0.01	0.2	0.6	20	7	0	<0.01	0.03	<0.1	<0.0002	75.6	<0.01	<0.01	<0.03	<0.001	9.1	<0.005	<0.00005	<0.0005	2.16	<0.005	19	
2001	7.9	390	267	<1	241	0.05	<0.01	0.2	0.6	33	1	0	<0.01	0.03	<0.1	<0.0002	77.3	<0.01	<0.01	<0.03	<0.001	11.7	<0.005	<0.00005	<0.001	2.92	<0.005	44	
2002	8.2	358	214	<1	184	<0.01	<0.01	<0.10	0.5	16.3	4	0	<0.0001	0.02	<0.1	<0.0002	60	<0.01	<0.01	<0.03	<0.001	8.3	<0.005	<0.00005	<0.0005	2.28	<0.005	68	
CDWG*1			<500		<500	10.0	1.0	1.5	<250	<500	**	**	0.025	1.0	5.0	0.005	-	0.05	<1.0	0.3	0.01	-	0.05	0.001	0.01	<200	<0.05	500	
CDWG*2	6.5-8.5																												
<b>CDWG - Canadian Drinking Water Quality Guidelines</b>																													
*1 Maximum acceptable concentration																													
*2 Aesthetic concentration																													
Notes: Hardness: 80-100 as CaCO3																													
>200 as CaCO3																													
>500 as CaCO3																													
normally unaccepted																													

\*\* Microbiological Characteristics:  
 For total coliform the maximum acceptable concentration is 0 colonies/100mL. However, due to uneven distribution in water:  
 1) No sample should contain more than 10 total coliform organisms per 100 mL, none of which should be fecal coliforms.  
 2) No consecutive samples from the same site should show any coliforms  
 3) If any coliforms are detected, or if there are more than 200 background colonies on a total coliform membrane filter per 100 mL, the site should be resampled, and if results confirmed, cause should be determined and remediation undertaken.

**Appendix D**  
**Wastewater Quality Test Results**

No wastewater information was seen