

Pelly River Aquatic Effects Assessment - 2004



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ENVIRONMENTAL SERVICES



WHITE MOUNTAIN
ENVIRONMENTAL CONSULTING

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	PURPOSE AND STUDY OBJECTIVE	1
2.0	METHODS	6
2.1	WATER QUALITY MONITORING PROGRAM.....	9
2.2	STREAM SEDIMENT SAMPLING	12
2.3	FLOODPLAIN SOIL SAMPLING	12
2.4	BENTHOS.....	12
2.5	FISHERIES	13
3.0	DATA RESULTS	16
3.1	WATER QUALITY MONITORING PROGRAM.....	16
3.2	STREAM SEDIMENT SAMPLING	21
3.3	FLOODPLAIN SOIL SAMPLING	23
3.4	BENTHOS.....	32
3.5	FISH HABITAT AND UTILIZATION	36
3.5.1	Site A1	36
3.5.2	Site A2	36
3.5.2.1	<i>Fishing Habitat and Utilization.....</i>	<i>36</i>
3.5.3	Site A3.....	37
3.5.3.1	<i>Fishing Habitat and Utilization.....</i>	<i>37</i>
3.5.4	Site A4.....	37
3.5.4.1	<i>Fishing Habitat and Utilization.....</i>	<i>37</i>
3.6	FISH TISSUE	39
4.0	CONCLUSIONS/RECOMMENDATIONS	41
5.0	CLOSURE.....	43
6.0	REFERENCES.....	44

LIST OF TABLES

Table 1	Monitoring Station Assessment Parameters	7
Table 2	Comprehensive Results– Water Quality 2004	10
Table 3	Comprehensive Results – Stream Sediment 2004	22
Table 4	Comprehensive Results – Floodplain Soils 2004.....	24
Table 5	Total Benthos and Diversity by Site	32
Table 6	Benthic Invertebrate Data, Pelly River Aquatic Study 2004	33
Table 7	Metal Concentrations in Benthic Invertebrate Tissues 2004.....	35
Table 8	Summary of Electro-Fishing Results.....	38
Table 9	Summary of Minnow Trapping Results	38
Table 10	Metal Concentrations in Fish Tissues Analysis - 2004.....	40

LIST OF FIGURES

Figure 1	General Location Map.....	2
Figure 2	Pelly River Drainage Overview Map	3
Figure 3	Anvil Creek and Rose Creek Monitoring Station Locations	8
Figure 4	Water Quality Results 2004 – Total Zinc by Station	18
Figure 5	Water Quality Results 2004 – Total Cadmium by Station.....	19
Figure 6	Water Quality Results 2004 – Total Selenium by Station	20
Figure 7	Copper in Sediments Trend by Site and Year	25
Figure 8	Lead in Sediments Trend by Site and Year	26
Figure 9	Zinc in Sediments Trend by Site and Year	27
Figure 10	Anvil Creek Floodplain Soil Results 2004 – Copper	28
Figure 11	Anvil Creek Floodplain Soil Results 2004 – Lead.....	29
Figure 12	Anvil Creek Floodplain Soil Results 2004 – Zinc	30
Figure 13	Anvil Creek Floodplain Soil Results 2004 – pH	31

LIST OF APPENDICES

Appendix 1	General Site Descriptions
Appendix 2	Selected Photographs
Appendix 3	Norwest Labs Water Quality Reports
Appendix 4	Norwest Labs Soil/ Sediment Report
Appendix 5	Norwest Labs Metals in Benthic Invertebrates Report
Appendix 6	Norwest Labs Metals in Fish Tissue Reports
Appendix 7	Particle Size Distribution Report

1.0 INTRODUCTION

1.1 PURPOSE AND STUDY OBJECTIVE

The Faro Mine complex is located at the headwaters of the Rose/Anvil Creeks and Vangorda Creek. These creeks flow eventually into the Pelly River, an important resource for the Selkirk First Nation (SFN) as it flows through SFN traditional territory. As a downstream user of this water, the SFN has expressed concern for the water quality and possible effects to the aquatic ecosystem in the drainages affected by the Faro Mine complex. The SFN Final Agreement states that

“...a Yukon First Nation has the right to have water which is on or flowing through or adjacent to its Settlement Land remain substantially unaltered as to quantity, quality, and rate of flow, including seasonal rate of flow.”

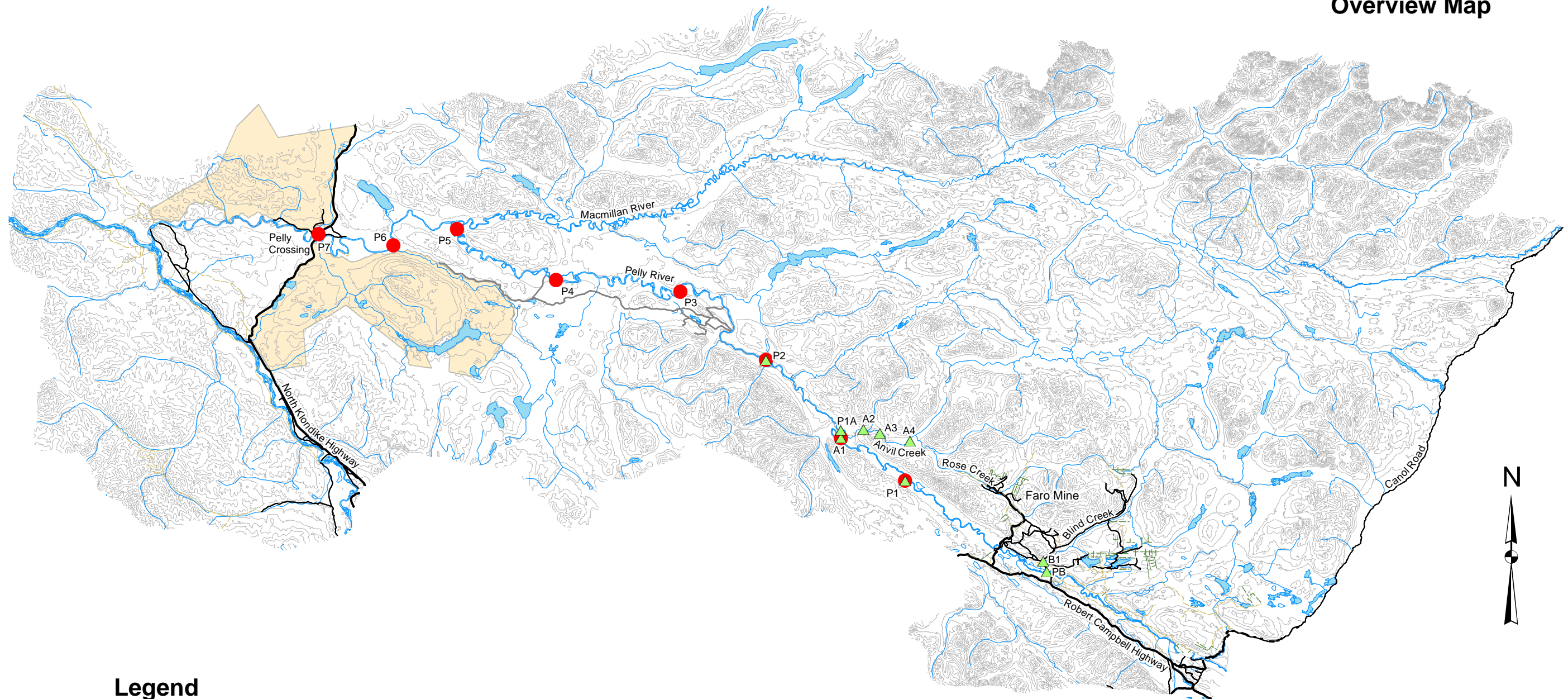
In 2000, the SFN Lands and Resource Branch commenced aquatic environmental studies in their traditional territory. The first water quality investigation was undertaken in 2001 by Laberge Environmental Services (LES). Follow up water quality sampling occurred in 2002, 2003 and again in 2004. The results of the 2001, 2002, and 2003 water quality investigation are reported in Pelly River Water Quality Investigations 2001, Pelly River Water Quality 2002 Surveillance Survey, and Pelly River Water Quality Surveillance Survey 2003 (LES 2001, 2002, 2003). Specific fisheries investigations in the Pelly River drainages have also been undertaken by SFN. These included: the collection of baseline information on Pelly River broad whitefish and their migration within the Tatmain/Mica Creek and Pelly River drainages in 2001 by Can-nic-a-nick Environmental, and fish habitat utilization assessments of tributaries to the Pelly River between Harvey Creek and the confluence with the Macmillan River in 2002 (Sparling 2003). Collection of Chinook salmon DNA was conducted by SFN in conjunction with DFO during 2003 and 2004 from the Earn River.

The principle area for investigation for the aquatic assessment was Anvil Creek. Secondary sample locations were located along the Pelly River both up and downstream of the confluence with Anvil Creek with a single control site on Blind Creek just upstream of its confluence with the Pelly River. A general location map and Pelly River Drainage overview map are provided as Figures 1 and 2 respectively.



Pelly River Aquatic Effects Assessment -2004

Pelly River Drainage Overview Map



Legend

- Selkirk First Nation Monitoring Station
- ▲ Aquatic Effects Monitoring Station
- 100ft Topographical Contour
- Watercourses
- Cut line
- Limited-used road
- Road
- Trail
- Selkirk First Nation Settlement Lands
- Wetlands
- Waterbodies

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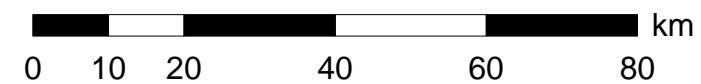


Figure 2



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The primary goal of the Pelly River aquatic effects investigation was to sample specific sites to determine water quality, sediment and soil quality and to track the presence, relative abundance and condition of benthos and fish within Pelly River and Anvil Creek. Slimy sculpin (*Cottus cognatus*), Arctic grayling (*Thymallus arcticus*) and benthic invertebrates were also collected to determine the level of metals in their tissue. The data would enable the assessment of possible effects from the Faro mine complex on Anvil Creek and provide information to SFN members on the environmental quality in downstream receiving waters.

The sampling also collected fish utilization data to document long term fisheries resource use and to establish an adequate level of reference data. The sampling methods were designed for the ability to repeat the sampling procedure in subsequent years. The sample sites were selected so as to dovetail with, but not duplicate, other monitoring efforts by the Faro Mine receiver or government agencies as part of Water Use Licence QZ03-059.

The following report details the results of field activities conducted on the Pelly River and its tributaries between the towns of Faro and Pelly Crossing, Yukon, between July 27th and August 4th, 2004. Figures 1 and 2 provide a general location map and overview of the Pelly River drainage, and monitoring station locations.

The specific objectives of the Pelly River aquatic effects assessment were to:

- gather water quality and aquatic resources data (metals levels in stream sediments; benthos and fisheries abundance and distribution and metals levels) in local streams (Anvil Creek, Blind Creek) within the Pelly River watershed, located down gradient of the Faro Mine site;
- integrate the data collected with the existing SFN dataset as well as the Faro and Vangorda Mine water licensed monitoring data;
- assess the Anvil Creek drainage for possible effects to aquatic resources resulting from historic operation of the Faro mine;
- enable an assessment of the possible effects of the Faro mine complex on local aquatic resources to support the Faro Mine Complex Remediation Plan environmental assessment;

- partner with the Faro mine office and local First Nations in collecting the aquatic resources data; and
- build local capacity within the SFN to undertake environmental monitoring programs.

2.0 METHODS

The principle field investigation was conducted between July 27 and August 4, 2004 when water levels were low and fish distribution at its seasonal peak. Appendix 2, Plate 11 shows the Pelly River Aquatic Field Crew.

A helicopter reconnaissance survey was initially undertaken on July 27, 2004 to establish monitoring stations on Anvil Creek. Monitoring stations were selected on the basis of the following criteria:

- Site accessibility;
- Channel cross section with depositional zones; and
- Downstream distance from the Faro Mine Complex on Anvil Creek.

The locations for the nine sample sites that were established within the Pelly River watershed for data collection, shown in Figure 2, include six stations that were new and three sites that SFN has sampled in the past. Figure 3 shows the location of the new Anvil Creek monitoring stations along with existing water licence monitoring stations on Rose Creek. Appendix 2, Plate 13 shows the Pelly River Aquatic Field Crew at Anvil Creek Sample Station A4. Table 1 provides a listing of the monitoring stations, their location and assessment parameters:

Table 1 Monitoring Station Assessment Parameters

Station Code	Location Description	Assessment Parameters
	Glenlyon River	WQ, B
	Tummel River	WQ,
	Tay River	WQ, B
	Earn River	WQ, B
	Macmillan River	WQ
PB	Pelly River U/S Blind Creek	WQ, SS, B
B1	Blind Creek U/S Pelly River	WQ, SS, B
P1	Pelly River	WQ, SS, B
A4	Anvil Creek D/S of Rose Creek	WQ, SS, FS, B, F
A3	Anvil Creek	WQ, SS, FS, B, F
A2	Anvil Creek	WQ, SS, FS, B, F
A1	Anvil Creek at mouth	WQ, SS, FS, B, F
P1A	Pelly River D/S Anvil Creek	WQ, SS, B
P2	Pelly River	B
P3	Pelly River	B

List of abbreviations:

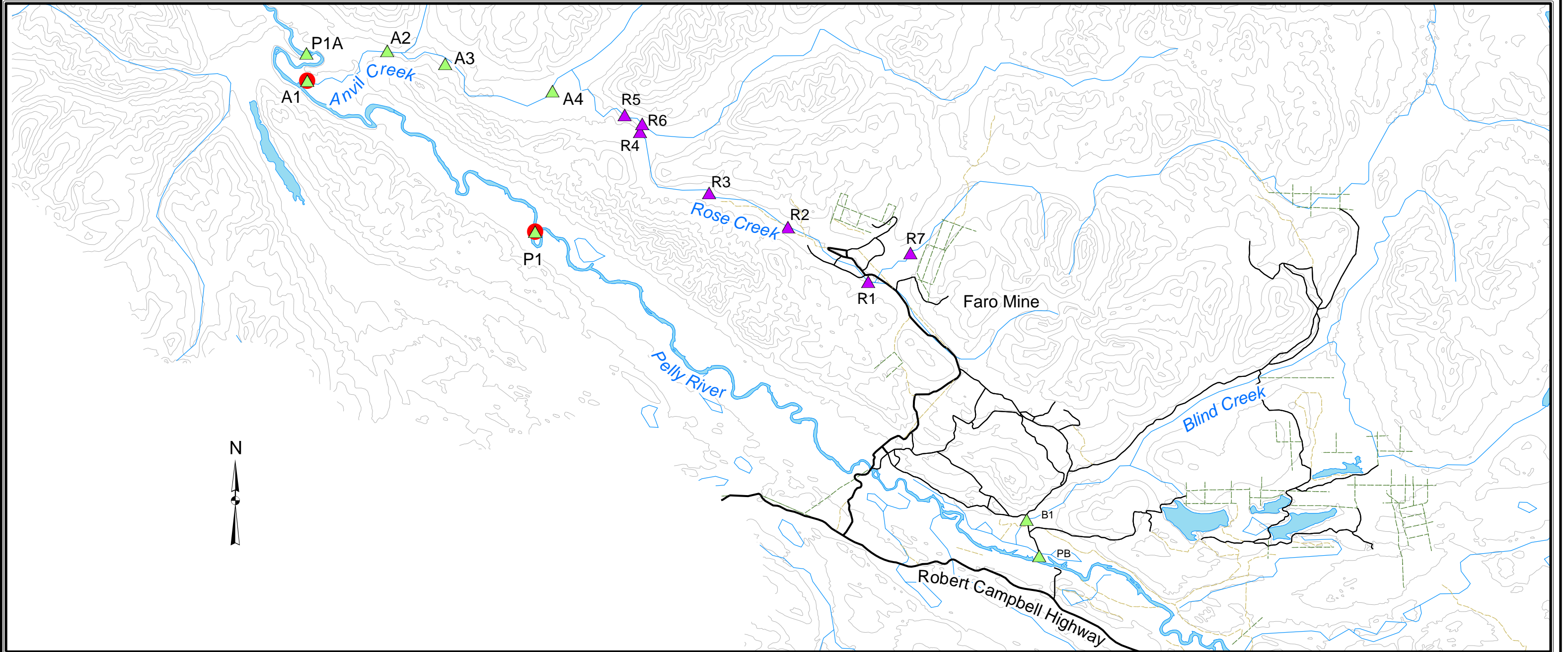
WQ - water quality, **SS** - stream sediment, **FS** - floodplain soils, **B** - benthos, **F** - fisheries.

At four locations on Anvil Creek a representative reach of creek, 100 m in length, was selected for assessment. The selected reaches had a representative variety of fish habitats and provided opportunities for fish sampling. All sites on Anvil Creek were accessed with a helicopter. UTM coordinates for the downstream end of each sample reach were recorded, along with stream characteristics (see Appendix 1).



Pelly River Aquatic Effects Assessment -2004

Anvil Creek and Rose Creek Monitoring Station Locations



- | | | |
|---------------|--|-------------------|
| Legend | ● Selkirk First Nation Monitoring Station | Limited-used road |
| | ▲ Aquatic Effects Monitoring Station | Road |
| | ▲ Faro Mine Licence Monitoring Station | Trail |
| | 100ft Topographical Contour | Waterbodies |
| | Watercourses | |
| | Cut line | |

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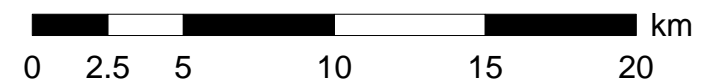


Figure 3



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At each Anvil Creek station, the following information was collected

- Water quality analysis, and *in situ* measurements;
- Stream sediments replicates for metals analysis;
- Soils within test pits across the channel flood plain for metals analysis;
- Benthic invertebrates for community abundance, distribution and metals analysis;
- Fish sampling for abundance, utilization, distribution and specimen collections for metals levels in tissue was conducted; and
- Evaluation of fish habitats.

Appendix 1 provides a summary of the monitoring station descriptions.

Pelly River sample locations were located between Faro and Pelly Crossing to measure downstream effects from the mine sites located near Faro. Pelly River sites were not sampled for fish utilization. For these sites; an assessment of habitats and benthic and water quality information was collected.

2.1 WATER QUALITY MONITORING PROGRAM

Water quality sampling occurred once in late July at all station locations. Three representative water samples were collected and analyzed for dissolved and total metals and general parameters at Norwest Labs in Vancouver. Water samples were collected following standard protocols in clean new plastic bottles, kept cool, and shipped to Norwest Labs for analysis of a suite of parameters comparable to those used in 2001, 2002 and 2003 LES sampling programs (see Appendix 2, Plate 1 and 15). Parameters were selected to enable both a “snapshot” of the water quality of the Pelly River and its major tributaries, as well as a low detection limit background data set. Table 2 provides a listing of the water quality parameters and their detection limit. In situ measurements shown in Appendix 1 were made of conductivity, temperature, turbidity, total dissolved solids, and dissolved oxygen using either LES or SFN Land and Resources scientific equipment.

Table 2. Comprehensive Results - Water Quality 2004

Location Description	Anvil Creek A2	Anvil Creek A3	Anvil Creek A4	Pelly River Upstream Blind Creek PB	Blind Creek Upstream Pelly River B1	Earn River	Tay River	Pelly River	Pelly River - P1A	Anvil Creek - A1	Pelly River - P3	Pelly River - P4	Pelly River - P5	Needle Rock Creek	Pelly River @ PC	Macmillan River	Tummel River	Glenlyon River	Detection Limit	CCME Guidelines	
Sampler Station ID	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN		Water: Freshwater Aquatic Life
Lab	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest		
Lab Lot ID	324033-3	324033-2	324033-1	324033-4	324033-5	324989-1	324989-2	324989-3	324989-4	324989-5	324989-6	324989-7	324989-8	324989-9	324989-10	324989-11	324989-12	324989-13			
Date	29-Jul-04	29-Jul-04	29-Jul-04	30-Jul-04	30-Jul-04	2-Aug-04	2-Aug-04	2-Aug-04	1-Aug-04	31-Jul-04	3-Aug-04	3-Aug-04	3-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	1-Apr-04		
Parameter 1																					
Dissolved Metals (Trace)																					
Silicon	3.8	3.92	3.91	2.58	4.52	2.92	3.63	2.6	2.67	4.06	2.75	2.84	2.82	4.08	2.94	2.96	3.86	3.36	0.05		
Sulphur	10.7	10.5	11.2	18.4	4.64	38.3	15.2	18.2	18	10.5	17.8	17.8	17.4	4.63	17	17.8	6.28	4.94	0.05		
Aluminum	<0.005	<0.005	<0.005	0.014	0.009	<0.005	<0.005	0.01	0.012	<0.005	0.011	0.01	0.011	<0.005	0.024	0.064	0.01	0.008	0.005		0.005-0.1
Antimony	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002		0.005
Arsenic	0.0006	0.0006	0.0004	0.0005	0.0008	0.0012	0.0008	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006	0.0015	0.0007	0.0004	0.0004	<0.0002	0.0002		0.005
Barium	0.067	0.066	0.07	0.077	0.063	0.057	0.065	0.079	0.078	0.066	0.076	0.075	0.076	0.108	0.079	0.067	0.074	0.046	0.001		
Beryllium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		
Bismuth	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005		
Boron	0.002	0.002	0.002	0.004	0.005	0.008	0.008	0.004	0.004	0.002	0.004	0.004	0.003	0.003	0.004	0.004	0.002	<0.002	0.002		
Cadmium	<0.00001	<0.00001	<0.00001	0.00004	<0.00001	0.00002	0.00001	0.00004	0.00005	0.00001	0.00004	0.00004	0.00003	0.00001	0.00004	0.00005	<0.00001	<0.00001	0.00001		0.000017
Chromium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005		
Cobalt	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		
Copper	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.003	0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001		0.002-0.004
Lead	<0.0001	<0.0001	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		0.001-0.007
Lithium	0.003	0.003	0.003	0.004	0.002	0.007	0.005	0.004	0.004	0.003	0.004	0.004	0.004	0.002	0.004	0.004	0.002	0.001	0.001		
Molybdenum	0.001	0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	<0.001	<0.001	<0.001	0.001		0.073
Nickel	<0.0005	<0.0005	<0.0005	0.0016	<0.0005	0.0007	<0.0005	0.0007	0.0007	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0009	<0.0005	<0.0005	0.0005		0.025-0.15
Selenium	0.0005	0.0005	0.0005	0.0012	<0.0002	0.0012	0.0006	0.0013	0.0012	0.0006	0.001	0.0012	0.001	0.0002	0.0012	0.0012	0.0003	<0.0002	0.0002		0.001
Silver	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		0.0001
Strontium	0.137	0.136	0.14	0.186	0.101	0.274	0.164	0.186	0.181	0.137	0.185	0.18	0.183	0.223	0.184	0.163	0.174	0.104	0.001		
Thallium	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005		
Tin	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001		
Titanium	0.0006	0.0006	0.0006	0.0012	<0.0005	0.0024	0.0011	0.0017	0.0018	0.0011	0.0018	0.0018	0.0017	0.0005	0.0017	0.0023	0.0008	0.0007	0.0005		
Uranium	0.0016	0.0016	0.0016	0.0016	0.0006	0.0014	<0.0005	0.0011	0.0016	0.0016	0.0016	0.0015	0.0016	0.0011	0.0012	<0.0005	0.0019	0.0009	0.0005		
Vanadium	0.0001	0.0001	0.0001	0.0003	0.0002	<0.0001	<0.0001	0.0002	0.0002	<0.0001	0.0001	0.0002	0.0002	<0.0001	0.0003	0.0002	<0.0001	<0.0001	0.0001		
Zinc	0.002	0.002	0.007	0.003	<0.001	0.002	0.004	0.002	0.003	0.001	0.002	0.003	0.002	0.002	0.001	0.003	0.004	0.003	0.001		0.03
Total Metals (Trace)																					
Calcium	41.6	41.9	43.1	43	23.4	62.4	42.7	42	41.8	40.1	42.7	42.8	42.8	51.5	40.5	31	42	20.4	0.2		
Iron	<0.1	0.1	0.1	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.5	0.2	<0.1	1.8	0.4	0.1	<0.1	0.1		0.3
Magnesium	9.4	9.6	10.2	15.4	5.7	25.6	9.2	15.3	15	8.8	14.4	14.4	14.3	11.9	13.6	10.4	10.8	5.3	0.1		
Manganese	0.014	0.02	0.031	0.006	0.012	0.014	0.009	0.013	0.014	0.013	0.017	0.051	0.013	0.01	0.08	0.016	0.014	<0.005	0.005		
Potassium	1.3	1.2	1.2	0.7	0.8	1.3	1	0.7	0.8	1.3	0.9	1.1	0.9	2	1.3	0.9	1	0.6	0.4		
Silicon	3.53	3.86	3.75	2.49	4.14	2.83	3.28	2.55	2.59	3.74	2.8	3.82	2.73	3.81	4.5	3.41	3.8	3.2	0.05		
Sodium	2.7	2.7	2.6	1.6	2.8	3.5	3.3	1.6	1.7	2.6	1.9	1.9	1.9	3.6	2.2	1.9	2.3	1.9	0.4		
Sulphur	10.4	10.5	10.7	18.3	4.34	35.4	13.9	17.7	16.9	9.55	16.5	17.2	16.1	4.3	16.1	16.7	5.98	4.71	0.05		
Aluminum	0.035	0.051	0.007	0.034	0.034	<0.005	0.019	0.055	0.077	0.041	0.167	0.858	0.091	0.022	1.22	0.45	0.091	0.024	0.005		0.005-0.1
Antimony	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	0.0002		
Arsenic	0.0006	0.0006	0.0004	0.0006	0.0009	0.0011	0.0008	0.0006	0.0006	0.0007	0.0007	0.0015	0.0007	0.0014	0.0017	0.0006	0.0004	<0.0002	0.0002		0.005
Barium	0.071	0.073	0.075	0.083	0.066	0.056	0.066	0.08	0.083	0.066	0.085	0.146	0.08	0.107	0.146	0.078	0.077	0.046	0.001		
Beryllium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		
Bismuth	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005		
Boron	0.004	0.004	0.005	0.004	0.007	0.009	0.008	0.006	0.006	0.004	0.006	0.006	0.006	0.007	0.007	0.004	0.004	0.004	0.004		
Cadmium	0.00001	0.00001	0.00002	0.00006	0.00001	0.00003	0.00003	0.00007	0.00006	0.00002	0.00007	0.00016	0.00005	0.00001	0.0002	0.00009	0.00001	<0.00001	0.00001		0.000017
Chromium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0021	<0.0005	<0.0005	0.0026	0.0008	<0.0005				

Table 2. Comprehensive Results - Water Quality 2004

Location Description	Anvil Creek A2	Anvil Creek A3	Anvil Creek A4	Pelly River Upstream Blind Creek PB	Blind Creek Upstream Pelly River B1	Earn River	Tay River	Pelly River	Pelly River - P1A	Anvil Creek - A1	Pelly River - P3	Pelly River - P4	Pelly River - P5	Needle Rock Creek	Pelly River @ PC	Macmillan River	Tummel River	Glenlyon River	Detection Limit	CCME Guidelines		
Sampler	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN		Water: Freshwater Aquatic Life	
Station ID																						
Lab	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest			
Lab Lot ID	324033-3	324033-2	324033-1	324033-4	324033-5	324989-1	324989-2	324989-3	324989-4	324989-5	324989-6	324989-7	324989-8	324989-9	324989-10	324989-11	324989-12	324989-13				
Date	29-Jul-04	29-Jul-04	29-Jul-04	30-Jul-04	30-Jul-04	2-Aug-04	2-Aug-04	2-Aug-04	1-Aug-04	31-Jul-04	3-Aug-04	3-Aug-04	3-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	4-Aug-04	1-Apr-04			
Parameter ¹																						
Physical and Aggregate Properties																						
Turbidity	1	0.8	0.4	0.9	1	1	1.1	1.8	3.1	1.6	4.8	13.6	3.2	1.6	40.1	17.6	5.9	0.4	0.1			
Temp. of observed pH and EC	20.2	20.3	21.6	20.2	20.6	19.8	19.7	19.7	19.7	19.8	20	19.8	19.7	19.7	19.6	19.7	19.8	20.1				
Solids (Total Suspended)	2	2	2	<5	13	1	2	5	7	2	10	81	7	1	<3	13	3		1			
Solids (Fixed Suspended)	1	2	1	<3	1	1	2	4	7	2	10	78	7	<1	<1	13	3		1			
Solids (Volatile Suspended)	1	0	1	<2	12	0	1	1	0	0	0	3	0	1	<2	0	0		2			
Colour (Apparent in NTU)	8	9	7	7	15	18	10	5	6	7	5	25	5	13	80	35	7	8	5			
Routine Water																						
pH	8.45	8.41	8.34	8.43	8.29	8.3	8.33	8.3	8.31	8.35	8.35	8.34	8.33	8.4	8.3	8.14	8.41	8.15				
Electrical Conductivity (µS/cm at 25C)	281	279	299	319	173	501	304	327	324	274	324	322	322	337	297	241	284	151	1			
Calcium (Dissolved)	42.7	41.5	43	43.6	24.6	66.7	45.9	43.7	43.5	41.2	43.3	43.5	43.5	52.2	39.7	30.9	41.4	20.2	0.2			
Magnesium (Dissolved)	9.7	9.4	10.1	15.6	6	26.5	10.1	15.5	15.3	9.3	14.8	14.7	14.7	12.2	13.2	10.4	10.7	5.4	0.1			
Sodium (Dissolved)	2.8	2.7	2.7	1.6	2.9	3.8	3.6	1.8	1.8	2.8	2	2	2	3.6	2.2	1.9	2.4	1.9	0.4			
Potassium (Dissolved)	1.3	1.3	1.2	0.8	0.8	1.4	1.2	0.8	0.8	1.3	0.8	0.8	0.8	1.7	0.9	0.7	0.9	0.6	0.4			
Iron (Dissolved)	0.03	0.06	0.07	0.02	0.06	0.03	0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01	0.01	0.02	0.02	<0.01	0.01			
Manganese (Dissolved)	0.008	0.014	0.022	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.009	<0.005	<0.005	<0.005	0.005			
Chloride (Dissolved)	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	1	0.6	0.5	0.5	0.5	0.5	1.4	0.5	0.6	<0.5	0.9	0.5	0.5			
Nitrate - N	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1		
Nitrite - N	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05		
Nitrate and Nitrite - N	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2		
Sulphate-S (Dissolved)	10.7	10.5	11.2	18.4	4.64	38.3	15.2	18.2	18	10.5	17.8	17.8	17.4	4.63	17	17.8	6.28	4.94	0.5			
Hardness (Dissolved as CaCO3)	146	142	149	173	86.2	276	156	173	172	141	169	169	169	181	154	120	147	72.9				
Inorganic Nonmetallic Parameters																						
Dissolved Orthophosphate-P	<0.05	0.06	0.07	<0.05	0.07	0.07	0.08	0.06	0.06	0.07	0.05	0.06	0.06	0.07	0.06	0.06	0.07	0.06	0.05			

Notes:

¹ All units are in mg/L unless otherwise indicated.

Values in red indicate results in exceedence of CCME guideline for protection of aquatic life

2.2 STREAM SEDIMENT SAMPLING

Three replicate stream sediment samples were collected at each of the sample sites and analyzed for total metals, total organic carbon, loss on ignition, and particle size at Norwest Labs in Vancouver, B.C. (see Appendix 2, Plate 2). Additional soil samples were collected at the Anvil Creek stations to document possible historic mine effects (see Section 2.3). The Blind Creek station served as a control station for the project.

2.3 FLOODPLAIN SOIL SAMPLING

Soil sampling was undertaken at the Anvil Creek stations to document soil metal and pH levels and to look for the remains of the 1975 tailings spill (see Appendix 2, Plates 3, 4, and 5). The sample site selection technique was judgmental. Hand dug test pits were sampled across the channel flood plain along a transect at each location on Anvil Creek (see Appendix 2, Plate 6.). Care was taken to collect one or two samples at the edge of the stream channel where no fugitive tailings were expected – these served as local control samples within the flood plain transect. Within each transect, deposition areas of the floodplain were deliberately targeted to see if there was any distinct “signature” of fugitive tailings in the soil profile. A 0.5 to 0.75 m test pit was dug using a stainless steel shovel. A single composite sample was collected for the individual soil horizons within the test pit. The composite sample was collected using standardized protocol, placed in clean plastic bags, kept cold and shipped to Norwest Labs in Vancouver for metals analysis. Soil profiles were logged at each test pit.

Several of these test pit samples revealed slightly depressed pH and elevated metals levels, perhaps indicating that fugitive tailings can still be detected in the stream channel flood plain soils.

2.4 BENTHOS

Between July 29 and August 4th, 2004, benthic invertebrates were collected from several sites as a component of the study (see Appendix 2, Plate 7 and 14). At each site, triplicate samples were collected with a Surber sample equipped with a 300 micron mesh net, and placed together into a one-litre Nalgene bottle. One set of triplicates was preserved with formalin and later sorted, identified and enumerated to determine the invertebrate assemblage at that site. The other sets were frozen until it could be sorted,

identified and sent refrozen to Norwest Labs in Surrey for tissue analysis of metal content.

2.5 FISHERIES

The principle fish collection technique used was electro-fishing. Secondary techniques included minnow trapping, angling, and seining (see Appendix 2, Plates 8, 9, 10 and 12). Crew members wore polarized glasses at all times to enhance fish viewing abilities. All visual observations of fish were recorded.

Electro-fishing was conducted with a Smith-Route POW type 12A battery powered, backpack electro-fisher. The electro-fisher operator was accompanied by two crew members with dip nets. All of the sites investigated had flows that precluded the use of stop nets and a single pass technique was used. Each site was sampled by moving in an upstream direction and sweeping from side to side through each reach; all shoreline areas were fished and attempts at covering all mid-stream habitats were made.

Minnow trapping, targeting juvenile Chinook salmon was conducted with “Gee type” minnow traps (¼” mesh), using a technique known to be effective for the capture of Yukon River juvenile chinook salmon (jcs). Traps were baited with salmon roe (Yukon River origin) suspended in the trap in a perforated plastic bag, and were set in a variety of habitat types. Traps were set for an overnight period with soak times varying from 16 to 24 hours.

Beach seining was conducted at each sampling location as a tool to denote fish presence/absence and to collect metal analysis specimens. Catch per unit effort from seining was not calculated as the effectiveness of seine pulls varied due to such factors as shoreline configuration water depth and velocity. Area seined and seine catches were recorded in a field notebook.

Angling was conducted with light spin casting gear and a variety of small lures. Effort was recorded as minutes fished.

All fish captured were handled delicately to allow for live release after sampling. Anaesthetics were not used. All fish captured or observed were identified as to species and general life stage (fry, juvenile, sub-adult, adult), a sub-sample was measured for fork length (± 1 mm) and then released unharmed as near as possible to the location from which they were sampled. All fish captured or observed were recorded into a field book and the information was later entered into computer format.

Fish samples for metal content analysis were collected during the course of general sampling. A maximum of 5 Arctic grayling and 5 slimy sculpins samples were collected from each site for analysis of metals in tissue (Appendix 2, Plate 16).

Arctic grayling with a fork length >200 mm were selected for tissue sampling and sculpins 80 mm or longer were selected when possible. At sites where less than 5 sculpins over 80 mm in length were caught, composite samples of 2 or more individual sculpins were utilized.

Specimens collected for metal samples were placed into zip loc bags immediately after capture. The collected specimens were sampled later, in a controlled environment. For sacrificed Arctic grayling, fork length and round weight were recorded. From each grayling a sample of approximately 50 grams was taken from the caudal area and placed in separate labeled bags. Specimens were stored frozen until shipped to the lab.

For slimy sculpins sacrificed, the total length for each specimen was recorded, including the individuals from composite samples. Each sculpin sample was bagged separately; each composite sample was bagged separately as a single sample. The samples were then placed in separate bags for each site.

The tissue samples were submitted to Norwest Labs for metals analysis. Metal analysis included microwave acid digest for ICP metals, mercury in tissue and metals semi trace in tissue. The metal results were expressed as ug/gram (wet). Moisture content was also measured so the results can be converted to dry weight measurements.

A miscommunication between WMEC and Norwest Labs resulted in the individual slimy sculpin samples from each site being combined into a single sample. The result being

that instead of 16 slimy sculpin samples a total of only 6 samples for metals content in slimy sculpin at each station were compiled.

The general description of fish habitats recorded for each site included: site location, flow parameters including velocities (floating object method), depth, wetted and channel widths, substrates, channel configuration, bank stability, water temperature, riparian vegetation and an assessment of available fish cover. Photographs representative of each site were taken. Selected photos for some of the sample stations have been included in Appendix 1.

3.0 DATA RESULTS

All information was recorded on field forms and field books during the field assessments, and then transferred to a computer format at the completion of the field session.

3.1 WATER QUALITY MONITORING PROGRAM

The project team conducted the sampling event in late July 2004 with the assistance of SFN Land and Resources staff. The comprehensive results for all parameters including dissolved and total metal analysis are displayed in Table 2. Concentrations that exceed the CCME guidelines for the protection of freshwater aquatic life are displayed as red value entries. Appendix 3 contains the Norwest Labs analytical water quality reports.

All samples tested returned results that met the CCME guidelines for total arsenic, molybdenum and nickel. Total iron concentration levels met the guidelines for all sampling locations except for the Macmillan River and Pelly River – P3. Anvil Creek – A3 was the only sampling location that exceeded the guidelines for total zinc. Most sampling locations excluding Tummel River, Glenlyon River, Needle Rock Creek, Blind Creek – B1 and Anvil Creek sites A2 and A3, returned total cadmium concentrations exceeding CCME guidelines. It is also worth noting that the Pelly River at Pelly Crossing sample returned the highest total cadmium concentrations recorded. All Pelly River, Macmillan River and Earn River sampling locations returned total selenium concentrations exceeding the guidelines. Total aluminum concentration levels at Pelly River – P3 and P4, Pelly River at Pelly Crossing and Macmillan River sampling locations exceeded the CCME guidelines.

Note that the foregoing discussion related to total metals analysis. This method often returns values above CCME guidelines in Yukon streams when the dissolved value for the same sample is below the guideline concentration.

Figures 4, 5 and 6 present selected water quality results for total zinc, cadmium and selenium by station within the Anvil Creek, Pelly River and Blind Creek stations. The Blind Creek metal values are quite low representative of the control station. The Pelly

River stations P1A and P1 had higher concentrations of total cadmium and selenium than those recorded in either Anvil or Blind Creeks (Figures 5 and 6). The highest concentration of total zinc was recorded at Anvil Creek station A3 (Figure 4). This is due to the effect of metals adsorption onto suspended solids.

Figure 4: Water Quality Results (2004) - Total Zinc by Station

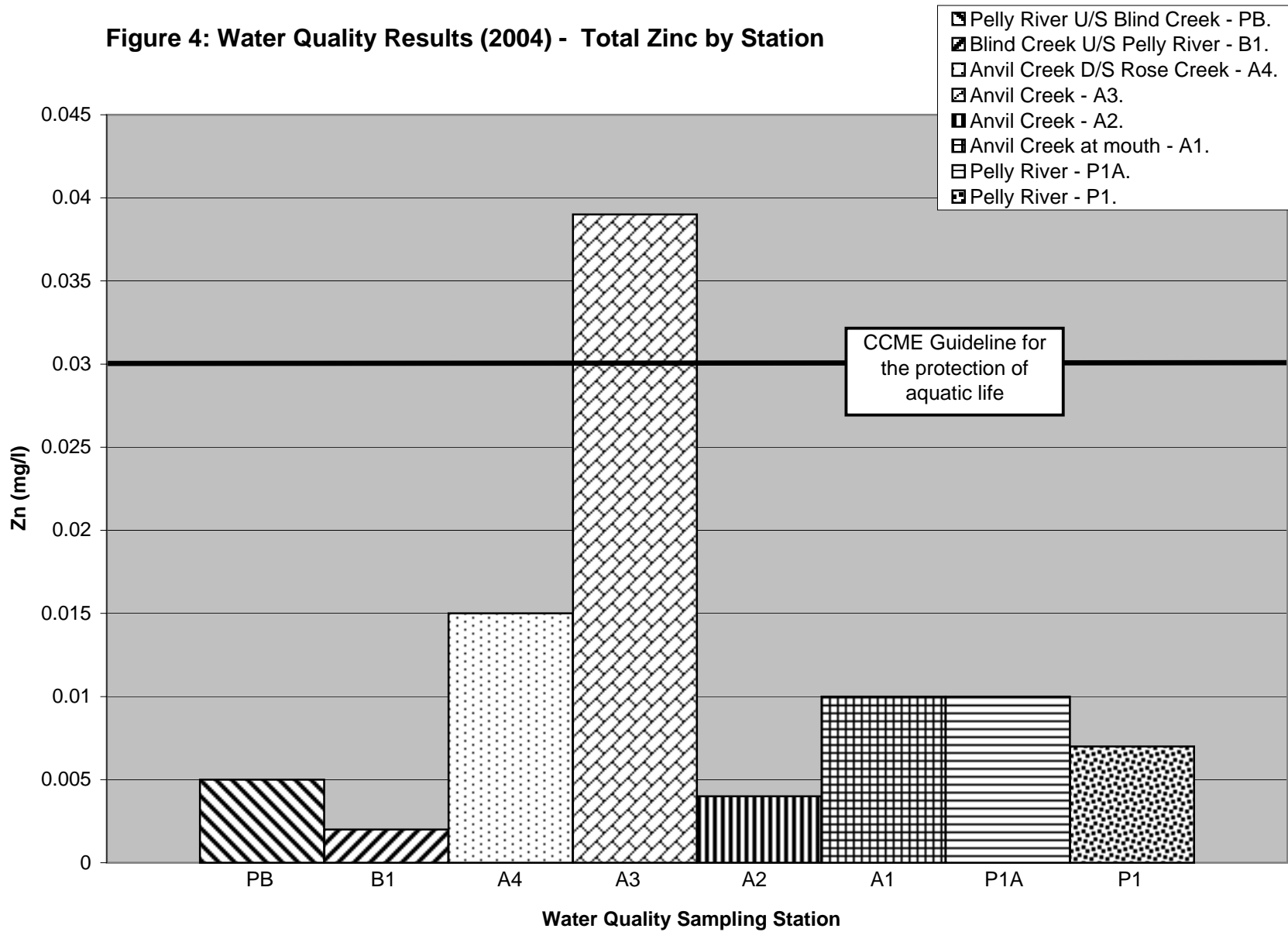


Figure 5: Water Quality Results (2004) - Total Cadmium by Station

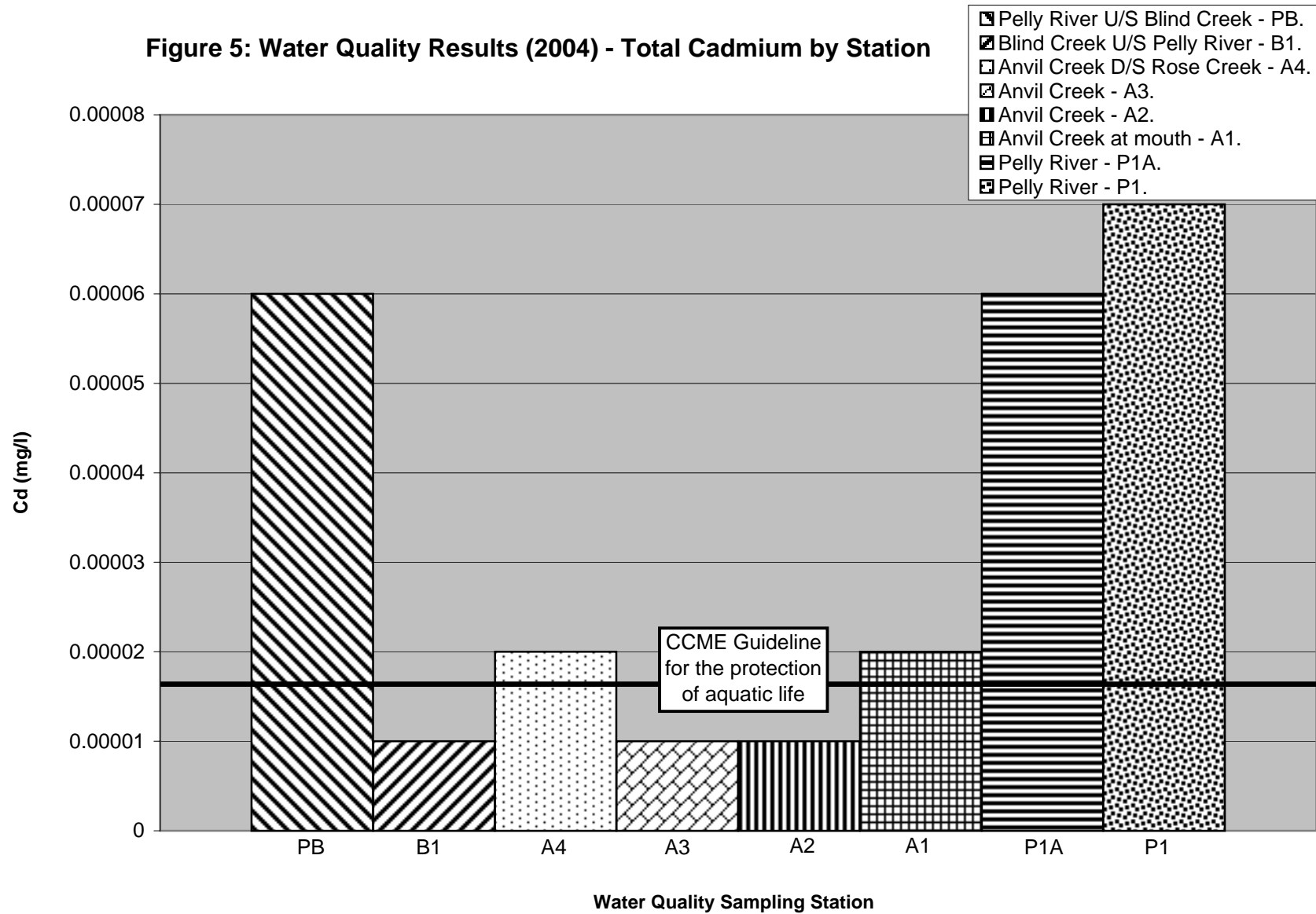
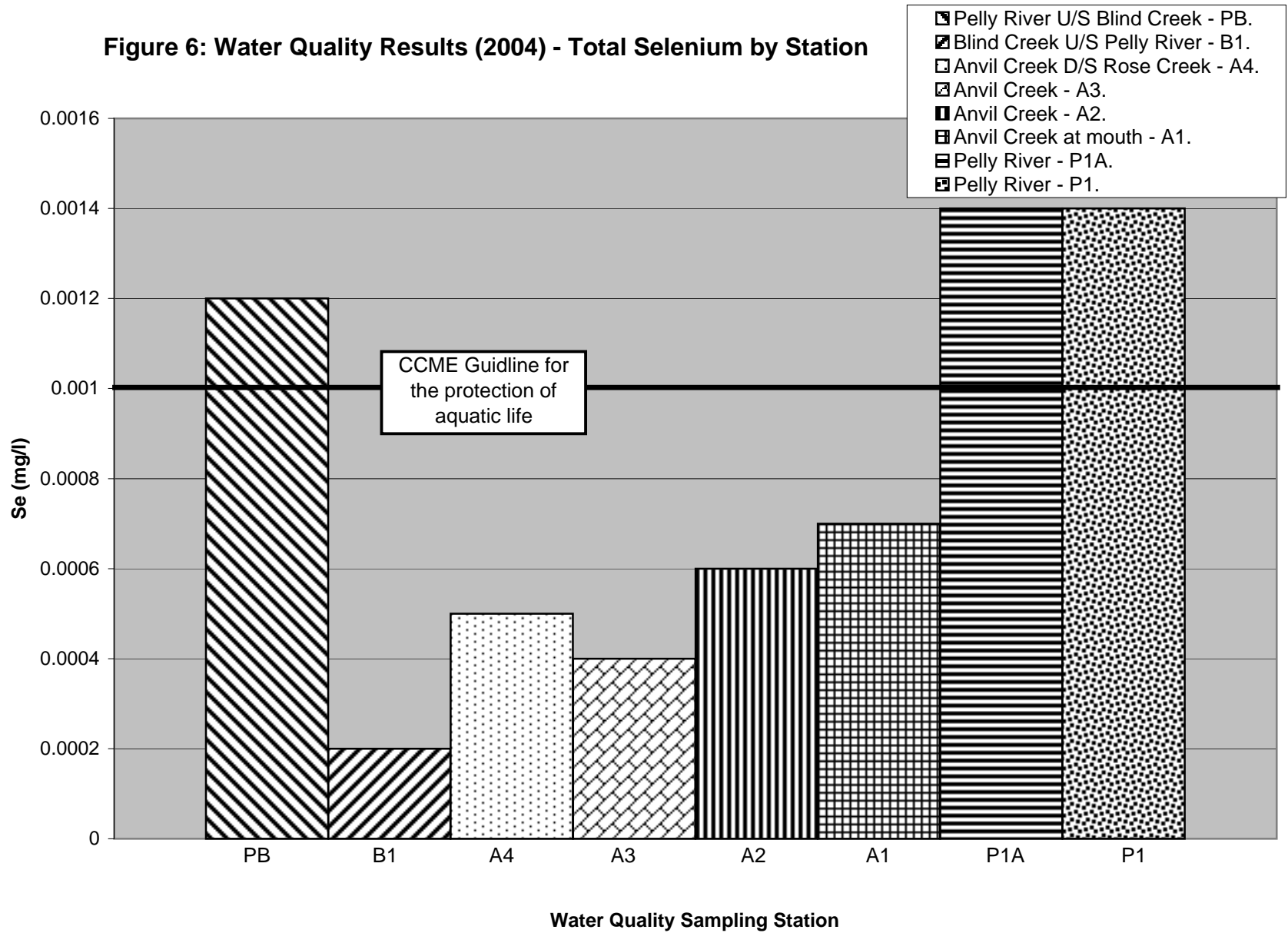


Figure 6: Water Quality Results (2004) - Total Selenium by Station



3.2 STREAM SEDIMENT SAMPLING

Results of the stream sediment sampling program are shown in Table 3. Sediment samples have been analyzed at –10 mesh size fraction. The accompanying graphs, Figures 7 to 9, compare the monitoring 2004 results with results from previous and water licence monitoring studies conducted on Rose Creek. Concentrations that exceed the CCME Canadian Environmental Quality Guidelines, Interim Sediment Quality Guide, are displayed as red value entries in Table 3. Appendix 4 contains the Norwest Labs analytical soil/sediment reports and Appendix 7 contains particle size distribution reports.

Figures 7 to 9 present copper, lead and zinc concentrations by site and year to demonstrate the overall trends of these selected metals concentrations in sediments decreasing over time and with distance from the Faro site influence. The metals total copper, lead, and zinc were selected for further analysis as indicator metals from the Faro mine complex. Metal concentrations in sediments were recorded in 1973, 1983, and 1996 in Anvil Creek. Sediment samples were analyzed at <0.15 mm in 1983 and 1996. In 1973 it appears that an unsieved sample was analyzed for metals.

Metals analysis results recorded in 1973 are limited to Rose Creek sites R2, R3, Anvil Creek Site A1, and Pelly River Site P1A, as they were the only locations sampled. Results recorded in 1973 compared with results from the same sites in later years generally reveal higher total metals concentrations in stream sediments at R1, A1 and P1A, and lower metals concentration at sites R2 and R3. Metals concentrations in sediments at Rose Creek sites downstream of R1 seem to reach peak levels in 1983 for copper, lead and zinc with concentration levels decreasing each subsequent water quality analysis. The 1983 spike in metals concentrations in sediments may be a reflection of the 1975 tailings spill, as it is the first known analysis conducted after the spill. It should be noted however, that the 1983 data lacks quality control and therefore confidence in the anomaly is low. Further demonstration of this trend is the visible decrease in zinc concentrations over time at Site P1A, observable in Figure 9. Site P1A is a good representation of Faro mine site aquatic effects to Pelly River as it is the point in which the Pelly River is first influenced by Anvil Creek. Certain exceptions to this trend can be noticed, for example in Figures 7 to 9 where copper, lead, and zinc concentrations recorded for site R-5 are lower in 1996 than observed in 2004.

Table 3. Comprehensive Results - Stream Sediment (2004)

Location Description	Anvil Creek A1	Anvil Creek A2	Anvil Creek A3	Anvil Creek A4	Blind Creek B1	Pelly u/s Blind PB	Pelly u/s Anvil P1	Pelly d/s Anvil P1A	Detection Limit	Canadian Environmental Quality Guidelines - Interim Sediment Quality Guide (ISQG)
Sampler	KN	KN	KN	KN	KN	KN	KN	KN		
Lab	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest		
Lab Lot ID	325006-1	325006-2	325006-4	325006-3	325006-23	325006-24	330674-1	330674-2		
Date	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	23-Aug-04	23-Aug-04		
Parameter ¹										
<i>Metals Strong Acid Extractable</i>										
Mercury	0.04	0.06	0.06	0.05	0.04	0.09			0.01	0.17
Aluminum	9840	12200	11100	10500	11900	8010	4660	5920	0.4	
Antimony	1.3	1	1.4	1	0.9	1.3	<1	1.2	0.3	
Arsenic	11	13.6	13	11.5	10.6	12.3	7.3	8.9	0.5	5.9
Barium	287	500	326	453	270	766	380	790	0.01	
Beryllium	0.37	0.52	0.47	0.42	0.4	0.39	0.261	0.35	0.03	
Bismuth	0.7	0.6	0.8	0.5	0.6	0.6	<1	<1	0.4	
Cadmium	0.46	0.78	0.73	0.71	0.53	1.55	0.79	1	0.03	0.6
Calcium	7210	6800	6170	5020	4640	17800	11400	17600	10	
Chromium	29.5	55.1	42.1	50.7	24	21.4	16	21.9	0.04	37.3
Cobalt	7.48	10.7	10.8	13.5	8.01	7.04	5.12	5.97	0.04	
Copper	18	27.5	26.8	24	16.6	23.6	12.9	15.5	0.05	35.7
Iron	21200	25600	24500	25300	24800	23100	14400	16700	0.2	
Lead	19.4	52.9	62	98	11.6	9.9	5.99	7.32	0.1	35
Magnesium	6130	7080	6360	5640	4620	8880	7380	9150	3	
Manganese	381	862	1020	3580	440	386	293	359	0.01	
Molybdenum	0.77	1.08	1.12	1.75	0.8	1.89	1	2	0.05	
Nickel	30.8	45.5	40.4	47.6	24	36.2	29.2	28.9	0.05	
Phosphorus	765	933	952	851	763	1200	1180	1260	2	
Selenium	<0.2	<0.2	<0.2	<0.2	0.7	0.6	<5	<5	0.2	
Silicon	2430	2620	2540	2010	2900	2560			0.2	
Silver	<0.05	0.16	0.11	0.18	<0.05	0.12	0.11	0.16	0.05	
Strontium	37.1	41.5	34.8	36.6	31.8	71.2	42.6	59.5	0.005	
Thallium	<0.2	<0.2	<0.2	0.4	<0.2	<0.2			0.2	
Tin	0.5	0.7	0.5	0.5	0.9	0.3	<0.5	<0.5	0.2	
Titanium	452	516	453	429	473	160	70.6	101	0.02	
Vanadium	35.1	44.7	39.6	34.7	34.2	49.4	33.2	38.9	0.05	
Zinc	89.7	167	184	274	70.8	167	96.7	120	0.03	123
Zirconium	2.22	2.31	2.27	2.1	2	2.5	2.4	3.12	0.05	
Soil Acidity										
pH	8.1	8.3	8	8	7.7	8.1				

Notes:

¹ All units are in ug/g unless otherwise indicated.
 Values in red indicate results in Exceedence of ISQG

The decrease in metals concentrations with distance from the Faro Mine site influence is also apparent in Figures 7 to 13. Metals Concentrations seem to increase at first moving downstream from the Faro mine site starting at site R1 reaching maximum concentrations between sites R2 and R4 as metals are mobilized. Metals concentrations downstream from site R4 decrease moving towards the Pelly River. A different pattern is observed with the 1973 results. Metals concentrations in sediments consistently decrease moving downstream from R1 to R2, then increase from R2 to R3. Also unique to the 1973 results is that copper and zinc concentrations in sediments increase from A1 to P1A, which may indicate the presence of an unrelated influence to the Pelly River at that time.

3.3 FLOODPLAIN SOIL SAMPLING

The results of the floodplain soil sampling program are provided in Table 4 and in Figures 10 to 13, which illustrate the general trends in soil metals from the Anvil Creek upstream sampling location A4, to A1 downstream before the Pelly River Confluence.

A decrease in metals concentrations and an increase in pH in soils at upstream site A4 downstream to site A1, is apparent in Figures 10 to 13. Also, copper, lead, zinc, and pH results from samples taken at each station across the channel floodplain along a transect are shown in Figures 10 to 13. Test pit 2 (T2), deliberately chosen as a deposition area returned high metals concentrations and low pH values, (see stations A4 and A2). The same trend is observed for T5 at station A4, and T1 at station A1, although to a lesser degree. As previously noted in this report, it is possible that the effects of the 1975 tailings spill may still be detectable in the form of high metal concentrations and depressed pH values in deposition areas along the Anvil Creek channel floodplain. However, this investigation was not designed to collect enough information to speak to the flux of metals within the soil matrix.

For comparative purposes, the results from the 2004 stream sediments are also shown in Figures 7 to 9.

Table 4. Comprehensive Results - Floodplain Soils (2004)

Location Description	Anvil A1 T1	Anvil A1 T2	Anvil A1 T3	Anvil A1 T4	Anvil A1 T5	Anvil A2 T1	Anvil A2 T2	Anvil A2 T3	Anvil A2 T4	Anvil A3 T1	Anvil A3 T2	Anvil A3 T3	Anvil A3 T4	Anvil A4 T1	Anvil A4 T2	Anvil A4 T3	Anvil A4 T4	Anvil A4 T5	Detection Limit
Sampler	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	KN	
Station ID																			
Lab	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest
Lab Lot ID	325006-5	325006-6	325006-7	325006-8	325006-9	325006-10	325006-11	325006-12	325006-13	325006-14	325006-15	325006-16	325006-17	325006-18	325006-19	325006-20	325006-21	325006-22	
Date	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	13-Aug-04	
NAD 27 UTM mE/mN						8	2	3	3	8	4	9	2	9	5	0			
Parameter ¹																			
Metals Strong Acid Extractable																			
Mercury	0.06	0.03	0.02	0.02	0.02	0.06	0.12	0.07	0.06	0.07	0.39	0.17	0.05	0.11	0.7	0.12	0.09	0.44	0.01
Aluminum	12300	9560	9850	8830	9460	14600	14100	13000	14600	14200	16100	13300	13800	12400	12900	10700	9300	10900	0.4
Antimony	1.4	0.8	1.1	0.7	0.8	1.1	1.4	1.1	0.7	1.2	1.8	1.9	1.1	1	3.2	2	1.5	3.1	0.3
Arsenic	12.2	9.9	9	8.5	8.8	11.5	12.3	12.5	6.2	12.8	24.2	16.1	14.2	11.2	33.7	15.7	12	39.2	0.5
Barium	407	248	263	228	264	464	550	452	353	372	1310	579	311	303	1720	779	269	1410	0.01
Beryllium	0.5	0.36	0.32	0.33	0.33	0.45	0.61	0.55	0.6	0.62	0.76	0.59	0.57	0.45	0.56	0.48	0.38	0.49	0.03
Bismuth	0.6	0.5	0.6	0.6	0.4	0.4	0.6	0.7	0.7	0.9	1.3	0.7	0.7	0.8	1.5	0.8	0.7	1.8	0.4
Cadmium	0.85	0.43	0.4	0.37	0.35	0.69	1.02	0.86	0.5	0.63	1.03	0.93	0.72	0.57	0.33	0.66	0.74	0.52	0.03
Calcium	8090	7150	7310	5330	7230	13500	6130	6760	6260	6140	6050	5520	5130	6940	3020	4570	3560	3260	10
Chromium	36.1	29.3	29.1	35.4	36.5	54.4	41.8	35.1	37.3	39.7	44	46.6	66.5	36.2	37.7	44.2	57.6	33.2	0.04
Cobalt	10.3	7.15	6.67	6.84	6.82	11	12	9.08	8.52	10.4	14.2	12.1	9.77	9.39	9.86	13.2	15.1	12.2	0.04
Copper	28.8	16.6	16.1	14.9	16.3	32.5	53.2	27	29.9	28.1	69	40	26	68	36.2	33.6	60	0.05	
Iron	24200	19400	18000	17800	19300	28100	27600	25200	22800	28700	34400	32800	28700	26800	39400	28400	24200	38600	0.2
Lead	30.3	15.6	13	14.2	14.7	9.1	89.8	14.6	13.4	19.4	355	81.5	18.2	104	755	168	171	302	0.1
Magnesium	7330	5990	5940	5670	6070	11800	7390	6660	7060	7250	7610	6960	6920	6240	5980	5870	5370	5440	3
Manganese	658	336	338	419	396	304	287	352	314	382	640	782	383	422	330	2390	2410	259	0.01
Molybdenum	1.09	0.64	0.82	0.88	0.8	1.02	1.58	1.18	1.02	1.04	1.37	1.42	1.84	1.46	1.58	1.81	1.62	0.05	
Nickel	41.6	29.8	29	31	30.5	55.8	49.2	38.3	37.7	42.6	45	49	53.6	32.3	33	42.4	47.9	32.9	0.05
Phosphorus	896	732	771	693	963	996	917	986	942	931	946	902	957	877	870	814	621	876	2
Selenium	0.4	<0.2	0.4	0.2	<0.2	1.1	0.9	0.8	0.8	0.4	0.4	0.5	0.5	0.4	<0.2	<0.2	<0.2	0.4	0.2
Silicon	2640	2380	2740	2170	1920	2500	3130	3230	3030	3490	3020	2450	3160	3460	2390	2500	2300	2590	0.2
Silver	0.12	<0.05	0.07	0.06	0.12	0.08	0.26	0.21	0.12	0.11	0.78	0.23	0.13	0.11	1.12	0.29	0.25	0.94	0.05
Strontium	43.6	38.2	40.9	32.6	41.1	50.6	40.1	43.1	40.6	38.3	44.8	39.2	33.3	38.8	36.5	34	28.8	33.7	0.005
Thallium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	0.5	0.2
Tin	0.8	0.6	0.3	0.5	0.4	0.4	0.6	0.7	0.8	0.8	0.7	0.8	0.8	0.6	0.5	0.7	0.3	0.8	0.2
Titanium	569	438	371	390	420	746	546	481	552	499	581	536	432	514	610	468	268	535	0.02
Vanadium	43.1	33.2	30.7	30.7	33.2	56.7	48.1	48.6	50.6	48.5	51.6	46.4	53	43.5	40.4	36.9	26.9	35.9	0.05
Zinc	145	78.7	72.5	66.6	66.4	74.4	218	98	93.8	94.8	352	181	96.1	114	258	245	272	273	0.03
Zirconium	2.6	2.44	2.41	2.28	2.34	3.01	2.64	2.59	2.09	2	2.56	2.49	2.26	1.87	2.82	1.65	2.46	2.7	0.05
Soil Acidity																			
pH	7.5	7.9	8.2	8.2	8.3	8.2	6.7	7.2	7	7.5	6.7	6.4	6.8	7.1	4.4	7.3	7.6	4.9	

Notes:

¹ All units are in ug/g unless otherwise indicated.

Figure 7: Copper in Sediments Trend by Site and Year

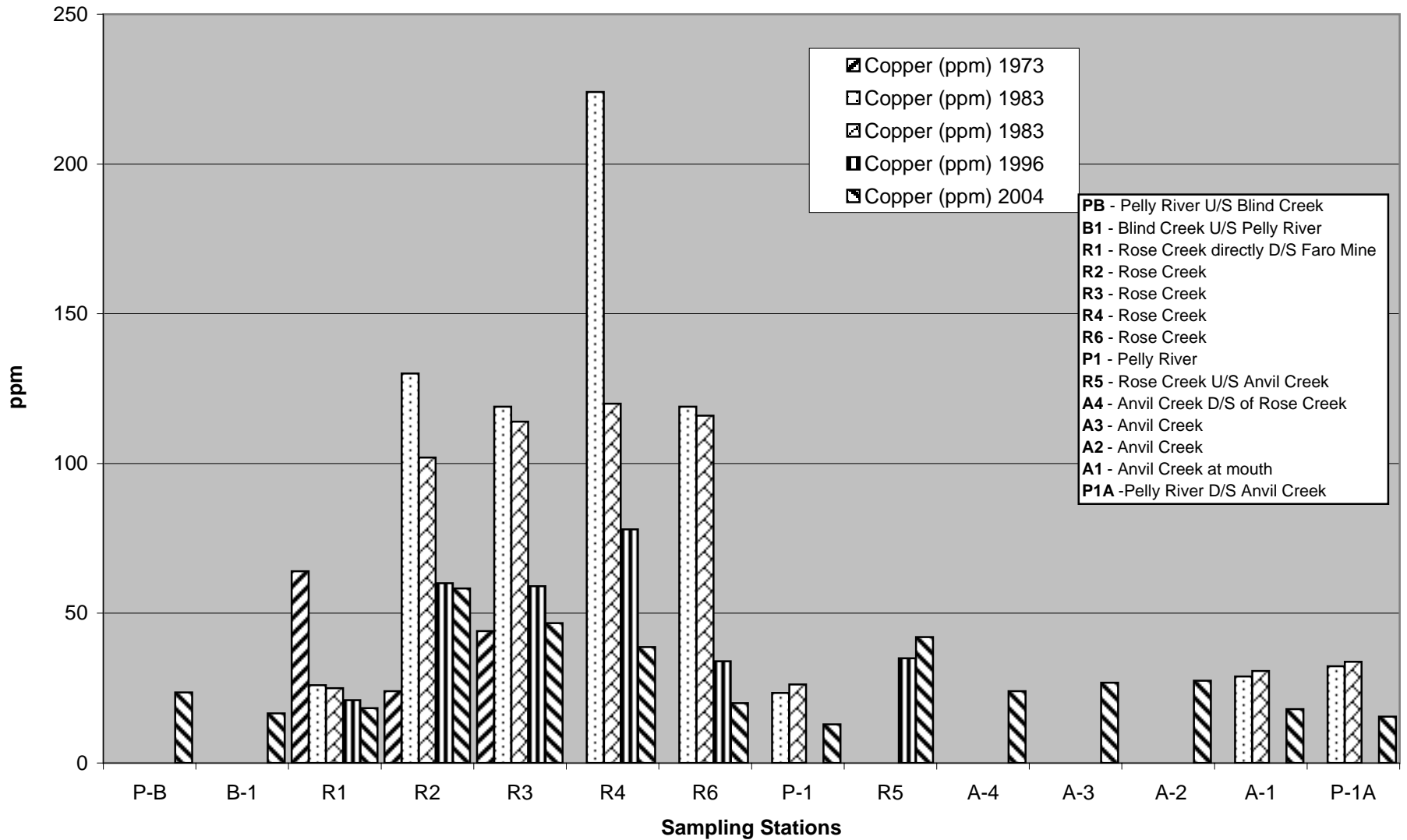


Figure 8: Lead in Sediments Trend by Site and Year

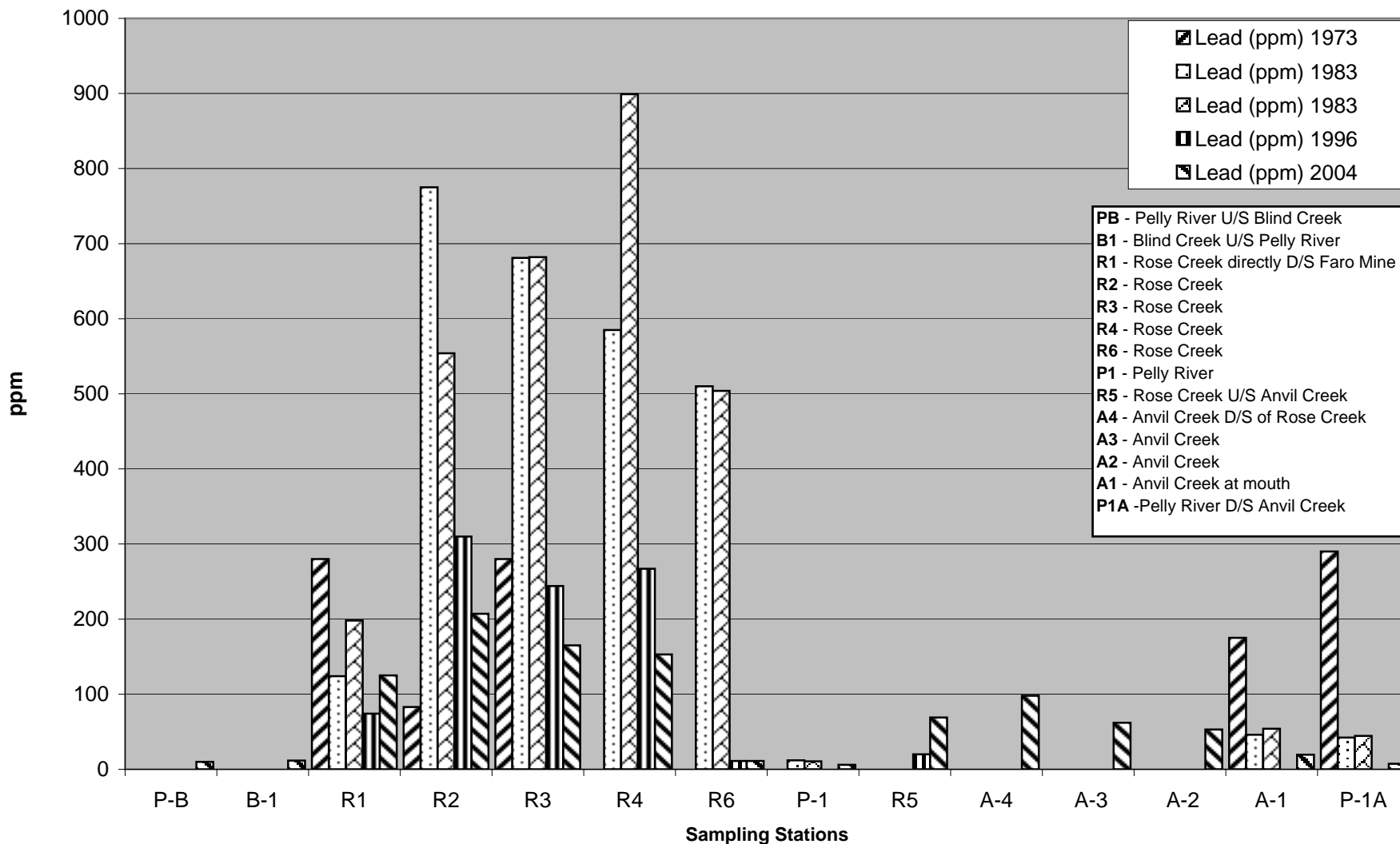


Figure 9: Zinc in Sediments Trend by Site and Year

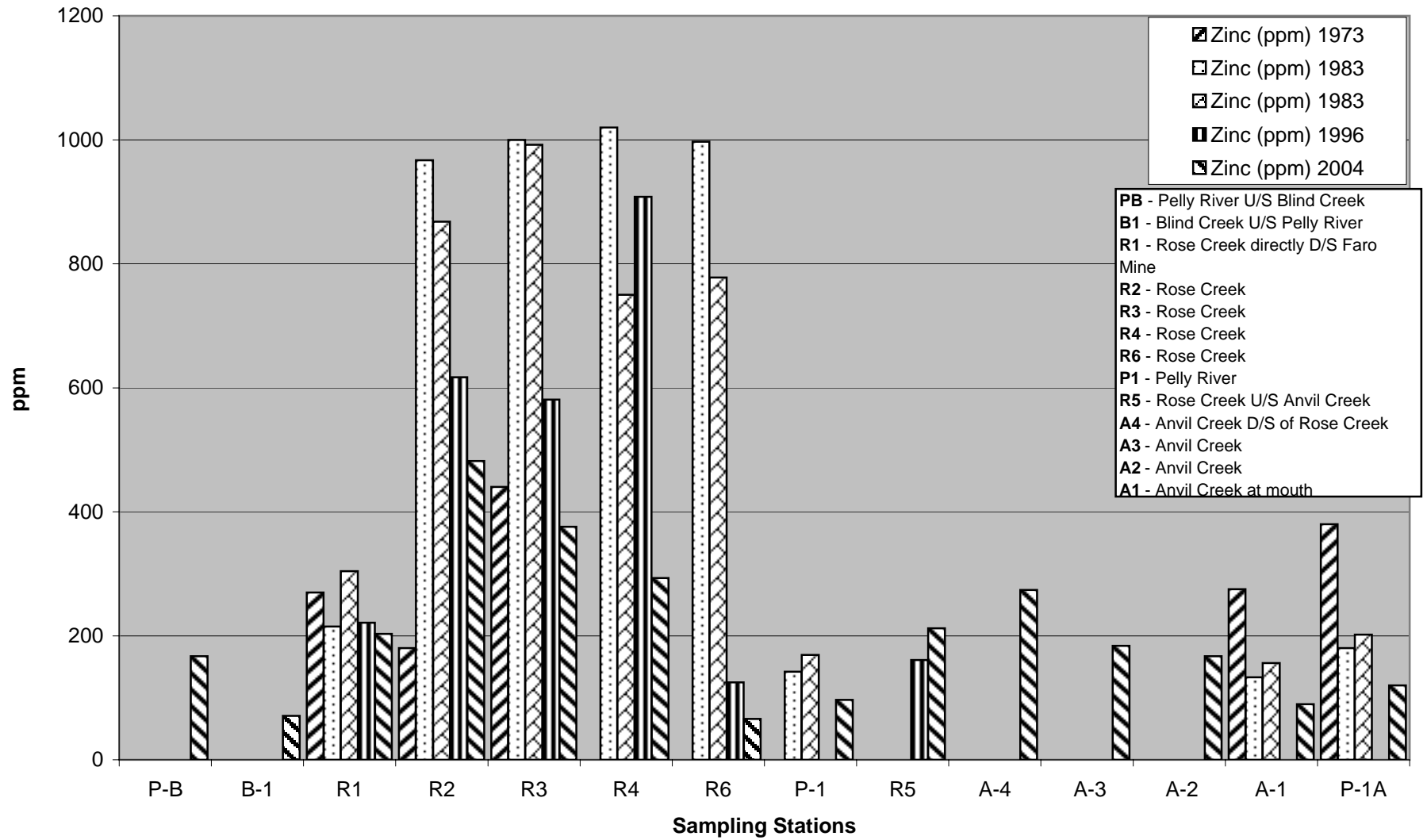


Figure 10: Anvil Creek Floodplain Soil Results (2004) - Copper

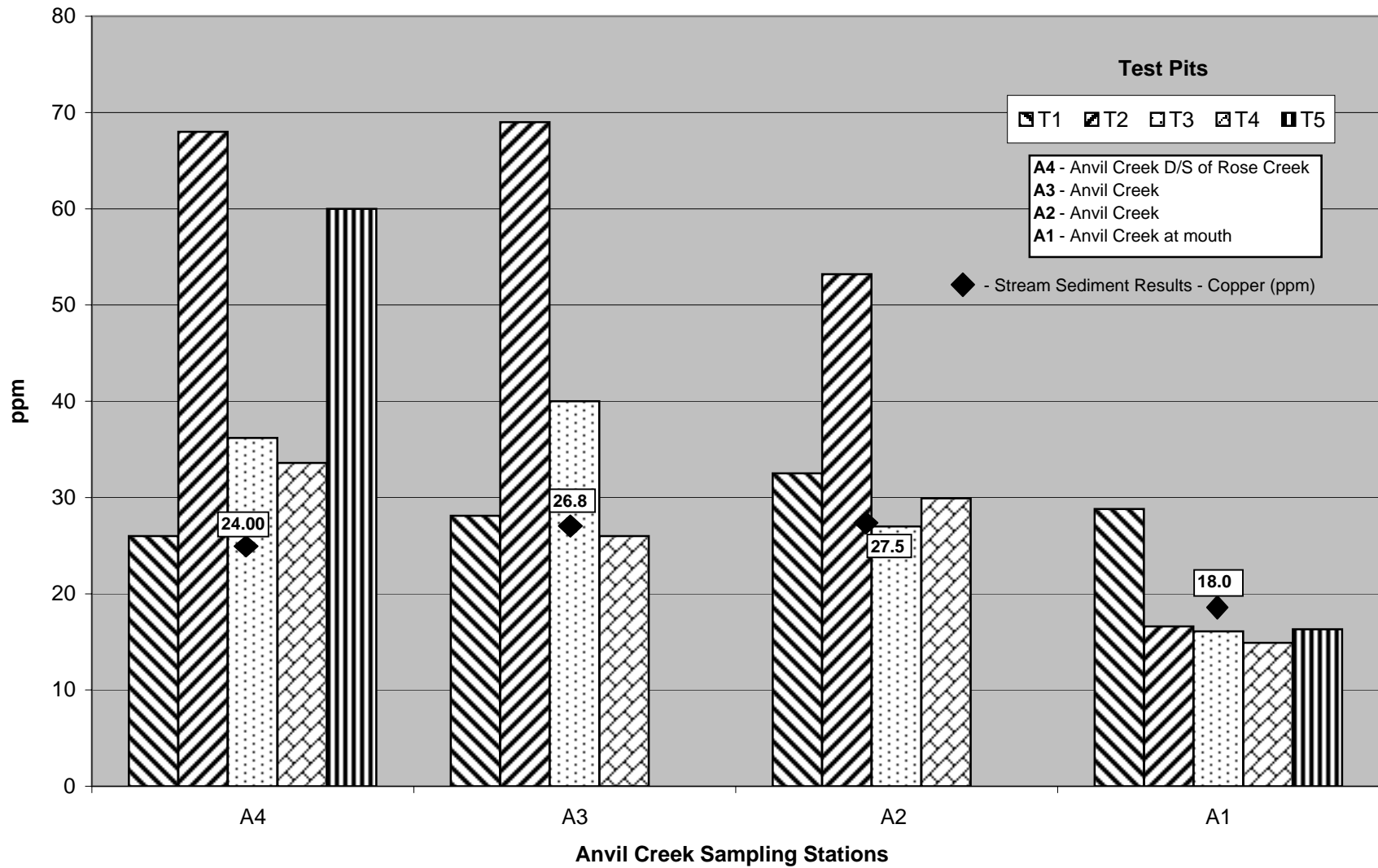


Figure 11: Anvil Creek Floodplain Soil Results (2004) - Lead

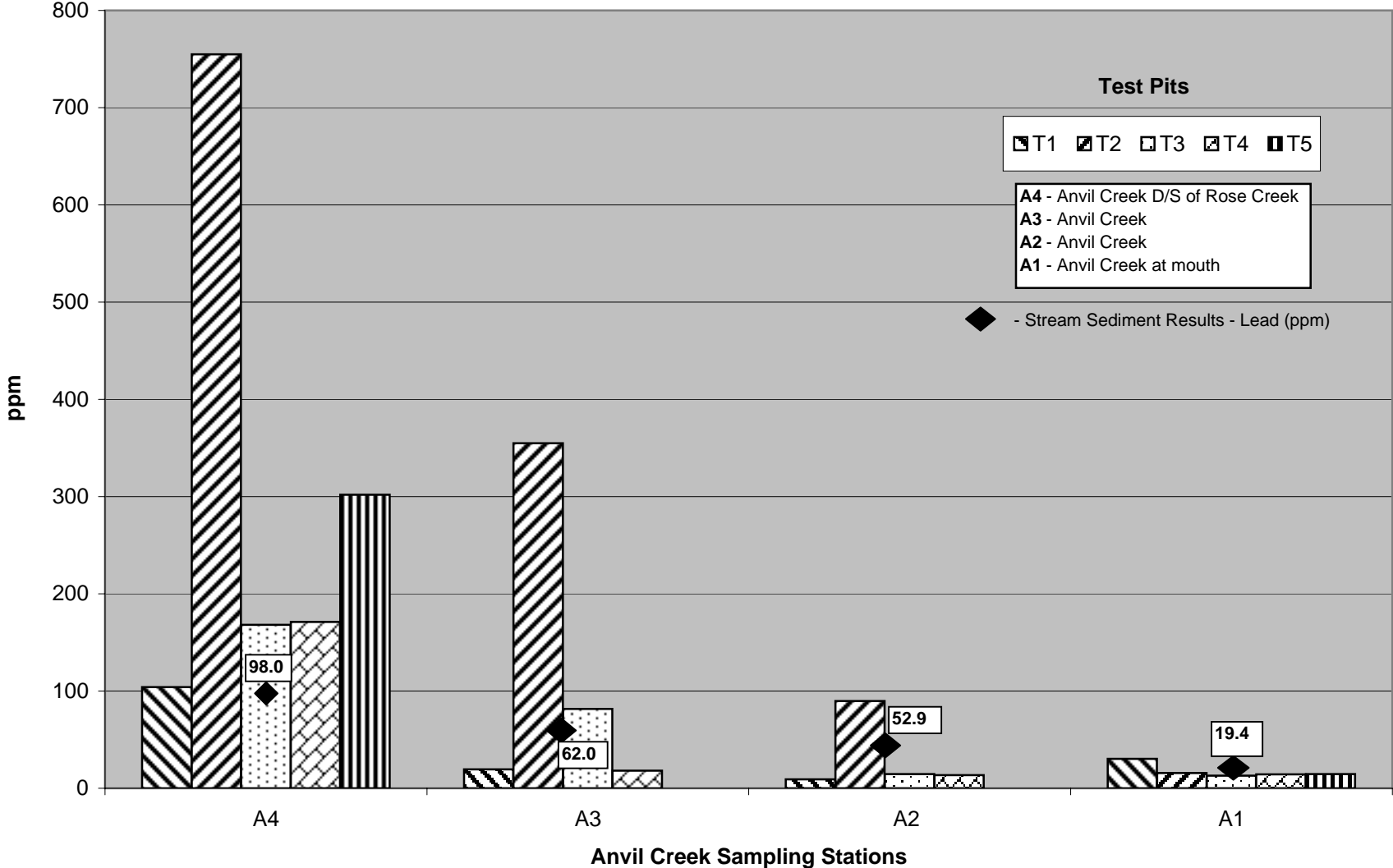


Figure 12: Anvil Creek Floodplain Soil Results (2004) - Zinc

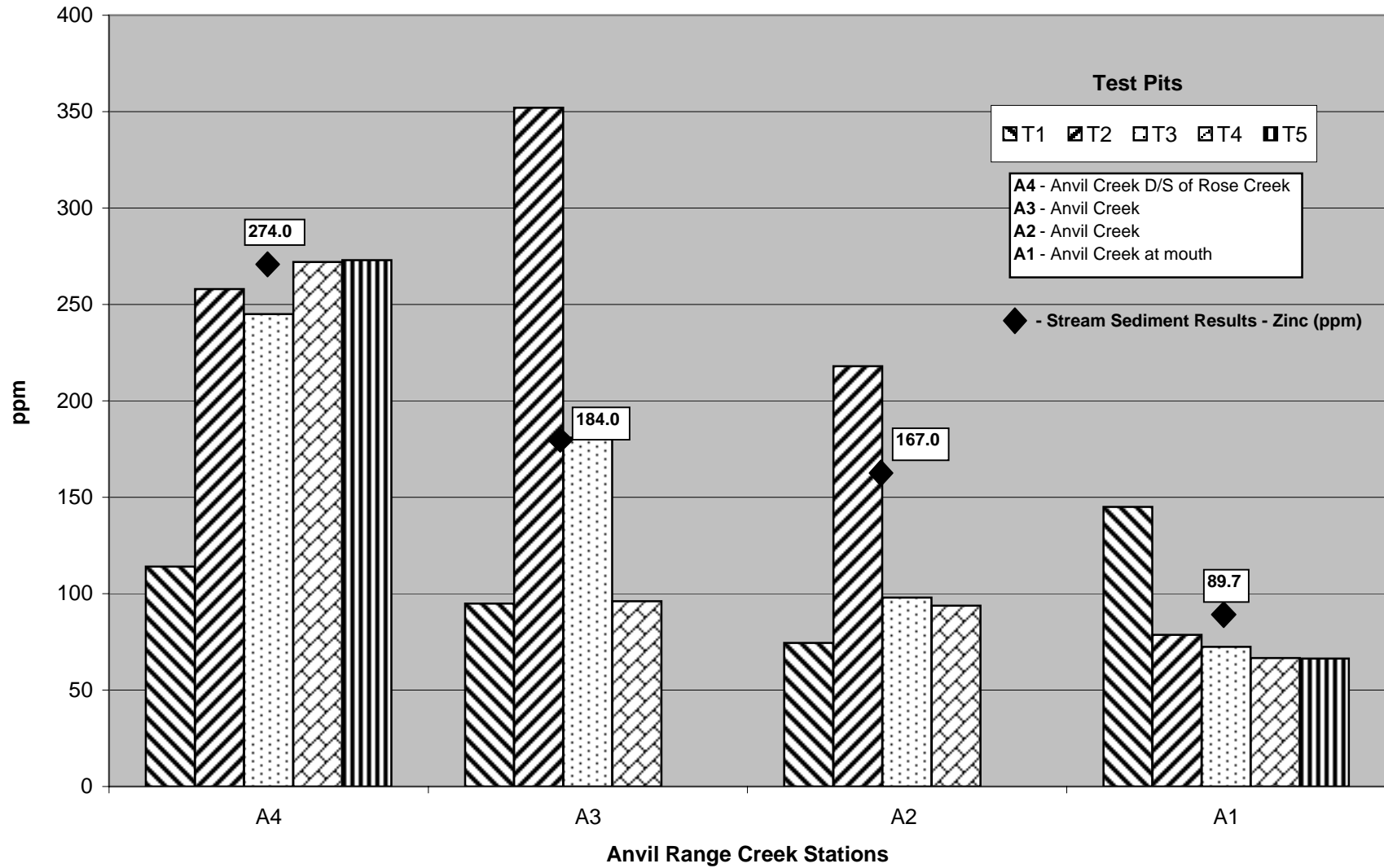
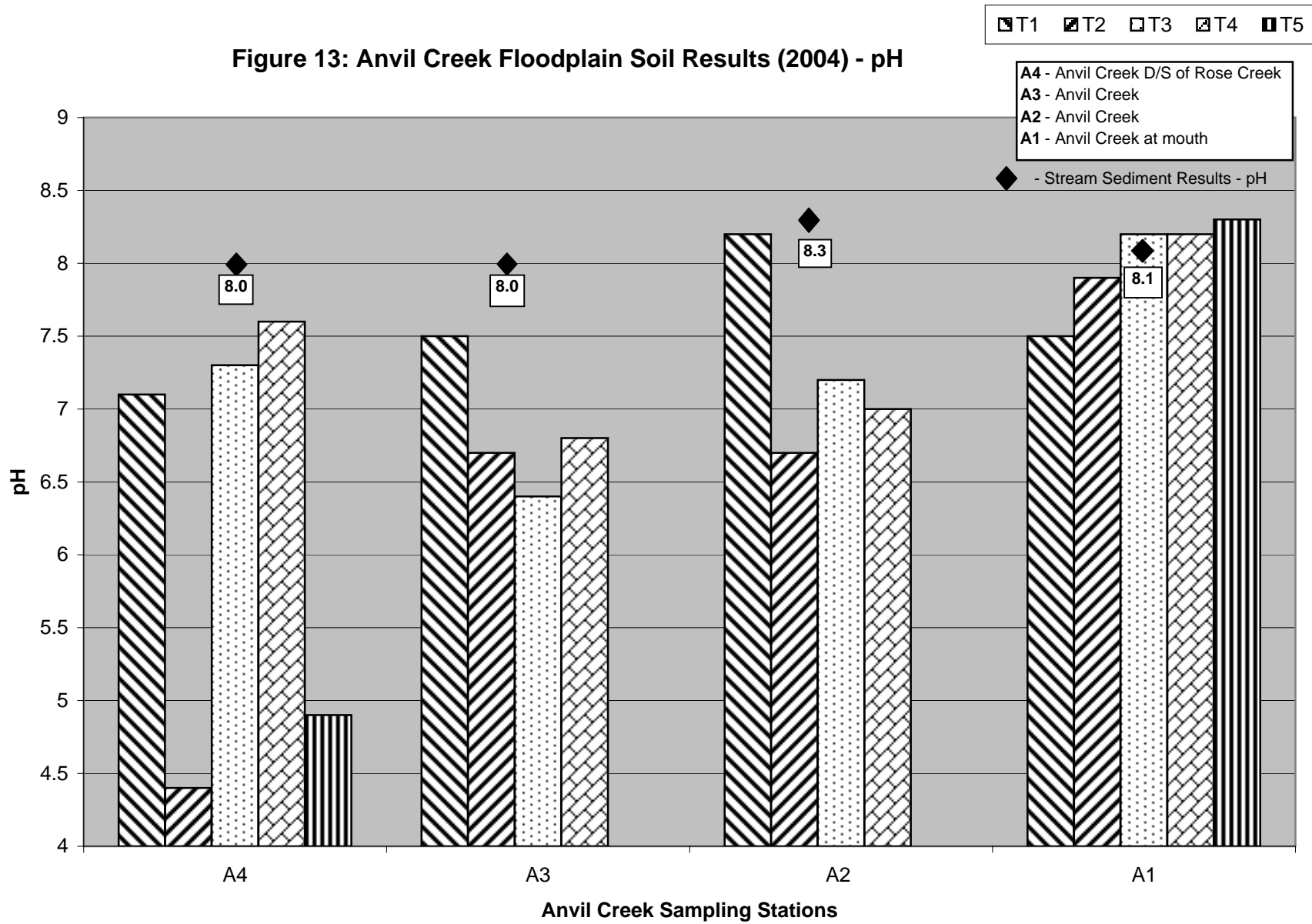


Figure 13: Anvil Creek Floodplain Soil Results (2004) - pH



3.4 BENTHOS

All communities had fairly low populations ranging from 11 individuals at P2 (Pelly River downstream of Tay River) to 183 individuals at A2 on Anvil Creek. Most of the lower populations were situated in the communities on the main stem of the Pelly River.

Diversity ranged from 3 different taxa at P2 to 16 different taxa at Glenlyon River. The composition of the communities was fairly similar. They were dominated by either Ephemeroptera (mayflies) or Diptera (true flies). Ephemeroptera dominated the communities at Glenlyon River, Blind Creek, A2, A3, A4, P1A, and P1. The communities at Tay River, Earn River, A1, PB, P2 and P3 were dominated by Dipterans.

Benthos community data by station location have been summarized in Table 5 below. Table 6 provides detailed community data.

Table 5 Total Benthos and Diversity by Site

SITE	TOTAL NUMBER	DIVERSITY	DOMINANT TAXA
Glenlyon River	117	16	Ephemeroptera
Tay River	75	14	Diptera
Earn River	156	10	Diptera
Blind Creek	119	11	Ephemeroptera
A1	136	10	Diptera
A2	183	14	Ephemeroptera
A3	143	12	Ephemeroptera
A4	60	14	Ephemeroptera
PB	170	11	Diptera
P1A	29	6	Ephemeroptera
P1	37	8	Ephemeroptera
P2	11	3	Diptera
P3	58	8	Diptera

In addition to Benthos community analysis, samples were collected at select stations for total metals analysis. Appendix 5 contains the Norwest Labs metals in benthic invertebrates analytical report.

There was not a great deal of biomass collected from most of the sites, however the lab managed to analyze most of the individual samples for total metals levels. There was insufficient biomass in samples P5 and P7. Since both of these sites are located on the Pelly River and are not too far apart, they were combined to achieve a result, rather than be discarded.

Table 6. Benthic Invertebrate Data, Pelly River Aquatic Study, 2004

Location Description	Glenlyon River	Tay River	Earn River	Blind Creek	Anvil Creek				Pelly River				
					A1	A2	A3	A4	PB	P1	P1A	P2	P3
PHYLUM ARTHROPODA													
Class Insecta													
Order Ephemeroptera													
Family Heptageniidae	30	1	21	48	4	33	32	22	8	11	12	1	3
Family Baetidae	27	11	23	20	6	42	41	8	19	8	6	1	4
Family Ephemerellidae	3	4		21	3	4	7	1	3		4		1
Drunella sp								2					
Order Trichoptera													
Family Brachycentridae	1	8		3	42	7	1	5			2		1
Family Hydropsychidae	2	2	2			2	2	1		1	7		3
Family Rhyacophilidae	1			1	1	2	1	1					
Family Limnephilidae							1						
Family Hydroptilidae		2											
Order Plecoptera													
Family Nemouridae	5		1	7	1	11	5	1		1	2		
Family Perlodidae	31	1			5	9		2	2				
Family Chloroperlidae		1	5	7		10	11	1	2				
Family Perlidae		2	1										
Order Diptera													
Family Chironomidae - larvae	6	38	77	7	71	35	37	1	14	6	2	9	39
Family Chironomidae - pupae		1	1	1	2	1	2						4
Family Simuliidae - larvae	5		21	3				1	116				3
Family Simuliidae - pupae					1				1				
Family Tipulidae	1	1								2	2		
Hexatoma sp	1							1	1				
Family Culicidae - adult		2				1	3	13					
Family Athericidae			4										
Family Blephariceridae				1					2				
Philorus sp	1												
Order Hemiptera													
Order Hydracarina													
	1					6			2				
PHYLUM ANNELIDA													
Class Oligochaeta													
Family Lumbriculidae	1												
PHYLUM MOLLUSCA													
Class Gastropoda													
Family Valvatidae	1												
Family Lymnaeidae		1											
Total:	117	75	156	119	136	183	143	60	170	29	37	11	58
Taxonomic Richness:	16	14	10	11	10	14	12	14	11	6	8	3	8

The data has been summarized in Table 7. Of the 32 metals analyzed, bismuth and sodium were not detected in any of the tissues. The highest concentration (indicated in bold in Table 7) of the most metals (10) was recorded in the tissues from invertebrates collected at the Pelly River station upstream of Blind Creek (PB). This is the uppermost site sampled on the Pelly River system for this study, representing a background site, yet had the highest concentrations of the most metals. The next site with high concentrations in the tissues was in the combined sample of P5 and P7, where 8 metals had the greatest concentration. Within these eight metals were several metals of concern, including cadmium, lead and zinc, where concentrations were significantly elevated over those at the other sites. These two sites are located in the lower section of the Pelly River just below the Macmillan River and at Pelly Crossing. Pelly River downstream of Needlerock Creek (P6) is located between P5 and P7, and very low levels of all metals were documented in the invertebrate tissues here. Low levels of metals were also documented in the invertebrate tissues further upstream on the Pelly at P3 and P2, indicating that the high concentrations documented in the combined sample may be due to natural mineralization or a localized point source of contamination at the site near Pelly Crossing.

Chemical sensitive organisms, Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) formed the majority of the biomass analyzed at each site. There were two sites where Diptera (true flies) formed the majority of the biomass, PB and the Earn River. Most families of Diptera, such as chironomidae and tipulidae, are more tolerant of metals. This information is also included in Table 6.

Table 7. Metal Concentrations in Benthic Invertebrate Tissues, 2004

Total (wet weight) ug/g	Detection Limit	Needle Rock Creek	Earn River	Blind Creek	Anvil Creek				Pelly River					
					A1	A2	A3	A4	PB	P1A	P2	P3	P6	P5 & P7
Aluminum	2.5	183	26.6	86.6	60.8	86.1	92.1	33.9	225	25.2	97.9	58.7	45.5	220
Antimony	0.1	0.02	<0.03	0.01	0.02	0.02	0.02	0.03	0.09	<0.02	0.03	<0.02	0.02	<0.2
Arsenic	0.1	0.36	0.12	0.18	0.11	0.18	0.17	0.1	0.38	0.07	0.18	0.09	0.09	0.39
Barium	0.5	14.3	3.65	8.05	10.7	7.14	8.5	8.45	21.6	3.34	9.36	8.93	5.72	17.9
Beryllium	0.05	0.01	<0.02	<0.005	<0.009	<0.007	0.006	<0.004	<0.02	<0.008	<0.009	<0.01	<0.008	<0.1
Bismuth	0.3	<0.02	<0.08	<0.02	<0.04	<0.03	<0.02	<0.02	<0.08	<0.04	<0.05	<0.06	<0.04	<0.5
Cadmium	0.005	0.0201	0.0643	0.173	0.0842	0.214	0.121	0.15	0.256	0.574	0.161	0.216	0.236	0.926
Calcium	100	342	250	499	424	558	642	616	847	261	332	180	210	350
Chromium	0.3	0.78	0.21	0.21	0.24	0.27	0.29	0.15	0.65	0.14	0.3	0.24	0.17	1.2
Cobalt	0.05	0.174	0.061	0.082	0.054	0.102	0.104	0.104	0.226	0.041	0.093	0.061	0.066	0.2
Copper	0.5	1.05	2.53	2.98	1.67	2.36	2.36	2.17	3.94	6.97	1.48	0.84	1.29	6
Iron	5	518	113	167	99.5	169	185	114	587	58.9	208	119	109	485
Lead	0.05	0.666	0.96	1.02	0.491	6.39	0.578	0.491	4.3	0.085	0.404	0.315	1.02	24.3
Lithium	0.5	0.24	<0.2	0.13	0.1	0.13	0.14	0.06	0.33	<0.08	0.14	<0.1	<0.08	<1
Magnesium	100	137	<30	68	47	62	106	70	210	68	86	46	50	<200
Manganese	2.5	191	15.3	34.2	43.8	28	47.2	65.1	32.2	5.9	10.7	17.7	7.6	31
Molybdenum	0.5	0.26	<0.2	<0.05	<0.09	<0.07	0.08	0.06	<0.2	<0.08	<0.09	<0.1	<0.08	<1
Nickel	0.3	0.58	0.27	0.26	0.22	0.37	0.42	0.27	1.54	0.25	0.62	0.33	0.45	1.1
Phosphorus	15	87	342	278	174	182	372	326	393	318	123	110	113	638
Potassium	200	40	<70	26	<40	<30	26	<20	64	<30	<40	<50	<30	<400
Selenium	0.1	0.07	0.14	0.16	0.12	0.11	0.18	0.16	0.26	0.67	0.11	0.06	0.22	0.57
Silicon	25	134	101	124	120	138	133	79	301	51	161	120	90	420
Silver	0.05	0.009	<0.02	0.019	0.011	0.019	0.012	0.011	0.028	0.048	0.011	<0.01	0.011	<0.1
Sodium	200	<10	<70	<20	<40	<30	<20	<20	<60	<30	<40	<50	<30	<400
Strontium	0.5	1.59	1.1	1.52	1.21	1.53	1.58	1.62	3.71	0.94	1.2	0.72	0.83	2.6
Tin	0.5	0.44	2.58	0.86	1.39	1.53	0.75	0.7	2.21	1.32	1.45	1.99	1.29	15.1
Titanium	0.3	11.1	0.78	3.1	2.61	3.28	2.96	1.26	6.33	0.68	3.59	1.64	1.4	6.58
Uranium	0.3	0.03	<0.08	0.06	<0.04	0.07	0.06	0.06	0.09	<0.04	<0.05	<0.06	<0.04	<0.5
Vanadium	0.05	0.674	0.219	0.324	0.309	0.421	0.422	0.168	1.32	0.222	0.617	0.367	0.308	1.34
Zinc	0.5	5.81	23.9	18.3	35.1	48.9	44.8	63.6	46.3	45.7	18.3	14.5	19.6	112
Zirconium	0.5	0.09	<0.2	0.07	<0.09	<0.07	0.05	<0.04	<0.2	<0.08	0.1	<0.1	<0.08	<1
Mercury	0.01	<0.003	<0.02	<0.005	<0.009	<0.007	<0.004	<0.004	<0.02	0.008	<0.009	<0.01	<0.008	<0.1
Taxa with greatest biomass:		Plecoptera	Diptera	Trichoptera	Trichoptera	Trichoptera	Ephemer.	E and T	Diptera	Plecoptera	Plecoptera	Trichoptera	Trichoptera	E and T

Note: The greatest concentration per parameter has been displayed in **bold**.

3.5 FISH HABITAT AND UTILIZATION

Fish utilization of Anvil Creek at the time of investigation decreased moving upstream from the Pelly River (station A4 to A1). Juvenile chinook salmon (jcs) were common near the outlet of Anvil Creek (A4), however, became increasingly less common further up the system. Data collected as part of the Faro mine aquatics program (Sparling 2004) indicated that this trend continued to Rose Creek and upstream on Rose Creek to a point above the Faro mine influence where jcs utilization again became common. The lower reaches of Anvil Creek supported similar numbers of jcs to the Tay and Glenlyon River systems; however utilization of Blind and Vangorda Creeks by jcs was substantially higher.

3.5.1 Site A1

Electro-fishing was conducted through a 260 meter reach in a single pass consisting of 1213 seconds of effort. A total of 21 jcs, 147 slimy sculpin and 1 juvenile lake chub were recorded (Table 8).

Minnow trapping consisted of 8 traps set for approximately 19.6 hours each. The total catch from the minnow trapping consisted of 43 jcs and 4 slimy sculpin (Table 9).

Seining effort of 6 pulls captured 2 sub adult Arctic grayling, 4 fry and 3 sub adult slimy sculpin and 8 juvenile round whitefish.

No fish were captured during a total of 40 minutes angling effort.

3.5.2 Site A2

3.5.2.1 Fishing Habitat and Utilization

Electro-fishing was conducted through the 100 meter reach in a single pass consisting of 783 seconds of effort. A total of 118 jcs, >20 fry and 125 adult slimy sculpin were recorded (Table 8).

Minnow trapping consisted of 6 traps set for approximately 18.6 hours each. The total catch from the minnow trapping consisted of 148 jcs and 1 slimy sculpin (Table 9).

Seining effort of 4 pulls captured 2 adult and 1 sub adult Arctic grayling, 2 fry and 2 adult slimy sculpin and 18 jcs.

Angling effort of 20 minutes produced 2 adult Arctic grayling and 2 others escaped.

3.5.3 Site A3

3.5.3.1 Fishing Habitat and Utilization

Electro-fishing was conducted through the 100 meter reach in a single pass consisting of 763 seconds of effort. A total of 8 jcs, numerous fry and 98 adult slimy sculpin were recorded (Table 8).

Minnow trapping consisted of 6 traps set for approximately 18.8 hours each. The total catch from the minnow trapping consisted of 41 jcs (0+), 5 jcs (1+) and 4 adult slimy sculpins (Table 9).

Angling effort of 20 minutes captured 1 adult and 1 sub adult Arctic grayling.

3.5.4 Site A4

3.5.4.1 Fishing Habitat and Utilization

Electro-fishing was conducted through the 100 meter reach in a single pass consisting of 701 seconds of effort. A total of 3 jcs - and 47 slimy sculpin were recorded (Table 8).

Minnow trapping consisted of 8 traps set for approximately 19.6 hours each. The total catch from the minnow trapping consisted of 43 juvenile chinook salmon and 4 adult slimy sculpin (Table 9).

Seining effort of 7 pulls captured 8 juvenile Arctic grayling, 3 jcs and 10 slimy sculpin fry.

Angling effort of 20 minutes was unsuccessful in capturing fish.

At site A-4 a number of (20+) dead juvenile Artic grayling (fork length 40-50 mm) were found in a small side pool connected to the main flow. No explanation for the dead fish has been presented. The dead grayling were collected and a special sample for metal content was prepared from these dead fish.

Table 8 Summary of Electro-Fishing Results

(Collected during investigations conducted during the Pelly River Aquatic Life Sampling and Testing program - conducted on Anvil Creek during July and August of 2004)

Sample Site	Date Sampled	Effort (seconds)	Sampled area (meters)	Slimy Sculpin	jcs	Lake chub
A-1	Aug 1	1,213	260	147 (30-80 mm)	21	1 (57 mm)
A-1	Aug. 1	246	60 (small side chan.)	45 (30-95 mm)	8	8 (56-70 mm)
A-1	Aug. 1	525	80 (d/s of sample area)	47 (small)	16	18
A-2	July 30	783	100	125 adult >20 fry	118	0
A-3	July 30	763	150 left bank	98 adult abundant fry	8	0
A-4	July 30	701	100	47 adult and sub. ad.	3	0

Abbreviations used: jcs= juvenile chinook salmon, juv.= juvenile, sub. ad.= sub adult

Table 9 Summary of Minnow Trapping Results

(For traps set on Rose Creek during the Pelly River Aquatic Life Sampling and Testing Program, during July and August of 2004)

Sample Site	Date Set	Number Set	Average Hours set	Slimy Sculpin	jcs	1+ chinook salmon
A-1	July 31	6	14.5	2 adult (65,65)	141	0
A-2	July 30	6	18.6	1 (adult)	148	0
A-3	July 30	6	18.8	4 adult (89,101,84)	41	5
A-4	July 30	8	19.6	4 adult (95,85,86,69)	43	

Bracketed numbers refer to length in mm.

Abbreviations used: jcs= juvenile chinook salmon

3.6 FISH TISSUE

The maximum number of fish samples from each site was not attained. A total of 2 Arctic grayling from site A2 and 3 Arctic grayling from site A3 were collected; no grayling were captured at the other sites. Five slimy sculpin samples from each site were collected. A special sample from Site A4 was prepared from dead juvenile Arctic grayling found at the bottom of the reach.

Miscommunication with Norwest Lab personnel resulted in sculpin samples from the Rose Creek sites being combined into composite samples for each site. Of the 5 slimy sculpin samples from each site, 12 were individual fish and 8 were composite samples of smaller fish.

Results from the metal concentrations in fish tissues analysis (Table 10), indicated little variation between sites in metal concentrations in fish flesh. Appendix 6 contains the Norwest Labs metals in fish tissue reports.

Table 10. Metal Concentrations in Fish Tissues Analysis - 2004

Location Description	A3 - AG5 Tissue	A2 - AG1 Tissue	A3 - AG4 Tissue	A3 - AG6 Tissue	A2 - AG2 Tissue	A1 S Tissue	A2 S Tissue	A3 S Tissue	A4 S Tissue	A2 S2 Tissue	A3 S2 Tissue	A4 Special Tissue	Detection Limit
Sampler	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	
Station ID													
Lab	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	Norwest	
Lab Lot ID	336665-1	336665-2	336665-3	336665-4	336665-5	336673-1	336673-2	336673-3	336673-4	336681-1	336681-2	336680-1	
Date	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	21-Sep-05	
Parameter ¹													
<i>Metals Total (Wet Weight)</i>													
Aluminum	15	<2	<2	<2	<2	17	14	15	3.7	38	12	157	2.5
Antimony	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.08	0.1
Arsenic	0.1	<0.1	<0.1	<0.1	<0.1	0.12	0.17	0.18	0.14	0.27	0.14	0.19	0.1
Barium	<0.5	<0.5	<0.5	<0.5	<0.5	3.4	3.8	4.2	3	5.7	2.2	6.27	0.5
Beryllium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.04	0.05
Bismuth	<0.2	0.36	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	0.3
Cadmium	0.035	0.006	<0.005	0.017	<0.005	0.199	0.0795	0.048	0.045	0.066	0.123	0.0953	0.005
Calcium	130	<100	150	210	400	10100	12600	11800	10500	10400	7120	3150	100
Chromium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.32	<0.2	<0.2	<0.6	<0.2	0.26	0.3
Cobalt	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	0.1	0.14	0.05
Copper	0.87	0.66	0.69	0.97	0.64	1.2	1.1	1.1	0.92	1.7	1.1	1.4	0.5
Iron	12	8.4	9.3	10	9.2	31	24	41	20	57	42	238	5
Lead	0.17	<0.05	0.06	<0.05	<0.05	0.35	0.16	0.17	0.16	0.22	0.24	1.14	0.05
Lithium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.4	0.5
Magnesium	150	140	150	160	150	270	330	290	260	290	240	270	100
Manganese	3	<2	<2	3	<2	11	26.4	21	36.6	44	16	84.5	2.5
Molybdenum	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.4	0.5
Nickel	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	0.38	0.3
Phosphorus	2010	1840	2000	2070	2130	6620	7990	7480	6680	7220	5550	3040	15
Potassium	3770	3610	3470	3700	3460	2700	2730	2670	2780	2900	3570	1730	200
Selenium	1.28	1.15	0.87	1.17	1.21	1.45	1.18	1.05	1.21	1.2	2.01	0.58	0.1
Silicon	<20	<20	<20	<20	<20	35	28	31	<20	82	25	96	25
Silver	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.04	0.05
Sodium	800	990	700	860	890	1000	1200	1100	1100	880	940	450	200
Strontium	<0.5	<0.5	<0.5	<0.5	<0.5	11	12.6	12.7	10.6	12	6.94	3.7	0.5
Tin	0.92	0.87	0.84	0.92	0.92	0.85	0.89	0.84	0.88	2.3	0.9	0.66	0.5
Titanium	0.34	0.26	0.31	0.31	0.35	1.4	0.87	0.95	0.62	1.9	0.95	5.32	0.3
Uranium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.6	<0.2	<0.2	0.3
Vanadium	0.072	0.054	<0.05	<0.05	<0.05	0.21	0.17	0.22	0.15	0.35	0.11	0.396	0.05
Zinc	8.68	7.4	7.23	8.99	7.55	48.6	48.1	47.2	47.5	43.2	29.4	34.4	0.5
Zirconium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.4	0.5
Mercury	0.045	0.073	0.099	0.065	0.045	0.032	0.025	0.027	0.02	<0.01	0.015	0.007	0.01
Physical & Aggregate Properties													
Moisture % Wet Weight	78.3	80.2	78.8	77.8	78.4	77.8	76	76.2	77.7	72.4	75.3	77.6	0.1

Notes:
¹ All units are in ug/g unless otherwise indicated.

4.0 CONCLUSIONS/RECOMMENDATIONS

Based on the results of this study, most water samples met the CCME guidelines for the protection of freshwater aquatic life. The Pelly River and its tributaries sometime exceed national drinking water CCME guidelines for colour, turbidity, and suspended solids. Keep in mind that the national guidelines are meant for **treated water**, and that all health agencies recommend boiling surface waters before consumption because of potential microbial contamination.

Compared with results from previous years and from previous studies, it is noteworthy that metals concentrations in sediments appear to be decreasing over time and appear to decrease with distance from the Faro site. However, there is also a trend towards possible increasing levels of metals in Anvil Creek sediments. Soil samples collected in testpits across a transect of the Anvil Creek floodplain indicate evidence of the historic 1975 tailing spills. Elevated levels of zinc, lead, copper and depressed pH were recorded in certain testpits. Further sampling and study is warranted to document the source of these metals and potential metals flux into the environment. Isotope study may assist in documenting the source of heavy metals in soil samples along Anvil Creek.

Benthic population numbers were low, however the significant proportion of chemical sensitive organisms present at each site, is indicative of good water quality and substrate conditions. Metals levels in benthos biomass have now been documented.

Fisheries data collected is considered typical of other Pelly River tributaries. The lower portion and mid-reaches of Anvil Creek are more productive for juvenile chinook salmon. Metals levels in fish tissue were documented and not atypical.

The results of this investigation are sufficiently interesting to warrant further study. It is recommended that a similar multidisciplinary study be conducted again in 2005 to document trends and refine study results.

The investigation of the March 1975 dam failure and tailings spill component to this study was worthwhile and results indicate that further follow-up is warranted. The spill was certainly a spectacular, if not historic event in the site record. At the very least, the

documentation of the spill and subsequent follow up investigations should be thoroughly researched and brought forward to be part of the site, and Yukon's history before paper records are lost or destroyed. It is recommended that soil and sediment sampling be repeated in 2005 with emphasis on quantifying the leachability of the soil matrix and its contribution potential, if any, to metals burden in the local aquatic ecosystem. Isotope analysis would provide certainty to the source of metals in floodplain soils in Anvil Creek.

5.0 CLOSURE

Access Consulting Group¹ (ACG) of Whitehorse has prepared this Pelly River Aquatic Effects Assessment Report in conjunction with Selkirk First Nation, Laberge Environmental Services, and White Mountain Environmental Consulting.

The assistance of the following people is gratefully acknowledged:

- Darin Isaac and the Selkirk First Nation Renewable Resources Department (Dean Gill, Nancy Alfred, Daniel Luke, Styd Klugie, Bill Shanks, Toni Blanchard);
- Paul Sparling, White Mountain Environmental Consulting;
- Ken Nordin, Laberge Environmental Services; and
- Frank Patch, FCRP Office.

We trust the above report fulfils your present requirements. If you have any questions or require additional details, please contact the undersigned.



Dan Cornett, B.Sc., P.Biol, CCEP
Access Consulting Group
www.accessconsulting.ca

¹ Access Consulting Group is a registered trade name for Access Mining Consultants Ltd.

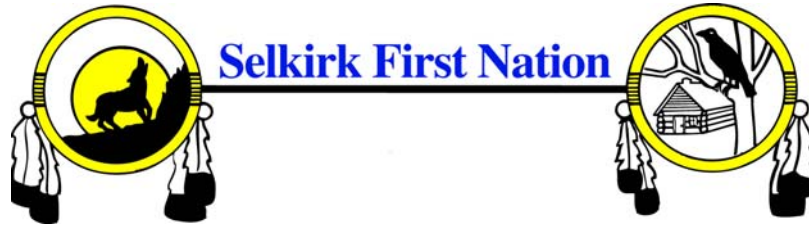
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PELLY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 1

GENERAL SITE DESCRIPTIONS

APPENDIX 1

GENERAL SITE DESCRIPTIONS

LOCATION: A-1, Anvil Creek

UTM: downstream end of reach, Zone 8V 05 45 145 E / 69 24 161 N

Site Location Description: Anvil Creek 500 meters upstream of its confluence with the Pelly River.

Date Sampled: July 31, 2004

CHANNEL CHARACTERISTICS:

Surveyed Length:	100 meters
Average Channel Width:	26 meters
Average Wetted Width:	22 meters
Average Depth:	0.5 meters
Average Velocity	>1 meter per second
Conductivity	204.5 us/sec
Dissolved Oxygen	9.45 mg/l
Total Dissolved Solids	135 mg/l
Water Temperature	13.9°C
% Pool, Riffle, Run / Glide:	10% rapid, 50% riffles, 30% run and 10% corner pools
Cover	depth, light turbidity and extensive cut bank areas
Overhead vegetation	15% of channel has overhead vegetation
Riparian Vegetation	poplar/alder with some spruce and occasional birch with high bush cranberry, willow, osier dogwood, sedges and equisetum.

BED MATERIAL: Substrates are loosely compacted and shifting consisting of 80 % cobble and 20% gravel over sand

BANK CHARACTERISTICS: Banks are abrupt or under cut opposite shores of stranded gravels or deposition points. Open flood plain above 2 meter rise from creek level on both sides.

CHANNEL MORPHOLOGY CHARACTERISTICS: Channel is partially braided with a large island formed at the upper end of the reach. A small side channel at the outside of the island captures less than 5% of creek flow a time of investigation. Deep pools form under large woody debris at outside corners.



Site A1 – Anvil Creek, 500 m upstream of confluence with Pelly River

LOCATION: Site A-2, Anvil Creek

UTM: downstream end of site zone 8V 5 52 750 E / 69 25 950 N

Site Location Description: Approximately 7 km, by creek flow upstream of the confluence with the Pelly River

Date Sampled: July 29, 2004

CHANNEL CHARACTERISTICS:

Surveyed Length:	120 meters
Average Channel Width:	15 meters
Average Wetted Width:	15 meters
Average Depth:	0.35 meters
Average Velocity	>0.5 meters per second
Conductivity	199.2 us/sec
Dissolved Oxygen	9.54 mg/l
Total Dissolved Solids	131.6 mg/l
Water Temperature	10.7 °C
% Pool, Riffle, Run / Glide:	80% riffles and 20% run
Cover	Limited. Some shallow bank areas with overhanging vegetation.
Overhead vegetation	>5% willow and alder
Riparian Vegetation	alder, willow on right bank; spruce, willow alder on left bank

BED MATERIAL: Substrates are well sorted and loosely compacted consisting of; 50% boulder, 30% cobble, 20% coarse gravel.

BANK CHARACTERISTICS: Confined on right bank by eroding cliff, 40 meters in height, left bank graded gravel onto island.

CHANNEL MORPHOLOGY CHARACTERISTICS

Channel flows around an island at this site, fish collections and site description conducted on the Right side channel. Left side channel is 100% rapid. Right side channel is shallow with gravel margins exposed on both banks and very confined by high cut bank on right bank rising 40 meters above creek level.



Site A2 – Anvil Creek, 7 km upstream of confluence with Pelly River

LOCATION: Site A-3, Anvil Creek

UTM: down stream end of sample site, zone 8V 5 57 272 E/ 69 23 759 N

Site Location Description: Approximately 12 km, by creek flow upstream of the confluence with the Pelly River.

Date Sampled: July 29, 2004

CHANNEL CHARACTERISTICS:

Surveyed Length:	115 meters
Average Channel Width:	18 meters
Average Wetted Width:	17 meters
Average Depth:	0.4 meters
Dissolved Oxygen	10.15 mg/l
Total Dissolved Solids	131.5 mg/l
Water Temperature	10.1 °C
% Pool, Riffle, Run / Glide:	30% riffles and 70% run
Cover	cut bank, light turbidity and deep pools near large boulder
Riparian Vegetation	spruce, alder and willow

BED MATERIAL: substrates well consolidated consisting of; 5% boulder, 80% cobble and 15% grave.

BANK CHARACTERISTICS: Deposition on left bank and right bank undercut or with abrupt rise of 1 meter to open flood plain.

CHANNEL MORPHOLOGY CHARACTERISTICS: Site is on a wide curve with the left bank the inside. Channel grades from shallow to deep against right bank with an even and mostly flat bottom. Deep holes (pools) occur along the right bank below a large boulder.



Site A3 – Anvil Creek, 12 km upstream of confluence with Pelly River

LOCATION: Site A-4, Anvil Creek

UTM: at downstream end zone 8V 5 63 796 E / 69 24 470 N

Site Location Description: Approximately 18 km, by creek flow upstream of the confluence with the Pelly River.

Date Sampled: July 29, 2004

CHANNEL CHARACTERISTICS:

Surveyed Length:	100 meters
Average Channel Width:	19 meters
Average Wetted Width:	17 meters
Average Depth:	0.4 meters
Average Velocity	<1 meters per second
Conductivity	203.8 us/sec
Dissolved Oxygen	10.33 mg/l
Total Dissolved Solids	134.6 mg/l
Water Temperature	9.7 °C
% Pool, Riffle, Run / Glide:	30% riffles and 70% run
Cover	turbulence and depth against deep bank
Riparian Vegetation	poplar, alder, spruce, with willow in flood areas

BED MATERIAL: Substrates varied from well compacted to small areas of shifting and consisted of;

30% boulder, 50% cobble, 15% gravel, 5% sand

BANK CHARACTERISTICS: Abrupt opposite of deposition point, the abrupt, right bank has a small and vegetated levee 0.3 meters in height.

CHANNEL MORPHOLOGY CHARACTERISTICS: A “V” shaped channel with a steep partially cut bank that rises 0.5 meters in the lower half of the sample area. Upper half of the sample reach has a flat channel that curves in a riffle to the lower portion of the area.



Site A4 – Anvil Creek, 18 km upstream of confluence with Pelly River

LOCATION: P2, Pelly River downstream of Anvil Creek

UTM: 5 48 315 E / 69 21 848 N

Site Location Description: Pelly River, approximately 19 km upstream of Anvil Creek

Date Sampled: July 31, 2004

SITE CHARACTERISTICS:

Conductivity	292 us/sec
Dissolved Oxygen	7.48 mg/l
Total Dissolved Solids	193 mg/l
Water Temperature	9.8°C

BED MATERIAL:

50% cobble, 50% gravel

UTM: zone 8V 5 26 817 E / 69 42 229 N

Site Location Description: Pelly River, approximately 7.5 km downstream of the Taye River

Date Sampled: August 3, 2004

SITE CHARACTERISTICS:

Conductivity	255 us/sec
Dissolved Oxygen	7.9 mg/l
Total Dissolved Solids	169 mg/l
Water Temperature	16.8°C

BED MATERIAL: Cobbles with boulders and occasional gravel ridge.

CHANNEL MORPHOLOGY CHARACTERISTICS: Sample site is at the bottom of a long gravel bar/island on left bank. Right bank is steep with some collapsing rising 30 to 40 meters.

LOCATION: P-4, Pelly River

UTM: zone 8V 4 74 714 E / 69 59 388 N

Site Location Description: Pelly River, 32 km upstream of the Macmillan River

Date Sampled: August 3, 2004

SITE CHARACTERISTICS:

Conductivity	257 us/sec
Dissolved Oxygen	8.9 mg/l
Total Dissolved Solids	169 mg/l
Water Temperature	15.8°C

LOCATION: P-5, Pelly River

UTM: zone 8V 4 52 505 E / 69 69 354 N

Site Location Description: Approximately 3 km upstream of the Macmillan River (Little John Slough)

Date Sampled: August 4, 2004

SITE CHARACTERISTICS:

Conductivity	260 us/sec
Dissolved Oxygen	9.8 mg/l
Total Dissolved Solids	171 mg/l
Water Temperature	15.5°C

BED MATERIAL: Gravel with silting in slow areas



Site P5 –Pelly River, 3 km upstream of MacMillan River

LOCATION: Macmillan River

UTM: zone 8V 4 55 712 E / 69 72 317 N

Site Location Description: Approximately 1 km upstream of the confluence with the Pelly River.

Date Sampled: August 4, 2004

SITE CHARACTERISTICS:

Conductivity	205 us/sec
Dissolved Oxygen	9.15 mg/l
Total Dissolved Solids	136 mg/l
Water Temperature	17.3°C

BED MATERIAL: sand

LOCATION: Needle Rock Creek

UTM: zone 8V 4 38 169 E / 69 64 603 N

Site Location Description: 60 meters upstream of the Pelly River

Date Sampled: August 4, 2004

SITE CHARACTERISTICS:

Conductivity	207 us/sec
Dissolved Oxygen	9.74 mg/l
Total Dissolved Solids	137 mg/l
Water Temperature	14.5°C

BED MATERIAL: cobble gravel mix with sand deposits along shore

LOCATION: Pelly River at Pelly Crossing

UTM: 4 19 786 E / 69 67 388 N

Site Location Description: Pelly River, 500 meters upstream of the Klondike Highway Bridge.

Date Sampled: August 4, 2004

SITE CHARACTERISTICS:

Conductivity	247 us/sec
Dissolved Oxygen	8.98 mg/l
Total Dissolved Solids	163 mg/l
Water Temperature	17.2°C

BED MATERIAL: cobble



PELLY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 2

SELECTED PHOTOGRAPHS



Plate 1. Collection of water samples for laboratory analysis and recording in situ measurements.



Plate 2. Sediment sample collection at deposition zones to look for evidence of the 1975 tailings spill in the soil profile across the stream.



Plate 3. Breach in tailings dam (1975).



Plate 4. Immediately downstream of tailings spill (1975).



Plate 5. Several kilometers downstream of tailing spill (1975).



Plate 6 Soil sampling at test pit 5 of transect across the stream at Site A4 to have analyzed for metals and pH.



Plate 7. Benthic invertebrate sample collection at Site A2 to have tissues analysed for metals.



Plate 8. Beach seining to identify species, count and measure fish.



Plate 9. Capturing fish using electroshocking method and collecting fish tissue for metals analysis.



Plate 10. Assessing fish habitat features in Anvil Creek



Plate 11. Pelly River Aquatic Field Crew: Paul Sparling, Styd Klugie, Daniel Luke, Bill Shanks, Toni Blanchard, Darin Isaac, Dean Gill, and Nancy Alfred



Plate 12. Minnow Trap Retrieval – Dean Gill and Nancy Alfred (Selkirk First Nation)



Plate 13. Pelly River Aquatic Field Crew – Anvil Creek Station A4



Plate 14. Benthic Invertebrate Sampling – Nancy Alfred (Selkirk First Nation)



Plate 15. Stream Discharge Measurement – Dean Gill (Selkirk First Nation)



Plate 16. Arctic Grayling Tissue Sampling – Dean Gill (Selkirk First Nation)



PELLY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 3

NORWEST LABS WATER QUALITY REPORTS



Environmental Sample Information Sheet

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

Billing Address: Company: LES Address: BOX 21072 WHITEHORSE, V.T. VIA 6P7 Attention: KEN NORDIN Phone: Fax: 867 608 6838 Cell: e-mail: Laberge@internorth.com		QA/QC Report <input checked="" type="checkbox"/>	Copy of Report To: Company: SELKIRK FIRST NATION Address: BOX 40 PELLY CROSSING YOBB IPO Attention: DARIN ISAAC Phone: 867 537 3331 Fax: Cell: e-mail:	Copy of invoice: <input checked="" type="checkbox"/> Mail invoice to this address for approval <input checked="" type="checkbox"/> Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>
--	--	---	--	--

Information to be included on Report and Invoice Project ID: PELLY AQ Project Name: PELLY R. - AQUATIC EFFECTS Jul04 Project Location: Legal Location: PO#: Proj. Acct. Code: Agreement ID: 17654	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses <input type="checkbox"/> or <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled by: <i>[Signature]</i> Date: Aug 1, 2004 Company: LES SKEN NORDIN Relinquished by: KEN NORDIN Company: LES Date: Aug 1, 2004 Waybill number: Received by: <i>[Signature]</i> Company: NWL-SRY Date: Aug 4/04
--	---	--

Special Instructions / Comments Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)

diss. metals filtered & preserved. (as per bottle labels). JK

July 2004

Number of Containers	TW21/TW22	AN 1	COL-A	PH/EC/TURB	N 3/2/OP04	TSSV	HARD	COUL						
	↓	Enter tests above (✓ relevant samples below)												

	Sample Identification	Location	Depth			Date / Time Sampled	Matrix	Sampling Method	Enter tests above (✓ relevant samples below)																
			IN	CM	M				TW21/TW22	AN 1	COL-A	PH/EC/TURB	N 3/2/OP04	TSSV	HARD	COUL									
1	ANVIL CREEK	A4	-	-	-	29	H2O	GRAB	4	✓	✓	✓	✓	✓	✓										
2	ANVIL CREEK	A3	-	-	-	29				✓	✓	✓	✓	✓	✓										
3	ANVIL CREEK	A2	-	-	-	29				✓	✓	✓	✓	✓	✓										
4	PELLY UIS BLIND	PB	-	-	-	30				✓	✓	✓	✓	✓	✓	✓									
5	BLIND UIS PELLY	B1	-	-	-	30				✓	✓	✓	✓	✓	✓										
6			-	-	-																				
7			-	-	-																				
8			-	-	-																				
9			-	-	-																				
10			-	-	-																				
11			-	-	-																				
12			-	-	-																				
13			-	-	-																				
14			-	-	-																				
15			-	-	-																				

NWL008 (08/01)



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Contact	Company	Address									
Ken Nordin Web x Email Notification x	Laberge Environmental Services	Box 21072, 1-405 Ogilvie Street Whitehorse, YT Y1A 6P7 Phone: (867) 668-1043 Fax: (867) 667-6956 Email: laberge@internorth.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>			Copies	Delivery Strategy	Format	1	Post		1	Email - Multiple Reports	PDF
Copies	Delivery Strategy	Format									
1	Post										
1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:
Some total metal results were less than dissolved metal results for samples 324033-3, 4, and 5 . The results were checked and are within the method uncertainty. 040809 JD

Sample Notes:
1243922 There was insufficient sample volume to reach the low level detection limit for Total Suspended Solids. TBlush Aug 11/04

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
579381 Envir2QC 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

8/12/04 579381 12-Aug-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Sample Disposal Date: Sep 11, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
 Company: _____
 Address: _____

 Phone: _____
 Fax: _____
 Signature: _____

If no other arrangements have been made, samples will be disposed of on Sep 11, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Analyte	Units	NWL Number	324033-1	324033-2	324033-3	Detection Limit
		Sample Description	Anvil Creek / A4 / 29-Jul-04	Anvil Creek / A3 / 29-Jul-04	Anvil Creek / A2 / 29-Jul-04	
		Matrix	Water - General	Water - General	Water - General	
Inorganic Nonmetallic Parameters						
Orthophosphate-P	Dissolved	mg/L	0.07	0.06	<0.05	0.05
Metals Dissolved						
Silicon	Dissolved	mg/L	3.91	3.92	3.80	0.05
Sulphur	Dissolved	mg/L	11.2	10.5	10.7	0.05
Aluminum	Dissolved	mg/L	<0.005	<0.005	<0.005	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0004	0.0006	0.0006	0.0002
Barium	Dissolved	mg/L	0.070	0.066	0.067	0.001
Beryllium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Dissolved	mg/L	0.002	0.002	0.002	0.002
Cadmium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	0.0004	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.003	0.003	0.003	0.001
Molybdenum	Dissolved	mg/L	0.001	0.001	0.001	0.001
Nickel	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Selenium	Dissolved	mg/L	0.0005	0.0005	0.0005	0.0002
Silver	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Dissolved	mg/L	0.140	0.136	0.137	0.001
Thallium	Dissolved	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Titanium	Dissolved	mg/L	0.0006	0.0006	0.0006	0.0005
Uranium	Dissolved	mg/L	0.0016	0.0016	0.0016	0.0005
Vanadium	Dissolved	mg/L	0.0001	0.0001	0.0001	0.0001
Zinc	Dissolved	mg/L	0.007	0.002	0.002	0.001
Metals Total						
Calcium	Total	mg/L	43.1	41.9	41.6	0.2
Iron	Total	mg/L	0.1	0.1	<0.1	0.1
Magnesium	Total	mg/L	10.2	9.6	9.4	0.1
Manganese	Total	mg/L	0.031	0.020	0.014	0.005
Potassium	Total	mg/L	1.2	1.2	1.3	0.4
Silicon	Total	mg/L	3.75	3.86	3.53	0.05



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Analyte	Units	NWL Number	324033-1	324033-2	324033-3	Detection Limit
		Sample Description	Anvil Creek / A4 / 29-Jul-04	Anvil Creek / A3 / 29-Jul-04	Anvil Creek / A2 / 29-Jul-04	
		Matrix	Water - General	Water - General	Water - General	
Metals Total - Continued						
Sodium	Total	mg/L	2.6	2.7	2.7	0.4
Sulphur	Total	mg/L	10.7	10.5	10.4	0.05
Aluminum	Total	mg/L	0.007	0.051	0.035	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0004	0.0006	0.0006	0.0002
Barium	Total	mg/L	0.075	0.073	0.071	0.001
Beryllium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Total	mg/L	0.005	0.004	0.004	0.002
Cadmium	Total	mg/L	0.00002	0.00001	0.00001	0.00001
Chromium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	<0.0001	0.0002	<0.0001	0.0001
Copper	Total	mg/L	0.001	0.001	<0.001	0.001
Lead	Total	mg/L	0.0005	0.0004	0.0001	0.0001
Lithium	Total	mg/L	0.004	0.004	0.004	0.001
Molybdenum	Total	mg/L	0.001	0.001	0.001	0.001
Nickel	Total	mg/L	0.0009	0.0010	0.0007	0.0005
Selenium	Total	mg/L	0.0005	0.0004	0.0006	0.0002
Silver	Total	mg/L	0.0002	0.0002	0.0002	0.0001
Strontium	Total	mg/L	0.145	0.142	0.139	0.001
Thallium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Total	mg/L	<0.001	<0.001	<0.001	0.001
Titanium	Total	mg/L	0.0009	0.0018	0.0016	0.0005
Uranium	Total	mg/L	0.0017	0.0018	0.0018	0.0005
Vanadium	Total	mg/L	0.0002	0.0003	0.0003	0.0001
Zinc	Total	mg/L	0.015	0.039	0.004	0.001
Zirconium	Total	mg/L	<0.001	<0.001	<0.001	0.001
Physical and Aggregate Properties						
Turbidity		NTU	0.4	0.8	1.0	0.1
Temp. of observed pH and EC		°C	21.6	20.3	20.2	
Solids	Total Suspended	mg/L	2	2	2	1
Solids	Fixed Suspended	mg/L	1	2	1	1
Solids	Volatile Suspended	mg/L	1	0	1	2
Colour	Apparent	Colour units	7	9	8	5

Routine Water



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
 Control Number: E 133793
 Date Received: Aug 04, 2004
 Date Reported: Aug 12, 2004
 Report Number: 579381

Analyte	Units	Results	324033-1		324033-2		324033-3	
			Sample Description	Matrix	Sample Description	Matrix	Sample Description	Matrix
			Anvil Creek / A4 / 29-Jul-04	Water - General	Anvil Creek / A3 / 29-Jul-04	Water - General	Anvil Creek / A2 / 29-Jul-04	Water - General
Routine Water - Continued								
pH		8.34			8.41		8.45	
Electrical Conductivity	µS/cm at 25 C	299			279		281	1
Calcium	Dissolved mg/L	43.0			41.5		42.7	0.2
Magnesium	Dissolved mg/L	10.1			9.4		9.7	0.1
Sodium	Dissolved mg/L	2.7			2.7		2.8	0.4
Potassium	Dissolved mg/L	1.2			1.3		1.3	0.4
Iron	Dissolved mg/L	0.07			0.06		0.03	0.01
Manganese	Dissolved mg/L	0.022			0.014		0.008	0.005
Chloride	Dissolved mg/L	<0.5			<0.5		<0.5	0.5
Nitrate - N	mg/L	<0.1			0.3		<0.1	0.1
Nitrite - N	mg/L	<0.05			<0.05		<0.05	0.05
Nitrate and Nitrite - N	mg/L	<0.2			0.3		<0.2	0.2
Sulphate-S	Dissolved mg/L	11.2			10.5		10.7	0.05
Hardness	Dissolved as CaCO3 mg/L	149			142		146	



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Analyte	Units	NWL Number		Results	Results	Detection Limit
		Sample Description	Matrix			
		324033-4	324033-5			
		Pelly u/s Blind / PB /	Blind u/s Pelly / B1 /			
		30-Jul-04	30-Jul-04			
		Water - General	Water - General			
Inorganic Nonmetallic Parameters						
Orthophosphate-P	Dissolved	mg/L	<0.05	0.07	0.05	
Metals Dissolved						
Silicon	Dissolved	mg/L	2.58	4.52	0.05	
Sulphur	Dissolved	mg/L	18.4	4.64	0.05	
Aluminum	Dissolved	mg/L	0.014	0.009	0.005	
Antimony	Dissolved	mg/L	0.0002	<0.0002	0.0002	
Arsenic	Dissolved	mg/L	0.0005	0.0008	0.0002	
Barium	Dissolved	mg/L	0.077	0.063	0.001	
Beryllium	Dissolved	mg/L	<0.0001	<0.0001	0.0001	
Bismuth	Dissolved	mg/L	<0.0005	<0.0005	0.0005	
Boron	Dissolved	mg/L	0.004	0.005	0.002	
Cadmium	Dissolved	mg/L	0.00004	<0.00001	0.00001	
Chromium	Dissolved	mg/L	<0.0005	<0.0005	0.0005	
Cobalt	Dissolved	mg/L	<0.0001	<0.0001	0.0001	
Copper	Dissolved	mg/L	<0.001	<0.001	0.001	
Lead	Dissolved	mg/L	<0.0001	<0.0001	0.0001	
Lithium	Dissolved	mg/L	0.004	0.002	0.001	
Molybdenum	Dissolved	mg/L	0.001	<0.001	0.001	
Nickel	Dissolved	mg/L	0.0016	<0.0005	0.0005	
Selenium	Dissolved	mg/L	0.0012	<0.0002	0.0002	
Silver	Dissolved	mg/L	<0.0001	<0.0001	0.0001	
Strontium	Dissolved	mg/L	0.186	0.101	0.001	
Thallium	Dissolved	mg/L	<0.00005	<0.00005	0.00005	
Tin	Dissolved	mg/L	<0.001	<0.001	0.001	
Titanium	Dissolved	mg/L	0.0012	<0.0005	0.0005	
Uranium	Dissolved	mg/L	0.0016	0.0006	0.0005	
Vanadium	Dissolved	mg/L	0.0003	0.0002	0.0001	
Zinc	Dissolved	mg/L	0.003	<0.001	0.001	
Metals Total						
Calcium	Total	mg/L	43.0	23.4	0.2	
Iron	Total	mg/L	<0.1	0.1	0.1	
Magnesium	Total	mg/L	15.4	5.7	0.1	
Manganese	Total	mg/L	0.006	0.012	0.005	
Potassium	Total	mg/L	0.7	0.8	0.4	
Silicon	Total	mg/L	2.49	4.14	0.05	



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Analyte	Units	Results		Results	Detection Limit
		324033-4	324033-5		
Metals Total - Continued					
Sodium	Total	mg/L	1.6	2.8	0.4
Sulphur	Total	mg/L	18.3	4.34	0.05
Aluminum	Total	mg/L	0.034	0.034	0.005
Antimony	Total	mg/L	0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0006	0.0009	0.0002
Barium	Total	mg/L	0.083	0.066	0.001
Beryllium	Total	mg/L	<0.0001	<0.0001	0.0001
Bismuth	Total	mg/L	<0.0005	<0.0005	0.0005
Boron	Total	mg/L	0.005	0.007	0.002
Cadmium	Total	mg/L	0.00006	0.00001	0.00001
Chromium	Total	mg/L	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	<0.0001	<0.0001	0.0001
Copper	Total	mg/L	0.001	0.001	0.001
Lead	Total	mg/L	0.0001	<0.0001	0.0001
Lithium	Total	mg/L	0.005	0.003	0.001
Molybdenum	Total	mg/L	0.001	<0.001	0.001
Nickel	Total	mg/L	0.0019	0.0006	0.0005
Selenium	Total	mg/L	0.0012	<0.0002	0.0002
Silver	Total	mg/L	0.0002	0.0002	0.0001
Strontium	Total	mg/L	0.193	0.100	0.001
Thallium	Total	mg/L	<0.00005	<0.00005	0.00005
Tin	Total	mg/L	<0.001	<0.001	0.001
Titanium	Total	mg/L	0.0016	0.0011	0.0005
Uranium	Total	mg/L	0.0018	0.0007	0.0005
Vanadium	Total	mg/L	0.0004	0.0003	0.0001
Zinc	Total	mg/L	0.005	0.002	0.001
Zirconium	Total	mg/L	<0.001	<0.001	0.001
Physical and Aggregate Properties					
Turbidity		NTU	0.9	1.0	0.1
Temp. of observed pH and EC		°C	20.2	20.6	
Solids	Total Suspended	mg/L	<5	13	1
Solids	Fixed Suspended	mg/L	<3	1	1
Solids	Volatile Suspended	mg/L	<2	12	2
Colour	Apparent	Colour units	7	15	5
Routine Water					



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Page: 6 of 22

Analyte	Units	Results	Results		Detection Limit
			324033-4	324033-5	
			NWL Number	324033-4	324033-5
			Sample Description	Pelly u/s Blind / PB / 30-Jul-04	Blind u/s Pelly / B1 / 30-Jul-04
			Matrix	Water - General	Water - General
Routine Water - Continued					
pH		8.43		8.29	
Electrical Conductivity	µS/cm at 25 C	319		173	1
Calcium	Dissolved mg/L	43.6		24.6	0.2
Magnesium	Dissolved mg/L	15.6		6.0	0.1
Sodium	Dissolved mg/L	1.6		2.9	0.4
Potassium	Dissolved mg/L	0.8		0.8	0.4
Iron	Dissolved mg/L	0.02		0.06	0.01
Manganese	Dissolved mg/L	<0.005		0.007	0.005
Chloride	Dissolved mg/L	<0.5		<0.5	0.5
Nitrate - N	mg/L	<0.1		<0.1	0.1
Nitrite - N	mg/L	<0.05		<0.05	0.05
Nitrate and Nitrite - N	mg/L	<0.2		<0.2	0.2
Sulphate-S	Dissolved mg/L	18.4		4.64	0.05
Hardness	Dissolved as CaCO3 mg/L	173		86.2	

Approved by:

Marie England
Consulting Scientist



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Inorganic Nonmetallic Parameters

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Orthophosphate-P	mg/L	<0.05	0.00	-0.05	0.05	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Aug 09, 2004					
Acquired By:	Andrew Jong					
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Orthophosphate-P	mg/L	1.6	1.5	9.99	0.05	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 09, 2004					
Acquired By:	Andrew Jong					
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Orthophosphate-P	mg/L	0.40	0.40	0.34	0.45	✓
Material Used:	Water Low					
Date Acquired:	Aug 09, 2004					
Acquired By:	Andrew Jong					



Quality Control

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Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Dissolved

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	<0.05	0.00	-0.05	0.05	✓
Sulphur	mg/L	<0.05	0.08	-2.22	2.39	✓
Aluminum	ug/L	<5	-2	-8	4	✓
Antimony	ug/L	<0.2	0.0	-0.1	0.2	✓
Arsenic	ug/L	<0.2	0.0	0.0	0.0	✓
Barium	ug/L	<1	0	0	0	✓
Beryllium	ug/L	<0.1	0.0	0.0	0.0	✓
Bismuth	ug/L	<0.5	0.0	-0.1	0.1	✓
Boron	ug/L	<2	0	-2	2	✓
Cadmium	ug/L	<0.01	0.00	-0.01	0.01	✓
Chromium	ug/L	<0.5	-0.1	-0.4	0.2	✓
Cobalt	ug/L	<0.1	0.0	0.0	0.0	✓
Copper	ug/L	<1	0	-1	1	✓
Lead	ug/L	<0.1	0.0	0.0	0.0	✓
Lithium	ug/L	<1	0	0	0	✓
Molybdenum	ug/L	<1	0	0	0	✓
Nickel	ug/L	<0.5	0.0	-0.3	0.3	✓
Selenium	ug/L	<0.2	-0.1	-0.3	0.1	✓
Silver	ug/L	<0.1	0.0	0.0	0.0	✓
Strontium	ug/L	<1	0	0	0	✓
Thallium	ug/L	<0.05	0.00	0.00	0.01	✓
Tin	ug/L	<1	0	0	0	✓
Titanium	ug/L	<0.5	0.0	-0.2	0.1	✓
Uranium	ug/L	<0.5	0.0	0.0	0.0	✓
Vanadium	ug/L	<0.1	0.0	-0.1	0.0	✓
Zinc	ug/L	<1	0	-1	1	✓

Material Used: Edmonton Method Blank
Date Acquired: Aug 06, 2004
Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
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 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Dissolved (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Silicon	mg/L	3.80	3.97	9.99	0.01	✓
Sulphur	mg/L	21.0	20.9	9.99	0.02	✓
Aluminum	ug/L	54	<50	10	11	✓
Antimony	ug/L	0.3	0.3	10.0	0.4	✓
Arsenic	ug/L	2.2	2.3	10.0	0.4	✓
Barium	ug/L	88	97	10	2	✓
Beryllium	ug/L	0.1	<1	10.0	0.2	✓
Bismuth	ug/L	<0.5	<5	10.0	1.1	✓
Boron	ug/L	55	<20	10	4	✓
Cadmium	ug/L	1.78	1.79	9.99	0.02	✓
Chromium	ug/L	0.5	<5	10.0	1.1	✓
Cobalt	ug/L	0.3	0.3	10.0	0.2	✓
Copper	ug/L	1	1	10	2	✓
Lead	ug/L	0.5	2.7	10.0	0.2	✓
Lithium	ug/L	5	5	10	2	✓
Molybdenum	ug/L	<1	<10	10	2	✓
Nickel	ug/L	2.8	2.9	10.0	1.1	✓
Selenium	ug/L	0.6	0.4	10.0	0.4	✓
Silver	ug/L	<0.1	<1	10.0	0.2	✓
Strontium	ug/L	283	300	10	2	✓
Thallium	ug/L	<0.05	<0.5	9.99	0.11	✓
Tin	ug/L	<1	<10	10	2	✓
Titanium	ug/L	3.0	3.2	10.0	1.1	✓
Uranium	ug/L	2.1	<5	10.0	1.1	✓
Vanadium	ug/L	1.2	1.3	10.0	0.2	✓
Zinc	ug/L	4	<10	10	2	✓

Material Used: Edmonton Duplicate
 Date Acquired: Aug 06, 2004
 Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Dissolved (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Silicon	mg/L	26.0	25.0	22.5	27.5	✓
Sulphur	mg/L	48.0	49.8	44.6	55.0	✓
Material Used:	Metals High					
Date Acquired:	Aug 06, 2004					
Acquired By:	Fernando Maelalane					
Silicon	mg/L	0.49	0.50	0.45	0.55	✓
Sulphur	mg/L	0.93	1.02	0.81	1.23	✓
Aluminum	ug/L	972	1000	850	1150	✓
Antimony	ug/L	39.4	40.0	34.0	46.0	✓
Arsenic	ug/L	39.6	40.0	34.0	46.0	✓
Barium	ug/L	201	200	170	230	✓
Beryllium	ug/L	20.6	20.0	17.0	23.0	✓
Bismuth	ug/L	99.9	100	85	115	✓
Boron	ug/L	403	400	340	460	✓
Cadmium	ug/L	1.98	2.00	1.70	2.30	✓
Chromium	ug/L	99.5	100	85	115	✓
Cobalt	ug/L	20.4	20.0	17.0	23.0	✓
Copper	ug/L	198	200	170	230	✓
Lead	ug/L	20.9	20.0	17.0	23.0	✓
Lithium	ug/L	206	200	170	230	✓
Molybdenum	ug/L	197	200	170	230	✓
Nickel	ug/L	99.0	100	85	115	✓
Selenium	ug/L	39.0	40.0	34.0	46.0	✓
Silver	ug/L	20.7	20.0	17.0	23.0	✓
Strontium	ug/L	198	200	170	230	✓
Thallium	ug/L	10.4	10.0	8.5	11.5	✓
Tin	ug/L	195	200	170	230	✓
Titanium	ug/L	99.7	100	85	115	✓
Uranium	ug/L	99.6	100	85	115	✓
Vanadium	ug/L	20.2	20.0	17.0	23.0	✓
Zinc	ug/L	204	200	170	230	✓
Material Used:	Metals Low					
Date Acquired:	Aug 06, 2004					
Acquired By:	Jesse Dang					



Quality Control

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Page: 11 of 22

Metals Dissolved (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	uq/L	55	50	43	58	✓
Antimony	uq/L	2.0	2.0	1.7	2.3	✓
Arsenic	uq/L	2.0	2.0	1.7	2.3	✓
Barium	uq/L	10	10	9	12	✓
Beryllium	uq/L	1.1	1.0	0.9	1.2	✓
Bismuth	uq/L	5.0	5.0	4.3	5.8	✓
Boron	uq/L	22	20	17	23	✓
Cadmium	uq/L	0.11	0.10	0.09	0.12	✓
Chromium	uq/L	5.2	5.0	4.3	5.8	✓
Cobalt	uq/L	1.1	1.0	0.9	1.2	✓
Copper	uq/L	10	10	9	12	✓
Lead	uq/L	1.1	1.0	0.9	1.2	✓
Lithium	uq/L	11	10	9	12	✓
Molybdenum	uq/L	10	10	9	12	✓
Nickel	uq/L	5.2	5.0	4.3	5.8	✓
Selenium	uq/L	2.1	2.0	1.7	2.3	✓
Silver	uq/L	1.0	1.0	0.9	1.2	✓
Strontium	uq/L	9	10	9	12	✓
Thallium	uq/L	0.54	0.50	0.43	0.58	✓
Tin	uq/L	10	10	9	12	✓
Titanium	uq/L	5.1	5.0	4.3	5.8	✓
Uranium	uq/L	5.1	5.0	4.3	5.8	✓
Vanadium	uq/L	1.0	1.0	0.9	1.2	✓
Zinc	uq/L	11	10	9	12	✓

Material Used: Metals Trace
Date Acquired: Aug 06, 2004
Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.2	0.0	0.0	0.1	✓
Iron	mg/L	<0.1	0.0	0.0	0.0	✓
Magnesium	mg/L	<0.1	0.0	0.0	0.0	✓
Manganese	mg/L	<0.005	0.000	-0.001	0.001	✓
Potassium	mg/L	<0.4	0.0	-0.1	0.1	✓
Silicon	mg/L	<0.05	0.02	-0.04	0.09	✓
Sodium	mg/L	<0.4	0.1	-0.2	0.3	✓
Sulphur	mg/L	<0.05	0.01	-0.03	0.04	✓
Aluminum	ug/L	<5	0	-5	5	✓
Antimony	ug/L	<0.2	0.0	-0.2	0.2	✓
Arsenic	ug/L	<0.2	0.0	-0.2	0.2	✓
Barium	ug/L	<1	0	-1	1	✓
Beryllium	ug/L	<0.1	0.0	-0.1	0.1	✓
Bismuth	ug/L	<0.5	0.0	-0.5	0.5	✓
Boron	ug/L	<2	0	-2	2	✓
Cadmium	ug/L	<0.01	0.00	-0.01	0.01	✓
Chromium	ug/L	<0.5	0.0	-0.5	0.5	✓
Cobalt	ug/L	<0.1	0.0	-0.1	0.1	✓
Copper	ug/L	<1	0	-1	1	✓
Lead	ug/L	<0.1	0.0	-0.1	0.1	✓
Lithium	ug/L	<1	0	-1	1	✓
Molybdenum	ug/L	<1	0	-1	1	✓
Nickel	ug/L	<0.5	0.0	-0.5	0.5	✓
Selenium	ug/L	<0.2	0.0	-0.2	0.2	✓
Silver	ug/L	<0.1	0.0	-0.1	0.1	✓
Strontium	ug/L	<1	0	-1	1	✓
Thallium	ug/L	<0.05	0.00	-0.05	0.05	✓
Tin	ug/L	<1	0	-1	1	✓
Titanium	ug/L	<0.5	0.0	-0.5	0.5	✓
Uranium	ug/L	<0.5	0.0	-0.5	0.5	✓
Vanadium	ug/L	<0.1	0.0	-0.1	0.1	✓
Zinc	ug/L	<1	0	-1	1	✓
Zirconium	ug/L	<1	0	-1	1	✓

Material Used: Edmonton Method Blank
 Date Acquired: Aug 05, 2004
 Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Calcium	mg/L	38.8	38.8	10.0	0.6	✓
Iron	mg/L	1.5	1.5	10.0	0.0	✓
Magnesium	mg/L	11.5	11.5	10.0	0.2	✓
Manganese	mg/L	0.030	0.031	9.990	0.001	✓
Potassium	mg/L	0.8	0.8	10.0	1.2	✓
Silicon	mg/L	3.24	3.35	9.99	0.01	✓
Sodium	mg/L	1.6	1.6	10.0	1.2	✓
Sulphur	mg/L	16.0	16.0	9.99	0.03	✓
Aluminum	ug/L	719	727	10	11	✓
Antimony	ug/L	<0.2	<0.2	10.0	0.4	✓
Arsenic	ug/L	2.2	2.2	10.0	0.4	✓
Barium	ug/L	66	68	10	2	✓
Beryllium	ug/L	<0.1	<0.1	10.0	0.2	✓
Bismuth	ug/L	<0.5	<0.5	10.0	1.1	✓
Boron	ug/L	7	6	10	4	✓
Cadmium	ug/L	0.28	0.28	9.99	0.02	✓
Chromium	ug/L	<0.5	<0.5	10.0	1.1	✓
Cobalt	ug/L	0.7	0.7	10.0	0.2	✓
Copper	ug/L	5	5	10	2	✓
Lead	ug/L	1.8	1.8	10.0	0.2	✓
Lithium	ug/L	7	7	10	2	✓
Molybdenum	ug/L	<1	<1	10	2	✓
Nickel	ug/L	8.7	8.9	10.0	1.1	✓
Selenium	ug/L	0.5	0.5	10.0	0.4	✓
Silver	ug/L	0.4	0.4	10.0	0.2	✓
Strontium	ug/L	143	141	10	2	✓
Thallium	ug/L	<0.05	<0.05	9.99	0.11	✓
Tin	ug/L	<1	<1	10	2	✓
Titanium	ug/L	3.2	3.3	10.0	1.1	✓
Uranium	ug/L	0.7	0.7	10.0	1.1	✓
Vanadium	ug/L	0.4	0.5	10.0	0.2	✓
Zinc	ug/L	75	75	10	2	✓
Zirconium	ug/L	<1	<1	10	2	✓

Material Used: Edmonton Duplicate
 Date Acquired: Aug 05, 2004
 Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
 Control Number: E 133793
 Date Received: Aug 04, 2004
 Date Reported: Aug 12, 2004
 Report Number: 579381

Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	49.0	49.6	45.6	53.7	✓
Iron	mg/L	2.0	2.0	1.8	2.2	✓
Magnesium	mg/L	19.8	20.3	18.6	22.0	✓
Manganese	mg/L	0.486	0.479	0.451	0.507	✓
Potassium	mg/L	47.5	47.8	43.5	52.1	✓
Silicon	mg/L	4.69	5.00	4.50	5.50	✓
Sodium	mg/L	47.7	49.1	44.4	53.8	✓
Sulphur	mg/L	9.35	9.68	8.74	10.62	✓
Aluminum	ug/L	364	322	273	371	✓
Antimony	ug/L	11.0	11.5	10.2	12.8	✓
Arsenic	ug/L	10.8	11.5	10.3	12.7	✓
Barium	ug/L	62	61	52	69	✓
Beryllium	ug/L	5.6	5.9	4.9	7.0	✓
Bismuth	ug/L	30.3	30.2	26.0	34.4	✓
Boron	ug/L	126	125	102	148	✓
Cadmium	ug/L	0.74	0.63	0.47	0.78	✓
Chromium	ug/L	33.0	31.8	27.5	36.2	✓
Cobalt	ug/L	6.5	6.4	5.4	7.5	✓
Copper	ug/L	62	63	55	70	✓
Lead	ug/L	6.5	6.2	5.4	7.0	✓
Lithium	ug/L	74	65	53	76	✓
Molybdenum	ug/L	60	61	53	69	✓
Nickel	ug/L	31.3	31.4	27.0	35.8	✓
Selenium	ug/L	10.1	11.0	9.7	12.3	✓
Silver	ug/L	6.4	6.2	5.5	7.0	✓
Strontium	ug/L	62	64	55	72	✓
Thallium	ug/L	3.18	3.14	2.56	3.72	✓
Tin	ug/L	58	59	52	66	✓
Titanium	ug/L	33.0	31.5	27.0	36.0	✓
Uranium	ug/L	31.2	30.8	26.9	34.7	✓
Vanadium	ug/L	6.6	6.5	5.4	7.6	✓
Zinc	ug/L	68	59	49	69	✓
Zirconium	ug/L	61	62	53	72	✓

Material Used: Edmonton Digestion Check
 Date Acquired: Aug 05, 2004
 Acquired By: Jesse Dang



Quality Control

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Page: 15 of 22

Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	245	253	232	274	✓
Iron	mg/L	9.6	9.7	9.1	10.3	✓
Magnesium	mg/L	95.2	102	92	112	✓
Manganese	mg/L	2.35	2.45	2.27	2.63	✓
Potassium	mg/L	248	253	226	280	✓
Silicon	mg/L	24.9	25.0	22.5	27.5	✓
Sodium	mg/L	253	251	221	281	✓
Sulphur	mg/L	48.9	50.0	46.3	53.7	✓

Material Used: Metals High
Date Acquired: Aug 05, 2004
Acquired By:



Quality Control

Norwest Labs
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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	4.8	4.7	4.3	5.2	✓
Iron	mg/L	0.2	0.2	0.2	0.2	✓
Magnesium	mg/L	1.8	1.9	1.7	2.1	✓
Manganese	mg/L	0.048	0.048	0.043	0.052	✓
Potassium	mg/L	4.8	5.0	4.4	5.6	✓
Silicon	mg/L	0.47	0.50	0.45	0.55	✓
Sodium	mg/L	4.9	5.2	4.4	6.1	✓
Sulphur	mg/L	0.92	0.98	0.82	1.13	✓
Aluminum	ug/L	924	1000	850	1150	✓
Antimony	ug/L	40.0	40.0	34.0	46.0	✓
Arsenic	ug/L	39.2	40.0	34.0	46.0	✓
Barium	ug/L	206	200	170	230	✓
Beryllium	ug/L	19.4	20.0	17.0	23.0	✓
Bismuth	ug/L	99.1	100	85	115	✓
Boron	ug/L	385	400	340	460	✓
Cadmium	ug/L	2.09	2.00	1.70	2.30	✓
Chromium	ug/L	95.7	100	85	115	✓
Cobalt	ug/L	20.2	20.0	17.0	23.0	✓
Copper	ug/L	196	200	170	230	✓
Lead	ug/L	20.5	20.0	17.0	23.0	✓
Lithium	ug/L	203	200	170	230	✓
Molybdenum	ug/L	199	200	170	230	✓
Nickel	ug/L	99.2	100	85	115	✓
Selenium	ug/L	39.2	40.0	34.0	46.0	✓
Silver	ug/L	21.1	20.0	17.0	23.0	✓
Strontium	ug/L	194	200	170	230	✓
Thallium	ug/L	10.4	10.0	8.5	11.5	✓
Tin	ug/L	196	200	170	230	✓
Titanium	ug/L	97.1	100	85	115	✓
Uranium	ug/L	98.1	100	85	115	✓
Vanadium	ug/L	19.7	20.0	17.0	23.0	✓
Zinc	ug/L	198	200	170	230	✓
Zirconium	ug/L	197	200	170	230	✓

Material Used: **Metals Low**
 Date Acquired: **Aug 05, 2004**
 Acquired By: **Jesse Dang**



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
 Control Number: E 133793
 Date Received: Aug 04, 2004
 Date Reported: Aug 12, 2004
 Report Number: 579381

Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	uq/L	53	50	43	58	✓
Antimony	uq/L	1.9	2.0	1.7	2.3	✓
Arsenic	uq/L	2.0	2.0	1.7	2.3	✓
Barium	uq/L	10	10	9	12	✓
Beryllium	uq/L	1.0	1.0	0.9	1.2	✓
Bismuth	uq/L	5.0	5.0	4.3	5.8	✓
Boron	uq/L	20	20	17	23	✓
Cadmium	uq/L	0.11	0.10	0.09	0.12	✓
Chromium	uq/L	5.1	5.0	4.3	5.8	✓
Cobalt	uq/L	1.0	1.0	0.9	1.2	✓
Copper	uq/L	10	10	9	12	✓
Lead	uq/L	1.0	1.0	0.9	1.2	✓
Lithium	uq/L	10	10	9	12	✓
Molybdenum	uq/L	10	10	9	12	✓
Nickel	uq/L	5.3	5.0	4.3	5.8	✓
Selenium	uq/L	2.1	2.0	1.7	2.3	✓
Silver	uq/L	1.0	1.0	0.9	1.2	✓
Strontium	uq/L	10	10	9	12	✓
Thallium	uq/L	0.51	0.50	0.43	0.58	✓
Tin	uq/L	9	10	9	12	✓
Titanium	uq/L	5.0	5.0	4.3	5.8	✓
Uranium	uq/L	5.0	5.0	4.3	5.8	✓
Vanadium	uq/L	1.0	1.0	0.9	1.2	✓
Zinc	uq/L	10	10	9	12	✓
Zirconium	uq/L	10	10	9	12	✓

Material Used: Metals Trace
 Date Acquired: Aug 05, 2004
 Acquired By: Jesse Dang



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
 Control Number: E 133793
 Date Received: Aug 04, 2004
 Date Reported: Aug 12, 2004
 Report Number: 579381

Physical and Aggregate Properties

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Turbidity	NTU	<0.1	0.0	-0.1	0.1	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Aug 05, 2004					
Acquired By:	Alexsandra Robert					
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Turbidity	NTU	9.6	10.3	10.0	0.2	✓
Solids	mg/L	1	0	10	15	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 12, 2004					
Acquired By:	Alexsandra Robert					
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Turbidity	NTU	2200	2197	1977	2417	✓
Material Used:	Turbidity High					
Date Acquired:	Aug 05, 2004					
Acquired By:	Alexsandra Robert					
Turbidity	NTU	8080	8065	7258	8872	✓
Material Used:	Turbidity Ultra High					
Date Acquired:	Aug 05, 2004					
Acquired By:	Alexsandra Robert					
Turbidity	NTU	169	169	152	186	✓
Solids	mg/L	192	200	180	220	✓
Material Used:	Water High					
Date Acquired:	Aug 12, 2004					
Acquired By:	Alexsandra Robert					
Turbidity	NTU	15.3	15.3	13.8	16.8	✓
Solids	mg/L	20	20	18	22	✓
Material Used:	Water Low					
Date Acquired:	Aug 12, 2004					
Acquired By:	Alexsandra Robert					
Turbidity	NTU	1.5	1.5	1.4	1.7	✓
Material Used:	Water Trace					
Date Acquired:	Aug 05, 2004					
Acquired By:	Alexsandra Robert					



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Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Routine Water

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Calcium	mg/L	<0.2	0.0	-0.2	0.2	✓
Magnesium	mg/L	<0.1	0.0	-0.1	0.1	✓
Sodium	mg/L	<0.4	0.0	-0.4	0.4	✓
Potassium	mg/L	<0.4	0.0	-0.4	0.4	✓
Iron	mg/L	<0.01	0.00	-0.01	0.01	✓
Manganese	mg/L	<0.005	0.000	-0.005	0.005	✓
Chloride	mg/L	<0.5	0.0	-0.5	0.5	✓
Nitrate - N	mg/L	<0.1	0.0	-0.1	0.1	✓
Nitrite - N	mg/L	<0.05	0.00	-0.05	0.05	✓

Material Used: Edmonton Method Blank
 Date Acquired: Aug 06, 2004
 Acquired By: Jodi Johnston

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH		8.34	8.36	9.99	0.10	✓
Electrical Conductivity	dS/m at 25 C	0.299	0.293	9.990	0.002	✓
Calcium	mg/L	58.3	58.1	10.0	0.6	✓
Magnesium	mg/L	9.7	9.8	10.0	0.2	✓
Sodium	mg/L	78.9	79.1	10.0	1.2	✓
Potassium	mg/L	2.2	2.3	10.0	1.2	✓
Iron	mg/L	0.09	0.09	9.99	0.01	✓
Manganese	mg/L	3.97	4.00	9.990	0.001	✓
Chloride	mg/L	8.0	8.2	10.0	0.5	✓
Nitrate - N	mg/L	<0.1	<0.1	10.0	0.0	✓
Nitrite - N	mg/L	<0.05	<0.05	9.99	0.01	✓

Material Used: Edmonton Duplicate
 Date Acquired: Aug 06, 2004
 Acquired By:



Quality Control

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 Fax: (604) 514-3323

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Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324033
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Routine Water (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Chloride	mg/L	2020	2087	1875	2299	✓
Material Used:	Chloride High					
Date Acquired:	Aug 06, 2004					
Acquired By:	Andrew Jone					
Calcium	mg/L	253	251	237	265	✓
Magnesium	mg/L	98.6	102	95	109	✓
Sodium	mg/L	259	250	236	264	✓
Potassium	mg/L	256	251	234	268	✓
Iron	mg/L	9.50	9.73	9.26	10.20	✓
Manganese	mg/L	2.38	2.42	2.32	2.53	✓
Material Used:	Metals High					
Date Acquired:	Aug 06, 2004					
Acquired By:	Fernando Maglalang					
Calcium	mg/L	5.1	4.8	4.3	5.3	✓
Magnesium	mg/L	1.9	2.0	1.7	2.2	✓
Sodium	mg/L	5.0	5.2	4.3	6.1	✓
Potassium	mg/L	5.0	5.0	4.5	5.4	✓
Iron	mg/L	0.24	0.20	0.15	0.24	✓
Manganese	mg/L	0.049	0.049	0.044	0.054	✓
Material Used:	Metals Low					
Date Acquired:	Aug 06, 2004					
Acquired By:	Fernando Maglalang					
pH		9.19	9.23	9.11	9.35	✓
Electrical Conductivity	dS/m at 25 C	2.72	2.73	2.61	2.85	✓
Chloride	mg/L	85.2	81.0	76.4	85.6	✓
Nitrate - N	mg/L	10.1	10.0	9.6	10.4	✓
Nitrite - N	mg/L	10.1	10.0	9.6	10.4	✓
Material Used:	Water High					
Date Acquired:	Aug 06, 2004					
Acquired By:						
pH		6.86	6.90	6.83	6.97	✓
Electrical Conductivity	dS/m at 25 C	0.077	0.076	0.070	0.081	✓
Chloride	mg/L	15.0	14.9	13.2	16.6	✓
Nitrate - N	mg/L	0.5	0.5	0.4	0.6	✓
Nitrite - N	mg/L	0.50	0.50	0.44	0.55	✓
Material Used:	Water Low					
Date Acquired:	Aug 06, 2004					
Acquired By:						



Methodology and Notes

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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Ken Nordin
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **324033**
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Page: 21 of 22

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	* Conductivity - Laboratory Method, 2510 B	5-Aug-04	Norwest Labs Edmonton
Alkalinity, pH, and EC in water	APHA	* Electrometric Method, 4500-H+ B	5-Aug-04	Norwest Labs Edmonton
Anions (Routine) by Ion Chromatography	APHA	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	6-Aug-04	Norwest Labs Edmonton
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl- E	6-Aug-04	Norwest Labs Edmonton
Colour (Apparent) in water	APHA	* Visual Comparison Method, 2120 B	5-Aug-04	Norwest Labs Edmonton
Metals ICP-MS (Dissolved) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	9-Aug-04	Norwest Labs Edmonton
Metals ICP-MS (Total) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	5-Aug-04	Norwest Labs Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	6-Aug-04	Norwest Labs Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	6-Aug-04	Norwest Labs Edmonton
Metals Trace (Total) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	5-Aug-04	Norwest Labs Edmonton
Orthophosphate-P in Water	APHA	* Automated Ascorbic Acid Reduction Method, 4500-P F	9-Aug-04	Norwest Labs Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Fixed and Volatile Solids Ignited at 550°C, 2540 E	10-Aug-04	Norwest Labs Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	10-Aug-04	Norwest Labs Edmonton
Turbidity in Water	APHA	* Nephelometric Method, 2130 B	5-Aug-04	Norwest Labs Edmonton

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
 US EPA US Environmental Protection Agency Test Methods

Comments:

Some total metal results were less than dissolved metal results for samples 324033-3, 4, and 5. The results were checked and are within the method uncertainty. 040809 JD

Sample 4 There was insufficient sample volume to reach the low level detection limit for Total Suspended Solids. TBlush Aug 11/04

Please direct any inquiries regarding this report to our Client Services group.
 Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



Methodology and Notes

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Surrey, BC. V3S 8P8
Phone: (604) 514-3322
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Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Ken Nordin
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. - Aquatic Effects Jul 04
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **324033**
Control Number: E 133793
Date Received: Aug 04, 2004
Date Reported: Aug 12, 2004
Report Number: 579381

Page: 22 of 22

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Environmental Sample Information Sheet

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

Billing Address: Company: LES Address: BOX 21072 WHITEHORSE, Y.T. X1A 6P7 Attention: KEN NORDIN Phone: 867 668 6838 Fax: Cell: e-mail: Laberge@internorth.com		QA/QC Report <input checked="" type="checkbox"/>	Copy of Report To: Company: SFN Address: LANDS & RESOURCES BOX 40 PELLY CROSSING, Y.T. Y0B 1P0 Attention: STYD KLUGIE Phone: 867 537 3331 Fax: Cell: e-mail:		Copy of invoice: <input checked="" type="checkbox"/> Mail invoice to this address for approval <input checked="" type="checkbox"/>	Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input checked="" type="checkbox"/>
--	--	---	--	--	--	---

Information to be included on Report and Invoice Project ID: PELLY AQ Project Name: PELLY R. - AQUATIC Project Location: EFFECTS Jul 04 Legal Location: PO#: Proj. Acct. Code: Agreement ID: 17654	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses or as indicated Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled By: Paul Sparling Date: July 31-August 2004 Company: WMEC Signature _____ Relinquished by: Company _____ Date _____ Waybill number: Received by: Donna Company: 324989 Date: Aug 9/04
--	--	---

Special Instructions / Comments Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)

Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Number of Containers ↓	Enter tests above (✓ relevant samples below)											
							TW21/TW 22	AN I	COL A	PH/EC/TURB	N 3/2/10/POA	TSSV	HARD	COUL				
1	EARN RIVER ?	-	Aug 2		GRAB	4	✓	✓	✓	✓	✓	✓						
2	TAY RIVER	-	Aug 2		GRAB	4	✓	✓	✓	✓	✓	✓						
3	PELLY RIVER	P1	Jul 31	6	GRAB	4	✓	✓	✓	✓	✓	✓	✓					
4	PELLY RIVER	P1A	Aug 01		GRAB	4	✓	✓	✓	✓	✓	✓						
5	ANVIL CREEK	A1	Jul 31		GRAB	4	✓	✓	✓	✓	✓	✓						
6	PELLY RIVER	P3	Aug 03		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
7	PELLY RIVER	P4	Aug 03		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
8	PELLY RIVER	P5	Aug 04		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
9	NEEDLE ROCK CREEK		Aug 04		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
10	PELLY RIVER @ PC	P7	Aug 04	4	GRAB	4	✓	✓	✓	✓	✓	✓	✓					
11	MACMILLAN RIVER		Aug 04		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
12	TUMMEL RIVER		Aug 04		GRAB	4	✓	✓	✓	✓	✓	✓	✓					
13	GLENLYON RIVER		Aug 01		GRAB	3	✓	✓	✓	✓	✓	✓	✓					
14																		
15																		

NWL008 (08/01)



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: Paul Sparling
Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

Contact	Company	Address
Ken Nordin Web x Email Notification x	Laberge Environmental Services	Box 21072, 1-405 Ogilvie Street Whitehorse, YT Y1A 6P7 Phone: (867) 668-1043 Fax: (867) 667-6956 Email: laberge@internorth.com
<u>Copies</u>	<u>Delivery Strategy</u>	<u>Format</u>
1	Post	
1	Email - Multiple Reports	PDF

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:
Some total metal results were less than dissolved metal results for LOT 324989. The results were checked and are within the method uncertainty. 040812 JD

Sample Notes:
1247942 There was insufficient sample volume to reach the low level detection limit for Total Suspended Solids. TBlush Aug 11/04

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
581250 Envir2 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

8/13/04 581250 13-Aug-2004



Sample Custody

Norwest Labs
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Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

Sample Disposal Date: Sep 12, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Signature: _____

If no other arrangements have been made, samples will be disposed of on Sep 12, 2004.



Analytical Report

Norwest Labs
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Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	NWL Number	324989-1	324989-2	324989-3	Detection Limit
		Sample Description	Earn River / Aug 02, 2004	Tay River / Aug 02, 2004	Pelly River - P1 / Jul 31, 2004	
		Matrix	Water - General	Water - General	Water - General	
Inorganic Nonmetallic Parameters						
Orthophosphate-P	Dissolved	mg/L	0.07	0.08	0.06	0.05
Metals Dissolved						
Silicon	Dissolved	mg/L	2.92	3.63	2.60	0.05
Sulphur	Dissolved	mg/L	38.3	15.2	18.2	0.05
Aluminum	Dissolved	mg/L	<0.005	<0.005	0.010	0.005
Antimony	Dissolved	mg/L	0.0003	<0.0002	0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0012	0.0008	0.0005	0.0002
Barium	Dissolved	mg/L	0.057	0.065	0.079	0.001
Beryllium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Dissolved	mg/L	0.008	0.008	0.004	0.002
Cadmium	Dissolved	mg/L	0.00002	0.00001	0.00004	0.00001
Chromium	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Copper	Dissolved	mg/L	0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.007	0.005	0.004	0.001
Molybdenum	Dissolved	mg/L	0.002	0.001	0.001	0.001
Nickel	Dissolved	mg/L	0.0007	<0.0005	0.0007	0.0005
Selenium	Dissolved	mg/L	0.0012	0.0006	0.0013	0.0002
Silver	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Dissolved	mg/L	0.274	0.164	0.186	0.001
Thallium	Dissolved	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Titanium	Dissolved	mg/L	0.0024	0.0011	0.0017	0.0005
Uranium	Dissolved	mg/L	0.0014	<0.0005	0.0011	0.0005
Vanadium	Dissolved	mg/L	<0.0001	<0.0001	0.0002	0.0001
Zinc	Dissolved	mg/L	0.002	0.004	0.002	0.001
Metals Total						
Calcium	Total	mg/L	62.4	42.7	42.0	0.2
Iron	Total	mg/L	0.1	0.1	0.1	0.1
Magnesium	Total	mg/L	25.6	9.2	15.3	0.1
Manganese	Total	mg/L	0.014	0.009	0.013	0.005
Potassium	Total	mg/L	1.3	1.0	0.7	0.4
Silicon	Total	mg/L	2.83	3.28	2.55	0.05



Analytical Report

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 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

Analyte	Units	NWL Number	324989-1	324989-2	324989-3	Detection Limit
		Sample Description	Earn River / Aug 02, 2004	Tay River / Aug 02, 2004	Pelly River - P1 / Jul 31, 2004	
		Matrix	Water - General	Water - General	Water - General	
Metals Total - Continued						
Sodium	Total	mg/L	3.5	3.3	1.6	0.4
Sulphur	Total	mg/L	35.4	13.9	17.7	0.05
Aluminum	Total	mg/L	<0.005	0.019	0.055	0.005
Antimony	Total	mg/L	0.0003	<0.0002	0.0002	0.0002
Arsenic	Total	mg/L	0.0011	0.0008	0.0006	0.0002
Barium	Total	mg/L	0.056	0.066	0.080	0.001
Beryllium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Total	mg/L	0.009	0.008	0.006	0.002
Cadmium	Total	mg/L	0.00003	0.00003	0.00007	0.00001
Chromium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	0.0003	<0.0001	0.0004	0.0001
Copper	Total	mg/L	0.001	<0.001	0.001	0.001
Lead	Total	mg/L	0.0003	0.0003	0.0003	0.0001
Lithium	Total	mg/L	0.007	0.005	0.004	0.001
Molybdenum	Total	mg/L	0.002	0.001	0.001	0.001
Nickel	Total	mg/L	0.0015	<0.0005	0.0016	0.0005
Selenium	Total	mg/L	0.0012	0.0008	0.0014	0.0002
Silver	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Total	mg/L	0.280	0.164	0.194	0.001
Thallium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Total	mg/L	<0.001	<0.001	<0.001	0.001
Titanium	Total	mg/L	0.0024	0.0014	0.0027	0.0005
Uranium	Total	mg/L	0.0014	0.0009	0.0017	0.0005
Vanadium	Total	mg/L	0.0002	0.0003	0.0005	0.0001
Zinc	Total	mg/L	0.022	0.005	0.007	0.001
Zirconium	Total	mg/L	<0.001	<0.001	<0.001	0.001
Physical and Aggregate Properties						
Turbidity		NTU	1.0	1.1	1.8	0.1
Temp. of observed pH and EC		°C	19.8	19.7	19.7	
Solids	Total Suspended	mg/L	1	2	5	1
Solids	Fixed Suspended	mg/L	1	2	4	1
Solids	Volatile Suspended	mg/L	0	1	1	2
Colour	Apparent	Colour units	18	10	5	5

Routine Water



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	NWL Number	324989-1	324989-2	324989-3	Detection Limit
		Sample Description	Earn River / Aug 02, 2004	Tay River / Aug 02, 2004	Pelly River - P1 / Jul 31, 2004	
		Matrix	Water - General	Water - General	Water - General	
Routine Water - Continued						
pH			8.30	8.33	8.30	
Electrical Conductivity	µS/cm at 25 C		501	304	327	1
Calcium	Dissolved mg/L		66.7	45.9	43.7	0.2
Magnesium	Dissolved mg/L		26.5	10.1	15.5	0.1
Sodium	Dissolved mg/L		3.8	3.6	1.8	0.4
Potassium	Dissolved mg/L		1.4	1.2	0.8	0.4
Iron	Dissolved mg/L		0.03	0.01	<0.01	0.01
Manganese	Dissolved mg/L		<0.005	<0.005	<0.005	0.005
Chloride	Dissolved mg/L		1.2	1.0	0.6	0.5
Nitrate - N	mg/L		<0.1	<0.1	<0.1	0.1
Nitrite - N	mg/L		<0.05	<0.05	<0.05	0.05
Nitrate and Nitrite - N	mg/L		<0.2	<0.2	<0.2	0.2
Sulphate-S	Dissolved mg/L		38.3	15.2	18.2	0.05
Hardness	Dissolved as CaCO3 mg/L		276	156	173	



Analytical Report

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 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	324989-4		324989-5		324989-6	
		Matrix	Water - General	Water - General	Water - General	Results	Detection Limit
Inorganic Nonmetallic Parameters							
Orthophosphate-P	Dissolved		0.06	0.07	0.05	0.05	
Metals Dissolved							
Silicon	Dissolved		2.67	4.06	2.75	0.05	
Sulphur	Dissolved		18.0	10.5	17.8	0.05	
Aluminum	Dissolved		0.012	<0.005	0.011	0.005	
Antimony	Dissolved		<0.0002	<0.0002	<0.0002	0.0002	
Arsenic	Dissolved		0.0005	0.0006	0.0006	0.0002	
Barium	Dissolved		0.078	0.066	0.076	0.001	
Beryllium	Dissolved		<0.0001	<0.0001	<0.0001	0.0001	
Bismuth	Dissolved		<0.0005	<0.0005	<0.0005	0.0005	
Boron	Dissolved		0.004	0.002	0.004	0.002	
Cadmium	Dissolved		0.00005	0.00001	0.00004	0.00001	
Chromium	Dissolved		<0.0005	<0.0005	<0.0005	0.0005	
Cobalt	Dissolved		<0.0001	<0.0001	<0.0001	0.0001	
Copper	Dissolved		<0.001	<0.001	0.001	0.001	
Lead	Dissolved		<0.0001	<0.0001	<0.0001	0.0001	
Lithium	Dissolved		0.004	0.003	0.004	0.001	
Molybdenum	Dissolved		0.001	0.001	0.001	0.001	
Nickel	Dissolved		0.0007	<0.0005	0.0005	0.0005	
Selenium	Dissolved		0.0012	0.0006	0.0010	0.0002	
Silver	Dissolved		<0.0001	<0.0001	<0.0001	0.0001	
Strontium	Dissolved		0.181	0.137	0.185	0.001	
Thallium	Dissolved		<0.00005	<0.00005	<0.00005	0.00005	
Tin	Dissolved		<0.001	<0.001	<0.001	0.001	
Titanium	Dissolved		0.0018	0.0011	0.0018	0.0005	
Uranium	Dissolved		0.0016	0.0016	0.0016	0.0005	
Vanadium	Dissolved		0.0002	<0.0001	0.0001	0.0001	
Zinc	Dissolved		0.003	0.001	0.002	0.001	
Metals Total							
Calcium	Total		41.8	40.1	42.7	0.2	
Iron	Total		0.1	0.1	0.3	0.1	
Magnesium	Total		15.0	8.8	14.4	0.1	
Manganese	Total		0.014	0.013	0.017	0.005	
Potassium	Total		0.8	1.3	0.9	0.4	
Silicon	Total		2.59	3.74	2.80	0.05	



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Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	324989-4		324989-5		324989-6	
		Matrix	Water - General	Water - General	Water - General	Results	Detection Limit
Metals Total - Continued							
Sodium	Total	mg/L	1.7	2.6	1.9	0.4	
Sulphur	Total	mg/L	16.9	9.55	16.5	0.05	
Aluminum	Total	mg/L	0.077	0.041	0.167	0.005	
Antimony	Total	mg/L	0.0003	0.0003	0.0003	0.0002	
Arsenic	Total	mg/L	0.0006	0.0007	0.0007	0.0002	
Barium	Total	mg/L	0.083	0.066	0.085	0.001	
Beryllium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Bismuth	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005	
Boron	Total	mg/L	0.006	0.004	0.006	0.002	
Cadmium	Total	mg/L	0.00006	0.00002	0.00007	0.00001	
Chromium	Total	mg/L	<0.0005	<0.0005	0.0006	0.0005	
Cobalt	Total	mg/L	<0.0001	<0.0001	0.0002	0.0001	
Copper	Total	mg/L	<0.001	<0.001	0.001	0.001	
Lead	Total	mg/L	0.0003	0.0004	0.0005	0.0001	
Lithium	Total	mg/L	0.004	0.003	0.004	0.001	
Molybdenum	Total	mg/L	0.001	0.001	0.001	0.001	
Nickel	Total	mg/L	0.0014	<0.0005	0.0014	0.0005	
Selenium	Total	mg/L	0.0014	0.0007	0.0010	0.0002	
Silver	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Strontium	Total	mg/L	0.194	0.140	0.190	0.001	
Thallium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005	
Tin	Total	mg/L	<0.001	<0.001	<0.001	0.001	
Titanium	Total	mg/L	0.0028	0.0024	0.0061	0.0005	
Uranium	Total	mg/L	0.0017	0.0016	0.0016	0.0005	
Vanadium	Total	mg/L	0.0006	0.0003	0.0010	0.0001	
Zinc	Total	mg/L	0.010	0.007	0.012	0.001	
Zirconium	Total	mg/L	<0.001	<0.001	<0.001	0.001	
Physical and Aggregate Properties							
Turbidity		NTU	3.1	1.6	4.8	0.1	
Temp. of observed pH and EC		°C	19.7	19.8	20.0		
Solids	Total Suspended	mg/L	7	2	10	1	
Solids	Fixed Suspended	mg/L	7	2	10	1	
Solids	Volatile Suspended	mg/L	0	0	0	2	
Colour	Apparent	Colour units	6	7	5	5	

Routine Water



Analytical Report

Norwest Labs
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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	324989-4		324989-5		324989-6	
		Sample Description	Results	Sample Description	Results	Sample Description	Results
		NWL Number	324989-4	NWL Number	324989-5	NWL Number	324989-6
		Sample Description	Pelly River - P1A / Aug 01, 2004	Sample Description	Anvil Creek - A1 / Jul 31, 2004	Sample Description	Pelly Creek - P3 / Aug 03, 2004
		Matrix	Water - General	Matrix	Water - General	Matrix	Water - General
Analyte	Units	Results	Results	Results	Results	Detection Limit	
Routine Water - Continued							
pH		8.31	8.35	8.35			
Electrical Conductivity	µS/cm at 25 C	324	274	324	1		
Calcium	Dissolved mg/L	43.5	41.2	43.3	0.2		
Magnesium	Dissolved mg/L	15.3	9.3	14.8	0.1		
Sodium	Dissolved mg/L	1.8	2.8	2.0	0.4		
Potassium	Dissolved mg/L	0.8	1.3	0.8	0.4		
Iron	Dissolved mg/L	<0.01	0.01	0.01	0.01		
Manganese	Dissolved mg/L	<0.005	<0.005	<0.005	0.005		
Chloride	Dissolved mg/L	0.5	0.5	0.5	0.5		
Nitrate - N	mg/L	<0.1	<0.1	<0.1	0.1		
Nitrite - N	mg/L	<0.05	<0.05	<0.05	0.05		
Nitrate and Nitrite - N	mg/L	<0.2	<0.2	<0.2	0.2		
Sulphate-S	Dissolved mg/L	18.0	10.5	17.8	0.05		
Hardness	Dissolved as CaCO3 mg/L	172	141	169			



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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	324989-7		324989-8		324989-9	
		Matrix	Water - General	Water - General	Water - General	Water - General	Detection Limit
Inorganic Nonmetallic Parameters							
Orthophosphate-P	Dissolved	mg/L	0.06	0.06	0.07	0.05	
Metals Dissolved							
Silicon	Dissolved	mg/L	2.84	2.82	4.08	0.05	
Sulphur	Dissolved	mg/L	17.8	17.4	4.63	0.05	
Aluminum	Dissolved	mg/L	0.010	0.011	<0.005	0.005	
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002	
Arsenic	Dissolved	mg/L	0.0006	0.0006	0.0015	0.0002	
Barium	Dissolved	mg/L	0.075	0.076	0.108	0.001	
Beryllium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Bismuth	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005	
Boron	Dissolved	mg/L	0.004	0.003	0.003	0.002	
Cadmium	Dissolved	mg/L	0.00004	0.00003	0.00001	0.00001	
Chromium	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005	
Cobalt	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Copper	Dissolved	mg/L	0.003	0.001	<0.001	0.001	
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Lithium	Dissolved	mg/L	0.004	0.004	0.002	0.001	
Molybdenum	Dissolved	mg/L	0.001	0.001	0.002	0.001	
Nickel	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005	
Selenium	Dissolved	mg/L	0.0012	0.0010	0.0002	0.0002	
Silver	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001	
Strontium	Dissolved	mg/L	0.180	0.183	0.223	0.001	
Thallium	Dissolved	mg/L	<0.00005	<0.00005	<0.00005	0.00005	
Tin	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001	
Titanium	Dissolved	mg/L	0.0018	0.0017	0.0005	0.0005	
Uranium	Dissolved	mg/L	0.0015	0.0016	0.0011	0.0005	
Vanadium	Dissolved	mg/L	0.0002	0.0002	<0.0001	0.0001	
Zinc	Dissolved	mg/L	0.003	0.002	0.002	0.001	
Metals Total							
Calcium	Total	mg/L	42.8	42.8	51.5	0.2	
Iron	Total	mg/L	1.5	0.2	<0.1	0.1	
Magnesium	Total	mg/L	14.4	14.3	11.9	0.1	
Manganese	Total	mg/L	0.051	0.013	0.010	0.005	
Potassium	Total	mg/L	1.1	0.9	2.0	0.4	
Silicon	Total	mg/L	3.82	2.73	3.81	0.05	



Analytical Report

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 Attn: Ken Nordin
 Sampled By: Paul Sparling
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Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	NWL Number	324989-7	324989-8	324989-9	Detection Limit
		Sample Description	Pelly Creek - P4 / Aug 03, 2004	Pelly Creek - P5 / Aug 04, 2004	Needle Rock Creek / Aug 04, 2004	
		Matrix	Water - General	Water - General	Water - General	
Metals Total - Continued						
Sodium	Total	mg/L	1.9	1.9	3.6	0.4
Sulphur	Total	mg/L	17.2	16.1	4.30	0.05
Aluminum	Total	mg/L	0.858	0.091	0.022	0.005
Antimony	Total	mg/L	0.0003	0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0015	0.0007	0.0014	0.0002
Barium	Total	mg/L	0.146	0.080	0.107	0.001
Beryllium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Total	mg/L	0.006	0.006	0.006	0.002
Cadmium	Total	mg/L	0.00016	0.00005	0.00001	0.00001
Chromium	Total	mg/L	0.0021	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	0.0007	<0.0001	0.0031	0.0001
Copper	Total	mg/L	0.003	<0.001	<0.001	0.001
Lead	Total	mg/L	0.0014	0.0004	<0.0001	0.0001
Lithium	Total	mg/L	0.004	0.004	0.002	0.001
Molybdenum	Total	mg/L	0.001	0.001	0.002	0.001
Nickel	Total	mg/L	0.0037	0.0011	<0.0005	0.0005
Selenium	Total	mg/L	0.0013	0.0010	0.0002	0.0002
Silver	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Total	mg/L	0.184	0.194	0.233	0.001
Thallium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Total	mg/L	0.001	<0.001	<0.001	0.001
Titanium	Total	mg/L	0.0299	0.0035	0.0008	0.0005
Uranium	Total	mg/L	0.0016	0.0016	0.0012	0.0005
Vanadium	Total	mg/L	0.0042	0.0006	0.0002	0.0001
Zinc	Total	mg/L	0.016	0.005	0.004	0.001
Zirconium	Total	mg/L	<0.001	<0.001	<0.001	0.001
Physical and Aggregate Properties						
Turbidity		NTU	13.6	3.2	1.6	0.1
Temp. of observed pH and EC		°C	19.8	19.7	19.7	
Solids	Total Suspended	mg/L	81	7	1	1
Solids	Fixed Suspended	mg/L	78	7	<1	1
Solids	Volatile Suspended	mg/L	3	0	1	2
Colour	Apparent	Colour units	25	5	13	5

Routine Water



Analytical Report

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NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	324989-7		324989-8		324989-9	
		Sample Description	Results	Results	Results	Detection Limit	
		NWL Number	324989-7	324989-8	324989-9		
		Sample Description	Pelly Creek - P4 / Aug 03, 2004	Pelly Creek - P5 / Aug 04, 2004	Needle Rock Creek / Aug 04, 2004		
		Matrix	Water - General	Water - General	Water - General		
Routine Water - Continued							
pH			8.34	8.33	8.40		
Electrical Conductivity	µS/cm at 25 C		322	322	337	1	
Calcium	Dissolved mg/L		43.5	43.5	52.2	0.2	
Magnesium	Dissolved mg/L		14.7	14.7	12.2	0.1	
Sodium	Dissolved mg/L		2.0	2.0	3.6	0.4	
Potassium	Dissolved mg/L		0.8	0.8	1.7	0.4	
Iron	Dissolved mg/L		<0.01	<0.01	0.01	0.01	
Manganese	Dissolved mg/L		<0.005	<0.005	0.005	0.005	
Chloride	Dissolved mg/L		0.5	1.4	0.5	0.5	
Nitrate - N	mg/L		<0.1	<0.1	<0.1	0.1	
Nitrite - N	mg/L		<0.05	<0.05	<0.05	0.05	
Nitrate and Nitrite - N	mg/L		<0.2	<0.2	<0.2	0.2	
Sulphate-S	Dissolved mg/L		17.8	17.4	4.63	0.05	
Hardness	Dissolved as CaCO3 mg/L		169	169	181		



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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

Analyte	Units	NWL Number	324989-10	324989-11	324989-12	Detection Limit
		Sample Description	Pelly River @ PC / Aug 04, 2004	Macmillan River / Aug 04, 2004	Tummel River / Aug 04, 2004	
		Matrix	Water - General	Water - General	Water - General	
Inorganic Nonmetallic Parameters						
Orthophosphate-P	Dissolved	mg/L	0.06	0.06	0.07	0.05
Metals Dissolved						
Silicon	Dissolved	mg/L	2.94	2.96	3.86	0.05
Sulphur	Dissolved	mg/L	17.0	17.8	6.28	0.05
Aluminum	Dissolved	mg/L	0.024	0.064	0.010	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0007	0.0004	0.0004	0.0002
Barium	Dissolved	mg/L	0.079	0.067	0.074	0.001
Beryllium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Dissolved	mg/L	0.004	0.004	0.002	0.002
Cadmium	Dissolved	mg/L	0.00004	0.00005	<0.00001	0.00001
Chromium	Dissolved	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Copper	Dissolved	mg/L	0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.004	0.004	0.002	0.001
Molybdenum	Dissolved	mg/L	0.001	<0.001	<0.001	0.001
Nickel	Dissolved	mg/L	0.0006	0.0009	<0.0005	0.0005
Selenium	Dissolved	mg/L	0.0012	0.0012	0.0003	0.0002
Silver	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Dissolved	mg/L	0.184	0.163	0.174	0.001
Thallium	Dissolved	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Titanium	Dissolved	mg/L	0.0017	0.0023	0.0008	0.0005
Uranium	Dissolved	mg/L	0.0012	<0.0005	0.0019	0.0005
Vanadium	Dissolved	mg/L	0.0003	0.0002	<0.0001	0.0001
Zinc	Dissolved	mg/L	0.001	0.003	0.004	0.001
Metals Total						
Calcium	Total	mg/L	40.5	31.0	42.0	0.2
Iron	Total	mg/L	1.8	0.4	0.1	0.1
Magnesium	Total	mg/L	13.6	10.4	10.8	0.1
Manganese	Total	mg/L	0.080	0.016	0.014	0.005
Potassium	Total	mg/L	1.3	0.9	1.0	0.4
Silicon	Total	mg/L	4.50	3.41	3.80	0.05



Analytical Report

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 Box 21072
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 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

Analyte	Units	NWL Number	324989-10	324989-11	324989-12	Detection Limit
		Sample Description	Pelly River @ PC / Aug 04, 2004	Macmillan River / Aug 04, 2004	Tummel River / Aug 04, 2004	
		Matrix	Water - General	Water - General	Water - General	
Metals Total - Continued						
Sodium	Total	mg/L	2.2	1.9	2.3	0.4
Sulphur	Total	mg/L	16.1	16.7	5.98	0.05
Aluminum	Total	mg/L	1.22	0.450	0.091	0.005
Antimony	Total	mg/L	0.0003	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0017	0.0006	0.0004	0.0002
Barium	Total	mg/L	0.146	0.078	0.077	0.001
Beryllium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Bismuth	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Boron	Total	mg/L	0.007	0.007	0.004	0.002
Cadmium	Total	mg/L	0.00020	0.00009	0.00001	0.00001
Chromium	Total	mg/L	0.0026	0.0008	<0.0005	0.0005
Cobalt	Total	mg/L	0.0008	0.0005	<0.0001	0.0001
Copper	Total	mg/L	0.003	0.001	<0.001	0.001
Lead	Total	mg/L	0.0011	0.0003	0.0003	0.0001
Lithium	Total	mg/L	0.005	0.005	0.002	0.001
Molybdenum	Total	mg/L	0.002	0.001	<0.001	0.001
Nickel	Total	mg/L	0.0042	0.0018	<0.0005	0.0005
Selenium	Total	mg/L	0.0013	0.0014	0.0004	0.0002
Silver	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Strontium	Total	mg/L	0.198	0.168	0.185	0.001
Thallium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Tin	Total	mg/L	<0.001	0.001	0.001	0.001
Titanium	Total	mg/L	0.0352	0.0125	0.0035	0.0005
Uranium	Total	mg/L	0.0014	0.0005	0.0019	0.0005
Vanadium	Total	mg/L	0.0060	0.0020	0.0005	0.0001
Zinc	Total	mg/L	0.019	0.011	0.005	0.001
Zirconium	Total	mg/L	<0.001	<0.001	<0.001	0.001
Physical and Aggregate Properties						
Turbidity		NTU	40.1	17.6	5.9	0.1
Temp. of observed pH and EC		°C	19.6	19.7	19.8	
Solids	Total Suspended	mg/L	<3	13	3	1
Solids	Fixed Suspended	mg/L	<1	13	3	1
Solids	Volatile Suspended	mg/L	<2	0	0	2
Colour	Apparent	Colour units	80	35	7	5
Routine Water						



Analytical Report

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 Box 21072
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 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

Analyte	Units	NWL Number 324989-10		NWL Number 324989-11		NWL Number 324989-12	
		Sample Description	Results	Sample Description	Results	Sample Description	Results
		Pelly River @ PC / Aug 04, 2004		Macmillan River / Aug 04, 2004		Tummel River / Aug 04, 2004	
		Matrix: Water - General		Matrix: Water - General		Matrix: Water - General	
Analyte	Units	Results	Results	Results	Detection Limit		
Routine Water - Continued							
pH		8.30	8.14	8.41			
Electrical Conductivity	µS/cm at 25 C	297	241	284	1		
Calcium	Dissolved mg/L	39.7	30.9	41.4	0.2		
Magnesium	Dissolved mg/L	13.2	10.4	10.7	0.1		
Sodium	Dissolved mg/L	2.2	1.9	2.4	0.4		
Potassium	Dissolved mg/L	0.9	0.7	0.9	0.4		
Iron	Dissolved mg/L	0.01	0.02	0.02	0.01		
Manganese	Dissolved mg/L	0.009	<0.005	<0.005	0.005		
Chloride	Dissolved mg/L	0.6	<0.5	0.9	0.5		
Nitrate - N	mg/L	<0.1	<0.1	<0.1	0.1		
Nitrite - N	mg/L	<0.05	<0.05	<0.05	0.05		
Nitrate and Nitrite - N	mg/L	<0.2	<0.2	<0.2	0.2		
Sulphate-S	Dissolved mg/L	17.0	17.8	6.28	0.05		
Hardness	Dissolved as CaCO3 mg/L	154	120	147			



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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

NWL Number 324989-13
 Sample Description Glenlyon River / Aug
 01, 2004
 Matrix Water - General

Analyte		Units	Results	Results	Detection Limit
Inorganic Nonmetallic Parameters					
Orthophosphate-P	Dissolved	mg/L	0.06		0.05
Metals Dissolved					
Silicon	Dissolved	mg/L	3.36		0.05
Sulphur	Dissolved	mg/L	4.94		0.05
Aluminum	Dissolved	mg/L	0.008		0.005
Antimony	Dissolved	mg/L	<0.0002		0.0002
Arsenic	Dissolved	mg/L	<0.0002		0.0002
Barium	Dissolved	mg/L	0.046		0.001
Beryllium	Dissolved	mg/L	<0.0001		0.0001
Bismuth	Dissolved	mg/L	<0.0005		0.0005
Boron	Dissolved	mg/L	<0.002		0.002
Cadmium	Dissolved	mg/L	<0.00001		0.00001
Chromium	Dissolved	mg/L	<0.0005		0.0005
Cobalt	Dissolved	mg/L	<0.0001		0.0001
Copper	Dissolved	mg/L	<0.001		0.001
Lead	Dissolved	mg/L	<0.0001		0.0001
Lithium	Dissolved	mg/L	0.001		0.001
Molybdenum	Dissolved	mg/L	<0.001		0.001
Nickel	Dissolved	mg/L	<0.0005		0.0005
Selenium	Dissolved	mg/L	<0.0002		0.0002
Silver	Dissolved	mg/L	<0.0001		0.0001
Strontium	Dissolved	mg/L	0.104		0.001
Thallium	Dissolved	mg/L	<0.00005		0.00005
Tin	Dissolved	mg/L	<0.001		0.001
Titanium	Dissolved	mg/L	0.0007		0.0005
Uranium	Dissolved	mg/L	0.0009		0.0005
Vanadium	Dissolved	mg/L	<0.0001		0.0001
Zinc	Dissolved	mg/L	0.003		0.001
Metals Total					
Calcium	Total	mg/L	20.4		0.2
Iron	Total	mg/L	<0.1		0.1
Magnesium	Total	mg/L	5.3		0.1
Manganese	Total	mg/L	<0.005		0.005
Potassium	Total	mg/L	0.6		0.4
Silicon	Total	mg/L	3.20		0.05



Analytical Report

Norwest Labs
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Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: Paul Sparling
 Company: WMEC

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
 Control Number: E 133786
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581250

NWL Number 324989-13
 Sample Description Glenlyon River / Aug
 01, 2004
 Matrix Water - General

Analyte		Units	Results	Results	Detection Limit
Metals Total - Continued					
Sodium	Total	mg/L	1.9		0.4
Sulphur	Total	mg/L	4.71		0.05
Aluminum	Total	mg/L	0.024		0.005
Antimony	Total	mg/L	<0.0002		0.0002
Arsenic	Total	mg/L	<0.0002		0.0002
Barium	Total	mg/L	0.046		0.001
Beryllium	Total	mg/L	<0.0001		0.0001
Bismuth	Total	mg/L	<0.0005		0.0005
Boron	Total	mg/L	0.004		0.002
Cadmium	Total	mg/L	<0.00001		0.00001
Chromium	Total	mg/L	<0.0005		0.0005
Cobalt	Total	mg/L	<0.0001		0.0001
Copper	Total	mg/L	<0.001		0.001
Lead	Total	mg/L	0.0003		0.0001
Lithium	Total	mg/L	0.002		0.001
Molybdenum	Total	mg/L	<0.001		0.001
Nickel	Total	mg/L	<0.0005		0.0005
Selenium	Total	mg/L	<0.0002		0.0002
Silver	Total	mg/L	<0.0001		0.0001
Strontium	Total	mg/L	0.110		0.001
Thallium	Total	mg/L	<0.00005		0.00005
Tin	Total	mg/L	<0.001		0.001
Titanium	Total	mg/L	0.0011		0.0005
Uranium	Total	mg/L	0.0010		0.0005
Vanadium	Total	mg/L	0.0002		0.0001
Zinc	Total	mg/L	0.004		0.001
Zirconium	Total	mg/L	<0.001		0.001
Physical and Aggregate Properties					
Turbidity		NTU	0.4		0.1
Temp. of observed pH and EC		°C	20.1		
Colour	Apparent	Colour units	8		5
Routine Water					
pH			8.15		
Electrical Conductivity		µS/cm at 25 C	151		1
Calcium	Dissolved	mg/L	20.2		0.2



Analytical Report

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Project
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Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 324989
Control Number: E 133786
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581250

NWL Number 324989-13
Sample Description Glenlyon River / Aug
01, 2004
Matrix Water - General

Analyte	Units	Results	Results	Results	Detection Limit
Routine Water - Continued					
Magnesium	Dissolved	mg/L	5.4		0.1
Sodium	Dissolved	mg/L	1.9		0.4
Potassium	Dissolved	mg/L	0.6		0.4
Iron	Dissolved	mg/L	<0.01		0.01
Manganese	Dissolved	mg/L	<0.005		0.005
Chloride	Dissolved	mg/L	0.5		0.5
Nitrate - N		mg/L	<0.1		0.1
Nitrite - N		mg/L	<0.05		0.05
Sulphate-S	Dissolved	mg/L	4.94		0.05
Hardness	Dissolved as CaCO3	mg/L	72.9		

Approved by:

Bill Warning, B.Sc.
Lab Operations Manager



Methodology and Notes

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NWL Lot ID: **324989**
Control Number: E 133786
Date Received: Aug 09, 2004
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Page: 16 of 17

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Alkalinity, pH, and EC in water	APHA	* Conductivity - Laboratory Method, 2510 B	11-Aug-04	Norwest Labs Edmonton
Alkalinity, pH, and EC in water	APHA	* Electrometric Method, 4500-H+ B	11-Aug-04	Norwest Labs Edmonton
Anions (Routine) by Ion Chromatography	APHA	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	12-Aug-04	Norwest Labs Edmonton
Chloride in Water	APHA	* Automated Ferricyanide Method, 4500-Cl- E	11-Aug-04	Norwest Labs Edmonton
Colour (Apparent) in water	APHA	* Visual Comparison Method, 2120 B	11-Aug-04	Norwest Labs Edmonton
Metals ICP-MS (Dissolved) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	11-Aug-04	Norwest Labs Edmonton
Metals ICP-MS (Total) in water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	11-Aug-04	Norwest Labs Edmonton
Metals Trace (Dissolved) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	12-Aug-04	Norwest Labs Edmonton
Metals Trace (Total) in water	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	11-Aug-04	Norwest Labs Edmonton
Orthophosphate-P in Water	APHA	* Automated Ascorbic Acid Reduction Method, 4500-P F	12-Aug-04	Norwest Labs Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Fixed and Volatile Solids Ignited at 550°C, 2540 E	12-Aug-04	Norwest Labs Edmonton
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	12-Aug-04	Norwest Labs Edmonton
Turbidity in Water	APHA	* Nephelometric Method, 2130 B	11-Aug-04	Norwest Labs Edmonton

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
 US EPA US Environmental Protection Agency Test Methods

Comments:

Some total metal results were less than dissolved metal results for LOT 324989. The results were checked and are within the method uncertainty. 040812 JD

Sample 10 There was insufficient sample volume to reach the low level detection limit for Total Suspended Solids. TBlush Aug 11/04

Please direct any inquiries regarding this report to our Client Services group.
 Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



Methodology and Notes

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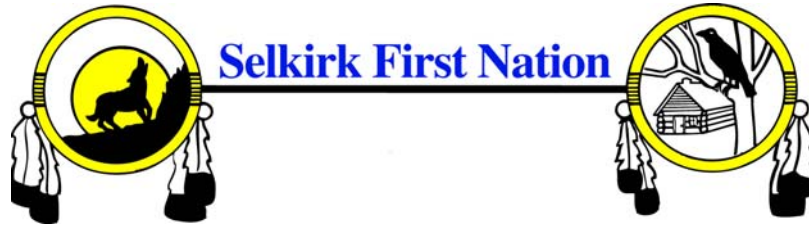
Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **324989**
Control Number: E 133786
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Page: 17 of 17

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PELLY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 4

NORWEST LABS SOIL/ SEDIMENT REPORT



Environmental Sample Information Sheet

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

Billing Address: Company: <i>LES</i> Address: <i>Box 21072</i> <i>WHITEHORSE, Y.T.</i> <i>Y1A 6P7</i> Attention: <i>KEN NORDIN</i> Phone: <i>867 668 6838</i> Fax: Cell: e-mail: <i>Laberge@internorth.com</i>		QA/QC Report <input checked="" type="checkbox"/>	Copy of Report To: Company: <i>SFN</i> Address: <i>LANDS&RESOURCES</i> <i>Box 40 PELLY CROSSING, Y.T.</i> <i>Y0B 1P0</i> Attention: <i>STYD KLUGIE</i> Phone: <i>867 537 3331</i> Fax: Cell: e-mail:	Copy of invoice: <input type="checkbox"/> Mail invoice to this address for approval <input checked="" type="checkbox"/>	Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input checked="" type="checkbox"/>	Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>
--	--	---	--	---	---	--

Information to be included on Report and Invoice Project ID: <i>PELLY AQ</i> Project Name: <i>PELLY R. - AQUATIC</i> Project Location: <i>EFFECTS Jul 04</i> Legal Location: PO#: Proj. Acct. Code: Agreement ID: <i>17654</i>	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses or as indicated <input type="checkbox"/> or <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled by: _____ Date _____ Company _____ Signature _____ Relinquished by: Company _____ Date _____ Waybill number: Received by: <i>Donna</i> Company <i>325006</i> Date <i>Aug 8/04</i>	
		<input type="checkbox"/> Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)	

Special Instructions / Comments	Number of Containers <i>ST 33</i>
--	---

Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Enter tests above (✓ relevant samples below)																
						1	2	3	4	5	6	7	8	9	10	11	12					
1 ANVIL CREEK	A 1	—		SED	COMP	1	✓															
2 ANVIL CREEK	A 2	—		SED	COMP	1	✓															
3 ANVIL CREEK	A 4	—		SED	COMP	1	✓															
4 ANVIL CREEK	A 3	—		SED	COMP	1	✓															
5 ANVIL A1	T.1	—		SOIL	COMP	1	✓															
6 ANVIL A1	T.2	—		SOIL	COMP	1	✓															
7 ANVIL A1	T.3	—		SOIL	COMP	1	✓															
8 ANVIL A1	T.4	—		SOIL	COMP	1	✓															
9 ANVIL A1	T.5	—		SOIL	COMP	1	✓															
10 ANVIL A2	A2T.1	—		SOIL	COMP	1	✓															
11 ANVIL A2	A2T.2	—		SOIL	COMP	1	✓															
12 ANVIL A2	A2T.3	—		SOIL	COMP	1	✓															
13 ANVIL A2	A2T.4	—		SOIL	COMP	1	✓															
14 ANVIL A3	A3T.1	—		SOIL	COMP	1	✓															
15 ANVIL A3	A3T.2	—		SOIL	COMP	1	✓															

NW1006 (08/01)



Environmental Sample Information Sheet

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

Billing Address:		Copy of Report To:		Copy of invoice: <input type="checkbox"/>	
Company: Address:		Company: Address:		Mail invoice to this address for approval <input type="checkbox"/>	
		QA/QC Report <input type="checkbox"/>			
Attention: Phone: Fax: Cell: e-mail:		Report Result: Fax <input type="checkbox"/> Mail <input type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>		Report Result: Fax <input type="checkbox"/> Mail <input type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>	

Information to be included on Report and Invoice Project ID: <i>PELLY AQ</i> Project Name: Project Location: Legal Location: PO#: Proj. Acct. Code: Agreement ID:	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses or as indicated <input type="checkbox"/> or <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print)	
		Sampled by: _____ Date _____ Company _____ Signature _____ Relinquished by: _____ Date _____ Company _____ Date _____ Waybill number: _____ Received by: _____ Company _____ Date _____	

Special Instructions / Comments Check here if Norwest is required to report results directly to a regulatory body (Please include contact information).

Number of Containers	5733																		
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	Sample Identification	Location	Depth			Date / Time Sampled	Matrix	Sampling Method	↓	Enter tests above (✓ relevant samples below)											
			IN	CM	M																
1	ANVIL A3	A3T.3	-				SOIL	COMP	1												
2	ANVIL A3	A3T.4	-				SOIL	COMP	2												
3	ANVIL A4	A4T.1	-				SOIL	COMP	1												
4	ANVIL A4	A4T.2	-				SOIL	COMP	1												
5	ANVIL A4	A4T.3	-				SOIL	COMP	1												
6	ANVIL A4	A4T.4	-				SOIL	COMP	1												
7	ANVIL A4	A4T.5	-				SOIL	COMP	1												
8	BLIND CREEK	B1	-				SED	COMP	1												
9	PELLY DIS BLIND	PB	-				SED	COMP	1												
10	PELLY DIS ANVIL	PI	-				SED	COMP	1												
11	PELLY DIS ANVIL	PIA	-				SED	COMP	1												
12			-																		
13			-																		
14			-																		
15			-																		

(1) (98) 8007AW



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
Control Number: E 133788
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581266

Contact	Company	Address									
Ken Nordin Web x Email Notification x	Laberge Environmental Services	Box 21072, 1-405 Ogilvie Street Whitehorse, YT Y1A 6P7 Phone: (867) 668-1043 Fax: (867) 667-6956 Email: laberge@internorth.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>			Copies	Delivery Strategy	Format	1	Post		1	Email - Multiple Reports	PDF
Copies	Delivery Strategy	Format									
1	Post										
1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
581266 Envir2QC 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
Control Number: E 133788
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581266

Sample Disposal Date: Sep 12, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
 Company: _____
 Address: _____

 Phone: _____
 Fax: _____
 Signature: _____

If no other arrangements have been made, samples will be disposed of on Sep 12, 2004.



Analytical Report

Norwest Labs
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Name: Pelly R - Aquatic
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P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-1	325006-2	325006-3	Detection Limit
		Sample Description Matrix	Anvil Creek - A1 Soil - general	Anvil Creek - A2 Soil - general	Anvil Creek - A4 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.04	0.06	0.05	0.01
Aluminum	Strong Acid Extractable	ug/g	9840	12200	10500	0.4
Antimony	Strong Acid Extractable	ug/g	1.3	1.0	1.0	0.3
Arsenic	Strong Acid Extractable	ug/g	11.0	13.6	11.5	0.5
Barium	Strong Acid Extractable	ug/g	287	500	453	0.01
Beryllium	Strong Acid Extractable	ug/g	0.37	0.52	0.42	0.03
Bismuth	Strong Acid Extractable	ug/g	0.7	0.6	0.5	0.4
Cadmium	Strong Acid Extractable	ug/g	0.46	0.78	0.71	0.03
Calcium	Strong Acid Extractable	ug/g	7210	6800	5020	10
Chromium	Strong Acid Extractable	ug/g	29.5	55.1	50.7	0.04
Cobalt	Strong Acid Extractable	ug/g	7.48	10.7	13.5	0.04
Copper	Strong Acid Extractable	ug/g	18.0	27.5	24.0	0.05
Iron	Strong Acid Extractable	ug/g	21200	25600	25300	0.2
Lead	Strong Acid Extractable	ug/g	19.4	52.9	98.0	0.1
Magnesium	Strong Acid Extractable	ug/g	6130	7080	5640	3
Manganese	Strong Acid Extractable	ug/g	381	862	3580	0.01
Molybdenum	Strong Acid Extractable	ug/g	0.77	1.08	1.75	0.05
Nickel	Strong Acid Extractable	ug/g	30.8	45.5	47.6	0.05
Phosphorus	Strong Acid Extractable	ug/g	765	933	851	2
Selenium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Silicon	Strong Acid Extractable	ug/g	2430	2620	2010	0.2
Silver	Strong Acid Extractable	ug/g	<0.05	0.16	0.18	0.05
Strontium	Strong Acid Extractable	ug/g	37.1	41.5	36.6	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	0.4	0.2
Tin	Strong Acid Extractable	ug/g	0.5	0.7	0.5	0.2
Titanium	Strong Acid Extractable	ug/g	452	516	429	0.02
Vanadium	Strong Acid Extractable	ug/g	35.1	44.7	34.7	0.05
Zinc	Strong Acid Extractable	ug/g	89.7	167	274	0.03
Zirconium	Strong Acid Extractable	ug/g	2.22	2.31	2.10	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	8.1	8.3	8.0	



Analytical Report

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 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-4	325006-5	325006-6	Detection Limit
		Sample Description Matrix	Anvil Creek - A3 Soil - general	Anvil A1 - T.1 Soil - general	Anvil A1 - T.2 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.06	0.06	0.03	0.01
Aluminum	Strong Acid Extractable	ug/g	11100	12300	9560	0.4
Antimony	Strong Acid Extractable	ug/g	1.4	1.4	0.8	0.3
Arsenic	Strong Acid Extractable	ug/g	13.0	12.2	9.9	0.5
Barium	Strong Acid Extractable	ug/g	326	407	248	0.01
Beryllium	Strong Acid Extractable	ug/g	0.47	0.50	0.36	0.03
Bismuth	Strong Acid Extractable	ug/g	0.8	0.6	0.5	0.4
Cadmium	Strong Acid Extractable	ug/g	0.73	0.85	0.43	0.03
Calcium	Strong Acid Extractable	ug/g	6170	8090	7150	10
Chromium	Strong Acid Extractable	ug/g	42.1	36.1	29.3	0.04
Cobalt	Strong Acid Extractable	ug/g	10.8	10.3	7.15	0.04
Copper	Strong Acid Extractable	ug/g	26.8	28.8	16.6	0.05
Iron	Strong Acid Extractable	ug/g	24500	24200	19400	0.2
Lead	Strong Acid Extractable	ug/g	62.0	30.3	15.6	0.1
Magnesium	Strong Acid Extractable	ug/g	6360	7330	5990	3
Manganese	Strong Acid Extractable	ug/g	1020	658	336	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.12	1.09	0.64	0.05
Nickel	Strong Acid Extractable	ug/g	40.4	41.6	29.8	0.05
Phosphorus	Strong Acid Extractable	ug/g	952	896	732	2
Selenium	Strong Acid Extractable	ug/g	<0.2	0.4	<0.2	0.2
Silicon	Strong Acid Extractable	ug/g	2540	2640	2380	0.2
Silver	Strong Acid Extractable	ug/g	0.11	0.12	<0.05	0.05
Strontium	Strong Acid Extractable	ug/g	34.8	43.6	38.2	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.5	0.8	0.6	0.2
Titanium	Strong Acid Extractable	ug/g	453	569	438	0.02
Vanadium	Strong Acid Extractable	ug/g	39.6	43.1	33.2	0.05
Zinc	Strong Acid Extractable	ug/g	184	145	78.7	0.03
Zirconium	Strong Acid Extractable	ug/g	2.27	2.60	2.44	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	8.0	7.5	7.9	



Analytical Report

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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-7	325006-8	325006-9	Detection Limit
		Sample Description Matrix	Anvil A1 - T.3 Soil - general	Anvil A1 - T.4 Soil - general	Anvil A1 - T.5 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.02	0.02	0.02	0.01
Aluminum	Strong Acid Extractable	ug/g	9850	8830	9460	0.4
Antimony	Strong Acid Extractable	ug/g	1.1	0.7	0.8	0.3
Arsenic	Strong Acid Extractable	ug/g	9.0	8.5	8.8	0.5
Barium	Strong Acid Extractable	ug/g	263	228	264	0.01
Beryllium	Strong Acid Extractable	ug/g	0.32	0.33	0.33	0.03
Bismuth	Strong Acid Extractable	ug/g	0.6	0.6	0.4	0.4
Cadmium	Strong Acid Extractable	ug/g	0.40	0.37	0.35	0.03
Calcium	Strong Acid Extractable	ug/g	7310	5330	7230	10
Chromium	Strong Acid Extractable	ug/g	29.1	35.4	36.5	0.04
Cobalt	Strong Acid Extractable	ug/g	6.67	6.84	6.82	0.04
Copper	Strong Acid Extractable	ug/g	16.1	14.9	16.3	0.05
Iron	Strong Acid Extractable	ug/g	18000	17800	19300	0.2
Lead	Strong Acid Extractable	ug/g	13.0	14.2	14.7	0.1
Magnesium	Strong Acid Extractable	ug/g	5940	5670	6070	3
Manganese	Strong Acid Extractable	ug/g	338	419	396	0.01
Molybdenum	Strong Acid Extractable	ug/g	0.82	0.88	0.80	0.05
Nickel	Strong Acid Extractable	ug/g	29.0	31.0	30.5	0.05
Phosphorus	Strong Acid Extractable	ug/g	771	693	963	2
Selenium	Strong Acid Extractable	ug/g	0.4	0.2	<0.2	0.2
Silicon	Strong Acid Extractable	ug/g	2740	2170	1920	0.2
Silver	Strong Acid Extractable	ug/g	0.07	0.06	0.12	0.05
Strontium	Strong Acid Extractable	ug/g	40.9	32.6	41.1	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.3	0.5	0.4	0.2
Titanium	Strong Acid Extractable	ug/g	371	390	420	0.02
Vanadium	Strong Acid Extractable	ug/g	30.7	30.7	33.2	0.05
Zinc	Strong Acid Extractable	ug/g	72.5	66.6	66.4	0.03
Zirconium	Strong Acid Extractable	ug/g	2.41	2.28	2.34	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	8.2	8.2	8.3	



Analytical Report

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 Box 21072
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 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-10	325006-11	325006-12	Detection Limit
		Sample Description Matrix	Anvil A2 - A2 - T.1 Soil - general	Anvil A2 - A2 - T.2 Soil - general	Anvil A2 - A2 - T.3 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.06	0.12	0.07	0.01
Aluminum	Strong Acid Extractable	ug/g	14600	14100	13000	0.4
Antimony	Strong Acid Extractable	ug/g	1.1	1.4	1.1	0.3
Arsenic	Strong Acid Extractable	ug/g	11.5	12.3	12.5	0.5
Barium	Strong Acid Extractable	ug/g	464	550	452	0.01
Beryllium	Strong Acid Extractable	ug/g	0.45	0.61	0.55	0.03
Bismuth	Strong Acid Extractable	ug/g	0.4	0.6	0.7	0.4
Cadmium	Strong Acid Extractable	ug/g	0.69	1.02	0.86	0.03
Calcium	Strong Acid Extractable	ug/g	13500	6130	6760	10
Chromium	Strong Acid Extractable	ug/g	54.4	41.8	35.1	0.04
Cobalt	Strong Acid Extractable	ug/g	11.0	12.0	9.08	0.04
Copper	Strong Acid Extractable	ug/g	32.5	53.2	27.0	0.05
Iron	Strong Acid Extractable	ug/g	28100	27600	25200	0.2
Lead	Strong Acid Extractable	ug/g	9.1	89.8	14.6	0.1
Magnesium	Strong Acid Extractable	ug/g	11800	7390	6660	3
Manganese	Strong Acid Extractable	ug/g	304	287	352	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.02	1.58	1.18	0.05
Nickel	Strong Acid Extractable	ug/g	55.8	49.2	38.3	0.05
Phosphorus	Strong Acid Extractable	ug/g	996	917	986	2
Selenium	Strong Acid Extractable	ug/g	1.1	0.9	0.8	0.2
Silicon	Strong Acid Extractable	ug/g	2500	3130	3230	0.2
Silver	Strong Acid Extractable	ug/g	0.08	0.26	0.21	0.05
Strontium	Strong Acid Extractable	ug/g	50.6	40.1	43.1	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.4	0.6	0.7	0.2
Titanium	Strong Acid Extractable	ug/g	746	546	481	0.02
Vanadium	Strong Acid Extractable	ug/g	56.7	48.1	48.6	0.05
Zinc	Strong Acid Extractable	ug/g	74.4	218	98.0	0.03
Zirconium	Strong Acid Extractable	ug/g	3.01	2.64	2.59	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	8.2	6.7	7.2	



Analytical Report

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NWL Lot ID: 325006
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Analyte	Units	NWL Number	325006-13	325006-14	325006-15	Detection Limit
		Sample Description Matrix	Anvil A2 - A2 - T.4 Soil - general	Anvil A3 - A3 - T.1 Soil - general	Anvil A3 - A3 - T.2 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.06	0.07	0.39	0.01
Aluminum	Strong Acid Extractable	ug/g	14600	14200	16100	0.4
Antimony	Strong Acid Extractable	ug/g	0.7	1.2	1.8	0.3
Arsenic	Strong Acid Extractable	ug/g	6.2	12.8	24.2	0.5
Barium	Strong Acid Extractable	ug/g	353	372	1310	0.01
Beryllium	Strong Acid Extractable	ug/g	0.60	0.62	0.76	0.03
Bismuth	Strong Acid Extractable	ug/g	0.7	0.9	1.3	0.4
Cadmium	Strong Acid Extractable	ug/g	0.50	0.63	1.03	0.03
Calcium	Strong Acid Extractable	ug/g	6260	6140	6050	10
Chromium	Strong Acid Extractable	ug/g	37.3	39.7	44.0	0.04
Cobalt	Strong Acid Extractable	ug/g	8.52	10.4	14.2	0.04
Copper	Strong Acid Extractable	ug/g	29.9	28.1	69.0	0.05
Iron	Strong Acid Extractable	ug/g	22800	28700	34400	0.2
Lead	Strong Acid Extractable	ug/g	13.4	19.4	355	0.1
Magnesium	Strong Acid Extractable	ug/g	7060	7250	7610	3
Manganese	Strong Acid Extractable	ug/g	314	382	640	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.02	1.04	1.37	0.05
Nickel	Strong Acid Extractable	ug/g	37.7	42.6	45.0	0.05
Phosphorus	Strong Acid Extractable	ug/g	942	931	946	2
Selenium	Strong Acid Extractable	ug/g	0.8	0.4	0.4	0.2
Silicon	Strong Acid Extractable	ug/g	3030	3490	3020	0.2
Silver	Strong Acid Extractable	ug/g	0.12	0.11	0.78	0.05
Strontium	Strong Acid Extractable	ug/g	40.6	38.3	44.8	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.8	0.8	0.7	0.2
Titanium	Strong Acid Extractable	ug/g	552	499	581	0.02
Vanadium	Strong Acid Extractable	ug/g	50.6	48.5	51.6	0.05
Zinc	Strong Acid Extractable	ug/g	93.8	94.8	352	0.03
Zirconium	Strong Acid Extractable	ug/g	2.09	2.00	2.56	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	7.0	7.5	6.7	



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NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-16	325006-17	325006-18	Detection Limit
		Sample Description Matrix	Anvil A3 - A3 - T.3 Soil - general	Anvil A3 - A3 - T.4 Soil - general	Anvil A4 - A4 - T.1 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.17	0.05	0.11	0.01
Aluminum	Strong Acid Extractable	ug/g	13300	13800	12400	0.4
Antimony	Strong Acid Extractable	ug/g	1.9	1.1	1.0	0.3
Arsenic	Strong Acid Extractable	ug/g	16.1	14.2	11.2	0.5
Barium	Strong Acid Extractable	ug/g	579	311	303	0.01
Beryllium	Strong Acid Extractable	ug/g	0.59	0.57	0.45	0.03
Bismuth	Strong Acid Extractable	ug/g	0.7	0.7	0.8	0.4
Cadmium	Strong Acid Extractable	ug/g	0.93	0.72	0.57	0.03
Calcium	Strong Acid Extractable	ug/g	5520	5130	6940	10
Chromium	Strong Acid Extractable	ug/g	46.6	66.5	36.2	0.04
Cobalt	Strong Acid Extractable	ug/g	12.1	9.77	9.39	0.04
Copper	Strong Acid Extractable	ug/g	40.0	26.0	26.0	0.05
Iron	Strong Acid Extractable	ug/g	32800	28700	26800	0.2
Lead	Strong Acid Extractable	ug/g	81.5	18.2	104	0.1
Magnesium	Strong Acid Extractable	ug/g	6960	6920	6240	3
Manganese	Strong Acid Extractable	ug/g	782	383	422	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.42	1.84	1.09	0.05
Nickel	Strong Acid Extractable	ug/g	49.0	53.6	32.3	0.05
Phosphorus	Strong Acid Extractable	ug/g	902	957	877	2
Selenium	Strong Acid Extractable	ug/g	0.5	0.5	0.4	0.2
Silicon	Strong Acid Extractable	ug/g	2450	3160	3460	0.2
Silver	Strong Acid Extractable	ug/g	0.23	0.13	0.11	0.05
Strontium	Strong Acid Extractable	ug/g	39.2	33.3	38.8	0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.8	0.8	0.6	0.2
Titanium	Strong Acid Extractable	ug/g	536	432	514	0.02
Vanadium	Strong Acid Extractable	ug/g	46.4	53.0	43.5	0.05
Zinc	Strong Acid Extractable	ug/g	181	96.1	114	0.03
Zirconium	Strong Acid Extractable	ug/g	2.49	2.26	1.87	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	6.4	6.8	7.1	



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-19	325006-20	325006-21	Detection Limit
		Sample Description Matrix	Anvil A4 - A4 - T.2 Soil - general	Anvil A4 - A4 - T.3 Soil - general	Anvil A4 - A4 - T.4 Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.70	0.12	0.09	0.01
Aluminum	Strong Acid Extractable	ug/g	12900	10700	9300	0.4
Antimony	Strong Acid Extractable	ug/g	3.2	2.0	1.5	0.3
Arsenic	Strong Acid Extractable	ug/g	33.7	15.7	12.0	0.5
Barium	Strong Acid Extractable	ug/g	1720	779	269	0.01
Beryllium	Strong Acid Extractable	ug/g	0.56	0.48	0.38	0.03
Bismuth	Strong Acid Extractable	ug/g	1.5	0.8	0.7	0.4
Cadmium	Strong Acid Extractable	ug/g	0.33	0.66	0.74	0.03
Calcium	Strong Acid Extractable	ug/g	3020	4570	3560	10
Chromium	Strong Acid Extractable	ug/g	37.7	44.2	57.6	0.04
Cobalt	Strong Acid Extractable	ug/g	9.86	13.2	15.1	0.04
Copper	Strong Acid Extractable	ug/g	68.0	36.2	33.6	0.05
Iron	Strong Acid Extractable	ug/g	39400	28400	24200	0.2
Lead	Strong Acid Extractable	ug/g	755	168	171	0.1
Magnesium	Strong Acid Extractable	ug/g	5980	5870	5370	3
Manganese	Strong Acid Extractable	ug/g	330	2390	2410	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.46	1.58	1.81	0.05
Nickel	Strong Acid Extractable	ug/g	33.0	42.4	47.9	0.05
Phosphorus	Strong Acid Extractable	ug/g	870	814	621	2
Selenium	Strong Acid Extractable	ug/g	<0.2	<0.2	<0.2	0.2
Silicon	Strong Acid Extractable	ug/g	2390	2500	2300	0.2
Silver	Strong Acid Extractable	ug/g	1.12	0.29	0.25	0.05
Strontium	Strong Acid Extractable	ug/g	36.5	34.0	28.8	0.005
Thallium	Strong Acid Extractable	ug/g	0.3	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.5	0.7	0.3	0.2
Titanium	Strong Acid Extractable	ug/g	610	468	268	0.02
Vanadium	Strong Acid Extractable	ug/g	40.4	36.9	26.9	0.05
Zinc	Strong Acid Extractable	ug/g	258	245	272	0.03
Zirconium	Strong Acid Extractable	ug/g	2.82	1.65	2.46	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	4.4	7.3	7.6	



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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-22	325006-23	325006-24	Detection Limit
		Sample Description Matrix	Anvil A4 - A4 - T.5 Soil - general	Blind Creek - B1 Soil - general	Pelly u/s Blind - PB Soil - general	
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.44	0.04	0.09	0.01
Aluminum	Strong Acid Extractable	ug/g	10900	11900	8010	0.4
Antimony	Strong Acid Extractable	ug/g	3.1	0.9	1.3	0.3
Arsenic	Strong Acid Extractable	ug/g	39.2	10.6	12.3	0.5
Barium	Strong Acid Extractable	ug/g	1410	270	766	0.01
Beryllium	Strong Acid Extractable	ug/g	0.49	0.40	0.39	0.03
Bismuth	Strong Acid Extractable	ug/g	1.8	0.6	0.6	0.4
Cadmium	Strong Acid Extractable	ug/g	0.52	0.53	1.55	0.03
Calcium	Strong Acid Extractable	ug/g	3260	4640	17800	10
Chromium	Strong Acid Extractable	ug/g	33.2	24.0	21.4	0.04
Cobalt	Strong Acid Extractable	ug/g	12.2	8.01	7.04	0.04
Copper	Strong Acid Extractable	ug/g	60.0	16.6	23.6	0.05
Iron	Strong Acid Extractable	ug/g	38600	24800	23100	0.2
Lead	Strong Acid Extractable	ug/g	302	11.6	9.9	0.1
Magnesium	Strong Acid Extractable	ug/g	5440	4620	8880	3
Manganese	Strong Acid Extractable	ug/g	259	440	386	0.01
Molybdenum	Strong Acid Extractable	ug/g	1.62	0.80	1.89	0.05
Nickel	Strong Acid Extractable	ug/g	32.9	24.0	36.2	0.05
Phosphorus	Strong Acid Extractable	ug/g	876	763	1200	2
Selenium	Strong Acid Extractable	ug/g	0.4	0.7	0.6	0.2
Silicon	Strong Acid Extractable	ug/g	2590	2900	2560	0.2
Silver	Strong Acid Extractable	ug/g	0.94	<0.05	0.12	0.05
Strontium	Strong Acid Extractable	ug/g	33.7	31.8	71.2	0.005
Thallium	Strong Acid Extractable	ug/g	0.5	<0.2	<0.2	0.2
Tin	Strong Acid Extractable	ug/g	0.8	0.9	0.3	0.2
Titanium	Strong Acid Extractable	ug/g	535	473	160	0.02
Vanadium	Strong Acid Extractable	ug/g	35.9	34.2	49.4	0.05
Zinc	Strong Acid Extractable	ug/g	273	70.8	167	0.03
Zirconium	Strong Acid Extractable	ug/g	2.70	2.00	2.50	0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	4.9	7.7	8.1	



Analytical Report

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 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Analyte	Units	NWL Number	325006-25	325006-26	Results	Detection Limit
		Sample Description Matrix	Pelly u/s Anvil - P1 Soil - general	Pelly d/s Anvil - P1A Soil - general		
Metals Strong Acid Extractable						
Mercury	Strong Acid Extractable	ug/g	0.15	0.05		0.01
Aluminum	Strong Acid Extractable	ug/g	9460	6740		0.4
Antimony	Strong Acid Extractable	ug/g	1.6	1.2		0.3
Arsenic	Strong Acid Extractable	ug/g	16.6	11.3		0.5
Barium	Strong Acid Extractable	ug/g	824	614		0.01
Beryllium	Strong Acid Extractable	ug/g	0.48	0.33		0.03
Bismuth	Strong Acid Extractable	ug/g	0.9	<0.3		0.4
Cadmium	Strong Acid Extractable	ug/g	2.63	1.09		0.03
Calcium	Strong Acid Extractable	ug/g	18700	15700		10
Chromium	Strong Acid Extractable	ug/g	27.7	21.2		0.04
Cobalt	Strong Acid Extractable	ug/g	9.56	6.27		0.04
Copper	Strong Acid Extractable	ug/g	33.2	18.1		0.05
Iron	Strong Acid Extractable	ug/g	30200	21500		0.2
Lead	Strong Acid Extractable	ug/g	13.3	8.6		0.1
Magnesium	Strong Acid Extractable	ug/g	10200	8720		3
Manganese	Strong Acid Extractable	ug/g	628	328		0.01
Molybdenum	Strong Acid Extractable	ug/g	2.20	1.46		0.05
Nickel	Strong Acid Extractable	ug/g	51.2	33.7		0.05
Phosphorus	Strong Acid Extractable	ug/g	1230	1310		2
Selenium	Strong Acid Extractable	ug/g	0.7	0.4		0.2
Silicon	Strong Acid Extractable	ug/g	4030	1950		0.2
Silver	Strong Acid Extractable	ug/g	0.32	<0.05		0.05
Strontium	Strong Acid Extractable	ug/g	70.9	64.5		0.005
Thallium	Strong Acid Extractable	ug/g	<0.2	0.3		0.2
Tin	Strong Acid Extractable	ug/g	0.3	0.2		0.2
Titanium	Strong Acid Extractable	ug/g	177	175		0.02
Vanadium	Strong Acid Extractable	ug/g	57.6	44.9		0.05
Zinc	Strong Acid Extractable	ug/g	230	119		0.03
Zirconium	Strong Acid Extractable	ug/g	2.50	2.97		0.05
Soil Acidity						
pH	1:2 Soil:Water	pH	8.0	8.2		

Approved by:

Marie England
 Consulting Scientist



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
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 Phone: (604) 514-3322
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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
P.O.:
Acct. Code: (revision)

NWL Lot ID: 325006
Control Number: E 133788
Date Received: Aug 09, 2004
Date Reported: Aug 13, 2004
Report Number: 581266

Metals Strong Acid Extractable

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Mercury	ug/g	<0.00	0.00	0.00	0.00	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Aug 11, 2004					
Acquired By:	To Thone					

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Mercury	ug/g	0.06	0.06	9.99	0.03	✓
Aluminum	ug/g	9840	10200	30.0	1.2	✓
Antimony	ug/g	1.8	2.1	30.0	0.9	✓
Arsenic	ug/g	24.2	24.3	30.0	1.5	✓
Barium	ug/g	287	302	30.00	0.03	✓
Beryllium	ug/g	0.76	0.72	30.00	0.09	✓
Bismuth	ug/g	1.3	1.4	30.0	1.2	✓
Cadmium	ug/g	1.03	0.99	30.00	0.09	✓
Calcium	ug/g	7210	7510	30	30	✓
Chromium	ug/g	44.0	42.0	30.00	0.12	✓
Cobalt	ug/g	7.48	7.93	30.00	0.12	✓
Copper	ug/g	69.0	68.2	30.00	0.15	✓
Iron	ug/g	34400	33500	30.0	0.6	✓
Lead	ug/g	355	342	30.0	0.3	✓
Magnesium	ug/g	7610	7280	30	9	✓
Manganese	ug/g	640	626	30.00	0.03	✓
Molybdenum	ug/g	1.37	1.36	30.00	0.15	✓
Nickel	ug/g	45.0	43.8	30.00	0.15	✓
Phosphorus	ug/g	946	893	30	6	✓
Selenium	ug/g	0.4	0.8	30.0	0.6	✓
Silicon	ug/g	3020	3020	30.0	0.6	✓
Silver	ug/g	0.78	0.69	30.00	0.15	✓
Strontium	ug/g	44.8	42.1	30.000	0.015	✓
Sulphur	ug/g	265	292	30.0	1.2	✓
Thallium	ug/g	<0.2	<0.2	30.0	0.6	✓
Tin	ug/g	0.7	1.1	30.0	0.6	✓
Titanium	ug/g	581	585	30.00	0.06	✓
Vanadium	ug/g	51.6	49.0	30.00	0.15	✓
Zinc	ug/g	89.7	95.0	30.00	0.09	✓
Zirconium	ug/g	2.56	2.56	30.00	0.15	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 11, 2004					
Acquired By:	Fernando Maelalane					



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
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Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
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Project
ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
LSD:
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Acct. Code: (revision)

NWL Lot ID: 325006
 Control Number: E 133788
 Date Received: Aug 09, 2004
 Date Reported: Aug 13, 2004
 Report Number: 581266

Metals Strong Acid Extractable (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Mercury	ug/g	1.46	1.45	1.18	1.72	✓
Aluminum	ug/g	30100	23838	15648	32028	✓
Antimony	ug/g	1.5	3.1	0.2	6.0	✓
Arsenic	ug/g	14.7	16.7	14.5	18.9	✓
Barium	ug/g	352	415	352	478	✓
Beryllium	ug/g	0.71	0.77	0.65	0.89	✓
Bismuth	ug/g	1.1	1.0	0.3	1.6	✓
Cadmium	ug/g	0.36	0.39	0.33	0.44	✓
Calcium	ug/g	12600	14275	12190	16360	✓
Chromium	ug/g	69.9	68.0	51.1	84.9	✓
Cobalt	ug/g	11.0	11.5	10.2	12.8	✓
Copper	ug/g	30.9	33.7	28.6	38.8	✓
Iron	ug/g	32600	34279	25531	43027	✓
Lead	ug/g	11.4	12.9	10.8	15.0	✓
Magnesium	ug/g	12200	13112	10787	15437	✓
Manganese	ug/g	426	483	411	555	✓
Molybdenum	ug/g	1.05	1.37	0.81	1.93	✓
Nickel	ug/g	70.4	76.4	67.7	85.1	✓
Phosphorus	ug/g	476	595	433	757	✓
Selenium	ug/g	1.5	1.2	-0.7	3.2	✓
Silicon	ug/g	2680	1351	-983	3685	✓
Silver	ug/g	0.22	0.35	0.16	0.54	✓
Strontium	ug/g	100	105	94	116	✓
Sulphur	ug/g	805	907	777	1037	✓
Thallium	ug/g	<0.2	0.2	0.0	0.4	✓
Tin	ug/g	1.1	0.8	0.2	1.3	✓
Titanium	ug/g	440	265	91	439	✓
Vanadium	ug/g	68.0	63.9	50.2	77.6	✓
Zinc	ug/g	86.0	89.4	73.3	105.5	✓
Zirconium	ug/g	3.59	4.18	2.30	6.06	✓

Material Used: Metals Soils
 Date Acquired: Aug 11, 2004
 Acquired By: Jodi Johnston



Quality Control

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ID: Pelly AQ
Name: Pelly R - Aquatic
Location: Effects Jul / 04
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Acct. Code: (revision)

NWL Lot ID: 325006
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Soil Acidity

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.4	6.5	5.0	8.0	✓
Material Used:	Edmonton Method Blank					
Date Acquired:	Aug 12, 2004					
Acquired By:	Cristian Arce					
Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
pH	pH	7.0	6.9	0.3	0.3	✓
Material Used:	Edmonton Duplicate					
Date Acquired:	Aug 12, 2004					
Acquired By:	Cristian Arce					
Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
pH	pH	6.3	6.3	6.1	6.6	✓
Material Used:	2001 Farm Soil Standard					
Date Acquired:	Aug 12, 2004					
Acquired By:	Cristian Arce					



Methodology and Notes

Norwest Labs
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Page: 13 of 13

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury (Hot Block) in Soil	US EPA	* Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	12-Aug-04	Norwest Labs Edmonton
Metals Trace (BCMOE SALM) in soil	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	12-Aug-04	Norwest Labs Edmonton
Metals Trace (BCMOE SALM) in soil	APHA	* Inductively Coupled Plasma (ICP) Method, 3120 B	12-Aug-04	Norwest Labs Edmonton
pH and Conductivity in general soil 1:2	McKeague	1:2 Soil:Water Ratio, 4.12	12-Aug-04	Norwest Labs Edmonton

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
McKeague Manual on Soil Sampling and Methods of Analysis
US EPA US Environmental Protection Agency Test Methods

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



NORWEST LABS

Control Number E 67076

Environmental Sample Information Sheet

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

Billing Address: Company: [Redacted] LES Address: [Redacted] Box 21072 Whitehorse, YT Y1A 6P7	Report To: <input checked="" type="checkbox"/> A/QC Report <input checked="" type="checkbox"/>	Copy of Report To: Company: Selkirk First Nation Address: Box 40 Pelly Crossing Y0B 1P0	Copy of invoice: <input checked="" type="checkbox"/> Mail invoice to this address for approval <input checked="" type="checkbox"/>
Attention: Ken Nordin Phone: [Redacted] 867-668-6838 Fax: [Redacted] Cell: e-mail: Laberge@internorth.com	Report Result: Fax <input checked="" type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input checked="" type="checkbox"/>	Attention: Darin Isaac Phone: 867-537-3331 Fax: Cell: e-mail:	Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>

Information to be included on Report and Invoice Project ID: Pelly AQ Project Name: Pelly R. Aquatic Effects July/04 Project Location: Legal Location: PO#: Proj. Acct. Code: Agreement ID: 17654	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis Required on: all analyses <input type="checkbox"/> or as indicated <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled by: D. Laberge Date Aug 23/04 Company LES Signature _____ Relinquished by: D. Laberge Date Aug 23/04 Company LES Date Aug 23/04 Waybill number: 014-26733560 Received by: Donna Company NWT Date Sept 3/04 Processed by: Donna Norwest Labs 330674 Date Sept 4/04
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Special Instructions / Comments							Number of Containers	Enter tests above (✓ relevant samples below)											
Sample Identification	Location	Depth	Date / Time Sampled	Matrix	Sampling Method	↓													
1	Pelly u/s Anvil	PI	—	Aug 23/04	soil	comp	1												
2	Pelly D/S Anvil	PIA	—	Aug 23/04	soil	comp	1												
3			—																
4			—																
5			—																
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RECEIVED
SEP 03 2004

Number of Containers	5133																		
	↓																		

NWLABS (0-2000)



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By: D.Cornet
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Contact	Company	Address									
Ken Nordin Web x Email Notification x	Laberge Environmental Services	Box 21072, 1-405 Ogilvie Street Whitehorse, YT Y1A 6P7 Phone: (867) 668-1043 Email: laberge@internorth.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		1	Email - Multiple Reports	PDF	Fax: (867) 667-6956
Copies	Delivery Strategy	Format									
1	Post										
1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Due to instrument difficulties at NWL-Surrey, reported ICP results were obtained by NWL-Edmonton low-level ICP and ICP-MS analysis.

Due to instrument difficulties at NWL-Surrey, reported ICP results were obtained by NWL-Edmonton low-level ICP and ICP-MS analysis.

NWL-Edmonton ICP analysis does not include element Thorium; therefore reported results do not list "Th".

NWL-Edmonton ICP analysis does not include element Thorium; therefore reported results do not list "Th".

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
591744 Envir2QC 3 Smp & DL		



Report Transmission Cover Page

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Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **330674**
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

9/10/04 **591744** 10-Sep-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
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Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Sample Disposal Date: Oct 09, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
 Company: _____
 Address: _____

 Phone: _____
 Fax: _____
 Signature: _____

If no other arrangements have been made, samples will be disposed of on Oct 09, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
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 Phone: (604) 514-3322
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P.O.:
Acct. Code:

NWL Lot ID: 330674
 Control Number: E 67076
 Date Received: Sep 03, 2004
 Date Reported: Sep 09, 2004
 Report Number: 591744

Analyte	Units	Results		Detection Limit
		330674-1	330674-2	
Metals Strong Acid Extractable				
Aluminum	Strong Acid Extractable ug/g	4660	5920	1
Antimony	Strong Acid Extractable ug/g	<1	1.2	2
Arsenic	Strong Acid Extractable ug/g	7.3	8.9	4
Barium	Strong Acid Extractable ug/g	380	790	0.05
Beryllium	Strong Acid Extractable ug/g	0.261	0.350	0.05
Bismuth	Strong Acid Extractable ug/g	<1	<1	2
Cadmium	Strong Acid Extractable ug/g	0.79	1.00	0.05
Calcium	Strong Acid Extractable ug/g	11400	17600	1
Chromium	Strong Acid Extractable ug/g	16.0	21.9	0.1
Cobalt	Strong Acid Extractable ug/g	5.12	5.97	0.1
Copper	Strong Acid Extractable ug/g	12.9	15.5	0.1
Iron	Strong Acid Extractable ug/g	14400	16700	0.2
Lead	Strong Acid Extractable ug/g	5.99	7.32	1
Lithium	Strong Acid Extractable ug/g	6.42	7.72	0.6
Magnesium	Strong Acid Extractable ug/g	7380	9150	1
Manganese	Strong Acid Extractable ug/g	293	359	0.05
Molybdenum	Strong Acid Extractable ug/g	1	2	1
Nickel	Strong Acid Extractable ug/g	29.2	28.9	0.2
Phosphorus	Strong Acid Extractable ug/g	1180	1260	5
Potassium	Strong Acid Extractable ug/g	908	1120	100
Selenium	Strong Acid Extractable ug/g	<5	<5	10
Silver	Strong Acid Extractable ug/g	0.11	0.16	0.2
Sodium	Strong Acid Extractable ug/g	80.2	104	5
Strontium	Strong Acid Extractable ug/g	42.6	59.5	0.5
Tin	Strong Acid Extractable ug/g	<0.5	<0.5	1
Titanium	Strong Acid Extractable ug/g	70.6	101	0.4
Uranium	Strong Acid Extractable ug/g	<3	<3	6
Vanadium	Strong Acid Extractable ug/g	33.2	38.9	0.1
Zinc	Strong Acid Extractable ug/g	96.7	120	0.1
Zirconium	Strong Acid Extractable ug/g	2.4	3.12	0.5



Analytical Report

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Y1A 6P7
Attn: Ken Nordin
Sampled By: D.Cornet
Company: LES

Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Page: 2 of 6

Approved by:

Bill Warning, B.Sc.
Lab Operations Manager



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

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Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Metals Strong Acid Extractable

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	uq/g	1.3	0.00	-0.01	0.01	✓
Antimony	uq/g	<1	0.00	-0.02	0.02	✓
Arsenic	uq/g	<2	0.00	-0.04	0.04	✓
Barium	uq/g	0.14	0.0000	-0.0005	0.0005	✓
Beryllium	uq/g	<0.02	0.0000	-0.0005	0.0005	✓
Bismuth	uq/g	<1	0.00	-0.02	0.02	✓
Cadmium	uq/g	<0.02	0.00	0.00	0.00	✓
Calcium	uq/g	4.2	0.00	-0.01	0.01	✓
Chromium	uq/g	<0.050	0.000	-0.001	0.001	✓
Cobalt	uq/g	<0.05	0.000	-0.001	0.001	✓
Copper	uq/g	<0.05	0.000	-0.001	0.001	✓
Iron	uq/g	73.4	0.000	-0.002	0.002	✓
Lead	uq/g	<0.5	0.000	-0.010	0.010	✓
Lithium	uq/g	<0.3	0.000	-0.006	0.006	✓
Magnesium	uq/g	<0.5	0.00	-0.01	0.01	✓
Manganese	uq/g	0.15	0.0000	-0.0005	0.0005	✓
Molybdenum	uq/g	<0	0	0	0	✓
Nickel	uq/g	<0.1	0.000	-0.002	0.002	✓
Phosphorus	uq/g	3.9	0.00	-0.05	0.05	✓
Potassium	uq/g	<50	0.0	-1.0	1.0	✓
Selenium	uq/g	<5	0.00	-0.10	0.10	✓
Silicon	uq/g	<2	0.00	-0.05	0.05	✓
Silver	uq/g	<0.1	0.000	-0.002	0.002	✓
Sodium	uq/g	<2.5	0.00	-0.05	0.05	✓
Strontium	uq/g	<0.2	0.000	-0.005	0.005	✓
Sulphur	uq/g	<50	0.0	-1.0	1.0	✓
Thorium	uq/g	n	0.000	-0.005	0.005	✓
Tin	uq/g	<0.5	0.000	-0.010	0.010	✓
Titanium	uq/g	<0.2	0.000	-0.004	0.004	✓
Uranium	uq/g	<3	0.00	-0.06	0.06	✓
Vanadium	uq/g	<0.05	0.000	-0.001	0.001	✓
Zinc	uq/g	0.41	0.0000	-0.0010	0.0010	✓
Zirconium	uq/g	<0.2	0.000	-0.005	0.005	✓

Material Used: Metals Blank - solids
 Date Acquired: Sep 07, 2004
 Acquired By: Marie England



Quality Control

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 Y1A 6P7
 Attn: Ken Nordin
 Sampled By: D.Cornet
 Company: LES

Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Metals Strong Acid Extractable (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	ug/g	5920	6090	30.00	0.05	✓
Antimony	ug/g	1.2	1.2	30.00	0.10	✓
Arsenic	ug/g	8.9	8.7	30.00	0.20	✓
Barium	ug/g	790	762	30.0000	0.0025	✓
Beryllium	ug/g	0.350	0.340	30.0000	0.0025	✓
Bismuth	ug/g	<1	<1	30.00	0.10	✓
Cadmium	ug/g	1.00	0.96	30.00	0.00	✓
Calcium	ug/g	17500	15100	30.00	0.05	✓
Chromium	ug/g	21.9	18.3	30.0000	0.005	✓
Cobalt	ug/g	5.97	5.92	30.0000	0.005	✓
Copper	ug/g	15.5	14.5	30.0000	0.005	✓
Iron	ug/g	16700	16200	30.0000	0.010	✓
Lead	ug/g	7.32	7.64	30.0000	0.050	✓
Lithium	ug/g	7.71	8.49	30.0000	0.030	✓
Magnesium	ug/g	9150	8630	30.00	0.05	✓
Manganese	ug/g	359	318	30.0000	0.0025	✓
Molybdenum	ug/g	2	2	30	0	✓
Nickel	ug/g	28.9	29.2	30.0000	0.010	✓
Phosphorus	ug/g	1260	1140	30.00	0.25	✓
Potassium	ug/g	1120	1200	30.0	5.0	✓
Selenium	ug/g	<5	<5	30.00	0.50	✓
Silicon	ug/g	104	106	30.00	0.25	✓
Silver	ug/g	0.16	0.16	30.0000	0.010	✓
Sodium	ug/g	104	110	30.00	0.25	✓
Strontium	ug/g	59.5	53.8	30.0000	0.025	✓
Sulphur	ug/g	300	<500	30.0	5.0	✓
Thorium	ug/g	n	n	30.0000	0.025	✓
Tin	ug/g	<0.5	<0.5	30.0000	0.050	✓
Titanium	ug/g	101	107	30.0000	0.020	✓
Uranium	ug/g	<3	<3	30.00	0.30	✓
Vanadium	ug/g	38.9	41.4	30.0000	0.005	✓
Zinc	ug/g	119	118	30.0000	0.0050	✓
Zirconium	ug/g	3.12	3.39	30.0000	0.025	✓

Material Used: Metals Int. Duplicate - solids
 Date Acquired: Sep 07, 2004
 Acquired By: Marie Eneland



Quality Control

Norwest Labs
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Company: LES

Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 330674
Control Number: E 67076
Date Received: Sep 03, 2004
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Page: 5 of 6

Metals Strong Acid Extractable (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	ug/g	18500	17000	11000	23000	✓
Antimony	ug/g	14	19.0	15.0	23.0	✓
Arsenic	ug/g	96	96.0	77.0	115.0	✓
Barium	ug/g	218	196	157	235	✓
Beryllium	ug/g	1.1	0.980	0.620	1.340	✓
Cadmium	ug/g	39.2	39.5	31.6	47.4	✓
Calcium	ug/g	21700	21000	15990	26010	✓
Chromium	ug/g	23.1	21.5	16.0	27.0	✓
Cobalt	ug/g	8.26	8.50	7.00	10.00	✓
Copper	ug/g	103	108	86	130	✓
Iron	ug/g	24400	22000	16000	28000	✓
Lead	ug/g	971	1150	921	1379	✓
Magnesium	ug/g	8210	7595	6076	9114	✓
Manganese	ug/g	556	512	410	614	✓
Molybdenum	ug/g	<5	2	1	3	✓
Nickel	ug/g	18.2	16.0	9.0	23.0	✓
Phosphorus	ug/g	746	685	510	860	✓
Potassium	ug/g	4820	3950	2600	5300	✓
Silver	ug/g	4.2	4.00	3.19	4.81	✓
Sodium	ug/g	249	245	200	290	✓
Strontium	ug/g	42.0	41.0	33.0	49.0	✓
Sulphur	ug/g	360	429	203	655	✓
Tin	ug/g	<5	2.50	1.99	3.01	✓
Titanium	ug/g	406	297	238	356	✓
Vanadium	ug/g	51.1	43.5	32.0	55.0	✓
Zinc	ug/g	359	320	256	384	✓

Material Used: S0529 NIST 2711 - metals in soil
Date Acquired: Sep 07, 2004
Acquired By: Marie England



Methodology and Notes

Norwest Labs
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Attn: Ken Nordin
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Company: LES

Project
ID: Pelly AQ
Name: Pelly R. Aquatic
Location: Effects July / 04
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **330674**
Control Number: E 67076
Date Received: Sep 03, 2004
Date Reported: Sep 09, 2004
Report Number: 591744

Page: 6 of 6

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Metals SemiTrace (Strong Acid Leachable) in solids (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	7-Sep-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

References:

US EPA US Environmental Protection Agency Test Methods

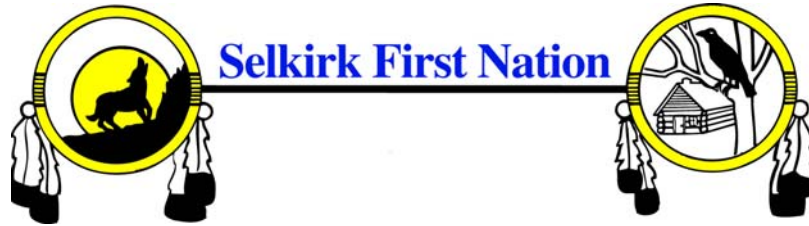
Comments:

Due to instrument difficulties at NWL-Surrey, reported ICP results were obtained by NWL-Edmonton low-level ICP and ICP-MS analysis.

NWL-Edmonton ICP analysis does not include element Thorium; therefore reported results do not list "Th".

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



PELLEY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 5

NORWEST LABS METALS IN BENTHIC INVERTEBRATES REPORT



Environmental Sample Information Sheet

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

Billing Address: Company: <i>Laberge Environmental Services</i> Address: <i>Box 21072 Whitehorse YT</i> Attention: <i>Bonnie Burns</i> Phone: <i>867-668-6838</i> Fax: Cell: e-mail: <i>laberge@internorth.com</i>		Copy of Report To: Company: Address: Report Result: Fax <input type="checkbox"/> Mail <input checked="" type="checkbox"/> Courier <input type="checkbox"/> e-mail <input checked="" type="checkbox"/>	Copy of invoice: <input type="checkbox"/> Mail invoice to this address for approval <input type="checkbox"/> Report Result: Fax <input type="checkbox"/> Mail <input type="checkbox"/> Courier <input type="checkbox"/> e-mail <input type="checkbox"/>
--	--	---	--

Information to be included on Report and Invoice Project ID: Project Name: <i>Pelly R AQ</i> Project Location: Legal Location: PO#: Proj. Acct. Code: Agreement ID:	RUSH Please contact the laboratory to confirm rush dates and times before submitting samples. Upon filling out this section, client accepts that surcharges will be attached to this analysis. Required on: all analyses or as indicated <input type="checkbox"/> or <input type="checkbox"/> Date Required: _____ Signature: _____ Norwest Authorization: _____	Sample Custody (Please Print) Sampled by: _____ Date _____ Company _____ Signature _____ Relinquished by: _____ Company _____ Date _____ Waybill number: Received by: <i>Donna</i> Company <i>341095</i> Date <i>Oct 21/04</i>
---	---	--

Special Instructions / Comments Check here if Norwest is required to report results directly to a regulatory body (Please include contact information)

- benthic invertebrate tissue samples.
Phone me if there are any samples that don't have enough biomass for analysis.

Sample Identification	Location	Depth IN CM M	Date / Time Sampled	Matrix	Sampling Method	Number of Containers														
						ICP	Scan	low	level											
1 <i>Needle rock</i>		-	<i>Aug 4</i>	<i>tissue</i>		✓														
2 <i>Farn R.</i>		-	<i>Aug 3</i>	<i>"</i>		✓														
3 <i>B1 (Blind Cr)</i>		-	<i>July 30</i>	<i>"</i>		✓														
4 <i>A1 (Anvil Cr)</i>		-	<i>July 31</i>	<i>"</i>		✓														
5 <i>A2 (Anvil Cr)</i>		-	<i>July 29</i>	<i>"</i>		✓														
6 <i>A3 (Anvil Cr)</i>		-	<i>July 29</i>	<i>"</i>		✓														
7 <i>A4 (Anvil Cr)</i>		-	<i>July 29</i>	<i>"</i>		✓														
8 <i>P1A (Pelly R)</i>		-		<i>"</i>		✓														
9 <i>P2 (Pelly R)</i>		-	<i>Aug 3</i>	<i>"</i>		✓														
10 <i>P3 (Pelly R)</i>		-	<i>Aug 3</i>	<i>"</i>		✓														
11 <i>P5 (Pelly R)</i>	<i>ms</i>	-	<i>Aug 4</i>	<i>"</i>		✓														
12 <i>PB</i>		-	<i>July 30</i>	<i>"</i>		✓														
13 <i>Pelly R</i>		-	<i>July 31</i>	<i>"</i>		✓														<i>* Combine samples</i>
14 <i>Pelly R @ Pelly Crossing *</i>		-	<i>Aug 4</i>	<i>"</i>		✓														<i>me</i>
15		-				✓														

NWLABS (08/01)



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
Control Number: E 133791
Date Received: Oct 20, 2004
Date Reported: Oct 26, 2004
Report Number: 614711

Contact	Company	Address												
Ken Nordin Web x Email Notification x	Laberge Environmental Services	Box 21072, 1-405 Ogilvie Street Whitehorse, YT Y1A 6P7 Phone: (867) 668-1043 Email: laberge@internorth.com												
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>Standard List</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		A 1	Email - Multiple Reports	PDF	A 1	Email - Multiple Reports	Standard List	Fax: (867) 667-6956
Copies	Delivery Strategy	Format												
1	Post													
A 1	Email - Multiple Reports	PDF												
A 1	Email - Multiple Reports	Standard List												

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:
Do to the matrix type and amount of sample. A representative sample for duplicates was difficult to achieve. Some of the duplicate values are outside the expected deviation.

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
614711 Envir2QC 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

10/26/04 614711 26-Oct-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project
ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
Control Number: E 133791
Date Received: Oct 20, 2004
Date Reported: Oct 26, 2004
Report Number: 614711

Sample Disposal Date: Nov 25, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Signature: _____

If no other arrangements have been made, samples will be disposed of on Nov 25, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Analyte	Units	NWL Number	341095-1	341095-2	341095-3	Detection Limit
		Sample Description	Sampled: 4-Aug-04 / Needle rock Tissue	Sampled: 3-Aug-04 / Earn R. Tissue	Sampled: 30-July-04 / B1 (Blind Cr.) Tissue	
Metals Total						
Aluminum	Total (wet weight)	ug/g	183	26.6	86.6	2.5
Antimony	Total (wet weight)	ug/g	0.02	<0.03	0.01	0.1
Arsenic	Total (wet weight)	ug/g	0.36	0.12	0.18	0.1
Barium	Total (wet weight)	ug/g	14.3	3.65	8.05	0.5
Beryllium	Total (wet weight)	ug/g	0.010	<0.02	<0.005	0.05
Bismuth	Total (wet weight)	ug/g	<0.02	<0.08	<0.02	0.3
Cadmium	Total (wet weight)	ug/g	0.0201	0.0643	0.173	0.005
Calcium	Total (wet weight)	ug/g	342	250	499	100
Chromium	Total (wet weight)	ug/g	0.78	0.21	0.21	0.3
Cobalt	Total (wet weight)	ug/g	0.174	0.061	0.082	0.05
Copper	Total (wet weight)	ug/g	1.05	2.53	2.98	0.5
Iron	Total (wet weight)	ug/g	518	113	167	5
Lead	Total (wet weight)	ug/g	0.666	0.960	1.02	0.05
Lithium	Total (wet weight)	ug/g	0.24	<0.2	0.13	0.5
Magnesium	Total (wet weight)	ug/g	137	<30	68	100
Manganese	Total (wet weight)	ug/g	191	15.3	34.2	2.5
Molybdenum	Total (wet weight)	ug/g	0.26	<0.2	<0.05	0.5
Nickel	Total (wet weight)	ug/g	0.58	0.27	0.26	0.3
Phosphorus	Total (wet weight)	ug/g	87	342	278	15
Potassium	Total (wet weight)	ug/g	40	<70	26	200
Selenium	Total (wet weight)	ug/g	0.07	0.14	0.16	0.1
Silicon	Total (wet weight)	ug/g	134	101	124	25
Silver	Total (wet weight)	ug/g	0.009	<0.02	0.019	0.05
Sodium	Total (wet weight)	ug/g	<10	<70	<20	200
Strontium	Total (wet weight)	ug/g	1.59	1.1	1.52	0.5
Tin	Total (wet weight)	ug/g	0.44	2.58	0.86	0.5
Titanium	Total (wet weight)	ug/g	11.1	0.78	3.10	0.3
Uranium	Total (wet weight)	ug/g	0.03	<0.08	0.06	0.3
Vanadium	Total (wet weight)	ug/g	0.674	0.219	0.324	0.05
Zinc	Total (wet weight)	ug/g	5.81	23.9	18.3	0.5
Zirconium	Total (wet weight)	ug/g	0.09	<0.2	0.07	0.5
Mercury	Total (wet weight)	ug/g	<0.003	<0.02	<0.005	0.01



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Analyte	Matrix	Units	NWL Number	341095-4	341095-5	341095-6	Detection Limit
			Sample Description	Sampled: 31-July-04 / A1 (Anvil Cr.) Tissue	Sampled: 29-July-04 / A2 (Anvil Cr.) Tissue	Sampled: 29-July-04 / A3 (Anvil Cr.) Tissue	
Metals Total							
Aluminum	Total (wet weight)	ug/g		60.8	86.1	92.1	2.5
Antimony	Total (wet weight)	ug/g		0.02	0.02	0.02	0.1
Arsenic	Total (wet weight)	ug/g		0.11	0.18	0.17	0.1
Barium	Total (wet weight)	ug/g		10.7	7.14	8.50	0.5
Beryllium	Total (wet weight)	ug/g		<0.009	<0.007	0.006	0.05
Bismuth	Total (wet weight)	ug/g		<0.04	<0.03	<0.02	0.3
Cadmium	Total (wet weight)	ug/g		0.0842	0.214	0.121	0.005
Calcium	Total (wet weight)	ug/g		424	558	642	100
Chromium	Total (wet weight)	ug/g		0.24	0.27	0.29	0.3
Cobalt	Total (wet weight)	ug/g		0.054	0.102	0.104	0.05
Copper	Total (wet weight)	ug/g		1.67	2.36	2.36	0.5
Iron	Total (wet weight)	ug/g		99.5	169	185	5
Lead	Total (wet weight)	ug/g		0.491	6.39	0.578	0.05
Lithium	Total (wet weight)	ug/g		0.10	0.13	0.14	0.5
Magnesium	Total (wet weight)	ug/g		47	62	106	100
Manganese	Total (wet weight)	ug/g		43.8	28.0	47.2	2.5
Molybdenum	Total (wet weight)	ug/g		<0.09	<0.07	0.08	0.5
Nickel	Total (wet weight)	ug/g		0.22	0.37	0.42	0.3
Phosphorus	Total (wet weight)	ug/g		174	182	372	15
Potassium	Total (wet weight)	ug/g		<40	<30	26	200
Selenium	Total (wet weight)	ug/g		0.12	0.11	0.18	0.1
Silicon	Total (wet weight)	ug/g		120	138	133	25
Silver	Total (wet weight)	ug/g		0.011	0.019	0.012	0.05
Sodium	Total (wet weight)	ug/g		<40	<30	<20	200
Strontium	Total (wet weight)	ug/g		1.21	1.53	1.58	0.5
Tin	Total (wet weight)	ug/g		1.39	1.53	0.75	0.5
Titanium	Total (wet weight)	ug/g		2.61	3.28	2.96	0.3
Uranium	Total (wet weight)	ug/g		<0.04	0.07	0.06	0.3
Vanadium	Total (wet weight)	ug/g		0.309	0.421	0.422	0.05
Zinc	Total (wet weight)	ug/g		35.1	48.9	44.8	0.5
Zirconium	Total (wet weight)	ug/g		<0.09	<0.07	0.05	0.5
Mercury	Total (wet weight)	ug/g		<0.009	<0.007	<0.004	0.01



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Analyte		Units	NWL Number	341095-7	341095-8	341095-9	Detection Limit
			Sample Description	Sampled: 29-July-04 / A4 (Anvil Cr.)	P1A (Pelly R)	Sampled: 3-Aug-04 / P2 (Pelly R)	
	Matrix		Tissue	Tissue	Tissue		
Metals Total							
Aluminum	Total (wet weight)	ug/g	33.9	25.2	97.9	2.5	
Antimony	Total (wet weight)	ug/g	0.03	<0.02	0.03	0.1	
Arsenic	Total (wet weight)	ug/g	0.10	0.07	0.18	0.1	
Barium	Total (wet weight)	ug/g	8.45	3.34	9.36	0.5	
Beryllium	Total (wet weight)	ug/g	<0.004	<0.008	<0.009	0.05	
Bismuth	Total (wet weight)	ug/g	<0.02	<0.04	<0.05	0.3	
Cadmium	Total (wet weight)	ug/g	0.150	0.574	0.161	0.005	
Calcium	Total (wet weight)	ug/g	616	261	332	100	
Chromium	Total (wet weight)	ug/g	0.15	0.14	0.30	0.3	
Cobalt	Total (wet weight)	ug/g	0.104	0.041	0.093	0.05	
Copper	Total (wet weight)	ug/g	2.17	6.97	1.48	0.5	
Iron	Total (wet weight)	ug/g	114	58.9	208	5	
Lead	Total (wet weight)	ug/g	0.491	0.085	0.404	0.05	
Lithium	Total (wet weight)	ug/g	0.06	<0.08	0.14	0.5	
Magnesium	Total (wet weight)	ug/g	70	68	86	100	
Manganese	Total (wet weight)	ug/g	65.1	5.9	10.7	2.5	
Molybdenum	Total (wet weight)	ug/g	0.06	<0.08	<0.09	0.5	
Nickel	Total (wet weight)	ug/g	0.27	0.25	0.62	0.3	
Phosphorus	Total (wet weight)	ug/g	326	318	123	15	
Potassium	Total (wet weight)	ug/g	<20	<30	<40	200	
Selenium	Total (wet weight)	ug/g	0.16	0.67	0.11	0.1	
Silicon	Total (wet weight)	ug/g	79	51	161	25	
Silver	Total (wet weight)	ug/g	0.011	0.048	0.011	0.05	
Sodium	Total (wet weight)	ug/g	<20	<30	<40	200	
Strontium	Total (wet weight)	ug/g	1.62	0.94	1.20	0.5	
Tin	Total (wet weight)	ug/g	0.70	1.32	1.45	0.5	
Titanium	Total (wet weight)	ug/g	1.26	0.68	3.59	0.3	
Uranium	Total (wet weight)	ug/g	0.06	<0.04	<0.05	0.3	
Vanadium	Total (wet weight)	ug/g	0.168	0.222	0.617	0.05	
Zinc	Total (wet weight)	ug/g	63.6	45.7	18.3	0.5	
Zirconium	Total (wet weight)	ug/g	<0.04	<0.08	0.10	0.5	
Mercury	Total (wet weight)	ug/g	<0.004	0.008	<0.009	0.01	



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Analyte	Units	NWL Number	341095-10	341095-12	341095-13	Detection Limit
		Sample Description	Sampled: 3-Aug-04 / P3 (Pelly R) Tissue	Sampled: 30-July-04 / PB Tissue	Sampled: 31-July-04 / Pelly R Tissue	
Metals Total						
Aluminum	Total (wet weight)	ug/g	58.7	225	45.5	2.5
Antimony	Total (wet weight)	ug/g	<0.02	0.09	0.02	0.1
Arsenic	Total (wet weight)	ug/g	0.09	0.38	0.09	0.1
Barium	Total (wet weight)	ug/g	8.93	21.6	5.72	0.5
Beryllium	Total (wet weight)	ug/g	<0.01	<0.02	<0.008	0.05
Bismuth	Total (wet weight)	ug/g	<0.06	<0.08	<0.04	0.3
Cadmium	Total (wet weight)	ug/g	0.216	0.256	0.236	0.005
Calcium	Total (wet weight)	ug/g	180	847	210	100
Chromium	Total (wet weight)	ug/g	0.24	0.65	0.17	0.3
Cobalt	Total (wet weight)	ug/g	0.061	0.226	0.066	0.05
Copper	Total (wet weight)	ug/g	0.84	3.94	1.29	0.5
Iron	Total (wet weight)	ug/g	119	587	109	5
Lead	Total (wet weight)	ug/g	0.315	4.30	1.02	0.05
Lithium	Total (wet weight)	ug/g	<0.1	0.33	<0.08	0.5
Magnesium	Total (wet weight)	ug/g	46	210	50	100
Manganese	Total (wet weight)	ug/g	17.7	32.2	7.6	2.5
Molybdenum	Total (wet weight)	ug/g	<0.1	<0.2	<0.08	0.5
Nickel	Total (wet weight)	ug/g	0.33	1.54	0.45	0.3
Phosphorus	Total (wet weight)	ug/g	110	393	113	15
Potassium	Total (wet weight)	ug/g	<50	64	<30	200
Selenium	Total (wet weight)	ug/g	0.06	0.26	0.22	0.1
Silicon	Total (wet weight)	ug/g	120	301	90	25
Silver	Total (wet weight)	ug/g	<0.01	0.028	0.011	0.05
Sodium	Total (wet weight)	ug/g	<50	<60	<30	200
Strontium	Total (wet weight)	ug/g	0.72	3.71	0.83	0.5
Tin	Total (wet weight)	ug/g	1.99	2.21	1.29	0.5
Titanium	Total (wet weight)	ug/g	1.64	6.33	1.40	0.3
Uranium	Total (wet weight)	ug/g	<0.06	0.09	<0.04	0.3
Vanadium	Total (wet weight)	ug/g	0.367	1.32	0.308	0.05
Zinc	Total (wet weight)	ug/g	14.5	46.3	19.6	0.5
Zirconium	Total (wet weight)	ug/g	<0.1	<0.2	<0.08	0.5
Mercury	Total (wet weight)	ug/g	<0.01	<0.02	<0.008	0.01



Analytical Report

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 Box 21072
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 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

NWL Number 341095-15
 Sample Description Sampled: 4-Aug-04 /
 P5 (Pelly R) & Pelly R
 @ Pelly Crossing
 (Combined)
 Matrix Tissue

Analyte	Units	Results	Results	Results	Detection Limit
Metals Total					
Aluminum	Total (wet weight)	ug/g	220		2.5
Antimony	Total (wet weight)	ug/g	<0.2		0.1
Arsenic	Total (wet weight)	ug/g	0.39		0.1
Barium	Total (wet weight)	ug/g	17.9		0.5
Beryllium	Total (wet weight)	ug/g	<0.1		0.05
Bismuth	Total (wet weight)	ug/g	<0.5		0.3
Cadmium	Total (wet weight)	ug/g	0.926		0.005
Calcium	Total (wet weight)	ug/g	350		100
Chromium	Total (wet weight)	ug/g	1.2		0.3
Cobalt	Total (wet weight)	ug/g	0.20		0.05
Copper	Total (wet weight)	ug/g	6.0		0.5
Iron	Total (wet weight)	ug/g	485		5
Lead	Total (wet weight)	ug/g	24.3		0.05
Lithium	Total (wet weight)	ug/g	<1		0.5
Magnesium	Total (wet weight)	ug/g	<200		100
Manganese	Total (wet weight)	ug/g	31		2.5
Molybdenum	Total (wet weight)	ug/g	<1		0.5
Nickel	Total (wet weight)	ug/g	1.1		0.3
Phosphorus	Total (wet weight)	ug/g	638		15
Potassium	Total (wet weight)	ug/g	<400		200
Selenium	Total (wet weight)	ug/g	0.57		0.1
Silicon	Total (wet weight)	ug/g	420		25
Silver	Total (wet weight)	ug/g	<0.1		0.05
Sodium	Total (wet weight)	ug/g	<400		200
Strontium	Total (wet weight)	ug/g	2.6		0.5
Tin	Total (wet weight)	ug/g	15.1		0.5
Titanium	Total (wet weight)	ug/g	6.58		0.3
Uranium	Total (wet weight)	ug/g	<0.5		0.3
Vanadium	Total (wet weight)	ug/g	1.34		0.05
Zinc	Total (wet weight)	ug/g	112		0.5
Zirconium	Total (wet weight)	ug/g	<1		0.5
Mercury	Total (wet weight)	ug/g	<0.1		0.01



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project
ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
Control Number: E 133791
Date Received: Oct 20, 2004
Date Reported: Oct 26, 2004
Report Number: 614711

Page: 6 of 10

Approved by:

Bill Warning, B.Sc.
Lab Operations Manager



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

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Report to: Laberge Environmental Services
 Box 21072
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NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Metals Total

Blanks	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	uq/g	<0.5	0.0	0.0	0.0	✓
Antimony	uq/g	<0.02	0.00	-0.02	0.02	✓
Arsenic	uq/g	<0.02	0.00	-0.04	0.04	✓
Barium	uq/g	<0.1	0.00	0.00	0.00	✓
Beryllium	uq/g	<0.01	0.000	-0.001	0.001	✓
Bismuth	uq/g	<0.05	0.00	-0.02	0.02	✓
Cadmium	uq/g	<0.001	0.0000	-0.0005	0.0005	✓
Calcium	uq/g	<20	0	0	0	✓
Chromium	uq/g	0.06	0.00	0.00	0.00	✓
Cobalt	uq/g	<0.01	0.000	-0.001	0.001	✓
Copper	uq/g	<0.1	0.00	0.00	0.00	✓
Iron	uq/g	<1	0.0	0.0	0.0	✓
Lead	uq/g	<0.01	0.000	-0.010	0.010	✓
Lithium	uq/g	<0.1	0.00	-0.01	0.01	✓
Magnesium	uq/g	<20	0	0	0	✓
Manganese	uq/g	<0.5	0.0	0.0	0.0	✓
Molybdenum	uq/g	<0.1	0.00	-0.01	0.01	✓
Nickel	uq/g	<0.05	0.00	0.00	0.00	✓
Phosphorus	uq/g	9	0	0	0	✓
Potassium	uq/g	<40	0	-1	1	✓
Selenium	uq/g	<0.02	0.00	-0.10	0.10	✓
Silicon	uq/g	<5	0	0	0	✓
Silver	uq/g	<0.01	0.000	-0.002	0.002	✓
Sodium	uq/g	<40	0	0	0	✓
Strontium	uq/g	<0.1	0.00	-0.01	0.01	✓
Sulfur	uq/g	<5	0	-1	1	✓
Tin	uq/g	1.62	0.00	-0.01	0.01	✓
Titanium	uq/g	<0.05	0.00	0.00	0.00	✓
Uranium	uq/g	<0.05	0.00	-0.06	0.06	✓
Vanadium	uq/g	0.026	0.000	-0.001	0.001	✓
Zinc	uq/g	0.88	0.00	0.00	0.00	✓
Zirconium	uq/g	<0.1	0.00	-0.01	0.01	✓
Mercury	uq/g	<0.01	0.000	-0.099	0.099	✓

Material Used: Metals Blank - solids
 Date Acquired: Oct 25, 2004
 Acquired By: Kelly Restiaux



Quality Control

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
 Box 21072
 1-405 Ogilvie Street
 Whitehorse, YT, Canada
 Y1A 6P7
 Attn: Ken Nordin
 Sampled By:
 Company:

Project
ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
 Control Number: E 133791
 Date Received: Oct 20, 2004
 Date Reported: Oct 26, 2004
 Report Number: 614711

Metals Total (Continued...)

Replicates	Units	Replicate1	Replicate2	% RSD Criteria	Absolute Criteria	Passed QC
Aluminum	ug/g	1.0	60.7	30.0	0.1	✓
Antimony	ug/g	0.01	<0.01	30.00	0.10	✓
Arsenic	ug/g	2.46	0.17	30.00	0.20	✓
Barium	ug/g	<0.05	8.14	30.00	0.00	✓
Beryllium	ug/g	<0.005	<0.006	30.000	0.003	✓
Bismuth	ug/g	<0.02	<0.03	30.00	0.20	✓
Cadmium	ug/g	0.170	3.29	30.0000	0.0025	✓
Calcium	ug/g	324	142	30	0	✓
Chromium	ug/g	0.20	0.16	30.00	0.01	✓
Cobalt	ug/g	0.033	0.076	30.000	0.005	✓
Copper	ug/g	2.96	5.63	30.00	0.01	✓
Iron	ug/g	173	15.9	30.0	0.0	✓
Lead	ug/g	0.040	1.20	30.000	0.050	✓
Lithium	ug/g	0.13	<0.05	30.00	0.03	✓
Magnesium	ug/g	340	57	30	0	✓
Manganese	ug/g	34.3	4.2	30.0	0.0	✓
Molybdenum	ug/g	<0.05	0.07	30.00	0.05	✓
Nickel	ug/g	0.05	0.25	30.00	0.01	✓
Phosphorus	ug/g	269	1710	30	0	✓
Potassium	ug/g	2770	<20	30	5	✓
Selenium	ug/g	0.17	0.80	30.00	0.50	✓
Silicon	ug/g	6	105	30	0	✓
Silver	ug/g	0.019	0.226	30.000	0.020	✓
Sodium	ug/g	1470	<20	30	0	✓
Strontium	ug/g	1.57	1.41	30.00	0.03	✓
Sulfur	ug/g	3280	421	30	5	✓
Tin	ug/g	0.85	1.02	30.00	0.05	✓
Titanium	ug/g	0.22	2.18	30.00	0.02	✓
Uranium	ug/g	0.05	<0.02	30.00	0.30	✓
Vanadium	ug/g	0.154	0.258	30.000	0.005	✓
Zinc	ug/g	130	21.7	30.00	0.01	✓
Zirconium	ug/g	0.08	<0.05	30.00	0.03	✓
Mercury	ug/g	<0.005	<0.006	30.000	0.050	✓

Material Used: Metals Int. Duplicate - solids
 Date Acquired: Oct 25, 2004
 Acquired By: Kelly Restiaux



Quality Control

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: Laberge Environmental Services
Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project
ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
Control Number: E 133791
Date Received: Oct 20, 2004
Date Reported: Oct 26, 2004
Report Number: 614711

Page: 9 of 10

Metals Total (Continued...)

Control Sample	Units	Measured	Mean	Lower Limit	Upper Limit	Passed QC
Aluminum	µg/g	43.4	197	168	227	✓
Arsenic	µg/g	9.24	7.65	6.50	8.80	✓
Cadmium	µg/g	2.48	2.48	2.11	2.85	✓
Calcium	µg/g	773	838	712	964	✓
Cobalt	µg/g	0.329	0.371	0.315	0.427	✓
Copper	µg/g	61.3	71.6	60.9	82.3	✓
Iron	µg/g	180	206	175	237	✓
Lead	µg/g	0.303	0.308	0.262	0.354	✓
Magnesium	µg/g	1110	1085	923	1247	✓
Manganese	µg/g	18.0	18.5	15.7	21.3	✓
Nickel	µg/g	0.90	1.04	0.88	1.20	✓
Potassium	µg/g	6100	6520	5542	7498	✓
Selenium	µg/g	2.88	2.06	1.75	2.37	✓
Silver	µg/g	0.622	0.666	0.567	0.765	✓
Sodium	µg/g	3020	3297	2802	3792	✓
Sulfur	µg/g	6050	6887	5855	7919	✓
Vanadium	µg/g	0.698	0.577	0.490	0.664	✓
Zinc	µg/g	1390	1424	1210	1638	✓
Mercury	µg/g	0.052	0.037	0.031	0.043	✓

Material Used: S0139 NIST 1566b - metals in oyster
Date Acquired: Oct 25, 2004
Acquired By: Kelly Restiaux



Methodology and Notes

Norwest Labs
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Surrey, BC. V3S 8P8
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Fax: (604) 514-3323

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Report to: Laberge Environmental Services
Box 21072
1-405 Ogilvie Street
Whitehorse, YT, Canada
Y1A 6P7
Attn: Ken Nordin
Sampled By:
Company:

Project ID:
Name: Pelly R AQ
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 341095
Control Number: E 133791
Date Received: Oct 20, 2004
Date Reported: Oct 26, 2004
Report Number: 614711

Page: 10 of 10

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury in Tissue (Surrey)	APHA	* Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	25-Oct-04	Norwest Labs Surrey
Metals SemiTrace (Total) in tissue (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	22-Oct-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

References:

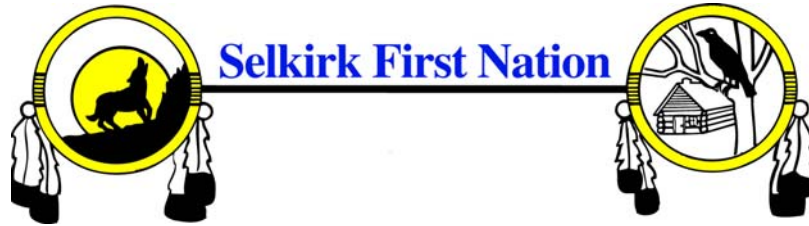
APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Comments:

Do to the matrix type and amount of sample. A representative sample for duplicates was difficult to acheive. Some of the duplicate values are outside the expected deviation.

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



PELLEY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 6

NORWEST LABS METALS IN FISH TISSUE REPORTS

A2	1 mid size fish	packaged together	
A3	2 tiny fish		1 set

A4 special		packaged alone	2 set
------------	--	----------------	-------

SFN-pelly AQ anvil Cr A-1		packaged together	
A2			3 set
A3	several small fish		
A4			

Pelly AQ A3-AG5 ✓		packaged together	4 set
Pelly AQ A2-A61 ✓			
Pelly AQ A3-AG1 AG4			
Pelly AQ A3-AG6 ✓			
Pelly AQ A2-AG2 ✓			



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336665
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603339

Contact	Company	Address									
Paul Sparling Web Email Notification	White Mountain Environmental Consulting	PO Box 10140 Whitehorse, YT Y1A 7A1 Phone: (867) 393-4189 Email: fish@polarcom.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		A 1	Email - Multiple Reports	PDF	Fax:
Copies	Delivery Strategy	Format									
1	Post										
A 1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
603339 Envir2 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

10/8/04 603339 08-Oct-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336665
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603339

Sample Disposal Date: Nov 13, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Signature: _____

If no other arrangements have been made, samples will be disposed of on Nov 13, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental
 Consulting
Report to: White Mountain Environmental
 Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336665
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603339

Analyte	Units	NWL Number	336665-1	336665-2	336665-3	Detection Limit
		Sample Description	Pelly AQ - A3 - AG5	Pelly AQ - A2 - A6 1	Pelly AQ - A3 - AG 4	
		Matrix	Tissue	Tissue	Tissue	
Metals Total						
Aluminum	Total (wet weight)	ug/g	15	<2	<2	2.5
Antimony	Total (wet weight)	ug/g	<0.1	<0.1	<0.1	0.1
Arsenic	Total (wet weight)	ug/g	0.10	<0.1	<0.1	0.1
Barium	Total (wet weight)	ug/g	<0.5	<0.5	<0.5	0.5
Beryllium	Total (wet weight)	ug/g	<0.05	<0.05	<0.05	0.05
Bismuth	Total (wet weight)	ug/g	<0.2	0.36	<0.2	0.3
Cadmium	Total (wet weight)	ug/g	0.035	0.0060	<0.005	0.005
Calcium	Total (wet weight)	ug/g	130	<100	150	100
Chromium	Total (wet weight)	ug/g	<0.2	<0.2	<0.2	0.3
Cobalt	Total (wet weight)	ug/g	<0.05	<0.05	<0.05	0.05
Copper	Total (wet weight)	ug/g	0.87	0.66	0.69	0.5
Iron	Total (wet weight)	ug/g	12	8.4	9.3	5
Lead	Total (wet weight)	ug/g	0.17	<0.05	0.060	0.05
Lithium	Total (wet weight)	ug/g	<0.5	<0.5	<0.5	0.5
Magnesium	Total (wet weight)	ug/g	150	140	150	100
Manganese	Total (wet weight)	ug/g	3.0	<2	<2	2.5
Molybdenum	Total (wet weight)	ug/g	<0.5	<0.5	<0.5	0.5
Nickel	Total (wet weight)	ug/g	<0.2	<0.2	<0.2	0.3
Phosphorus	Total (wet weight)	ug/g	2010	1840	2000	15
Potassium	Total (wet weight)	ug/g	3770	3610	3470	200
Selenium	Total (wet weight)	ug/g	1.28	1.15	0.87	0.1
Silicon	Total (wet weight)	ug/g	<20	<20	<20	25
Silver	Total (wet weight)	ug/g	<0.05	<0.05	<0.05	0.05
Sodium	Total (wet weight)	ug/g	800	990	700	200
Strontium	Total (wet weight)	ug/g	<0.5	<0.5	<0.5	0.5
Tin	Total (wet weight)	ug/g	0.92	0.87	0.84	0.5
Titanium	Total (wet weight)	ug/g	0.34	0.26	0.31	0.3
Uranium	Total (wet weight)	ug/g	<0.2	<0.2	<0.2	0.3
Vanadium	Total (wet weight)	ug/g	0.072	0.054	<0.05	0.05
Zinc	Total (wet weight)	ug/g	8.68	7.40	7.23	0.5
Zirconium	Total (wet weight)	ug/g	<0.5	<0.5	<0.5	0.5
Mercury	Total (wet weight)	ug/g	0.045	0.073	0.099	0.01
Physical and Aggregate Properties						
Moisture	Wet Weight	%	78.3	80.2	78.8	0.1



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental
 Consulting
Report to: White Mountain Environmental
 Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336665
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603339

Analyte	Units	NWL Number		Results	Results	Detection Limit
		Sample Description	Matrix			
		336665-4	336665-5			
		Pelly AQ - A3 - AG 6	Pelly AQ - A2 - AG 2			
		Tissue	Tissue			
Metals Total						
Aluminum	Total (wet weight)	ug/g	<2	<2	2.5	
Antimony	Total (wet weight)	ug/g	<0.1	<0.1	0.1	
Arsenic	Total (wet weight)	ug/g	<0.1	<0.1	0.1	
Barium	Total (wet weight)	ug/g	<0.5	<0.5	0.5	
Beryllium	Total (wet weight)	ug/g	<0.05	<0.05	0.05	
Bismuth	Total (wet weight)	ug/g	<0.2	<0.2	0.3	
Cadmium	Total (wet weight)	ug/g	0.017	<0.005	0.005	
Calcium	Total (wet weight)	ug/g	210	400	100	
Chromium	Total (wet weight)	ug/g	<0.2	<0.2	0.3	
Cobalt	Total (wet weight)	ug/g	<0.05	<0.05	0.05	
Copper	Total (wet weight)	ug/g	0.97	0.64	0.5	
Iron	Total (wet weight)	ug/g	10	9.2	5	
Lead	Total (wet weight)	ug/g	<0.05	<0.05	0.05	
Lithium	Total (wet weight)	ug/g	<0.5	<0.5	0.5	
Magnesium	Total (wet weight)	ug/g	160	150	100	
Manganese	Total (wet weight)	ug/g	3.0	<2	2.5	
Molybdenum	Total (wet weight)	ug/g	<0.5	<0.5	0.5	
Nickel	Total (wet weight)	ug/g	<0.2	<0.2	0.3	
Phosphorus	Total (wet weight)	ug/g	2070	2130	15	
Potassium	Total (wet weight)	ug/g	3700	3460	200	
Selenium	Total (wet weight)	ug/g	1.17	1.21	0.1	
Silicon	Total (wet weight)	ug/g	<20	<20	25	
Silver	Total (wet weight)	ug/g	<0.05	<0.05	0.05	
Sodium	Total (wet weight)	ug/g	860	890	200	
Strontium	Total (wet weight)	ug/g	<0.5	<0.5	0.5	
Tin	Total (wet weight)	ug/g	0.92	0.92	0.5	
Titanium	Total (wet weight)	ug/g	0.31	0.35	0.3	
Uranium	Total (wet weight)	ug/g	<0.2	<0.2	0.3	
Vanadium	Total (wet weight)	ug/g	<0.05	<0.05	0.05	
Zinc	Total (wet weight)	ug/g	8.99	7.55	0.5	
Zirconium	Total (wet weight)	ug/g	<0.5	<0.5	0.5	
Mercury	Total (wet weight)	ug/g	0.065	0.045	0.01	
Physical and Aggregate Properties						
Moisture	Wet Weight	%	77.8	78.4	0.1	



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
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Bill to: White Mountain Environmental
Consulting
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PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
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Acct. Code:

NWL Lot ID: 336665
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Page: 3 of 4

Approved by:

Marie England
Consulting Scientist



Methodology and Notes

Norwest Labs
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Surrey, BC. V3S 8P8
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Page: 4 of 4

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury in Tissue (Surrey)	APHA	* Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	6-Oct-04	Norwest Labs Surrey
Metals SemiTrace (Total) in tissue (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	6-Oct-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory

LOT# 336673.

A2	1 mid size fish	packaged together	1 set
A3	2 tiny fish		
A4 special		packaged alone	2 set
SFN-pelly AQ anvil Cr A-1		packaged together	3 set
A2			
A3	several small fish		
A4			
Pelly AQ A3-AG5		packaged together	4 set
Pelly AQ A2-A61			
Pelly AQ A3-AG1			
Pelly AQ A3-AG6			
Pelly AQ A2-AG2			



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336673
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603347

Contact	Company	Address									
Paul Sparling Web Email Notification	White Mountain Environmental Consulting	PO Box 10140 Whitehorse, YT Y1A 7A1 Phone: (867) 393-4189 Email: fish@polarcom.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		A 1	Email - Multiple Reports	PDF	Fax:
Copies	Delivery Strategy	Format									
1	Post										
A 1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
603347 Envir2 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

10/8/04 **603347** 08-Oct-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336673
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603347

Sample Disposal Date: Nov 13, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Signature: _____

If no other arrangements have been made, samples will be disposed of on Nov 13, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336673
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603347

Analyte		Units	NWL Number	336673-1	336673-2	336673-3	Detection Limit
			Sample Description	A1 / SFN - Pelly AQ Anvil Cr A-1	A2	A3	
	Matrix		Tissue	Tissue	Tissue		
Metals Total							
Aluminum	Total (wet weight)	ug/g		17	14	15	2.5
Antimony	Total (wet weight)	ug/g		<0.1	<0.1	<0.1	0.1
Arsenic	Total (wet weight)	ug/g		0.12	0.17	0.18	0.1
Barium	Total (wet weight)	ug/g		3.4	3.8	4.2	0.5
Beryllium	Total (wet weight)	ug/g		<0.05	<0.05	<0.05	0.05
Bismuth	Total (wet weight)	ug/g		<0.2	<0.2	<0.2	0.3
Cadmium	Total (wet weight)	ug/g		0.199	0.0795	0.048	0.005
Calcium	Total (wet weight)	ug/g	10100		12600	11800	100
Chromium	Total (wet weight)	ug/g		<0.2	0.32	<0.2	0.3
Cobalt	Total (wet weight)	ug/g		<0.05	<0.05	<0.05	0.05
Copper	Total (wet weight)	ug/g		1.2	1.1	1.1	0.5
Iron	Total (wet weight)	ug/g		31	24	41	5
Lead	Total (wet weight)	ug/g		0.35	0.16	0.17	0.05
Lithium	Total (wet weight)	ug/g		<0.5	<0.5	<0.5	0.5
Magnesium	Total (wet weight)	ug/g		270	330	290	100
Manganese	Total (wet weight)	ug/g		11	26.4	21	2.5
Molybdenum	Total (wet weight)	ug/g		<0.5	<0.5	<0.5	0.5
Nickel	Total (wet weight)	ug/g		<0.2	<0.2	<0.2	0.3
Phosphorus	Total (wet weight)	ug/g		6620	7990	7480	15
Potassium	Total (wet weight)	ug/g		2700	2730	2670	200
Selenium	Total (wet weight)	ug/g		1.45	1.18	1.05	0.1
Silicon	Total (wet weight)	ug/g		35	28	31	25
Silver	Total (wet weight)	ug/g		<0.05	<0.05	<0.05	0.05
Sodium	Total (wet weight)	ug/g		1000	1200	1100	200
Strontium	Total (wet weight)	ug/g		11.0	12.6	12.7	0.5
Tin	Total (wet weight)	ug/g		0.85	0.89	0.84	0.5
Titanium	Total (wet weight)	ug/g		1.4	0.87	0.95	0.3
Uranium	Total (wet weight)	ug/g		<0.2	<0.2	<0.2	0.3
Vanadium	Total (wet weight)	ug/g		0.21	0.17	0.22	0.05
Zinc	Total (wet weight)	ug/g		48.6	48.1	47.2	0.5
Zirconium	Total (wet weight)	ug/g		<0.5	<0.5	<0.5	0.5
Mercury	Total (wet weight)	ug/g		0.032	0.025	0.027	0.01
Physical and Aggregate Properties							
Moisture	Wet Weight	%		77.8	76.0	76.2	0.1



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental
 Consulting
Report to: White Mountain Environmental
 Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336673
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603347

NWL Number 336673-4
 Sample Description A4
 Matrix Tissue

Analyte	Units	Results	Results	Detection Limit
Metals Total				
Aluminum	Total (wet weight) ug/g	3.7		2.5
Antimony	Total (wet weight) ug/g	<0.1		0.1
Arsenic	Total (wet weight) ug/g	0.14		0.1
Barium	Total (wet weight) ug/g	3.0		0.5
Beryllium	Total (wet weight) ug/g	<0.05		0.05
Bismuth	Total (wet weight) ug/g	<0.2		0.3
Cadmium	Total (wet weight) ug/g	0.045		0.005
Calcium	Total (wet weight) ug/g	10500		100
Chromium	Total (wet weight) ug/g	<0.2		0.3
Cobalt	Total (wet weight) ug/g	<0.05		0.05
Copper	Total (wet weight) ug/g	0.92		0.5
Iron	Total (wet weight) ug/g	20		5
Lead	Total (wet weight) ug/g	0.16		0.05
Lithium	Total (wet weight) ug/g	<0.5		0.5
Magnesium	Total (wet weight) ug/g	260		100
Manganese	Total (wet weight) ug/g	36.6		2.5
Molybdenum	Total (wet weight) ug/g	<0.5		0.5
Nickel	Total (wet weight) ug/g	<0.2		0.3
Phosphorus	Total (wet weight) ug/g	6680		15
Potassium	Total (wet weight) ug/g	2780		200
Selenium	Total (wet weight) ug/g	1.21		0.1
Silicon	Total (wet weight) ug/g	<20		25
Silver	Total (wet weight) ug/g	<0.05		0.05
Sodium	Total (wet weight) ug/g	1100		200
Strontium	Total (wet weight) ug/g	10.6		0.5
Tin	Total (wet weight) ug/g	0.88		0.5
Titanium	Total (wet weight) ug/g	0.62		0.3
Uranium	Total (wet weight) ug/g	<0.2		0.3
Vanadium	Total (wet weight) ug/g	0.15		0.05
Zinc	Total (wet weight) ug/g	47.5		0.5
Zirconium	Total (wet weight) ug/g	<0.5		0.5
Mercury	Total (wet weight) ug/g	0.020		0.01
Physical and Aggregate Properties				
Moisture	Wet Weight %	77.7		0.1



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental
Consulting
Report to: White Mountain Environmental
Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336673
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603347

Page: 3 of 4

Approved by:

Marie England
Consulting Scientist



Methodology and Notes

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental
Consulting
Report to: White Mountain Environmental
Consulting
PO Box 10140
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Sampled By:
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Project
ID:
Name:
Location:
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P.O.:
Acct. Code:

NWL Lot ID: 336673
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603347

Page: 4 of 4

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury in Tissue (Surrey)	APHA	* Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	6-Oct-04	Norwest Labs Surrey
Metals SemiTrace (Total) in tissue (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	6-Oct-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory

LOT# 336681

A2	1 mid size fish	packaged together	
A3	2 tiny fish		1 set
A4 special		packaged alone	2 set
SFN-pelly AQ anvil Cr A-1		packaged together	
A2			3 set
A3	several small fish		
A4			
Pelly AQ A3-AG5		packaged together	4 set
Pelly AQ A2-A61			
Pelly AQ A3-AG1			
Pelly AQ A3-AG6			
Pelly AQ A2-AG2			



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336681
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603366

Contact	Company	Address									
Paul Sparling Web Email Notification	White Mountain Environmental Consulting	PO Box 10140 Whitehorse, YT Y1A 7A1 Phone: (867) 393-4189 Email: fish@polarcom.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		A 1	Email - Multiple Reports	PDF	Fax:
Copies	Delivery Strategy	Format									
1	Post										
A 1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
NOTE: **A** indicates report is delivered using automated delivery

_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
603366 Envir2 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

10/8/04 **603366** 08-Oct-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336681
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603366

Sample Disposal Date: Nov 13, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
Company: _____
Address: _____

Phone: _____
Fax: _____
Signature: _____

If no other arrangements have been made, samples will be disposed of on Nov 13, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental
 Consulting
Report to: White Mountain Environmental
 Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336681
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603366

Analyte	Units	NWL Number		Results	Detection Limit
		Sample Description	Matrix		
		336681-1	336681-2		
		A2	A3		
		Tissue	Tissue		
Metals Total					
Aluminum	Total (wet weight)	ug/g	38	12	2.5
Antimony	Total (wet weight)	ug/g	<0.2	<0.1	0.1
Arsenic	Total (wet weight)	ug/g	0.27	0.14	0.1
Barium	Total (wet weight)	ug/g	5.7	2.2	0.5
Beryllium	Total (wet weight)	ug/g	<0.1	<0.05	0.05
Bismuth	Total (wet weight)	ug/g	<0.6	<0.2	0.3
Cadmium	Total (wet weight)	ug/g	0.066	0.123	0.005
Calcium	Total (wet weight)	ug/g	10400	7120	100
Chromium	Total (wet weight)	ug/g	<0.6	<0.2	0.3
Cobalt	Total (wet weight)	ug/g	<0.1	0.10	0.05
Copper	Total (wet weight)	ug/g	1.7	1.1	0.5
Iron	Total (wet weight)	ug/g	57	42	5
Lead	Total (wet weight)	ug/g	0.22	0.24	0.05
Lithium	Total (wet weight)	ug/g	<1	<0.5	0.5
Magnesium	Total (wet weight)	ug/g	290	240	100
Manganese	Total (wet weight)	ug/g	44	16	2.5
Molybdenum	Total (wet weight)	ug/g	<1	<0.5	0.5
Nickel	Total (wet weight)	ug/g	<0.6	<0.2	0.3
Phosphorus	Total (wet weight)	ug/g	7220	5550	15
Potassium	Total (wet weight)	ug/g	2900	3570	200
Selenium	Total (wet weight)	ug/g	1.2	2.01	0.1
Silicon	Total (wet weight)	ug/g	82	25	25
Silver	Total (wet weight)	ug/g	<0.1	<0.05	0.05
Sodium	Total (wet weight)	ug/g	880	940	200
Strontium	Total (wet weight)	ug/g	12	6.94	0.5
Tin	Total (wet weight)	ug/g	2.3	0.90	0.5
Titanium	Total (wet weight)	ug/g	1.9	0.95	0.3
Uranium	Total (wet weight)	ug/g	<0.6	<0.2	0.3
Vanadium	Total (wet weight)	ug/g	0.35	0.11	0.05
Zinc	Total (wet weight)	ug/g	43.2	29.4	0.5
Zirconium	Total (wet weight)	ug/g	<1	<0.5	0.5
Mercury	Total (wet weight)	ug/g	<0.01	0.015	0.01
Physical and Aggregate Properties					
Moisture	Wet Weight	%	72.4	75.3	0.1



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental
Consulting
Report to: White Mountain Environmental
Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336681
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603366

Page: 2 of 3

Approved by:

Marie England
Consulting Scientist



Methodology and Notes

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
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Consulting
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Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336681
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603366

Page: 3 of 3

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury in Tissue (Surrey)	APHA	* Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	6-Oct-04	Norwest Labs Surrey
Metals SemiTrace (Total) in tissue (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	6-Oct-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

References:

APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

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LOT# 336680

A2	1 mid size fish	packaged together	
A3	2 tiny fish		1 set
A4 special		packaged alone	2 set
SFN-pelly AQ anvil Cr A-1		packaged together	
A2			3 set
A3	several small fish		
A4			
Pelly AQ A3-AG5		packaged together	4 set
Pelly AQ A2-A61			
Pelly AQ A3-AG1			
Pelly AQ A3-AG6			
Pelly AQ A2-AG2			



Report Transmission Cover Page

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336680
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603362

Contact	Company	Address									
Paul Sparling Web Email Notification	White Mountain Environmental Consulting	PO Box 10140 Whitehorse, YT Y1A 7A1 Phone: (867) 393-4189 Email: fish@polarcom.com									
<table border="1"> <thead> <tr> <th>Copies</th> <th>Delivery Strategy</th> <th>Format</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Post</td> <td></td> </tr> <tr> <td>A 1</td> <td>Email - Multiple Reports</td> <td>PDF</td> </tr> </tbody> </table>		Copies	Delivery Strategy	Format	1	Post		A 1	Email - Multiple Reports	PDF	Fax:
Copies	Delivery Strategy	Format									
1	Post										
A 1	Email - Multiple Reports	PDF									

NOTE: **P** indicates a preliminary report is required
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_____ # OF PAGES IN THIS TRANSMISSION

Report Transmission Notes

- Agreement Notes
- Lot Notes
- Sample Notes:

Notes to Clients

Lot Notes:

Sample Notes:

Batch Notes:

Method Notes:

Method Result Notes:

Reports associated with this Lot

<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>	<u>Id/Format/Reported Date</u>
603362 Envir2 3 Smp & DL		

Comment:

See Methodology and Notes page of Analytical Report for all comments pertaining to this report.

If this report transmission is not satisfactory, please send report requirements to the address at the top of this page.

10/8/04 **603362** 08-Oct-2004



Sample Custody

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental Consulting
Report to: White Mountain Environmental Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336680
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603362

Sample Disposal Date: Nov 13, 2004

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the upper right of this page.

_____ **Extend Sample Storage Until** _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for 1 to 5 samples per month	\$ 10.00
Storage for 6 to 20 samples per month	\$ 15.00
Storage for 21 to 50 samples per month	\$ 30.00
Storage for 51 to 200 samples per month	\$ 60.00
Storage for more than 200 samples per month	\$ 110.00

_____ **Return Sample, collect, to the address below via:**

- _____ Greyhound
- _____ Loomis
- _____ Purolator
- _____ Other (Specify) _____

Name: _____
 Company: _____
 Address: _____

 Phone: _____
 Fax: _____
 Signature: _____

If no other arrangements have been made, samples will be disposed of on Nov 13, 2004.



Analytical Report

Norwest Labs
 #104, 19575-55 A Ave.
 Surrey, BC. V3S 8P8
 Phone: (604) 514-3322
 Fax: (604) 514-3323

Bill to: White Mountain Environmental
 Consulting
Report to: White Mountain Environmental
 Consulting
 PO Box 10140
 Whitehorse, YT, Canada
 Y1A 7A1
 Attn: Paul Sparling
 Sampled By:
 Company:

Project ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336680
 Control Number:
 Date Received: Sep 21, 2004
 Date Reported: Oct 14, 2004
 Report Number: 603362

NWL Number 336680-1
 Sample Description A4 - Special
 Matrix Tissue

Analyte	Units	Results	Results	Detection Limit
Metals Total				
Aluminum	Total (wet weight)	ug/g	157	2.5
Antimony	Total (wet weight)	ug/g	<0.08	0.1
Arsenic	Total (wet weight)	ug/g	0.19	0.1
Barium	Total (wet weight)	ug/g	6.27	0.5
Beryllium	Total (wet weight)	ug/g	<0.04	0.05
Bismuth	Total (wet weight)	ug/g	<0.2	0.3
Cadmium	Total (wet weight)	ug/g	0.0953	0.005
Calcium	Total (wet weight)	ug/g	3150	100
Chromium	Total (wet weight)	ug/g	0.26	0.3
Cobalt	Total (wet weight)	ug/g	0.14	0.05
Copper	Total (wet weight)	ug/g	1.4	0.5
Iron	Total (wet weight)	ug/g	238	5
Lead	Total (wet weight)	ug/g	1.14	0.05
Lithium	Total (wet weight)	ug/g	<0.4	0.5
Magnesium	Total (wet weight)	ug/g	270	100
Manganese	Total (wet weight)	ug/g	84.5	2.5
Molybdenum	Total (wet weight)	ug/g	<0.4	0.5
Nickel	Total (wet weight)	ug/g	0.38	0.3
Phosphorus	Total (wet weight)	ug/g	3040	15
Potassium	Total (wet weight)	ug/g	1730	200
Selenium	Total (wet weight)	ug/g	0.58	0.1
Silicon	Total (wet weight)	ug/g	96	25
Silver	Total (wet weight)	ug/g	<0.04	0.05
Sodium	Total (wet weight)	ug/g	450	200
Strontium	Total (wet weight)	ug/g	3.7	0.5
Tin	Total (wet weight)	ug/g	0.66	0.5
Titanium	Total (wet weight)	ug/g	5.32	0.3
Uranium	Total (wet weight)	ug/g	<0.2	0.3
Vanadium	Total (wet weight)	ug/g	0.396	0.05
Zinc	Total (wet weight)	ug/g	34.4	0.5
Zirconium	Total (wet weight)	ug/g	<0.4	0.5
Mercury	Total (wet weight)	ug/g	0.007	0.01
Physical and Aggregate Properties				
Moisture	Wet Weight	%	77.6	0.1



Analytical Report

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental
Consulting
Report to: White Mountain Environmental
Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336680
Control Number:
Date Received: Sep 21, 2004
Date Reported: Oct 14, 2004
Report Number: 603362

Page: 2 of 3

Approved by:

Marie England
Consulting Scientist



Methodology and Notes

Norwest Labs
#104, 19575-55 A Ave.
Surrey, BC. V3S 8P8
Phone: (604) 514-3322
Fax: (604) 514-3323

Bill to: White Mountain Environmental
Consulting
Report to: White Mountain Environmental
Consulting
PO Box 10140
Whitehorse, YT, Canada
Y1A 7A1
Attn: Paul Sparling
Sampled By:
Company:

Project
ID:
Name:
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 336680
Control Number:
Date Received: Sep 21, 2004
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Page: 3 of 3

Method of Analysis:

MethodName	Reference	Method	Date Analysis Started	Location
Mercury in Tissue (Surrey)	APHA	* Cold Vapour Atomic Absorption Spectrometric Method, 3112 B	6-Oct-04	Norwest Labs Surrey
Metals SemiTrace (Total) in tissue (Surrey)	US EPA	Metals & Trace Elements by Ultrasonic Nebulization ICP-AES, 200.15	6-Oct-04	Norwest Labs Surrey

* Norwest method(s) is based on reference method

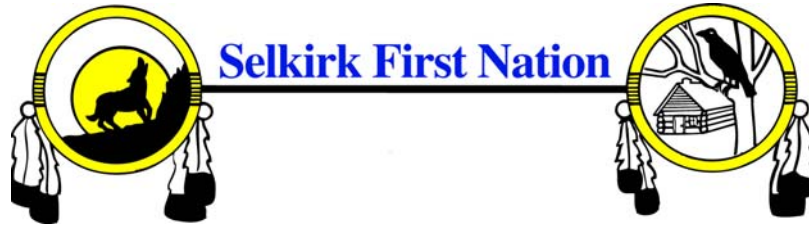
References:

APHA Standard Methods for the Examination of Water and Wastewater
US EPA US Environmental Protection Agency Test Methods

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted

The test report shall not be reproduced except in full, without the written approval of the laboratory



PELLY RIVER AQUATIC EFFECTS ASSESSMENT

APPENDIX 7

PARTICLE SIZE DISTRIBUTION REPORT

Particle Size Distribution

Sample Name: Pelly River - P1 324989-3 **Analysed:** Wednesday, August 11, 2004 9:02:36 AM

Run No. 5409 **SOP Name:** **Measured by:** Jody

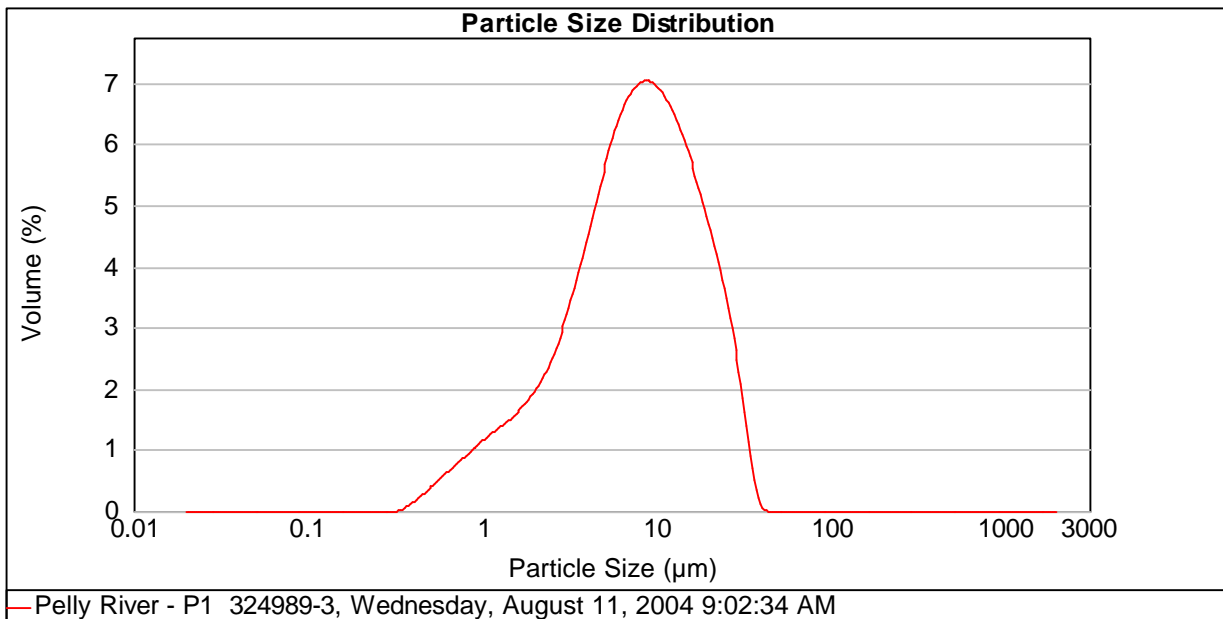
Particle Name: Fraunhofer **Accessory Name:** Hydro 2000MU (A) **Obscuration:** 0.36 %

Particle RI: 0.000 **Absorption:** 0 **Analysis model:** General purpose **Dispersant RI:** 1.330

Dispersant Name: Water **Size range:** 0.020 to 2000.000 um **Weighted Residual:** 6.263 %

D 10% 1.887 um D 50% 7.724 um D 90% 20.691 um D(0.95) : 25.10 µm D(1.00) : 40.05 µm

Operator notes: Lims # 46349
 The obscuration of this sample is < 1 therefore the result is suspect and may not reflect the true particle size in this sample.
 There are not enough particles to obtain a reliable measurement even though a result can be seen, particle size is below the malvern detection limit.



Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %
0.020	0.00	0.142	0.00	1.002	0.90	7.096	5.22	50.238	0.00	355.656	0.00
0.022	0.00	0.159	0.00	1.125	0.99	7.962	5.29	56.368	0.00	399.052	0.00
0.025	0.00	0.178	0.00	1.262	1.07	8.934	5.27	63.246	0.00	447.744	0.00
0.028	0.00	0.200	0.00	1.416	1.16	10.024	5.16	70.963	0.00	502.377	0.00
0.032	0.00	0.224	0.00	1.589	1.27	11.247	4.97	79.621	0.00	563.677	0.00
0.036	0.00	0.252	0.00	1.783	1.40	12.619	4.72	89.337	0.00	632.456	0.00
0.040	0.00	0.283	0.00	2.000	1.56	14.159	4.42	100.237	0.00	709.627	0.00
0.045	0.00	0.317	0.00	2.244	1.77	15.887	4.08	112.468	0.00	796.214	0.00
0.050	0.00	0.356	0.08	2.518	2.03	17.825	3.69	126.191	0.00	893.367	0.00
0.056	0.00	0.399	0.14	2.825	2.35	20.000	3.28	141.589	0.00	1002.374	0.00
0.063	0.00	0.448	0.25	3.170	2.72	22.440	2.81	158.866	0.00	1124.683	0.00
0.071	0.00	0.502	0.33	3.557	3.15	25.179	2.26	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.43	3.991	3.58	28.251	1.64	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.53	4.477	4.02	31.698	0.85	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.63	5.024	4.43	35.566	0.17	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.72	5.637	4.78	39.905	0.00	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	0.82	6.325	5.05	44.774	0.00	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			

Particle Size Distribution

Sample Name: Pelly Creek - P3 324989-6 **Analysed:** Wednesday, August 11, 2004 9:05:01 AM

Run No.: 5410 **SOP Name:** **Measured by:** Jody

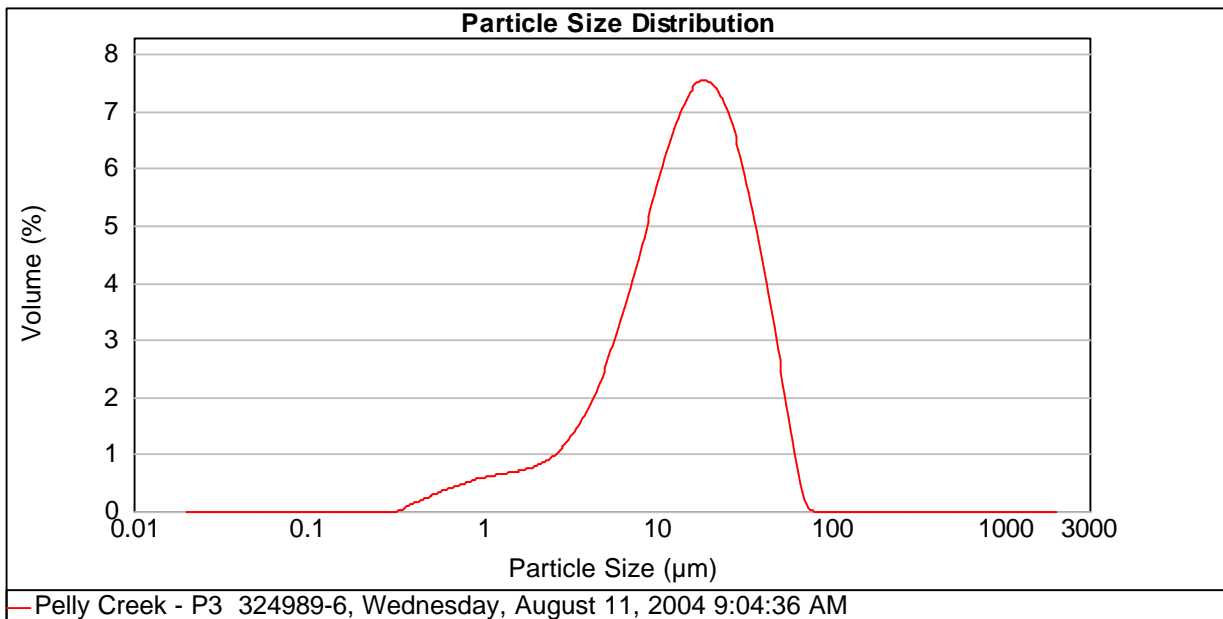
Particle Name: Fraunhofer **Accessory Name:** Hydro 2000MU (A) **Obscuration:** 0.56 %

Particle RI: 0.000 **Absorption:** 0 **Analysis model:** General purpose **Dispersant RI:** 1.330

Dispersant Name: Water **Size range:** 0.020 to 2000.000 um **Weighted Residual:** 3.847 %

D 10%: 3.781 um **D 50%:** 15.280 um **D 90%:** 37.618 um **D(0.95):** 45.22 um **D(1.00):** 71.56 um

Operator notes: Lims # 46350
 The obscuration of this sample is < 1 therefore the result is suspect and may not reflect the true particle size in this sample.
 There are not enough particles to obtain a reliable measurement even though a result can be seen, particle size is below the malvern detection limit.



Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %
0.020	0.00	0.142	0.00	1.002	0.45	7.096	3.18	50.238	1.64	355.656	0.00
0.022	0.00	0.159	0.00	1.125	0.48	7.962	3.63	56.368	0.95	399.052	0.00
0.025	0.00	0.178	0.00	1.262	0.50	8.934	4.06	63.246	0.30	447.744	0.00
0.028	0.00	0.200	0.00	1.416	0.51	10.024	4.49	70.963	0.00	502.377	0.00
0.032	0.00	0.224	0.00	1.589	0.54	11.247	4.88	79.621	0.00	563.677	0.00
0.036	0.00	0.252	0.00	1.783	0.57	12.619	5.21	89.337	0.00	632.456	0.00
0.040	0.00	0.283	0.00	2.000	0.61	14.159	5.47	100.237	0.00	709.627	0.00
0.045	0.00	0.317	0.00	2.244	0.68	15.887	5.62	112.468	0.00	796.214	0.00
0.050	0.00	0.356	0.08	2.518	0.77	17.825	5.67	126.191	0.00	893.367	0.00
0.056	0.00	0.399	0.12	2.825	0.89	20.000	5.60	141.589	0.00	1002.374	0.00
0.063	0.00	0.448	0.18	3.170	1.04	22.440	5.40	158.866	0.00	1124.683	0.00
0.071	0.00	0.502	0.22	3.557	1.23	25.179	5.10	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.27	3.991	1.45	28.251	4.69	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.31	4.477	1.72	31.698	4.20	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.35	5.024	2.03	35.566	3.62	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.39	5.637	2.38	39.905	2.99	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	0.42	6.325	2.77	44.774	2.32	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			

Particle Size Distribution

Sample Name: Pelly Creek - P5 324989-8 **Analysed:** Wednesday, August 11, 2004 9:08:44 AM

Run No.: 5411 **SOP Name:** **Measured by:** Jody

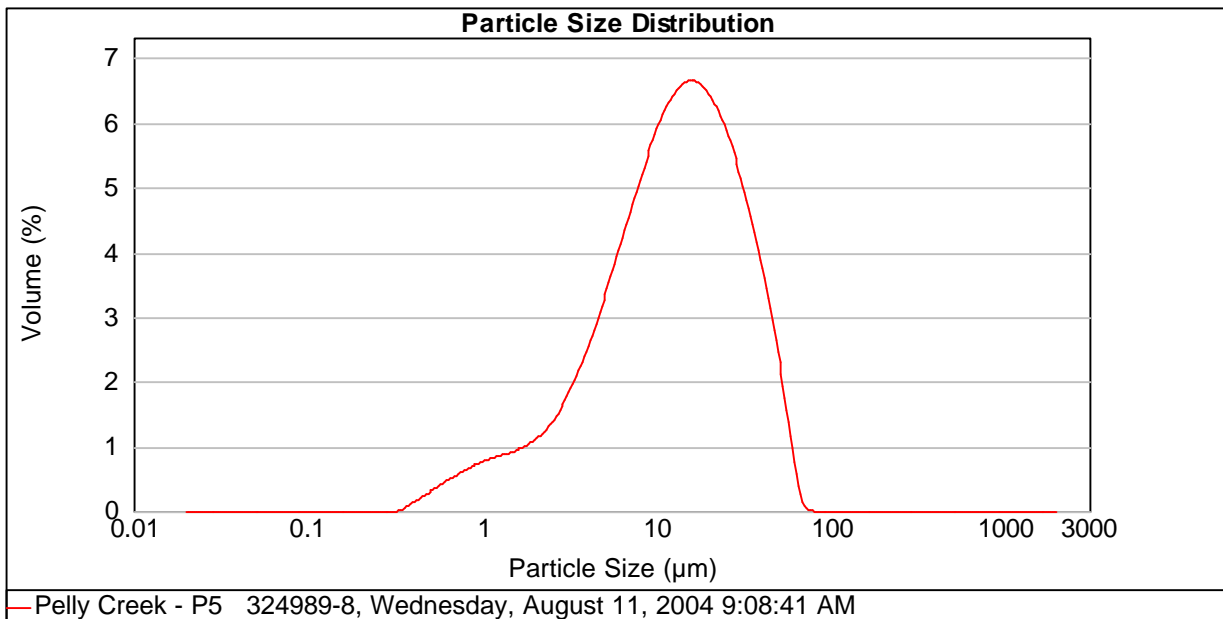
Particle Name: Fraunhofer **Accessory Name:** Hydro 2000MU (A) **Obscuration:** 0.74 %

Particle RI: 0.000 **Absorption:** 0 **Analysis model:** General purpose **Dispersant RI:** 1.330

Dispersant Name: Water **Size range:** 0.020 to 2000.000 um **Weighted Residual:** 3.938 %

D 10%: 2.843 um **D 50%:** 12.855 um **D 90%:** 35.558 um **D(0.95):** 43.36 um **D(1.00):** 71.56 um

Operator notes: Lims # 46351
 The obscuration of this sample is < 1 therefore the result is suspect and may not reflect the true particle size in this sample.
 There are not enough particles to obtain a reliable measurement even though a result can be seen, particle size is below the malvern detection limit.



Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %
0.020	0.00	0.142	0.00	1.002	0.59	7.096	3.68	50.238	1.42	355.656	0.00
0.022	0.00	0.159	0.00	1.125	0.63	7.962	4.01	56.368	0.75	399.052	0.00
0.025	0.00	0.178	0.00	1.262	0.66	8.934	4.31	63.246	0.14	447.744	0.00
0.028	0.00	0.200	0.00	1.416	0.69	10.024	4.57	70.963	0.00	502.377	0.00
0.032	0.00	0.224	0.00	1.589	0.73	11.247	4.78	79.621	0.00	563.677	0.00
0.036	0.00	0.252	0.00	1.783	0.79	12.619	4.93	89.337	0.00	632.456	0.00
0.040	0.00	0.283	0.00	2.000	0.87	14.159	5.00	100.237	0.00	709.627	0.00
0.045	0.00	0.317	0.00	2.244	0.98	15.887	4.99	112.468	0.00	796.214	0.00
0.050	0.00	0.356	0.07	2.518	1.12	17.825	4.91	126.191	0.00	893.367	0.00
0.056	0.00	0.399	0.12	2.825	1.30	20.000	4.75	141.589	0.00	1002.374	0.00
0.063	0.00	0.448	0.20	3.170	1.51	22.440	4.53	158.866	0.00	1124.683	0.00
0.071	0.00	0.502	0.26	3.557	1.76	25.179	4.25	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.32	3.991	2.03	28.251	3.91	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.39	4.477	2.34	31.698	3.52	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.45	5.024	2.66	35.566	3.08	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.50	5.637	3.00	39.905	2.58	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	0.55	6.325	3.34	44.774	2.02	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			

Particle Size Distribution

Sample Name: Pelly River @ PC 324989-10 **Analysed:** Wednesday, August 11, 2004 9:11:01 AM

Run No.: 5412 **SOP Name:** **Measured by:** Jody

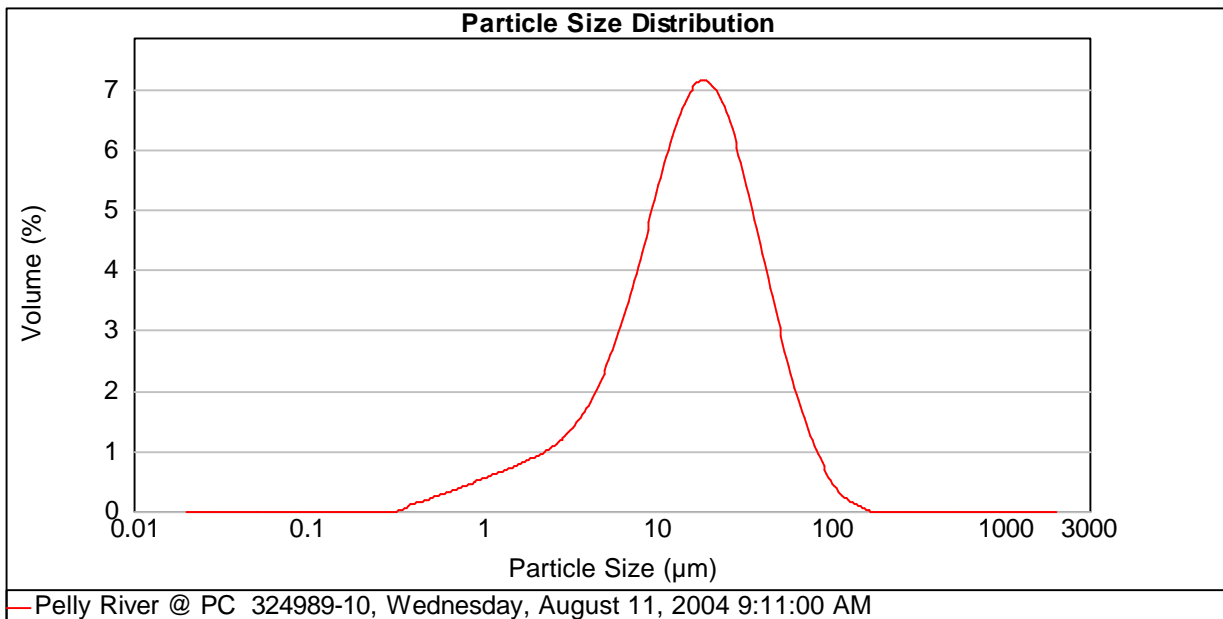
Particle Name: Fraunhofer **Accessory Name:** Hydro 2000MU (A) **Obscuration:** 7.61 %

Particle RI: 0.000 **Absorption:** 0 **Analysis model:** General purpose **Dispersant RI:** 1.330

Dispersant Name: Water **Size range:** 0.020 to 2000.000 um **Weighted Residual:** 0.368 %

D 10%: 3.743 um **D 50%:** 16.149 um **D 90%:** 45.030 um **D(0.95):** 58.47 um **D(1.00):** 152.54 um

Operator notes: Lims # 46352



Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %
0.020	0.00	0.142	0.00	1.002	0.42	7.096	2.92	50.238	2.06	355.656	0.00
0.022	0.00	0.159	0.00	1.125	0.47	7.962	3.34	56.368	56.368	399.052	0.00
0.025	0.00	0.178	0.00	1.262	0.51	8.934	3.77	63.246	1.64	447.744	0.00
0.028	0.00	0.200	0.00	1.416	0.55	10.024	4.19	70.963	1.27	502.377	0.00
0.032	0.00	0.224	0.00	1.589	0.60	11.247	4.59	79.621	0.95	563.677	0.00
0.036	0.00	0.252	0.00	1.783	0.65	12.619	4.92	89.337	0.67	632.456	0.00
0.040	0.00	0.283	0.00	2.000	0.70	14.159	5.18	100.237	0.45	709.627	0.00
0.045	0.00	0.317	0.00	2.244	0.77	15.887	5.33	112.468	0.29	796.214	0.00
0.050	0.00	0.356	0.07	2.518	0.84	17.825	5.37	126.191	0.17	893.367	0.00
0.056	0.00	0.399	0.10	2.825	0.94	20.000	5.28	141.589	0.09	1002.374	0.00
0.063	0.00	0.448	0.14	3.170	1.06	22.440	5.08	158.866	0.04	1124.683	0.00
0.071	0.00	0.502	0.18	3.557	1.21	25.179	4.78	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.21	3.991	1.40	28.251	4.39	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.25	4.477	1.62	31.698	3.94	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.29	5.024	1.89	35.566	3.47	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.34	5.637	2.19	39.905	2.98	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	0.38	6.325	2.54	44.774	2.51	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			

Particle Size Distribution

Sample Name: Macmillan River 324989-11 **Analysed:** Wednesday, August 11, 2004 9:13:09 AM

Run No.: 5413 **SOP Name:** **Measured by:** Jody

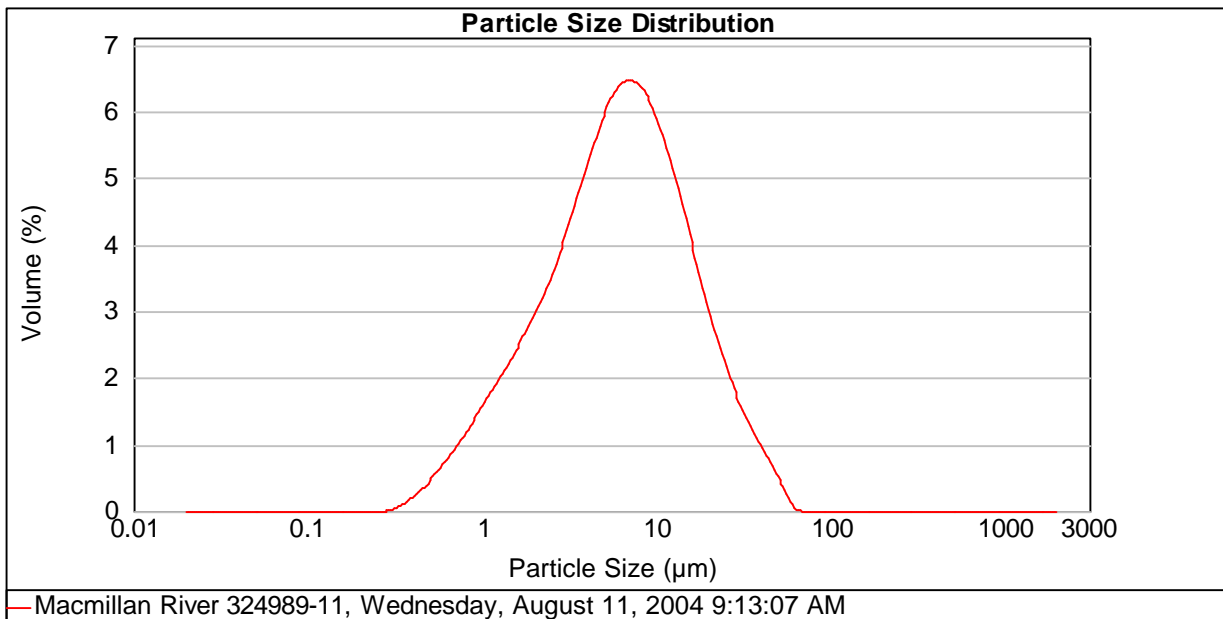
Particle Name: Fraunhofer **Accessory Name:** Hydro 2000MU (A) **Obscuration:** 3.03 %

Particle RI: 0.000 **Absorption:** 0 **Analysis model:** General purpose **Dispersant RI:** 1.330

Dispersant Name: Water **Size range:** 0.020 to 2000.000 um **Weighted Residual:** 1.797 %

D 10%: 1.471 um **D 50%:** 6.162 um **D 90%:** 19.664 um **D(0.95):** 26.90 um **D(1.00):** 61.51 um

Operator notes: Lims # 46353



Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %	Size (µm)	Volume In %
0.020	0.00	0.142	0.00	1.002	1.27	7.096	4.84	50.238	0.27	355.656	0.00
0.022	0.00	0.159	0.00	1.125	1.43	7.962	4.74	56.368	0.08	399.052	0.00
0.025	0.00	0.178	0.00	1.262	1.59	8.934	4.55	63.246	0.00	447.744	0.00
0.028	0.00	0.200	0.00	1.416	1.76	10.024	4.28	70.963	0.00	502.377	0.00
0.032	0.00	0.224	0.00	1.589	1.94	11.247	3.96	79.621	0.00	563.677	0.00
0.036	0.00	0.252	0.00	1.783	2.12	12.619	3.59	89.337	0.00	632.456	0.00
0.040	0.00	0.283	0.01	2.000	2.33	14.159	3.20	100.237	0.00	709.627	0.00
0.045	0.00	0.317	0.06	2.244	2.56	15.887	2.81	112.468	0.00	796.214	0.00
0.050	0.00	0.356	0.12	2.518	2.82	17.825	2.42	126.191	0.00	893.367	0.00
0.056	0.00	0.399	0.20	2.825	3.12	20.000	2.06	141.589	0.00	1002.374	0.00
0.063	0.00	0.448	0.30	3.170	3.43	22.440	1.74	158.866	0.00	1124.683	0.00
0.071	0.00	0.502	0.41	3.557	3.76	25.179	1.45	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.53	3.991	4.07	28.251	1.21	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.66	4.477	4.37	31.698	1.00	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.80	5.024	4.61	35.566	0.80	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.95	5.637	4.77	39.905	0.62	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	1.11	6.325	4.85	44.774	0.44	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			

Particle Size Distribution

Sample Name: SFN Pelly AQ PB Pelly U/S Blind

Analysed: Friday, August 06,
2004 3:05:03 PM

Run No. 5347

SOP Name:

Measured by: Michelle

Particle Name: Fraunhofer

Accessory Name: Hydro 2000MU (A)

Obscuration: 0.28 %

Particle RI: 0.000 **Absorption:** 0

Analysis model: General purpose

Dispersant RI: 1.330

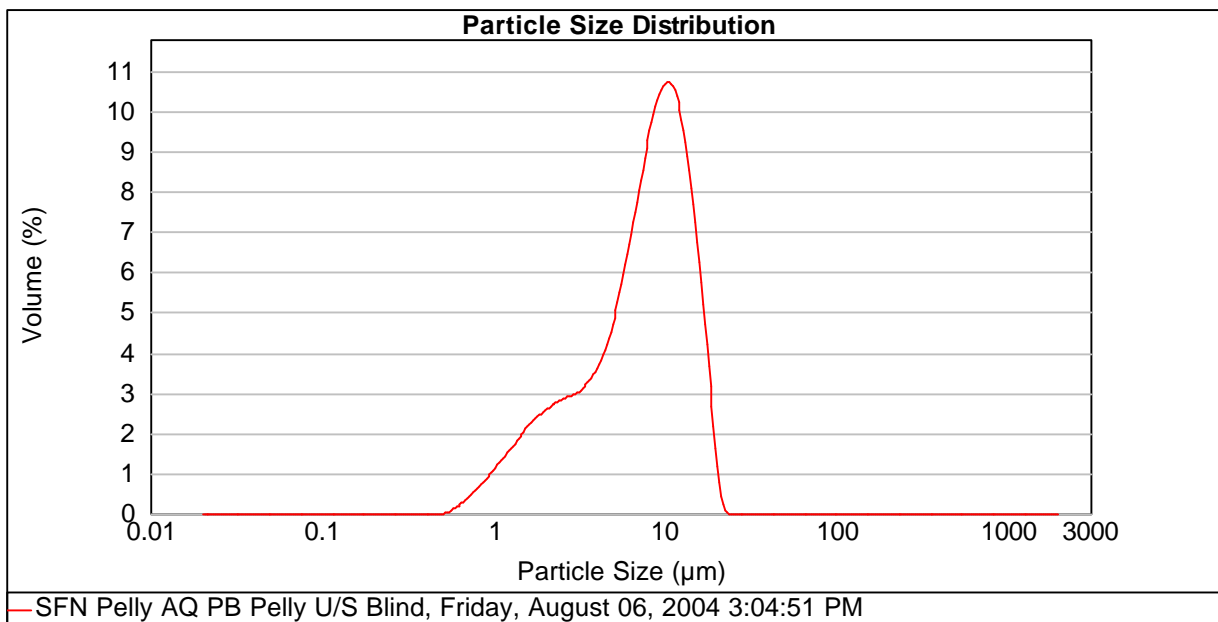
Dispersant Name: Water

Size range: 0.020 to 2000.000 μm

Weighted Residual: 8.811 %

D 10% 1.958 μm **D 50%** 7.856 μm **D 90%** 14.523 μm **D(0.95)** : 16.27 μm **D(1.00)** : 21.86 μm

Operator notes: Lims # 46180



Size (μm)	Volume In %	Size (μm)	Volume In %	Size (μm)	Volume In %	Size (μm)	Volume In %	Size (μm)	Volume In %	Size (μm)	Volume In %
0.020	0.00	0.142	0.00	1.002	0.90	7.096	6.56	50.238	0.00	355.656	0.00
0.022	0.00	0.159	0.00	1.125	1.11	7.962	7.37	56.368	0.00	399.052	0.00
0.025	0.00	0.178	0.00	1.262	1.32	8.934	7.91	63.246	0.00	447.744	0.00
0.028	0.00	0.200	0.00	1.416	1.52	10.024	8.06	70.963	0.00	502.377	0.00
0.032	0.00	0.224	0.00	1.589	1.71	11.247	7.71	79.621	0.00	563.677	0.00
0.036	0.00	0.252	0.00	1.783	1.87	12.619	6.81	89.337	0.00	632.456	0.00
0.040	0.00	0.283	0.00	2.000	1.99	14.159	5.41	100.237	0.00	709.627	0.00
0.045	0.00	0.317	0.00	2.244	2.09	15.887	3.68	112.468	0.00	796.214	0.00
0.050	0.00	0.356	0.00	2.518	2.16	17.825	1.91	126.191	0.00	893.367	0.00
0.056	0.00	0.399	0.00	2.825	2.24	20.000	0.32	141.589	0.00	1002.374	0.00
0.063	0.00	0.448	0.00	3.170	2.35	22.440	0.00	158.866	0.00	1124.683	0.00
0.071	0.00	0.502	0.00	3.557	2.54	25.179	0.00	178.250	0.00	1261.915	0.00
0.080	0.00	0.564	0.12	3.991	2.85	28.251	0.00	200.000	0.00	1415.892	0.00
0.089	0.00	0.632	0.21	4.477	3.32	31.698	0.00	224.404	0.00	1588.656	0.00
0.100	0.00	0.710	0.37	5.024	3.96	35.566	0.00	251.785	0.00	1782.502	0.00
0.112	0.00	0.796	0.52	5.637	4.75	39.905	0.00	282.508	0.00	2000.000	0.00
0.126	0.00	0.893	0.71	6.325	5.65	44.774	0.00	316.979	0.00		
0.142	0.00	1.002		7.096		50.238		355.656			