MINISTRY OF FORESTS & LANDS

KATHLYN LAKE

WATER QUALITY INVESTIGATION

Following independent consultants' and Ministry of Forests & Lands' staff review of the Ministry of Environment and Parks Report on Lake Kathlyn Water Quality authored by D. Remington, it was found that the methodology was incomplete and was based on previous unsupported assumptions. These defects in the report mislead Remington to the point where erroneous conclusions and recommendations were drawn.

This report's purpose is to fill in some of the gaps in the previous reports with an overview of only some of Lake Kathlyn's many possible water borne nutrient sources. The Ministry of Forests and Lands has addressed only nutrient sources which are of immediate and direct concern to it as well as some adjacent streams for comparison. A complete nutrient and water quality study of the Lake Kathlyn drainage basin is not felt to be the mandate of the Ministry of Forests & Lands.

MINISTRY OF FORESTS & LANDS

LAKE KATHLYN WATER QUALITY INVESTIGATION

I INTRODUCTION

The investigation into the poor water quality of Lake Kathlyn has been an ongoing topic of discussion and speculation for at least 15 years. Ministry of Environment and Parks studies indicate that the rate of eutrophication taking place in the lake is limited by the amount of phosphorous present in the lake system. Similar, or worse eutrophication problems are occurring in other nearby lakes such as Seymour, Round, and Tyhee. Seymour Lake, according to the Ministry of Environment and Parks is subject to higher phosphate concentrations than Kathlyn, but does not seem to have a known phosphate source.

Ministry of Forests & Lands' suspicion of the conclusions and recommendations of the report on Lake Kathlyn water quality, by D. Remington, was heightened with the presence in the report of Table 1 of her report which listed a number of streams running into Lake Kathlyn with their phosphorous and nitrogen concentrations. The missing factor was that Remington's report did not show the rate of stream flow which is required to calculate the nutrient mass loading rate from each stream source. The nutrient mass loading rate (weight of a given nutrient element placed in the lake), must be determined for each stream source and the net accumulation of a given nutrient should approximately equal the nutrient budget for the lake. No apparent attempt to make this correlation was ever reported by the Ministry of Environment and Parks

The Ministry of Environment and Parks report further did not take into account the highly impervious nature of the soil in their recommendation for a lined holding pond for the Air Tanker Base Waste Retardant Pond.

The Ministry of Forests & Lands staff then submitted these points to the Ministry of Environment and Parks staff during a meeting on March 3, 1986, where it was agreed that the Ministry of Forests & Lands carry out a further study to answer the above questions.

This report addresses:

> The nutrient loading of drainage from the areas of the airport and Upper Kathlyn Creek, regional soil chemistry, soil permeability, and the soil's capacity for fire retardant disposal.

II EVALUATION OF THE NUTRIENT LOADING CONTRIBUTION OF SURFACE WATER COURSES FLOWING INTO LAKE KATHLYN

The Ministry of Forests & Lands stream flow study confirms the seriousness of the omission of stream flow rates and failure to consider nutrient mass flow rates.

METHOD

The only method which can truly evaluate the comparative nutrient loading from several separate water courses is an analysis of the total mass of a given nutrient carried in each water course.

The mass flow of a nutrient in a water course is determined by the project of the nutrient concentration and the volumetric stream flow rate nutrient concentrations were obtained by analyzing water samples taken at the eight sample points shown in Figure 1. The analysis was carried out at the Ministry of Environment and Parks Environmental Laboratory. Flow rates were measured by estimating each streams' cross sectional area and mean velocity. This field work was carried out by Prince Rupert Forest Region research hydrologist D.J. Wilford.

DISCUSSION OF RESULTS

Sampling of water from: the two ditches draining into Lake Kathlyn from the airport, one adjacent stream, and the mouth of upper Kathlyn Creek was carried out from the beginning of March to the end of August, 1986. The eight sample locations were chosen by staff from the Ministries of Environment and Parks, and Forests & Lands..The sampling data are summarized in Appendix I - Nutrient Mass Flows.

Sample Locations 1, 7, and 5 are in the north ditch starting at the Tanker Base. Drainage from the hangar perimeter, the airport parking lot, and the fisheries lake fertilization program also flows into this ditch. Following March 17th, no flow was observed at sample point 1 near the Tanker Base. The changing nutrient concentrations were probably a function of nutrient solution being washed out of the soil - readsorption onto the soil - rainfall dilution and evaporative concentration. Sample point 7 was observed to have small amounts of flow until sometime prior to July 21st. Downstream sample point 5, however, was dry after April 28th, the small amount of water at sample point 7 was lost to evapo-transpiration and draining into the ground. The total phosphorous flow from this point 7 ditch during the sampling period was in the order of 0.01 kg. The other south ditch below the Air Tanker Base is not picking up any runoff water from the Ministry of Forests & Lands operations, due to the location of a ridge of

higher ground which directs runoff to the first ditch discussed. Nonetheless, the south ditch was studied at sample points 2, 3, and 4. Typically, the upper sample point 2 became dry early in the season. However, sample points 3 and 4 continued to show stream flows, due to a drain pipe of unknown origin. The estimated total amount of phosphorous passing sample point 4 during the study period was estimated to be 8.4 kg of which half was analyzed as ortho-phosphate.

As a reference, a ditch running along the highway was observed at sample point 6. The ditch was last sampled on June 18th, and is estimated to have carried more than 31 kilograms of phosphorous, 3.6 kg of it in the form of ortho-phosphate between April and July.

As a result of limited data presented but not addressed in Remington's study, and Ministry of Forests and Lands soil information, upper Kathlyn Creek was observed at sample point 8 near the creek mount. The creek has in the period of March 26th to August 25th released an estimated 1,100 kg of phosphorous, of which approximately 50 kg was ortho-phosphate.

The ratio of phosphorous coming from the Tanker Base hangar, and drainage as compared to Kathlyn Creek is 1:110,000. Even considering that the flow measurements may have errors as large as 50% associated with them, the relative magnitude of the flow from Kathlyn Creek will overwhelm all other small streams.

Although other small streams such as Club Creek and various other drainage ditches were not studied, it is a straight forward conclusion that the majority of phosphorous in Lake Kathlyn originated in the upper Kathlyn Creek drainage basin. This conclusion is based only on our study and does not consider all possible phospherous sources in the Kathlyn Lake drainage basin.

Ministry of Forests and Lands soil surveys indicate that the highest biologically available soil phosphorous concentrations in the Prince Rupert Forest Region (comprising Prince Rupert to Lower Post, Yukon) are found in the upper Kathlyn Creek drainage basin. The soil sample data are presented in Appendix IV.

The high concentration of biologically available phosphorous in the soil may be one of the sources of soluble reactive phosphate or ortho phosphate. Ortho phosphate concentration is based on the detection of the compound being dissolved or being in particles of less than 0.45 microns diameter. Thus a total phosphate concentration could contain ortho phosphate which is adsorbed on soil flocs or bound up on some carrier material which is larger than the critical selection

particle diameter used for ortho-phosphate. This larger particle could then be broken down by physical or chemical means on entering the lake system. Additionally, there are some chemical environments which do favour the formation of ortho-phosphate from other states of phosphate, for example, molybdenate or possibly other metal compounds as mentioned by J. Follows in his report entitled 'Determination of the Impact of Phosphate Compounds on Algal Growth in Fresh Water - A Brief Survey'. This possibility is very interesting in light of the degree of mineralization on Hudson Bay Mountain.

III SOIL ANALYSIS

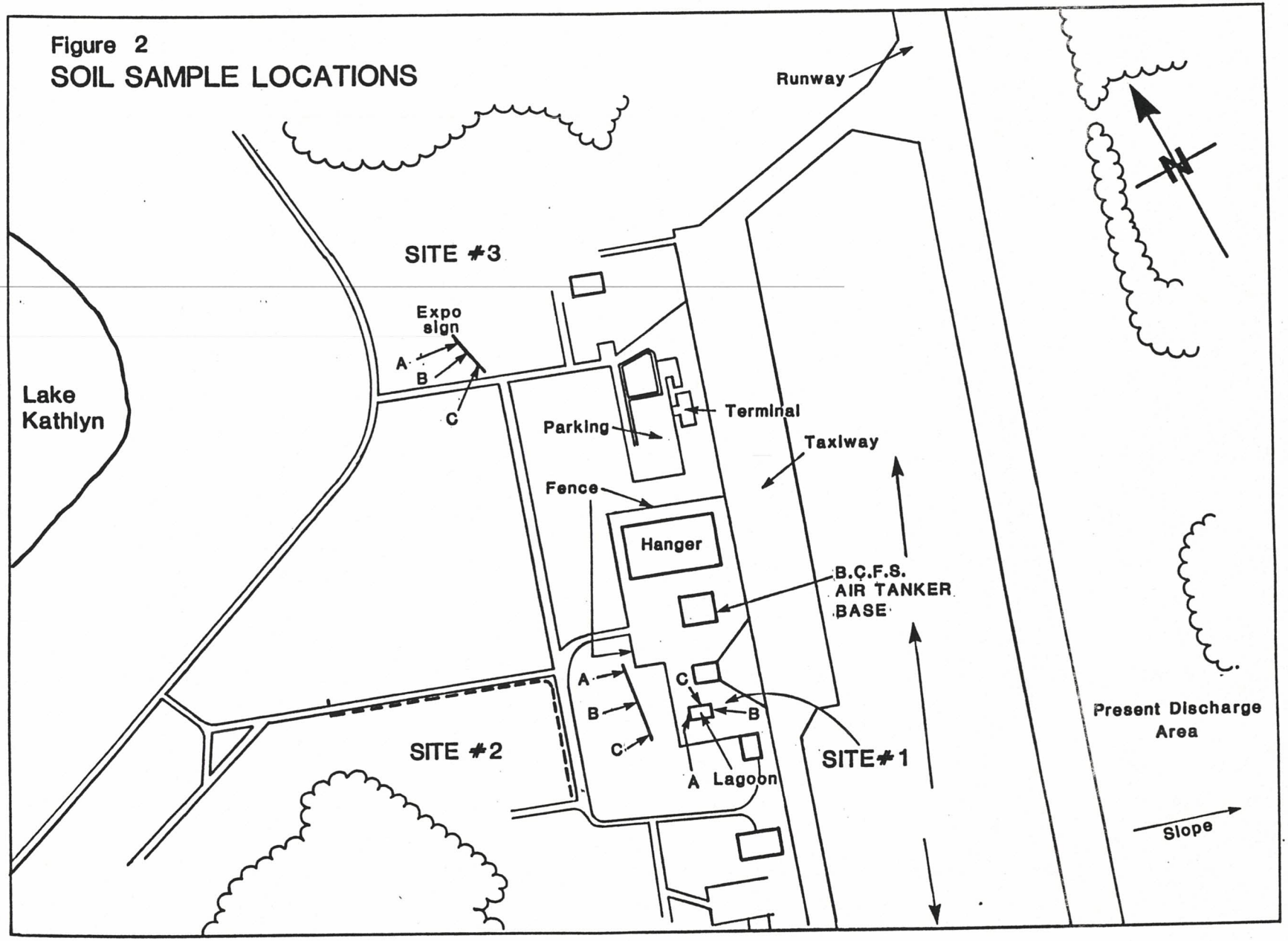
The Ministry of Environment & Parks recommendation that the holding pond should be lined may well have been based on their erroneous belief that the pond was constructed in a coarse gravel, as evidenced by Figure #2 of Remington's Report. Even though construction records indicated the presence of a clay material, further study of possible nutrient movement in the soil and ground water was requested.. In order to investigate the Remington Report's recommendation that the Air Tanker Base retardant wash down holding pond be lined with an impermeable Hypalon liner, soil sampling was undertaken to determine whether lateral movement of nitrogen or phosphorous compounds was actually occurring. The Ministry of Highways Geotechnical and Materials Branch supplied a truck-mounted auger capable of drilling to depths of more than 4.5m. This unit was used to drill:

- three vertical holes in the holding pond berm,
- three holes in the field to the west and down slope, and
- a set of three samples in the general area of the Expo sign approximately 0.4 km north of the air tanker base.

The drill hole locations are shown on Figure 2 and the chemical analysis of the samples is tabulated in appendix II.a

The available nutrient content of all of the soil samples is considered low in comparison to the Laboratory Standard Kelowna Soil Sample which was used as a laboratory control. However, the total phosphorous content of all of the soil samples is about 0.08%, approximately double the percentage of total phosphorous in the Kelowna Standard. There is no correlation between depth or distance relative to the retardant pond for nitrogen, available phosphorous or total phosphorous. The driller's log notes that very dense clay containing occasional boulders was encountered and that the water table was not found. Further, Soilcon's Report indicates that phosphorous is immobilized on clay and as a result very little is expected to translocate through the soil.

Figure 2
SOIL SAMPLE LOCATIONS



The above findings indicate that there is no transverse or vertical movement of nutrients from the holding pond. This results from the native clay material being highly impermeable and very absorptive of phosphorous. A further indication of the lack of nutrient movement was found in a study of the assimulative capacity of the soil, where the retardant wash down was used to fertilize Transport Canada Land east of the south end of the runway. Soilcon (Appendix II B) found that there was no build up of nitrogen or available phosphorous. The phosphorous was being tied up or adsorbed by the soil.

In view of the above results a Hypalon lining is not required for the holding pond. The Ministry of Environment and Parks was totally mistaken in thinking that the holding pond was constructed in coarse gravel soils. The existing dense clay soil provides a sufficiently impervious barrier which, in the long term, is more reliable and damage resistant than a Hypalon liner.

SUMMARY

The primary phosphorous source in the lake is upper Kathlyn Creek. The quantity of phosphorous available to plant growth in this drainage basin is extremely high in comparison to any soil in the Prince Rupert Forest Region. This appears to be a natural source of phosphorous.

CONCLUSION

The recommendation in the Remington Report calling for pumping airport drainage water out of the Lake Kathlyn drainage basin is obviously in error and must be disregarded since the flow of waterborne phosphorous from the Air Tanker Base hangar and airport terminal has been shown to be negligible. The rate of transmission of phosphorous through the dense clay soil has been found to be negligible and obviates the use of an Hypalon lining in the retardant holding pond. Since the primary premises of the Remington report have proven to be completely invalid, the recommendations must be disregarded and any remaining copies should be stamped "invalid".

REFERENCES

Boyd, I.T., McKena, C.J.P., Nordin, R.N. Kathlyn Seymour, Round and Tyhee Lakes Water Quality Assessment and Objectives. Victoria, B.C.: Ministry of Environment and Parks, Province of British Columbia, 1985.

Follows, J. Determination of the Impact of Phosphorous Compounds on Algal Growth in Fresh Water - A Brief Survey. 1982.

Remington, D. The Effects of the Ministry of Forests Air Tanker Base on Lake Kathlyn Water Quality. Victoria, B.C.: Waste Management Branch Northern Region Skeena Zone, 1986.

Salisbury, F. & Ross Cleon. Plant Physiology 2nd Edition. Belmont, CA: Wadsworth Publishing Company, Inc. 1978.

APPENDIX I

NUTRIENT MASS FLOWS

Notes:

Steam Flow
0 entered means no flow.
Blank entered means not available

Nutrient Concentrations
0 sample point dry

For Sample Point Locations see Figure #1.

SAMPLE POINT #1

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	0.44		0.23	60%		0.10076	0.060456
March 12		6.11	0.78	67%	0	0	0.523
March 17		9.61	1.65	48%	0	0	0
March 26	0	6.13	0.81	82%	0	0	0
March 31	0	18.10	0.67	64%	0	0	0
April 7	0	76.90	0.65	40%	0	0	0
April 15	0	30.00	1.51	68%	0	0	0
April 21	0	25.30	4.28	73%	0	0	0
April 28	0	43.80	3.57	73%	0	0	0
May 5	0	38.70	4.66	79%	0	0	0
May 20	0	23.80	4.88	63%	0	0	0
June 2	0	41.90	4.91	44%	0	0	0
June 18	0	18.90	4.10	85%	0	0	0
July 21	0	0.00	0.00	0%	0	0	0
August 25	0	0.00	0.00	0%	0	0	0

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
0.2	0.0	0.03	0.02

SAMPLE POINT #2

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	0.13		0.33	8%		0.0429	0.0036036
March 12		0.89	0.154	4%	0	0	0
March 17		0.54	0.083	11%	0	0	0
March 26	0.001	0.53	0.036	33%	0.00053	0.000036	0.00001188
March 31	0	0.44	0.028	29%	0	0	0
April 7	0	0	0	0%	0	0	0
April 15	0	0	0	6%	0	0	0
April 21	0	0	0	0%	0	0	0
April 28	0	0	0	0%	0	0	0
May 5	0	0	0	0%	0	0	0
May 20	0	0	0	0%	0	0	0
June 2	0	0	0	0%	0	0	0
June 18	0	0	0	0%	0	0	0
July 21	0	0	0	0%	0	0	0
August 25	0	0	0	0%	0	0	0

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
0.04553	0.00032	0.00127	0.00125

SAMPLE POINT #3

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	0.32		0.229	54%		0.07	0.040
March 12		0.96	0.111	49%	0.00	0.00	0.000
March 17		1.36	0.209	18%	0.00	0.00	0.000
March 26	4.5	0.86	0.071	28%	3.87	0.39	0.109
March 31	5	0.93	0.08	16%	4.65	0.40	0.065
April 7	2	1.52	0.091	17%	3.04	0.18	0.030
April 15	0.75	1.66	0.071	6%	1.25	0.05	0.003
April 21	6.16	1.54	0.066	15%	9.49	0.41	0.062
April 28	1.5	1.53	0.058	14%	2.30	0.09	0.012
May 5	1.6	1.77	0.061	15%	2.83	0.10	0.015
May 20	5.62	1.67	0.06	13%	9.38	0.34	0.045
June 2	0.001	3.15	0.299	5%	0.00315	0.00	0.000
June 18	4	1.46	0.088	31%	5.84	3.52	1.091
July 21	0	0	0	0%	0	0.00	0.000
August 25	0	0	0	0%	0	0.00	0.000

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
28	41	9.0	2.6

SAMPLE POINT #4, UNIDENTIFIED PIPE

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	28		0.384	65%		10.75	6.99
March 12		1.71	1.72	52%	0	0.00	
March 17		1.85	0.214	37%	0	0.00	
March 26	4.5	1.07	0.094	52%	4.815	4.23	2.20
March 31	5.14	1.16	0.083	34%	5.96	0.43	0.14
April 7	5	4.04	0.085	31%	20.2	0.43	0.13
April 15	1.67	3.9	0.085	40%	6.513	0.14	0.06
April 21	6.533	2.86	0.194	66%	18.68	1.27	0.84
April 28	2.6	3.17	0.124	45%	8.24	0.32	0.14
May 5	2	3.51	0.12	50%	7.02	0.24	0.12
May 20	8	2.07	0.14	60%	16.56	1.12	0.67
June 2	1.24	7.13	0.17	66%	8.73	0.21	0.14
June 18	8.4	2.64	0.189	62%	22.176	1.59	0.98
July 21	0.05	42.3	4.28	1%	2.115	0.21	0.00
August 25	0.01	42.2	16.9	88%	0	0.17	0.15

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
54.3	128.3	12.4	7.1

SAMPLE POINT #5

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	0.69		0.169	18%		0.11661	0.0209898
March 12		2.2	0.542	5%	0	0	0
March 17		0	0	0%	0	0	0
March 26	0.001	2.63	0.56	4%	0.00263	0.0056	0.0002128
March 31	0	1.48	0.172	6%	0	0	0
April 7	0	1.15	0.084	10%	0	0	0
April 15	0.001	1.31	0.144	3%	0.00131	0.000144	0.000004032
April 21	0.001	0.91	0.04	1%	0.00091	0.00004	0.0000005
April 28	0	0.72	0.035	17%	0	0	0
May 5	0			0%	0	0	0
May 20	0			0%	0	0	0
June 2	0			0%	0	0	0
June 18	0			0%	0	0	0
July 21	0			0%	0	0	0
August 25	0			0%	0	0	0

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
0.2398	0.0019	0.0419	0.0073

SAMPLE POINT #6

DATE	STREAM FLOW litres/sec	CONCENTRAIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	56		0.219	46%		12.264	5.64144
March 12		21	0.286	62%	0	0	0
March 17		13.3	0.142	37%	0	0	0
March 26	2.67	11.9	0.096	30%	31.773	0.256	0.0768
March 31	2.5	12.2	0.067	15%	30.5	0.1675	0.0249575
April 7	6.25	13.5	0.069	12%	84.375	0.43125	0.050025
April 15	0.6	9.58	0.061	5%	5.75	0.037	0.001813
April 21	3.75	11.9	0.045	27%	44.6	0.17	0.04539
April 28	1.96	8.93	0.029	10%	17.5	0.057	0.005871
May 5	1.44	5.54	0.029	10%	7.98	0.042	0.004326
May 20	3.83	2.14	0.033	9%	8.2	0.126	0.011466
June 2	0.0654	1.27	0.033	9%	0.83	0.022	0.00198
June 18	7.5	2.55	0.034	14%	19.125	0.255	0.0357
July 21	0			0%	0	0	0
August 25	0			0%	0	0	0

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
51.4	179.4	5.6	2.1

SAMPLE POINT #7

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 3	0.19		0.216	29%		0.04104	0.01190
March 12		2.24	0.272	9%	0.000	0.00000	0.00000
March 17		1.81	0.131	11%	0.000	0.00000	0.00000
March 26	0.45	1.63	0.101	17%	0.734	0.04500	0.00756
March 31	0.0025	0.83	0.068	19%	0.002	0.00017	0.00003
April 7	0.0025	1.65	0.087	3%	0.004	0.00022	0.00001
April 15	0.0025	4.35	0.097	8%	0.011	0.00024	0.00002
April 21	0.0025	3.75	0.033	15%	0.009	0.00008	0.00001
April 28	0.0025	3.41	0.025	12%	0.008	0.00006	0.00001
May 5	0.001	3.2	0.051	45%	0.003	0.00005	0.00002
May 20	0.001	1.62	0.037	8%	0.002	0.00037	0.00003
June 2	0.001	0.83	0.056	5%	0.001	0.00006	0.00000
June 18	0.001	2.7	0.062	21%	0.003	0.00006	0.00001
July 21	0			0%	0.000	0.00000	0.00000
August 25	0			0%	0.000	0.00000	0.00000

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
0.20	0.22	0.03	0.01

SAMPLE POINT #8 Upper Kathlyn crk Mouth

DATE	STREAM FLOW litres/sec	CONCENTRATIONS ppm Nitrogen	total Phosphorous	% Ortho Phosphorous of total Phosphorous	MASS FLOW RATE FOR NUTRIENT LOADS milligrams/sec Nitrogen	total Phosphorous	Ortho Phosphorous
March 12		1.18	0.081	20%	0	0.0	0.00
March 17		1.06	0.07	23%	0	0.0	0.00
March 26	81	0.88	0.068	28%	71.658	5.5	1.54
March 31	73	0.7	0.04	10%	50.911	2.9	0.29
April 7	90	0.98	0.07	7%	88.2	6.3	0.45
April 15	68	0.69	0.032	13%	46.575	2.2	0.27
April 21	224	0.97	0.076	5%	217.28	17.0	0.90
April 28	117	0.82	0.04	8%	95.75	4.7	0.35
May 5	138	0.87	0.037	11%	119.6	5.1	0.55
May 20	402	0.91	0.072	4%	420	33.2	1.40
June 2	872	0.4	0.031	10%	348.7	27.0	2.62
June 18	563	0.79	0.083	4%	444.375	466.7	16.80
July 21	333	0.17	0.017	18%	56.661	5.7	1.00
August 25	38	0.28	0.014	21%	10.64	0.5	0.11

SUMMARY OF SAMPLE PERIOD

Stream runoff cubic decameters	Nitrogen Kilograms	Phosphorous Kilograms	Ortho Phosphorous Kilograms
4269.3	2490.1	1123.4	46.5

APPENDIX II

CONSULTANT'S LETTER REPORTS

I A - SOILCON DRILLED SOIL SAMPLES

I B - SOILCON RECEIVING CAPACITY OF SOIL

I C - BIOLOGICAL ENVIRONMENTAL CONSULTANT SERVICES INC.
EVALUATION OF MINISTRY OF ENVIRONMENT REPORT

soilcon
LABORATORIES LTD.

July 21, 1986

Mr J. Morgan
Technical and Administrative Services
Ministry of Forests
1450 Government Street
Victoria, B.C.
V8W 3E7

Dear Mr Morgan:

Re: Smithers Air Tanker Base

Enclosed are the results from samples we received from Leigh Banatt. The tests were conducted on the less than 2mm fraction and the table gives the percent by weight of the less than 2mm fraction of the sample as received. Results are for the less than 2 mm fraction only. We have included the results from the Kelowna Standard Soil, which we run with every batch, for reference.

The total nitrogen results range from 0.08 % to 0.02 % and are typical of fine textured subsoils. There is no clear order to the total nitrogen results. The available phosphorus ranges from 5.3 ppm to our detection limit of less than 0.3 ppm. These values are all very low. In general the results from site 3 by the Expo sign are the highest and samples near the surface tend to be higher. The total phosphorus ranges from 0.08 % to 0.04 %. We do not have much experience with interpreting total phosphorus. Phosphorus is immobilzed on, amoung other things, clay particles. The samples were a compact stony clay. There is no apparent order to the total phosporus results.

Please call me if you have any questions.

Yours truly

Michael J. Goldstein P.Ag.,M.Sc.
President

805 West 10th Avenue, Vancouver B.C. V5Z 1L7 872-0212

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Laboratory Results

Smithers Air Tanker Base

Site	Depth	Sample	% less than 2mm	Total Nitrogen (%)	Available P ppm	Total P (%)
1	2.5	A1	83.1	0.04	2.7	0.07
1	3.5	A2	80.4	0.04	<0.3	0.08
1	4.5	A3	83.1	0.04	0.7	0.07
1	2.5	B1	73.1	0.03	<0.3	0.07
1	3.5	B2	79.5	0.03	<0.3	0.08
1	4.5	B3	66.5	0.03	<0.3	0.07
1	2.5	C1	75.2	0.03	1.3	0.08
1	3.5	C2	78.5	0.03	1.3	0.07
1	4.5	C3	83.1	0.03	2.0	0.07
2	1.5	A1	76.6	0.08	2.0	0.04
2	3.0	A2	74.0	0.04	1.0	0.07
2	1.5	B1	79.1	0.03	1.0	0.07
2	3.0	B2	80.7	0.03	<0.3	0.08
2	1.5	C1	81.8	0.03	1.0	0.07
2	3.0	C2	78.1	0.03	<0.3	0.08
2	6.0	C3	81.8	0.03	<0.3	0.07
3	1.5	A1	69.6	0.04	5.3	0.08
3	3.0	A2	73.7	0.03	1.0	0.07
3	1.5	B1	67.9	0.02	5.3	0.08
3	3.0	B2	72.0	0.02	1.8	0.08
3	1.5	C1	72.2	0.03	<0.3	0.07
3	3.0	C2	79.3	0.03	<0.3	0.08
Kelowna Standard Soil			100.0	0.16	50.0	0.04

805 West 10th Avenue Vancouver B.C. V5Z 1L7 873 9212

soilcon
LABORATORIES LTD.

January 8, 1986

Mr. John Morgan P.Eng.
Technical and Administrative Services Branch
1450 Government Street
Victoria, B.C.
V8W 3E7

Dear John:

Re: Smithers Fire Retardant Residue

Enclosed are the laboratory results on the soil samples sent to us from the Smithers airport by Mr. Richard Trowbridge. Five samples from each of three sites for two depths were collected. As per instructions, we composited each set of five replicates. I would like to share a few of my thoughts with you on the results.

Both the Runway and the Retardant Dump are not natural soils. They have had their topsoil removed. The surface samples sent to us from these sites appeared to be compact Bt horizons. The Cropped Field shows a normal fertilized Ap horizon. The Cropped Field values for total nitrogen and total sulfur are normal for a cultivated field in the region. Without the fire retardant the nitrogen and sulfur values for the Runway and Retardant Dump site would still be lower. The low (3-5 ppm) nitrate readings imply that there is little if any nitrogen which is available to be leached into groundwater. The cultivated field with a much high hydraulic conductivity and higher nitrate would be contributing more nitrate to the ground water, but still this amount is very low. Both the nitrogen and sulfur added are being rapidly converted into larger organic molecules by plants and microscopic organisms. It is not surprising that the grass in the Retardant Dump is growing much faster than in the surrounding area.

I am at a loss to explain the very high calcium on both the Runway and Retardant Dump areas, it was definitely put there by man. At these levels free carbonates would be present. In addition to effecting the pH of the soil, the calcium has tied up all of the applied phosphorus in the Retardant area. No available phosphorus was found in the Retardant Dump site. As long as there is no runoff, there does not seem to any problem with phosphorus getting into the groudwater at present. Eventually, the retention capacity of the calcium will be exceeded, and applied phosphorus could start leaching. — Deicer Component

The only alarming result was the high cyanide level of 4.62 ppm. I am unfamilar with the significance, fate, and effect of cyanide in soils. There is probably considerable research on the subject as cyanide used to be present in common pesticides.

Were it not for the cyanide I would recommend trippling the size of the dump site and rotating it each year; however, a literature study should be made first on cyanide in soils to determine what bearing the cyanide could have on disposal guidelines. We did not recieve a complete listing of all of the chemicals in the retardant, so other contaminants may also be present.

Soilcon has recently obtained accounts with both the Dialog and BRS databanks. These would be good places to begin a literature search on cyanide.

yours truly,

Michael J. Goldstein P.Ag., M.Sc.
President

soilcon LABORATORIES LTD.

Fire Retardant

	texture	pH	EC	TKN	TS	NO_3	Ca	Mg	K	PO4	Na
						available					
			mS	%	%	ppm					
Runway											
P1 A 0–15	sicl	8.03	.27	.056	<.01	5.0	4610	595	53	<20	68
P1 B 15–30	sicl	7.02	.40	.041	<.01	4.0	3710	730	47	<20	130
Retardant Dump											
P2 A 0–15	sil	7.62	.21	.071	<.01	5.0	3230	357	51	<20	33
P2 B 15–30	sil	8.08	.17	.039	<.01	3.0	3510	505	40	<20	32
Cropped Field											
P3 A 0–15	sil	6.10	.07	.201	.02	8.0	775	227	108	49	29
P3 B 15–30	sil	5.97	.04	.117	.01	8.0	510	196	87	39	47

*TKN total kjeldhal nitrogen;TS total sulfur

P2 A 0–15 cyanide 4.62 ppm

TLX REF: 2/43

SUBJECT: EUTROPHICATION OF LAKES

WE FOUND SOME DISCREPANCIES AND QUESTIONS WHEN WE REVIEWED THE 2 REPORTS YOU SENT US REGARDING EUTROPHICATION OF KATHLYN, SEYMOUR, ROUND AND TYHEE LAKES AS FOLLOWS:

1.) FROM THE REPORT BY IAN BOYD ET AL
PAGE 4 ''THE SOURCE OF PHOSPHOROUS CAUSING THE EUTROPHIC CONDITIONS IN SEYMOUR LAKE COULD NOT BE DETERMINED FROM 1982 DATA'' WE BELIEVE THIS IS ALSO TRUE FOR LAKE KATHLYN. FOR LAKE KATHLYN, THE CAUSE HAS BEEN ASSIGNED TO THE FIRE RETARDANT. HOWEVER, ON PAGE 6 OF THE REPORT BY DAWN REMINGTON DISCUSSING A HISTORIC PRESPECTIVE, THE AVERAGE CHARACTERISTICS OF THE EFFLUENT (1978) INCLUDED A LARGE PHOSPHOROUS CONTENT (922 MG/LITER). THIS WAS EXPLAINED AS FOLLOWS:

''THE LARGE PHOSPHOROUS COMPONENT OF THE EFFLUENT IS APPARENTLY A BY-PRODUCT OF FERTILIZER MANUFACTURE.'' THAT STATEMENT IS INCORRECT. NEITHER AMMONIUM SULFATE (FROM FIRE-TROL 100) NOR UREA (FROM DEICING THE RUNWAY CONTAIN ANY SIGNIFICENT LEVEL OF PHOSPHOROUS. THEREFORE, STATING IN 1978-1979 THERE WAS AN UNKNOWN SOURCE OF PHOSPHOROUS EQUAL TO 170 KG.

2.) ON PAGE 10 OF THE REPORT BY REMINGTON: POSSIBLE PATHS OF NUTRIENT MOVEMENT FROM THE TANKER BASE INTO THE RUNOFF WATER=

''SEEPAGE FROM THE UNLINED LAGOON INTO GROUNDWATER AND THUS INTO DRAINAGE DITCHES.'' THIS IS CONTRADICTED IN THE REPORT BY IAN BOYD WHERE THE NATURE OF THE SOIL IF SAID TO BE GOOD FOR OBSORBING PHOSPHOROUS FROM SEPTIC TANKS BETWEEN THE AIRFIELD AND LAKE KATHLYN (SEE MAP ON PAGE 70) IF THE SOIL IS GOOD FOR ABSORBING PHOSPHOROUS THEN IT WILL BE GOOD FOR EITHER SEPTIC EFFLUENT OR LAGOON SEEPAGE. THEREFORE, WE QUESTION THE NEED TO DIG OUT AND LINE THE LAGOON.

3.) ON PAGE 10 OF THE REPORT BY REMINGTON:

''SURFACE RUNOFF OF THE EFFLUENT DISCHARGED ONTO THE AIRPORT FIELDS. THE DISCHARGE OF EFFLUENT ONTO THE SOUTHWEST FIELD IN APRIL 1983, APPEARS TO HAVE CAUSED THE EXCEPTIONALLY HIGH NUTRIENT CONCENTRATIONS IN THE RUNOFF THAT YEAR. WE SUGGEST THAT, AS POINTED OUT IN 1 ABOVE, THE SOURCE OF THE PHOSPHOROUS IS UNKNOWN. DATA FROM NORRIS ET AL (SENT EARLIER) SHOWS VERY LITTLE MIGRATION OF FIRE RETARDANTS WHICH ARE APPLIED TO SOIL NEAR (WITHIN 3 METERS) BODIES OF WATER. SEE ALSO PAGE 51 OF THE REPORT BY BOYD= LAST PARAGRAPH: ''THE PHOSPHOROUS TRANSMISSION COEFFICIENTS FOR APPLIED FERTILIZERS SHOULD BE LOWER THAN FOR SEPTIC TANKS. '' ALSO ''FERTILIZERS APPLIED TO THE ROOT ZONE OF THE SOIL WHICH HAS A HIGHER PHOSPHOROUS ABSORPTION ABILITY.'' (PLEASE NOTE, HOWEVER, THIS IS COUNTERED BY STATEMENTS THAT THE SURFACE SOIL AROUND THE AIRPORT IS RELATIVELY IMPERVIOUS

ON BALANCE WE FEEL THE SOURCE OF PHOSPHOROUS IS LARGELY UNKNOWN.

4.) THE UNKNOWN NATURE OF CONTAMINATES IS A COMMON PROBLEM. AS POINTED OUT ON PAGE 6 OF THE REPORT BY BOYD ''WATER QUALITY OBJECTIVES HAVE NO LEGAL STANDING AND THEIR DIRECT ENFORCEMENT WOULD NOT BE PRACTICAL. THIS WOULD BE DUE TO THE DIFFICULTY OF ACCURATELY MEASURING CONTAMINATES IN RECEIVING WATER AND ATTRIBUTING THE CONTAMINATION EXCEEDING THE OBJECTIVE TO PARTICULAR SOURCES FOR LEGAL PURPOSES, AND THUS PROVING VIOLATIONS AND THEIR CAUSES.

BEST RGDS,
BRUCE STRICKLAND

CC: J. GRIGEL

+
CHEM IND KAM
.....

BIOLOGICAL ENVIRONMENTAL CONSULTANT SERVICES, INC.
3631 W. Pasadena • Phoenix, Arizona 85019
(602) 973-6377

RECEIVED
MAR 19 1986
CHEMONICS INDUSTRIES, INC

March 17, 1986

Mr. Bruce Strickland
Chemonics Scientific
734 East Southern Pacific Drive
Phoenix, AZ 85034

Dear Mr. Strickland:

As you requested, I have outlined some of the concerns John Beck and I had when we reviewed the documents, The Effects of the Ministry of Forests Air Tanker Base on Lake Kathlyn Water Quality and the Executive Summary prepared by Boyd, Wilkes et al. We have tried to concentrate on what we deem as major flaws in design, disregard for scientific method, and examples of illogic.

Faulty Design

The two documents are based on faulty scientific design, i.e., on "accepted" assumptions. Data do not support claims, but rather, are integrated into a body of unsubstantiated statements. Examples of this fallacy can be found on p. 23 of the Executive Summary; it is assumed that 45% of the annual phosphorous budget for Lake Kathlyn comes from airport run-off; the figure is actually based on a hypothetical model. Blatant examples of unsubstantiated claims can be found on pp. 13 and 15 of the report by Dawn Remington.

Insufficient Documentation

In order to support the claim that water quality has suffered as a direct result of the fire retardant, it must be demonstrated that other possible sources of phosphorous have been investigated. This has not been done.

According to the chart on p. 89 of the Executive Summary a water license held by the Ministry of Forests accounts for a significant portion of water used for industrial purposes, but what is it used for?

The Executive Summary has discounted the importance of a water license held by a motel. Does the motel use phosphorous detergents? The document has also dismissed the significance of the 52 residences which surround Lake Kathlyn. Have the possibilities of septic effluent and rock phosphate fertilizer been investigated?

The document has stated that phosphorous levels are the highest during the summer months, which is also the peak period when people fertilize their lawns. The report asserts that chemical fertilizers have not been used in the area during the past five years. If, however, the fertilizer was rock phosphate, which has a staying power of 10 years, particularly in colder climates, five years is an inappropriate timeframe in which to assess the impact of fertilizer on Lake Kathlyn.

In sum, there are no substantiating data which would support the claim that other sources of phosphorous have been researched.

Possible Invalid Correlation of Increase of Blue-Green Algae to Increased Input of Fire Retardant

The increase in blue-green algal blooms could have come from the 10 tons of urea which is applied annually to the lake as a de-icing agent. Urea contains 40% readily available nitrogen, and if from a slaughterhouse source, may contain high levels of phosphorous (from blood and bone material). The report has not stated how long urea has been used as a de-icer. Has it been applied during the period an increase in blue-green algal blooms was documented?

Obviously, this is not an exhaustive analysis, but it does tend to support the view that research was conducted to justify a conclusion already reached.

I have enclosed an invoice for our services. Thank you for the opportunity of working with you.

Sincerely yours,

Elizabeth J. Beck

Elizabeth J. Beck
Vice President

Enclosure

APPENDIX III

WATER CHEMISTRY

ANALYSIS RESULTS

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022211

Ministry of Forests-J. Tigchelaar ATTN: Sample 85017359

Site: NOSITE SMITHERS AIRPORT #1

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	252	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.39	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	3.01	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	6.11	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	1.62	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	3.10	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.523	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.783	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.608	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022212

Ministry of Forests-J. Tigchelaar ATTN: Sample 85017360

Site: NOSITE SMITHERS AIRPORT #2

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	95	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.81	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.86	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.89	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.047	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.03	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.017	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.154	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.034	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022213

Ministry of Forests-J. Tigchelaar ATTN: Sample 85017362

Site: NOSITE SMITHERS AIRPORT #3

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	86	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.89	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.92	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.96	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.027	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.04	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.054	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.111	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.091	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022209

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 850173

Site: NOSITE SMITHERS AIRPORT #4

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	210	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.22	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.28	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.71	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.062	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.43	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.089	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.172	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.133	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022208

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017364

Site: NOSITE SMITHERS AIRPORT #5

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	278	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.07	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	2.14	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.20	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.069	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.06	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.026	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.542	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.065	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022207

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017365

Site: NOSITE SMITHERS AIRPORT #6

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	270	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.80	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	20.0	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	21.0	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	18.2	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.97	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.178	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.286	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.248	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022210

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 850173

Site: NOSITE SMITHERS AIRPORT #7

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	231	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.56	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.82	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.24	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.261	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.42	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.024	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.272	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.057	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022206

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017368

Site: NOSITE SMITHERS AIRPORT #8

From : 86/03/12: 1030 To : 86/03/12: 1030
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	6.8	pH units	pH Meter (00041220/02/01)
Conductance Specific	87	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.70	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.04	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.18	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.340	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.14	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.016	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.081	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.041	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022217

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017882

Site: NOSITE SMITHERS AIRPORT #1

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	390	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.57	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	4.51	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	9.61	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	1.94	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	5.10	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.795	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	1.65	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.885	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022203

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar

Sample 85017884

Site: NOSITE SMITHERS AIRPORT #2

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	115	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.53	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.54	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.54	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.010	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.083	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.017	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022202

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 8501788

Site: NOSITE SMITHERS AIRPORT #3

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	6.9	pH units	pH Meter (00041220/02/01)
Conductance Specific	90	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.28	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.36	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.36	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.076	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.038	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.209	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.077	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022201

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017886

Site: NOSITE SMITHERS AIRPORT #4

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	215	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.11	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.23	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.85	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.123	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.62	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.080	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.214	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.119	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

10-Apr-86

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022204

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar

Sample 85017887

Site: NOSITE SMITHERS AIRPORT #6

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	242	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.40	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	12.6	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	13.3	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	11.2	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.65	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.053	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.142	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.093	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

Site #5

NO FLOW
∴ NO SAMPLE.

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022205

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017888

Site: NOSITE SMITHERS AIRPORT #7

From : 86/03/17: 1500 To : 86/03/17: 1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	292	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.31	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.59	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.81	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.280	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.22	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.014	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.131	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.041	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022200

Ministry of Forests-J. Tigchelaar ATTN: J. Tigchelaar Sample 85017889

Site: NOSITE SMITHERS AIRPORT #8

From : 86/03/17:1500 To : 86/03/17:1500
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	92	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.58	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.94	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.06	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.363	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.12	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.016	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.070	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.036	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022246

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000019

Site: NOSITE SMITHERS AIRPORT #1

From : 86/03/26: 1200 To : 86/03/26: 1200
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.4, analyzed outside of optimal time frame.			
onductance Specific	417	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.89: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
esult 2.63, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 6.13: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 1.74, analyzed outside of optimal time frame.			
itrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 3.50, analyzed outside of optimal time frame.			
osphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.665, analyzed outside of optimal time frame.			
osphorus Total	0.810	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
osphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.714, analyzed outside of optimal time frame.			

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022218

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000020

Site: NOSITE SMITHERS AIRPORT #2

From : 86/03/26: 1145 To : 86/03/26: 1145
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.6, analyzed outside of optimal time frame.			
onductance Specific	278	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.40: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
esult 0.46, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 0.53: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 0.062, analyzed outside of optimal time frame.			
itrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 0.07, analyzed outside of optimal time frame.			
hosphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.012, analyzed outside of optimal time frame.			
hosphorus Total	0.036	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.028, analyzed outside of optimal time frame.			

ENVIRONMENTAL LABORATORY
Report for form 00022219

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000021

Site: NOSITE SMITHERS AIRPORT #3

From : 86/03/26: 1150 To : 86/03/26: 1150
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.2, analyzed outside of optimal time frame.			
onductance Specific	115	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.78: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
esult 0.86, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 0.86: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 0.080, analyzed outside of optimal time frame.			
Nitrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result < 0.02, analyzed outside of optimal time frame.			
hosphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.020, analyzed outside of optimal time frame.			
hosphorus Total	0.071	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.054, analyzed outside of optimal time frame.			

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000022

Site: NOSITE SMITHERS AIRPORT #4

From : 86/03/26: 1130 To : 86/03/26: 1130
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	?	pH units	pH Meter (00041220/02/01)
Result 7.4, analyzed outside of optimal time frame.			
Conductance Specific	236	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.78: Component(s) analyzed outside of optimal time frame.			
Nitrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
Result 0.90, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
Result 1.07: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
Result 0.121, analyzed outside of optimal time frame.			
Nitrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 0.17, analyzed outside of optimal time frame.			
Phosphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.049, analyzed outside of optimal time frame.			
Phosphorus Total	0.094	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.084, analyzed outside of optimal time frame.			

ENVIRONMENTAL LABORATORY
Report for form 00022221

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000023

Site: NOSITE SMITHERS AIRPORT #5

From :86/03/26:1155 To :86/03/26:1155
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.2, analyzed outside of optimal time frame.			
onductance Specific	1170	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 2.30: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
esult 2.49, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 2.63: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 0.190, analyzed outside of optimal time frame.			
itrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 0.14, analyzed outside of optimal time frame.			
hosphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.021, analyzed outside of optimal time frame.			
hosphorus Total	0.560	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.057, analyzed outside of optimal time frame.			

ENVIRONMENTAL LABORATORY
Report for form 00022222

Ministry of Forests-J.Tigchelaar ATTN: D WILFORD Sample 86000024

Site: NOSITE SMITHERS AIRPORT #6

From :86/03/26:1150 To :86/03/26:1150
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.5, analyzed outside of optimal time frame.			
onductance Specific	390	uS/cm	Cond.Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.30: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel.Tot(N)	?	mg/L	Block Dig.Auto.Color (01131360/02/01)
esult 10.4, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 11.9: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm.Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 10.1, analyzed outside of optimal time frame.			
itrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 1.54, analyzed outside of optimal time frame.			
hosphorus Ort.Dis-P	?	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Result 0.029, analyzed outside of optimal time frame.			
hosphorus Total	0.096	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	?	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)
Result 0.066, analyzed outside of optimal time frame.			

ENVIRONMENTAL LABORATORY
Report for form 00022223

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000025

Site: NOSITE SMITHERS AIRPORT #7

From : 86/03/26: 1140 To : 86/03/26: 1140
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	?	pH units	pH Meter (00041220/02/01)
Result 7.4, analyzed outside of optimal time frame.			
onductance Specific	378	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.99: Component(s) analyzed outside of optimal time frame.			
itrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
esult 1.24, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
esult 1.63: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
esult 0.249, analyzed outside of optimal time frame.			
itrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 0.39, analyzed outside of optimal time frame.			
osphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.017, analyzed outside of optimal time frame.			
osphorus Total	0.101	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
osphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.042, analyzed outside of optimal time frame.			

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022224

Ministry of Forests-J. Tigchelaar ATTN: D WILFORD Sample 86000026

Site: NOSITE SMITHERS AIRPORT #8

From : 86/03/26: 1205 To : 86/03/26: 1205
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	?	pH units	pH Meter (00041220/02/01)
Result 7.1, analyzed outside of optimal time frame.			
Conductance Specific	69	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	?	mg/L	Calculated Result (0112CALC/--/--)
Result 0.55: Component(s) analyzed outside of optimal time frame.			
Nitrogen Kjel. Tot(N)	?	mg/L	Block Dig. Auto. Color (01131360/02/01)
Result 0.71, analyzed outside of optimal time frame.			
Nitrogen Total	?	mg/L	Calculated Result (0114CALC/--/--)
Result 0.88: Component(s) analyzed outside of optimal time frame.			
Nitrogen Amm. Diss(N)	?	mg/L	Automated Bertholot meth (11081351/02/01)
Result 0.160, analyzed outside of optimal time frame.			
Nitrogen NO3+NO2 Dis	?	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Result 0.17, analyzed outside of optimal time frame.			
Phosphorus Ort. Dis-P	?	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Result 0.019, analyzed outside of optimal time frame.			
Phosphorus Total	0.068	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	?	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)
Result 0.041, analyzed outside of optimal time frame.			

ENVIRONMENTAL LABORATORY
Report for form 00022232

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000085

Site: NOSITE SMITHERS AIRPORT #1

From :86/03/31:1530 To :86/03/31:1530
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	7.6	pH units	pH Meter (00041220/02/01)
onductance Specific	770	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.06	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	6.66	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	18.1	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	4.60	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	11.4	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.428	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.665	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.502	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022231

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86000086

Site: NOSITE SMITHERS AIRPORT #2

From :86/03/31:1535 To :86/03/31:1535
epth Range : 0.0 0.0 Tide :
ample State: Fresh Water
Sample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	7.8	pH units	pH Meter (00041220/02/01)
onductance Specific	330	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.43	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	0.44	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	0.44	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.015	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort.Dis-P	0.008	mg/L	Auto.Ascorbic Acid (11181380/02/01)
hosphorus Total	0.028	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.024	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022230

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000087

Site: NOSITE SMITHERS AIRPORT #3

rom : 86/03/31: 1540 To : 86/03/31: 1540
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	123	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.90	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	0.93	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	0.93	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.029	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.013	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.080	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.053	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022229

inistry of Forests-J. Tigchelaar ATTN: WILFORD

Sample 86000088

Site: NOSITE SMITHERS AIRPORT #4

rom :86/03/31:1545 To :86/03/31:1545
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	233	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.88	mg/L	Calculated Result (0112CALC/--/--)
ıitrogen Kjel. Tot(N)	0.93	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	1.16	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.049	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.23	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.028	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.083	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.065	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022228

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000089

Site: NOSITE SMITHERS AIRPORT #5

rrom :86/03/31:1550 To :86/03/31:1550
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	842	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.20	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.28	mg/L	Block Dig. Auto. Color (01131360/02/01)
..itrogen Total	1.48	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.085	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.20	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.010	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.172	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.037	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022227

inistry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86000090

Site: NOSITE SMITHERS AIRPORT #6

rom :86/03/31:1555 To :86/03/31:1555
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.8	pH units	pH Meter (00041220/02/01)
Conductance Specific	410	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.75	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	10.0	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	12.2	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	9.25	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.15	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.010	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.067	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.049	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022226

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000091

Site: NOSITE SMITHERS AIRPORT #7

From : 86/03/31: 1600 To : 86/03/31: 1600
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.6	pH units	pH Meter (00041220/02/01)
Conductance Specific	322	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.78	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.81	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.83	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.032	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.013	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.068	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.036	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022225

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000092

Site: NOSITE SMITHERS AIRPORT #8

rom :86/03/31:1610 To :86/03/31:1610
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	65	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.46	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.55	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	0.70	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.086	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.15	mg/L	Auto. Cadmium Reduction (11091350/02/01)
osphorus Ort. Dis-P	0.004	mg/L	Auto. Ascorbic Acid (11181380/02/01)
osphorus Total	0.040	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.023	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022238

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000276

Site: NOSITE SMITHERS AIRPORT - #1

From : 86/04/07: 1320 To : 86/04/07: 1320
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	1500	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.30	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	42.5	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	76.9	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	40.2	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	34.4	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.263	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.654	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.340	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022239

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000277

Site: NOSITE SMITHERS AIRPORT - #3

rom : 86/04/07: 1330 To : 86/04/07: 1330
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	122	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.37	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	1.45	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	1.52	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.082	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.07	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.015	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.091	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.068	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022240

inistry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86000278

Site: NOSITE SMITHERS AIRPORT - #4

rrom :86/04/07:1340 To :86/04/07:1340
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
nH	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	308	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.13	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	2.60	mg/L	Block Dig.Auto.Color (01131360/02/01)
,itrogen Total	4.04	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm.Diss(N)	1.47	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	1.44	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort.Dis-P	0.026	mg/L	Auto.Ascorbic Acid (11181380/02/01)
hosphorus Total	0.085	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.068	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022241

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000279

Site: NOSITE SMITHERS AIRPORT - #5

rom : 86/04/07: 1350 To : 86/04/07: 1350
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	1490	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.79	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	0.90	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	1.15	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.110	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.25	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.008	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.084	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.029	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022242

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000287

Site: NOSITE SMITHERS AIRPORT - #6

From : 86/04/07: 1420 To : 86/04/07: 1420
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.9	pH units	pH Meter (00041220/02/01)
Conductance Specific	450	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.52	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	11.4	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	13.5	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	8.88	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.10	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.008	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.069	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.035	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022243

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000288

Site: NOSITE SMITHERS AIRPORT - #7

rrom :86/04/07:1410 To :86/04/07:1410
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
_ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
nH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	808	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.68	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.53	mg/L	Block Dig. Auto. Color (01131360/02/01)
..itrogen Total	1.65	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.850	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.12	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.087	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.016	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022244

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86000294

Site: NOSITE SMITHERS AIRPORT - #8

rom : 86/04/07: 1400 To : 86/04/07: 1400
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	59	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.70	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	0.84	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	0.98	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.137	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.14	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.005	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.070	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.020	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022245

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001018

Site: NOSITE SMITHERS AIRPORT #1

From :86/04/15:1300 To :86/04/15:1300
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	950	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.80	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	11.6	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	30.0	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	10.8	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	18.4	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	1.02	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	1.51	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	1.13	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022234

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001019

Site: NOSITE SMITHERS AIRPORT #3

From :86/04/15:1320 To :86/04/15:1320
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	129	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.59	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	1.61	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	1.66	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.018	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.05	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.004	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.071	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.051	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00022235

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001020

Site: NOSITE SMITHERS AIRPORT #4

From :86/04/15:1315 To :86/04/15:1315
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
onductance Specific	392	uS/cm	Cond.Meter Siebold (00111160/02/01)
itrogen Organic-Tot	1.02	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel.Tot(N)	2.17	mg/L	Block Dig.Auto.Color (01131360/02/01)
itrogen Total	3.90	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	1.15	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.73	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.034	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.085	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.067	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022236

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001021

Site: NOSITE SMITHERS AIRPORT #5

From : 86/04/15: 1330 To : 86/04/15: 1330
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	650	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.93	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.97	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.31	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.041	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.34	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.004	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.144	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.022	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00022237

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001022

Site: NOSITE SMITHERS AIRPORT #6

From : 86/04/15:1335 To : 86/04/15:1335
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	520	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.07	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	9.40	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	9.58	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	8.33	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.18	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	< 0.003	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.061	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.026	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033933

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001023

Site: NOSITE SMITHERS AIRPORT #7

From :86/04/15:1345 To :86/04/15:1345
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.7	pH units	pH Meter (00041220/02/01)
onductance Specific	570	uS/cm	Cond.Meter Siebold (00111160/02/01)
itrogen Organic-Tot	1.18	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel.Tot(N)	2.50	mg/L	Block Dig.Auto.Color (01131360/02/01)
itrogen Total	4.35	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	1.32	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.85	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.008	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.097	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.028	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033932

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001024

Site: NOSITE . SMITHERS AIRPORT #8

From : 86/04/15: 1350 To : 86/04/15: 1350
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.1	pH units	pH Meter (00041220/02/01)
Conductance Specific	61	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.42	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.54	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.69	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.121	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.15	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.004	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.032	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.021	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033940

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001365

Site: NOSITE SMITHERS AIRPORT #1

From :86/04/21:1310 To :86/04/21:1310
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	780	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	3.30	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	7.30	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	25.3	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	4.00	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	18.0	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	3.12	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	4.28	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	3.35	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033939

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001366

Site: NOSITE .SMITHERS AIRPORT #3

From :86/04/21:1300 To :86/04/21:1300
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	119	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.46	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.50	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.54	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.036	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.04	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.010	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.066	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.054	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033938

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001367

Site: NOSITE. SMITHERS AIRPORT #4

From : 86/04/21: 1315 To : 86/04/21: 1315
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	260	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.26	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.60	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.86	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.339	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.26	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.128	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.194	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.174	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033937

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001368

Site: NOSITE .SMITHERS AIRPORT #5

From : 86/04/21: 1325 To : 86/04/21: 1325
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	1020	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.67	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.78	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.91	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.108	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.13	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.005	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.040	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.020	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033936

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001369

Site: NOSITE SMITHERS AIRPORT #6

From :86/04/21:1330 To :86/04/21:1330
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	428	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.90	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	9.80	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	11.9	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	8.90	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.10	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.012	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.045	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.036	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033935

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001370

Site: NOSITE SMITHERS AIRPORT #7

From :86/04/21:1335 To :86/04/21:1335
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	448	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.63	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	1.05	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	3.75	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.425	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.70	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.005	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.033	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.019	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033934

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001371

Site: NOSITE .SMITHERS AIRPORT #8

From :86/04/21:1340 To :86/04/21:1340
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	53	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.56	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	0.69	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	0.97	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.133	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.28	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.004	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.076	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.017	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033947

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001693

Site: NOSITE SMITHERS AIRPORT #1

From : 86/04/28.1300 To : 86/04/28.1300
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	1140	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	2.30	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	14.6	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	43.8	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	12.3	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	29.2	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	2.62	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	3.57	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	2.65	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033946

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001694

Site: NOSITE SMITHERS AIRPORT #3

From :86/04/28:1305 To :86/04/28:1305
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	112	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.50	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.51	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.53	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.015	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.008	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.058	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.046	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033945

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001695

Site: NOSITE SMITHERS AIRPORT #4

From : 86/04/28 1310 To : 86/04/28 1310
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	265	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.23	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.85	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	3.17	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.620	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.32	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.056	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.124	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.087	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033944

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001696

Site: NOSITE SMITHERS AIRPORT #5

From :86/04/28:1315 To :86/04/28:1315
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	540	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.59	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.61	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.72	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.023	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.11	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.006	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.035	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.017	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033943

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001697

Site: NOSITE SMITHERS AIRPORT #6

From :86/04/28:1320 To :86/04/28:1320
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.1	pH units	pH Meter (00041220/02/01)
onductance Specific	340	uS/cm	Cond.Meter Siebold (00111160/02/01)
itrogen Organic-Tot	1.10	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel.Tot(N)	6.60	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	8.93	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	5.50	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.33	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	0.003	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.029	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.024	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033942

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86001698

Site: NOSITE SMITHERS AIRPORT #7

From :86/04/28:1325 To :86/04/28:1325
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.9	pH units	pH Meter (00041220/02/01)
Conductance Specific	500	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.54	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.71	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	3.41	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.169	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.70	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	< 0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.025	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.012	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033941

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86001699

Site: NOSITE SMITHERS AIRPORT #8

From :86/04/28:1330 To :86/04/28:1330
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	55	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.41	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	0.57	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	0.82	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.159	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.25	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	< 0.003	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.040	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.013	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033967

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86002020

Site: NOSITE .SMITHERS AIRPORT #1

From :86/05/05:1300 To :86/05/05:1300
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	922	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.33	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	4.34	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	38.7	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	3.01	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	34.4	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	3.69	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	4.66	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	3.81	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033968

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86002022

Site: NOSITE .SMITHERS AIRPORT #3

From : 86/05/05: 1310 To : 86/05/05: 1310
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
Conductance Specific	112	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.73	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.74	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.77	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.015	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.03	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.009	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.061	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.049	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033969

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86002023

Site: NOSITE . SMITHERS AIRPORT #4

From : 86/05/05: 1315 To : 86/05/05: 1315
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	267	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.35	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	2.03	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	3.51	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.685	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.48	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.060	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.120	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.098	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

12-May-86

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033971

Sample 86002024

Ministry of Forests-J. Tigchelaar ATTN: WILFORD

Site: NOSITE SMITHERS AIRPORT #6

From : 86/05/05: 1330
To : 86/05/05: 1330
Depth Range : 0.0 0.0
Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	340	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.07	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	4.67	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	5.54	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	3.60	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.87	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.029	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.022	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033972

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86002025

Site: NOSITE SMITHERS AIRPORT #7

From : 86/05/05: 1335 To : 86/05/05: 1335
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.1	pH units	pH Meter (00041220/02/01)
Conductance Specific	440	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.56	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.60	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	3.20	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.044	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	2.60	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.023	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.051	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.043	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033973

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86002026

Site: NOSITE . SMITHERS AIRPORT #8

From : 86/05/05: 1340 To : 86/05/05: 1340
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	560	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.43	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.59	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.87	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.158	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.28	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.004	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.037	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.016	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033959

inistry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86003013

Site: NOSITE SMITHERS AIRPORT #1

From : 86/05/20:1300 To : 86/05/20:1300
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
-H	7.7	pH units	pH Meter (00041220/02/01)
Conductance Specific	652	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	3.97	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	5.50	mg/L	Block Dig.Auto.Color (01131360/02/01)
ıitrogen Total	23.8	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm.Diss(N)	1.53	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	18.3	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort.Dis-P	3.08	mg/L	Auto.Ascorbic Acid (11181380/02/01)
hosphorus Total	4.88	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	3.28	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033961

linistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003014

Site: NOSITE SMITHERS AIRPORT #3

From : 86/05/20: 1315 To : 86/05/20: 1315
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	128	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.65	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.67	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.67	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.018	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.008	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.060	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.047	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033962

inistry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003015

Site: NOSITE SMITHERS AIRPORT #4

From : 86/05/20: 1320 To : 86/05/20: 1320
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
H	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	252	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.33	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.47	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.07	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm. Diss(N)	0.137	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.60	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort. Dis-P	0.084	mg/L	Auto. Ascorbic Acid (11181380/02/01)
hosphorus Total	0.140	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.121	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033964

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003016

Site: NOSITE SMITHERS AIRPORT #6

From : 86/05/20: 1330 To : 86/05/20: 1330
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.9	pH units	pH Meter (00041220/02/01)
Conductance Specific	350	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.98	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.23	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.14	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.247	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.91	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.033	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.021	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033965

Ministry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86003017

Site: NOSITE SMITHERS AIRPORT #7

From : 86/05/20: 1335 To : 86/05/20: 1335
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	215	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.55	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	0.56	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	1.62	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm.Diss(N)	0.015	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.06	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort.Dis-P	< 0.003	mg/L	Auto.Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.037	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.013	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033966

inistry of Forests-J.Tigchelaar ATTN: WILFORD Sample 86003018

Site: NOSITE SMITHERS AIRPORT #8

From :86/05/20:1340 To :86/05/20:1340
Depth Range : 0.0 0.0 Tide :
ample State: Fresh Water
ample Comment:

arameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
-H	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	50	uS/cm	Cond.Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.37	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel.Tot(N)	0.46	mg/L	Block Dig.Auto.Color (01131360/02/01)
Nitrogen Total	0.91	mg/L	Calculated Result (0114CALC/--/--)
itrogen Amm.Diss(N)	0.090	mg/L	Automated Bertholot meth (11081351/02/01)
itrogen NO3+NO2 Dis	0.45	mg/L	Auto. Cadmium Reduction (11091350/02/01)
hosphorus Ort.Dis-P	0.003	mg/L	Auto.Ascorbic Acid (11181380/02/01)
hosphorus Total	0.072	mg/L	Dig.Auto.Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.012	mg/L	Dig.Auto.Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033953

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003659

Site: NOSITE SMITHERS AIRPORT #1

From : 86/06/02: 1125 To : 86/06/02: 1125
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.5	pH units	pH Meter (00041220/02/01)
Conductance Specific	1150	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	3.30	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	15.5	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	41.9	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	12.2	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	26.4	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	2.14	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	4.91	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	2.22	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033954

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003660

Site: NOSITE SMITHERS AIRPORT #3

From : 86/06/02: 1120 To : 86/06/02: 1120
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.1	pH units	pH Meter (00041220/02/01)
Conductance Specific	140	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	3.13	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	3.15	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	3.15	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.020	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.016	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.299	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.075	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033955

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003661

Site: NOSITE SMITHERS AIRPORT #4

From : 86/06/02: 1140 To : 86/06/02: 1140
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	8.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	483	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.34	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	2.53	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	7.13	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	1.19	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	4.60	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.113	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.170	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.142	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033956

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003662

Site: NOSITE SMITHERS AIRPORT #6

From : 86/06/02: 1130 To : 86/06/02: 1130
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.9	pH units	pH Meter (00041220/02/01)
Conductance Specific	370	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.09	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.11	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	1.27	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.016	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.16	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.033	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.017	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033957

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003663

Site: NOSITE SMITHERS AIRPORT #7

From : 86/06/02: 1150 To : 86/06/02: 1150
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.8	pH units	pH Meter (00041220/02/01)
Conductance Specific	530	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.82	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.83	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.83	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.011	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.056	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.012	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00033958

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86003664

Site: NOSITE SMITHERS AIRPORT #8

From : 86/06/02: 1100 To : 86/06/02: 1100
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.4	pH units	pH Meter (00041220/02/01)
Conductance Specific	25	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.17	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.18	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.40	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.015	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.22	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.031	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.006	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

MINISTRY OF ENVIRONMENT
ENVIRONMENTAL LABORATORY
Report for form 00024563

Ministry of Forests-J. Tigchelaar ATTN: WILFORD

Sample 86004698

Site: NOSITE SMITHERS AIRPORT - W1A

rom : 86/06/18: 1235 To : 86/06/18: 1235
epth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.1	pH units	pH Meter (00041220/02/01)
onductance Specific	1810	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	1.04	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	1.26	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	1.67	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.224	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.41	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.010	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.520	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
rhosphorus Tot. Diss	0.122	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

DRILL SITE #1 - SW CORNER - EVAP PIT

ENVIRONMENTAL LABORATORY
Report for form 00024564

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004699

Site: NOSITE SMITHERS AIRPORT #1

From : 86/06/18: 1230 To : 86/06/18: 1230
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.3	pH units	pH Meter (00041220/02/01)
Conductance Specific	662	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.25	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	4.13	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	18.9	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	2.88	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	14.8	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	3.49	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	4.10	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	3.79	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024565

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004700

Site: NOSITE SMITHERS AIRPORT #3

From : 86/06/18: 1210 To : 86/06/18: 1210
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	6.8	pH units	pH Meter (00041220/02/01)
onductance Specific	137	uS/cm	Cond. Meter Siebold (00111160/02/01)
litrogen Organic-Tot	1.44	mg/L	Calculated Result (0112CALC/--/--)
litrogen Kjel. Tot(N)	1.46	mg/L	Block Dig. Auto. Color (01131360/02/01)
litrogen Total	1.46	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.022	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	< 0.02	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.027	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.088	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
rhosphorus Tot. Diss	0.074	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024566

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004701

Site: NOSITE SMITHERS AIRPORT #4

From : 86/06/18: 1730 To : 86/06/18: 1730
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.1	pH units	pH Meter (00041220/02/01)
Conductance Specific	222	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	1.29	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	1.78	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.64	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.488	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.86	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.117	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.189	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.173	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024567

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004702

Site: NOSITE SMITHERS AIRPORT #6

rom : 86/06/18: 1715 To : 86/06/18: 1715
epth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.5	pH units	pH Meter (00041220/02/01)
onductance Specific	200	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	1.03	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	1.06	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	2.55	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.027	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.49	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.005	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.034	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
rhosphorus Tot. Diss	0.024	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00033948

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004703

Site: NOSITE SMITHERS AIRPORT #7

From : 86/06/18: 1245 To : 86/06/18: 1245
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.6	pH units	pH Meter (00041220/02/01)
Conductance Specific	445	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.83	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.87	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	2.70	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.041	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	1.83	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.013	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.062	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.034	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024562

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86004704

Site: NOSITE SMITHERS AIRPORT #8

rom : 86/06/18: 1135 To : 86/06/18: 1135
epth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
ample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.2	pH units	pH Meter (00041220/02/01)
onductance Specific	35	uS/cm	Cond. Meter Siebold (00111160/02/01)
itrogen Organic-Tot	0.55	mg/L	Calculated Result (0112CALC/--/--)
itrogen Kjel. Tot(N)	0.57	mg/L	Block Dig. Auto. Color (01131360/02/01)
itrogen Total	0.79	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.023	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.22	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.083	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
hosphorus Tot. Diss	0.009	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024558
Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86008352

Site: NOSITE SMITHERS AIRPORT TW Airport Well Water

From : 86/08/25: 1140 To : 86/08/25: 1140
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.8	pH units	pH Meter (00041220/02/01)
Conductance Specific	662	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.05	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.06	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.31	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.007	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.25	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	0.015	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.019	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.018	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

ENVIRONMENTAL LABORATORY
Report for form 00024559

Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 8600835

Site: NOSITE SMITHERS AIRPORT #4

From : 86/08/25: 1145 To : 86/08/25: 1145
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.1	pH units	pH Meter (00041220/02/01)
Conductance Specific	760	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	3.40	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	24.2	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	42.2	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	20.8	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	18.0	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	14.9	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	16.9	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	16.4	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

.01 l/s

ENVIRONMENTAL LABORATORY
Report for form 00024557
Ministry of Forests-J. Tigchelaar ATTN: WILFORD Sample 86008351

Site: NOSITE SMITHERS AIRPORT #8

From : 86/08/25: 1135 To : 86/08/25: 1135
Depth Range : 0.0 0.0 Tide :
Sample State: Fresh Water
Sample Comment:

Parameter Description	Result	Units	Analytical Technique (Sparcode/Medium/Pres'n)
pH	7.0	pH units	pH Meter (00041220/02/01)
Conductance Specific	42	uS/cm	Cond. Meter Siebold (00111160/02/01)
Nitrogen Organic-Tot	0.20	mg/L	Calculated Result (0112CALC/--/--)
Nitrogen Kjel. Tot(N)	0.22	mg/L	Block Dig. Auto. Color (01131360/02/01)
Nitrogen Total	0.28	mg/L	Calculated Result (0114CALC/--/--)
Nitrogen Amm. Diss(N)	0.019	mg/L	Automated Bertholot meth (11081351/02/01)
Nitrogen NO3+NO2 Dis	0.06	mg/L	Auto. Cadmium Reduction (11091350/02/01)
Phosphorus Ort. Dis-P	< 0.003	mg/L	Auto. Ascorbic Acid (11181380/02/01)
Phosphorus Total	0.014	mg/L	Dig. Auto. Ascorbic Acid (P--T1390/02/01)
Phosphorus Tot. Diss	0.007	mg/L	Dig. Auto. Ascorbic Acid (P--D1390/02/01)

38l/s

APPENDIX IV

SOIL SAMPLE

UPPER KATHLYN CREEK

SITE DESCRIPTION FORM

This form not to be copied

1. Project identification № 1189-78 2. Plot number 72

3. Date (Y/M/D) 1978 August 16 4. NTS Sheet 93-L-14-c 5. Latitude 54° 48' 45" 6. Longitude 127° 15' 3"

7. Location E of Hudson Bay Mtn, S of old mine road, ca 1.5 km S of Glacier Gulch

8. Photo number and Co-ord. B.C.C.102: 010 x 3.3 y 7.0

9. Aspect 35° (N 35 E) 10. Slope 8° (12%) degrees 11. Elevation 723 map (716 m) metres – contours as 715

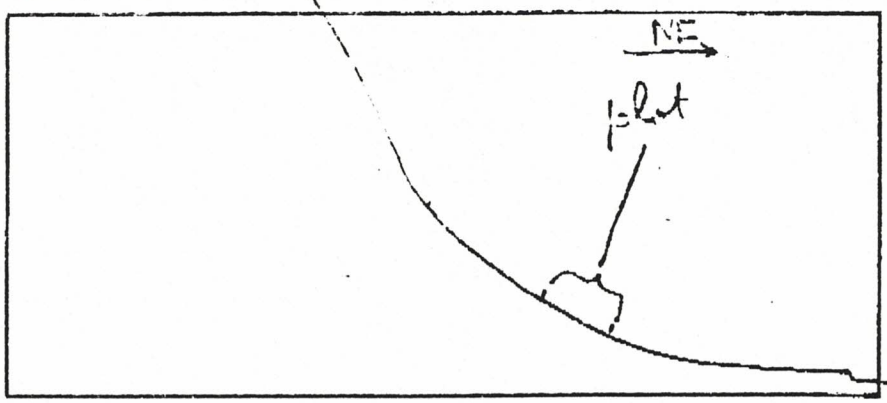
12. Site position macro
   a. apex
   b. face
   c. upper slope
   d. middle slope
   (e) lower slope
   f. valley floor
   g. plain

13. Site position meso
   a. crest
   b. upper
   c. middle
   (d) lower
   e. toe
   f. depression
   g. level

14. Micro surface shape
   (a) concave
   b. convex
   c. straight
   d. flat

15. Microtopographic
   a. level
   (b) micromounded
   c. slightly micro.
   d. moderately micro.
   e. strongly micro.
   f. severely micro.
   g. extremely micro.
   h. ultra micro.

16. Site position diagram



19. Exposure type
   a. wind
   b. insolation
   c. frost
   (d) cold air drainage
   e. other _____
   f. not applicable

Kettlegrow Lake

17. Slope length 5000 m 18. Up-Slope length 1500 m

20. Slope position moisture
   a. shedding
   b. normal
   (c) receiving
   d. collecting
   e. seepage

21. Moisture regime

Soils	Vegetation	
a. peraquic	a. hydric	i. hydric
b. aquic		ii. subhydric
c. subaquic	b. hygric	i. hygric
(d) perhumid		(ii) subhygric
e. humid	c. mesic	i. mesic
f. subhumid		ii. submesic
g. semiarid	d. xeric	i. subxeric
h. subarid		ii. xeric
i. arid		iii. very xeric
j. xeric		

22. Nutrient Regime
   a. oligotrophic
   b. submesotrophic
   c. mesotrophic
   (d) permesotrophic
   e. eutrophic
   f. hypereutrophic

23. Soil drainage
   a. very rapidly
   b. rapidly
   (c) well
   d. mod. well
   e. imperfectly
   f. poorly
   g. very poorly

24. Perviousness
   a. rapidly
   (b) moderately
   c. slowly

25. Seepage
   a. present
   (b) absent

26. Runoff
   a. very rapid
   b. rapid
   (c) medium
   d. slow
   e. very slow
   f. ponded

27. Flood hazard
   a. frequent and irregular
   b. frequent
   c. may be expecte
   d. rare
   (e) no hazard

28. Depth to (cm)
- i water table N/A
- ii rooting (lower limit) N/A - [illegible] of profile
- iii root restricting layer N/A
- iv permafrost N/A
- v bedrock N/A

29. Surface stoniness
- a. non-stony
- b. slightly
- c. moderately
- d. very
- e. exceedingly
- f. excessively

30. Rockiness class
- a. non-rocky
- b. slightly
- c. moderately
- d. very
- e. exceedingly
- f. excessively

31. Bedrock type Hazelton 32. Bedrock structure _____ 33. Coarse fragment lithology _____

Group, Hudson Bay Mtn.

34. Terrain classification

	Site	Map Unit
stratig.	fine fluvial	fgFv / FFb
	veneer over	
	fine fluvial blanket	

35. Physiographic Region Hazelton Mtns

36. Zone/Subzone IWH / C3" (ICWgl)
classification system B.C.F.S.

37. Ecosystem Type Hw (Se Bl) - [illegible]
classification system B.C.F.S.

38. Successional status
- i present stage climax
- ii expected climax _____
- iii rate of succ. _____

39. Cause of stand establishment fire, succession

40. Plot representing (Authropic) Hw - (Bl - Se) - [illegible] on [illegible] fluvial fan! over loose wipe fluvial blanket

41. Plot size (30 x 30 m) 900 m²

42. Surface Substrate

SUBSTRATE	LFH	DECAYING WOOD	BEDROCK	COARSE FRAGEMENT	MINERAL SOIL	WATER
% COVER	95	5	—	T	T	—

(low [illegible] tree)

43. Humus Form Class Conifero-Fibrimor (mat, hemlock needles) (white mycelia, [illegible]

44. Soil classification C.S.S.C.
- phase _____
- year 1975

45. Status
- a. modal
- b. variant
- c. taxajunct
- d. undecided

46. Deviation
- a. solum thickness
- b. colour
- c. texture
- d. drainage
- e. other _____

47. Soil name O.H-F Podzol 48. Associated soil _____ 49. Profile No. 72

50. Mapping unit
- a. series
- b. family
- c. associate
- d. association
- e. catena
- f. complex
- g. land system
- h. land type
- i. other

51. Name of surveyor
R. Trowbridge
B. Chapman
M. O'Neill
J. Pojar

52. Agency B.C.F.S.

53. Sampling technique reconnaissance

SOIL DESCRIPTION FORM

PROJECT I.D. 1189-[illegible] PLOT NO. 72 PAGE 2 OF 2

SURVEYOR R. Trowbridge

HORIZON DESIG.	DEPTH THICKNESS indicate units Min	Max	HORIZON BOUND. Dist	Form	COARSE FRAGMENT DESCRIP. % by vol	Gravel %	Gravel Type	Cobbles %	Cobbles Type	Stones %	Stones Type	TEXTURE & MODIFIER		STRUCTURE Grade	PRIMARY CLASS	PRIMARY KIND	PRIMARY KIND MODIFIER	Grade	SECONDARY CLASS	SECONDARY KIND	SECONDARY KIND MODIFIER	MOIST. dry 1 moist 2 wet 3 unsp 4	CONSIST. Dry	Moist	Wet	Plast.	pH
LFH	9-0	8	13	4	1	35	20	1	15	1																	
Bm	0-31	28	33	4	1	35	20	1	15	1		L	3	V W	F	SBK						2	S	L	S S	S P	5.5
C	31-54	20	25	4	1	35	20	1	15	1		L	3	W	F/M	SMK						2	S	L	S S	S P	5.5
IIH	54-56	3	4	4	1	35	20	1	15	1		L	3	W	F	SMK						2	S	L	S S	S P	6.0
IIC	56-93+					50	35	1	15	1		SL	3	O		MA						2	L		N S	N P	6.0

HORIZON DESIG.	COLOUR 1 Aspect		COLOUR 2 Aspect		MOTTLES AB. F C M	SI. F M C	CO. F D P	COLOUR	ROOTS Ab. V F P A	Size Mi V F Me C	Ori V H O R	Dist IN EX	PORES Ab. V F P A	Size Mi V F Me C	Ori V H O R	Dist IN EX	Cont CO DC	Mor S D C	Type V I T	ORGANIC MATERIAL DESCRIPTION Material Compos. Kind	Decom	Woody Material Hard.	Vol. %	Pyro. Index	~~Non Post Seals~~ pH $CaCl_2$
LFH									A	F	H	✓														4.5
									F	MC/C	H	✓														
Bm	7	10YR 3/3							P	F	R	IN														4.6
									A	MC/C	H	EX														
C	7	" 4/3							F	F	R	IN														5.0
									P	MC/C	H	EX														
IIH	7	10YR 3/1							F	F	R	IN														
									P	MC/C	H	EX														
IIC	7	" 3/1							F	F	C	✓														5.1

HORIZON DESIG.	CLAY FILMS			CO_2		CARBONATE DESCRIPTION							SAL	CONCRETIONS						CEMENT.			LAB SAMPLE NUMBER	NOTES
	Freq	Thi	Loc			Cont	Ab.	Size	Shape		Consist.			Kind	Ab.	Size	Loc	Shape	Colour					
	F C M CS	VTN TN MTK TK VTK		Eff.	Rea-gent		F C M	F M C	Str. V H R	Spo R O I	MOIST	DRY	W M S		N F C M	F M C		S O I		AGENT	DED	EXT		

COMMENTS HUMUS FORM - CONIFERO FIBRIMOR

with mycelium, CHARCOAL

LAND FORM f^{F}_{u}

$g^{F}b$

SOIL NAME - ORTHIC EUTRIC BRUNISOL

GRAVELS + COBBLES - SOME COBBLES FLAT

LABORATORY ANALYSES: LAB[illegible] BY SECTION, DATA SER[illegible]ES DIV. ON [illegible] OF THE ENVIRONMENT, KELOWNA

7 Hg/04

SBSd? T.

Soil Name Orthic Eutric Brunisol Report Area _____ Classification Orthic Humo-Ferric Podzol

Orthic Dystric Bnj

dark colours in

Bich Trowbridge EP-822-05 Forest Research

FEB.27 '96 09:50 MIN OF FORESTS HR RUPERT REGION

No.	Horizon	Depth	Moisture %	pH 1:1 H2O	pH 1:2 CaCl2	% C	% N	C/N	Exchangeable bases me/100 g Ca	Mg	K	Na	Sum	C.E.C.	Base Sat. %	Pyrophos. % Fe	Al	Available P ppm	Available S ppm	Moisture % 1/10	1/3	½	1	5	15 bar	PIPETTE % SAND	% SILT	% CLAY	
	Pint	#72																											
				1.5														123.7										
41	LFH	9-0	55	5.1	4.5	28.74	1.056	27.2	37.27	4.78	2.57	6.09	34.71	96.36	36.0						SL	66	21	13	1.11/B				
	Bf or Ah? See colors															C/Fe 2.5		= 1.11				66.02	20.53	13.45					
42	Bfm	0-31	2.35	5.3	4.6	3.03	[illegible]	[illegible]	1.12	1.79	[illegible]	[illegible]	[illegible]	26.66	34.1	.82	.29	200.6			SiL	30	55	15					
																						29.80	55.06	15.14					
43	C	31-54	2.50	5.6	5.0	[illegible]	.100	17.4	9.94	[illegible]	[illegible]	[illegible]	7.79	18.91	26.0	1.05	.58	6.3											
44	Ti.H	54-56				—															L	47	37	4					
																						46.96	33.52	14.62					
45	Ti.C	56-[illegible]	2.17	5.8	[illegible]	[illegible]	.064	18.7	[illegible]	[illegible]	[illegible]	[illegible]	9.52	11.25	27.1	.91	.46	2.3											
			4	4	4	—	4									4	4												

P.10