OFFICE
Copy

ENVIRONMENT CANADA
MONITORING PROGRAM DATA
NEW BRUNSWICK
FISCAL YEAR 1989/90

Dartmouth Env. Can. Lib./Bib.
39 043 347
TD
171.5
.N48
E58
1989/90
[Office
copy]

TD
171.5
.N48
E58
1989/90
Coffee
-PJ

SUMMARY OF NEW BRUNSWICK MONITORING DATA

These documents (Volume I, Volume II) are a collection of the analytical data for surveys conducted as it relates to the EP work plans and to the joint monitoring program of the Federal Department of Environment and the Nova Scotia Department of Environment for the fiscal year 1989/90.

Data collected is applied as an indication of whether companies under regulations or guidelines are in compliance, new or expanded companies are meeting the pollution clauses set down as a condition of monies received from DRIE/ACOA and to identify situations that may require legal action be taken if the responsible companies (persons) are unwilling to take corrective measures.

Topographical maps and sketches of the effluent treatment systems accompany most of the analytical results. This will ensure that the consistency of monitoring will be maintained when and if the surveys are repeated.

A breakdown of industries monitored is as follows:

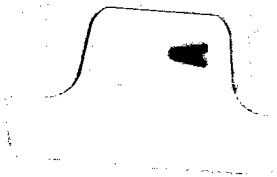
Type of Industry	Completed Surveys Surveys	Legal Surveys	Unscheduled Surveys
Textile	0		
Mining	13		
Chlor alkali	1		
Metal Finishers	3		
Refineries	1		
Wood Preservers	1		
Pulp and Paper	5		
Federal Facilities	1		
Food Processing	2		
Power Corporation	0		
Peat Moss	0		
Fertilizer	1		
Receiving Water	0		
Ore Smelters	1		
Ore Loading	0		
Municipal	2		

Environment Canada
Library
5th Floor, Queen Square
45 Alderney Drive
Dartmouth, N.S. B2Y 2N6

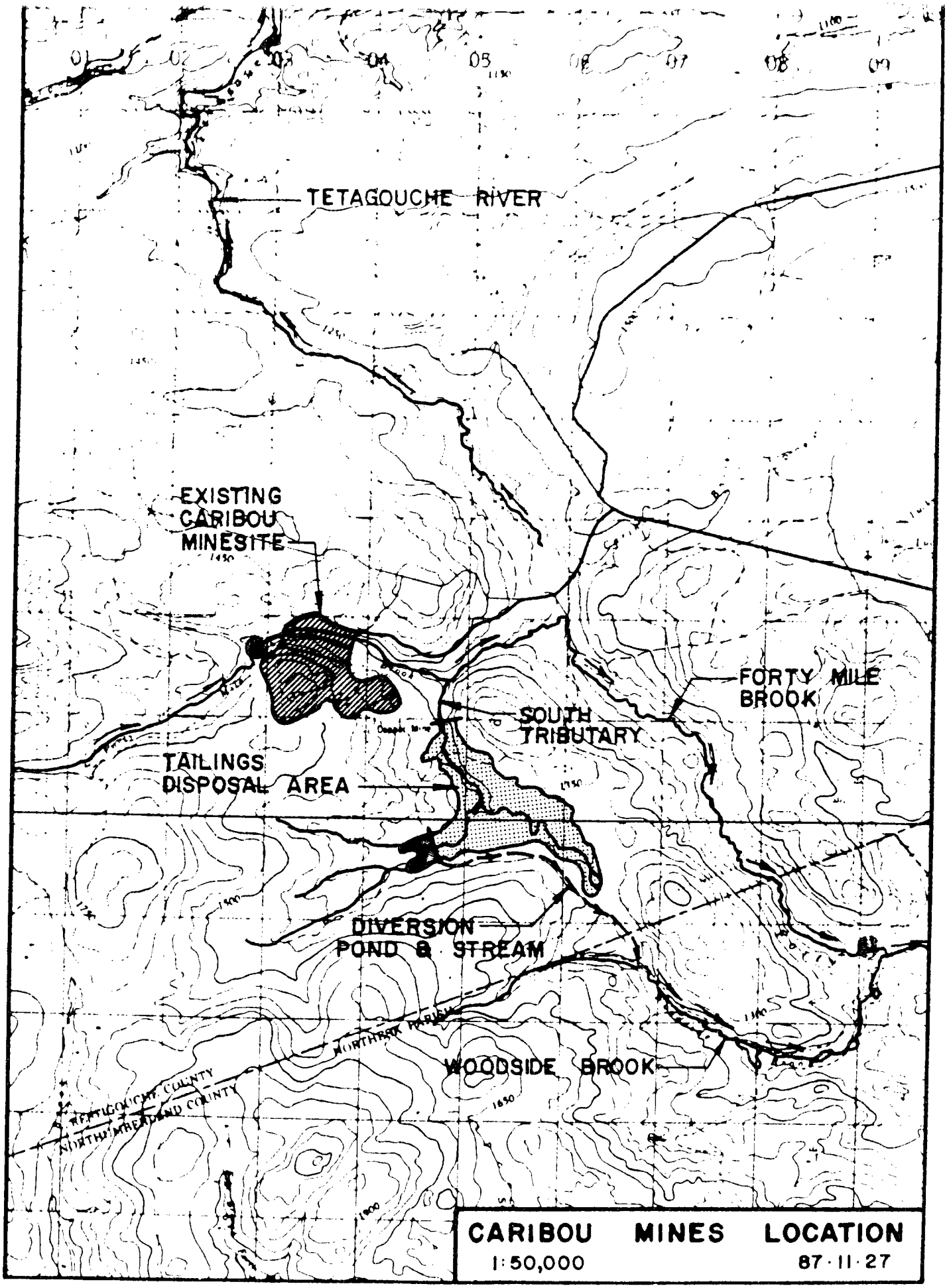
Library
JUL 0 2 2003
Environment Canada

NEW BRUNSWICK

ANACONDA CARIBOU
ATLANTIC INDUSTRIES
ATLANTIC INSTITUTE (Renous)
BARRINGTON IND. SERVICES
BELLEDUNE FERTILIZER
BRUNSWICK SMELTER
BRUNSWICK "6"
BRUNSWICK "12"
CANADIAN INDUSTRIES LTD. (C.I.L.)
DENNISON MINE
DEPT. OF TRANSPORTATION (Neguac)
DOMTAR NEWCASTLE (U.F.R.O.)
FORTY MILE BROOK
FRASER INC., EDMUNDSTON
GORTEX GOLD MINE
HEATH STEELE MINE
IRVING OIL REFINERY ✓
IRVING PULP AND PAPER ✓
IRVING TISSUE PAPER ✓
LAKE GEORGE ANTIMONY
MCCAIN FOODS (Grand Falls)
MOUNT PLEASANT MINE
NADEAU POULTRY
N.B. COAL (Fire Road)
NIGADOO RIVER MINE
POTASH COMPANY OF CANADA
ROTHESAY PAPER LTD. ✓
SQUARE "D"
ST. ANNE - NACKAWIC PULP AND PAPER INC.



ANACONDA CARIBOU


TETAGOUCHE RIVER
EXISTING CARIBOU MINESITE
FORTY MILE BROOK
SOUTH TRIBUTARY
TAILINGS DISPOSAL AREA
DIVERSION POND & STREAM
WOODSIDE BROOK
CARIBOU MINES LOCATION
1:50,000
87-11-27

LAB NUMBER(S): 89RP026

****

* 89RP026 - ROY PARKER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1230, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: RUNOFFS FROM KEY-ANACON SITE JUST ABV
NEPISIGUIT RIVER

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	3.36	
2:	005 /HARDNESS	304.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022 /MAGNESIUM (TOTAL)	16.62	MG/L
5:	036 /CALCIUM (TOTAL)	96.3	MG/L
6:	044 /ARSENIC (TOTAL)	0.699	MG/L
7:	046 /CADMIUM (TOTAL)	0.255	MG/L
8:	047 /CHROMIUM (TOTAL)	0.028	MG/L
9:	048 /COPPER (TOTAL)	0.706	MG/L
10:	049 /IRON (TOTAL)	2.59	MG/L
11:	051 /LEAD (TOTAL)	0.262	MG/L
12:	054 /ZINC (TOTAL)	138.7	MG/L
13:	159 /NICKEL (TOTAL)	0.136	MG/L
14:	160 /MANGANESE (TOTAL)	9.68	MG/L
15:	162 /ALUMINUM (TOTAL)	37.2	MG/L

****

* 89RP083 - ROY PARKER STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: ANACON00/ANACONDA CARIBOU MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 27/ 9/89 (SEP 27, 1989), TIME: 1115, FREQ: 1
SAMPLING ENDED, DATE: 27/ 9/89 (SEP 27, 1989), TIME: 1115

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT. DISCH FROM
POLISHING POND

*****
***** WARNING: THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.7	
2:	001F/PH	6.7	
3:	005 /HARDNESS	145.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	022 /MAGNESIUM (TOTAL)	3.12	MG/L
6:	036 /CALCIUM (TOTAL)	53.68	MG/L
7:	044 /ARSENIC (TOTAL)	L.05	MG/L
8:	046 /CADMIUM (TOTAL)	L.01	MG/L
9:	047 /CHROMIUM (TOTAL)	L.01	MG/L
10:	048 /COPPER (TOTAL)	L.01	MG/L
11:	049 /IRON (TOTAL)	1.41	MG/L
12:	051 /LEAD (TOTAL)	L.02	MG/L
13:	052 /ANTIMONY (TOTAL)	L.05	MG/L
14:	054 /ZINC (TOTAL)	.05	MG/L
15:	130 /THIOSALTS TOTAL	"SAMPLE LOST"	MG/L
16:	159 /NICKEL (TOTAL)	L.01	MG/L
17:	160 /MANGANESE (TOTAL)	7.11	MG/L
18:	162 /ALUMINUM (TOTAL)	.47	MG/L

```
**********************************************************************
* 89RP082 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: ANACON06/ANACONDA CARIBOU MINES LTD
                  FORTY MILE BROOK ABOVE MINE                  PROV: NB
NORMAL ANALYSIS: 001 ,020 ,044 ,046 ,048 ,049 ,050 ,
                 051 ,054 ,159 ,128
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 27/ 9/89 (SEP 27, 1989), TIME:  900, FREQ:   1
SAMPLING ENDED, DATE: 27/ 9/89 (SEP 27, 1989), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 40-MILE BROOK ABV MINE

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****
```

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.3	
2:	005	/HARDNESS	37.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	2.35	MG/L
5:	036	/CALCIUM (TOTAL)	11.01	MG/L
6:	044	/ARSENIC (TOTAL)	L.005	MG/L
7:	046	/CADMIUM (TOTAL)	L.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L.01	MG/L
9:	048	/COPPER (TOTAL)	L.01	MG/L
10:	049	/IRON (TOTAL)	.10	MG/L
11:	051	/LEAD (TOTAL)	L.02	MG/L
12:	052	/ANTIMONY (TOTAL)	.08	MG/L
13:	054	/ZINC (TOTAL)	.01	MG/L
14:	159	/NICKEL (TOTAL)	L.01	MG/L
15:	160	/MANGANESE (TOTAL)	.03	MG/L
16:	162	/ALUMINUM (TOTAL)	.26	MG/L

```
**********************************************************************
* 89RP081 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: ANACON07/ANACONDA CARIBOU MINES LTD
                  FORTY MILE BROOK BELOW MINE                  PROV: NB
NORMAL ANALYSIS: 001 ,020 ,044 ,046 ,048 ,049 ,050 ,
                 051 ,054 ,159 ,128
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 27/ 9/89 (SEP 27, 1989), TIME: 1030, FREQ:   1
SAMPLING ENDED, DATE: 27/ 9/89 (SEP 27, 1989), TIME: 1030

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 40-MILE BROOK BLW MINE

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
  1: 001 /PH.............................  6.8
  2: 005 /HARDNESS.......................  185.                  MG/L
  3: 020 /SUSPENDED SOLIDS (SS).........  8.                    MG/L
  4: 022 /MAGNESIUM (TOTAL).............  7.40                  MG/L
  5: 036 /CALCIUM (TOTAL)................  61.71                 MG/L
  6: 044 /ARSENIC (TOTAL)................ L.05                  MG/L
  7: 046 /CADMIUM (TOTAL)................ L.01                  MG/L
  8: 047 /CHROMIUM (TOTAL)............... L.01                  MG/L
  9: 048 /COPPER (TOTAL).................  .58                   MG/L
 10: 049 /IRON (TOTAL)...................  .30                   MG/L
 11: 051 /LEAD (TOTAL)................... L.02                  MG/L
 12: 052 /ANTIMONY (TOTAL)...............  .09                   MG/L
 13: 054 /ZINC (TOTAL)...................  6.06                  MG/L
 14: 159 /NICKEL (TOTAL).................  .02                   MG/L
 15: 160 /MANGANESE (TOTAL).............  5.29                  MG/L
 16: 162 /ALUMINUM (TOTAL)..............  1.85                  MG/L
```

LAB NUMBER(S): 89RP030

****

* 89RP030 - ROY PARKER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: CARIBU00/CARIBOU NB MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1530

DEPTH: .00 METERS, TIDE:
NARRATIVE: TAILINGS POND WATER AT SPILLWAY
(NOT DISCHARGING YET)

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	4.15	
2:	005	/HARDNESS	74.1	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	6.	MG/L
4:	022	/MAGNESIUM (TOTAL)	1.26	MG/L
5:	036	/CALCIUM (TOTAL)	27.6	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	0.114	MG/L
10:	049	/IRON (TOTAL)	0.411	MG/L
11:	051	/LEAD (TOTAL)	0.282	MG/L
12:	054	/ZINC (TOTAL)	0.057	MG/L
13:	130	/THIOSALTS TOTAL	L0.50	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	0.683	MG/L
16:	162	/ALUMINUM (TOTAL)	0.204	MG/L

ATLANTIC GALVINIZERS

Figure 2 Atlantic Galvanizers
Effluent Flow

from topo 21 H/15
1:50,000

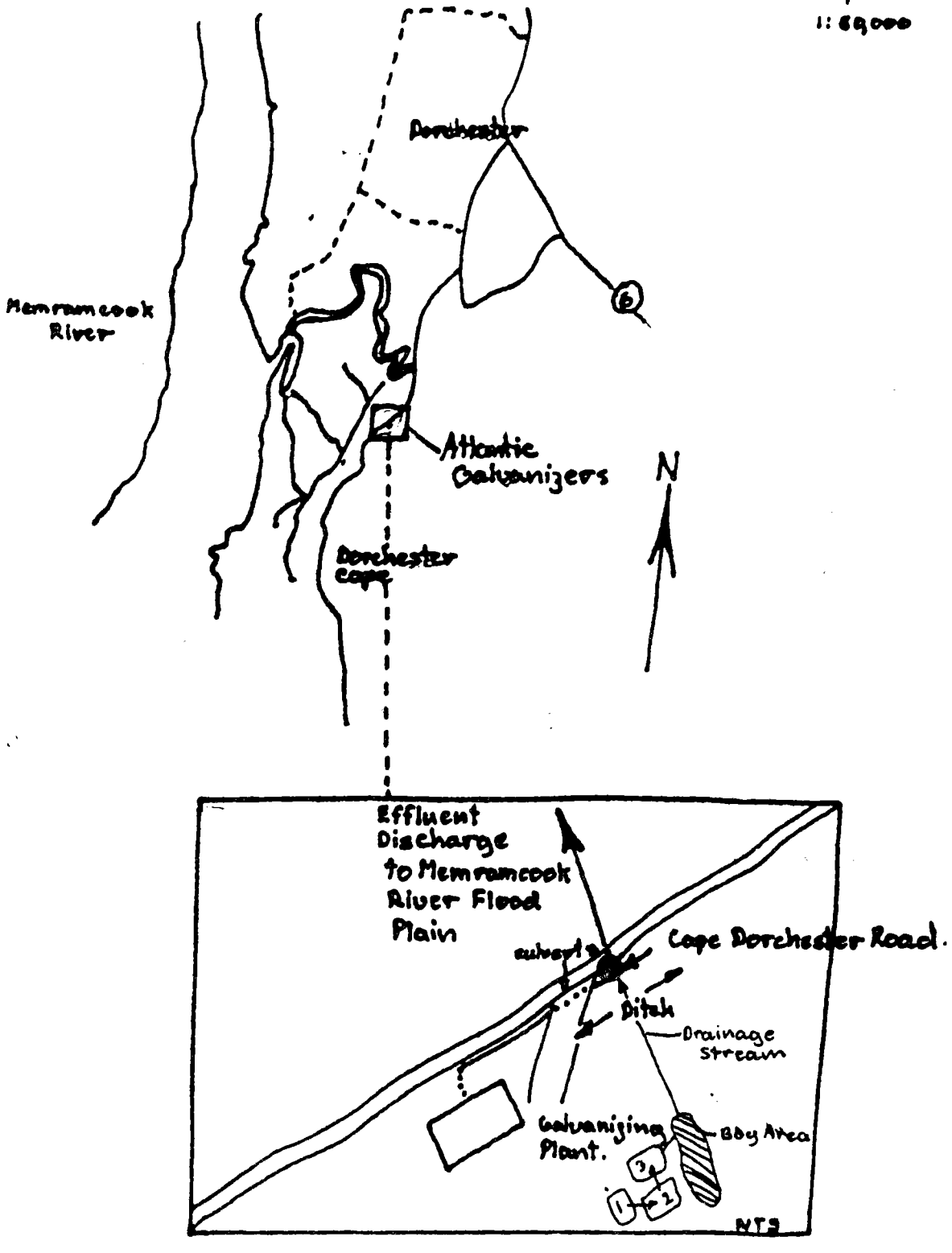
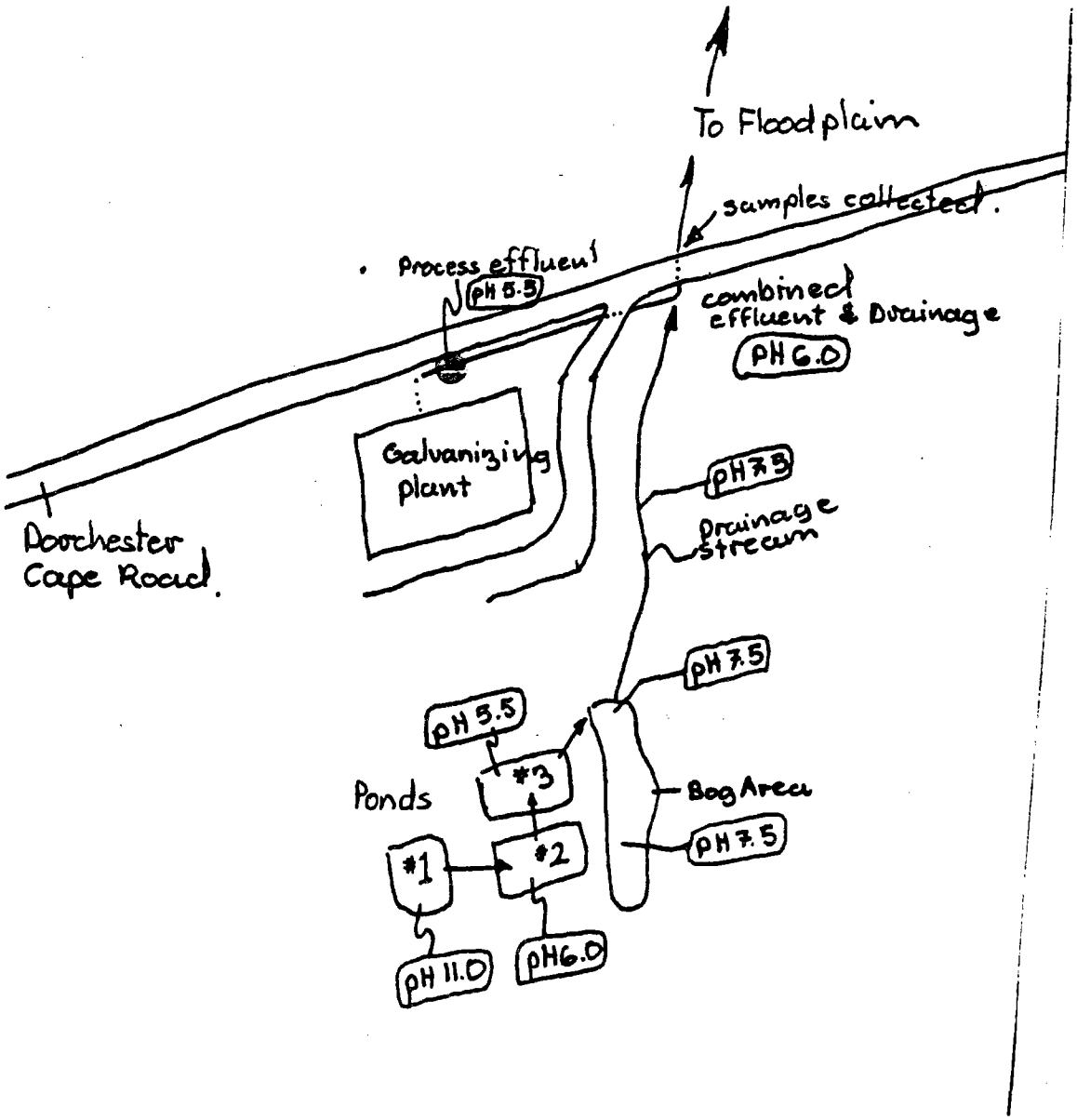


Figure 1a Atlantic Galvanizers
Property Plan
(pH survey)

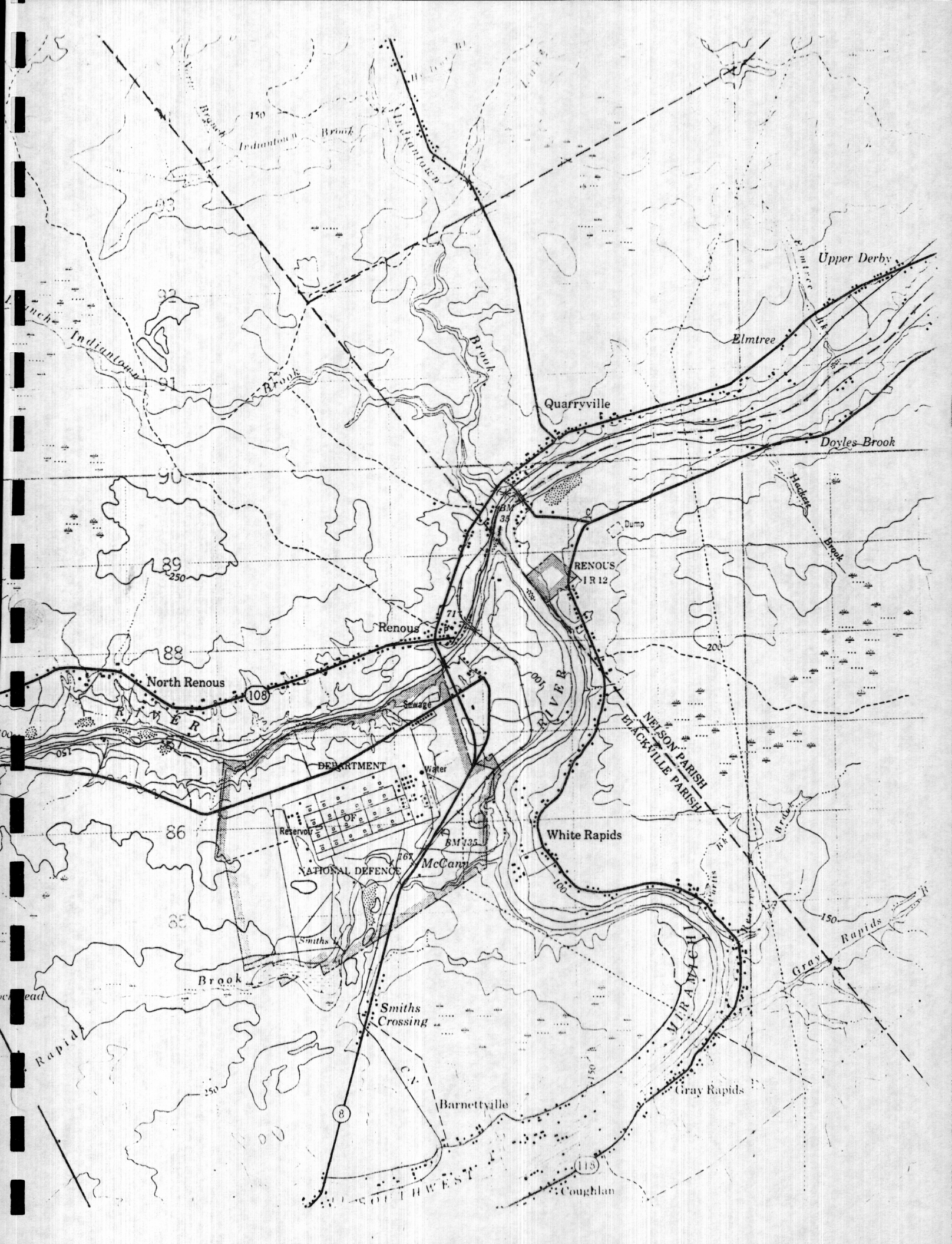


```
**************************************************************************
* 89PH079 - PHIL HENNEBURY                        STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 15, 1989,  BY :PHIL H

LOCATOR: ATGALV02/ATLANTIC INDUSTRIES LTD.,CAPE DORCHESTER
                  KETTLE RINSE TANK                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 15/ 9/89 (SEP 15, 1989), TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE: 15/ 9/89 (SEP 15, 1989), TIME: 1030

DEPTH:    .00 METERS, TIDE:
NARRATIVE: EFFLUENT FROM NEW TREATMENT SYSTEM

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****
```

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	2.5	
2:	005 /HARDNESS	70.	MG/L
3:	018 /SOLIDS, TOTAL (TS)	1600.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	8.4	MG/L
5:	022 /MAGNESIUM (TOTAL)	4.37	MG/L
6:	044 /ARSENIC (TOTAL)	.28	MG/L
7:	046 /CADMIUM (TOTAL)	.02	MG/L
8:	047 /CHROMIUM (TOTAL)	.05	MG/L
9:	048 /COPPER (TOTAL)	.11	MG/L
10:	049 /IRON (TOTAL)	106.	MG/L
11:	051 /LEAD (TOTAL)	.35	MG/L
12:	052 /ANTIMONY (TOTAL)	.61	MG/L
13:	054 /ZINC (TOTAL)	90.	MG/L
14:	160 /MANGANESE (TOTAL)	2.31	MG/L
15:	420 /FLOW	10473.	L/DAY

ATLANTIC INSTITUTE


Upper Derby
Elmtree
Quarryville
Doyles Brook
Hackett's Brook
Dump
RENOUS
1 R 12
Renous
North Renous
108
Sewage
DEPARTMENT
OF
Reservoir
Water
NATIONAL DEFENCE
McCann
BM 135
White Rapids
NELSON PARISH
BLACKVILLE PARISH
RIVER
Smiths Brook
Smiths Crossing
Barnettville
Gray Rapids
Gray Rapids
MIRAMICHI
Coughlan
8
118
Indiantown Brook
Indiantown Brook
Brook
150
100
200
250
91
90
89
88
86
85

LAB NUMBER(S): 89PK053-054

****

* 89PK053 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: OCT 2, 1989, BY :IAN M

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1600, FREQ: 1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1600

DEPTH: .00 METERS, TIDE:
NARRATIVE: ATLANTIC INST.,,RENOUS ,N.B.
EAST CELL

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	17.	MG/L
2:	020 /SUSPENDED SOLIDS (SS).....	24.	MG/L
3:	073 /FECAL COLIFORM (5 TUBES).....	5400.	MPN/100ML

****

* 89PK054 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: OCT 2, 1989, BY :IAN M

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1600, FREQ: 1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1600

DEPTH: .00 METERS, TIDE:
NARRATIVE: ATLANTIC INSTITUTE , RENOUS ,N.B.
WEST CELL.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	25.	MG/L
2:	020 /SUSPENDED SOLIDS (SS).....	14.	MG/L
3:	073 /FECAL COLIFORM (5 TUBES).....	490.	MPN/100ML

B

```
**********************************************************************
* 89PH022 - PHIL HENNEBURY                        STATUS AS OF AUG 14, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1300

DEPTH:    .00 METERS, TIDE:
NARRATIVE: BARRINGTON IND. SERVICES (GIFFORD RD.)
           SAINT JOHN N. B. BIS #3
                      ---- SAMPLE ANALYSIS ----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 0560/POLYCHLORIN. BIPHENYLS (PCB).. L2.0                IUG/G
```

BRUNSWICK MINING AND SMELTING - BRUNSWICK FERTILIZER
BRUNSWICK SMELTER
BRUNSWICK #6
BRUNSWICK #12

BRUNSWICK MINING AND SMELTING - BRUNSWICK FERTILIZER

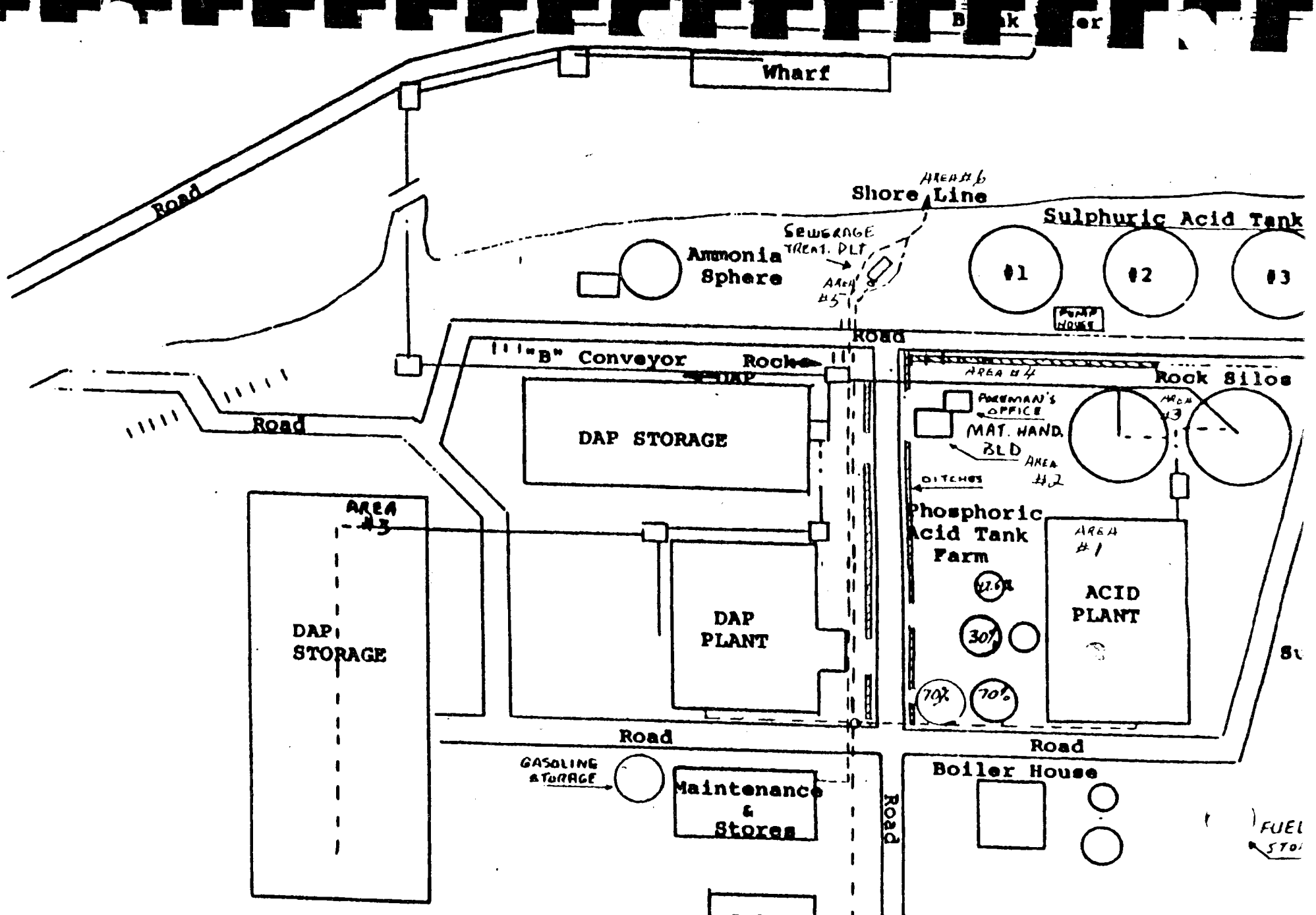


Figure 1.
BELLEDUNE FERTILIZER PLANT LAYOUT

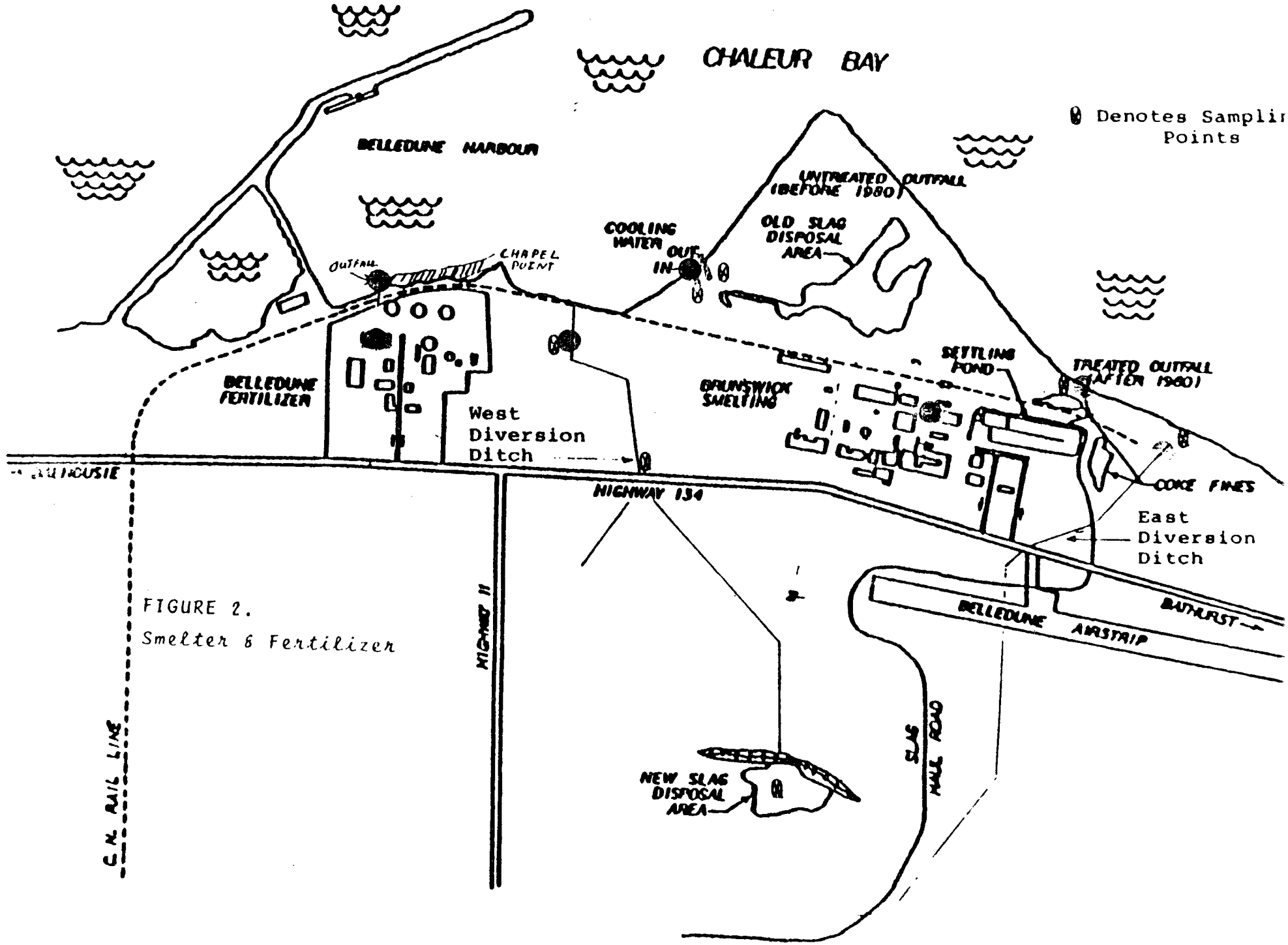


FIGURE 2.
Smelter & Fertilizer

LAB NUMBER(S): 89RP041

****

* 89RP041 - ROY PARKER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BELFER00/BELLEDUNE FERTILLIZER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1430, FREQ: 1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1430

DEPTH: .00 METERS, TIDE:
NARRATIVE: GYPSUM LINE

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	2.41	
2:	005 /HARDNESS	6752.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	12390.	MG/L
4:	022 /MAGNESIUM (TOTAL)	726.0	MG/L
5:	036 /CALCIUM (TOTAL)	1550.	MG/L
6:	044 /ARSENIC (TOTAL)	1.72	MG/L
7:	046 /CADMIUM (TOTAL)	0.183	MG/L
8:	047 /CHROMIUM (TOTAL)	0.297	MG/L
9:	048 /COPPER (TOTAL)	0.126	MG/L
10:	049 /IRON (TOTAL)	14.76	MG/L
11:	051 /LEAD (TOTAL)	0.872	MG/L
12:	054 /ZINC (TOTAL)	0.268	MG/L
13:	159 /NICKEL (TOTAL)	0.198	MG/L
14:	160 /MANGANESE (TOTAL)	0.598	MG/L
15:	162 /ALUMINUM (TOTAL)	101.	MG/L
16:	171 /FLUORIDE	370.	MG/L

LAB NUMBER(S):

****

89RP040 - ROY PARKER STATUS AS OF FEB 20, 1990 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BELFER00/BELLEDUNE FERTILLIZER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1400, FREQ: 1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1400

DEPTH: .00 METERS, TIDE:
NARRATIVE: PLANT DISCHARGE

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.93	
2:	005 /HARDNESS	179.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	9.	MG/L
4:	022 /MAGNESIUM (TOTAL)	12.0	MG/L
5:	036 /CALCIUM (TOTAL)	52.0	MG/L
6:	044 /ARSENIC (TOTAL)	0.080	MG/L
7:	046 /CADMIUM (TOTAL)	L0.01	MG/L
8:	047 /CHROMIUM (TOTAL)	0.014	MG/L
9:	048 /COPPER (TOTAL)	0.018	MG/L
:	049 /IRON (TOTAL)	0.442	MG/L
11:	051 /LEAD (TOTAL)	L0.01	MG/L
12:	054 /ZINC (TOTAL)	L0.01	MG/L
13:	159 /NICKEL (TOTAL)	0.029	MG/L
14:	160 /MANGANESE (TOTAL)	0.697	MG/L
15:	162 /ALUMINUM (TOTAL)	0.328	MG/L
16:	171 /FLUORIDE	1.70	MG/L

```
**************************************************************************
* 89RP085 - ROY PARKER                              STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,   BY :ANDRE

LOCATOR: BELFER01/BELLEDUNE FERTILIZER
                  EFFLUENT TO RIVER                                PROV: NB
NORMAL ANALYSIS: 1,2,5,20,44,46,48,49,50,51,54,132
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1115, FREQ:    1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1115

DEPTH:    .00 METERS, TIDE:
NARRATIVE: GYPSUM LINE

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  2.4
 2: 005 /HARDNESS.......................  TO BE COMPLETED
 3: 020 /SUSPENDED SOLIDS (SS).........  46000.                  MG/L
 4: 022 /MAGNESIUM (TOTAL).............  894.                    MG/L
 5: 036 /CALCIUM (TOTAL)................  1260.                   MG/L
 6: 044 /ARSENIC (TOTAL)................  1.06                    MG/L
 7: 046 /CADMIUM (TOTAL)................  .24                     MG/L
 8: 047 /CHROMIUM (TOTAL)...............  .30                     MG/L
 9: 048 /COPPER (TOTAL).................  .10                     MG/L
10: 049 /IRON (TOTAL)...................  9.96                    MG/L
11: 051 /LEAD (TOTAL)...................  .79                     MG/L
12: 052 /ANTIMONY (TOTAL)...............  .64                     MG/L
13: 054 /ZINC (TOTAL)...................  .38                     MG/L
14: 159 /NICKEL (TOTAL).................  .19                     MG/L
15: 160 /MANGANESE (TOTAL).............  .61                     MG/L
16: 162 /ALUMINUM (TOTAL)...............  64.52                   MG/L
17: 171 /FLUORIDE.......................  TO BE COMPLETED
```

****

* 89RP084 - ROY PARKER STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: BELFER00/BELLEDUNE FERTILLIZER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1100

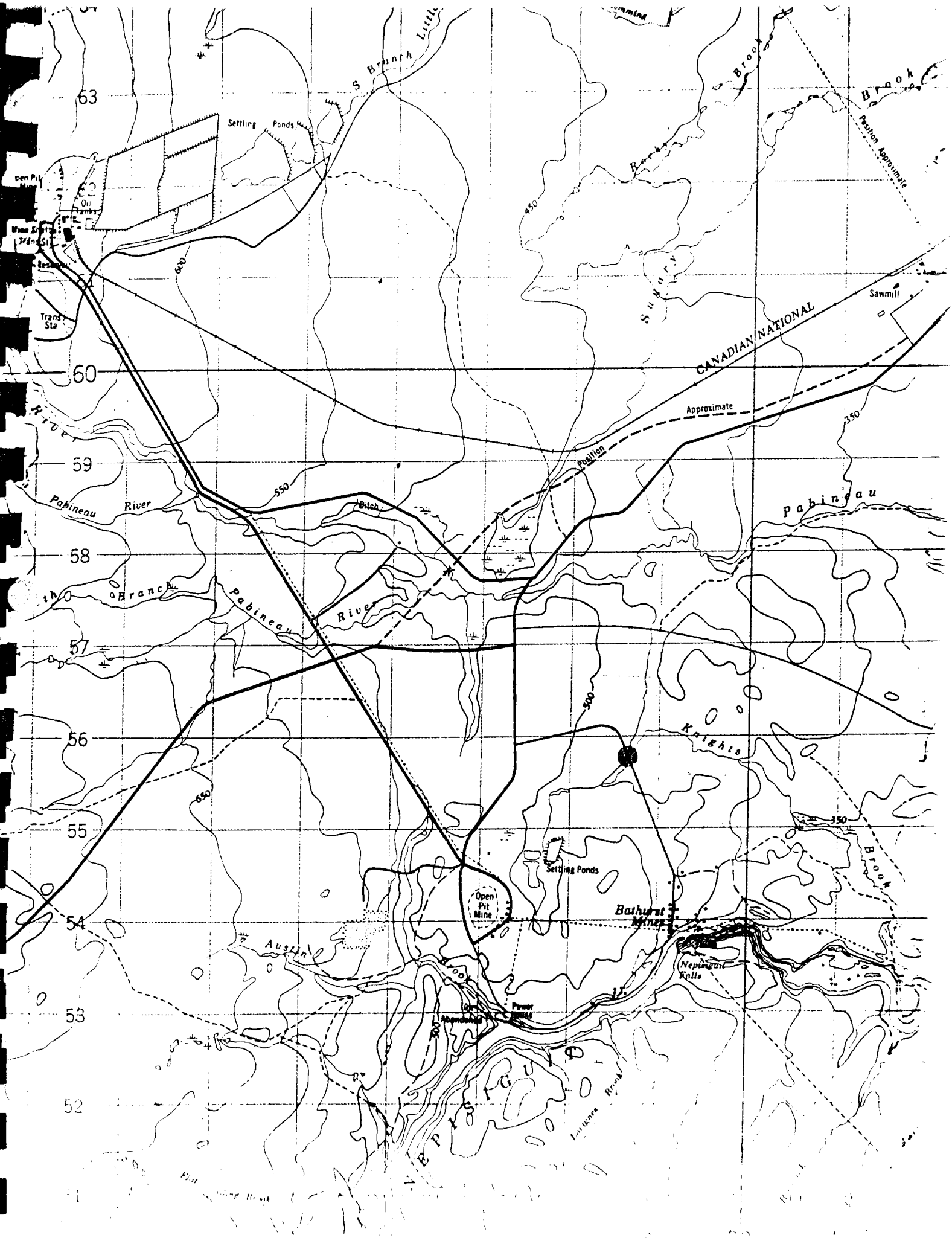
DEPTH: .00 METERS, TIDE:
NARRATIVE: PLANT DISCHAGE

*****
***** WARNING: THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	6.7	
2:	005	/HARDNESS	345.	MG/L
:	020	/SUSPENDED SOLIDS (SS)	30.	MG/L
4:	022	/MAGNESIUM (TOTAL)	39.91	MG/L
5:	036	/CALCIUM (TOTAL)	72.49	MG/L
6:	044	/ARSENIC (TOTAL)	.07	MG/L
7:	046	/CADMIUM (TOTAL)	L.01	MG/L
8:	047	/CHROMIUM (TOTAL)	.02	MG/L
9:	048	/COPPER (TOTAL)	.02	MG/L
10:	049	/IRON (TOTAL)	4.72	MG/L
11:	051	/LEAD (TOTAL)	.02	MG/L
12:	052	/ANTIMONY (TOTAL)	L.05	MG/L
13:	054	/ZINC (TOTAL)	.69	MG/L
14:	159	/NICKEL (TOTAL)	.10	MG/L
15:	160	/MANGANESE (TOTAL)	3.25	MG/L
16:	162	/ALUMINUM (TOTAL)	1.55	MG/L
17:	171	/FLUORIDE	TO BE COMPLETED	

BRUNSWICK #6


Settling Ponds
Oil Tanks
Trans Sta
S Branch Little
Barker Brook
Position Approximate
Sawmill
CANADIAN NATIONAL
Approximate
Position
Pabineau River
Ditch
Pabineau
S Branch Pabineau River
Knights
Settling Ponds
Open Pit Mine
Bathurst Mines
Austin Brook
Nepisiguit Falls
Power Canals
Abandoned
NEPISIGUIT
Louisiana Brook
63
62
61
60
59
58
57
56
55
54
53
52
51
450
600
550
500
650
350
300

****

* 89RP074 - ROY PARKER STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: BRUNS604/BRUNSWICK MINING & SMELTING #6 MINE
KNIGHT BROOK AT GRAND FALLS ROAD PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1000

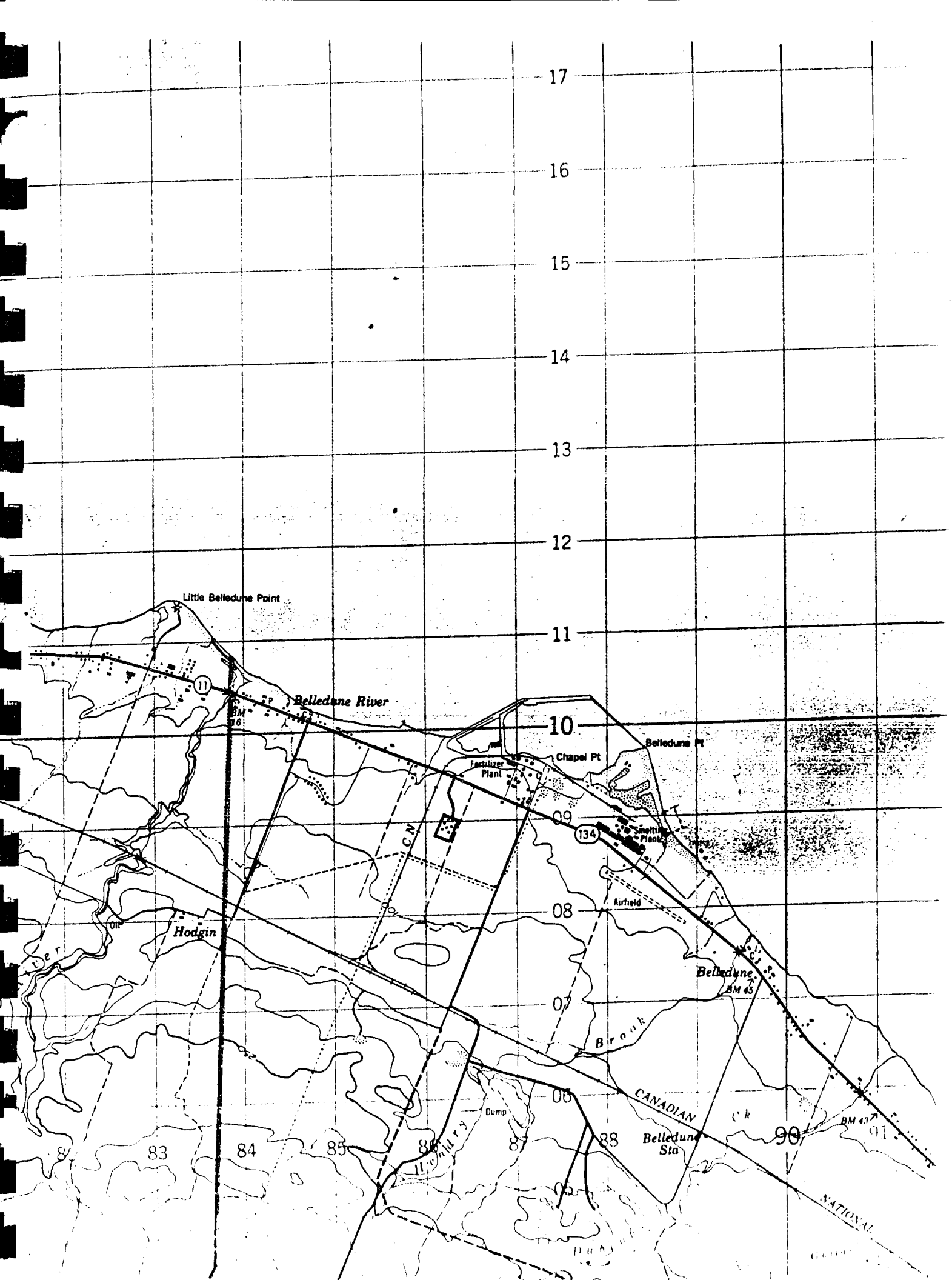
DEPTH: .00 METERS, TIDE:
NARRATIVE: KNIGHT'S BROOK AT GRAND FALLS RD

*****
***** WARNING: THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	4.0	
2:	005 /HARDNESS	205.	MG/L
:	020 /SUSPENDED SOLIDS (SS)	6.	MG/L
4:	022 /MAGNESIUM (TOTAL)	6.03	MG/L
5:	036 /CALCIUM (TOTAL)	71.84	MG/L
6:	044 /ARSENIC (TOTAL)	L.05	MG/L
7:	046 /CADMIUM (TOTAL)	L.01	MG/L
8:	047 /CHROMIUM (TOTAL)	.02	MG/L
9:	048 /COPPER (TOTAL)	.03	MG/L
10:	049 /IRON (TOTAL)	3.05	MG/L
11:	051 /LEAD (TOTAL)	.09	MG/L
12:	052 /ANTIMONY (TOTAL)	.88	MG/L
13:	054 /ZINC (TOTAL)	.62	MG/L
14:	159 /NICKEL (TOTAL)	.01	MG/L
15:	160 /MANGANESE (TOTAL)	.90	MG/L
16:	162 /ALUMINUM (TOTAL)	.74	MG/L

BRUNSWICK SMELTER


17
16
15
14
13
12
11
10
09
08
07
06
Little Belledune Point
Belledune River
BM 16
Belledune Pt
Chapel Pt
Fertilizer Plant
Smelting Plant
Airfield
Hodgin
Belledune
BM 45
Brook
CANADIAN
Dump
Belledune Sta
BM 47
NATIONAL
CN
11
134
83
84
85
86
87
88
90
91

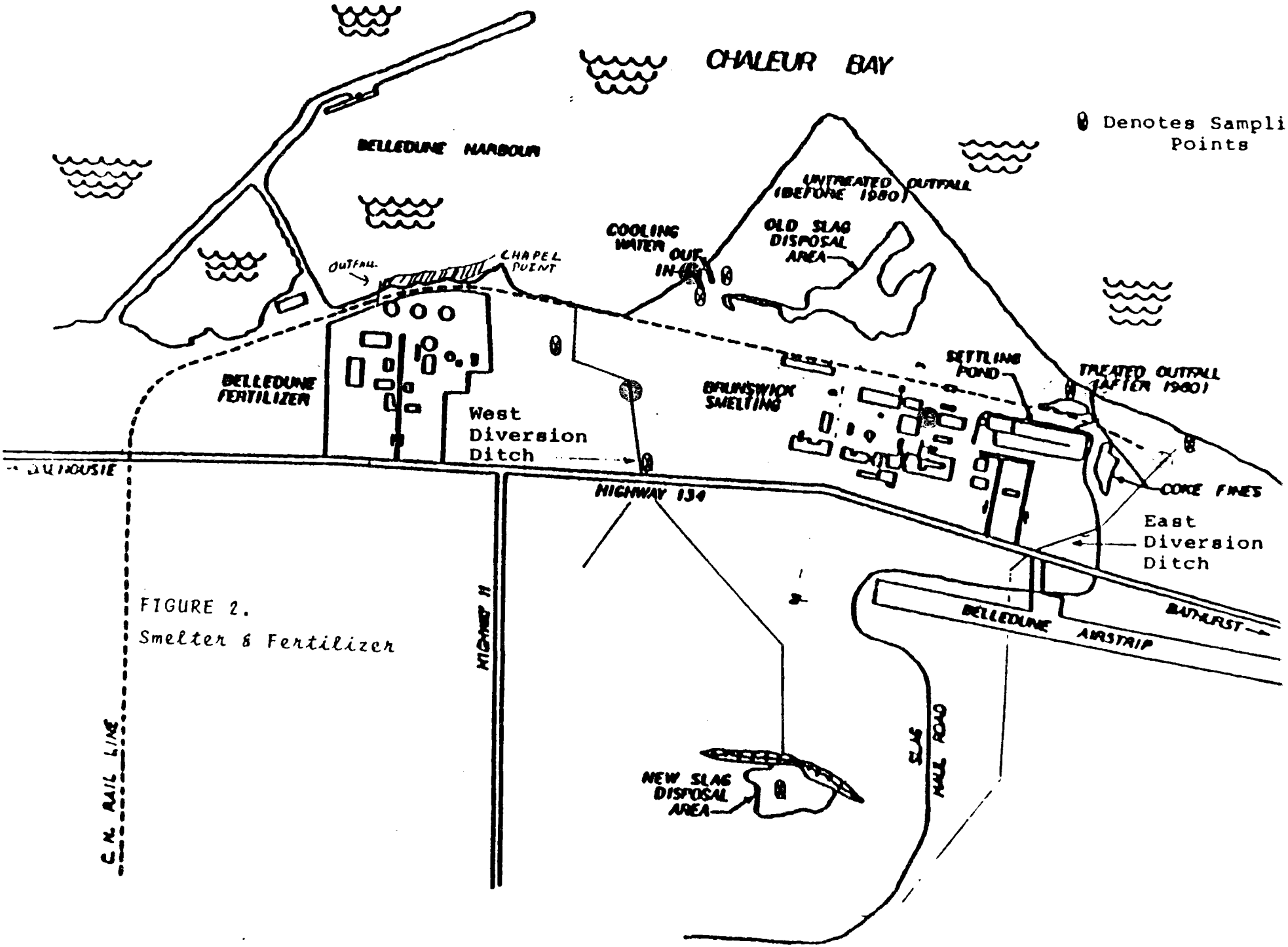


FIGURE 2.
Smelter & Fertilizer

```
**********************************************************************
* 89RP090 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
                  GENERAL                                      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000, FREQ:   1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  9.2
 2: 005 /HARDNESS.......................  255.                    MG/L
  : 020 /SUSPENDED SOLIDS (SS).........  5.                      MG/L
 4: 022 /MAGNESIUM (TOTAL).............  3.91                    MG/L
 5: 036 /CALCIUM (TOTAL)................  96.20                   MG/L
 6: 044 /ARSENIC (TOTAL)................  .22                     MG/L
 7: 046 /CADMIUM (TOTAL)................  .01                     MG/L
 8: 047 /CHROMIUM (TOTAL)...............  .01                     MG/L
 9: 048 /COPPER (TOTAL).................  .02                     MG/L
10: 049 /IRON (TOTAL)...................  .07                     MG/L
11: 051 /LEAD (TOTAL)...................  .09                     MG/L
12: 052 /ANTIMONY (TOTAL)............... L.05                     MG/L
13: 054 /ZINC (TOTAL)...................  .24                     MG/L
14: 159 /NICKEL (TOTAL)................. L.01                     MG/L
15: 160 /MANGANESE (TOTAL).............  .02                     MG/L
16: 162 /ALUMINUM (TOTAL)...............  .69                     MG/L
17: 500 /BIOASSAY ..................... TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:

R. Parker
Industrial & Air Programs Division
Environmental Control Branch
EP, Atlantic Region

FROM:

D. Vaughan
Laboratory Division
Environmental Control Branch
EP, Atlantic Region

Security-Classification
Our File 4705-37/B622-B
Your File
Date February 5, 1990

SUBJECT: BIOASSAY RESULTS - BRUNSWICK SMELTER

Attached is the Bioassay Report for sample #89RP090 (Brunswick Smelter, final effluent, collected September 28, 1989).

The sample was acutely lethal to fingerling rainbow trout, yielding a 4-day LC50 value of 51% (95% confidence limits: 17-119%). The cause of the observed mortality is not evident from the results of the chemical analysis.

David Vaughan

D. Vaughan

DV/dg

Attachment

cc: P. Hennebury
H. Samant
K. Doe

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Brunswick Smelter N.B. - final effluent

TIME COLLECTED: 1000 hrs. BY: Ian McLeod DATE: 28 Sept. 89

SAMPLE NO. 89RP090 LOCATOR CODE: BSMELT00

TEST CONDITIONS:

Vol 40L Duration 96 hr. Type X static / cont. flow Replacement rate N/A Aeration rate 250 (mL/min)

Control U/V
Water Dechlorinated / Dart. Municipal pH X ambient / adjusted Started 2 Oct 89; 1400

Test Organism O.mykiss #/Tank 10 Source Merlins

Length x ± S.D. (range) cm 4.9 ± 0.6 (3.8-7.0) n = 50

Weight x ± S.D. (range) g 1.4 ± 0.7 (0.6-5.0) n = 50 g/L 0.4

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	14-15	9.8-10.2	7.7-9.4	8/10	56	39 - 81 (1.8)	
32	14-15	9.5-10.0	7.6-9.2	3/10	>96		
10	14-15	9.5-9.9	7.5-8.7	0/10	>96		
3.2	14-15	9.4-9.9	7.3-8.2	0/10	>96		
Control	14-15	9.4-9.9	7.2-7.7	0/10	>96		

96-hour LC50 51% **95% Conf. Limits** 17 - 119%

Comments:

Performed By: David Vaughan Verified By: Kenneth G. Doe Date: 13 Feb 90

```
**********************************************************************
* 89RP089 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,   BY :ANDRE

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
                    GENERAL                                   PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000, FREQ:    1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: EAST DITCH

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..............  ....... VALUE ......  UNITS
 1: 001 /PH.............................    7.1
 2: 005 /HARDNESS.......................    325.                  MG/L
  : 020 /SUSPENDED SOLIDS (SS).........    18.                   MG/L
 4: 022 /MAGNESIUM (TOTAL).............    10.35                 MG/L
 5: 036 /CALCIUM (TOTAL)................    113.                  MG/L
 6: 044 /ARSENIC (TOTAL)................    .06                   MG/L
 7: 046 /CADMIUM (TOTAL)................    .12                   MG/L
 8: 047 /CHROMIUM (TOTAL)...............    .02                   MG/L
 9: 048 /COPPER (TOTAL).................    .24                   MG/L
 0: 049 /IRON (TOTAL)...................    6.96                  MG/L
 1: 051 /LEAD (TOTAL)...................    .15                   MG/L
12: 052 /ANTIMONY (TOTAL)..............  L.05                    MG/L
 3: 054 /ZINC (TOTAL)...................    10.55                 MG/L
 4: 159 /NICKEL (TOTAL).................    .02                   MG/L
15: 160 /MANGANESE (TOTAL).............    1.02                  MG/L
16: 162 /ALUMINUM (TOTAL)..............    1.03                  MG/L
```

****
* 89RP088 - ROY PARKER STATUS AS OF FEB 20, 1990 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000

DEPTH: .00 METERS, TIDE:
NARRATIVE: COOLIING WATER INTAKE

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.9	
2:	005 /HARDNESS	4400.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	7.	MG/L
4:	022 /MAGNESIUM (TOTAL)	1000.	MG/L
5:	036 /CALCIUM (TOTAL)	300.	MG/L
6:	044 /ARSENIC (TOTAL)	.28	MG/L
7:	046 /CADMIUM (TOTAL)	.05	MG/L
8:	047 /CHROMIUM (TOTAL)	.19	MG/L
9:	048 /COPPER (TOTAL)	.03	MG/L
10:	049 /IRON (TOTAL)	.30	MG/L
11:	051 /LEAD (TOTAL)	.41	MG/L
12:	052 /ANTIMONY (TOTAL)	.40	MG/L
13:	054 /ZINC (TOTAL)	.05	MG/L
14:	159 /NICKEL (TOTAL)	.23	MG/L
15:	160 /MANGANESE (TOTAL)	.02	MG/L
16:	162 /ALUMINUM (TOTAL)	1.00	MG/L

LAB NUMBER(S):

```
*****************************************************************************
* 89RP087 - ROY PARKER                              STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: BSMELT07/BRUNSWICK M&S LEAD SMELTER
                    COOLING WATER DISCHARGE                        PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000, FREQ:    1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: COOLING WATER DISCHARGE

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..............  ...... VALUE ......  UNITS
 1: 001 /PH.................................   8.0
 2: 005 /HARDNESS...........................   4180.                MG/L
  : 020 /SUSPENDED SOLIDS (SS).............  L5.                   MG/L
 4: 022 /MAGNESIUM (TOTAL).................   945.                 MG/L
 5: 036 /CALCIUM (TOTAL)....................   282.                 MG/L
 6: 044 /ARSENIC (TOTAL)....................   .59                  MG/L
 7: 046 /CADMIUM (TOTAL)....................   .18                  MG/L
 8: 047 /CHROMIUM (TOTAL)...................   .12                  MG/L
 9: 048 /COPPER (TOTAL).....................   .03                  MG/L
10: 049 /IRON (TOTAL).......................   .16                  MG/L
11: 051 /LEAD (TOTAL).......................   .44                  MG/L
12: 052 /ANTIMONY (TOTAL)...................   .39                  MG/L
13: 054 /ZINC (TOTAL).......................   .18                  MG/L
14: 159 /NICKEL (TOTAL).....................   .17                  MG/L
15: 160 /MANGANESE (TOTAL)..................   .02                  MG/L
16: 162 /ALUMINUM (TOTAL)...................   1.01                 MG/L
```

```
*****************************************************************************
* 89RP086 - ROY PARKER                              STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: BSMELT06/BRUNSWICK MINING + SMELTING
                  NEW CLARIFIER EFFLUENT (FINAL) TO BAY      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000, FREQ:   1
SAMPLING ENDED, DATE: 28/ 9/89 (SEP 28, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: CLARIFIER OVERFLOW
           (NOT FINAL ANYMORE)
*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
     .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....  9.5
 2: 005 /HARDNESS.....  270.                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS)..... L5.         MG/L
 4: 022 /MAGNESIUM (TOTAL).....  7.83           MG/L
 5: 036 /CALCIUM (TOTAL).....  94.81            MG/L
 6: 044 /ARSENIC (TOTAL).....  .26              MG/L
 7: 046 /CADMIUM (TOTAL).....  .03              MG/L
 8: 047 /CHROMIUM (TOTAL).....  .01             MG/L
 9: 048 /COPPER (TOTAL).....  .01               MG/L
10: 049 /IRON (TOTAL).....  .06                 MG/L
11: 051 /LEAD (TOTAL).....  .08                 MG/L
12: 052 /ANTIMONY (TOTAL)..... L.05             MG/L
13: 054 /ZINC (TOTAL).....  .03                 MG/L
14: 159 /NICKEL (TOTAL)..... L.01               MG/L
15: 160 /MANGANESE (TOTAL).....  .01            MG/L
16: 162 /ALUMINUM (TOTAL).....  .65             MG/L
```

```
**********************************************************************
* 89RP039 - ROY PARKER                          STATUS AS OF JUN  5, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: BSMELT06/BRUNSWICK MINING + SMELTING
                  NEW CLARIFIER EFFLUENT (FINAL) TO BAY      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1330, FREQ:   1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1330

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 8 DAY COMPOSITE

                          ---- SAMPLE ANALYSIS ----
    ............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  11.71
 2: 005 /HARDNESS...............  462.                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS)..  16.                   MG/L
 4: 022 /MAGNESIUM (TOTAL)......  1.93                  MG/L
 5: 036 /CALCIUM (TOTAL)........  182.                  MG/L
 6: 044 /ARSENIC (TOTAL)........  0.422                 MG/L
 7: 046 /CADMIUM (TOTAL)........ L0.01                  MG/L
 8: 047 /CHROMIUM (TOTAL).......  0.018                 MG/L
 9: 048 /COPPER (TOTAL).........  0.033                 MG/L
10: 049 /IRON (TOTAL)...........  0.035                 MG/L
11: 051 /LEAD (TOTAL)...........  0.112                 MG/L
12: 054 /ZINC (TOTAL)........... L0.01                  MG/L
13: 159 /NICKEL (TOTAL)........ L0.01                   MG/L
14: 160 /MANGANESE (TOTAL)..... L0.01                   MG/L
15: 162 /ALUMINUM (TOTAL).....  0.095                   MG/L
```

```
**********************************************************************
* 89RP038 - ROY PARKER                          STATUS AS OF JUL  3, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: BSMELT07/BRUNSWICK M&S LEAD SMELTER
                  COOLING WATER DISCHARGE                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1300, FREQ:   1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1300

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 8 DAY COMPOSITE SAMPLE

                        ----- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ....... VALUE ....... UNITS
 1: 001 /PH.............................   8.00
 2: 005 /HARDINESS......................   3619.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  L5.                   MG/L
 4: 022 /MAGNESIUM (TOTAL).............   650.7                MG/L
 5: 036 /CALCIUM (TOTAL)................   248.                MG/L
 6: 044 /ARSENIC (TOTAL)................   0.396               MG/L
 7: 046 /CADMIUM (TOTAL)................   0.118               MG/L
 8: 047 /CHROMIUM (TOTAL)...............   0.113               MG/L
 9: 048 /COPPER (TOTAL).................   0.039               MG/L
10: 049 /IRON (TOTAL)...................   0.167               MG/L
11: 051 /LEAD (TOTAL)...................   0.395               MG/L
12: 054 /ZINC (TOTAL)...................   0.149               MG/L
13: 159 /NICKEL (TOTAL).................   0.158               MG/L
14: 160 /MANGANESE (TOTAL).............   C.029               MG/L
15: 162 /ALUMINUM (TOTAL)..............   0.383               MG/L
```

```
**********************************************************************
* 89RP037 - ROY PARKER                          STATUS AS OF JUN  5, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
                  GENERAL                                      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1145, FREQ:   1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1145

DEPTH:    .00 METERS, TIDE:
NARRATIVE: GRAB SAMPLE, WEST DITCH

                        ----- SAMPLE ANALYSIS -----
     ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  8.23
 2: 005 /HARDNESS.......................  146.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS)..........  L5.                 MG/L
 4: 022 /MAGNESIUM (TOTAL)..............  2.09                MG/L
 5: 036 /CALCIUM (TOTAL)................  54.8                MG/L
 6: 044 /ARSENIC (TOTAL)................  0.065               MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                MG/L
 9: 048 /COPPER (TOTAL)................. L0.01                MG/L
10: 049 /IRON (TOTAL)...................  0.053               MG/L
11: 051 /LEAD (TOTAL)...................  0.098               MG/L
12: 054 /ZINC (TOTAL)................... L0.01                MG/L
13: 159 /NICKEL (TOTAL)................. L0.01                MG/L
14: 160 /MANGANESE (TOTAL)..............  0.021               MG/L
15: 162 /ALUMINUM (TOTAL).............. L0.025                MG/L
```

****
* 89RP036 - ROY PARKER STATUS AS OF JUN . 5, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BSMELTOO/BRUNSWICK M&S LEAD SMELTER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1130, FREQ: 1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: GRAB SAMPLE , EAST DITCH

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.18	
2:	005	/HARDNESS	187.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	7.	MG/L
4:	022	/MAGNESIUM (TOTAL)	4.56	MG/L
5:	036	/CALCIUM (TOTAL)	67.3	MG/L
6:	044	/ARSENIC (TOTAL)	0.128	MG/L
7:	046	/CADMIUM (TOTAL)	0.055	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	0.172	MG/L
10:	049	/IRON (TOTAL)	4.16	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	3.75	MG/L
13:	159	/NICKEL (TOTAL)	L0.01	MG/L
14:	160	/MANGANESE (TOTAL)	0.205	MG/L
15:	162	/ALUMINUM (TOTAL)	0.276	MG/L

****
* 89RP035 - ROY PARKER STATUS AS OF JUL 3, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BSMELTOO/BRUNSWICK M&S LEAD SMELTER
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1115, FREQ: 1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1115

DEPTH: .00 METERS, TIDE:
NARRATIVE: 8 DAY COMPOSITE,COOLING WATER INTAKE

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.89	
2:	005	/HARDNESS	4217.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	798.8	MG/L
5:	036	/CALCIUM (TOTAL)	284.	MG/L
6:	044	/ARSENIC (TOTAL)	0.319	MG/L
7:	046	/CADMIUM (TOTAL)	0.058	MG/L
8:	047	/CHROMIUM (TOTAL)	0.137	MG/L
9:	048	/COPPER (TOTAL)	0.036	MG/L
10:	049	/IRON (TOTAL)	0.216	MG/L
11:	051	/LEAD (TOTAL)	0.374	MG/L
12:	054	/ZINC (TOTAL)	0.040	MG/L
13:	159	/NICKEL (TOTAL)	0.173	MG/L
14:	160	/MANGANESE (TOTAL)	0.022	MG/L
15:	162	/ALUMINUM (TOTAL)	0.402	MG/L

```
**********************************************************************
* 89RP034 - ROY PARKER                          STATUS AS OF OCT 30, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: BSMELTOO/BRUNSWICK M&S LEAD SMELTER
                  GENERAL                                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1100, FREQ:   1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: GRAB SAMPLE FOR LC50,8-DAY COMPOPSITE FO
           R CHEMICAL ANALISYS,FINAL TO BAY
                      ---- SAMPLE ANALYSIS ------
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  11.73
 2: 005 /HARDNESS.......................  520.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  60.                 MG/L
 4: 022 /MAGNESIUM (TOTAL).............  0.627               MG/L
 5: 036 /CALCIUM (TOTAL)................  210.                MG/L
 6: 044 /ARSENIC (TOTAL)................  1.55                MG/L
 7: 046 /CADMIUM (TOTAL)................  0.026               MG/L
 8: 047 /CHROMIUM (TOTAL)...............  0.019               MG/L
 9: 048 /COPPER (TOTAL).................  0.017               MG/L
10: 049 /IRON (TOTAL)...................  0.045               MG/L
11: 051 /LEAD (TOTAL)...................  0.064               MG/L
12: 054 /ZINC (TOTAL)...................  0.415               MG/L
13: 159 /NICKEL (TOTAL)................. L0.01                MG/L
14: 160 /MANGANESE (TOTAL).............  0.028               MG/L
15: 162 /ALUMINUM (TOTAL)..............  0.105               MG/L
16: 500 /BIOASSAY ..................... 'DONE'
```

ENVIRONMENT CANADA MEMORANDUM

TO:

W. Parker
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

Security-Classification
YOUR COPY
Our File 4705-37/B622-1
Your File
Date July 24, 1989

SUBJECT: BIOASSAY RESULTS - BRUNSWICK SMELTER

On May 25, 1989, Ian McLeod collected a grab sample of final effluent from the Brunswick Mining and Smelting Ltd. smelter in Belledune, New Brunswick.

On May 29, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 4.2 $\pm$ 1.6 g as the test organism. Since the pH of the full-strength effluent was 11.5, a lethal level, and the volume of effluent was limited, only an adjusted pH bioassay was conducted.

The pH adjusted sample was acutely lethal to the test fish, yielding a 4-day LC50 value of 76%. Note, however, that only 60% mortality occurred in the full-strength effluent.

The cause of the observed mortality is not clearly evident from the chemical analysis results.

A copy of the bioassay report is attached which provides further test details.

David Vaughan

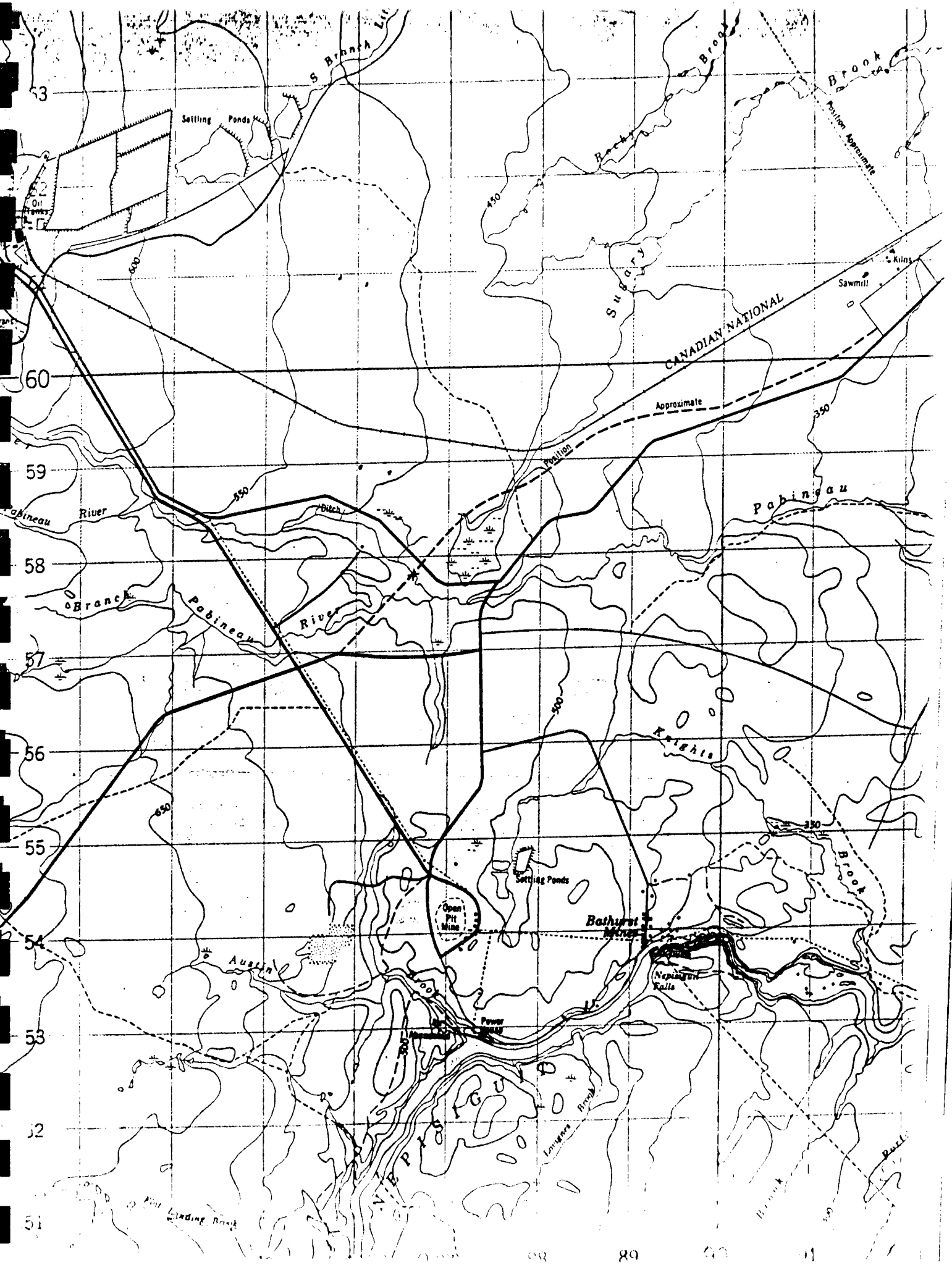
D. Vaughan

DV/bb

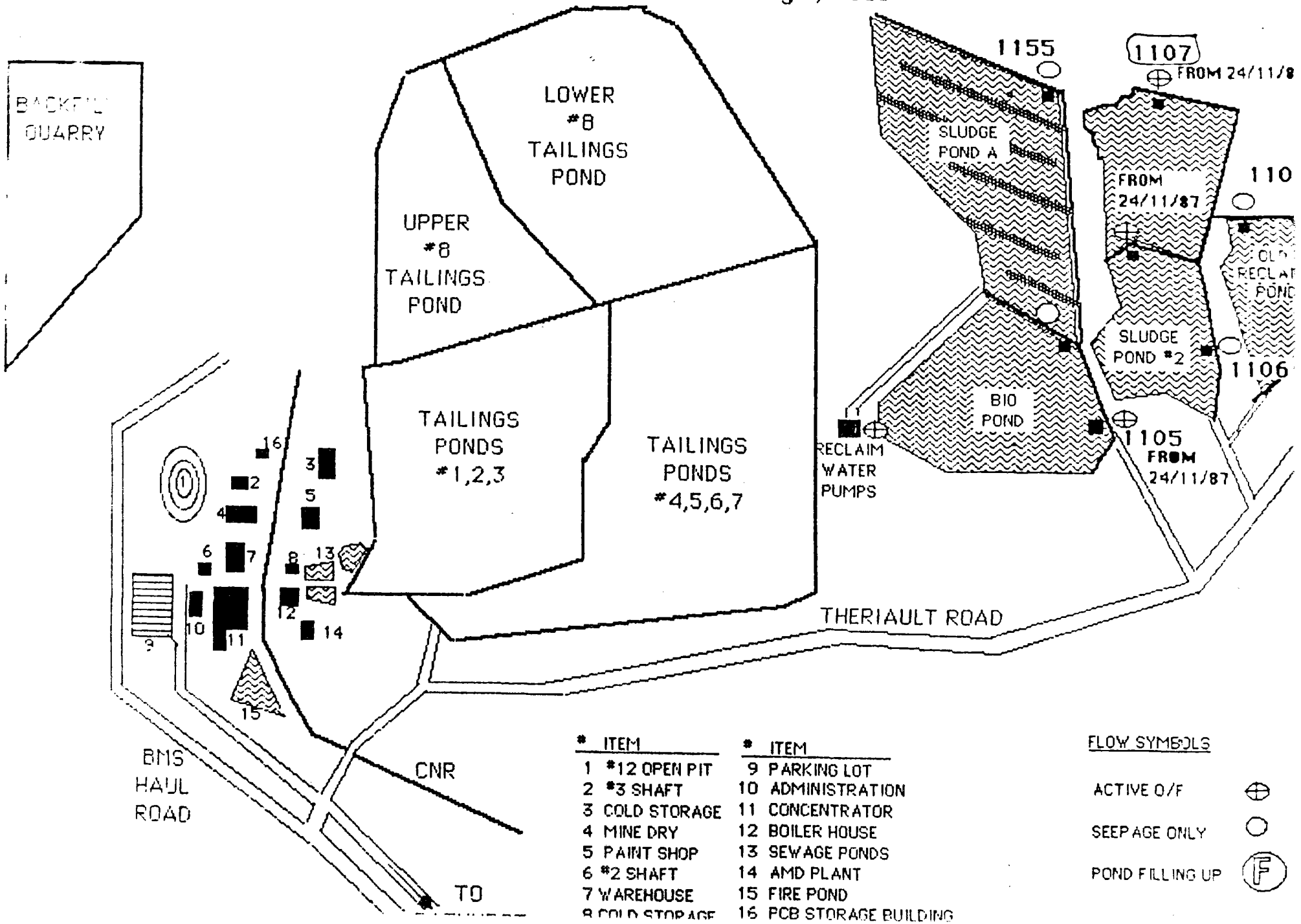
Attachment

cc: P. Hennebury
H. Samant
K. Doe

BRUNSWICK #12


Settling Ponds
Oil Tanks
S Branch
Brook
Position Approximate
Sugary
Kilns
Sawmill
CANADIAN NATIONAL
Approximate
Position
Ditch
Pabineau River
Pabineau
Branch
Pabineau River
Keyhis
Brook
Settling Ponds
Open Pit Mine
Bathurst Mines
Nepisiguit Falls
Power
Nepisiguit
Longues Brook
Fish Landing Brook
450
600
550
500
650
350
63
62
60
59
58
57
56
55
54
53
52
51

BRUNSWICK MINING PLOT PLAN -February 9, 1988



*	ITEM	*	ITEM
1	#12 OPEN PIT	9	PARKING LOT
2	#3 SHAFT	10	ADMINISTRATION
3	COLD STORAGE	11	CONCENTRATOR
4	MINE DRY	12	BOILER HOUSE
5	PAINT SHOP	13	SEWAGE PONDS
6	#2 SHAFT	14	AMD PLANT
7	WAREHOUSE	15	FIRE POND
8	COLD STORAGE	16	PCB STORAGE BUILDING

FLOW SYMBOLS

ACTIVE O/F ⊕

SEEPAGE ONLY ○

POND FILLING UP (F)

****
* 89RP028 - ROY PARKER STATUS AS OF OCT 30, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BRUN1201/BRUNSWICK NO 12
FINAL EFFLUENT PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1330, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1330

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	5.49	
2:	005	/HARDNESS	194.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	30.	MG/L
4:	022	/MAGNESIUM (TOTAL)	3.04	MG/L
5:	036	/CALCIUM (TOTAL)	72.5	MG/L
6:	044	/ARSENIC (TOTAL)	0.120	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	0.012	MG/L
9:	048	/COPPER (TOTAL)	0.013	MG/L
10:	049	/IRON (TOTAL)	2.92	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	0.997	MG/L
13:	130	/THIOSALTS TOTAL	120.	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	1.50	MG/L
16:	162	/ALUMINUM (TOTAL)	0.309	MG/L
17:	500	/BIOASSAY	'DONE'	

****
* 89RP027 - ROY PARKER STATUS AS OF JUN 5, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: BRUNS604/BRUNSWICK MINING & SMELTING #6 MINE
KNIGHT BROOK AT GRAND FALLS ROAD PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1300

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	4.57	
2:	005	/HARDNESS	97.7	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	2.80	MG/L
5:	036	/CALCIUM (TOTAL)	34.5	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	0.025	MG/L
10:	049	/IRON (TOTAL)	0.686	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	2.41	MG/L
13:	159	/NICKEL (TOTAL)	L0.01	MG/L
14:	160	/MANGANESE (TOTAL)	1.70	MG/L
15:	162	/ALUMINUM (TOTAL)	L0.025	MG/L

ENVIRONMENT CANADA MEMORANDUM

TO:

W.R. Parker
Air Pollution Control Division
Air and Water Branch
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Lab Division
Air and Water Branch
Environment Canada, Atlantic Region

Security-Classification
Our File Original on File 4705-37-3522-B YOUR COPY
Your File
Date July 24, 1989

SUBJECT: BIOASSAY RESULTS - BRUNSWICK #12

On May 24, 1989, Ian McLeod collected a grab sample of final effluent from the Brunswick #12 mine, near Bathurst, New Brunswick.

On May 29, 1989, two 96-hour acute lethal static bioassays were started on this sample, using rainbow trout fingerling as the test organism. One bioassay was conducted at ambient pH, in the other the pH was adjusted in an effort to keep it from dropping to lethal levels during the test, as it is prone to do in this effluent.

The ambient pH tests yielded an approximate 4-day LC50 value of 12%, although it should be noted that only 80% mortality occurred in the full-strength effluent. The observed mortality is attributed primarily to low pH.

In the adjusted pH test, the pH at 32% concentration dropped to a level of 3.6 overnight, resulting in 20% mortality. There was no mortality at any other effluent concentration or in the control tank. The pH adjusted effluent was thus not acutely lethal to the test fish.

A copy of each bioassay report is attached which provides additional test details.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe

```
**********************************************************************
* 89RP075 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: BRUN1201/BRUNSWICK NO 12
                    FINAL EFFLUENT                              PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1000, FREQ:   1
SAMPLING ENDED, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****
```

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.1	
2:	001F/PH	9.4	
:	005 /HARDNESS	TO BE COMPLETED	
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	022 /MAGNESIUM (TOTAL)	10.30	MG/L
6:	036 /CALCIUM (TOTAL)	745.	MG/L
7:	044 /ARSENIC (TOTAL)	.45	MG/L
8:	046 /CADMIUM (TOTAL)	.03	MG/L
9:	047 /CHROMIUM (TOTAL)	.18	MG/L
10:	048 /COPPER (TOTAL)	.15	MG/L
11:	049 /IRON (TOTAL)	.72	MG/L
12:	051 /LEAD (TOTAL)	.86	MG/L
13:	052 /ANTIMONY (TOTAL)	.89	MG/L
14:	054 /ZINC (TOTAL)	.24	MG/L
15:	130 /THIOSALTS TOTAL	110.	MG/L
16:	159 /NICKEL (TOTAL)	.10	MG/L
17:	160 /MANGANESE (TOTAL)	.59	MG/L
18:	162 /ALUMINUM (TOTAL)	2.32	MG/L
19:	500 /BIOASSAY	TO BE COMPLETED	

E N V I R O N M E N T C A N A D A M E M O R A N D U M

TO:

R. Parker
Industrial & Air Programs Division
Environmental Control Branch
EP, Atlantic Region

FROM:

D. Vaughan
Laboratory Division
Environmental Control Branch
EP, Atlantic Region

Security-Classification
Our File 4705-37/B622-B
Your File
Date February 5, 1990

SUBJECT: BIOASSAY RESULTS - BRUNSWICK #12

Attached is the Bioassay Report for sample #89RP075 (Brunswick #12, final effluent, collected September 26, 1989).

As the report indicates, the sample was not acutely lethal to rainbow trout fingerling.

David Vaughan

D. Vaughan

DV/dg

Attachment

cc: P. Hennebury
H. Samant
K. Doe

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Brunswick #12, N.B. - final effluent

TIME COLLECTED: 1000 hrs. BY: Ian McLeod DATE: 26 Sept. 89

SAMPLE NO. 89RP075 LOCATOR CODE: BRUN1201

TEST CONDITIONS:

Vol 40L Duration 96 hr. Type X static / ___ cont. flow / ___ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water U/V Dechlorinated Dart. Municipal pH X ambient / ___ adjusted Started 2 Oct 89; 1400

Test Organism O.mykiss #/Tank 10 Source Merlins

Length x ± S.D. (range) cm 5.1 ± 0.6 (3.9-6.5) n = 50

Weight x ± S.D. (range) g 1.4 ± 0.5 (0.6-2.8) n = 50 g/L 0.4

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-15	8.8-9.9	6.7-7.2	0/10	>96		
32	15-16	9.2-9.9	5.0-7.4	0/10	>96		
10	15-16	9.2-9.9	5.3-7.5	0/10	>96		
3.2	15-16	9.3-9.9	6.6-7.6	0/10	>96		
Control	15-16	9.4-9.9	7.0-7.7	0/10	>96		

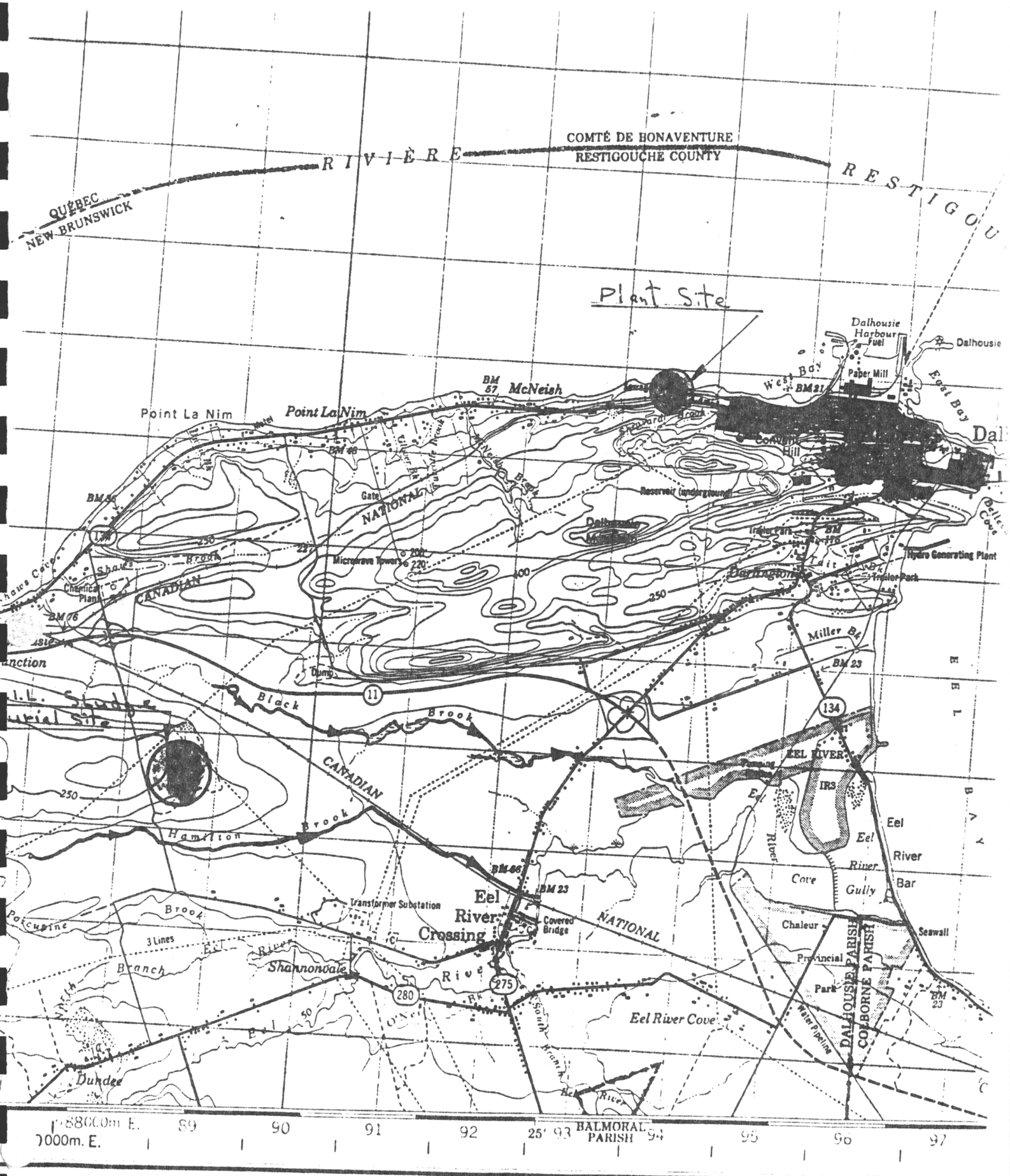
96-hour LC50 - **95% Conf. Limits** -

Comments: Not acutely lethal

Performed By: David Vaughan Verified By: Kenneth G. Doe Date: 11 Feb 90

C

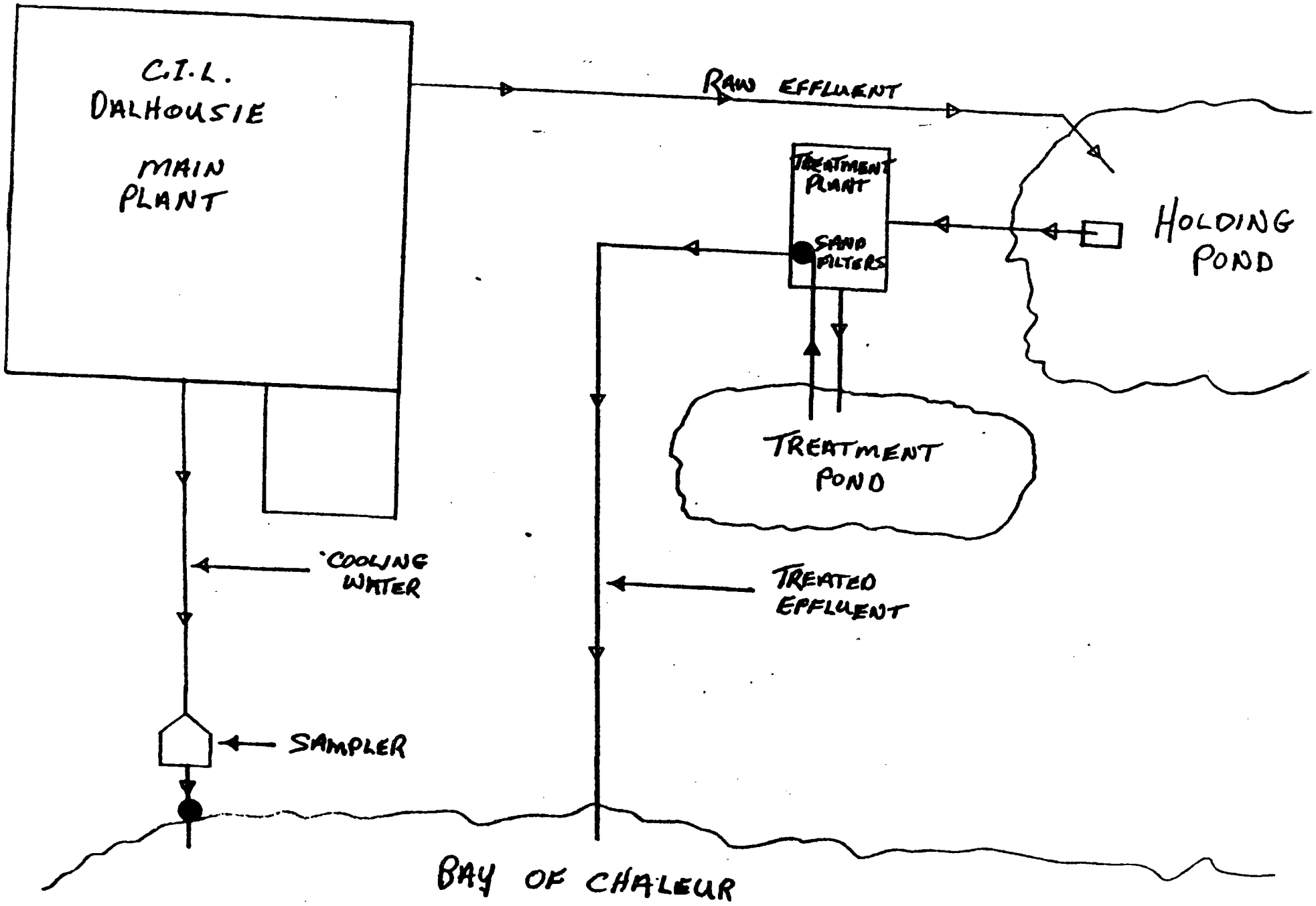
C.I.L. DALHOUSIE



AND MAPPING BRANCH,
Y, MINES AND RESOURCES.
phs taken in 1970 Culture check

the Canada Map Office,
d Resources Ottawa

Roads
hard surface all-weather
Route
passe


C.I.L.
DALHOUSIE
MAIN
PLANT
RAW EFFLUENT
TREATMENT
PLANT
SAND
FILTERS
HOLDING
POND
TREATMENT
POND
COOLING
WATER
TREATED
EFFLUENT
SAMPLER
BAY OF CHALEUR

****

* 89PH073 - PHIL HENNEBURY STATUS AS OF MAR 6, 1990 *

REGISTERED ON: AUG 22, 1989, BY :PHIL H

LOCATOR: CILDAL46/CANADIAN INDUSTRIES LIMITED
PLANT COOLING WATER PROV: NB
NORMAL ANALYSIS: 50
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 15/ 8/89 (AUG 15, 1989), TIME: 800, FREQ: 24
SAMPLING ENDED, DATE: 16/ 8/89 (AUG 16, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	050 /MERCURY (TOTAL)	0.0989	MG/L
2:	278C/FLOW	1385.	CU M/DAY
3:	421 /PRODUCTION	94.0	TONNES/DAY

****

* 89PH074 - PHIL HENNEBURY STATUS AS OF MAR 6, 1990 *

REGISTERED ON: AUG 22, 1989, BY :PHIL H

LOCATOR: CILDAL01/CANADIAN INDUSTRIES LIMITED
FINAL EFFLUENT TO RIVER PROV: NB
NORMAL ANALYSIS: 50,166,1
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

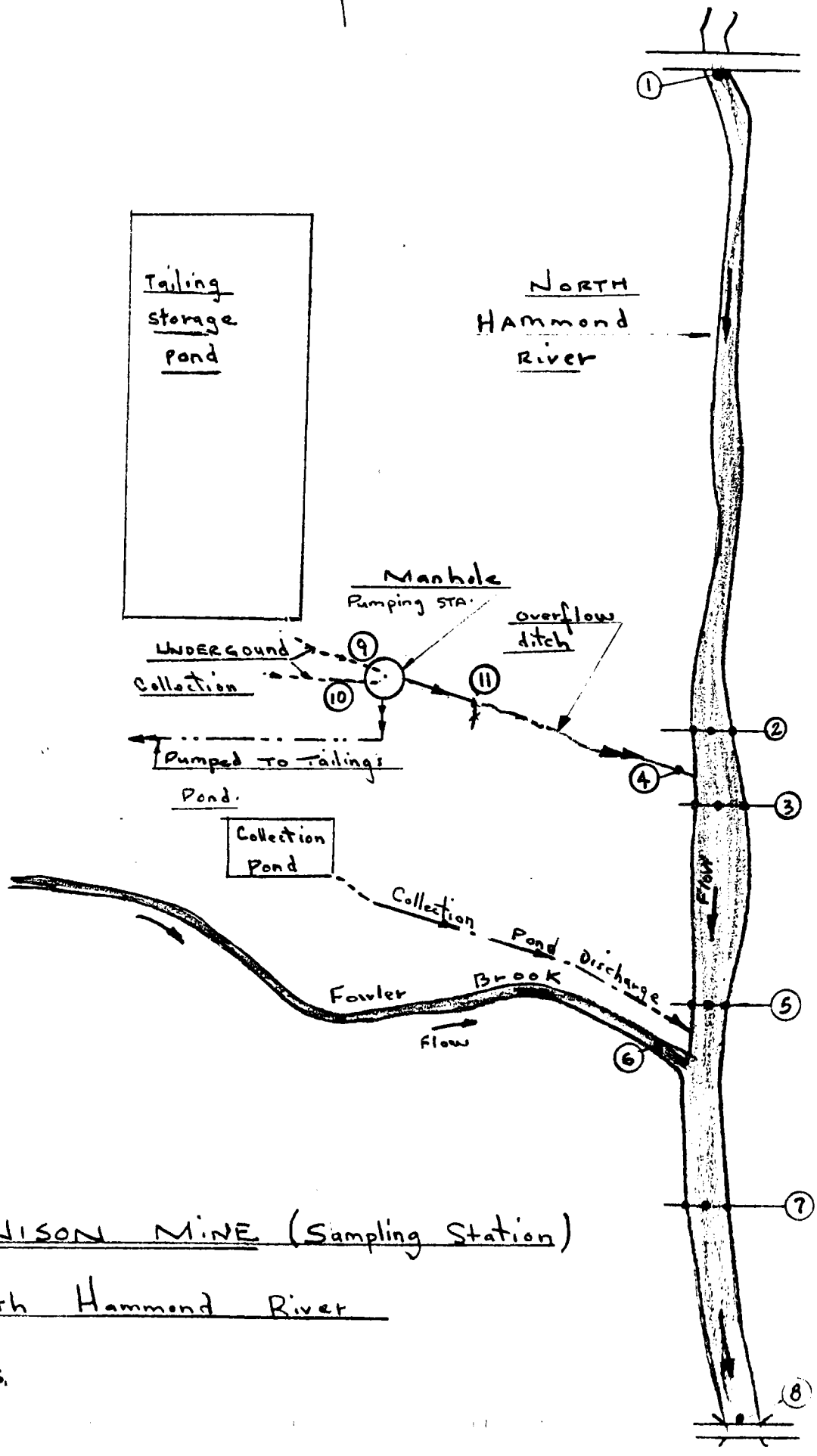
SAMPLING BEGAN, DATE: 15/ 8/89 (AUG 15, 1989), TIME: 800, FREQ: 7
SAMPLING ENDED, DATE: 15/ 8/89 (AUG 15, 1989), TIME: 1500

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	050 /MERCURY (TOTAL)	0.000849	MG/L
2:	278C/FLOW	419.0	CU M/DAY
3:	421 /PRODUCTION	94.	TONNES/DAY

DENNISON MINES



DENISON MINE (Sampling Station)

North Hammond River

N.T.S.

```
**********************************************************************************
* 89RP066 - ROY PARKER                                  STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: DENMIN01/DENNISON MINE
                    SETTLING POND OVERFLOW                          PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  6/ 7/89 (JUL  6, 1989), TIME: 1315, FREQ:   1
SAMPLING ENDED, DATE:  6/ 7/89 (JUL  6, 1989), TIME: 1315

DEPTH:    .00 METERS, TIDE:
NARRATIVE: BRINE FROM INSIDE PLANT

                          ----- SAMPLE ANALYSIS ------
     ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  6.33
 2: 005 /HARDNESS.......................  2920.                MG/L
 3: 018 /SOLIDS, TOTAL (TS).............  339960.              MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..........  10.                  MG/L
 5: 022 /MAGNESIUM (TOTAL)..............  124.                 MG/L
 6: 026 /CALCIUM (TOTAL)................  964.                 MG/L
 7: 044 /ARSENIC (TOTAL)................  0.27                 MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                 MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                 MG/L
10: 048 /COPPER (TOTAL)................. L0.01                 MG/L
11: 049 /IRON (TOTAL)...................  0.82                 MG/L
12: 051 /LEAD (TOTAL)................... L0.01                 MG/L
13: 052 /ANTIMONY (TOTAL)...............  1.2                  MG/L
14: 054 /ZINC (TOTAL)...................  0.48                 MG/L
15: 131 /TOTAL DISSOLVED SOLIDS (TDS)..  339950.               MG/L
16: 159 /NICKEL (TOTAL)................. L0.01                 MG/L
17: 160 /MANGANESE (TOTAL)..............  1.21                 MG/L
18: 162 /ALUMINUM (TOTAL)...............  2.92                 MG/L
```

```
**********************************************************************
* 89ST054 - EARTH TRIDER                        STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 27, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/11/89 (NOV  8, 1989), TIME: 1150, FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1150

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.(RUN #5).
           R O PERMIATE.
                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  7.7
 2: 009 /ALKALINITY..................... "0.005 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).............  L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL).............  L0.01                MG/L
 6: 036 /CALCIUM (TOTAL)................  0.01                MG/L
 7: 044 /ARSENIC (TOTAL)................ L0.05                MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                MG/L
10: 048 /COPPER (TOTAL)................. L0.01                MG/L
11: 049 /IRON (TOTAL)................... L0.01                MG/L
12: 051 /LEAD (TOTAL)................... L0.02                MG/L
13: 054 /ZINC (TOTAL)................... L0.01                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.                   MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............. L0.01                MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.11                MG/L
18: 259 /POTASSIUM...................... L0.1                 MG/L
```

```
**********************************************************************
* 89ST253 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 27, 1989,  BY :BOB G

LOCATOR: NEGUAC02/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE:  8/11/89 (NOV  8, 1989), TIME: 1150. FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1150

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #5).
           R O CONCENTRATE.
                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..............  ...... VALUE ......  UNITS
 1: 001 /PH.............................    9.7
 2: 009 /ALKALINITY.....................  "78.5 CARB"           MG/L
 3: 018 /SOLIDS, TOTAL (TS).............    580.                MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  L5.                   MG/L
 5: 022 /MAGNESIUM (TOTAL).............    7.50                MG/L
 6: 036 /CALCIUM (TOTAL)................   17.51               MG/L
 7: 044 /ARSENIC (TOTAL)................  L0.05                MG/L
 8: 046 /CADMIUM (TOTAL)................  L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)...............  L0.01                MG/L
10: 048 /COPPER (TOTAL).................  L0.01                MG/L
11: 049 /IRON (TOTAL)...................    0.01               MG/L
12: 051 /LEAD (TOTAL)...................  L0.02                MG/L
13: 054 /ZINC (TOTAL)...................  L0.01                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..    580.                MG/L
15: 159 /NICKEL (TOTAL).................  L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............    0.03                MG/L
17: 162 /ALUMINUM (TOTAL)..............    0.16                MG/L
18: 259 /POTASSIUM......................    2.54                MG/L
```

```
**********************************************************************
* S9ST092 - BARTH TRIDER                        STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989.  BY 1803 6

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/11/89 (NOV  8, 1989), TIME: 1945, FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1945

DEPTH:    .00 METERS. TIDE:
NARRATIVE: U.F.R.O.  (RUN #5)
           R O FEED.
                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ....... VALUE ......  UNITS
 1: 001 /PH.................................  6.7
 2: 009 /ALKALINITY.........................  "0.013 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).................  100.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..............  L5.                   MG/L
 5: 022 /MAGNESIUM (TOTAL)..................  2.04                  MG/L
 6: 026 /CALCIUM (TOTAL).....................  17.41                 MG/L
 7: 044 /ARSENIC (TOTAL).....................  L0.05                 MG/L
 8: 046 /CADMIUM (TOTAL).....................  L0.01                 MG/L
 9: 047 /CHROMIUM (TOTAL)....................  L0.01                 MG/L
10: 048 /COPPER (TOTAL)......................  L0.01                 MG/L
11: 049 /IRON (TOTAL)........................  0.34                  MG/L
12: 051 /LEAD (TOTAL)........................  L0.02                 MG/L
13: 054 /ZINC (TOTAL)........................  0.04                  MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)........  100.                  MG/L
15: 159 /NICKEL (TOTAL)......................  L0.01                 MG/L
16: 160 /MANGANESE (TOTAL)...................  0.66                  MG/L
17: 162 /ALUMINUM (TOTAL)....................  0.12                  MG/L
18: 259 /POTASSIUM...........................  L0.1                  MG/L
```

```
**********************************************************************
* B93T091 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989.  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                       GENERAL                                  PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/11/89 (NOV  8, 1989), TIME: 1945, FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1945

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #5)
           R O PERMIATE.
                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  5.2
 2: 009 /ALKALINITY..................... "L0.001 CARB"        MG/L
 3: 018 /SOLIDS, TOTAL (TS)............. L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).......... L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL).............. L0.01                MG/L
 6: 036 /CALCIUM (TOTAL)................  0.08                MG/L
 7: 044 /ARSENIC (TOTAL)................ L0.005               MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                MG/L
10: 048 /COPPER (TOTAL)................. L0.01                MG/L
11: 049 /IRON (TOTAL)................... L0.01                MG/L
12: 051 /LEAD (TOTAL)................... L0.02                MG/L
13: 054 /ZINC (TOTAL)................... L0.01                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.                   MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............. L0.01                MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.09                MG/L
18: 259 /POTASSIUM...................... L0.1                 MG/L
```

```
**********************************************************************
* 89GT090 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE:  8/11/89 (NOV  8, 1989), TIME: 1945. FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1945

DEPTH:    .00 METERS. TIDE:
NARRATIVE: U.F.R.O.  (RUN #5)
           R O CONCENTRATE.
                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..........  ..... VALUE ..... UNITS
 1: 001 /PH.............................  7.4
 2: 009 /ALKALINITY..................... "0.34 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).............  512.                 MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..........  L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL).............  10.50                MG/L
 6: 036 /CALCIUM (TOTAL)................  86.18                MG/L
 7: 044 /ARSENIC (TOTAL)................  L0.5                 MG/L
 8: 046 /CADMIUM (TOTAL)................  L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)...............  L0.01                MG/L
10: 048 /COPPER (TOTAL).................  0.02                 MG/L
11: 049 /IRON (TOTAL)...................  0.32                 MG/L
12: 051 /LEAD (TOTAL)...................  L0.02                MG/L
13: 054 /ZINC (TOTAL)...................  0.11                 MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..  512.                  MG/L
15: 159 /NICKEL (TOTAL).................  L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............  3.30                 MG/L
17: 162 /ALUMINUM (TOTAL)..............  0.24                 MG/L
18: 259 /POTASSIUM......................  L0.1                 MG/L
```

```
**********************************************************************
* 89GT088 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/11/89 (NOV  8, 1989), TIME: 1200, FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1200

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #5)
           RAW FEED.
                          ---- SAMPLE ANALYSIS ----
     .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..........................  10.1
 2: 009 /ALKALINITY..................  "31.5 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).........  136.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)......  L5.                   MG/L
 5: 022 /MAGNESIUM (TOTAL)..........  1.74                  MG/L
 6: 026 /CALCIUM (TOTAL).............  16.78                MG/L
 7: 044 /ARSENIC (TOTAL).............  L0.05                MG/L
 8: 046 /CADMIUM (TOTAL).............  L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)............  L0.01                MG/L
10: 048 /COPPER (TOTAL).............  L0.01                 MG/L
11: 049 /IRON (TOTAL)...............  0.15                  MG/L
12: 051 /LEAD (TOTAL)...............  L0.02                 MG/L
13: 054 /ZINC (TOTAL)...............  L0.01                 MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..  136.               MG/L
15: 159 /NICKEL (TOTAL).............  L0.01                 MG/L
16: 160 /MANGANESE (TOTAL)..........  0.09                  MG/L
17: 162 /ALUMINUM (TOTAL)...........  0.12                  MG/L
18: 259 /POTASSIUM..................  L0.1                  MG/L
```

```
**********************************************************************
* BBGT089 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/11/89 (NOV  8, 1989), TIME: 1150, FREQ:   1
SAMPLING ENDED, DATE:  8/11/89 (NOV  8, 1989), TIME: 1150

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #5)
           R O FEED.

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  10.0
 2: 009 /ALKALINITY..................... "38.0 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).............  120.                MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..........  L5.                 MG/L
 5: 022 /MAGNESIUM (TOTAL)..............  1.65                MG/L
 6: 036 /CALCIUM (TOTAL)................  15.70               MG/L
 7: 044 /ARSENIC (TOTAL)................  L0.5                MG/L
 8: 046 /CADMIUM (TOTAL)................  L0.1                MG/L
 9: 047 /CHROMIUM (TOTAL)...............  L0.1                MG/L
10: 048 /COPPER (TOTAL).................  L0.1                MG/L
11: 049 /IRON (TOTAL)...................  0.03                MG/L
12: 051 /LEAD (TOTAL)...................  L0.02               MG/L
13: 054 /ZINC (TOTAL)...................  L0.1                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)...  120.                MG/L
15: 159 /NICKEL (TOTAL).................  L0.01               MG/L
16: 160 /MANGANESE (TOTAL)..............  0.06                MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.12                MG/L
18: 259 /POTASSIUM......................  L0.1                MG/L
```

```
**********************************************************************
* 89GT087 - GARTH TRIDER                        STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  7/11/89 (NOV  7, 1989), TIME: 2100, FREQ:   1
SAMPLING ENDED, DATE:  7/11/89 (NOV  7, 1989), TIME: 2100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #4)
           R O PERMIATE.
                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  5.2
 2: 009 /ALKALINITY..................... "L0.001 CARB"        MG/L
 3: 018 /SOLIDS, TOTAL (TS)............. L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)......... L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL).............. L0.01                MG/L
 6: 036 /CALCIUM (TOTAL)................  0.08                MG/L
 7: 044 /ARSENIC (TOTAL)................ L0.05                MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                MG/L
10: 048 /COPPER (TOTAL)................. L0.01                MG/L
11: 049 /IRON (TOTAL)...................  0.01                MG/L
12: 051 /LEAD (TOTAL)................... L0.02                MG/L
13: 054 /ZINC (TOTAL)................... L0.01                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.                  MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............. L0.01                MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.07                MG/L
18: 259 /POTASSIUM...................... L0.01                MG/L
```

```
**********************************************************************
* 892 286 - BARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTRATION: NOV 22, 1989.  BY :BCB G

LOCATOR: NEGLAC00/N.B. DEPT OF TRANSPORTATION, NEGLAC, N.B
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  7/11/89 (NOV  7, 1989), TIME: 0120. FREQ:   1
SAMPLING ENDED, DATE:  7/11/89 (NOV  7, 1989), TIME: 2100

DEPTH:    .00 METERS. TIDE:
NARRATIVE: J.F.R.D. (RUN #4)
           R.C. CONCENTRATE.

                          ---- SAMPLE ANALYSIS ----

     .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..................................  7.2
 2: 029 /ALKALINITY..........................  "0.17 CARB"          MG/L
 3: 013 /SOLIDS, TOTAL (TS).................  400.                 MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..............  L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL)..................  7.88                 MG/L
 6: 036 /CALCIUM (TOTAL).....................  65.19                MG/L
 7: 044 /ARSENIC (TOTAL).....................  0.05                 MG/L
 8: 046 /CADMIUM (TOTAL).....................  L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)....................  L0.01                MG/L
10: 048 /COPPER (TOTAL)......................  0.01                 MG/L
11: 049 /IRON (TOTAL)........................  0.67                 MG/L
12: 051 /LEAD (TOTAL)........................  L0.02                MG/L
13: 054 /ZINC (TOTAL)........................  0.08                 MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..      400.                 MG/L
15: 159 /NICKEL (TOTAL).....................  L0.01                MG/L
16: 162 /MANGANESE (TOTAL)..................  2.46                 MG/L
17: 152 /ALUMINUM (TOTAL)...................  0.62                 MG/L
18: 253 /POTASSIUM..........................  L0.1                 MG/L
```

```
**********************************************************************
* 89GT084 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989.  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                  GENERAL                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  7/11/89 (NOV  7, 1989), TIME: 2100, FREQ:   1
SAMPLING ENDED, DATE:  7/11/89 (NOV  7, 1989), TIME: 2120

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  (RUN #4)
           RAW FEED.
                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..............................  6.5
 2: 009 /ALKALINITY..................... "0.009 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).............  104.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..........  L5.                   MG/L
 5: 022 /MAGNESIUM (TOTAL).............  1.63                  MG/L
 6: 036 /CALCIUM (TOTAL)................  14.04                 MG/L
 7: 044 /ARSENIC (TOTAL)................  0.05                  MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                  MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                  MG/L
10: 048 /COPPER (TOTAL)................. L0.01                  MG/L
11: 049 /IRON (TOTAL)...................  0.51                  MG/L
12: 051 /LEAD (TOTAL)................... L0.02                  MG/L
13: 054 /ZINC (TOTAL)................... L0.01                  MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..  104.                  MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                  MG/L
16: 160 /MANGANESE (TOTAL):.............  0.48                  MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.12                  MG/L
18: 259 /POTASSIUM...................... L0.1                   MG/L
```

```
**********************************************************************
* 89GT083 - GARTH TRIDER                        STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                  GENERAL                                      PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE:  6/11/89 (NOV  6, 1989). TIME: 1722. FREQ:   1
SAMPLING ENDED. DATE:  6/11/89 (NOV  6, 1989). TIME: 1700

DEPTH:    .00 METERS. TIDE:
NARRATIVE: C.F.R.O.  (RUN #3)
           R O PERMIATE.
                          ---- SAMPLE ANALYSIS ----
     .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  5.4
 2: 009 /ALKALINITY.............. "L0.001 CARB"        MG/L
 3: 018 /SOLIDS, TOTAL (TS)..... L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..... L5.               MG/L
 5: 022 /MAGNESIUM (TOTAL)..... L0.01                 MG/L
 6: 036 /CALCIUM (TOTAL).....  0.12                   MG/L
 7: 044 /ARSENIC (TOTAL)..... 0.13                    MG/L
 8: 046 /CADMIUM (TOTAL)..... L0.01                   MG/L
 9: 047 /CHROMIUM (TOTAL)..... L0.01                  MG/L
10: 048 /COPPER (TOTAL)..... L0.01                    MG/L
11: 049 /IRON (TOTAL).....  0.03                      MG/L
12: 051 /LEAD (TOTAL)..... L0.02                      MG/L
13: 054 /ZINC (TOTAL)..... L0.01                      MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.           MG/L
15: 159 /NICKEL (TOTAL)..... L0.01                    MG/L
16: 160 /MANGANESE (TOTAL)..... L0.01                 MG/L
17: 168 /ALUMINUM (TOTAL)..... 0.09                   MG/L
18: 259 /POTASSIUM..... L0.1                          MG/L
```

```
**********************************************************************
* 8937082 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G

LOCATER: NEGUAC02/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  6/11/89 (NOV  6, 1989), TIME: 1700, FREQ:
SAMPLING ENDED, DATE:  6/11/89 (NOV  6, 1989), TIME: 1700

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.S.R.O.  (RUN #3)
           R.O CONCENTRATE.

                          ---- SAMPLE ANALYSIS ----
     ..............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..........................  7.6
 2: 009 /ALKALINITY..................  "6.90 CARB"      MG/L
 3: 018 /SOLIDS, TOTAL (TS).........  4500.             MG/L
 4: 020 /SUSPENDED SOLIDS (SS).......  151.             MG/L
 5: 022 /MAGNESIUM (TOTAL)...........  58.10            MG/L
 6: 036 /CALCIUM (TOTAL).............  211.             MG/L
 7: 044 /ARSENIC (TOTAL).............  1.31             MG/L
 8: 046 /CADMIUM (TOTAL).............  L0.01            MG/L
 9: 047 /CHROMIUM (TOTAL)............  0.01             MG/L
10: 048 /COPPER (TOTAL)..............  0.04             MG/L
11: 049 /IRON (TOTAL)................  0.04             MG/L
12: 051 /LEAD (TOTAL)................  L0.02            MG/L
13: 054 /ZINC (TOTAL)................  L0.01            MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..  4357.          MG/L
15: 159 /NICKEL (TOTAL)..............  0.13             MG/L
16: 160 /MANGANESE (TOTAL)...........  0.86             MG/L
17: 162 /ALUMINUM (TOTAL)............  L0.025           MG/L
18: 259 /POTASSIUM...................  20.5             MG/L
```

* 89GT079 - GARTH TRIDER STATUS AS OF FEB 22, 1990 *

REGISTERED ON: NOV 22, 1989, BY :2GB G

LOCATOR: NEGUAC02/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 5/11/89 (NOV 5, 1989), TIME: 1730, FREQ: 1
SAMPLING ENDED, DATE: 5/11/89 (NOV 5, 1989), TIME: 1730

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.C. (RUN #2)
R O PERMIATE.

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	8.2	
2:	009	/ALKALINITY	"L0.001 CARB"	MG/L
3:	018	/SOLIDS, TOTAL (TS)	20.	MG/L
4:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	022	/MAGNESIUM (TOTAL)	L0.01	MG/L
6:	036	/CALCIUM (TOTAL)	0.04	MG/L
7:	044	/ARSENIC (TOTAL)	0.07	MG/L
8:	046	/CADMIUM (TOTAL)	L0.01	MG/L
9:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
10:	048	/COPPER (TOTAL)	L0.01	MG/L
11:	049	/IRON (TOTAL)	0.01	MG/L
12:	051	/LEAD (TOTAL)	L0.02	MG/L
13:	054	/ZINC (TOTAL)	L0.01	MG/L
14:	131	/TOTAL DISSOLVED SOLIDS (TDS)	20.	MG/L
15:	159	/NICKEL (TOTAL)	L0.01	MG/L
16:	160	/MANGANESE (TOTAL)	L0.01	MG/L
17:	162	/ALUMINUM (TOTAL)	0.08	MG/L
18:	259	/POTASSIUM	L0.1	MG/L

* 89ST078 - GARTH TRIDER STATUS AS OF FEB 22, 1990 *

REGISTERED ON: NOV 22, 1989. BY :BOB G

LOCATOR: NEGUAC00/N.B. DEPT OF TRANSPORTATION, NEGUAC, N.B
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE: 5/11/89 (NOV 5, 1989), TIME: 1732. FREQ: 1
SAMPLING ENDED. DATE: 5/11/89 (NOV 5, 1989), TIME: 1732

DEPTH: .00 METERS, TIDE:
NARRATIVE: J.F.R.C. (RUN #2).
R C CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.9	
2:	009 /ALKALINITY	"7.86 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	3464.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	9.	MG/L
5:	022 /MAGNESIUM (TOTAL)	25.65	MG/L
6:	036 /CALCIUM (TOTAL)	130.	MG/L
7:	044 /ARSENIC (TOTAL)	0.79	MG/L
8:	046 /CADMIUM (TOTAL)	L0.01	MG/L
9:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
10:	048 /COPPER (TOTAL)	0.11	MG/L
11:	049 /IRON (TOTAL)	0.23	MG/L
12:	051 /LEAD (TOTAL)	L0.02	MG/L
13:	054 /ZINC (TOTAL)	L0.01	MG/L
14:	131 /TOTAL DISSOLVED SOLIDS (TDS)	3455.	MG/L
15:	159 /NICKEL (TOTAL)	0.16	MG/L
16:	160 /MANGANESE (TOTAL)	1.75	MG/L
17:	162 /ALUMINUM (TOTAL)	0.20	MG/L
18:	259 /POTASSIUM	5.44	MG/L

```
**********************************************************************
* 89GT077 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989,  BY :BOB G .

LOCATOR: NEGLAC00/N.B. DEPT OF TRANSPORTATION, NEGLAC, N.B
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE:  5/11/89 (NOV  5, 1989), TIME: 1700. FREQ:   1
SAMPLING ENDED. DATE:  5/11/89 (NOV  5, 1989). TIME: 1700

DEPTH:    .00 METERS. TIDE:
NARRATIVE: U.F.R.O.  (RUN #2).
           R O PERMIATE.
                         ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..............................  6.5
 2: 009 /ALKALINITY..................... "L0.001 CARB"        MG/L
 3: 018 /SOLIDS, TOTAL (TS)............. L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).......... L5.                  MG/L
 5: 022 /MAGNESIUM (TOTAL).............. L0.01                MG/L
 6: 036 /CALCIUM (TOTAL)................  0.05                MG/L
 7: 044 /ARSENIC (TOTAL)................ L0.05                MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)............... L0.01                MG/L
10: 048 /COPPER (TOTAL)................. L0.01                MG/L
11: 049 /IRON (TOTAL)................... L0.01                MG/L
12: 051 /LEAD (TOTAL)................... L0.02                MG/L
13: 054 /ZINC (TOTAL)................... L0.01                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.                   MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............. L0.01                MG/L
17: 162 /ALUMINUM (TOTAL)...............  0.14                MG/L
18: 859 /POTASSIUM...................... L0.1                 MG/L
```

* 883T075 - BARTH TRIDER STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989, BY :BOB G

LOCATOR: NEGLAC00/N.B. DEPT OF TRANSPORTATION, NEGLAC, N.B
GENERAL PROV: NB
PROJECT CODE: 642/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 5/11/89 (NOV 5, 1989), TIME: 1700, FREQ: 1
SAMPLING ENDED, DATE: 5/11/89 (NOV 5, 1989), TIME: 1700

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. (RUN #2).
R C FEED.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	8.5	
2:	009 /ALKALINITY	"1.19 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	456.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	5.	MG/L
5:	022 /MAGNESIUM (TOTAL)	8.98	MG/L
6:	036 /CALCIUM (TOTAL)	33.84	MG/L
7:	044 /ARSENIC (TOTAL)	0.07	MG/L
8:	046 /CADMIUM (TOTAL)	L0.01	MG/L
9:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
10:	048 /COPPER (TOTAL)	0.11	MG/L
11:	049 /IRON (TOTAL)	2.55	MG/L
12:	051 /LEAD (TOTAL)	L0.02	MG/L
13:	054 /ZINC (TOTAL)	0.01	MG/L
14:	131 /TOTAL DISSOLVED SOLIDS (TDS)	451.	MG/L
15:	158 /NICKEL (TOTAL)	0.21	MG/L
16:	160 /MANGANESE (TOTAL)	1.08	MG/L
17:	162 /ALUMINUM (TOTAL)	0.16	MG/L
18:	259 /POTASSIUM	[illegible]	MG/L

* 8007074 - EARTH TRIDER STATUS AS OF 08 AUG 1990 *

REGISTERED ON: NOV 22, 1989. BY: SCC 9

LOCATOR: NEGLAC00/N.B. DEPT OF TRANSPORTATION, NEGLAC, N.B.
GENERAL PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES EC

SAMPLING BEGAN. DATE: 5/11/89 (NOV 5, 1989), TIME: 1330, FREQ:
SAMPLING ENDED. DATE: 5/11/89 (NOV 5, 1989), TIME: 1430

DEPTH: .20 METERS, TIDE:
NARRATIVE: S.F.R.D. (RUN # 8)
RAW FEED.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.6	
2:	005 /ALKALINITY	<0.000 (APHA)	MG/L
3:	010 /SOLIDS, TOTAL (TS)	68.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	<5.	MG/L
5:	022 /MAGNESIUM (TOTAL)	1.81	MG/L
6:	036 /CALCIUM (TOTAL)	15.13	MG/L
7:	044 /ARSENIC (TOTAL)	<0.05	MG/L
8:	046 /CADMIUM (TOTAL)	<0.01	MG/L
9:	047 /CHROMIUM (TOTAL)	<0.01	MG/L
10:	048 /COPPER (TOTAL)	<0.01	MG/L
11:	049 /IRON (TOTAL)	2.54	MG/L
12:	051 /LEAD (TOTAL)	<0.02	MG/L
13:	054 /ZINC (TOTAL)	0.02	MG/L
14:	131 /TOTAL DISSOLVED SOLIDS (TDS)	66.	MG/L
15:	159 /NICKEL (TOTAL)	<0.01	MG/L
16:	162 /MANGANESE (TOTAL)	1.53	MG/L
17:	163 /ALUMINUM (TOTAL)	2.18	MG/L
18:	165 /POTASSIUM	[illegible]	MG/L

```
**********************************************************************
* 6937078 -- BARTH TNIDER                          STATUS AS OF MED AV. 1988 *

REGISTERED ON: NOV 22, 1988.  BY: BOB G

LOCATION: NEGUAC02/N.S. DEPT OF TRANSPORTATION, NEGUAC, N.S
                        GENERAL                                    PROV: NS
PROJECT CODE: 040/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN. DATE:  8/11/88 (NOV  8, 1988). TIME: 1732. TREE:    1
SAMPLING ENDED. DATE:  8/11/88 (NOV  8, 1988). TIME: 1732

DEPTH:     .20 METERS. TIDE:
NARRATIVE: J.F.R.B. (RUN #3).
           X C CONCENTRATE.

                        ---- SAMPLE ANALYSIS ----

     ..............PARAMETER ..............  ..... VALUE ..... UNITS
 1:  001 /PH.....................................  7.9
 2:  009 /ALKALINITY.............................  "7.86 CARB"          MG/L
 3:  018 /SOLIDS, TOTAL (TS).....................  3464.                MG/L
 4:  020 /SUSPENDED SOLIDS (SS).................  9.                   MG/L
 5:  022 /MAGNESIUM (TOTAL).....................  25.65                MG/L
 6:  036 /CALCIUM (TOTAL).......................  130.                 MG/L
 7:  044 /ARSENIC (TOTAL).......................  0.79                 MG/L
 8:  046 /CADMIUM (TOTAL)..... L0.01              MG/L
 9:  047 /CHROMIUM (TOTAL)..... L0.01             MG/L
12:  048 /COPPER (TOTAL).....................  0.11                 MG/L
11:  049 /IRON (TOTAL).....................  3.23                 MG/L
12:  051 /LEAD (TOTAL)..... L0.02                MG/L
13:  054 /ZINC (TOTAL)..... L0.01                MG/L
14:  131 /TOTAL DISSOLVED SOLIDS (TDS)..  3455.                MG/L
15:  159 /NICKEL (TOTAL).....................  0.16                 MG/L
16:  160 /MANGANESE (TOTAL).....................  1.75                 MG/L
17:  162 /ALUMINUM (TOTAL).....................  0.20                 MG/L
18:  359 /POTASSIUM.....................  5.44                 MG/L
```

```
**********************************************************************
* 0507077 - MARTH TRIDER                          STATUS AS OF FEB 22, 1990 *

REGISTERED ON: NOV 02, 1985,  BY USER 3

LOCATOR: NEGUAC22/A.E. DEPT OF TRANSPORTATION, NEGUAC, N.B
                       GENERAL                                    PROV: NB
PROJECT CODE: 242/ENV. CONTROL WITH FISHERIES ACT

SAMPLING BEGAN, DATE:  5/11/85 (NOV  5, 1985), TIME: 1720, FREQ:   1
SAMPLING ENDED, DATE:  5/11/85 (NOV  5, 1985), TIME: 1742

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O. (RUN #2).
           4 C PERMEATE.
                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH..................................  6.5
 2: 009 /ALKALINITY..........................  "L0.001 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).................  L5.                    MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..............  L5.                    MG/L
 5: 022 /MAGNESIUM (TOTAL)..................  L0.2                   MG/L
 6: 036 /CALCIUM (TOTAL).....................  0.25                   MG/L
 7: 044 /ARSENIC (TOTAL).....................  L0.05                  MG/L
 8: 045 /CADMIUM (TOTAL).....................  L0.01                  MG/L
 9: 047 /CHROMIUM (TOTAL)....................  L0.2                   MG/L
10: 048 /COPPER (TOTAL)......................  L0.1                   MG/L
11: 049 /IRON (TOTAL)........................  L0.1                   MG/L
12: 051 /LEAD (TOTAL)........................  L0.02                  MG/L
13: 054 /ZINC (TOTAL)........................  L0.01                  MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)........  L5.                    MG/L
15: 159 /NICKEL (TOTAL)......................  L0.01                  MG/L
16: 160 /MANGANESE (TOTAL)...................  L0.01                  MG/L
17: 162 /ALUMINUM (TOTAL)....................  0.14                   MG/L
18: 255 /POTASSIUM...........................  L0.1                   MG/L
```

* 8987276 - BARTH TRIDER * STN 03 07 FEB 82, 1132 *

REGISTERED ON: NOV 28, 1989, BY 1003 6

LOCATOR: NB0J0020/N.B. DEPT OF TRANSPORTATION, NERLOD, N.B
GENERAL PROV: NB
PROJECT CODE: 242/ENV. CONTROL SITE FISHERIES ROT

SAMPLING BEGAN, DATE: 5/11/89 (NOV 5, 1989), TIME: 1720, FREQ: 1
SAMPLING ENDED, DATE: 5/11/89 (NOV 5, 1989), TIME: 1730

DEPTH: .00 METERS, TIDE:
NARRATIVE: J.F.R.C. (RUN # 2).
R C CONCENTRATE.

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.9	
2:	003	/ALKALINITY	"3.01 CARB"	MG/L
3:	018	/SOLIDS, TOTAL (TS)	1392.	MG/L
4:	020	/SUSPENDED SOLIDS (SS)	104.	MG/L
5:	028	/MAGNESIUM (TOTAL)	10.36	MG/L
6:	036	/CALCIUM (TOTAL)	122.	MG/L
7:	044	/ARSENIC (TOTAL)	0.35	MG/L
8:	046	/CADMIUM (TOTAL)	L0.01	MG/L
9:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
10:	048	/COPPER (TOTAL)	0.02	MG/L
11:	049	/IRON (TOTAL)	0.31	MG/L
12:	051	/LEAD (TOTAL)	L0.02	MG/L
13:	054	/ZINC (TOTAL)	L0.01	MG/L
14:	131	/TOTAL DISSOLVED SOLIDS (TDS)	1288.	MG/L
15:	159	/NICKEL (TOTAL)	0.06	MG/L
16:	162	/MANGANESE (TOTAL)	2.53	MG/L
17:	182	/ALUMINUM (TOTAL)	0.20	MG/L
18:	259	/POTASSIUM	1.64	MG/L

```
* 8937275 - EARTH TRIDER                                  * STUB AS OF FEB 20, 1990 *

REGISTERED ON: NOV 22, 1989.  BY: LOA

LOCATED: NEGLOOO/N.S. DEPT OF TRANSPORTATION, NEGLOO, N.S
                      GENERAL                                          PROV: NS
PROJECT CODE: 642/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  5/11/88 (NOV  5, 1988), TIME: 1700, FREQ:    1
SAMPLING ENDED, DATE:  5/11/88 (NOV  5, 1988), TIME: 1700

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O. (RUN #2).
           R I FEED.

                    ----- SAMPLE ANALYSIS -----

     ..............PARAMETER ..............  ..... VALUE ..... UNITS
 1: 021 /PH.....................................  8.0
 2: 029 /ALKALINITY.............................  "1.15 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).....................  456.                 MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..................  8.                   MG/L
 5: 028 /MAGNESIUM (TOTAL)......................  1.93                 MG/L
 6: 036 /CALCIUM (TOTAL)........................  20.84                MG/L
 7: 044 /ARSENIC (TOTAL)........................  2.27                 MG/L
 8: 046 /CADMIUM (TOTAL)........................ <0.01                 MG/L
 9: 047 /CHROMIUM (TOTAL)....................... <0.2                  MG/L
10: 048 /COPPER (TOTAL)..........................  0.21                MG/L
11: 049 /IRON (TOTAL)............................  0.08                MG/L
12: 051 /LEAD (TOTAL)............................ <0.02                MG/L
13: 054 /ZINC (TOTAL)............................  0.21                MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)...         451.                 MG/L
15: 155 /NICKEL (TOTAL).......................... <0.1                  MG/L
16: 160 /MANGANESE (TOTAL)....................... <0.05                 MG/L
17: 162 /ALUMINUM (TOTAL)........................  0.05                MG/L
18: 259 /POTASSIUM..........................                           MG/L
```

REGISTERED ON: NOV 11, 1985. BY USCE F

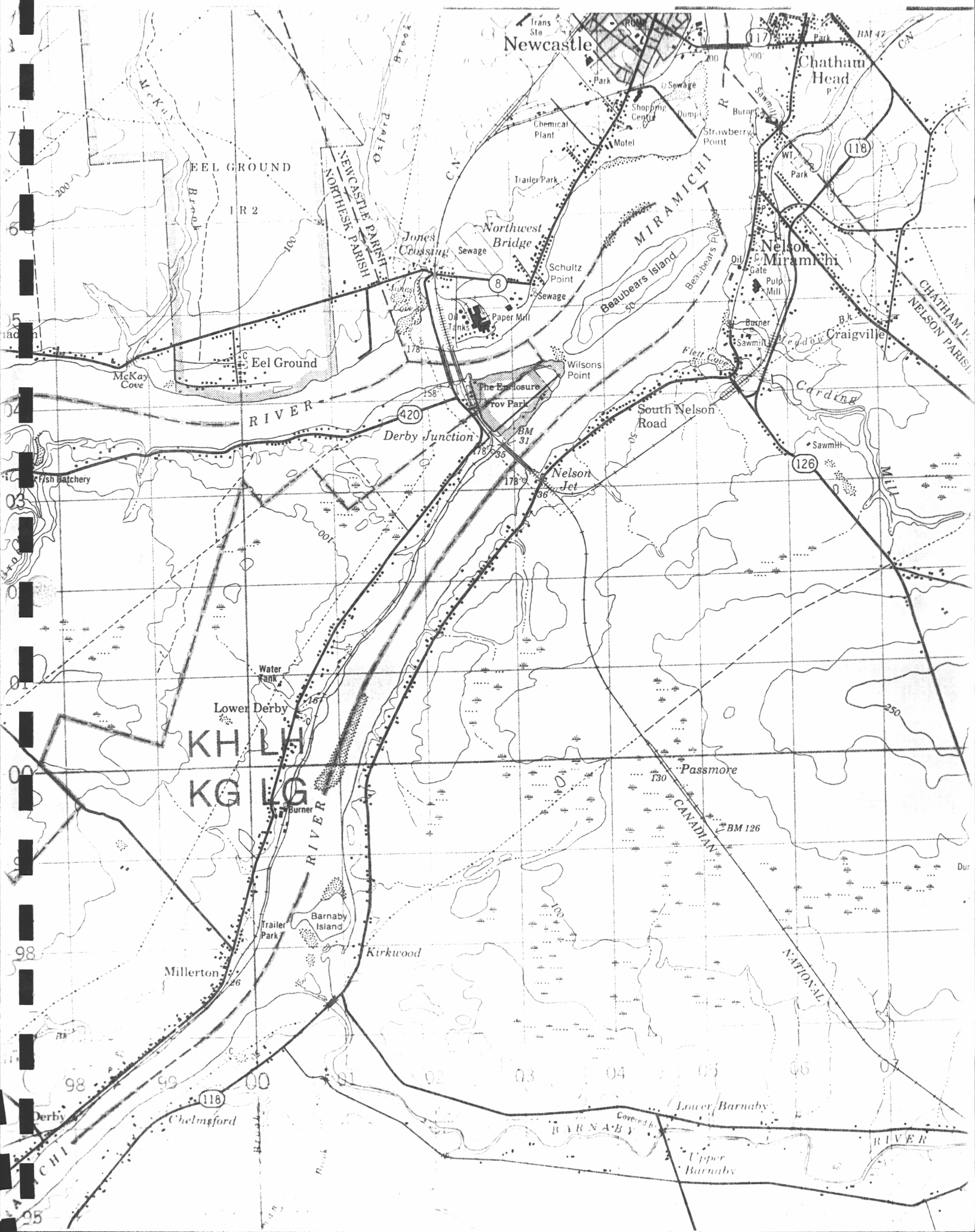
LOCATION: NEGLAGOA/N.B. DEPT OF TRANSPORTATION, [illegible]
GENERAL
PROJECT CODE: C/Z/ENV. CONTROL SITE FISHERIES ND

SCHEDULED BEGIN, DATE: 5/11/59 (NOV 5, 1985), TIME: 1330, TIDE:
ACTUAL BEGIN, DATE: 5/11/85 (NOV 5, 1985), TIME: 1032

DEPTH: .30 METERS, TIDE:
OPERATIVE: L.F.D.O. (RUN 4 B)
RAW FEED.

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	401	/PH	8.5	
2:	410	/ALKALINITY	0.249 CARB	MG/L
3:	618	/SOLIDS, TOTAL (TS)	68.	MG/L
4:	530	/SUSPENDED SOLIDS (SS)	15.	MG/L
5:	528	/MAGNESIUM (TOTAL)	1.61	MG/L
6:	536	/CALCIUM (TOTAL)	15.13	MG/L
7:	044	/ARSENIC (TOTAL)	<0.05	MG/L
8:	546	/CADMIUM (TOTAL)	<0.01	MG/L
9:	547	/CHROMIUM (TOTAL)	<0.01	MG/L
10:	142	/COPPER (TOTAL)	0.03	MG/L
11:	548	/IRON (TOTAL)	0.54	MG/L
12:	551	/LEAD (TOTAL)	<0.02	MG/L
13:	554	/ZINC (TOTAL)	0.02	MG/L
14:	131	/TOTAL DISSOLVED SOLIDS (TDS)	68.	MG/L
15:	159	/NICKEL (TOTAL)	<0.1	MG/L
16:	152	/MANGANESE (TOTAL)	0.03	MG/L
17:	156	/ALUMINUM (TOTAL)	0.13	MG/L
18:	428	/POTASSIUM	[illegible]	MG/L


Newcastle
Trans Sta
Park
Sewage
Shopping Centre
Dump
Chemical Plant
Motel
Strawberry Point
Chatham Head
Sawmill
Burner
WT
Park
BM 47
CN
CP
MIRAMICHI R
EEL GROUND
IR 2
Eel Ground
McKay Brook
McKay Cove
NEWCASTLE PARISH
NORTHESK PARISH
Oxford Brook
Jones Crossing
Jones Cove
Northwest Bridge
Sewage
Schultz Point
Sewage
Oil Tanks
Paper Mill
Trailer Park
Beaubears Island
Beaubears Pt
Nelson Miramichi
Oil
C Gate
Pulp Mill
Burner
Sawmill
Craigville
Meadow
Fleet Cove
CHATHAM P
NELSON PARISH
Wilsons Point
The Enclosure
Prov Park
Derby Junction
BM 31
Nelson Jct
South Nelson Road
Carding Mill Brook
Sawmill
Fish Hatchery
RIVER
Water Tank
Lower Derby
Burner
Trailer Park
Barnaby Island
Kirkwood
Millerton
Passmore
BM 126
CANADIAN NATIONAL
Lower Barnaby
Upper Barnaby
BARNABY
RIVER
Derby
Chelmsford
MIRAMICHI
Covered Br
118
126
420
8
17
200
100
50
250
178
158
130
16
26

```
**********************************************************************
* 89GT061 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 16, 1989,  BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330, FREQ:  24
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  RUN # 2
           R O CONCENTRATE.
                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ..... VALUE .....  UNITS
 1: 001 /PH.............................  7.2
 2: 009 /ALKALINITY.....................  "0.50 CARB"          MG/L
 3: 013 /OIL & GREASE (PET. ETHER)......  29.                  MG/L
 4: 018 /SOLIDS, TOTAL (TS).............  2336.                MG/L
 5: 020 /SUSPENDED SOLIDS (SS)..........  6.                   MG/L
 6: 022 /MAGNESIUM (TOTAL)..............  36.7                 MG/L
 7: 036 /CALCIUM (TOTAL)................  228.                 MG/L
 8: 044 /ARSENIC (TOTAL)................  1.11                 MG/L
 9: 046 /CADMIUM (TOTAL)................  0.63                 MG/L
10: 047 /CHROMIUM (TOTAL)...............  0.02                 MG/L
11: 048 /COPPER (TOTAL).................  0.73                 MG/L
12: 049 /IRON (TOTAL)...................  0.24                 MG/L
13: 051 /LEAD (TOTAL)...................  L0.02                MG/L
14: 054 /ZINC (TOTAL)...................  0.15                 MG/L
15: 131 /TOTAL DISSOLVED SOLIDS (TDS)...  2330.                MG/L
16: 159 /NICKEL (TOTAL).................  0.03                 MG/L
17: 160 /MANGANESE (TOTAL)..............  21.1                 MG/L
18: 162 /ALUMINUM (TOTAL)...............  0.09                 MG/L
```

```
**********************************************************************
* 89GT062 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 16, 1989,   BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
                    GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330, FREQ:   1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 2
           M F CONCENTRATE.
*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
     .............PARAMETER ..............  ..... VALUE ..... UNITS
 1: 001 /PH.................................  6.7
 2: 009 /ALKALINITY.........................  "0.06 CARB"          MG/L
 3: 013 /OIL & GREASE (PET. ETHER).....      13.                  MG/L
 4: 018 /SOLIDS, TOTAL (TS).............     968.                  MG/L
 5: 020 /SUSPENDED SOLIDS (SS).........      6.                   MG/L
 6: 022 /MAGNESIUM (TOTAL).............     15.5                  MG/L
 7: 036 /CALCIUM (TOTAL)................     95.4                 MG/L
 8: 044 /ARSENIC (TOTAL)................     0.73                 MG/L
 9: 046 /CADMIUM (TOTAL)................    L0.01                 MG/L
10: 047 /CHROMIUM (TOTAL)...............    L0.01                 MG/L
11: 048 /COPPER (TOTAL).................     0.16                 MG/L
12: 049 /IRON (TOTAL)...................     0.38                 MG/L
13: 051 /LEAD (TOTAL)...................    L0.02                 MG/L
14: 054 /ZINC (TOTAL)...................    L0.01                 MG/L
15: 131 /TOTAL DISSOLVED SOLIDS (TDS)..     963.                  MG/L
16: 157 /PENTACHLOROPHENOL..............   TO BE COMPLETED
17: 159 /NICKEL (TOTAL).................     0.01                 MG/L
18: 160 /MANGANESE (TOTAL).............      8.5                  MG/L
19: 162 /ALUMINUM (TOTAL)...............    L0.025                MG/L
```

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1700, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1700

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. # 1
R O CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.6	
2:	009 /ALKALINITY	"3.94 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	6496.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	65.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	6431.	MG/L

****
* 89GT060 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 2115, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 2115

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 2
RAW FEED.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.8	
2:	009 /ALKALINITY	"0.06 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	488.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	11.	MG/L
5:	022 /MAGNESIUM (TOTAL)	9.0	MG/L
6:	036 /CALCIUM (TOTAL)	55.8	MG/L
7:	044 /ARSENIC (TOTAL)	2.1	MG/L
8:	046 /CADMIUM (TOTAL)	L0.01	MG/L
9:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
10:	048 /COPPER (TOTAL)	0.18	MG/L
11:	049 /IRON (TOTAL)	8.3	MG/L
12:	051 /LEAD (TOTAL)	L0.02	MG/L
13:	054 /ZINC (TOTAL)	L0.01	MG/L
14:	131 /TOTAL DISSOLVED SOLIDS (TDS)	477.	MG/L
15:	159 /NICKEL (TOTAL)	0.40	MG/L
16:	160 /MANGANESE (TOTAL)	5.6	MG/L
17:	162 /ALUMINUM (TOTAL)	2.1	MG/L

LAB NUMBER(S): 89GT061-062

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	5.4	
2:	009 /ALKALINITY	"L0.001 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L

****

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1700, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1700

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.0	
2:	009 /ALKALINITY	"0.001 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L

LAB NUMBER(S): 89GT059-060

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
M F CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.2	
2:	009 /ALKALINITY	"0.17 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	536.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	11.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	525.	MG/L

****

* 89GT056 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1515

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
R O CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.4	
2:	009 /ALKALINITY	"0.86 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	2220.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	2220.	MG/L

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
RAW FEED.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.0	
2:	009 /ALKALINITY	"0.10 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	548.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	15.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	533.	MG/L

****
* 89GT054 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 1
M F CONCENTRATE.
*****
***** WARNING: THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.1	
2:	009 /ALKALINITY	"0.13 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	508.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	12.	MG/L
5:	022 /MAGNESIUM (TOTAL)	960.	MG/L
6:	036 /CALCIUM (TOTAL)	5600.	MG/L
7:	044 /ARSENIC (TOTAL)	1.53	MG/L
8:	046 /CADMIUM (TOTAL)	0.03	MG/L
9:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
10:	048 /COPPER (TOTAL)	0.14	MG/L
11:	049 /IRON (TOTAL)	6.5	MG/L
12:	051 /LEAD (TOTAL)	L0.02	MG/L
13:	054 /ZINC (TOTAL)	0.03	MG/L
14:	131 /TOTAL DISSOLVED SOLIDS (TDS)	496.	MG/L
15:	157 /PENTACHLOROPHENOL	TO BE COMPLETED	
16:	159 /NICKEL (TOTAL)	L0.01	MG/L
17:	160 /MANGANESE (TOTAL)	5.8	MG/L
18:	162 /ALUMINUM (TOTAL)	0.44	MG/L

* 89GT064 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330, FREQ: 1
SAMPLING ENDED, DATE: 31/10/89 (OCT 31, 1989), TIME: 2330

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F. R.O. RUN # 2
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	5.2	
2:	009 /ALKALINITY	"L0.001 CARB"	MG/L
3:	013 /OIL & GREASE (PET. ETHER)	2.0	MG/L
4:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
6:	022 /MAGNESIUM (TOTAL)	L0.01	MG/L
7:	036 /CALCIUM (TOTAL)	0.71	MG/L
8:	044 /ARSENIC (TOTAL)	0.16	MG/L
9:	046 /CADMIUM (TOTAL)	L0.01	MG/L
10:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
11:	048 /COPPER (TOTAL)	L0.01	MG/L
12:	049 /IRON (TOTAL)	0.02	MG/L
13:	051 /LEAD (TOTAL)	L0.02	MG/L
14:	054 /ZINC (TOTAL)	L0.01	MG/L
15:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L
16:	159 /NICKEL (TOTAL)	0.27	MG/L
17:	160 /MANGANESE (TOTAL)	L0.01	MG/L
18:	162 /ALUMINUM (TOTAL)	L0.025	MG/L

****

* 89GT064 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 900, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 900

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 3
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	5.2	
2:	009 /ALKALINITY	"L0.001 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L

LAB NUMBER(S): 89GT065-066

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 900, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 900

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 3
R O CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.4	
2:	009 /ALKALINITY	"0.92 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	2860.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	6.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	2854.	MG/L

****
* 89GT066 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 3
R O CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.5	
2:	009 /ALKALINITY	"2.77 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	8488.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	54.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	8434.	MG/L

LAB NUMBER(S): 89GT067-068

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 3
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.2	
2:	009 /ALKALINITY	"0.003 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	52.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	52.	MG/L

****

* 89GT068 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 1930, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 1930

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 4
R O CONCENTRATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.4	
2:	009 /ALKALINITY	"0.74 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	2012.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	2007.	MG/L

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 1950, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 1950

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 4
R O PERMIATE.

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	5.6	
2:	009 /ALKALINITY	"L0.001 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L

****
* 89GT070 - GARTH TRIDER STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 16, 1989, BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 1/11/89 (NOV 1, 1989), TIME: 2145, FREQ: 1
SAMPLING ENDED, DATE: 1/11/89 (NOV 1, 1989), TIME: 2145

DEPTH: .00 METERS, TIDE:
NARRATIVE: U.F.R.O. RUN # 4
R O PERMIATE.

---- SAMPLE ANALYSIS ----

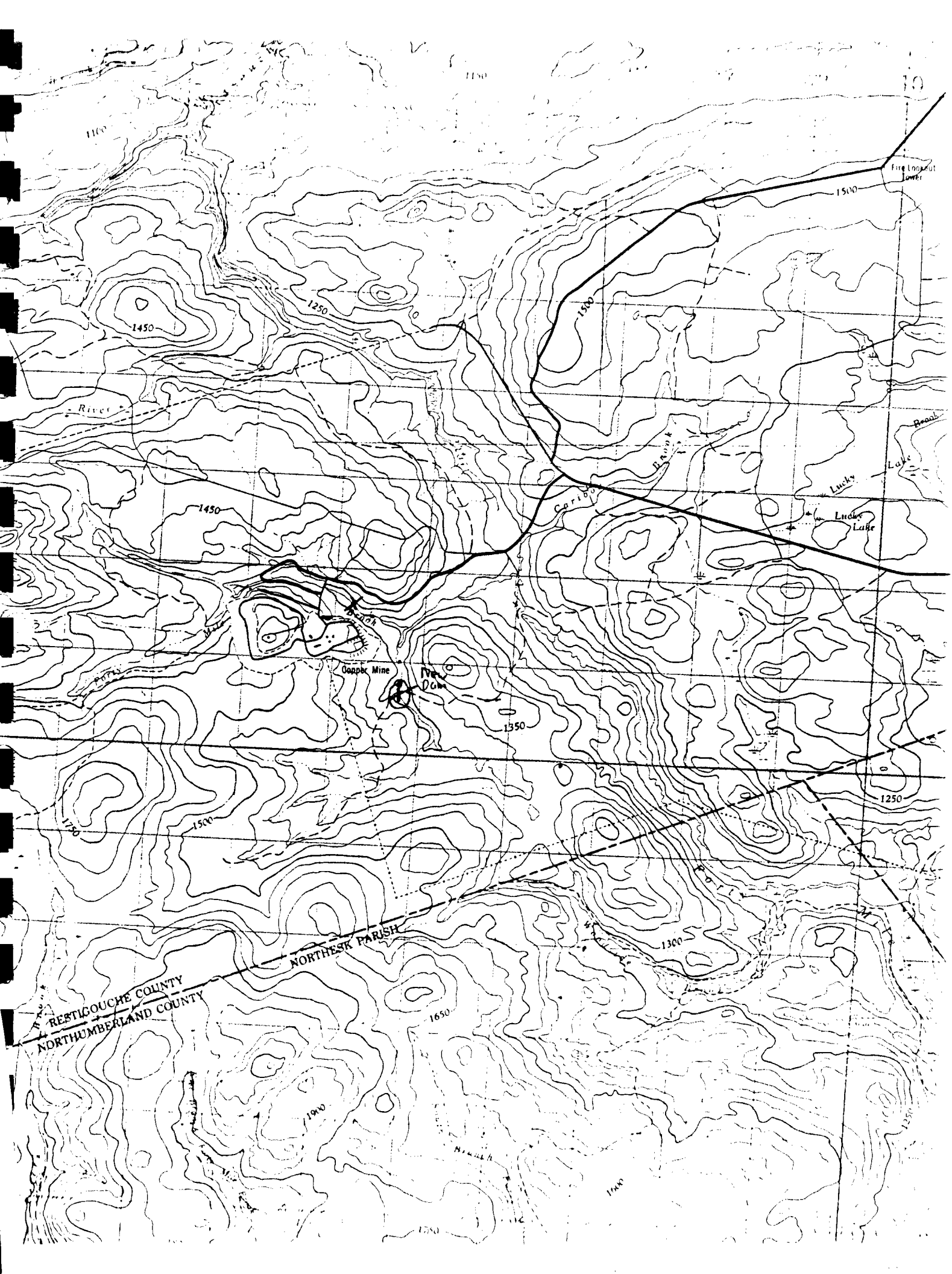
	PARAMETER	VALUE	UNITS
1:	001 /PH	6.0	
2:	009 /ALKALINITY	"L0.001 CARB"	MG/L
3:	018 /SOLIDS, TOTAL (TS)	L5.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
5:	131 /TOTAL DISSOLVED SOLIDS (TDS)	L5.	MG/L

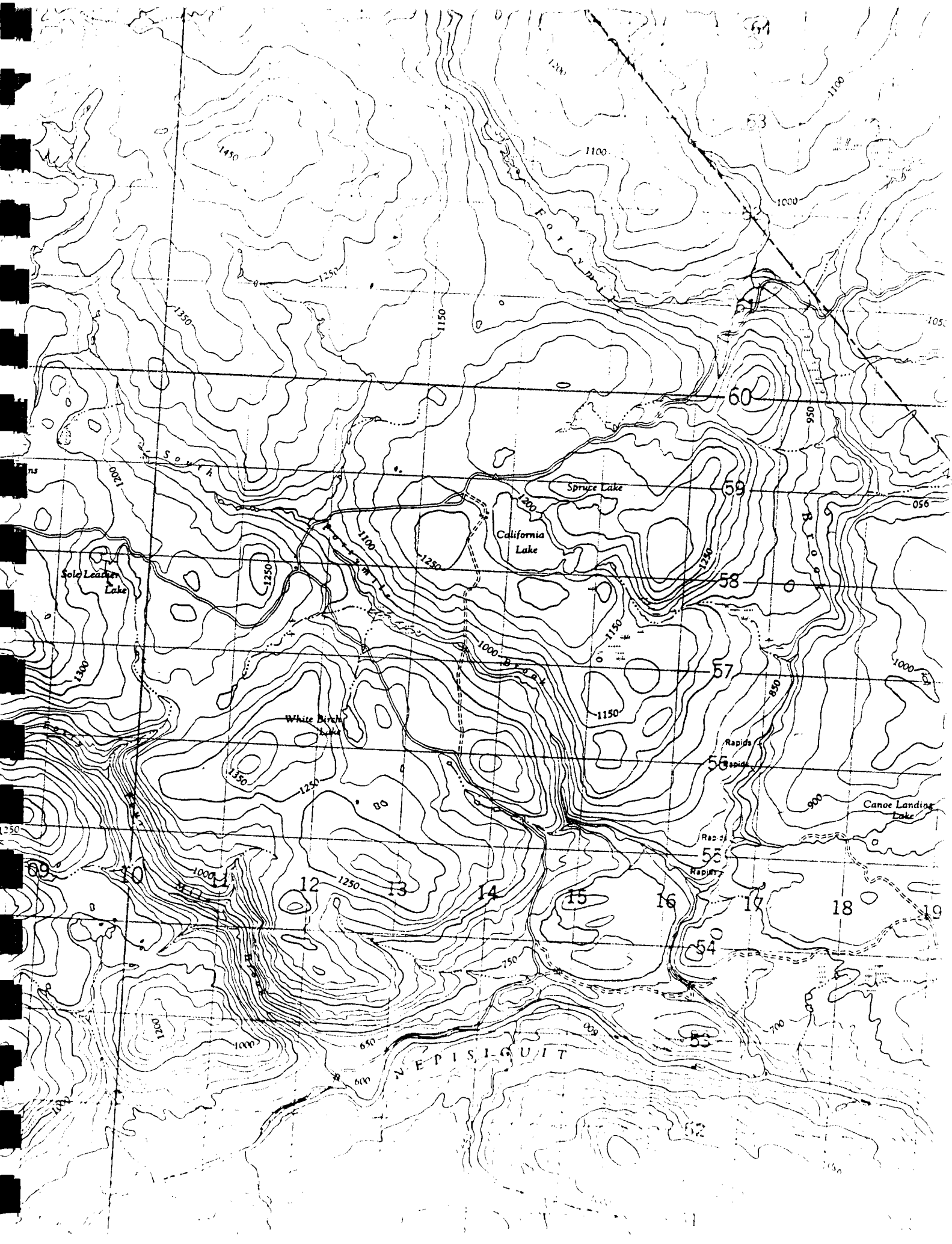
```
**********************************************************************
* 89GT073 - GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: NOV 16, 1989,   BY :BOB G

LOCATOR: DOMNEW00/DOMTAR NEWCASTLE
                  GENERAL                                        PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  1/11/89 (NOV  1, 1989), TIME: 2300, FREQ:   1
SAMPLING ENDED, DATE:  1/11/89 (NOV  1, 1989), TIME: 2300

DEPTH:    .00 METERS, TIDE:
NARRATIVE: U.F.R.O.  RUN # 4
           R O PERMIATE.
                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  6.6
 2: 009 /ALKALINITY.............  "0.008 CARB"          MG/L
 3: 018 /SOLIDS, TOTAL (TS).....  L5.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS)...  L5.                  MG/L
 5: 131 /TOTAL DISSOLVED SOLIDS (TDS).. L5.             MG/L

LAB NUMBER(S): 89GT074-095
```

E

F

FORTY MILE BROOK


Fire Lookout Tower
1500
1450
1250
River
Brook
Lake
Lucky
Lucky Lake
Caribou
Copper Mine
Mine Dam
1350
1300
1650
1900
NORTHESK PARISH
RESTIGOUCHE COUNTY
NORTHUMBERLAND COUNTY


Spruce Lake
California Lake
Sole Leather Lake
White Birch Lake
Canoe Landing Lake
Rapids
Rapids
Rapids
NEPISIGUIT
Broad
Broad
Broad

****
* 89RP029 - ROY PARKER STATUS AS OF JUN 12, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: FORMLB05/FORTY MILE BROOK
JUST ABV CARIBOU NB SITE PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1500, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1500

DEPTH: .00 METERS, TIDE:
NARRATIVE: 40 MILE BK ABV CARIBOU NB MINE

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.12	
2:	005	/HARDNESS	21.7	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	1.29	MG/L
5:	036	/CALCIUM (TOTAL)	6.561	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	L0.01	MG/L
10:	049	/IRON (TOTAL)	0.071	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	0.135	MG/L
13:	130	/THIOSALTS TOTAL	L0.50	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	0.035	MG/L
16:	162	/ALUMINUM (TOTAL)	0.044	MG/L

****
* 89RP033 - ROY PARKER STATUS AS OF JUN 12, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: FORMLB04/FORTY MILE BROOK
AT CALIFORNIA LAKE ROAD PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1645, FREQ: 1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1645

DEPTH: .00 METERS, TIDE:
NARRATIVE: 40 MILE BK AT CALIFORNIA LAKE RD

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	7.11	
2:	005	/HARDNESS	24.8	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	1.36	MG/L
5:	036	/CALCIUM (TOTAL)	7.70	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	0.052	MG/L
10:	049	/IRON (TOTAL)	0.103	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	0.276	MG/L
13:	130	/THIOSALTS TOTAL	L0.50	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	0.133	MG/L
16:	162	/ALUMINUM (TOTAL)	0.070	MG/L

```
**********************************************************************
* 89RP032 - ROY PARKER                          STATUS AS OF JUN 12, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: FORMLB01/FORTY MILE BROOK
                  JUST ABOVE CONFLUENCE-NEPIQUIT RIVER      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1600, FREQ:   1
SAMPLING ENDED, DATE: 25/ 5/89 (MAY 25, 1989), TIME: 1600

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 40 MILE BK AT BRIDGE JUST ABV
           CONFLUENCE WITH NEPISIGUIT RIVER
                      ----- SAMPLE ANALYSIS -------
    ............PARAMETER ..........  ..... VALUE ..... UNITS
 1: 001 /PH.............................  7.33
 2: 005 /HARDNESS.......................  24.2                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  L5.                   MG/L
 4: 022 /MAGNESIUM (TOTAL).............  1.24                  MG/L
 5: 036 /CALCIUM (TOTAL)................  7.65                  MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.01                  MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                  MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                  MG/L
 9: 048 /COPPER (TOTAL).................  0.028                 MG/L
10: 049 /IRON (TOTAL)...................  0.079                 MG/L
11: 051 /LEAD (TOTAL)................... L0.01                  MG/L
12: 054 /ZINC (TOTAL)...................  0.133                 MG/L
13: 130 /THIOSALTS TOTAL................ "LOST SAMPLE"          MG/L
14: 159 /NICKEL (TOTAL)................. L0.01                  MG/L
15: 160 /MANGANESE (TOTAL).............  0.049                 MG/L
16: 162 /ALUMINUM (TOTAL)..............  0.032                 MG/L
```

```
**********************************************************************
* 89RP031 - ROY PARKER                          STATUS AS OF OCT 30, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: FORMLB06/FORTY MILE BROOK
                  JUST BELOW CARIBOU NB MINE                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1600, FREQ:   1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1600

DEPTH:    .00 METERS, TIDE:
NARRATIVE: 40 MILE BK BLW MINE

                          ---- SAMPLE ANALYSIS ----
    ............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  6.61
 2: 005 /HARDNESS...............  51.4                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS)..... L5.                  MG/L
 4: 022 /MAGNESIUM (TOTAL)..... 2.46                     MG/L
 5: 036 /CALCIUM (TOTAL)..... 16.5                       MG/L
 6: 044 /ARSENIC (TOTAL)..... L0.05                      MG/L
 7: 046 /CADMIUM (TOTAL)..... L0.01                      MG/L
 8: 047 /CHROMIUM (TOTAL)..... L0.01                     MG/L
 9: 048 /COPPER (TOTAL).....  0.390                      MG/L
10: 049 /IRON (TOTAL).....  0.458                        MG/L
11: 051 /LEAD (TOTAL)..... L0.01                         MG/L
12: 054 /ZINC (TOTAL).....  1.85                         MG/L
13: 130 /THIOSALTS TOTAL..... L0.50                      MG/L
14: 159 /NICKEL (TOTAL)..... L0.01                       MG/L
15: 160 /MANGANESE (TOTAL)..... 1.07                     MG/L
16: 162 /ALUMINUM (TOTAL)..... 0.429                     MG/L
17: 500 /BIOASSAY ..... "DONE"
```

ENVIRONMENT CANADA MEMORANDUM

TO:

R. Parker
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

Security-Classification

Our File YOUR COPY
Original on File 4863-3

Your File

Date July 24, 1989

SUBJECT: BIOASSAY RESULTS - FORTY MILE BROOK

On May 24, 1989, Ian McLeod collected a grab sample from Forty Mile Brook, N.B., just below the Caribou Mine.

On May 29, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 4.7 ± 1.6 g as the test organism.

The sample was acutely lethal to the test fish, yielding a 4-day LC50 value of 18% (95% confidence limits: 10-32%).

Chemical analysis indicated that the sample contained enough copper (0.39 mg/l, total) and zinc (1.85 mg/l, total) to account for the observed mortality. The water hardness value was 51.4 mg/l.

A copy of the bioassay report is attached which provides addtional test details.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: H.S. Samant
P. Hennebury
K. Doe

```
**********************************************************************
* 89RP077 - ROY PARKER                          STATUS AS OF NOV  1, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: FORMLB01/FORTY MILE BROOK
                  JUST ABOVE CONFLUENCE-NEPIQUIT RIVER      PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1415, FREQ:   1
SAMPLING ENDED, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1415

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FORTY-MILE BROOK AT MOUTH

                          ----- SAMPLE ANALYSIS -----
    ..............PARAMETER ..............  ....... VALUE ......  UNITS
 1: 001 /PH.............................  7.5
 2: 005 /HARDNESS.......................  68.                     MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  L5.                     MG/L
 4: 022 /MAGNESIUM (TOTAL).............  5.43                    MG/L
 5: 036 /CALCIUM (TOTAL)................  18.14                   MG/L
 6: 044 /ARSENIC (TOTAL)................  1.0                     MG/L
 7: 046 /CADMIUM (TOTAL)................  .07                     MG/L
 8: 047 /CHROMIUM (TOTAL)...............  .30                     MG/L
 9: 048 /COPPER (TOTAL).................  0.28                    MG/L
10: 049 /IRON (TOTAL)...................  0.29                    MG/L
11: 051 /LEAD (TOTAL)...................  1.80                    MG/L
12: 052 /ANTIMONY (TOTAL)...............  .96                     MG/L
13: 054 /ZINC (TOTAL)...................  0.35                    MG/L
14: 159 /NICKEL (TOTAL).................  0.21                    MG/L
15: 160 /MANGANESE (TOTAL).............  0.18                    MG/L
16: 162 /ALUMINUM (TOTAL)...............  3.14                    MG/L

LMS>
ERR-009 I'M NOT FAMILIAR WITH THE          COMMAND

LMS> SHEETS
```

****
* 89RP076 - ROY PARKER STATUS AS OF NOV 1, 1989 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1600, FREQ: 1
SAMPLING ENDED, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1600

DEPTH: .00 METERS, TIDE:
NARRATIVE: 40-MILE BROOK AT CALIFORNIA
LAKE ROAD

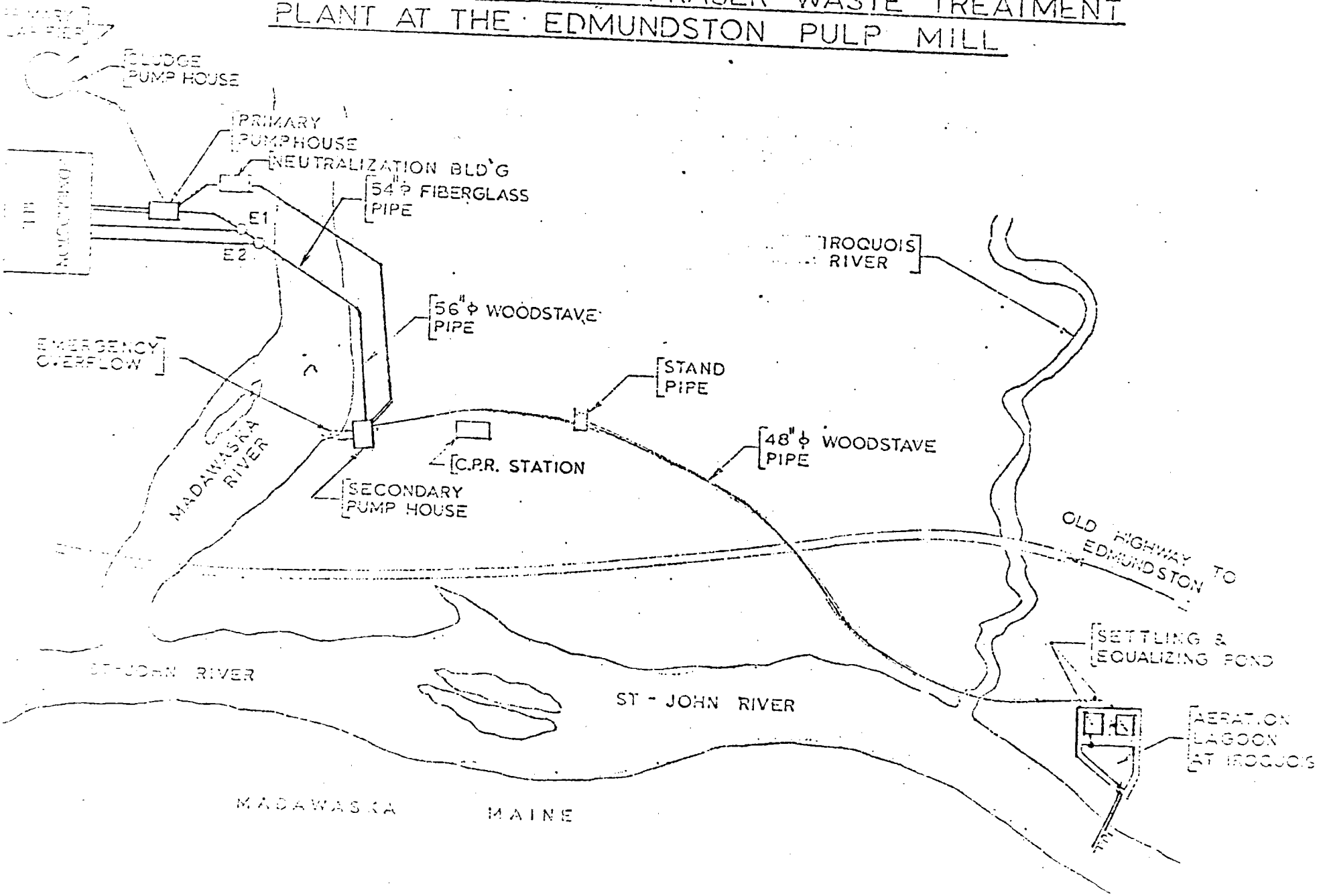
---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.1	
2:	005 /HARDNESS	78.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022 /MAGNESIUM (TOTAL)	5.79	MG/L
5:	036 /CALCIUM (TOTAL)	21.76	MG/L
6:	044 /ARSENIC (TOTAL)	0.94	MG/L
7:	046 /CADMIUM (TOTAL)	.07	MG/L
8:	047 /CHROMIUM (TOTAL)	0.28	MG/L
9:	048 /COPPER (TOTAL)	0.28	MG/L
10:	049 /IRON (TOTAL)	0.27	MG/L
11:	051 /LEAD (TOTAL)	1.66	MG/L
12:	052 /ANTIMONY (TOTAL)	.95	MG/L
13:	054 /ZINC (TOTAL)	0.77	MG/L
14:	159 /NICKEL (TOTAL)	0.20	MG/L
15:	160 /MANGANESE (TOTAL)	0.58	MG/L
16:	162 /ALUMINUM (TOTAL)	2.94	MG/L

FRASER'S EDMUNDSTON

FRASER COMPANIES LIMITED

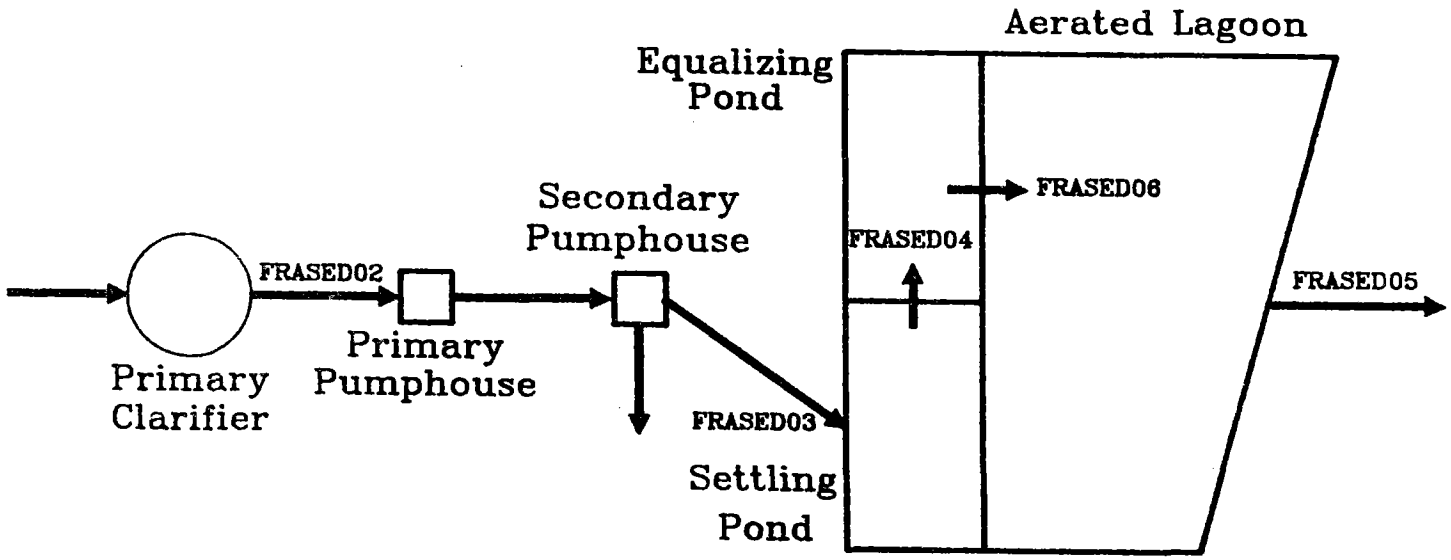
LOCATION SCHEMATIC — FRASER WASTE TREATMENT PLANT AT THE EDMUNDSTON PULP MILL



Fraser Inc.

Edmundston, N.B.

Waste Treatment System



FRASED

OPERATIONS - 1979 - EFFLUENT TREATMENT

1981 Ave

AFTER COMPLETION OF JOBS E-0-53 & E-26-11

DROOM

2600 lbs/day BOD
7000 lbs/day SS
1.0 MGPD

GROUNDWOOD

4800 lbs/day BOD
6000 lbs/day S.S.
1.2 MGPD

BOARDMILL

2000 lbs/day BOD
6000 lbs/day S.S.
1.9 MGPD

SULPHITE PULP MILL

FLOW I

FLOW II

59500 lbs/day BOD
0 lbs/day S.S
10.1 MGPD

BLEACHERY

15000 lbs/day BOD
3000 lbs/day SS.
5.9 MGPD

65000 lbs/day BOD
26000 lbs/day S.S.
0.9 MGPD

74500 lbs/day BOD
3000 lbs/day SS
16.0 MGPD 70,000 m³

15900 lbs/day BOD
45000 lbs/day SS
5 MGPD (9.8)

(18.5)

PRIMARY CLARIFIER

11900 lbs/day BOD
6750 lbs/day SS
5.0 MGPD
1320 kg

80,400 lbs/day BOD
9750 lbs/day S.S
21.0 MGPD
26°C

AERATED LAGOON

SETTLING POND

SAINT JOHN

SLUDGE TO BARK FURNACE
4000 lbs/day BOD
8250 lbs/day S.S.

	REGULATIONS	DESIGN
BOD	16000-7260 kg	13900
Suspended Solids (SS)	24000-10890 kg	21600

```
**********************************************************************************
* 89GT005 - GARTH TRIDER                                STATUS AS OF OCT 27, 1989 *

REGISTERED ON: JUN 10, 1989,  BY :PHIL H

LOCATOR: FRASED05/FRASER INC.,EDMUNDSTON
                    EFFLUENT FROM BIO-POND                              PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE:  9/ 6/89 (JUN  9, 1989), TIME:  930, FREQ: 01
SAMPLING ENDED, DATE:  9/ 6/89 (JUN  9, 1989), TIME:  930

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT TO RIVER

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  8.05
 2: 011 /RESIN ACIDS (RAS)..............  TO BE COMPLETED
 3: 016 /CHEMICAL OXYGEN DEMAND (COD)..  710.                    MG/L
 4: 028 /AMMONIA-N (NH3-N).............  L0.14                   MG/L
 5: 046 /CADMIUM (TOTAL)...............  L0.01                   MG/L
 6: 048 /COPPER (TOTAL)................  0.01                    MG/L
 7: 050 /MERCURY (TOTAL)...............  0.000733                MG/L
 8: 054 /ZINC (TOTAL)..................  0.06                    MG/L
 9: 157 /PENTACHLOROPHENOL.............  TO BE COMPLETED
10: 162 /ALUMINUM (TOTAL).............  1.62                    MG/L
11: 172 /2,3,5,6-TETRACHLOROPHENOL.....  TO BE COMPLETED
12: 201 /BERYLLIUM ....................  L0.01                   MG/L
13: 235 /2,3,4,6 - TETRACHLOROPHENOL ..  TO BE COMPLETED
14: 236 /2,3,4,5 - TETRACHLOROPHENOL ..  TO BE COMPLETED
15: 278C/FLOW..........................  107444.                 CU M/DAY
16: 421 /PRODUCTION                      950.                    TONNES/DAY
17: 500 /BIOASSAY .....................  "DONE"
18: 688 /2,4,6 TRICHLOROPHENOL           TO BE COMPLETED
19: 689 /TETRACHLOROGUAIACOL             TO BE COMPLETED
20: 690 /TETRACHLOROCATECHOL             TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:

G. Trider
Head, Pulp & Paper and Forest Products
Air and Water Branch
Environment Canada, Atlantic Region

FROM:

D. Vaughan
A/Project Biologist
Air and Water Branch
Environment Canada, Atlantic Region

Security-Classification
Our File YOUR COPY 4705-37/F99-1
Your File
Date July 26, 1989

SUBJECT: BIOASSAY RESULTS - FRASERS, EDMUNSTON

On June 9, 1989, WPCD staff collected a grab sample of final effluent from Frasers Pulp and Paper Company in Edmunston, New Brunswick.

On June 12, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 1.2 ± 0.4 g as the test organism. In addition, on June 13, 1989, a 48-hour acute lethal static bioassay was started with Daphnia magna neonates.

The effluent was acutely lethal to the test fish, yielding a 4-day LC50 value of 34% (95% confidence limits: 18 - 56%). It was not acutely lethal to Daphnia magna. Thus, rainbow trout were more sensitive than Daphnia magna to this particular effluent.

The cause of the observed mortality in the fish test is not evident from the chemical analysis results to date.

A copy of each bioassay report is attached which provides further test details.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe
S. Wade
R. Parker

COMPANY Fraser's LOCATION Edmunston, N.B.

Effluent Final Collected June 9/89 0900 By P. Hennebury

Sample # 89GT005 Location Code: FRASEDO5

TEST CONDITIONS:

Vol 40 lit Duration 96 hr Type X static ___ cont. flow ___ ___ Replacement rate N/A Aeration rate 250 ml/min

Control Water Dechlorinated Dart. Municipal water pH X ambient ___ adjusted Started June 12/89 1400

Test Organism O. mykiss #/Tank 10 Source Merlin's Trout Farm 16 May 89 (tank 8)

Length x + S.D. (range) cm 4.8 + 0.5 (3.7-5.8) n = 60

Weight x + S.D. (range) g 1.2 + 0.4 (0.4-2.4) n = 60 g/L 0.3

RESULTS:

Conc. (%)	T(oC) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-17	7.7-9.7	7.8-8.4	10/10	16.5	14-20% (1.3)	
56	15-16	8.3-9.6	7.8-8.3	10/10	22.5	17-30% (1.6)	
32	15-16	9.0-10.0	7.8-8.2	4/10	>96		
18	15-16	9.7-10.0	7.8-8.2	0/10	>96		
10	15-16	9.7-9.8	7.8-8.0	0/10	>96		
control	15-16	9.9-10.0	7.7-7.9	0/10	>96		

LC50 (4-day) 34% 95% Conf. Limits 18 - 56%

Comments: ___

Performed by: Wanda Jones

Verified By: Suzanne Wade Date: 28 Jul 89

****
* 89GT004 - GARTH TRIDER STATUS AS OF JUN 22, 1989 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: FRASED05/FRASER INC.,EDMUNDSTON
EFFLUENT FROM BIO-POND PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 930, FREQ: 96
SAMPLING ENDED, DATE: 9/ 6/89 (JUN 9, 1989), TIME: 930

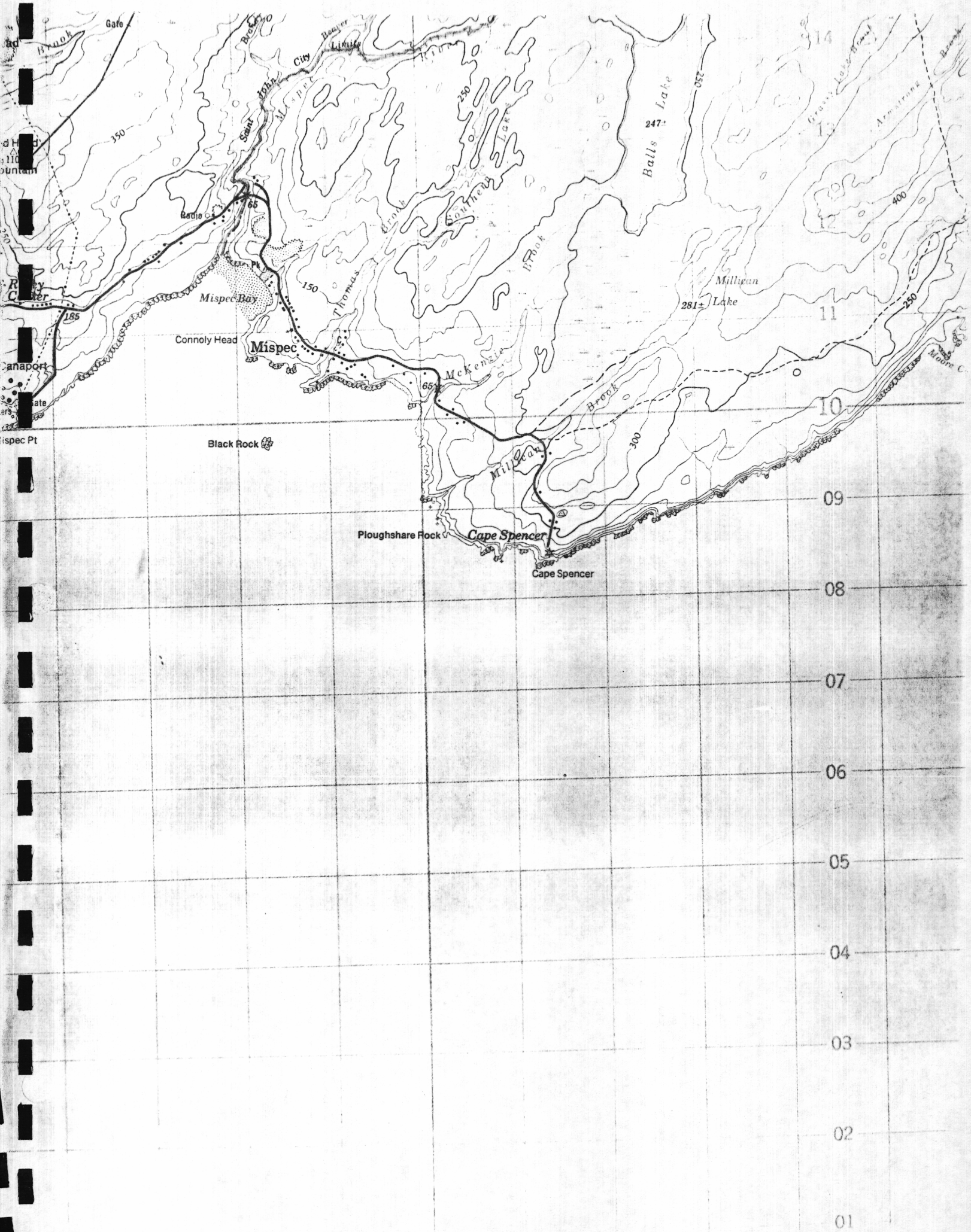
DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT TO RIVER

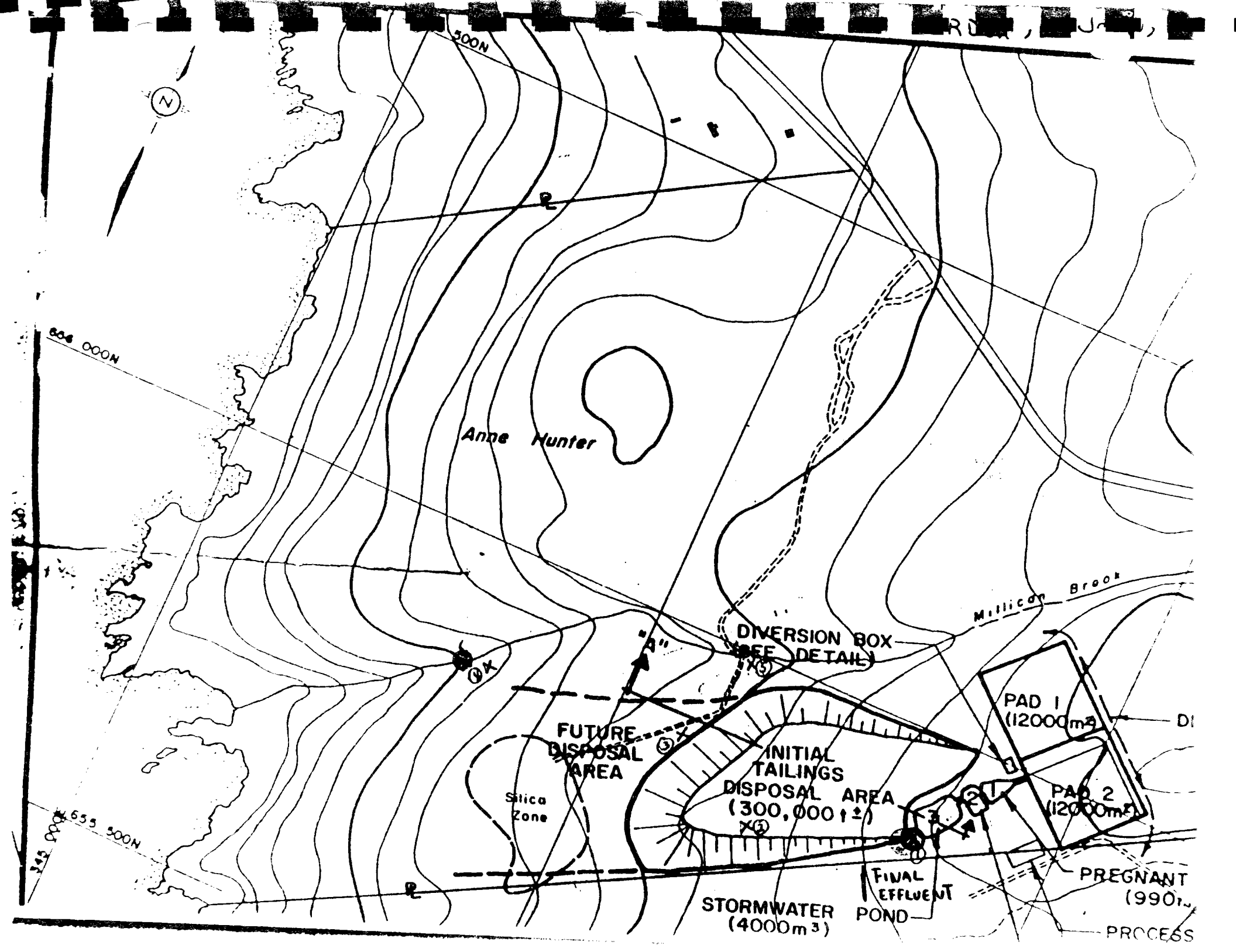
---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.19	
2:	001F/PH	6.7	
3:	002F/TEMPERATURE	23.6	DEGREES C.
4:	003F/OXYGEN DISSOLVED	0.20	MG/L
5:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	93.	MG/L
6:	020 /SUSPENDED SOLIDS (SS)	85.	MG/L
7:	421 /PRODUCTION	950.	TONNES/DAY
8:	649 /FLOW	107444.	M3/DAY

G

GORDEX

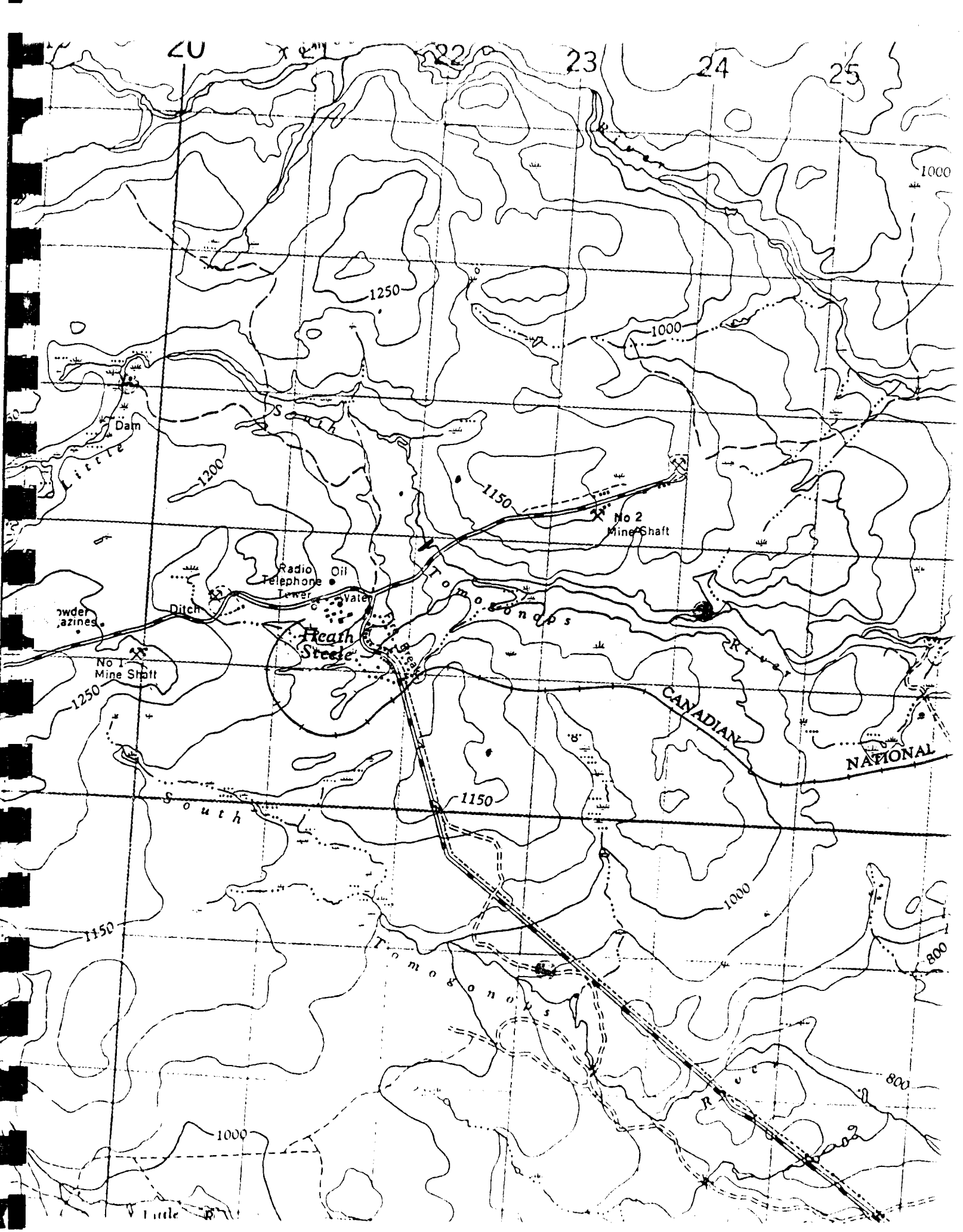

Gate
Beaver
City
Little
Brook
Saint John
Mispec
Radio
Pt
Mispec Bay
Connoly Head
Mispec
Canaport
Rispec Pt
Black Rock
Thomas
Brook
Southern
Lake
Balls Lake
247±
Millican
Lake
281±
McKenzie
Brook
Millican
Brook
Ploughshare Rock
Cape Spencer
Cape Spencer
Moore C
Armstrong
Brook
Grassy Lake Brook
250
350
400
300
185
150
65
14
13
12
11
10
09
08
07
06
05
04
03
02
01


500N
606 000N
Anne Hunter
DIVERSION BOX
SEE DETAIL
"A"
Millican Brook
PAD 1
(120000m²)
FUTURE
DISPOSAL
AREA
INITIAL
TAILINGS
DISPOSAL AREA
(300,000 t ±)
Silica
Zone
PAD 2
(120000m²)
FINAL
EFFLUENT
POND
PREGNANT
(990
STORMWATER
(4000m³)
PROCESS

```
**********************************************************************
* 89RP057 - ROY PARKER                          STATUS AS OF AUG 14, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: GORDEX00/GORDEX GOLD MINE,ST-JOHN
                  GENERAL                                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME:  845, FREQ:   1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME:  845

DEPTH:    .00 METERS, TIDE:
NARRATIVE: NO DISCHARGE,SAMPLE TAKEN IN SETTLING
           POND
                        ---- SAMPLE ANALYSIS ----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  10.88
 2: 005 /HARDNESS.......................  1390.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  9.                   MG/L
 4: 022 /MAGNESIUM (TOTAL).............  1.27                 MG/L
 5: 029 /CYANIDE (CN)...................  0.520                MG/L
 6: 036 /CALCIUM (TOTAL)................  550.                 MG/L
 7: 044 /ARSENIC (TOTAL)................ L0.05                MG/L
 8: 046 /CADMIUM (TOTAL)................ L0.01                MG/L
 9: 047 /CHROMIUM (TOTAL)...............  0.03                 MG/L
10: 048 /COPPER (TOTAL).................  0.27                 MG/L
11: 049 /IRON (TOTAL)...................  0.74                 MG/L
12: 051 /LEAD (TOTAL)................... L0.01                MG/L
13: 052 /ANTIMONY (TOTAL)............... L0.05                MG/L
14: 054 /ZINC (TOTAL)...................  0.41                 MG/L
15: 159 /NICKEL (TOTAL)................. L0.01                MG/L
16: 160 /MANGANESE (TOTAL).............  0.01                 MG/L
17: 162 /ALUMINUM (TOTAL)..............  0.68                 MG/L
```

H

HEATH STEELE


20
21
22
23
24
25
1000
1250
1200
1150
Dam
Little
South
No 2
Mine Shaft
Radio
Telephone
Tower
Oil
Water
Ditch
Heath
Steele
No 1
Mine Shaft
Tomoonops
River
CANADIAN
NATIONAL
800
Little

```
**********************************************************************
* 89RP019 - ROY PARKER                          STATUS AS OF JUN  5, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: HEASTE03/HEATH STEELE
                  LITTLE SOUTH TMOGONOPS BELOW SWAMP&GUAGE  PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 23/ 5/89 (MAY 23, 1989), TIME: 1530, FREQ:   1
SAMPLING ENDED, DATE: 23/ 5/89 (MAY 23, 1989), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: LITTLE SOUTH TOMOGONOPS BLW SWAMP

                          ----- SAMPLE ANALYSIS -----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  4.10
 2: 005 /HARDNESS.......................  42.1                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  5.                    MG/L
 4: 022 /MAGNESIUM (TOTAL).............  3.31                  MG/L
 5: 036 /CALCIUM (TOTAL)................  11.4                  MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.05                  MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                  MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                  MG/L
 9: 048 /COPPER (TOTAL).................  0.186                 MG/L
10: 049 /IRON (TOTAL)...................  2.02                  MG/L
11: 051 /LEAD (TOTAL)................... L0.01                  MG/L
12: 054 /ZINC (TOTAL)...................  2.84                  MG/L
13: 159 /NICKEL (TOTAL)................  0.010                 MG/L
14: 160 /MANGANESE (TOTAL).............  4.56                  MG/L
15: 162 /ALUMINUM (TOTAL)..............  2.32                  MG/L
```

```
**********************************************************************
* 89RP018 - ROY PARKER                          STATUS AS OF JUL 24, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: HEASTE01/HEATH STEELE
                  FINAL EFFLUENT                                PROV: NB
NORMAL ANALYSIS: 46,44,48,51,159,20,1
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 23/ 5/89 (MAY 23, 1989), TIME: 1500, FREQ:   1
SAMPLING ENDED, DATE: 23/ 5/89 (MAY 23, 1989), TIME: 1500

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TAILINGS POND OVERFLOW

                        ------ SAMPLE ANALYSIS ------
    ..............PARAMETER ..............  ....... VALUE .......  UNITS
 1: 001 /PH.............................    11.22
 2: 005 /HARDNESS.......................    1100.                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........    18.                      MG/L
 4: 022 /MAGNESIUM (TOTAL).............    3.67                     MG/L
 5: 036 /CALCIUM (TOTAL)................    433.9                    MG/L
 6: 044 /ARSENIC (TOTAL)................   L0.05                     MG/L
 7: 046 /CADMIUM (TOTAL)................   L0.01                     MG/L
 8: 047 /CHROMIUM (TOTAL)...............    0.038                    MG/L
 9: 048 /COPPER (TOTAL).................    0.061                    MG/L
10: 049 /IRON (TOTAL)...................    1.67                     MG/L
11: 051 /LEAD (TOTAL)...................    0.043                    MG/L
12: 054 /ZINC (TOTAL)...................    0.586                    MG/L
13: 159 /NICKEL (TOTAL)................   L0.01                     MG/L
14: 160 /MANGANESE (TOTAL).............    0.136                    MG/L
15: 162 /ALUMINUM (TOTAL)..............    0.392                    MG/L
16: 500 /BIOASSAY ......................   "DONE"
```

ENVIRONMENT CANADA MEMORANDUM

TO:

W.R. Parker
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Air and Water Branch
Conservation and Protection
Environment Canada, Atlantic Region

Security-Classification	
Our File	4705-37/H136
Your File	
Date	July 14, 1989

SUBJECT: BIOASSAY RESULTS - HEATH-STEELE MINE

On May 23, 1989, Ian McLeod collected a sample of final effluent from the Heath-Steele Mine in New Brunswick.

On May 29, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 4.1 g as the test organism. Since the pH of the full strength effluent was 10.9, a lethal level, and the volume of effluent was limited, only an adjusted pH bioassay was run.

The pH adjusted sample was not acutely lethal to the test fish.

A copy of the bioassay report is attached which provides additional test details.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe

```
**********************************************************************************
* 89RP073 - ROY PARKER                                  STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,   BY :ANDRE

LOCATOR: HEASTE03/HEATH STEELE
                    LITTLE SOUTH TMOGONOPS BELOW SWAMP&GUAGE  PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1330, FREQ:    1
SAMPLING ENDED, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1330

DEPTH:    .00 METERS, TIDE:
NARRATIVE: LITTLE SOUTH TOMOGONOPS BLW
           SWAMP
*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
     .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  4.4
 2: 005 /HARDNESS.......................  75.                    MG/L
  : 020 /SUSPENDED SOLIDS (SS).........  5.                     MG/L
 4: 022 /MAGNESIUM (TOTAL).............  6.42                   MG/L
 5: 036 /CALCIUM (TOTAL)................  20.65                  MG/L
 6: 044 /ARSENIC (TOTAL)................  .10                    MG/L
 7: 046 /CADMIUM (TOTAL)................  .01                    MG/L
 8: 047 /CHROMIUM (TOTAL)...............  .02                    MG/L
 9: 048 /COPPER (TOTAL).................  .17                    MG/L
10: 049 /IRON (TOTAL)...................  1.52                   MG/L
11: 051 /LEAD (TOTAL)...................  .13                    MG/L
12: 052 /ANTIMONY (TOTAL)...............  .92                    MG/L
13: 054 /ZINC (TOTAL)...................  3.93                   MG/L
14: 159 /NICKEL (TOTAL).................  .03                    MG/L
15: 160 /MANGANESE (TOTAL).............  7.03                   MG/L
16: 162 /ALUMINUM (TOTAL)...............  3.72                   MG/L
```

```
**********************************************************************************
* 89RP072 - ROY PARKER                                  STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: HEASTE01/HEATH STEELE
                    FINAL EFFLUENT                                    PROV: NB
NORMAL ANALYSIS: 46,44,48,51,159,20,1
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1500, FREQ:    1
SAMPLING ENDED, DATE: 25/ 9/89 (SEP 25, 1989), TIME: 1500

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....  6.4
  : 005 /HARDNESS..... TO BE COMPLETED
 3: 020 /SUSPENDED SOLIDS (SS).....  10.                    MG/L
 4: 022 /MAGNESIUM (TOTAL).....  5.17                       MG/L
 5: 036 /CALCIUM (TOTAL).....  521.                         MG/L
 6: 044 /ARSENIC (TOTAL)..... L.05                          MG/L
 7: 046 /CADMIUM (TOTAL)..... L.01                          MG/L
 8: 047 /CHROMIUM (TOTAL).....  .09                         MG/L
 9: 048 /COPPER (TOTAL).....  .12                           MG/L
10: 049 /IRON (TOTAL).....  3.07                            MG/L
11: 051 /LEAD (TOTAL).....  .29                             MG/L
12: 052 /ANTIMONY (TOTAL).....  .86                         MG/L
13: 054 /ZINC (TOTAL).....  1.15                            MG/L
14: 159 /NICKEL (TOTAL)..... L.01                           MG/L
15: 160 /MANGANESE (TOTAL).....  .23                        MG/L
16: 162 /ALUMINUM (TOTAL).....  1.19                        MG/L
17: 500 /BIOASSAY ..... TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:

R. Parker
Industrial & Air Programs Division
Environmental Control Branch
EP, Atlantic Region

FROM:

D. Vaughan
Laboratory Division
Environmental Control Branch
EP, Atlantic Region

Security-Classification
Our File 4705-37/H136
Your File
Date February 5, 1990

SUBJECT: **BIOASSAY RESULTS** - HEATH STEELE MINE

Attached is the Bioassay Report for sample #89RP072 (Heath Steele, Tailings pond overflow, collected September 25, 1989).

As the report indicates, the sample was not acutely lethal to rainbow trout fingerling.

David Vaughan

D. Vaughan

DV/dg

Attachment

cc: P. Hennebury
H. Samant
K. Doe

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Heath-Steele Mine, N.B. - tailings pond overflow

TIME COLLECTED: 1500 hrs. BY: Andre Gauthier DATE: 25 Sept. 89

SAMPLE NO. 89RP072 LOCATOR CODE: HEASTE01

TEST CONDITIONS:

Vol 40L Duration 96 hr Type X static ___ cont. ___ flow Replacement rate N/A Aeration rate 250 (mL/min)

Control U/V
Water Dechlorinated
Dart. Municipal
pH X ambient ___ adjusted Started 29 Sept. 89; 1600

Test
Organism O.mykiss #/Tank 10 Source Merlins

Length x ± S.D. (range) cm 4.9 ± 0.6 (3.8-5.8) n = 10

Weight x ± S.D. (range) g 1.4 ± 0.5 (0.8-2.1) n = 10 g/L 0.3

RESULTS:

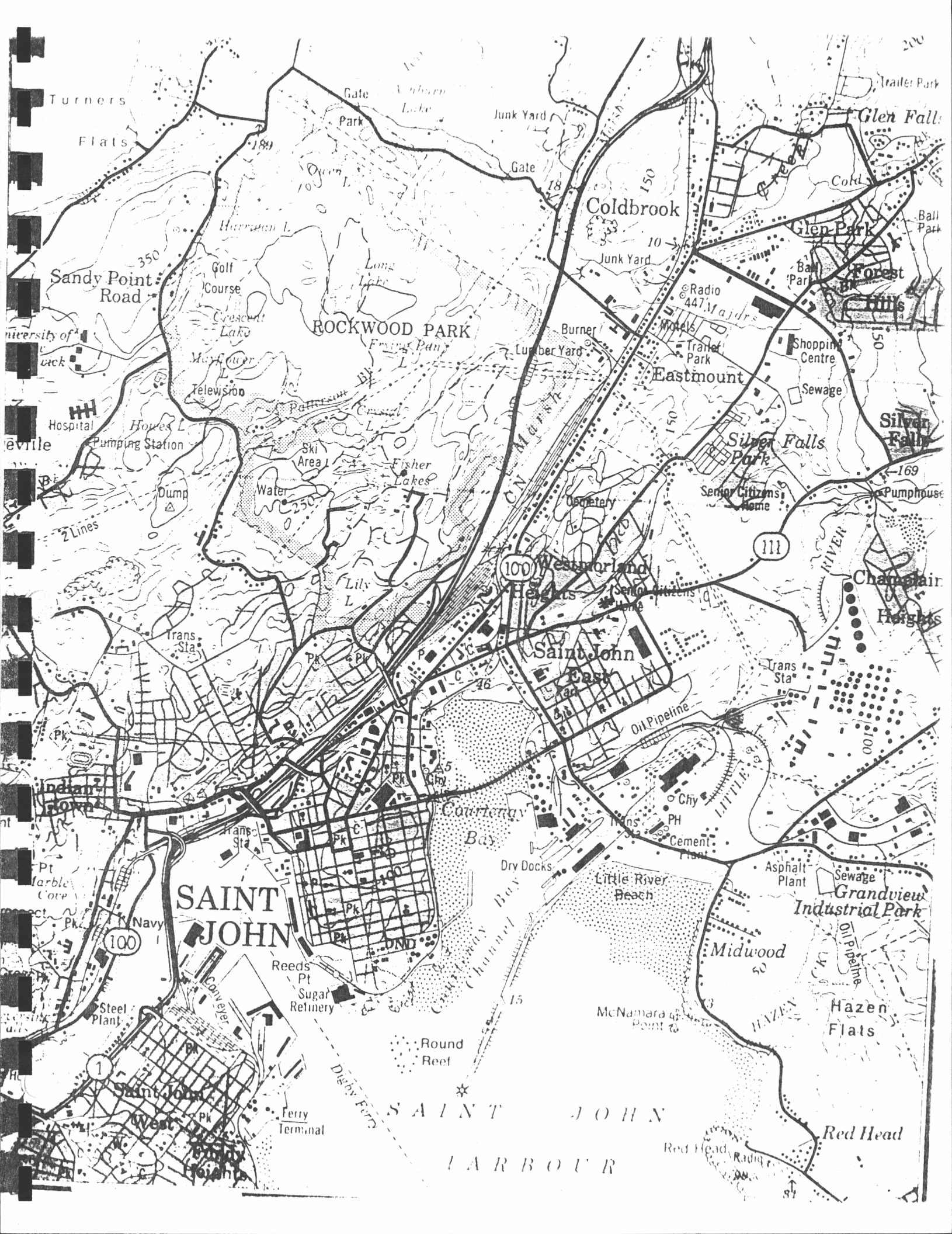
Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-15	9.5 - 9.9	6.8-7.0	0/10	>96		
Control	15-16	9.9 - 10.0	7.2-7.4	0/10	>96		

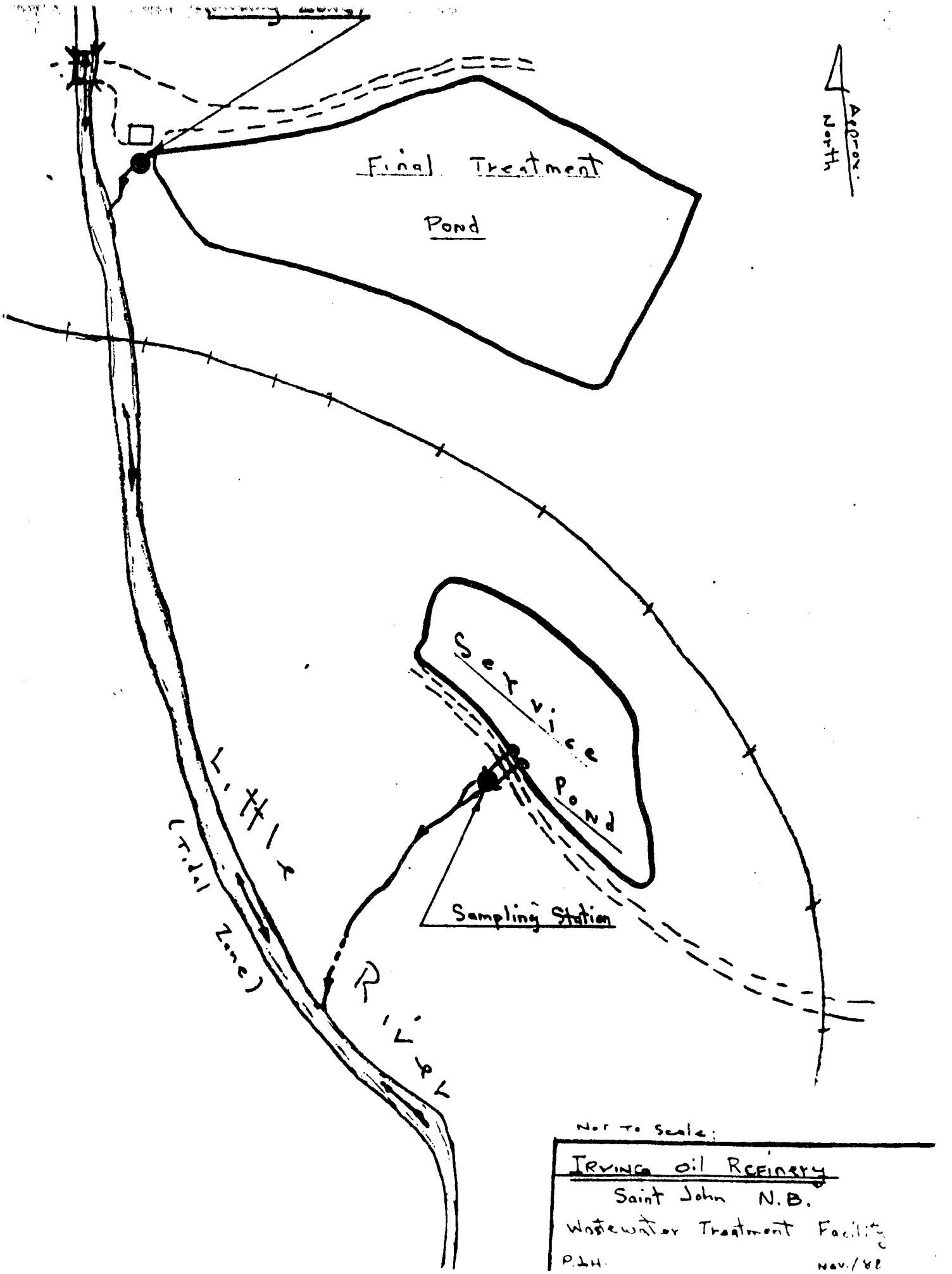
96-hour LC50 - **95% Conf. Limits** -

Comments: Not acutely lethal

Performed By: David Vaughan Verified By: Kenneth G Doe Date: 13 Feb 90

IRVING OIL REFINERY


Turners Flats
Gate
Park
Junk Yard
Gate
Coldbrook
Glen Falls
Trailer Park
Glen Park
Forest Hills
Ball Park
Sandy Point Road
Golf Course
Crescent Lake
ROCKWOOD PARK
Long Lake
Harrison L.
Queen L.
Burner
Lumber Yard
Motels
Trailer Park
Shopping Centre
Eastmount
Sewage
Radio CKMajor 447
Television
Hospital
Howes L.
Pumping Station
Ski Area
Fisher Lakes
Water
Dump
2 Lines
CN Marsh
Silver Falls Park
Silver Falls
Senior Citizens Home
Pumphouse
Cemetery
Westmorland Heights
Champlain Heights
Trans Sta
Saint John East
Oil Pipeline
Indian Town
Courtenay Bay
Dry Docks
Little River Beach
Asphalt Plant
Cement Plant
Sewage
Grandview Industrial Park
Midwood
Hazen Flats
SAINT JOHN
Navy
Reeds Pt
Sugar Refinery
Steel Plant
Conveyer
Round Reef
McNamara Point
Saint John West
Ferry Terminal
Digby Ferry
SAINT JOHN HARBOUR
Red Head
Radio



Not To Scale:

IRVING OIL REFINERY
Saint John N.B.
Wastewater Treatment Facility
P.L.H. Nov./82

```
**********************************************************************
* 89PH077 - PHIL HENNEBURY                        STATUS AS OF MAR  6, 1990 *

REGISTERED ON: SEP 14, 1989,  BY :IAN M

LOCATOR: IRVRE03/IRVING OIL REFINERY
                    OUTLET FROM LAGOON                          PROV: NB
PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 13/ 9/89 (SEP 13, 1989), TIME:  800, FREQ: 1
SAMPLING ENDED, DATE: 13/ 9/89 (SEP 13, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE:  FLOW 3000 G.P.M. AT TIME OF SAMPLE
            COLLECTION.
                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............. ...... VALUE ...... UNITS
 1: 001F/PH.............................  6.9
 2: 012 /PHENOLS........................  0.046                MG/L
 3: 013 /OIL & GREASE (PET. ETHER)......  19.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  10.                  MG/L
 5: 028 /AMMONIA-N (NH3-N)..............  3.1                  MG/L
 6: 086 /SULFIDE........................ L0.16                MG/L
 7: 158F/FLOW...........................  4320000.             IMP G/DAY
 8: 500 /BIOASSAY ...................... "DONE"


**********************************************************************
* 89PH078 - PHIL HENNEBURY                        STATUS AS OF MAR  6, 1990 *

REGISTERED ON: SEP 14, 1989,  BY :IAN M

LOCATOR: IRVREF02/IRVING OIL REFINERY
                    STORM WATER                                 PROV: NB
PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 13/ 9/89 (SEP 13, 1989), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 13/ 9/89 (SEP 13, 1989), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: NEW NAME ! INSPECTION POND ?
            BUCKET - STOPWATCH FLOW
*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............. ...... VALUE ...... UNITS
 1: 001F/PH.............................  7.2
 2: 012 /PHENOLS........................  0.016                MG/L
 3: 013 /OIL & GREASE (PET. ETHER)......  3.9                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  18.                  MG/L
 5: 028 /AMMONIA-N (NH3-N)..............  L0.14                MG/L
 6: 055 /LC50...........................  TO BE COMPLETED
 7: 086 /SULFIDE........................ L0.16                MG/L
 8: 158F/FLOW...........................  146771.              IMP G/DAY
```

ENVIRONMENT CANADA MEMORANDUM

TO:

A. MacKinnon, Head
Oil & Chemical Wastes Section
Environmental Control Branch
EP, Atlantic Region

FROM:

David Vaughan
Project Biologist
Laboratory Division
ECB, EP, Atlantic Region

Security-Classification
Our File 4810-37/J126
Your File
Date November 27, 1989

SUBJECT: BIOASSAY RESULTS - IRVING OIL REFINERY, N.B.

On 13 September 89, Ian McLeod conducted a compliance survey at the Irving Oil Refinery, St. John, New Brunswick. As part of the survey, effluent samples were collected and submitted to our lab for bioassay.

On 14 September 89, a 96-hour flow-through compliance bioassay and two 96 hr. static tests were begun on the sample, using fingerling rainbow trout as the test organism.

The compliance test was conducted according to the procedure in the "Petroleum Effluent Regulations and Guidelines" (Report EPS-1-WP-74-1). It was conducted at 58% effluent concentration, as per Schedule IX of the guidelines.

In the compliance bioassay, all 50 effluent-exposed fish died. Thus, the sample failed the test. In the static test on the final effluent, 5 of 5 fish died at compliance (i.e. 58%) concentration, and a 4-day LC50 value of 30% (95% confidence limits: 18-60%) was obtained. The sample of service pond water was not acutely lethal to the test fish. There was no control mortality in any of the above-mentioned tests.

The cause of the observed mortality could not be determined from the chemical analysis.

The Bioassay Reports are attached, which provides additional information about the tests.

David Vaughan
D. Vaughan

SW/dg

cc: K. Doe
H. Samant
R. Parker
P. Hennebury
I. McLeod

Attachments (3)

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Irving Oil Refinery, Saint John, N.B.
Final effluent

COLLECTED: 13 Sep 89 0800 BY: I. McLeod

SAMPLE NO. 89PH077 LOCATOR CODE: IRVREF03

TEST CONDITIONS:

Vol 20 L Duration 96 hr Type ___ static / X cont. flow / ___ _____ Replacement rate 106 (mL/min) Aeration rate Nil in test tanks (mL/min)

Control Water: Dechlorinated Dartmouth municipal pH X ambient / ___ adjusted Started: 14 Sep 89 1430

Test Organism O.mykiss #/Tank: 10 Source Merlin's Trout Farm

Length x ± S.D. (range) cm 6.3 + 0.7(4.7-7.8) n = 99

Weight x ± S.D. (range) g 3.1 + 1.0(1.3-5.7) n = 99 g/L 0.05

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L.	S.	REMARKS Salinity
58	15-16	8.9-9.0	7.9-8.2	10/10	15	(12-20)	1.5	4 o/oo
58	15-16	8.9-9.1	8.0-8.1	10/10	15	(12-19)	1.5	"
58	15-16	8.6-9.2	7.9-8.0	10/10	20	(16-26)	1.5	"
58	16-16	9.0-9.2	8.0-8.0	10/10	15	(12-18)	1.4	"
58	15-16	9.2-9.3	7.9-8.1	10/10	13	(11-16)	1.4	"
control	16-16	8.3-9.3	7.1-7.7	0/10	>96			0 o/oo
control	16-17	8.2-9.1	7.0-7.4	0/10	>96			"
control	16-17	7.9-9.0	7.1-7.4	0/10	>96			"
control	16-17	8.0-9.0	7.1-7.4	0/10	>96			"
control	16-17	8.1-9.1	7.0-7.4	0/9	>96			"

96-hour LC50 _____ 95% Conf. Limits _____

Comments: Failed Compliance Test

Performed By: Suzanne Wade Verified By: Date:

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Irving Oil Refinery, St. John, N.B. - final effluent

TIME COLLECTED: 0800 hrs. BY: Ian McLeod DATE: 13 Sept. 89

SAMPLE NO. 89PH077 LOCATOR CODE: IRVREF03

TEST CONDITIONS:

Vol 40 L Duration 96hr Type X static ___ cont. flow Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. Municipal pH X ambient ___ adjusted Started 14 Sep '89; 1430

Test Organism O.mykiss #/Tank 5 Source Merlins

Length x ± S.D. (range) cm 6.3 ± 0.8 (4.7-8.2) n = 30

Weight x ± S.D. (range) g 3.3 ± 1.1 (1.5-6.2) n = 30 g/L 0.4

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-16	8.5 - 9.4	7.4-8.1	5/5	2-20		
60	15-16	8.9 - 9.7	7.4-8.1	5/5	24	17-33 (1.4)	
32	15-16	9.2 - 10.2	7.4-8.1	3/5	84	48-147 (1.8)	
18	15-16	9.2 - 10.0	7.4-8.0	0/5	>96		
10	15-16	9.0 - 9.9	7.4-7.9	0/5	>96		
Control	15-16	8.9 - 9.9	7.2-7.8	0/5	>96		

96-hour LC50 30% 95% Conf. Limits 18 - 60%

Comments: Salinity of full-strength effluent = 6 ppt.

Performed By: D. Yarnish Verified By: S Wade Date: 6 Nov 89

LAB NUMBER(S): 89PH076

****

* 89PH076 - PHIL HENNEBURY STATUS AS OF MAR 6, 1990 *

REGISTERED ON: SEP 14, 1989, BY :IAN M

LOCATOR: IRVREF03/IRVING OIL REFINERY
OUTLET FROM LAGOON PROV: NB
PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 12/ 9/89 (SEP 12, 1989), TIME: 800, FREQ: 24
SAMPLING ENDED, DATE: 13/ 9/89 (SEP 13, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: R.C.R. = 129.6

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	6.9	
2:	012 /PHENOLS	0.036	MG/L
3:	013 /OIL & GREASE (PET. ETHER)	11.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	18.	MG/L
5:	028 /AMMONIA-N (NH3-N)	2.87	MG/L
6:	086 /SULFIDE	L0.16	MG/L
7:	158F/FLOW	4200000.	IMP G/DAY

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Irving Oil Refinery, St. John, N.B. - Service Pond

TIME COLLECTED: 1000 hrs. BY: Ian McLeod DATE: 13 Sept. 89

SAMPLE NO. 89PH078 LOCATOR CODE: IRVREF02

TEST CONDITIONS:

Vol 40 L Duration 96hr Type X static ___ cont. flow Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. Municipal pH X ambient ___ adjusted Started 14 Sep '89; 1430

Test Organism O.mykiss #/Tank 05 Source Merlins

Length x ± S.D. (range) cm 6.3 ± 1.0 (5.1-7.9) n = 10

Weight x ± S.D. (range) g 3.0 ± 1.6 (1.4-5.6) n = 10 g/L 0.4

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-16	9.9 - 10.3	7.8-8.5	0/5	>96		
Control	15-16	8.9 - 10.4	7.3-8.1	0/5	>96		

96-hour LC50 _____ 95% Conf. Limits _____

Comments: Not acutely lethal

Performed By: D. Vaughan Verified By: S. Wade Date: 6 Nov. 89

```
**********************************************************************
* 89PH043 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 205 IRVING OIL REFINERY
           REGULAR UNLEADED
                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051L/LEAD (PB) IN GASOLINE           "NO SAMPLE"          G/LITER


**********************************************************************
* 89PH044 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #205 (TOP) IRVING REFINERY
           UNLEADED REGULAR
                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051G/LEAD (PB) IN GASOLINE           L0.004               G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE           L0.001               G/LITER


**********************************************************************
* 89PH045 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #205 (MID) IRVING REFINERY
           UNLEADED REGULAR
                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051G/LEAD (PB) IN GASOLINE           L0.004               G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE           L0.001               G/LITER
```

```
**********************************************************************
* 89PH@46 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB@1/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #205 (BOT) IRVING REFINERY
           UNLEADED REGULAR
                        ---- SAMPLE ANALYSIS ----
   ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: @51G/LEAD (PB) IN GASOLINE           L0.004                G/IMP.GAL
 2: @51L/LEAD (PB) IN GASOLINE           L0.001                G/LITER


**********************************************************************
* 89PH@47 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB@1/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #192 (TOP) IRVING REFINERY
           LEADED
                        ---- SAMPLE ANALYSIS ----
   ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: @51G/LEAD (PB) IN GASOLINE            0.994                G/IMP.GAL
 2: @51L/LEAD (PB) IN GASOLINE            0.219                G/LITER


**********************************************************************
* 89PH@48 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB@1/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #192 MID. IRVING REFINERY
           LEADED
                        ---- SAMPLE ANALYSIS ----
   ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: @51G/LEAD (PB) IN GASOLINE            1.023                G/IMP.GAL
 2: @51L/LEAD (PB) IN GASOLINE            0.225                G/LITER
```

```
**********************************************************************************
* 89PH048 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                                  PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #192 MID. IRVING REFINERY
           LEADED
                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE                 1.023               G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE                0.225               G/LITER


**********************************************************************************
* 89PH049 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                                  PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #192 (BOT) IRVING REFINERY
           LEADED
                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE                 1.051               G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE                0.231               G/LITER


**********************************************************************************
* 89PH050 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                                  PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #202 (TOP) IRVING REFINERY
           UNLEADED PLUS
                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE               L0.004               G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE               L0.001               G/LITER
```

LAB NUMBER(S): 89PH0051-052

****

* 89PH0051 - PHIL HENNEBURY STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989, BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: TANK #202 (MID) IRVING REFINERY
UNLEADED PLUS

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	0516/LEAD (PB) IN GASOLINE	L0.004	G/IMP.GAL
2:	051L/LEAD (PB) IN GASOLINE	L0.001	G/LITER

****

* 89PH0052 - PHIL HENNEBURY STATUS AS OF APR 26, 1990 *

REGISTERED ON: JUL 27, 1989, BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 27/ 7/89 (JUL 27, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: TANK #202 (BOT) IRVING REFINERY
UNLEADED PLUS

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	0516/LEAD (PB) IN GASOLINE	L0.004	G/IMP.GAL
2:	051L/LEAD (PB) IN GASOLINE	L0.001	G/LITER

****
* 89PH098 - PHIL HENNEBURY STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989, BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530

DEPTH: .00 METERS, TIDE:
NARRATIVE: TANK # 192 ,LEADED (TOP)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	051L/LEAD (PB) IN GASOLINE	0.243	G/LITER

****
* 89PH099 - PHIL HENNEBURY STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989, BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530

DEPTH: .00 METERS, TIDE:
NARRATIVE: TANK # 192 , LEADED (MID)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	051L/LEAD (PB) IN GASOLINE	0.219	G/LITER

****
* 89PH100 - PHIL HENNEBURY STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989, BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
GENERAL PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE: 3/11/87 (NOV 3, 1987), TIME: 1530

DEPTH: .00 METERS, TIDE:
NARRATIVE: TANK # 192 ,LEADED (BOTTOM)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	051L/LEAD (PB) IN GASOLINE	0.225	G/LITER

```
**********************************************************************
* 89PH101 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                  GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 202 , UNLEADED PLUS ( TOP )

                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051L/LEAD (PB) IN GASOLINE           L0.001                 G/LITER


**********************************************************************
* 89PH102 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                  GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 202 , UNLEADED PLUS ( BOTTOM )

                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051L/LEAD (PB) IN GASOLINE           L0.001                 G/LITER


**********************************************************************
* 89PH103 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                  GENERAL                                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #205 , REGULAR UNLEADED (TOP )

                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051L/LEAD (PB) IN GASOLINE           L0.001                 G/LITER
```

```
**********************************************************************
* 89PH104 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                  GENERAL                                      PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 205 , REGULAR UNLEADED ( MID )

                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER


**********************************************************************
* 89PH105 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: NOV 14, 1989,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                  GENERAL                                      PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE:  3/11/87 (NOV  3, 1987), TIME: 1530

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 205 ,REGULAR UNLEADED ( BOTTOM )

                        ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER
```

```
**********************************************************************
* 90PH003 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 192 (BOT) LEADED

                         ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              0.768                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              0.169                 G/LITER


**********************************************************************
* 90PH004 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 202 (TOP) UN-LEADED PLUS

                         ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE             L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE             L0.001                G/LITER


**********************************************************************
* 90PH005 - PHIL HENNEBURY                    STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,  BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                   PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 202 (BOT) UN-LEADED

                         ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE             L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE             L0.001                G/LITER
```

```
**********************************************************************************
* 90PH006 - PHIL HENNEBURY                              STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 206 (TOP) UN-LEADED

                              ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER


**********************************************************************************
* 90PH007 - PHIL HENNEBURY                              STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #206 (MID) UN-LEADED

                              ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER


**********************************************************************************
* 90PH008 - PHIL HENNEBURY                              STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IRVREF00/IRVING OIL REFINERY
                    GENERAL                                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 12/ 2/90 (FEB 12, 1990), TIME: 1000

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #206 (BOT) UN-LEADED

                              ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER
```

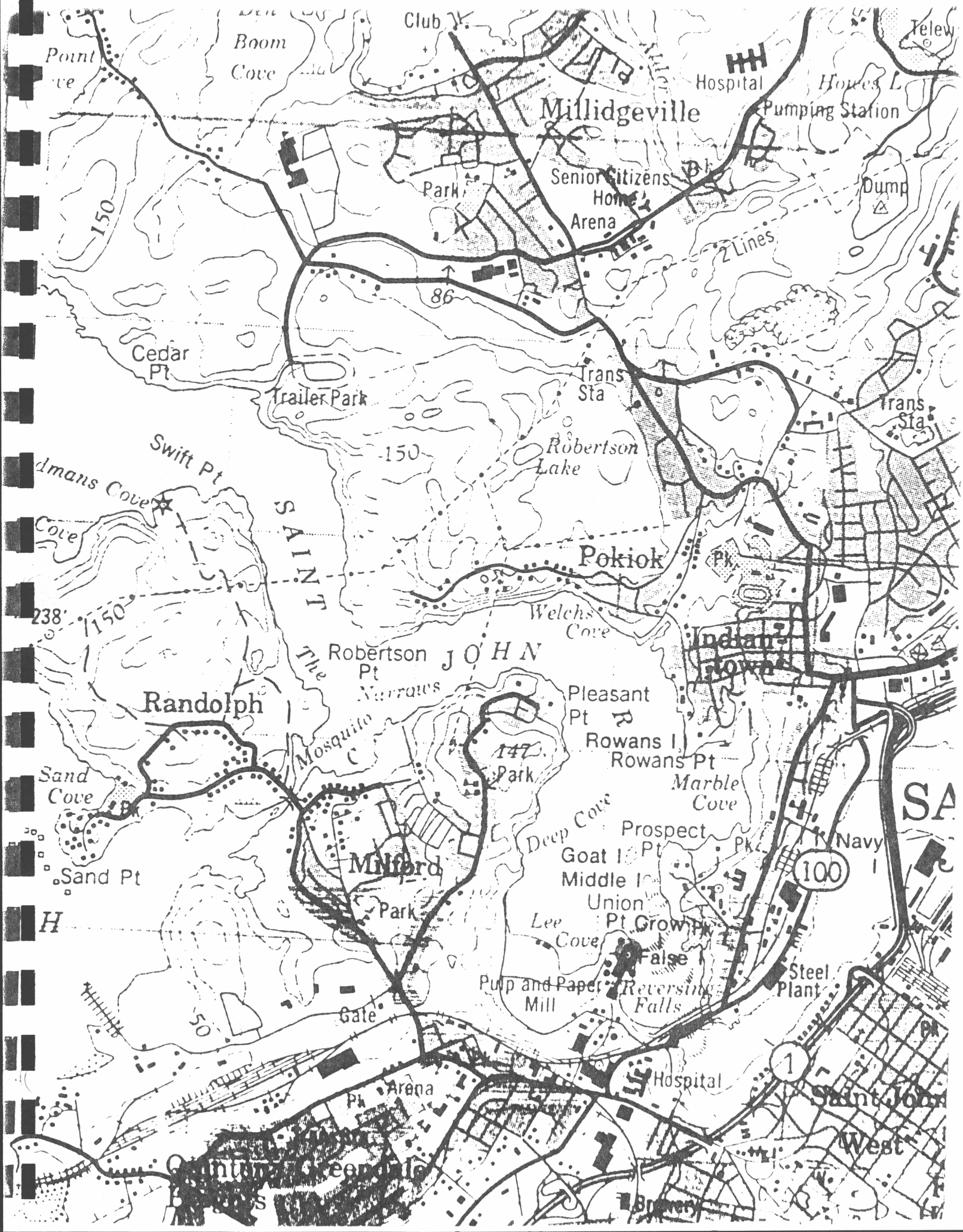
```
**********************************************************************************
* 90PH009 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: TEXACO00/TEXACO REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 103 (TOP) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051G/LEAD (PB) IN GASOLINE            L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            L0.001                G/LITER


**********************************************************************************
* 90PH010 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: TEXACO00/TEXACO REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 103 (BOT) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051G/LEAD (PB) IN GASOLINE            L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            L0.001                G/LITER


**********************************************************************************
* 90PH011 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: TEXACO00/TEXACO REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #202 (TOP) REG. UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 051G/LEAD (PB) IN GASOLINE            L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            L0.001                G/LITER
```

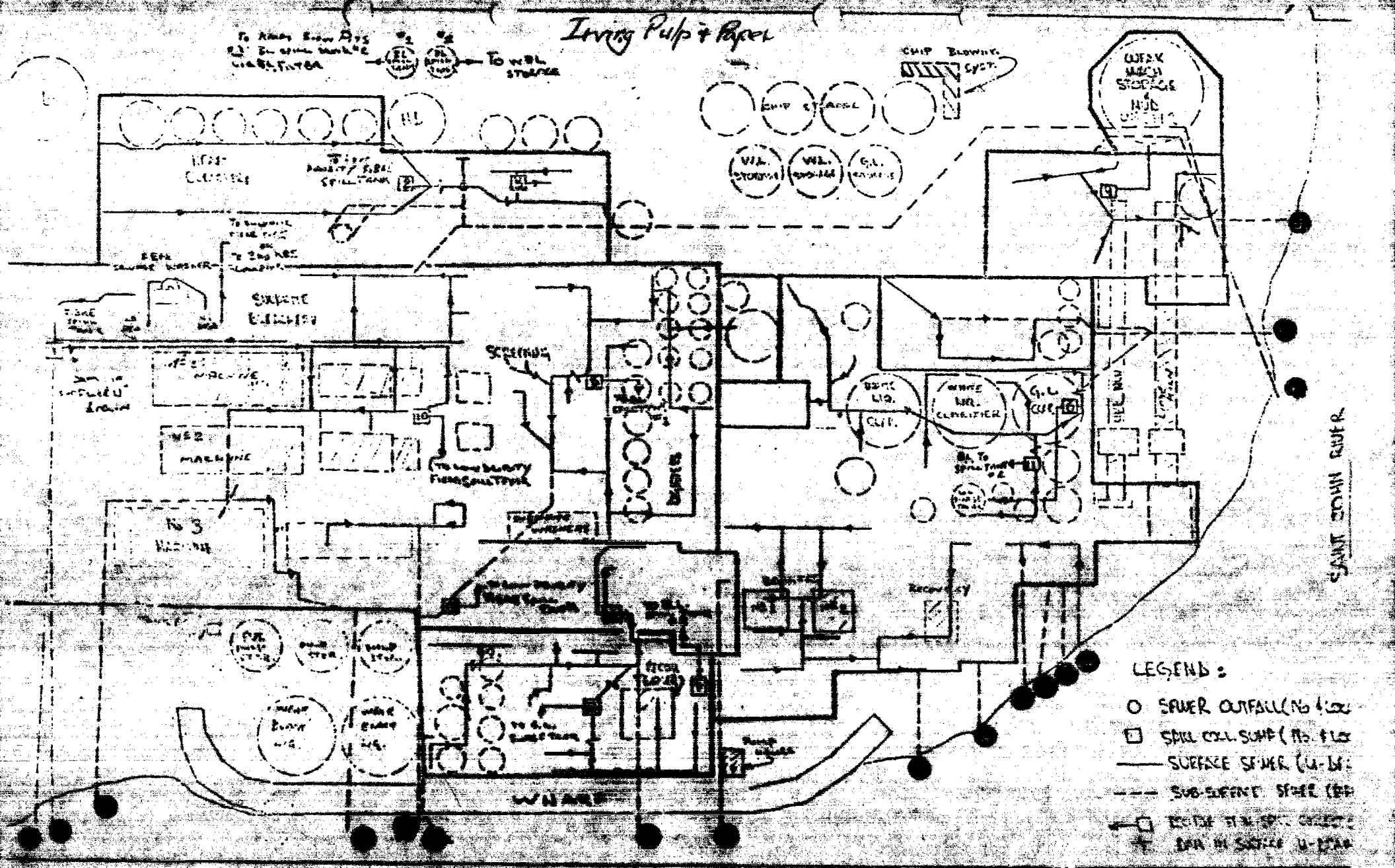
```
**********************************************************************************
* 90PH012 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: TEXACO00/TEXACO REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #202 (BOT) REG. UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE             L0.004                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE             L0.001                 G/LITER


**********************************************************************************
* 90PH013 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: TEXACO00/TEXACO REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #203 (MID) LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE              0.018                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              0.004                 G/LITER


**********************************************************************************
* 90PH014 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPOAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK #63 (TOP) LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE             L0.004                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              0.004                 G/LITER
```

```
**********************************************************************************
* 90PH015 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 63 (MID) LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE            L0.004                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            0.004                 G/LITER


**********************************************************************************
* 90PH016 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 63 (BOT) LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE            L0.004                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            0.001                 G/LITER


**********************************************************************************
* 90PH017 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 64 (BOT) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ...... UNITS
 1: 0516/LEAD (PB) IN GASOLINE            L0.004                 G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE            L0.001                 G/LITER
```

```
**********************************************************************************
* 90PH018 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 62 (TOP) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER


**********************************************************************************
* 90PH019 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 62 (MID) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER


**********************************************************************************
* 90PH020 - PHIL HENNEBURY                          STATUS AS OF APR 26, 1990 *

REGISTERED ON: FEB 13, 1990,   BY :PHIL H

LOCATOR: IMPDAR00/IMPERIAL OIL REFINERY
                    GENERAL                                          PROV: NS
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 13/ 2/90 (FEB 13, 1990), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: TANK # 62 (BOT) UN-LEADED

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ..............  ......  VALUE ......  UNITS
 1: 0516/LEAD (PB) IN GASOLINE              L0.004                G/IMP.GAL
 2: 051L/LEAD (PB) IN GASOLINE              L0.001                G/LITER
```

IRVING PULP AND PAPER


Point
Boom
Cove
Club
Millidgeville
Hospital
Pumping Station
Park
Senior Citizens
Home
Arena
Dump
2 Lines
150
86
Cedar
Pt
Trailer Park
Trans
Sta
Trans
Sta
Robertson
Lake
Swift Pt
Cove
SAINT
Pokiok
Pk
238
150
Welchs
Cove
Indiantown
Robertson
Pt
The
Narrows
JOHN
Randolph
Pleasant
Pt
Rowans I
Rowans Pt
Mosquito C
147
Park
Sand
Cove
Marble
Cove
Deep Cove
Prospect
Pt
Navy
I
100
Sand Pt
Milford
Goat I
Middle I
Union
Park
Lee
Cove
Pt Grow
Pk
False
Steel
Plant
Pulp and Paper
Mill
Reversing
Falls
Gate
50
Arena
Hospital
1
West


Irving Pulp & Paper
To Main Sewer Sys
To WBL Storage
Chip Blowing Syst.
Chip Storage
WBL Storage
WBL Spillage
G.L. Storage
Quick Mach. Storage & Mix
Wet Machine
Screening
Bark Liq. Clarifier
No 3 Machine
Recovery
Wharf
Saint John River
LEGEND :
Sewer Outfall (No 1 Loc
Spill Cont. Sump (No 1 Loc
Surface Sewer (Un-Ident
Sub-Surface Sewer (Ident
Direction of Sewer Current
Dam in Surface Ditch

```
**********************************************************************
* 8937015 -- GARTH TRIDER                          STATUS AS OF FEB 20, 1990 *

REGISTERED ON: SEP 15, 1989.  BY :PHIL H

LOCATOR: IRVPUL03/IRVING PULP AND PAPER LTD.,SAINT JOHN
                  NO 3 MAIN CHEMICAL SEWER                    PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 14/ 9/89 (SEP 14, 1989), TIME:   900, FREQ:
SAMPLING ENDED, DATE: 14/ 9/89 (SEP 14, 1989), TIME:   900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: SCRUBBER WATER (OLD CHEMICAL SEWER).

                        ---- SAMPLE ANALYSIS ----
     ..............PARAMETER ..............  ..... VALUE .....  UNITS
 1:  001 /PH.................................  8.85
 2:  001F/PH.................................  7.9
 3:  011 /RESIN ACIDS (RAS)..................  TO BE COMPLETED
 4:  015 /BIOCHEM. OXYGEN DEMAND (BOD)..     580.                MG/L
 5:  016 /CHEMICAL OXYGEN DEMAND (COD)..     940.                MG/L
 6:  020 /SUSPENDED SOLIDS (SS).........     25.                 MG/L
 7:  028 /AMMONIA-N (NH3-N)..............     16.4                MG/L
 8:  046 /CADMIUM (TOTAL)................  L.01                   MG/L
 9:  048 /COPPER (TOTAL).................  L.01                   MG/L
10:  050 /MERCURY (TOTAL)................     0.000010            MG/L
11:  054 /ZINC (TOTAL)...................     .08                 MG/L
12:  086 /SULFIDE........................     7.63                MG/L
13:  157 /PENTACHLOROPHENOL..............  " SAMPLE LOST          MG/L
14:  162 /ALUMINUM (TOTAL)...............     .20                 MG/L
15:  172 /2,3,5,6-TETRACHLOROPHENOL.....  " SAMPLE LOST          MG/L
16:  201 /BERYLLIUM .....................  L.01                   MG/L
17:  235 /2,3,4,6 - TETRACHLOROPHENOL ..  " SAMPLE LOST          MG/L
18:  236 /2,3,4,5 - TETRACHLOROPHENOL ..  " SAMPLE LOST          MG/L
19:  278C/FLOW..............................  5300.               CU M/DAY
20:  417 /BOD 5 (DEPOSIT RATE).............  3.9                 KG/TONNE
21:  418 /SS (DEPOSIT RATE).................  0.2                 KG/TONNE
22:  421 /PRODUCTION                          783.1               TONNES/DAY
23:  500 /BIOASSAY .....................  "DONE"
24:  650 /SS(DEPOSIT RATE)                    132.5               KG/DAY
25:  651 /BOD(DEPOSIT RATE)                   3074.               KG/DAY
26:  688 /2,4,6 TRICHLOROPHENOL           " SAMPLE LOST          MG/L
27:  689 /TETRACHLOROGUAIACOL             " SAMPLE LOST          MG/L
28:  690 /TETRACHLOROCATECHOL             " SAMPLE LOST          MG/L
```

```
**********************************************************************
* 89GT014 - GARTH TRIDER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 15, 1989,  BY :PHIL H

LOCATOR: IRVPUL09/IRVING PULP AND PAPER LTD.,SAINT JOHN
                  FLOW PROPORTIONED COMBINED EFFLUENT        PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 241/ENV. CONTROL - TECH TRANSFER

SAMPLING BEGAN, DATE: 13/ 9/89 (SEP 13, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 14/ 9/89 (SEP 14, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE:

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  3.70
 2: 001F/PH.....................  3.7
 3: 011 /RESIN ACIDS (RAS)..... TO BE COMPLETED
 4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  320.                  MG/L
 5: 016 /CHEMICAL OXYGEN DEMAND (COD)..  1600.                 MG/L
 6: 020 /SUSPENDED SOLIDS (SS).....  140.                      MG/L
 7: 028 /AMMONIA-N (NH3-N).....  1.61                          MG/L
 8: 046 /CADMIUM (TOTAL)..... L.01                             MG/L
 9: 048 /COPPER (TOTAL).....  .01                              MG/L
10: 050 /MERCURY (TOTAL)..... TO BE COMPLETED
11: 054 /ZINC (TOTAL).....  .96                                MG/L
12: 086 /SULFIDE.....  0.61                                    MG/L
13: 157 /PENTACHLOROPHENOL..... TO BE COMPLETED
14: 162 /ALUMINUM (TOTAL).....  .76                            MG/L
15: 172 /2,3,5,6-TETRACHLOROPHENOL..... TO BE COMPLETED
16: 201 /BERYLLIUM ..... L.01                                  MG/L
17: 235 /2,3,4,6 - TETRACHLOROPHENOL .. TO BE COMPLETED
18: 236 /2,3,4,5 - TETRACHLOROPHENOL .. TO BE COMPLETED
19: 278C/FLOW..... TO BE COMPLETED
20: 421 /PRODUCTION  783.1                                     TONNES/DAY
21: 500 /BIOASSAY ..... TO BE COMPLETED
22: 688 /2,4,6 TRICHLOROPHENOL  TO BE COMPLETED
23: 689 /TETRACHLOROGUAIACOL  TO BE COMPLETED
24: 690 /TETRACHLOROCATECHOL  TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:
Garth Trider
Head, Pulp and Paper, Steel & Textiles
Industrial & Shellfish Programs Division
Environmental Protection
Environment Canada, Atlantic Region

FROM:
David Vaughan
Project Biologist
Laboratory Division
Environmental Protection
Environment Canada, Atlantic Region

Security-Classification
Our File 4705-37/J99
Your File
Date December 6, 1989

SUBJECT: Bioassay Results - Irving Pulp and Paper Ltd., New Brunswick

On September 13-14, 1989, P. Hennebury collected final effluent and chemical sewer (scrubber water) samples from Irving Pulp and Paper Ltd., Saint John, New Brunswick.

On September 18, 1989, a 96-hour static bioassay was begun on each of these samples, using rainbow trout fingerling as the test organism.

Both the final effluent and chemical sewer samples were acutely lethal to the test fish, yielding 4-day LC50 values of 5.6% (95% confidence limits: 3.2 - 10%) and 28% (95% confidence limits: 10-65%) respectively.

The final effluent contained toxic levels of zinc, aluminum and sulfide. However, of the parameters measured, only sulfide was present at a level sufficient to account for the mortality at 10% concentration. The mortality in the chemical sewer sample is attributed to ammonia.

A copy of each Bioassay Report is attached, which provide additional information about the tests.

David Vaughan

D. Vaughan

SW/gtm

Attachments (2)

cc - K. Doe P. Hennebury
H. Samant R. Parker

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: IRVING PULP AND PAPER SAINT JOHN, N.B.
FINAL EFFLUENT

COLLECTED: 13-14 SEP 89 0800-0800 BY: P. HENNEBURY
SAMPLE NO. 89GT014 LOCATOR CODE: 1RVPUL09

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dartmouth municipal pH X ambient ___ adjusted Started 18 Sep 89 1300

Test Organism O.mykiss #/Tank 5 Source Merlin's Trout farm

Length x ± S.D. (range) cm 7.1 ± 0.9(5.2-9.0) n = 35

Weight x ± S.D. (range) g 4.4 ± 1.6(1.7-8.1) n = 35 g/L 0.6

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-16	9.0-9.3	4.2-4.3	5/5	1-3		
65	15-16.5	9.4-9.6	4.3-4.3	5/5	1-3		
32	15-17	9.0-9.6	4.4-4.7	5/5	4.2	(3.0-6.0) 1.5	
10	15-17	8.5-9.9	4.8-5.0	5/5	3-19		
3.2	15-17	8.4-10.0	5.9-7.8	0/5	>96		
1.0	15-17	8.9-10.3	6.7-7.6	0/5	>96		
Control	15-16	8.7-10.4	6.9-7.9	0/5	>96		

96-hour LC50 5.6% 95% Conf. Limits 3.2-10%

Comments: _____

Performed By: S.Wade Verified By: [signature] Date: [illegible]

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Irving Pulp and Paper Co., Saint John, N.B.

Old chemical sewer(scrubber water)

COLLECTED: 14 Sept 89 0900 BY: P. Hennebury

SAMPLE NO. 89GT015 LOCATOR CODE: IRVPUL03

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water: Dechlorinated Dartmouth municipal pH X ambient ____ adjusted Started: 18 Sep 89 1500

Test Organism O.mykiss #/Tank: 5 Source Merlin's Trout Farm

Length x ± S.D. (range) cm 7.0 ± 0.8(5.5-8.6) n = 36

Weight x ± S.D. (range) g 4.3 ± 1.6(1.8-7.7) n = 36 g/L 0.6

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-15	8.8-9.7	8.5-8.7	5/5	1-17		
65	15-15	8.9-9.8	8.3-8.6	5/5	1-17		
32	15-15	8.9-9.9	7.6-8.4	3/5	48	28.6-80.6 1.7	2 sluggish
10	15-15	8.9-10.1	7.5-7.9	0/5	>96		1 sluggish
3.2	15-15	8.8-10.1	7.4-7.9	0/6	>96		
1.0	15-15.5	8.8-10.0	7.4-7.6	0/5	>96		
control	15-15	8.8-10.1	7.3-7.6	0/5	>96		

96-hour LC50 28% 95% Conf. Limits 10-65%

Comments: _____

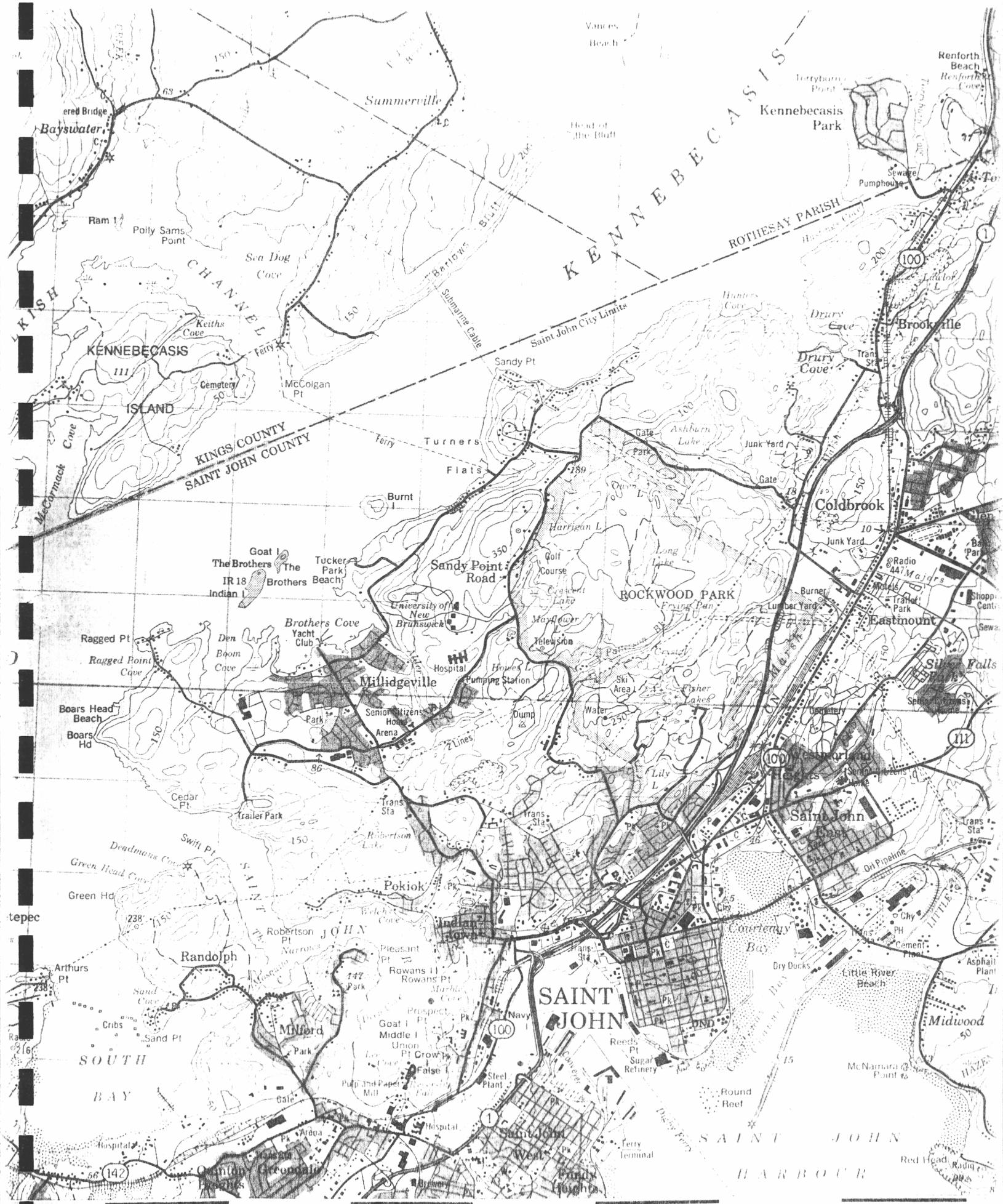
Performed By: S. Wade Verified By: _____ Date: _____

IRVING PULP AND PAPER, SAINT JOHN, N.B.

Sampling Station	Flow us/gal./day	% Mixture
Main Chemical Sewer #3	14.4×10^6	73%
Contaminated Condensates Sewer #12 (A)	0.60×10^6	3%
Kraft Brown Stock Sewer #12 (B)	1.6×10^6	8%
New Demineralizer Sewer #11 (A)	not in use	---
New Recovery Sewer #11 (B)	0.4×10^6	2%
Old Recovery Sewer #9	2.0×10^6	10%
Machine Room Sewer Sewer #14	0.71×10^6	4%
TOTAL	19.71×10^6	100%

* Scrubber Water Effluent (Old Chemical Sewer)

Flow = 1.4×10^6 us/gal/day


KENNEBECASIS
ROTHESAY PARISH
Saint John City Limits
KINGS COUNTY
SAINT JOHN COUNTY
KENNEBECASIS ISLAND
Bayswater
Summerville
Kennebecasis Park
Renforth Beach
Brookville
Drury Cove
Coldbrook
Eastmount
Millidgeville
Brothers Cove Yacht Club
Ragged Point Cove
Ragged Pt
Boars Head Beach
Boars Hd
Sandy Point Road
ROCKWOOD PARK
University of New Brunswick
Golf Course
Hospital
Pumping Station
Senior Citizens Home
Arena
Park
Dump
Water
Ski Area
Fisher Lakes
Trailer Park
Cedar Pt
Trans Sta
Pokiok
Indian Town
Randolph
Milford
Arthurs Pt
Robertson Pt
Pleasant Pt
Rowans I
Rowans Pt
Goat I
Middle I
Union Pt
Crow Pt
False I
Navy I
Reeds Pt
Sugar Refinery
Steel Plant
Pulp and Paper Mill
Courtenay Bay
Dry Docks
Little River Beach
Midwood
McNamara Point
Round Beet
SAINT JOHN
SOUTH BAY
SAINT JOHN HARBOUR
Saint John West
Fundy Heights
Quinton
Greendale
Ferry Terminal
Oil Pipeline
Cement Plant
Asphalt Plant
Sandy Pt
McColgan Pt
Turners Flats
Submarine Cable
Barlows Bluff
Head of the Bluff
Sea Dog Cove
Keiths Cove
McCormack Cove
Polly Sams Point
Ram I
Burnt I
Goat I
The Brothers
IR 18
Indian I
Tucker Park Beach
Den Boom Cove
Swift Pt
Deadmans Cove
Green Head Cove
Green Hd
Harrigan L
Long Lake
Crescent Lake
Mayflower
Lily L
Robertson Lake
Ashburn Lake
Junk Yard
Gate
Lumber Yard
Trailer Park
Radio 447 Majors
Shopping Centre
Silver Falls Park
Cemetery
Ferry
Tepec

```
**********************************************************************
* 89GT011 - GARTH TRIDER                          STATUS AS OF JUL 17, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: KIMCLA01/IRVING TISSUE COMPANY
                  FINAL EFFLUENT                                PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  4/ 7/89 (JUL  4, 1989), TIME:  700, FREQ: 48
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME:  700

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT (OLD LINE )
           201,235,236,278C,310,421,500,688,689,690
                        ---- SAMPLE ANALYSIS ----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001F/PH.............................  5.5
 2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  25.                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  180.                 MG/L
```

```
**********************************************************************
* 89GT010 - GARTH TRIDER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: KIMCLA01/IRVING TISSUE COMPANY
                  FINAL EFFLUENT                                  PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  4/ 7/89 (JUL  4, 1989), TIME: 1830, FREQ: 1
SAMPLING ENDED, DATE:  4/ 7/89 (JUL  4, 1989), TIME: 1830

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT (OLD LINE )

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..............  ...... VALUE ......  UNITS
 1: 001 /PH.............................   6.12
 2: 011 /RESIN ACIDS (RAS)..............  TO BE COMPLETED
 3: 016 /CHEMICAL OXYGEN DEMAND (COD)..    310.                  MG/L
 4: 028 /AMMONIA-N (NH3-N).............    0.18                  MG/L
 5: 046 /CADMIUM (TOTAL)................  L0.01                  MG/L
 6: 048 /COPPER (TOTAL).................    0.03                  MG/L
 7: 050 /MERCURY (TOTAL)................    0.000456              MG/L
 8: 054 /ZINC (TOTAL)...................    0.04                  MG/L
 9: 086 /SULFIDE........................  L0.032                  MG/L
10: 157 /PENTACHLOROPHENOL..............  TO BE COMPLETED
11: 162 /ALUMINUM (TOTAL)...............    0.23                  MG/L
12: 172 /2,3,5,6-TETRACHLOROPHENOL.....  TO BE COMPLETED
13: 201 /BERYLLIUM .....................  L0.01                   MG/L
14: 235 /2,3,4,6 - TETRACHLOROPHENOL ..  TO BE COMPLETED
15: 236 /2,3,4,5 - TETRACHLOROPHENOL ..  TO BE COMPLETED
16: 278C/FLOW..........................    3495.                 CU M/DAY
17: 421 /PRODUCTION                        39.5                  TONNES/DAY
18: 500 /BIOASSAY .....................  "DONE"
19: 688 /2,4,6 TRICHLOROPHENOL          TO BE COMPLETED
20: 689 /TETRACHLOROGUAIACOL            TO BE COMPLETED
21: 690 /TETRACHLOROCATECHOL            TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:

G. Trider
Industrial and Shellfish Programs Div.
Environmental Control Branch
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Laboratory Division
Environmental Control Branch
Environment Canada, Atlantic Region

Security-Classification
Our File YOUR COPY Original 4705-37/K103 on File
Your File
Date August 16, 1989

SUBJECT: BIOASSAY REPORT - IRVING TISSUE PLANT

Attached is the Bioassay Report for sample No. 89GT010 (Irving Tissue Plant, final effluent, collected July 4, 1989).

As the report indicates, the sample was not acutely lethal to fingerling rainbow trout.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: H. Samant
K. Doe
P. Hennebury
R. Parker

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Irving Tissue Plant, St. John, N.B.

Final Effluent

COLLECTED: 4 July 1989 1830 hrs BY: P. Hennebury

SAMPLE NO. 89GT010 LOCATOR CODE: KIMCLA01

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. Municipal Water pH X ambient ___ adjusted Started 7 July 1989 1700

Test Organism O. mykiss #/Tank 10 Source Merlins Trout Farm 16 May 89 (tank 8)

Length x ± S.D. (range) cm 5.5 + 0.8(4.2-7.9) n = 40

Weight x ± S.D. (range) g 1.8 + 0.9(0.6-4.9) n = 40 g/L 0.4

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	14 - 15	9.6-10.2	6.2-6.6	0/10	>96		
56	14.5-15	9.8-10.4	6.3-6.6	0/10	>96		
32	14 - 15	9.9-10.5	6.3-6.6	0/10	>96		
Control	14 - 15	10.1-10.4	6.5-6.9	0/10	>96		

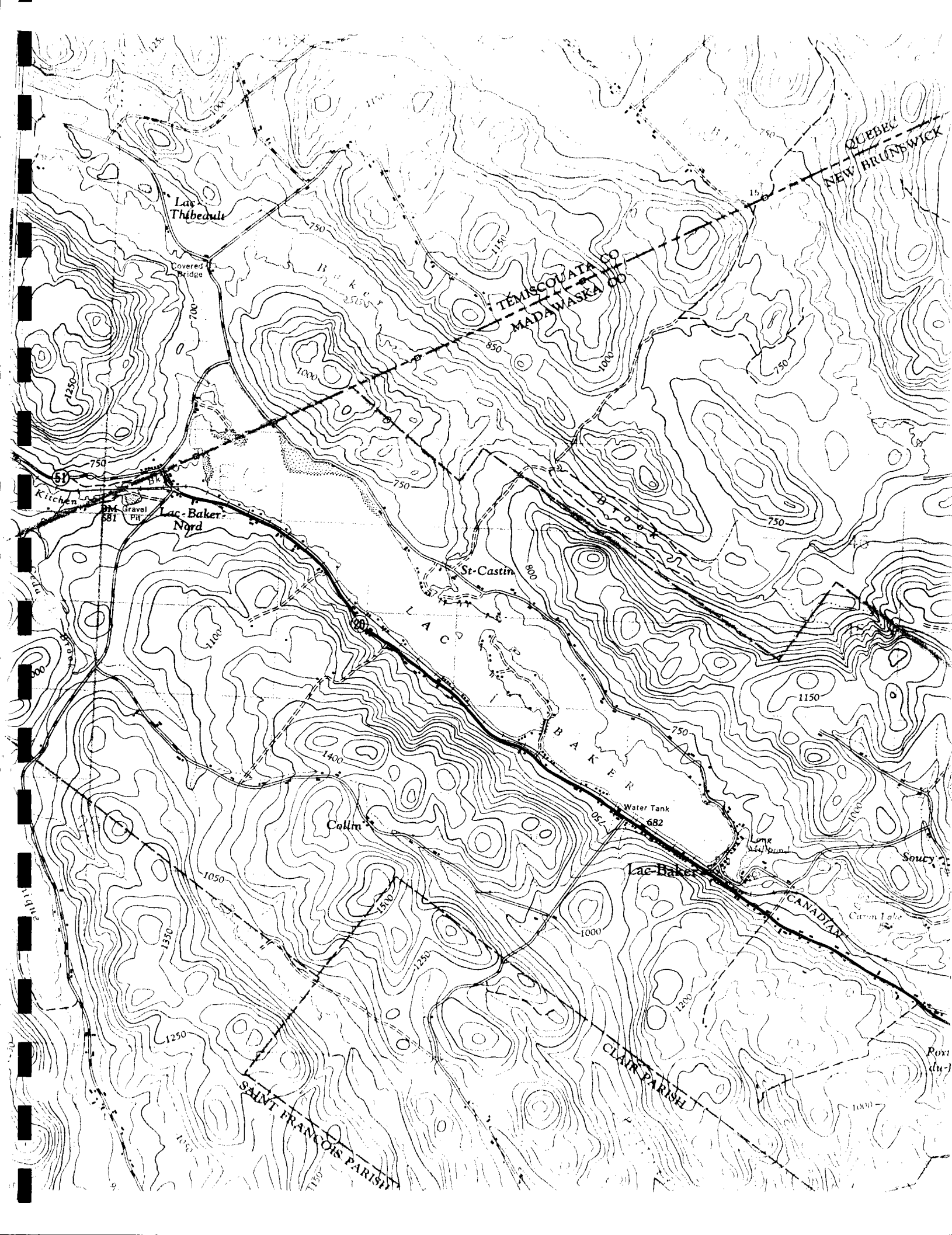
96-hour LC50 _____ - _____ 95% Conf. Limits _____ - _____

Comments: non-acutely lethal

Performed By: D. Vaughan Verified By: S [illegible] Date: 11 Aug 89

J

K


Lac Thibeault
Covered Bridge
Baker Brook
TÉMISCOUATA CO
MADAWASKA CO
QUEBEC
NEW BRUNSWICK
Kitchen
DM 681
Gravel Pit
Lac-Baker Nord
St-Castin
LAC BAKER
Water Tank
682
Collin
Lac-Baker
Souci
CANADIAN
CLAIR PARISH
SAINT FRANCOIS PARISH

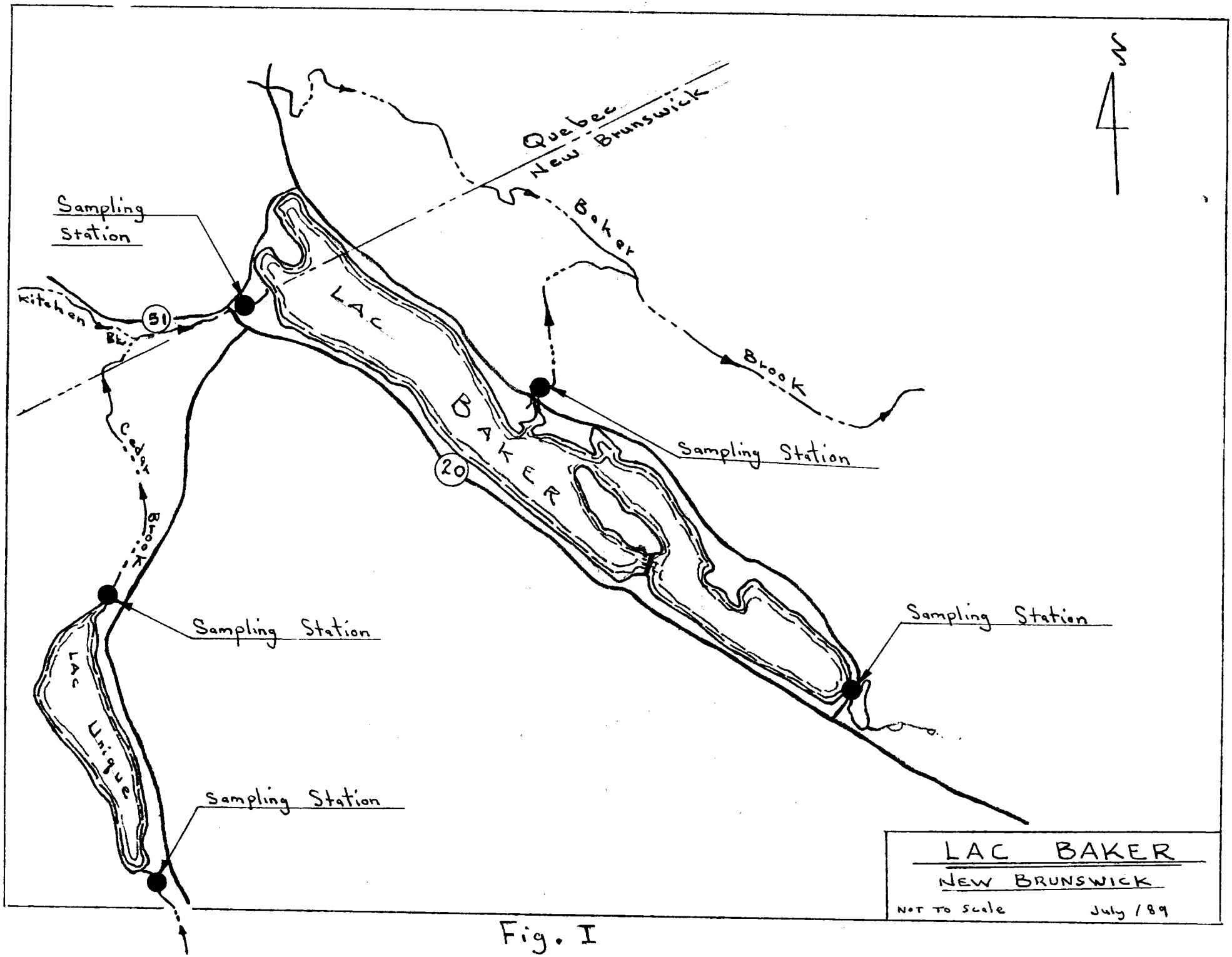

N
Quebec
New Brunswick
Baker
Brook
Sampling Station
Kitchen
Brook
51
LAC
BAKER
20
Sampling Station
Sampling Station
Sampling Station
Sampling Station
LAC
Unique
LAC BAKER
NEW BRUNSWICK
NOT TO SCALE
July / 89

Fig. I

TABLE 1
MISCELLANEOUS PARAMETER

PARAMETERS	LAC UNIQUE INLET JUNE 8, 89	LAC UNIQUE OUTLET JUNE 8, 89	KITCHEN BROOK INLET JUNE 7, 89	LAC BAKER BROOK OUT LET JUNE 7, 89	LONG MILLPOND BROOK JUNE 8, 89	GUIDELI MG/L
pH (Field)	6.5	6.4	6.5	6.8	7.2	6.5 - 9 (range
Temperature (Field) Degrees C.	8.1	15.3	9.4	13.4	16.0	N/A
Dissolved Oxygen (Field) mg/l	11.2	10.0	11.6	12.2	12.4	>5.0
Total organic carbon mg/l	3.30	5.52	5.51	3.02	4.43	---
Chemical Oxygen Demand mg/l	26	L10	L10	L10	L10	---
Nitrate - N (No -N) mg/l	1.15	0.02	0.10	0.03	L0.02	---
Nitrate - N (No - N) mg/l	L0.02	L0.02	L0.02	L0.02	L0.02	0.06
Ammonia - N (Nh -N) mg/l	L0.14	L0.14	L0.14	L0.14	L0.14	1.37
Total Kjeldahl Nitrogen mg/l	0.92	1.4	0.57	0.66	0.43	0.1 To (

NOTE: Guidelines for Freashwater Aquatic Life (reference Canadaian Water Quality, March 1987).

L - Value Below Laboratory Detection Limits.

```
**********************************************************************
* 89PH015 - PHIL HENNEBURY                    STATUS AS OF FEB 20, 1990 *

REGISTERED ON: JUN 10, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/ 6/89 (JUN  8, 1989), TIME: 1200, FREQ: 1
SAMPLING ENDED, DATE:  8/ 6/89 (JUN  8, 1989), TIME: 1200

DEPTH:    .00 METERS, TIDE:
NARRATIVE: LONG MILL POND (INLET TO LAC-BAKER)

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001F/PH............................  7.2
 2: 002F/TEMPERATURE...................  16.                 DEGREES C.
 3: 003F/OXYGEN DISSOLVED..............  12.4                MG/L
 4: 011 /RESIN ACIDS (RAS)..............TO BE COMPLETED
 5: 016 /CHEMICAL OXYGEN DEMAND (COD).. L10.                MG/L
 6: 023 /CARBON, TOTAL ORGANIC (TOC)...  4.43               MG/L
 7: 026 /NITRATE-N (NO3-N).............. L0.02              MG/L
 8: 027 /NITRITE-N (NO2-N).............. L0.02              MG/L
 9: 028 /AMMONIA-N (NH3-N).............. L0.14              MG/L
10: 129 /NITROGEN, TOTAL KJELDAHL......  0.43               MG/L

LAB NUMBER(S): 89PH038-039
```

****
* 89PH014 - PHIL HENNEBURY STATUS AS OF FEB 20, 1990 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE: LAC UNIQUE INLET

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	6.5	
2:	002F/TEMPERATURE	8.1	DEGREES C.
3:	003F/OXYGEN DISSOLVED	11.2	MG/L
4:	016 /CHEMICAL OXYGEN DEMAND (COD)	26.	MG/L
5:	023 /CARBON, TOTAL ORGANIC (TOC)	3.30	MG/L
6:	026 /NITRATE-N (NO3-N)	1.15	MG/L
7:	027 /NITRITE-N (NO2-N)	L0.02	MG/L
8:	028 /AMMONIA-N (NH3-N)	L0.14	MG/L
9:	129 /NITROGEN, TOTAL KJELDAHL	0.92	MG/L

****

* 89PH013 - PHIL HENNEBURY STATUS AS OF FEB 20, 1990 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: LAC UNIQUE OUTLET

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	6.4	
2:	002F/TEMPERATURE	15.3	DEGREES C.
3:	003F/OXYGEN DISSOLVED	10.0	MG/L
4:	016 /CHEMICAL OXYGEN DEMAND (COD)	L10.	MG/L
5:	023 /CARBON, TOTAL ORGANIC (TOC)	5.52	MG/L
6:	026 /NITRATE-N (NO3-N)	0.02	MG/L
7:	027 /NITRITE-N (NO2-N)	L0.02	MG/L
8:	028 /AMMONIA-N (NH3-N)	L0.14	MG/L
:	129 /NITROGEN, TOTAL KJELDAHL	1.4	MG/L

```
**********************************************************************
* 89PH012 - PHIL HENNEBURY                    STATUS AS OF FEB 20, 1990 *

REGISTERED ON: JUN 10, 1989,  BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.
                                                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  7/ 6/89 (JUN  7, 1989), TIME: 1200, FREQ: 1
SAMPLING ENDED, DATE:  7/ 6/89 (JUN  7, 1989), TIME: 1200

DEPTH:    .00 METERS, TIDE:
NARRATIVE: ST. CASTIN BROOK ( OUTLET FROM LAC-BAKER

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001F/PH.............................  6.8
 2: 002F/TEMPERATURE....................  13.4                 DEGREES C.
 3: 003F/OXYGEN DISSOLVED...............  12.2                 MG/L
 4: 016 /CHEMICAL OXYGEN DEMAND (COD).. L10.                  MG/L
 5: 023 /CARBON, TOTAL ORGANIC (TOC)...  3.02                 MG/L
 6: 026 /NITRATE-N (NO3-N).............  0.03                 MG/L
 7: 027 /NITRITE-N (NO2-N)............. L0.02                 MG/L
 8: 028 /AMMONIA-N (NH3-N)............. L0.14                 MG/L
 9: 117 /FLOW...........................  74.1                 CU.FT./SEC
10: 129 /NITROGEN, TOTAL KJELDAHL......  0.66                 MG/L
```

****
* 89PH011 - PHIL HENNEBURY STATUS AS OF FEB 20, 1990 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: SPECNB01/SPECIAL SAMPLES, N.B.

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

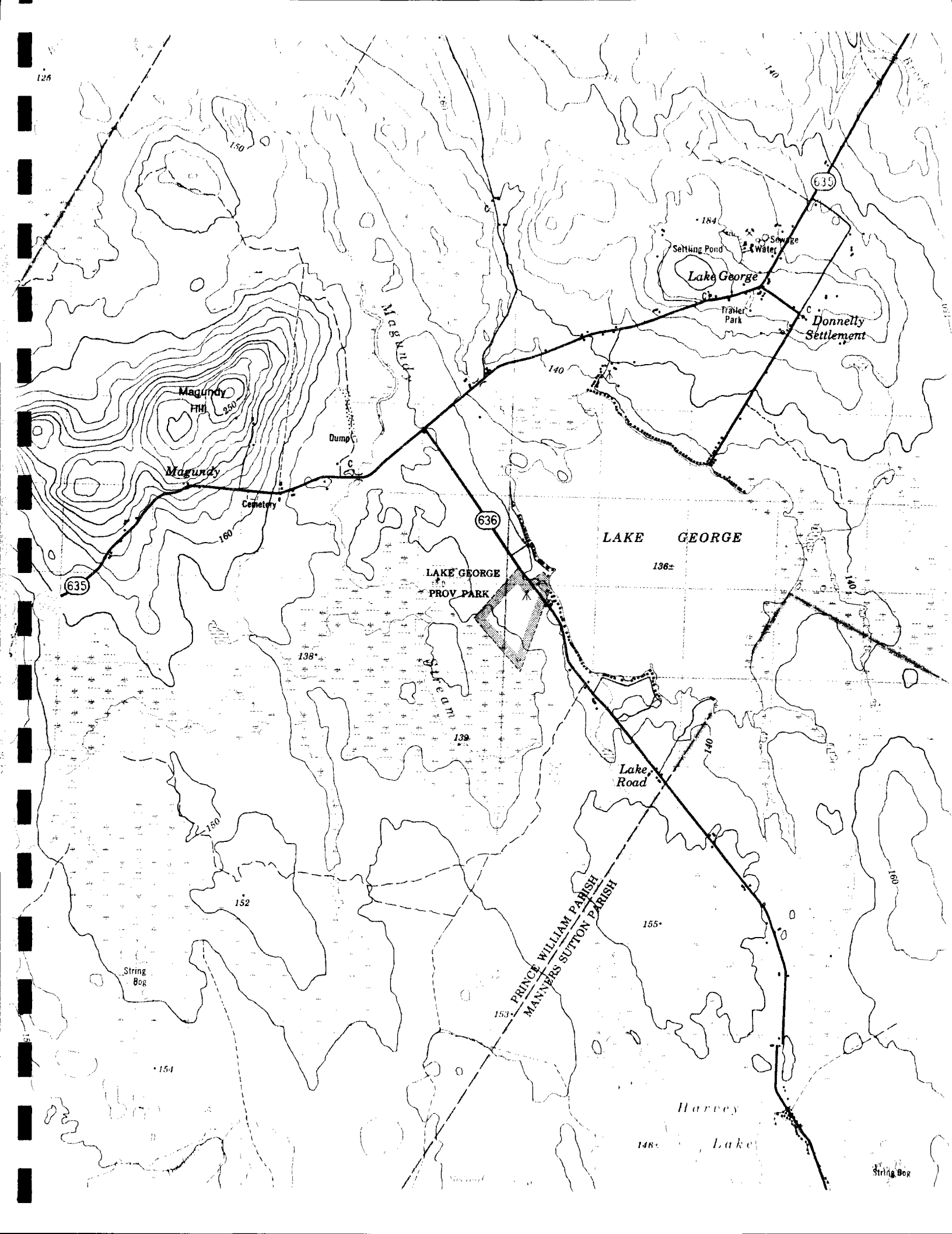
SAMPLING BEGAN, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 1100

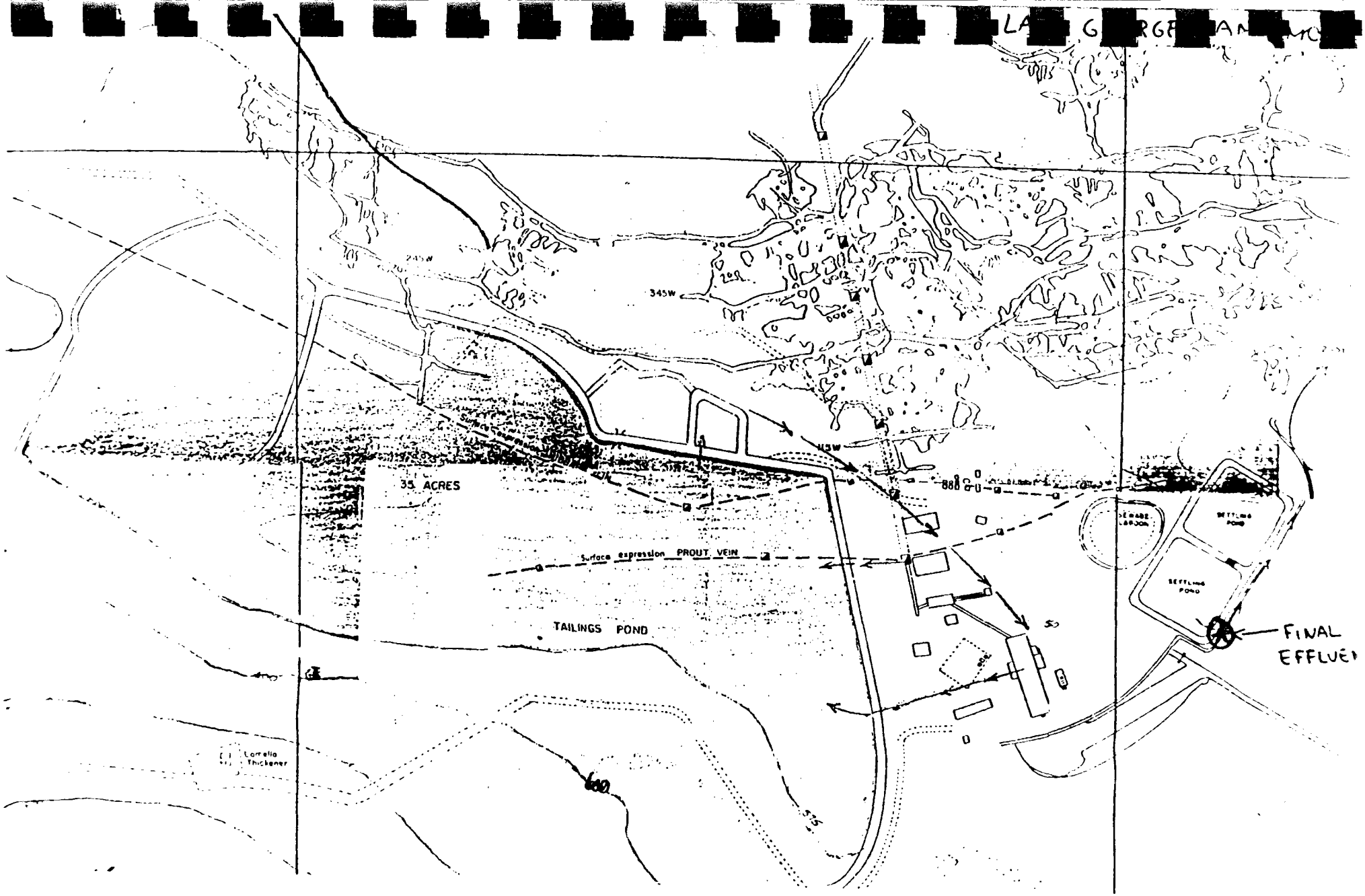
DEPTH: .00 METERS, TIDE:
NARRATIVE: KITCHEN BROOK (INLET TO LAC - BAKER)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	6.5	
2:	002F/TEMPERATURE	9.4	DEGREES C.
3:	003F/OXYGEN DISSOLVED	11.6	MG/L
4:	016 /CHEMICAL OXYGEN DEMAND (COD)	L10.	MG/L
5:	023 /CARBON, TOTAL ORGANIC (TOC)	5.51	MG/L
6:	026 /NITRATE-N (NO3-N)	0.10	MG/L
7:	027 /NITRITE-N (NO2-N)	L0.02	MG/L
8:	028 /AMMONIA-N (NH3-N)	L0.14	MG/L
9:	117 /FLOW	34.5	CU.FT./SEC
10:	129 /NITROGEN, TOTAL KJELDAHL	0.57	MG/L

LAKE GEORGE ANTIMONY


635
Settling Pond
Sewage
Water
Lake George
Trailer
Park
Donnelly
Settlement
Magundy
Hill
Dump
Magundy
Cemetery
636
LAKE GEORGE
PROV PARK
LAKE GEORGE
Stream
Lake
Road
PRINCE WILLIAM PARISH
MANNERS SUTTON PARISH
String
Bog
Harvey
Lake
String Bog


345W
35 ACRES
Surface expression PROUT VEIN
TAILINGS POND
FINAL
EFFLUE

****
* 89RP007 - ROY PARKER STATUS AS OF MAR 9, 1989 *

REGISTERED ON: JAN 29, 1989, BY :PHIL H

LOCATOR: LAKGE001/LAKE GEORGE ANTIMONY
FINAL EFFLUENT FROM TAILINGS POND PROV: NB
PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 27/ 1/89 (JAN 27, 1989), TIME: 1530, FREQ: 1
SAMPLING ENDED, DATE: 27/ 1/89 (JAN 27, 1989), TIME: 1530

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.74	
2:	001F/PH	6.7	
3:	005 /HARDNESS	460.	MG/L
4:	018 /SOLIDS, TOTAL (TS)	990.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
6:	022 /MAGNESIUM (TOTAL)	15.4	MG/L
7:	036 /CALCIUM (TOTAL)	159.	MG/L
8:	044 /ARSENIC (TOTAL)	0.207	MG/L
9:	046 /CADMIUM (TOTAL)	L0.01	MG/L
10:	047 /CHROMIUM (TOTAL)	0.034	MG/L
11:	048 /COPPER (TOTAL)	L0.02	MG/L
12:	049 /IRON (TOTAL)	0.288	MG/L
13:	051 /LEAD (TOTAL)	L0.02	MG/L
14:	052 /ANTIMONY (TOTAL)	5.77	MG/L
15:	054 /ZINC (TOTAL)	L0.01	MG/L
16:	131 /TOTAL DISSOLVED SOLIDS (TDS)	990.	MG/L
17:	159 /NICKEL (TOTAL)	0.062	MG/L
18:	160 /MANGANESE (TOTAL)	0.301	MG/L
19:	500 /BIOASSAY	"DONE"	

Environment Canada Environnement Canada

MEMORANDUM NOTE DE SERVICE

DATE

February 7, 1989

FROM: DE:
K. Doe
Head, Aquatic Toxicology Section
Lab Division, A&W Branch
EP, Atlantic Region

Our file Notre reference
4705-37/C264

TO: À:
W. Roy Parker, Head
Mineral Industries & Toxic Studies
APCD, Air & Water Branch
EP, Atlantic Region

FEB 12 12 FILING Your file Votre reference

SUBJECT: SUJET:

BIOASSAY RESULTS - DURHAM RESOURCES INC.

On January 27, 1989, P. Hennebury collected a sample of final effluent from Durham Resources Inc., Lake George Antimony Mine, New Brunswick (Lab Registration No. 89RP007).

On January 30, 1989, a 96-hour static, aerated, acute lethal toxicity test was started on this sample using rainbow trout fingerling (Salmo gairdneri) of mean weight 3.1g (± 1.2, S.D.). No fish died in either the control tank or the tank containing 100% effluent, and so the sample was not acutely lethal.

A copy of the Bioassay Report is attached, which provides additional details about the test.

Kenneth G Doe

K. G. Doe

KGD/dg

Attach.

cc: P. Hennebury
H. Samant
D. Vaughan

```
**********************************************************************
* 89RP059 - ROY PARKER                          STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: LAKGE000/CONSOLIDATED DURHAM MINES
                  GENERAL                                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1430, FREQ:   1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1430

DEPTH:   .00 METERS, TIDE:
NARRATIVE: DISCHARGE STREAM JUST ABOVE WATERLOO LAK
           E
                        ----- SAMPLE ANALYSES -------
    ..............PARAMETER ..............  ....... VALUE ....... UNITS
 1: 001 /PH.............................  7.64
 2: 005 /HARDNESS.......................  377.                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  10.                     MG/L
 4: 022 /MAGNESIUM (TOTAL).............  16.1                    MG/L
 5: 036 /CALCIUM (TOTAL)................  124.                    MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.05                   MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                   MG/L
 8: 047 /CHROMIUM (TOTAL)...............  0.01                    MG/L
 9: 048 /COPPER (TOTAL).................. L0.01                   MG/L
10: 049 /IRON (TOTAL)....................  0.11                    MG/L
11: 051 /LEAD (TOTAL).................... L0.01                   MG/L
12: 052 /ANTIMONY (TOTAL)...............  8.4                     MG/L
13: 054 /ZINC (TOTAL).................... L0.01                   MG/L
14: 159 /NICKEL (TOTAL)................. L0.01                   MG/L
15: 160 /MANGANESE (TOTAL).............  0.05                    MG/L
16: 162 /ALUMINUM (TOTAL)...............  0.47                    MG/L
```

```
**********************************************************************
* 89RP058 - ROY PARKER                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: LAKGE001/LAKE GEORGE ANTIMONY
                  FINAL EFFLUENT ROM TAILINGS POND          PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1400, FREQ:   1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1400

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  7.94
 2: 005 /HARDNESS...............  380.                MG/L
  : 020 /SUSPENDED SOLIDS (SS)..... L5.               MG/L
 4: 022 /MAGNESIUM (TOTAL).....  15.7                MG/L
 5: 036 /CALCIUM (TOTAL).......  127.                MG/L
 6: 044 /ARSENIC (TOTAL)..... L0.05                  MG/L
 7: 046 /CADMIUM (TOTAL)..... L0.01                  MG/L
 8: 047 /CHROMIUM (TOTAL).....  0.01                 MG/L
 9: 048 /COPPER (TOTAL)..... L0.01                   MG/L
 0: 049 /IRON (TOTAL).....  0.18                     MG/L
 1: 051 /LEAD (TOTAL)..... L0.01                     MG/L
12: 052 /ANTIMONY (TOTAL).....  9.0                  MG/L
 3: 054 /ZINC (TOTAL)..... L0.01                     MG/L
 4: 159 /NICKEL (TOTAL).....  0.01                   MG/L
15: 160 /MANGANESE (TOTAL).....  0.07                MG/L
16: 162 /ALUMINUM (TOTAL).....  0.44                 MG/L
 7: 500 /BIOASSAY ..... TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:
R. Parker, Head
Mining Industries and Toxic Studies
Environmental Control Branch
Environment Canada, Atlantic Region

FROM:
S. Wade, Bioassay Technician
Lab Division
Environmental Control Branch
Environment Canada, Atlantic Region

Security-Classification
Our File 4705-37/C264
Your File
Date September 1, 1989

SUBJECT: BIOASSAY RESULTS - DURHAM RESOURCES INC.

On July 5 1989, APCD staff collected a sample of final effluent from Durham Resources Inc., Lake George Antimony, N.B.

On July 10 1989, a 96-hour acute static bioassay was begun on the sample using fingerling rainbow trout as the test organism.

The sample was not acutely lethal to the test fish.

A copy of the bioassay report is attached which provides additional information about the test.

Suzanne Wade

S. Wade

sjw

Attachment(1)

cc. H. Samant
K. Doe
P. Hennebury

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Consolidated Durham Resources, Lake George Antimony, N.B.
Final Effluent

COLLECTED: 5 July 89, 1415 BY: R. Parker

SAMPLE NO. 89RP058 LOCATOR CODE: LAKGEOQ1

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ ___ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. Municipal pH X ambient ___ adjusted Started 10 July 89 1300

Test Organism O. mykiss #/Tank 10 Source Merlins Trout Farm 16 May 89 (tank 8)

Length x ± S.D. (range) cm 5.8 ± 0.5(4.9-6.8) n = 20

Weight x ± S.D. (range) g 1.9 ± 0.5(1.2-3.1) n = 20 g/L 0.5

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-16	9.6-10.5	7.3-7.9	0/10	>96		
Control	15-16	9.5-10.1	7.2-7.4	0/10	>96		

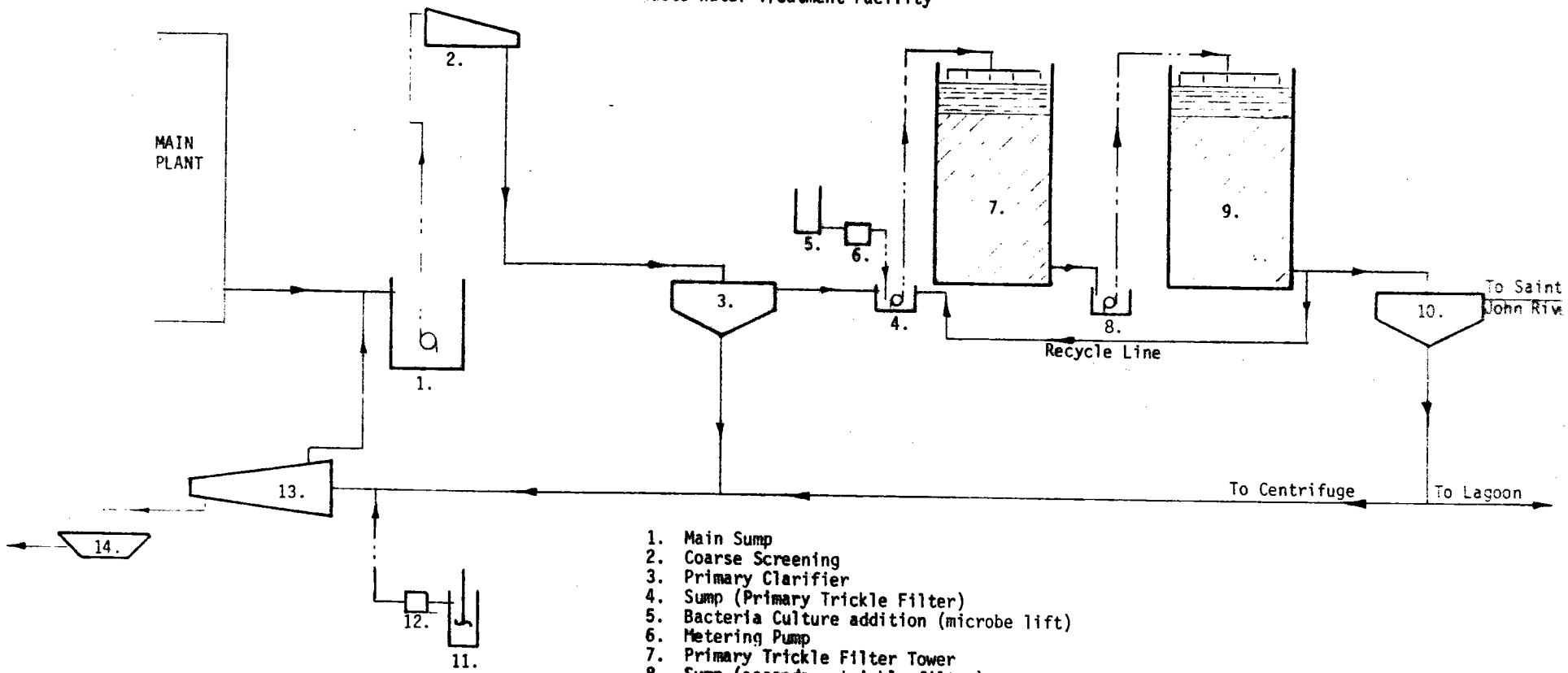
96-hour LC50 - 95% Conf. Limits -

Comments: Not acutely lethal

Performed By: S. Wade Verified By: David Vaughan Date: 23 Aug 89

MCCAIN FOODS LTD. (Grand Falls, N.B.)

Waste Water Treatment Facility



1. Main Sump
2. Coarse Screening
3. Primary Clarifier
4. Sump (Primary Trickle Filter)
5. Bacteria Culture addition (microbe lift)
6. Metering Pump
7. Primary Trickle Filter Tower
8. Sump (secondary trickle filter)
9. Secondary Trickle Filter Tower
10. Secondary Clarifier
11. Chemical addition (Polymer and activator)
12. Chemical Metering Pump
13. Centrifuge (Sludge Removal)
14. Sludge Holding Bin

P. Hennebury
March '87

```
**********************************************************************
* 89PK001 - PAUL KLAAMAS                          STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA01/MCCAIN GRAND FALLS
                  RAW WASTE                                    PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 17/ 4/89 (APR 17, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 18/ 4/89 (APR 18, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: INLET SUMP (RAW)

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  4.18
 2: 001F/PH.............................  4.4
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  2800.                MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  1440.                MG/L

**********************************************************************
* 89PK002 - PAUL KLAAMAS                          STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA01/MCCAIN GRAND FALLS
                  RAW WASTE                                    PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 18/ 4/89 (APR 18, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 19/ 4/89 (APR 19, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: INLET SUMP (RAW)

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  4.25
 2: 001F/PH.............................  4.4
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  2200.                MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  1710.                MG/L
```

```
**********************************************************************
* 89PK003 - PAUL KLAAMAS                          STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA01/MCCAIN GRAND FALLS
                  RAW WASTE                                    PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 19/ 4/89 (APR 19, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 20/ 4/89 (APR 20, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: INLET SUMP (RAW)

                        ---- SAMPLE ANALYSIS ------
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  4.25
 2: 001F/PH.............................  4.4
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  2000.                MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  1520.                MG/L

**********************************************************************
* 89PK004 - PAUL KLAAMAS                          STATUS AS OF JUN

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA04/MCCAIN GRAND FALLS
                EFFLUENT FROM 2ND CLARIFIER                    PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 17/ 4/89 (APR 17, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 18/ 4/89 (APR 18, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL TO SAINT JOHN RIVER

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  7.12
 2: 001F/PH.............................  7.4
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  580.                 MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  65.                  MG/L
 5: 278C/FLOW...........................  3043.                CU M/DAY
 6: 417 /BOD 5 (DEPOSIT RATE)..........  3.4                  KG/TONNE
 7: 418 /SS (DEPOSIT RATE).............  0.4                  KG/TONNE
 8: 421 /PRODUCTION                      512.5                TONNES/DAY
```

****
* 89PK005 - PAUL KLAAMAS STATUS AS OF JUN 5, 1989 *

REGISTERED ON: APR 22, 1989, BY :PHIL H

LOCATOR: MCCGRA04/MCCAIN GRAND FALLS
EFFLUENT FROM 2ND CLARIFIER PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 18/ 4/89 (APR 18, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 19/ 4/89 (APR 19, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.25	
2:	001F/PH	7.4	
3:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	530.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	120.	MG/L
5:	278C/FLOW	2869.1	CU M/DAY
6:	417 /BOD 5 (DEPOSIT RATE)	2.6	KG/TONNE
7:	418 /SS (DEPOSIT RATE)	0.6	KG/TONNE
8:	421 /PRODUCTION	580.8	TONNES/DAY

****
* 89PK006 - PAUL KLAAMAS STATUS AS OF JUN 5, 1989 *

REGISTERED ON: APR 22, 1989, BY :PHIL H

LOCATOR: MCCGRA04/MCCAIN GRAND FALLS
EFFLUENT FROM 2ND CLARIFIER PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 19/ 4/89 (APR 19, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 20/ 4/89 (APR 20, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.34	
2:	001F/PH	7.3	
3:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	400.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	170.	MG/L
5:	278C/FLOW	2982.7	CU M/DAY
6:	417 /BOD 5 (DEPOSIT RATE)	2.3	KG/TONNE
7:	418 /SS (DEPOSIT RATE)	1.0	KG/TONNE
8:	421 /PRODUCTION	525.1	TONNES/DAY

```
**********************************************************************
* 89PK007 - PAUL KLAAMAS                          STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA02/MCCAIN GRAND FALLS
                  PRIMARY CLARIFIER OVERFLOW                    PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 19/ 4/89 (APR 19, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 20/ 4/89 (APR 20, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: NONE

                         ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............ ...... VALUE ....... UNITS
 1: 001 /PH.............................  4.70
 2: 001F/PH............................  4.5
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  1900.                 MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  260.                  MG/L


**********************************************************************
* 89PK008 - PAUL KLAAMAS                          STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA03/MCCAIN GRAND FALLS
                  INFLUENT TO 2ND CLARIFIER                     PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 19/ 4/89 (APR 19, 1989), TIME:  800, FREQ: 48
SAMPLING ENDED, DATE: 20/ 4/89 (APR 20, 1989), TIME:  800

DEPTH:    .00 METERS, TIDE:
NARRATIVE: NONE

                         ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............ ...... VALUE ....... UNITS
 1: 001 /PH.............................  6.83
 2: 001F/PH............................  7.3
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  510.                  MG/L
 4: 020 /SUSPENDED SOLIDS (SS).........  1280.                 MG/L
```

```
**********************************************************************
* 89PK009 - PAUL KLAAMAS                          STATUS AS OF JUN 12, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: MCCGRA04/MCCAIN GRAND FALLS
                  EFFLUENT FROM 2ND CLARIFIER                    PROV: NB
PROJECT CODE: 245/ENV. CONTROL - IRDP REFERRALS

SAMPLING BEGAN, DATE: 20/ 4/89 (APR 20, 1989), TIME:  900, FREQ: 1
SAMPLING ENDED, DATE: 20/ 4/89 (APR 20, 1989), TIME:  900

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

                          ---- SAMPLE ANALYSIS ----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001F/PH.............................  7.3
 2: 028 /AMMONIA-N (NH3-N).............  42.0                MG/L
 3: 086 /SULFIDE........................  1.43                MG/L
 4: 500 /BIOASSAY ..................... "DONE"
```

ENVIRONMENT CANADA MEMORANDUM

TO:
P. Klaamas
Head, Food Processing
Air and Water Branch
Environment Canada, Atlantic Region

FROM:
D. Vaughan
Acting Project Biologist
Air and Water Branch
Environment Canada, Atlantic Region

Security-Classification	
Our File	YOUR COPY 4754-37/M233-2 Original on File
Your File	
Date	May 26, 1989

SUBJECT: Bioassay Results - McCains Grand Falls

On April 20, 1989, Phil Hennebury collected a sample of final effluent from the McCain Foods Ltd. Plant in Grand Falls, N.B.

On April 24, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 4.6 g as the test organism.

The effluent was acutely lethal to the test fish, yielding a 4-day LC50 value of 13.4% (95% conf. limits: 10-18%).

Chemical analysis revealed that the sample contained 42 mg/l ammonia-nitrogen and 1.43 mg/l sulfide. The observed mortality at 100% and 56% concentration is attributed to a combination of low dissolved oxygen and the presence of the above two toxicants. The mortality at the lower concentrations (i.e. 32 and 18%) is attributed primarily to sulfide and secondarily to ammonia.

A copy of the Bioassay Report is attached which provides additional test details.

David Vaughan

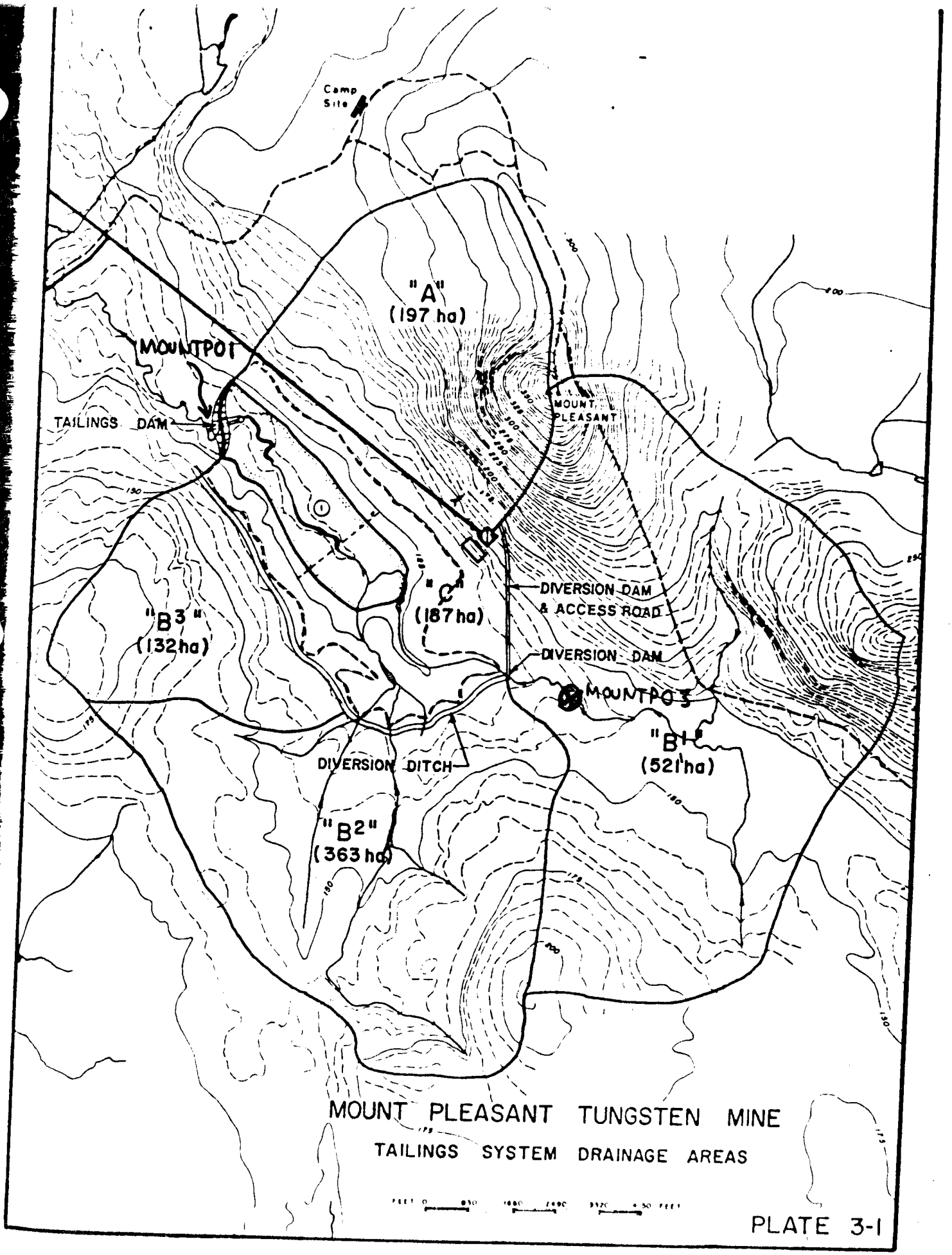
D. Vaughan

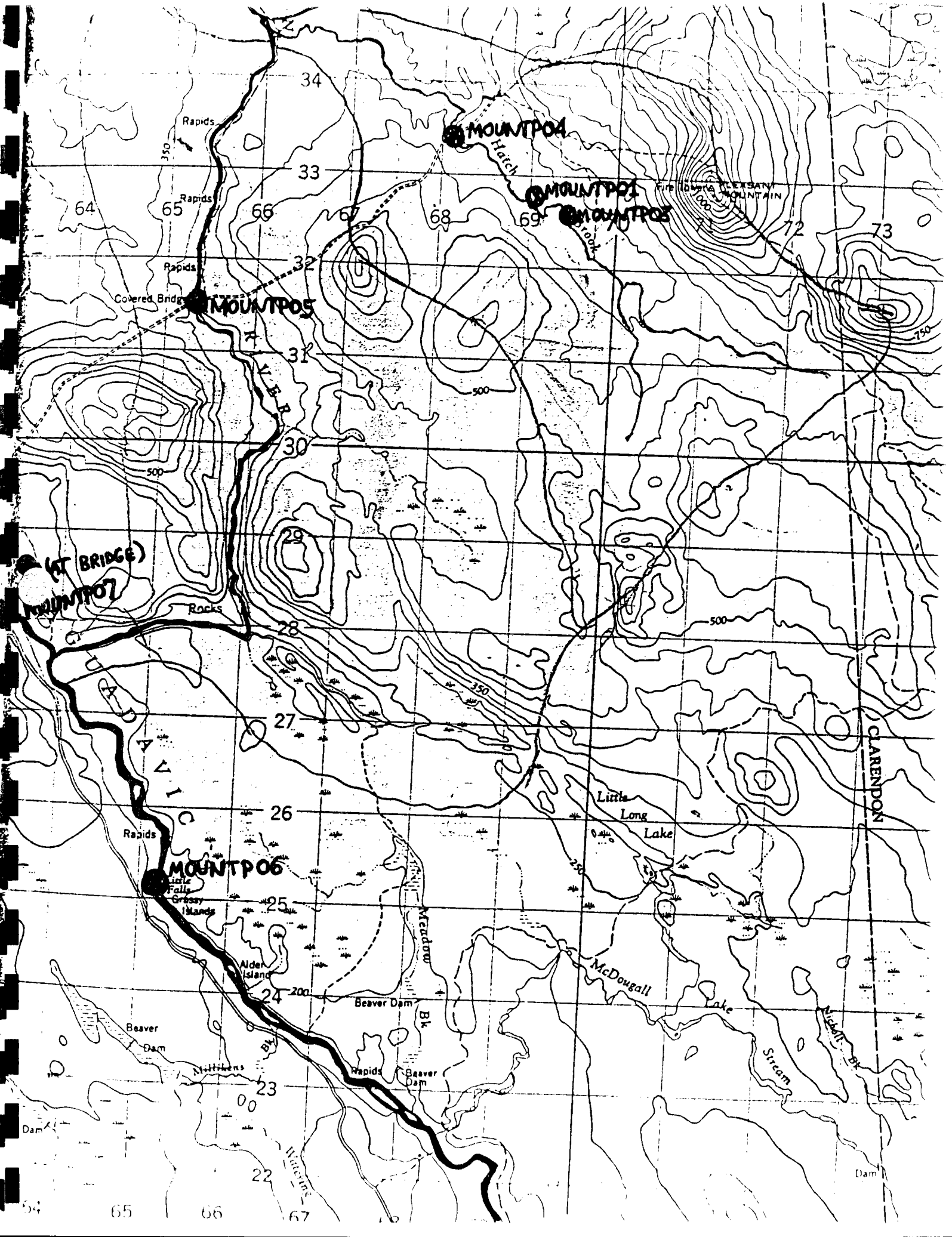
DV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe
R. Parker

MOUNT PLEASANT


Camp Site
"A"
(197 ha)
MOUNTPO1
TAILINGS DAM
MOUNT PLEASANT
"C"
(187 ha)
DIVERSION DAM & ACCESS ROAD
DIVERSION DAM
MOUNTPO3
"B3"
(132ha)
"B1"
(521 ha)
DIVERSION DITCH
"B2"
(363 ha)
MOUNT PLEASANT TUNGSTEN MINE
TAILINGS SYSTEM DRAINAGE AREAS
PLATE 3-1


MOUNTP04
MOUNTP01
MOUNTP02
MOUNTP05
MOUNTP07
(AT BRIDGE)
MOUNTP06
Rapids
Covered Bridge
Rocks
Hatch Brook
Fire Tower
PLEASANT MOUNTAIN
RIVER
CLARENDON
Little Long Lake
McDougall Lake
Meadow Brook
Beaver Dam
Beaver Dam Bk
Alder Island
Little Falls
Grassy Islands
Millikens
Stream
Dam
Rapids
64
65
66
67
68
69
70
71
72
73
34
33
32
31
30
29
28
27
26
25
24
23
22
500
350
250
200
750

****
* 89RP064 - ROY PARKER STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL 7, 1989, BY :ANDRE

LOCATOR: MOUNTP02/MOUNT PLEASANT MINE
PISKEHEGAN AT PUMPHOUSE PROV: NB O
NORMAL ANALYSIS: 01 ,005 ,009 ,044 ,051 ,048 ,054
046 ,159 ,049 ,052 ,171 ,020 ,050
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 5/ 7/89 (JUL 5, 1989), TIME: 1200, FREQ: 1
SAMPLING ENDED, DATE: 5/ 7/89 (JUL 5, 1989), TIME: 1200

DEPTH: .00 METERS, TIDE:
NARRATIVE: PISKAHEGAN RIVER ABV MINE AT
PUMPHOUSE

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	6.57	
2:	005	/HARDNESS	9.99	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	0.54	MG/L
5:	036	/CALCIUM (TOTAL)	3.12	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	0.03	MG/L
9:	048	/COPPER (TOTAL)	L0.01	MG/L
10:	049	/IRON (TOTAL)	0.48	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	052	/ANTIMONY (TOTAL)	L0.05	MG/L
13:	054	/ZINC (TOTAL)	L0.01	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	0.02	MG/L
16:	162	/ALUMINUM (TOTAL)	0.38	MG/L
17:	171	/FLUORIDE	L0.25	MG/L

```
**********************************************************************************
* 89RP063 - ROY PARKER                                  STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: MOUNTP03/MOUNT PLEASANT MINE
                HATCH BRK ABV MINE & POND                          PROV: NB
NORMAL ANALYSIS: 001 ,005 ,009 ,044 ,051 ,048 ,054
                 046 ,159 ,049 ,052 ,171 ,020 ,050
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1145, FREQ:  1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1145

DEPTH:    .00 METERS, TIDE:
NARRATIVE: HATCH BRROK ABV SPILLWAY

                          ----- SAMPLE ANALYSIS -----
    ..............PARAMETER ..............  ..... VALUE ..... UNITS
 1: 001 /PH.................................  5.98
 2: 005 /HARDNESS...........................  6.54                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).............  L5.                 MG/L
 4: 022 /MAGNESIUM (TOTAL).................  0.42                MG/L
 5: 036 /CALCIUM (TOTAL)....................  1.93                MG/L
 6: 044 /ARSENIC (TOTAL)................... L0.05                MG/L
 7: 046 /CADMIUM (TOTAL)................... L0.01                MG/L
 8: 047 /CHROMIUM (TOTAL).................. L0.01                MG/L
 9: 048 /COPPER (TOTAL).................... L0.01                MG/L
10: 049 /IRON (TOTAL)......................  0.53                MG/L
11: 051 /LEAD (TOTAL)...................... L0.01                MG/L
12: 052 /ANTIMONY (TOTAL).................. L0.05                MG/L
13: 054 /ZINC (TOTAL)...................... L0.01                MG/L
14: 159 /NICKEL (TOTAL).................... L0.01                MG/L
15: 160 /MANGANESE (TOTAL).................  0.12                MG/L
16: 162 /ALUMINUM (TOTAL)..................  0.36                MG/L
17: 171 /FLUORIDE.......................... L0.25                MG/L
```

```
**********************************************************************************
* 89RP062 - ROY PARKER                                  STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: MOUNTP04/MOUNT PLEASANT MINE
                    HATCH BRK BELW MINE AT BRIDGE                    PROV: NB
NORMAL ANALYSIS: 001 ,005 ,009 ,044 ,051 ,048 ,054
                 046 ,159 ,049 ,052 ,171 ,020 ,050
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1230, FREQ:   1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1230

DEPTH:    .00 METERS, TIDE:
NARRATIVE: HATCH BROOK BLW MINE AT BRIDGE

                          ----- SAMPLE ANALYSIS -----
    ............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  6.96
 2: 005 /HARDNESS.......................  28.8                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS)..........  L5.                     MG/L
 4: 022 /MAGNESIUM (TOTAL)..............  1.08                    MG/L
 5: 036 /CALCIUM (TOTAL)................  9.73                    MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.05                    MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                    MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                    MG/L
 9: 048 /COPPER (TOTAL)................. L0.01                    MG/L
10: 049 /IRON (TOTAL)...................  0.43                    MG/L
11: 051 /LEAD (TOTAL)................... L0.01                    MG/L
12: 052 /ANTIMONY (TOTAL)............... L0.05                    MG/L
13: 054 /ZINC (TOTAL)...................  0.03                    MG/L
14: 159 /NICKEL (TOTAL)................. L0.01                    MG/L
15: 160 /MANGANESE (TOTAL)..............  0.15                    MG/L
16: 162 /ALUMINUM (TOTAL)...............  0.44                    MG/L
17: 171 /FLUORIDE.......................  0.56                    MG/L
```

```
**********************************************************************************
* 89RP061 - ROY PARKER                                  STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL  7, 1989,  BY :ANDRE

LOCATOR: MOUNTP05/MOUNT PLEASANT MINE
                  PISKEHEGAN BLW HATCH AT BRIDGE                    PROV: NB
NORMAL ANALYSIS: 001 ,005 ,009 ,044 ,051 ,048 ,054
                 046 ,159 ,049 ,052 ,171 ,020 ,050
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1245, FREQ:   1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1245

DEPTH:    .00 METERS, TIDE:
NARRATIVE: PISKAHEGAN RIVER BLW MINE AT BRIDGE

                          ----- SAMPLE ANALYSIS -------
    ............PARAMETER ............ ...... VALUE ....... UNITS
 1: 001 /PH.............................  6.93
 2: 005 /HARDNESS.......................  11.6                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  L5.                     MG/L
 4: 022 /MAGNESIUM (TOTAL).............  0.56                    MG/L
 5: 036 /CALCIUM (TOTAL)................  3.74                    MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.05                    MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                    MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                    MG/L
 9: 048 /COPPER (TOTAL)................. L0.01                    MG/L
10: 049 /IRON (TOTAL)...................  0.38                    MG/L
11: 051 /LEAD (TOTAL)................... L0.01                    MG/L
12: 052 /ANTIMONY (TOTAL)............... L0.05                    MG/L
13: 054 /ZINC (TOTAL)................... L0.01                    MG/L
14: 159 /NICKEL (TOTAL)................. L0.01                    MG/L
15: 160 /MANGANESE (TOTAL).............  0.01                    MG/L
16: 162 /ALUMINUM (TOTAL)..............  0.36                    MG/L
17: 171 /FLUORIDE....................... L0.25                    MG/L
```

****
* 89RP060 - ROY PARKER STATUS AS OF JUL 27, 1989 *

REGISTERED ON: JUL 7, 1989, BY :ANDRE

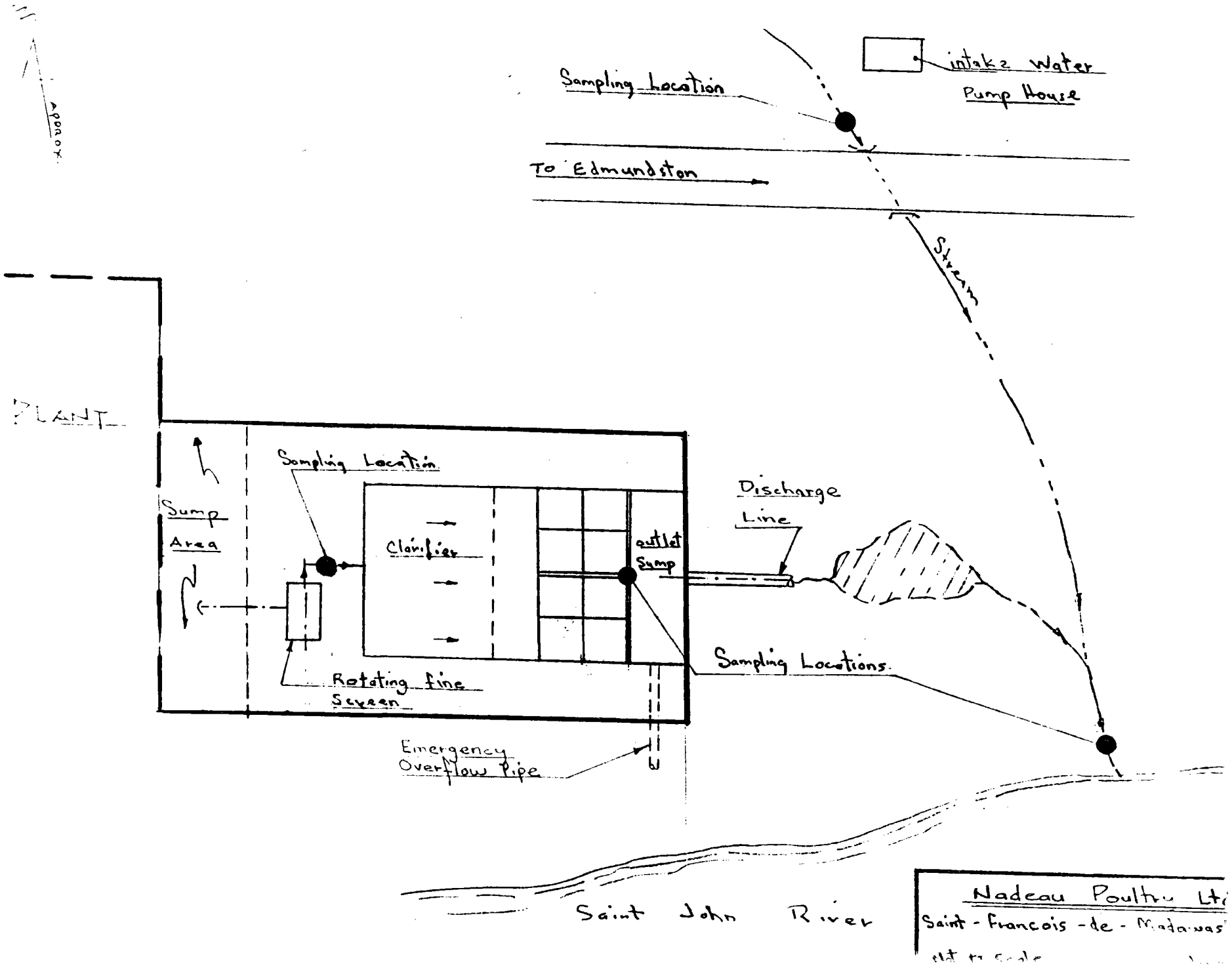
LOCATOR: MOUNTP01/MOUNT PLEASANT MINE
FINAL EFFLUENT PROV: NB
NORMAL ANALYSIS: 20,15,1
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 5/ 7/89 (JUL 5, 1989), TIME: 1130, FREQ: 1
SAMPLING ENDED, DATE: 5/ 7/89 (JUL 5, 1989), TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: SPILLWAY

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	6.49	
2:	005	/HARDNESS	45.2	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	8.	MG/L
4:	022	/MAGNESIUM (TOTAL)	2.30	MG/L
5:	036	/CALCIUM (TOTAL)	14.3	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
9:	048	/COPPER (TOTAL)	L0.01	MG/L
10:	049	/IRON (TOTAL)	1.92	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	052	/ANTIMONY (TOTAL)	L0.05	MG/L
13:	054	/ZINC (TOTAL)	0.16	MG/L
14:	159	/NICKEL (TOTAL)	L0.01	MG/L
15:	160	/MANGANESE (TOTAL)	0.67	MG/L
16:	162	/ALUMINUM (TOTAL)	0.56	MG/L
17:	171	/FLUORIDE	1.19	MG/L


Approx.
Sampling Location
intake Water
Pump House
To Edmundston
Stream
PLANT
Sump
Area
Sampling Location
Clarifier
outlet
Sump
Discharge
Line
Sampling Locations
Rotating fine
Screen
Emergency
Overflow Pipe
Saint John River
Nadeau Poultry Ltd
Saint-Francois-de-Madawas

REGISTERED ON: JUN 10. 1989. BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS 15,20,1,28,16.13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 5/ 6/89 (JUN 5, 1989), TIME: 830. FREQ: 48
SAMPLING ENDED, DATE: 6/ 6/89 (JUN 6, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001F/PH	6.1	
2:	013 /OIL & GREASE (PET. ETHER)	190.	MG/L
3:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	710.	MG/L
4:	020 /SUSPENDED SOLIDS (SS)	385.	MG/L
5:	418 /SS (DEPOSIT RATE)	8.8	KG/TONNE
6:	419 /OIL&GREASE (DEPOSIT RATE)	4.3	KG/TONNE
:	421 /PRODUCTION	48.84	TONNES/DAY
8:	649 /FLOW	1110.	M3/DAY
9:	651 /BOD(DEPOSIT RATE)	16.1	KG/DAY

****
* 89PK018 - PAUL KLAAMAS STATUS AS OF JUL 18. 1989 *

GISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15.20,1,28,16.13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 6/ 6/89 (JUN 6, 1989), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.37	
2:	001F/PH	6.2	
3:	013 /OIL & GREASE (PET. ETHER)	240.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	910.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	470.	MG/L
6:	418 /SS (DEPOSIT RATE)	11.9	KG/TONNE
:	419 /OIL&GREASE (DEPOSIT RATE)	6.1	KG/TONNE
8:	421 /PRODUCTION	43.94	TONNES/DAY
9:	649 /FLOW	1108.	M3/DAY
10:	651 /BOD(DEPOSIT RATE)	22.9	KG/DAY

STATUS AS OF JUL 18, 1989 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: PROCESSING ONLY (NO SLAUGHTERING)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.34	
2:	001F/PH	6.0	
3:	013 /OIL & GREASE (PET. ETHER)	100.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	390.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	220.	MG/L
6:	421 /PRODUCTION	0.	TONNES/DAY
:	649 /FLOW	1107.	M3/DAY

****
* 89PK020 - PAUL KLAAMAS STATUS AS OF JUL 18, 1989 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

CATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 5/ 6/89 (JUN 5, 1989), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 6/ 6/89 (JUN 6, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREENING

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.33	
2:	001F/PH	6.3	
3:	013 /OIL & GREASE (PET. ETHER)	460.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	1200.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	930.	MG/L

REGISTERED ON: JUN 10, 1989. BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 6/ 6/89 (JUN 6, 1989), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREENING

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.52	
2:	001F/PH	6.5	
3:	013 /OIL & GREASE (PET. ETHER)	200.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	580.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	430.	MG/L

****
* 89PK022 - PAUL KLAAMAS STATUS AS OF JUL 18, 1989 *

REGISTERED ON: JUN 10, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 7/ 6/89 (JUN 7, 1989), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 8/ 6/89 (JUN 8, 1989), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREENING

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.62	
2:	001F/PH	6.3	
3:	013 /OIL & GREASE (PET. ETHER)	60.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	170.	MG/L
5:	020 /SUSPENDED SOLIDS (SS)	170.	MG/L

```
**********************************************************************
* 89PK023 - PAUL KLAAMAS                          STATUS AS OF JUL 18, 1989 *

REGISTERED ON: JUN 10, 1989,  BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
                    EFFLUENT FROM PLANT                          PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  8/ 6/89 (JUN  8, 1989), TIME:  930, FREQ: 1
SAMPLING ENDED, DATE:  8/ 6/89 (JUN  8, 1989), TIME:  930

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                        ---- SAMPLE ANALYSIS ----
    .............PARAMETER ............. ...... VALUE ...... UNITS
 1: 028 /AMMONIA-N (NH3-N)..............  21.8                MG/L
 2: 500 /BIOASSAY ..................... TO BE COMPLETED
```

17-Jul-89

NADEAU POULTRY LTD., ST. FRANCOIS-de-MADAWASKA

COMPLIANCE SURVEY

SAMPLE DATE	TOTAL QUANTITY OF RAW MATERIALS PROCESSED (t/d)	TOTAL FLOW (L/d)	BODs mg/L	BODs kg/t OF RAW MATERIALS	TOTAL SUSPENDED MATTER mg/L	TOTAL SUSPENDED MATTER kg/t OF RAW MATERIALS	GREASE mg/L	GREASE kg/t OF RAW MATERIALS	pH
JUNE 5 /89	48.8	1110000	710	16.1	385	8.8	190.00	4.32	6.1
JUNE 6 /89									
JUNE 6 /89	43.9	1108000	910	22.9	470	11.9	240.00	6.05	6.2
JUNE 7 /89									
AVERAGE ACTUAL DAILY DEPOSIT				19.5		10.3		5.2	
AVERAGE ALLOWABLE DAILY DEPOSIT				1.5		1.5		0.60	
DIFFERENCE				18.0		8.8		4.6	

TABLE I -

NADEAU POULTRY RESULTS (BROOK SAMPLES)

	BOD mg/l	COD mg/l	SS mg/l	TVSS mg/l	TKN mg/l	Grease mg/l
Above plant site (before effluent enters brook)	0.0	59.4	0.0	<5.0	2.24	23.55
Below plant (after effluent enters brook)	87.5	310	76	71	13.41	106.4

TABLE II

ENVIRONMENT CANADA MEMORANDUM

TO:

P. Klaamas
Head, Food Processsing
Air and Water Branch
Environment Canada, Atlantic Region

FROM:

D. Vaughan
A/Project Biologist
Air and Water Branch
Environment Canada, Atlantic Region

Security-Classification

Our File YOUR COPY
4756-1
~~Original on File~~

Your File

Date
July 20, 1989

SUBJECT: BIOASSAY RESULTS - NADEAU POULTRY

On June 8, 1989, Water Pollution Control Division staff collected a grab sample of final effluent from the Nadeau Poultry Plant in New Brunswick.

On June 12, 1989, a 96-hour acute lethal static bioassay was conducted on this sample, using rainbow trout fingerling of mean weight 1.3 $\pm$ 0.5 g as the test organism.

The effluent was acutely lethal to the test fish, yielding a 4-day LC50 value of 24% (95% conf. limits: 15 - 33%).

Chemical analysis revealed that the sample contained 21.8 mg/l ammonia-nitrogen. Although this level could account for the mortality observed in the full-strength effluent, it would not account for the mortality at the lower concentrations. One or more additional toxicants must have been present.

A copy of the bioassay report is attached which provides further test details.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe
R. Parker

SAMPLE INFORMATION:

COMPANY Nadeau Poultry LOCATION New Brunswick

Effluent final Collected 8 June 89 0930 hrs By P. Hennebury

Sample # 89PK023 Location Code: NADEAU01

TEST CONDITIONS:

Vol 40 lit Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water dechlorinated Dart. Municipal pH X ambient ___ adjusted Started 12 June 89 1400 hrs

Test Organism O. mykiss #/Tank 10 Source Merlins Trout Farm

Length x + S.D. (range) cm 4.8 + 0.6 (3.7-6.6) n = 60

Weight x + S.D. (range) g 1.3 + 0.5 (0.5-2.7) n = 60 g/L 0.3

RESULTS:

Conc. (%)	T(oC) Range	DO(mg/l) Range	pH Range	# Mort/ # Exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15-16	7.0-7.0	7.0-7.6	10/10	2.2	1.7-2.8 (1.5)	
56	15-16	6.1-6.9	7.0-7.4	9/9	2-19		
32	16-16	8.1-9.4	7.0-7.7	9/11	24	15-37 (2.2)	
18	16-16	8.5-9.2	7.0-7.6	2/10	GT96		
10	16-16	9.3-9.6	7.1-7.6	0/10	GT96		
Control	16-16	9.7-9.9	7.3-7.5	0/10	GT96		

96-hour LC50 24% 95% Conf. Limits 15-33%

Comments: _____

Performed by: David Vaughan

Verified by: Suzanne J. Wade Date: 20 July 89

PROVINCIAL OPERATING PERMIT

CERTIFICATE OF APPROVAL
CERTIFICAT D'AGREMENT

No: I - 246

NEW BRUNSWICK WATER QUALITY REGULATIONS
REGLEMENTS SUR LA QUALITE DE L' DU NOUVEAU-BRUNSWICK

Issued by the New Brunswick
Minister of Municipal Affairs
and Environment

Délivré par le ministre des Affaires municipales
et de l'Environnement
du Nouveau-Brunswick

This Certificate of Approval to operate is hereby issued to the following owner or operator:
Ce Certificat d'agrément pour est accordé au propriétaire ou à l'exploitant suivant:

Name of owner or operator:
Nom du propriétaire ou de l'exploitant: Nadeau Poultry Farm Ltd.

Address of owner or operator:
Adresse postale du propriétaire ou de l'exploitant: St. Francois-de-Madawaska, New Brunswick
E0L 1J0

Description of operation or stationary source:
Description de l'opération ou de la source stationnaire: Poultry integrated plant

Conditions of approval:
Conditions d'agrément: As per Document "A" attached

Recommended:
Recommandé par:

Director, Pollution Control Branch
Directeur, Direction du contrôle de la pollution

Authorized:
Autorisé par:

Minister of Municipal Affairs and Environment
Ministre des Affaires municipales et de l'Environnement

Date of issue
Date de délivrance: May 5 19 87

Expiry date:
Date d'expiration: December 31 19 90

65-1421 (12-86)

DOCUMENT "A" ATTACHED TO

CERTIFICATE OF APPROVAL

NO. I - 246

NADEAU POULTRY FARM LTD.

CONDITIONS OF APPROVAL

A: GENERAL:

1. "Department" means the New Brunswick Department of Municipal Affairs and Environment and the "Director" means the Director the Environmental Protection Branch of the Department.

2. "Effluent" means all wastewater discharged by the plant which has been in contact with:

   (a) the edible or inedible portion of the slaughtered and dressed poultry.

   (b) facilities used in the slaughtering and dressing process.

3. Nadeau Poultry Farm Ltd. (the Owner) shall, in the operation of its poultry integrated plant at St. François, N.B., comply with the provisions of the Water Quality Regulation N.B. 82-126 under the Clean ENvironment Act and with the provisions of the "Meat and Poultry Products Plant Liquid Effluent Regulations and Guidelines", Report EPS 1-WP-77-2 (further referred t o as "Federal Regulations").

4. The Owner shall notify the Department, without undue delay, about any circumstances, causes and consequences of a failure or inability of meeting the terms or conditions of this Certificate.

5. The Owner shall apply in writing to the Director one (1) month before the expiry date for the renewal of this Certificate and advise of any changes to be considered.

FORM A: MEAT AND POULTRY PRODUCTS PLANT EFFLUENT REPORT

Environment Canada / Environnement Canada
Environmental Protection Service / Service de la protection de l'environnement

Company Name: | Location of Plant

Owner or Manager: | Phone:

No. of operating days during equivalent month (N): Production of plant during equivalent month (P): Tonnes of finished prod

Date of Sample Collection	Total Quantity of Finished Product Produced (in Tonnes/day) A *	Total Flow of each Effluent (specify) (in Litres/day) B	Biochemical Oxygen Demand		Total Suspended Matter		Grease	
			mg/l C	Kilograms per tonne of finished product D	mg/l E	Kilograms per tonne of finished product F	mg/l G	Kilograms per tonne of finished product H
		Average daily deposit monthly amounts **						
				Column D: $\frac{\text{Column B} \times \text{Column C}}{10^6 \times \text{Column A}}$		Column F: $\frac{\text{Column B} \times \text{Column E}}{10^6 \times \text{Column A}}$		Column H: $\frac{\text{Column B} \times \text{Column G}}{10^6 \times \text{Column A}}$

Notes: * Column A is either actual daily figure of finished product produced or total finished product produced during equivalent month divided by the number of operating days for the equivalent month (P/N)

** See back of page for space for pH ammonia nitrogen and acute lethality test records

*** Average daily deposit is the sum of column B or F or H divided by the number of days samples were collected

Declaration:

I hereby certify that the statement and quantities listed above are correct to the best of my knowledge

Volume of effluent:
Reading on totalizer:

Signature and title of Responsible Officer of the Company — Date

11. The Owner shall keep the waste collected in the plant, as well as that recovered in the treatment facilities, over the shortest practicable time before it is taken away for rendering.

D. MONITORING:

12. The Owner shall collect twice per month a composite sample of effluent by conbining four equal volumes of the overflow from the treatment facilities at equal intervals over a period of not less than four hours during which slaughtering is performed.

13. The Owner shall measure and record the flow on each processing day.

E. REPORTING:

14. The Owner shall within thirty days after the end of each calendar or equivalent month (see Federal Regulation, if applicable) sign, date and forward to the Director a report showing that month:

    (a) the actual daily deposit of substances specified in Section 6 on each day that samples were taken (in kg/t of finished product),

    (b) the average daily deposit for the month,

    (c) the production of the plant in tonnes of finished product,

    (d) the number of operating days,

    (e) the total volume of effluent discharged during the month and the reading on the totalizer.

15. The Owner shall use the enclosed form for reporting the information requested under Section 14.

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 20/11/89 (NOV 20, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 21/11/89 (NOV 21, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.6	
2:	001F/PH	6.8	
3:	013 /OIL & GREASE (PET. ETHER)	250.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	700.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	860.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	580.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	460.	MG/L
8:	158 /FLOW	248000.	IMP G/DAY
9:	417 /BOD 5 (DEPOSIT RATE)	16.2	KG/TONNE
10:	418 /SS (DEPOSIT RATE)	10.6	KG/TONNE
11:	419 /OIL&GREASE (DEPOSIT RATE)	5.79	KG/TONNE
12:	421 /PRODUCTION	48.72	TONNES/DAY

****

* 89PK067 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 21/11/89 (NOV 21, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 22/11/89 (NOV 22, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.5	
2:	001F/PH	6.9	
3:	013 /OIL & GREASE (PET. ETHER)	100.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	530.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	600.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	500.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	220.	MG/L
8:	158 /FLOW	239000.	IMP G/DAY
9:	417 /BOD 5 (DEPOSIT RATE)	14.4	KG/TONNE
10:	418 /SS (DEPOSIT RATE)	6.0	KG/TONNE
11:	419 /OIL&GREASE (DEPOSIT RATE)	2.73	KG/TONNE
12:	421 /PRODUCTION	39.87	TONNES/DAY

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 22/11/89 (NOV 22, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 23/11/89 (NOV 23, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.5	
2:	001F/PH	6.8	
3:	013 /OIL & GREASE (PET. ETHER)	170.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	790.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	1000.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	580.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	300.	MG/L
8:	158 /FLOW	233000.	IMP G/DAY
9:	417 /BOD 5 (DEPOSIT RATE)	17.9	KG/TONNE
10:	418 /SS (DEPOSIT RATE)	6.8	KG/TONNE
11:	419 /OIL&GREASE (DEPOSIT RATE)	3.86	KG/TONNE
12:	421 /PRODUCTION	46.65	TONNES/DAY

****
* 89PK069 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 23/11/89 (NOV 23, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 24/11/89 (NOV 24, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.3	
2:	001F/PH	6.4	
3:	013 /OIL & GREASE (PET. ETHER)	210.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	740.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	1500.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	330.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	360.	MG/L
8:	158 /FLOW	138200.	IMP G/DAY
9:	421 /PRODUCTION	0.	TONNES/DAY

LAB NUMBER(S): 89PK067-068

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 20/11/89 (NOV 20, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 21/11/89 (NOV 21, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREEN

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.3	
2:	001F/PH	6.6	
3:	013 /OIL & GREASE (PET. ETHER)	470.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	1780.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	1800.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	910.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	810.	MG/L

****
* 89PK071 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 21/11/89 (NOV 21, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 22/11/89 (NOV 22, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREEN

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.2	
2:	001F/PH	6.5	
3:	013 /OIL & GREASE (PET. ETHER)	840.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	1520.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	2700.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	620.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	900.	MG/L

LAB NUMBER(S): 89PK072-073

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 22/11/89 (NOV 22, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 23/11/89 (NOV 23, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREEN

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.4	
2:	001F/PH	6.7	
3:	013 /OIL & GREASE (PET. ETHER)	230.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	1210.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	400.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	670.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	470.	MG/L

****
* 89PK073 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 28, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 23/11/89 (NOV 23, 1989), TIME: 800, FREQ: 48
SAMPLING ENDED, DATE: 24/11/89 (NOV 24, 1989), TIME: 800

DEPTH: .00 METERS, TIDE:
NARRATIVE: AFTER SCREEN

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.0	
2:	001F/PH	6.7	
3:	013 /OIL & GREASE (PET. ETHER)	200.	MG/L
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)	270.	MG/L
5:	016 /CHEMICAL OXYGEN DEMAND (COD)	530.	MG/L
6:	018 /SOLIDS, TOTAL (TS)	1000.	MG/L
7:	020 /SUSPENDED SOLIDS (SS)	300.	MG/L

LAB NUMBER(S): 89PK9 0 074-075

REGISTERED ON: NOV 29, 1989, BY :PHIL H

LOCATOR: NADEAU02/NADEAU POULTRY
RAW INFLUENT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 21/11/89 (NOV 21, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 21/11/89 (NOV 21, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: BEFORE SCREENING

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	270.	MG/L

****
* 89PK075 - PAUL KLAAMAS STATUS AS OF MAR 6, 1990 *

REGISTERED ON: NOV 29, 1989, BY :PHIL H

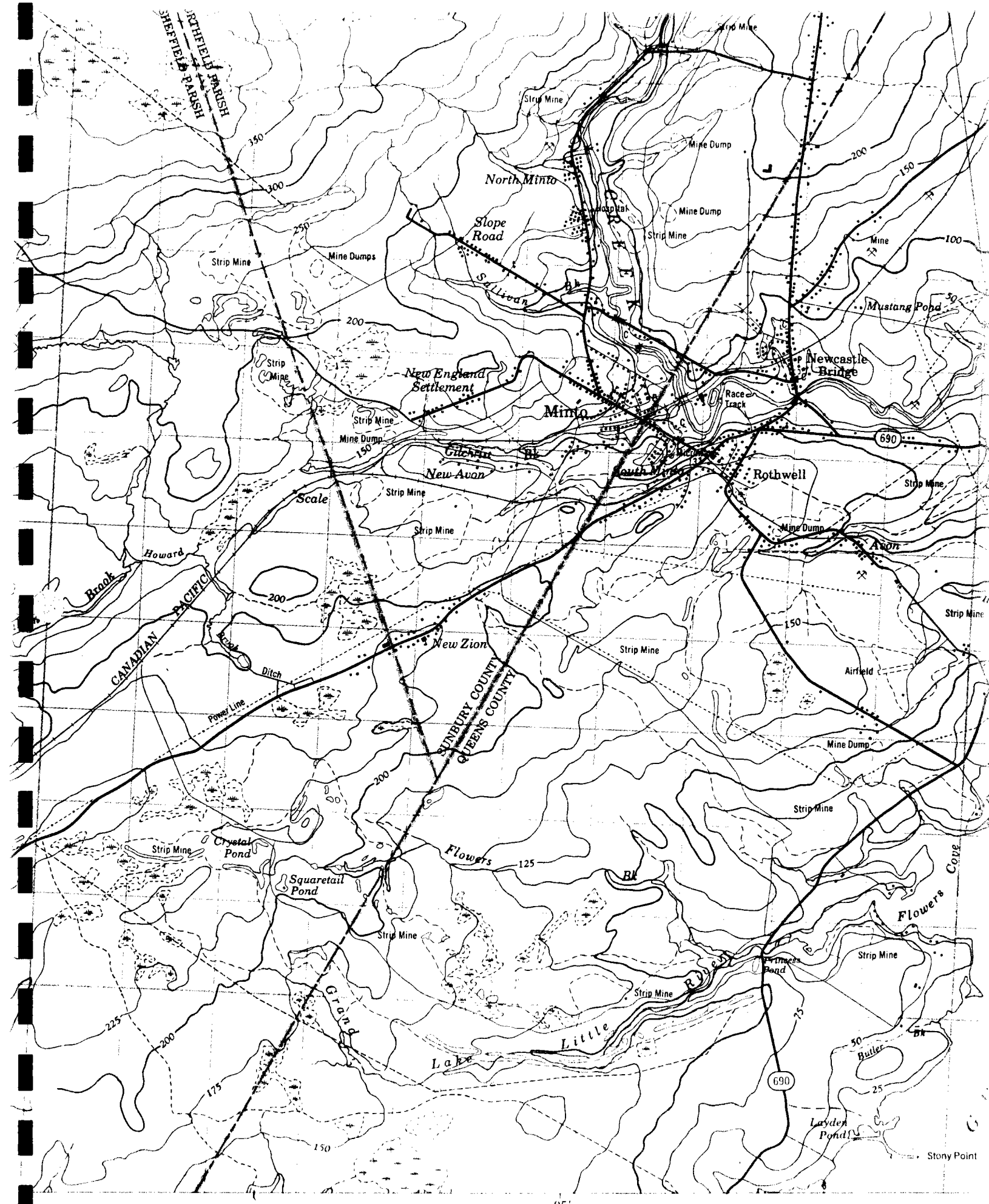
LOCATOR: NADEAU01/NADEAU POULTRY
EFFLUENT FROM PLANT PROV: NB
NORMAL ANALYSIS: 15,20,1,28,16,13
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

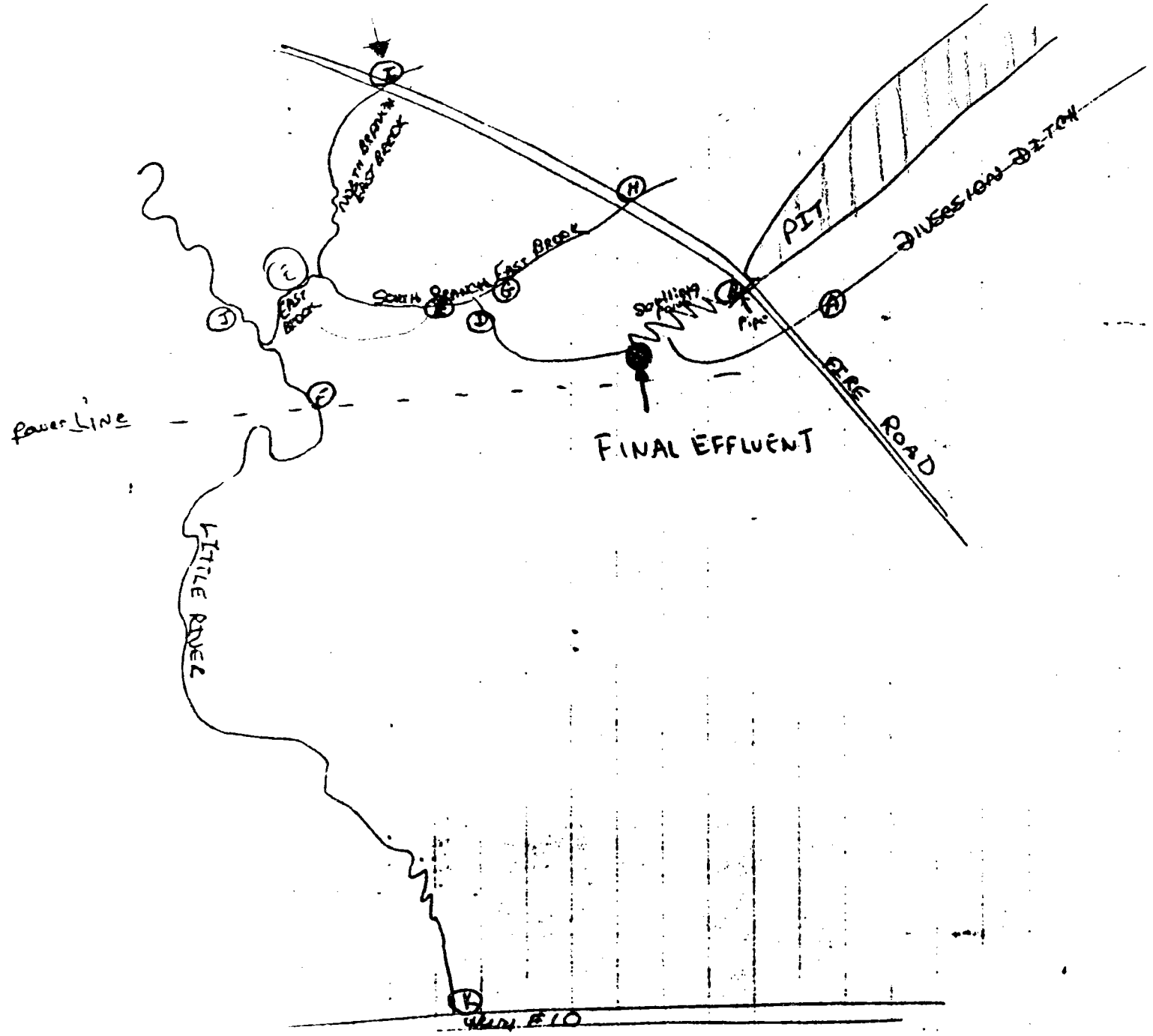
SAMPLING BEGAN, DATE: 21/11/89 (NOV 21, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 21/11/89 (NOV 21, 1989), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	410.	MG/L


SHEFFIELD PARISH
NORTHFIELD PARISH
North Minto
Slope Road
Sullivan Brook
Mine Dumps
Strip Mine
Mine Dump
Hospital
Mine
Mustang Pond
Newcastle Bridge
New England Settlement
Minto
Race Track
Golf Course
Rothwell
Glenwin
New Avon
South Minto
Scale
Howard Brook
CANADIAN PACIFIC
New Zion
Ditch
Power Line
SUNBURY COUNTY
QUEENS COUNTY
Airfield
Crystal Pond
Squaretail Pond
Flowers Brook
Flowers Cove
Grand Lake
Little Lake
Butler Brook
Layden Pond
Stony Point
690
350
300
250
200
150
100
50
225
175
125
75
25



NB COAL

FIRE ROAD MINE

	Physical Location
A	Division Ditch
B	Discharge at End of pipe
C	Final Effluent at setting pond
D	Stream with Effluent before intersection with South Branch of East Brook
E	Downstream toward Little River ie. ~~South Branch~~ East Brook
F	Where Power Line crosses Little River Left or North Side
G	South Branch East Brook above intersection of stream from setting pond
H	South Branch of East Brook at Fire Road Crossing
I	North Branch of East Brook at Fire Road Crossing
J	50 yds. or more above intersectio of East Brook & Little River
K	Little River Bridge at Rte 10

****
* 89RP065 - ROY PARKER STATUS AS OF JUL 31, 1989 *

REGISTERED ON: JUL 7, 1989, BY :ANDRE

LOCATOR: FIRERD01/N.B. COAL FIRE ROAD MINE
FINAL DISCHARGE PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

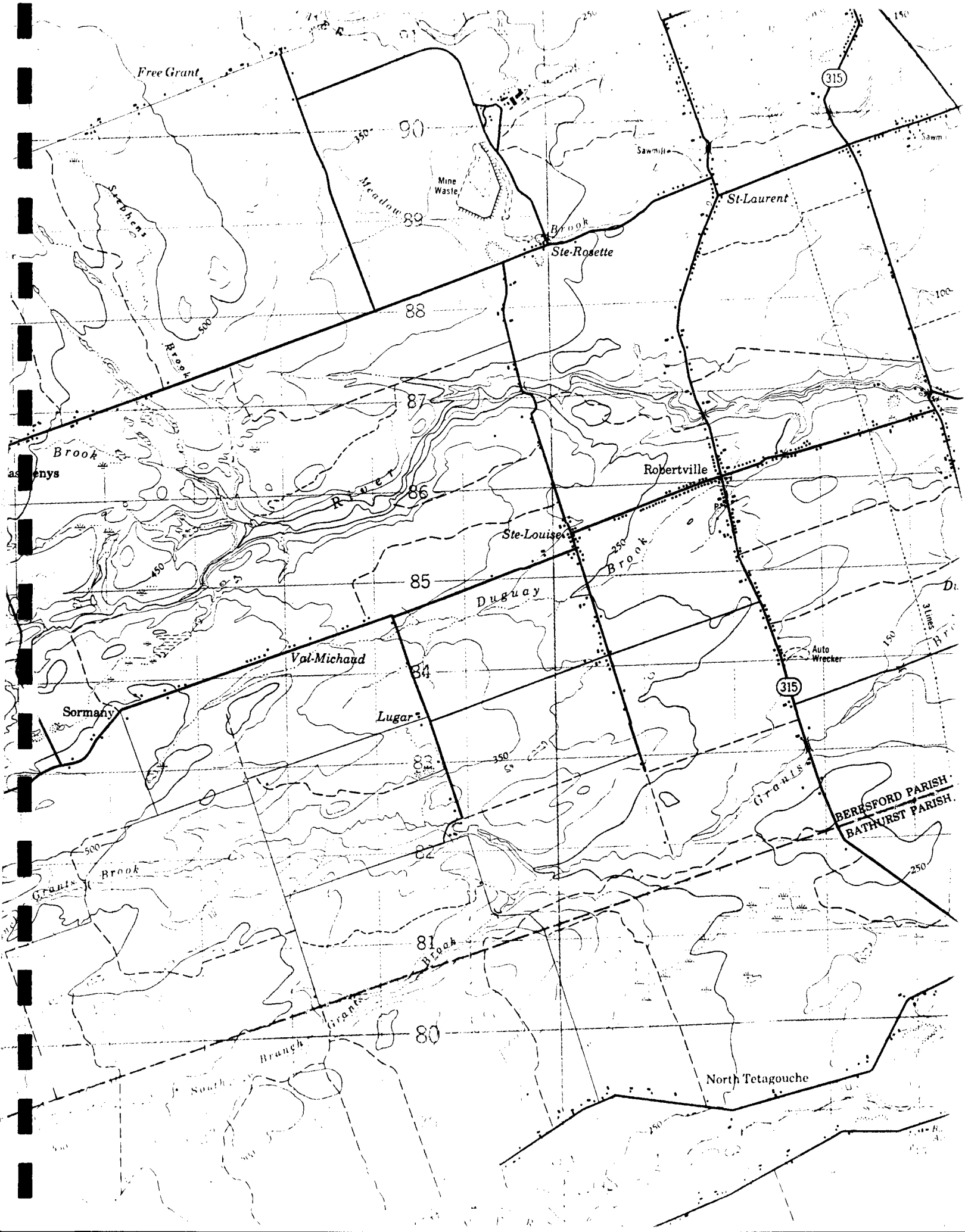
SAMPLING BEGAN, DATE: 6/ 7/89 (JUL 6, 1989), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 6/ 7/89 (JUL 6, 1989), TIME: 1000

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL DISCHARGE
FIRE ROAD MINE,NB COAL

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	3.81	
2:	005	/HARDNESS	2920.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	480.	MG/L
4:	022	/MAGNESIUM (TOTAL)	113.	MG/L
5:	036	/CALCIUM (TOTAL)	9800.	MG/L
6:	044	/ARSENIC (TOTAL)	0.23	MG/L
7:	046	/CADMIUM (TOTAL)	0.04	MG/L
8:	047	/CHROMIUM (TOTAL)	0.10	MG/L
9:	048	/COPPER (TOTAL)	0.04	MG/L
10:	049	/IRON (TOTAL)	39.1	MG/L
11:	051	/LEAD (TOTAL)	0.25	MG/L
12:	052	/ANTIMONY (TOTAL)	0.27	MG/L
13:	054	/ZINC (TOTAL)	1.27	MG/L
14:	159	/NICKEL (TOTAL)	0.79	MG/L
15:	160	/MANGANESE (TOTAL)	64.1	MG/L
16:	162	/ALUMINUM (TOTAL)	1.48	MG/L

NIGADOO RIVER MINE


Free Grant
90
89
88
87
86
85
84
83
82
81
80
Mine Waste
Meadow
Sawmill
St-Laurent
Ste-Rosette
Brook
Robertville
Ste-Louise
Duguay
Val-Michaud
Sormany
Lugar
Auto Wrecker
315
3 Lines
Grants
BERESFORD PARISH
BATHURST PARISH
North Tetagouche
South Branch
River
350
500
450
250
150
100

****
* 89RP025 - ROY PARKER STATUS AS OF JUN 5, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: NIGAD002/NIGADOO RIVER
1 M.BELOW MINE, BRDG.NEAR TREMBLAY SETL. PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1045, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1045

DEPTH: .00 METERS, TIDE:
NARRATIVE: NIGADOO RIVER BLW THE MINE AT HWY 315

----- SAMPLE ANALYSIS -----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.48	
2:	005 /HARDNESS	52.1	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022 /MAGNESIUM (TOTAL)	1.45	MG/L
5:	036 /CALCIUM (TOTAL)	18.5	MG/L
6:	044 /ARSENIC (TOTAL)	L0.05	MG/L
7:	046 /CADMIUM (TOTAL)	L0.01	MG/L
8:	047 /CHROMIUM (TOTAL)	L0.01	MG/L
9:	048 /COPPER (TOTAL)	L0.01	MG/L
10:	049 /IRON (TOTAL)	0.027	MG/L
11:	051 /LEAD (TOTAL)	L0.01	MG/L
12:	054 /ZINC (TOTAL)	L0.01	MG/L
13:	159 /NICKEL (TOTAL)	L0.01	MG/L
14:	160 /MANGANESE (TOTAL)	0.024	MG/L
15:	162 /ALUMINUM (TOTAL)	L0.025	MG/L

```
**********************************************************************
* 89RP024 - ROY PARKER                          STATUS AS OF JUN  5, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: NIGAD001/NIGADOO RIVER
                  0.25 M.ABOVE MINE AREA,GLOUCESTER CO.      PROV: NB
NORMAL ANALYSIS: 1,128,51,48,54,46
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1030, FREQ:   1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1030

DEPTH:    .00 METERS, TIDE:
NARRATIVE: NIGADOO RIVER ABV MINING SITE

                        ---- SAMPLE ANALYSIS ----
     ..............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.............................  7.64
 2: 005 /HARDNESS.......................  45.0                    MG/L
 3: 020 /SUSPENDED SOLIDS (SS)......... L5.                     MG/L
 4: 022 /MAGNESIUM (TOTAL).............  1.30                    MG/L
 5: 036 /CALCIUM (TOTAL)................  15.9                    MG/L
 6: 044 /ARSENIC (TOTAL)................ L0.05                   MG/L
 7: 046 /CADMIUM (TOTAL)................ L0.01                   MG/L
 8: 047 /CHROMIUM (TOTAL)............... L0.01                   MG/L
 9: 048 /COPPER (TOTAL)................. L0.01                   MG/L
10: 049 /IRON (TOTAL)...................  0.032                   MG/L
11: 051 /LEAD (TOTAL).................... L0.01                   MG/L
12: 054 /ZINC (TOTAL).................... L0.01                   MG/L
13: 159 /NICKEL (TOTAL)................. L0.01                   MG/L
14: 160 /MANGANESE (TOTAL).............  0.028                   MG/L
15: 162 /ALUMINUM (TOTAL).............. L0.025                   MG/L
```

****
* 89RP023 - ROY PARKER STATUS AS OF JUN 5, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: NIGADOOO/NIGADOO RIVER MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1015, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1015

DEPTH: .00 METERS, TIDE:
NARRATIVE: DISCH FROM WETLANDS AT ROAD
CROSSING

----- SAMPLE ANALYSIS -----

		PARAMETER	VALUE	UNITS
1:	001	/PH	6.98	
2:	005	/HARDNESS	116.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	2.89	MG/L
5:	036	/CALCIUM (TOTAL)	41.7	MG/L
6:	044	/ARSENIC (TOTAL)	L0.05	MG/L
7:	046	/CADMIUM (TOTAL)	L0.01	MG/L
8:	047	/CHROMIUM (TOTAL)	0.012	MG/L
9:	048	/COPPER (TOTAL)	L0.01	MG/L
10:	049	/IRON (TOTAL)	0.127	MG/L
11:	051	/LEAD (TOTAL)	L0.01	MG/L
12:	054	/ZINC (TOTAL)	0.432	MG/L
13:	159	/NICKEL (TOTAL)	L0.01	MG/L
14:	160	/MANGANESE (TOTAL)	0.539	MG/L
15:	162	/ALUMINUM (TOTAL)	0.138	MG/L

****
* 89RP022 - ROY PARKER STATUS AS OF JUL 24, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: NIGADOOO/NIGADOO RIVER MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1000, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 1000

DEPTH: .00 METERS, TIDE:
NARRATIVE: WETLANDS AT BERM (MID-WETLANDS STN)

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	5.46	
2:	005 /HARDNESS	554.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	6.	MG/L
4:	022 /MAGNESIUM (TOTAL)	14.8	MG/L
5:	036 /CALCIUM (TOTAL)	195.	MG/L
6:	044 /ARSENIC (TOTAL)	0.081	MG/L
7:	046 /CADMIUM (TOTAL)	0.039	MG/L
8:	047 /CHROMIUM (TOTAL)	0.039	MG/L
9:	048 /COPPER (TOTAL)	0.041	MG/L
10:	049 /IRON (TOTAL)	1.05	MG/L
11:	051 /LEAD (TOTAL)	0.052	MG/L
12:	054 /ZINC (TOTAL)	4.40	MG/L
13:	159 /NICKEL (TOTAL)	0.041	MG/L
14:	160 /MANGANESE (TOTAL)	8.54	MG/L
15:	162 /ALUMINUM (TOTAL)	1.70	MG/L

****
* 89RP021 - ROY PARKER STATUS AS OF JUL 24, 1989 *

REGISTERED ON: MAY 26, 1989, BY :ANDRE

LOCATOR: NIGADOOO/NIGADOO RIVER MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 930, FREQ: 1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME: 930

DEPTH: .00 METERS, TIDE:
NARRATIVE: DISCH FROM SETTLING POND
JUST ABV WETLANDS

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	6.81	
2:	005	/HARDNESS	540.	MG/L
3:	020	/SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022	/MAGNESIUM (TOTAL)	14.5	MG/L
5:	036	/CALCIUM (TOTAL)	190.	MG/L
6:	044	/ARSENIC (TOTAL)	0.088	MG/L
7:	046	/CADMIUM (TOTAL)	0.051	MG/L
8:	047	/CHROMIUM (TOTAL)	0.031	MG/L
9:	048	/COPPER (TOTAL)	0.037	MG/L
10:	049	/IRON (TOTAL)	0.418	MG/L
11:	051	/LEAD (TOTAL)	0.036	MG/L
12:	054	/ZINC (TOTAL)	5.47	MG/L
13:	159	/NICKEL (TOTAL)	0.042	MG/L
14:	160	/MANGANESE (TOTAL)	13.3	MG/L
15:	162	/ALUMINUM (TOTAL)	0.553	MG/L

```
**********************************************************************
* 89RP020 - ROY PARKER                          STATUS AS OF JUL  3, 1989 *

REGISTERED ON: MAY 26, 1989,  BY :ANDRE

LOCATOR: NIGAD000/NIGADOO RIVER MINE
                  GENERAL                                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 24/ 5/89 (MAY 24, 1989), TIME:  915, FREQ:   1
SAMPLING ENDED, DATE: 24/ 5/89 (MAY 24, 1989), TIME:  915

DEPTH:    .00 METERS, TIDE:
NARRATIVE: LEAK FROM TAILINGS AREA

                          ----- SAMPLE ANALYSIS -------
    ..............PARAMETER ..............  ......  VALUE .......  UNITS
 1: 001 /PH.................................   7.23
 2: 005 /HARDNESS...........................   890.                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS).............   7.                    MG/L
 4: 022 /MAGNESIUM (TOTAL).................   8.51                  MG/L
 5: 036 /CALCIUM (TOTAL)....................   342.2                 MG/L
 6: 044 /ARSENIC (TOTAL)....................  L0.05                  MG/L
 7: 046 /CADMIUM (TOTAL)....................  L0.01                  MG/L
 8: 047 /CHROMIUM (TOTAL)...................   0.029                 MG/L
 9: 048 /COPPER (TOTAL).....................   0.019                 MG/L
10: 049 /IRON (TOTAL).......................   1.97                  MG/L
11: 051 /LEAD (TOTAL).......................   0.041                 MG/L
12: 054 /ZINC (TOTAL).......................   0.384                 MG/L
13: 159 /NICKEL (TOTAL).....................   0.013                 MG/L
14: 160 /MANGANESE (TOTAL).................   1.50                  MG/L
15: 162 /ALUMINUM (TOTAL)...................   0.850                 MG/L
```

```
**********************************************************************************
* 89RP002 - ROY PARKER                                  STATUS AS OF OCT 27, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: NIGAD000/NIGADOO RIVER MINE
                    GENERAL                                              PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500, FREQ:    1
SAMPLING ENDED, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500

DEPTH:    .20 METERS, TIDE:
NARRATIVE: DISCHARGE FROM WETLAND AREA AT
           ROAD CROSSING
*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
     ..............PARAMETER ..............  ....... VALUE .......  UNITS
 1:  001 /PH.................................   7.5
 2:  005 /HARDNESS...........................   265.                 MG/L
  :  020 /SUSPENDED SOLIDS (SS).............  L5.                   MG/L
 4:  022 /MAGNESIUM (TOTAL).................   7.40                 MG/L
 5:  036 /CALCIUM (TOTAL)...................   94.86                MG/L
 6:  044 /ARSENIC (TOTAL)...................  L.05                  MG/L
 7:  046 /CADMIUM (TOTAL)...................  L.01                  MG/L
 8:  047 /CHROMIUM (TOTAL)..................   .01                  MG/L
 9:  048 /COPPER (TOTAL)....................  L.01                  MG/L
10:  049 /IRON (TOTAL)......................   .22                  MG/L
11:  051 /LEAD (TOTAL)......................  L.02                  MG/L
12:  052 /ANTIMONY (TOTAL)..................   .05                  MG/L
13:  054 /ZINC (TOTAL)......................   .05                  MG/L
14:  159 /NICKEL (TOTAL)....................  L.01                  MG/L
15:  160 /MANGANESE (TOTAL).................   .39                  MG/L
16:  162 /ALUMINUM (TOTAL)..................   .35                  MG/L
```

****
* 89RP079 - ROY PARKER STATUS AS OF DEC 7, 1989 *

REGISTERED ON: SEP 29, 1989, BY :ANDRE

LOCATOR: NIGADOO/NIGADOO RIVER MINE
GENERAL PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500, FREQ: 1
SAMPLING ENDED, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500

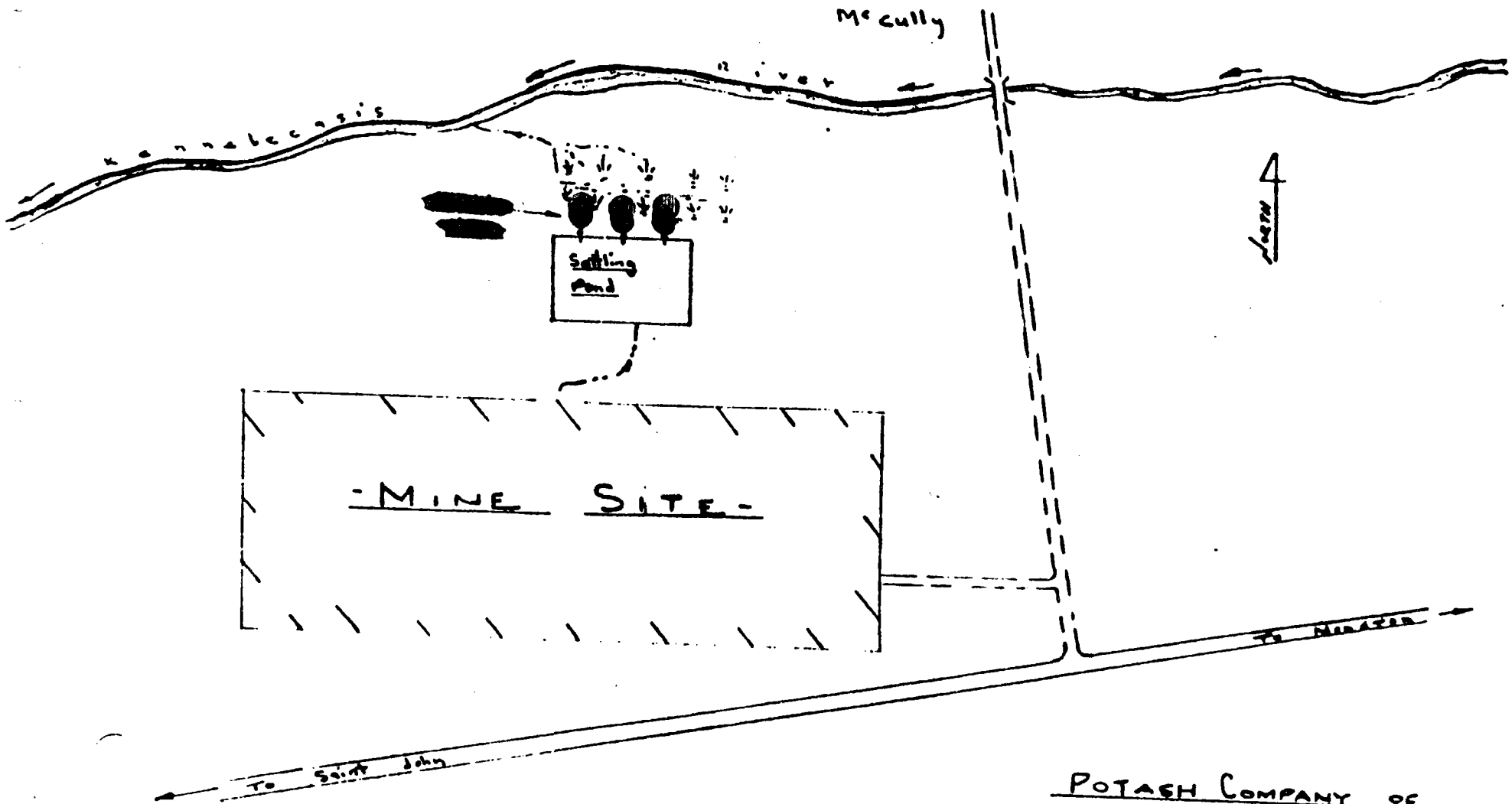
DEPTH: .00 METERS, TIDE:
NARRATIVE: DISCH. FROM MAN-MADE BERM AT MID-WETLAND
S

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.5	
2:	005 /HARDNESS	1000.	MG/L
3:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
4:	022 /MAGNESIUM (TOTAL)	26.75	MG/L
5:	036 /CALCIUM (TOTAL)	355.	MG/L
6:	044 /ARSENIC (TOTAL)	0.12	MG/L
7:	046 /CADMIUM (TOTAL)	0.01	MG/L
8:	047 /CHROMIUM (TOTAL)	0.06	MG/L
9:	048 /COPPER (TOTAL)	0.04	MG/L
10:	049 /IRON (TOTAL)	0.43	MG/L
11:	051 /LEAD (TOTAL)	0.17	MG/L
12:	052 /ANTIMONY (TOTAL)	L.05	MG/L
13:	054 /ZINC (TOTAL)	0.92	MG/L
14:	159 /NICKEL (TOTAL)	0.03	MG/L
15:	160 /MANGANESE (TOTAL)	4.64	MG/L
16:	162 /ALUMINUM (TOTAL)	0.87	MG/L

```
**********************************************************************
* 89RP078 - ROY PARKER                          STATUS AS OF DEC  7, 1989 *

REGISTERED ON: SEP 29, 1989,  BY :ANDRE

LOCATOR: NIGAD000/NIGADOO RIVER MINE
                  GENERAL                                    PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500, FREQ:   1
SAMPLING ENDED, DATE: 26/ 9/89 (SEP 26, 1989), TIME: 1500

DEPTH:    .00 METERS, TIDE:
NARRATIVE: EFFLUENT FROM SETTLING AREA
           ABOVE WETLANDS
                        ---- SAMPLE ANALYSIS ----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  7.6
 2: 005 /HARDNESS.......................  1000.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  L5.                  MG/L
 4: 022 /MAGNESIUM (TOTAL).............  28.                  MG/L
 5: 036 /CALCIUM (TOTAL)................  380.                 MG/L
 6: 044 /ARSENIC (TOTAL)................  0.05                 MG/L
 7: 046 /CADMIUM (TOTAL)................  0.02                 MG/L
 8: 047 /CHROMIUM (TOTAL)...............  0.04                 MG/L
 9: 048 /COPPER (TOTAL).................  0.03                 MG/L
10: 049 /IRON (TOTAL)...................  0.23                 MG/L
11: 051 /LEAD (TOTAL)...................  0.07                 MG/L
12: 052 /ANTIMONY (TOTAL)...............  1.02                 MG/L
13: 054 /ZINC (TOTAL)...................  1.80                 MG/L
14: 159 /NICKEL (TOTAL).................  0.03                 MG/L
15: 160 /MANGANESE (TOTAL)..............  13.70                MG/L
16: 162 /ALUMINUM (TOTAL)...............  0.51                 MG/L
```

POTASH COMPANY OF AMERICA



POTASH COMPANY OF AMERICA

SUSSEX, N.B. (Sampling Sites)

****

* 89RP067 - ROY PARKER STATUS AS OF OCT 27, 1989 *

REGISTERED ON: JUL 7, 1989, BY :ANDRE

LOCATOR: PCASSX02/POTASH CO OF AMERICA
DITCH PIPE WEST PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 6/ 7/89 (JUL 6, 1989), TIME: 1405, FREQ: 1
SAMPLING ENDED, DATE: 6/ 7/89 (JUL 6, 1989), TIME: 1405

DEPTH: .00 METERS, TIDE:
NARRATIVE: FINAL DISCHARGE

*****
***** WARNING: THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

---- SAMPLE ANALYSIS ----

		PARAMETER	VALUE	UNITS
1:	001	/PH	9.59	
2:	005	/HARDNESS	155.	MG/L
:	018	/SOLIDS, TOTAL (TS)	3020.	MG/L
4:	020	/SUSPENDED SOLIDS (SS)	13.	MG/L
5:	022	/MAGNESIUM (TOTAL)	11.55	MG/L
6:	036	/CALCIUM (TOTAL)	43.	MG/L
7:	044	/ARSENIC (TOTAL)	L0.05	MG/L
8:	046	/CADMIUM (TOTAL)	L0.01	MG/L
9:	047	/CHROMIUM (TOTAL)	L0.01	MG/L
10:	048	/COPPER (TOTAL)	0.02	MG/L
11:	049	/IRON (TOTAL)	0.46	MG/L
12:	051	/LEAD (TOTAL)	L0.01	MG/L
13:	052	/ANTIMONY (TOTAL)	0.05	MG/L
14:	054	/ZINC (TOTAL)	L0.01	MG/L
15:	131	/TOTAL DISSOLVED SOLIDS (TDS)	3010.	MG/L
16:	159	/NICKEL (TOTAL)	L0.01	MG/L
17:	160	/MANGANESE (TOTAL)	0.20	MG/L
18:	162	/ALUMINUM (TOTAL)	0.12	MG/L
19:	500	/BIOASSAY	TO BE COMPLETED	

ENVIRONMENT CANADA MEMORANDUM

TO:

A. MacKinnon, Head
Oil and Chemical Wastes Section
Environmental Control Branch
Environment Canada, Atlantic Region

FROM:

S. Wade, Bioassay Technician
Lab Division
Environmental Control Branch
Environment Canada, Atlantic Region

Security-Classification
Our File 4705-37/P152
Your File
Date September 1, 1989

SUBJECT: BIOASSAY RESULTS- POTASH COMPANY OF AMERICA, SUSSEX, N.B.

On July 6 1989, R. Parker collected a sample of final effluent from Potash Company of America, Sussex, N.B.

On July 10 1989, a 96-hour acute static bioassay was begun on the sample, using fingerling rainbow trout of mean weight 2.0 + 0.7g as the test organism. The salinity of the sample was 1.0 ppt.

The sample was not acutely lethal to the test fish.

A copy of the bioassay report is attached, which provides additional information about the test.

S. Wade

sjw

Attachment(1)

cc. H. Samant
R. Parker
K. Doe
P. Hennebury

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Potash Company of America, Sussex, N.B.

Final Effluent

COLLECTED: 6 July 89 BY: R. Parker

SAMPLE NO. 89RP067 LOCATOR CODE: PCASSX02

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. Municipal pH X ambient ___ adjusted Started 10 July 89 1300

Test Organism O. mykiss #/Tank 10 Source Merlins Trout Farm 16 May 89 (Tank 8)

Length x ± S.D. (range) cm 5.9 + 0.7(4.8-7.5) n = 29

Weight x ± S.D. (range) g 2.0 + 0.7(1.1-3.6) n = 29 g/L 0.5

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	14-15	9.9-10.4	7.2-8.8	0/10	>96		
56	14.5-15	9.9-10.5	7.2-8.5	0/9	>96		
Control	15.5-16	9.6-10.1	7.2-8.1	0/10	>96		

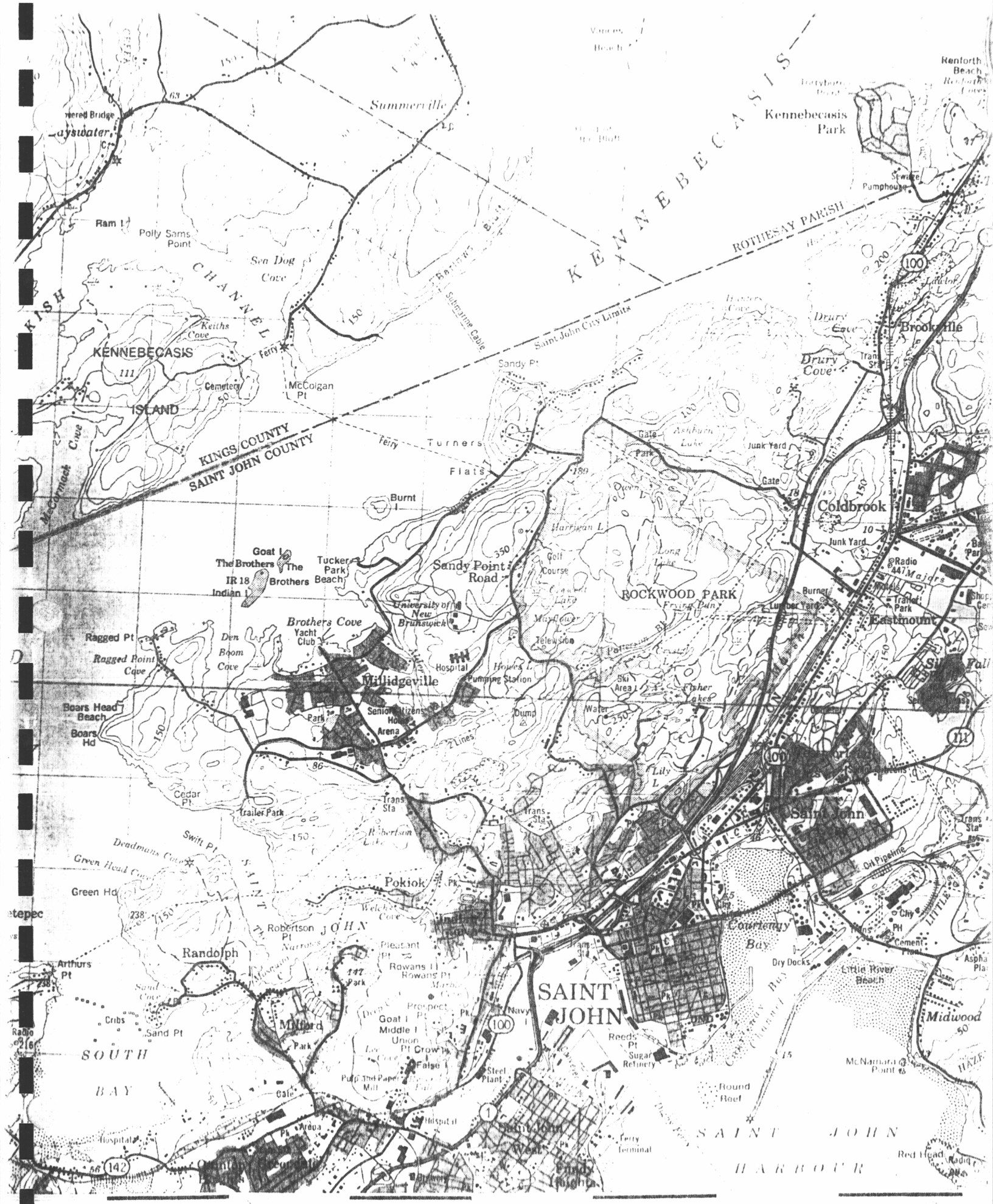
96-hour LC50 ___ - ___ 95% Conf. Limits ___ - ___

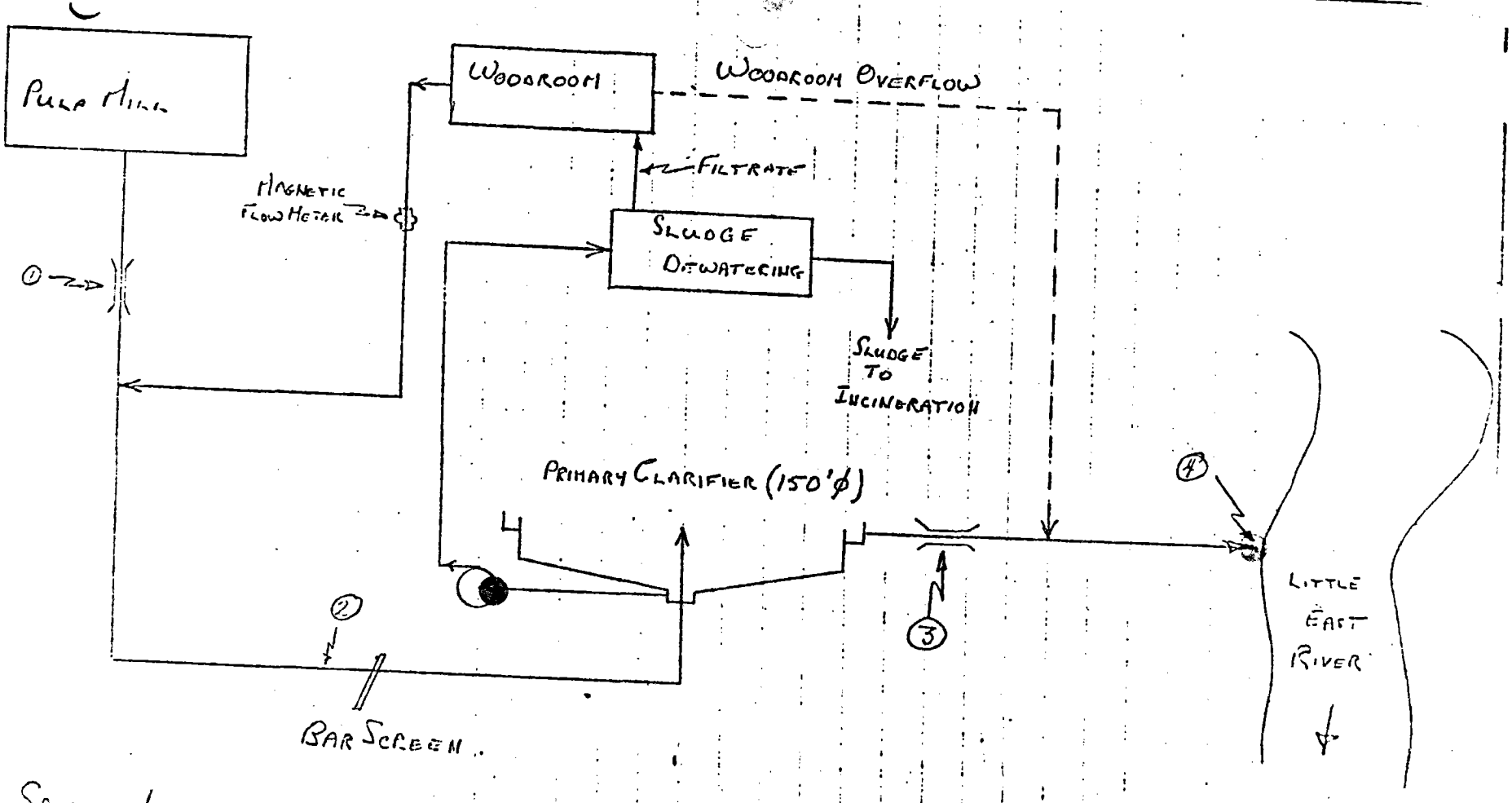
Comments: Not acutely lethal

Performed By: S. Wade Verified By: D. Vaughan Date: 23 Aug 89

Q

ROTHESAY PAPER


KENNEBECASIS
Kennebecasis Park
Summerville
Renforth Beach
Pumphouse
ROTHESAY PARISH
Ram I
Polly Sams Point
Sea Dog Cove
CHANNEL
Keiths Cove
KENNEBECASIS ISLAND
Ferry
Cemetery
McColgan Pt
Saint John City Limits
Sandy Pt
Drury Cove
Brookville
KINGS COUNTY
SAINT JOHN COUNTY
Ferry
Turners Flats
McCormack Cove
Burnt I
Goat I
The Brothers
IR 18 Indian I
The Brothers
Tucker Park Beach
Sandy Point Road
Golf Course
Harrigan L
Ashburn Lake
Junk Yard
Gate
Coldbrook
Radio 441 Majors
ROCKWOOD PARK
Trailer Park
Eastmount
University of New Brunswick
Brothers Cove Yacht Club
Ragged Pt
Ragged Point Cove
Den
Boom Cove
Millidgeville
Hospital
Pumping Station
Ski Area
Fisher Lakes
Dump
Water
Boars Head Beach
Boars Hd
Park
Senior Citizens Home
Arena
Lines
Cedar Pt
Trailer Park
Trans Sta
Saint John
Deadmans Cove
Swift Pt
Green Head Cove
Green Hd
Pokiok
Welches Cove
Robertson Pt
Narrows
JOHN
Randolph
Pleasant Pt
Rowans I
Rowans Pt
Arthurs Pt
Sand Cove
Cribs
Sand Pt
Millard Park
Prospect Pt
Goat I
Middle I
Union Pt
Crow
False
Navy I
SAINT JOHN
Reeds Pt
Sugar Refinery
Courtenay Bay
Dry Docks
Oil Pipeline
Little River Beach
Midwood
McNamara Point
Round Roef
SOUTH BAY
Pulp and Paper Mill
Steel Plant
Area
Ferry Terminal
SAINT JOHN HARBOUR
Red Head



SAMPLE LOCATIONS

1. PULP MILL EFFLUENT
2. CLARIFIER FEED
3. CLARIFIER OVERFLOW
4. FINAL EFFLUENT

EFFLUENT TREATMENT FLOW SHEET

MAC MILLAN-ROTHESAY LIMITED
SAINT JOHN N.B.
4705-37/M234 16/1/71

```
**********************************************************************************
* 89GT009 - GARTH TRIDER                                STATUS AS OF OCT 27, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: MACROT05/ROTHESAY PAPER LTD.,SAINT JOHN
                    OUTFALL TO RIVER                                  PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1030

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL TO RIVER

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..............  ...... VALUE ......  UNITS
 1: 001 /PH.............................   6.43
 2: 011 /RESIN ACIDS (RAS)..............  TO BE COMPLETED
 3: 016 /CHEMICAL OXYGEN DEMAND (COD)..    1200.                  MG/L
 4: 028 /AMMONIA-N (NH3-N).............    0.49                   MG/L
 5: 046 /CADMIUM (TOTAL)................  L0.01                   MG/L
 6: 048 /COPPER (TOTAL).................  L0.01                   MG/L
 7: 050 /MERCURY (TOTAL)................    0.000861             MG/L
 8: 054 /ZINC (TOTAL)...................    0.06                 MG/L
 9: 086 /SULFIDE........................  L0.032                  MG/L
10: 157 /PENTACHLOROPHENOL..............  TO BE COMPLETED
11: 162 /ALUMINUM (TOTAL)...............    0.42                 MG/L
12: 172 /2,3,5,6-TETRACHLOROPHENOL......  TO BE COMPLETED
13: 201 /BERYLLIUM .....................  L0.01                   MG/L
14: 235 /2,3,4,6 - TETRACHLOROPHENOL ...  TO BE COMPLETED
15: 236 /2,3,4,5 - TETRACHLOROPHENOL ...  TO BE COMPLETED
16: 278C/FLOW...........................  TO BE COMPLETED
17: 421 /PRODUCTION                       TO BE COMPLETED
18: 500 /BIOASSAY ......................  "DONE"
19: 688 /2,4,6 TRICHLOROPHENOL            TO BE COMPLETED
20: 689 /TETRACHLOROGUAIACOL              TO BE COMPLETED
21: 690 /TETRACHLOROCATECHOL              TO BE COMPLETED
```

ENVIRONMENT CANADA MEMORANDUM

TO:

G. Trider
Industrial and Shellfish Programs Div.
Environmental Control Branch
Environment Canada, Atlantic Region

FROM:

D. Vaughan
Laboratory Division
Environmental Control Branch
Environment Canada, Atlantic Region

Security Classification	
Our File	Copy Original on File 4705-37/M234
Your File	
Date	August 16, 1989

SUBJECT: BIOASSAY REPORT - ROTHESAY PAPER

Attached in the Bioassay Report for sample No. 89GT009 (Rothesay Paper, final effluent, collected July 5, 1989).

As the report indicates, the sample was acutely lethal to fingerling rainbow trout, yielding a 4-day LC50 value of 7.7% (95% confidence limits 3.2 - 32%).

The cause of the observed mortality is not evident from the chemical analysis results to date.

David Vaughan

D. Vaughan

DV/bb

Attachment

cc: H. Samant
K. Doe
P. Hennebury
R. Parker

AQUATIC TOXICOLOGY LAB

EP, ATLANTIC REGION - BIOASSAY REPORT

SAMPLE INFORMATION:

MATERIAL TESTED: Rothesay Paper, St. John, N.B.

Final Effluent

COLLECTED: 5 July 89 1030 BY: P. Hennebury

SAMPLE NO. 89GT009 LOCATOR CODE: MACROT05

TEST CONDITIONS:

Vol 40 L Duration 96 hr Type X static ___ cont. flow ___ _____ Replacement rate N/A Aeration rate 250 (mL/min)

Control Water Dechlorinated Dart. pH Municipal water X ambient ___ adjusted Started 7 July 89 1700

Test Organism O. mykiss #/Tank 10 Source Merlin's Trout Farm 16 May 89 (tank 8)

Length x ± S.D. (range) cm 5.6 + 0.8(3.7-7.5) n = 60

Weight x ± S.D. (range) g 2.2 + 1.0(0.4-4.8) n = 60 g/L 0.6

RESULTS:

Conc. (%)	T (C) Range	DO(mg/l) Range	pH Range	# Mort/ # exp	LT50 (hr)	95% C.L. S.	REMARKS
100	15 - 16	6.0-10.3	6.4-7.1	10/10	13	9-19% (1.9)	
65	15-15.5	8.2-10.5	6.7-7.1	10/10	13.5	8-22.5% (2.3)	
32	15-15.5	8.7-10.0	6.7-7.0	10/10	10.5	7-15% (1.8)	
10	15 - 15	9.2-10.2	6.8-7.0	7/10	16.5	10-26(2.1)	
3.2	14.5-15.5	9.7-10.4	6.7-7.0	0/10	>96		
Control	14.5-15	10.0-10.6	6.8-7.0	0/10	>96		

96-hour LC50 7.7% (4 day) **95% Conf. Limits** 3.2-32%

Comments: _____

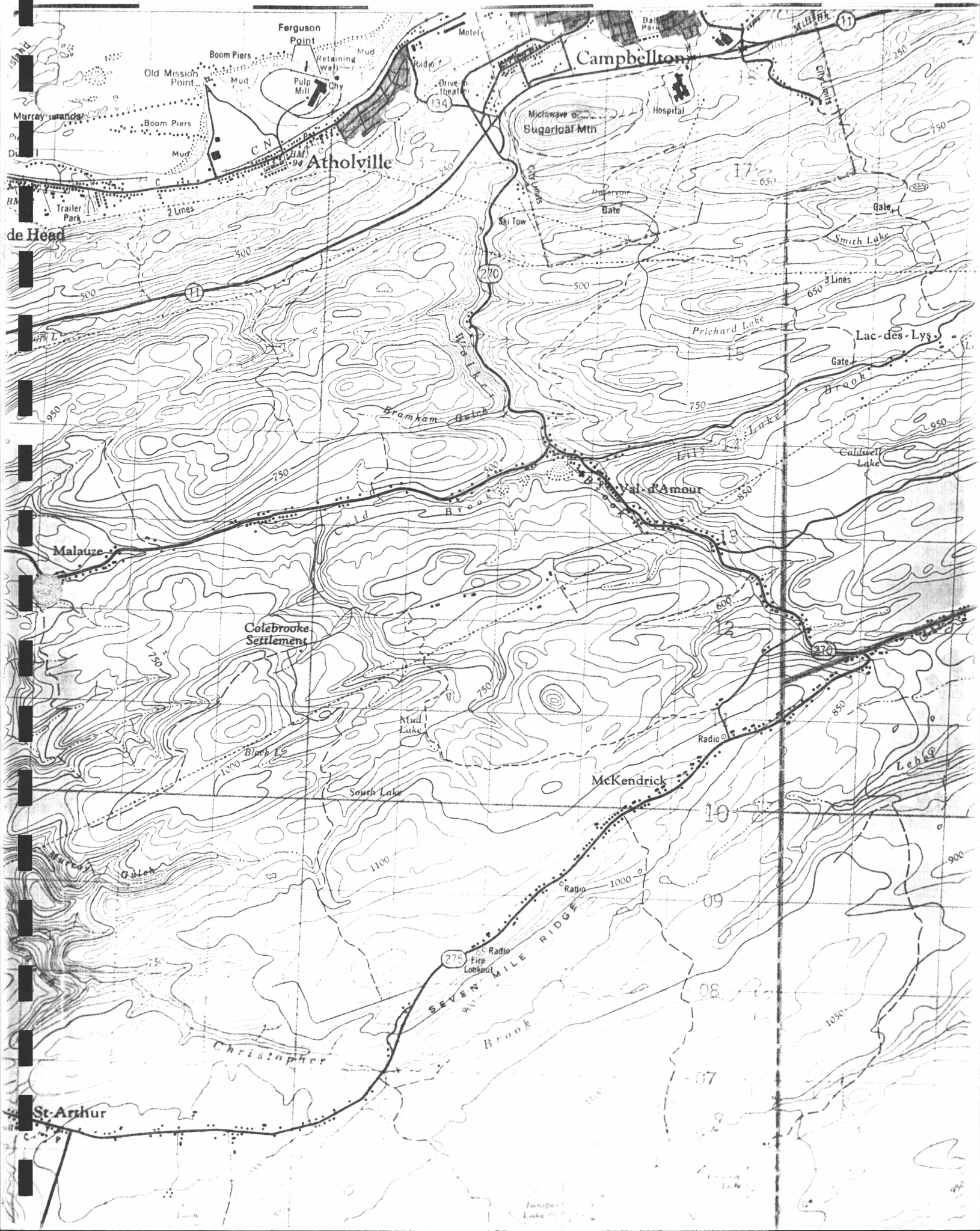
Performed By: D. Vaughan Verified By: S. [illegible] Date: 21 Aug 89

```
**********************************************************************
* 89GT008 - GARTH TRIDER                          STATUS AS OF JUL 17, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: MACROTOS/ROTHESAY PAPER LTD.,SAINT JOHN
                    OUTFALL TO RIVER                              PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  4/ 7/89 (JUL  4, 1989), TIME: 1030, FREQ: 48
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME: 1030

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL TO RIVER

                          ----- SAMPLE ANALYSIS -------
    ..............PARAMETER ..............  ......  VALUE  ......  UNITS
 1: 001 /PH.............................    5.82
 2: 001F/PH.............................    5.7
 3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)...    480.                    MG/L
 4: 020 /SUSPENDED SOLIDS (SS)..........    160.                    MG/L
```

```
**********************************************************************
* 89GT007 - GARTH TRIDER                          STATUS AS OF JUL 17, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: MACROTO4/ROTHESAY PAPER LIMITED,SAINT JOHN
                    EFFLUENT FROM CLARIFIER                    PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  4/ 7/89 (JUL  4, 1989), TIME:  700, FREQ: 48
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME:  700

DEPTH:    .00 METERS, TIDE:
NARRATIVE: CLARIFIER OUTLET (COMPANY SAMPLER )

                          ---- SAMPLE ANALYSIS ----
    ..............PARAMETER ............. ...... VALUE ....... UNITS
 1: 001 /PH,.............................  5.88
 2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  460.                  MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  120.                  MG/L
```

```
**********************************************************************
* 89GT006 - GARTH TRIDER                          STATUS AS OF JUL 17, 1989 *

REGISTERED ON: JUL  6, 1989,  BY :PHIL H

LOCATOR: MACROTO3/ROTHESAY PAPER LIMITED,SAINT JOHN
                  INFLUENT TO CLARIFIER                          PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE:  4/ 7/89 (JUL  4, 1989), TIME:  700, FREQ: 48
SAMPLING ENDED, DATE:  5/ 7/89 (JUL  5, 1989), TIME:  700

DEPTH:    .00 METERS, TIDE:
NARRATIVE: INLET TO CLARIFIER (COMPANY SAMPLER )

                        ----- SAMPLE ANALYSIS -----
    ............PARAMETER ............ ...... VALUE ...... UNITS
 1: 001 /PH.............................  5.86
 2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  680.                MG/L
 3: 020 /SUSPENDED SOLIDS (SS).........  1280.                MG/L
```

S


Ferguson Point
Boom Piers
Retaining Wall
Mud
Old Mission Point
Pulp Mill
Chy
Motel
Radio
Campbellton
Drive-in theatre
Microwave
Sugarloaf Mtn
Hospital
Murray Meadows
Boom Piers
Mud
C N
Atholville
Trailer Park
2 Lines
de Head
Ski Tow
Reservoir
Gate
Smith Lake
3 Lines
Prichard Lake
Lac-des-Lys
Walker Brook
Bramham Gutch
Lake
Caldwell Lake
Val-d'Amour
Cold Brook
Malauze
Colebrooke Settlement
Mud Lake
Black Ls
South Lake
McKendrick
Lehe
Radio
Fire Lookout
SEVEN MILE RIDGE
Christopher Brook
St-Arthur
11
134
270
275

LAB NUMBER(S): 89PH071-072

****

* 89PH071 - PHIL HENNEBURY STATUS AS OF MAR 6, 1990 *

REGISTERED ON: AUG 13, 1989, BY :PHIL H

LOCATOR: SQUARD01/SQUARE D
FINAL EFFLUENT PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 9/ 8/89 (AUG 9, 1989), TIME: 1330, FREQ: 1
SAMPLING ENDED, DATE: 9/ 8/89 (AUG 9, 1989), TIME: 1330

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.17	
2:	020 /SUSPENDED SOLIDS (SS)	L5.	MG/L
3:	029 /CYANIDE (CN)	L0.013	MG/L
4:	029H/CYANIDE(OXIDIZABLE)	L0.13	MG/L
5:	046 /CADMIUM (TOTAL)	0.004	MG/L
6:	047 /CHROMIUM (TOTAL)	0.016	MG/L
7:	048 /COPPER (TOTAL)	0.023	MG/L
8:	051 /LEAD (TOTAL)	0.054	MG/L
9:	054 /ZINC (TOTAL)	1.51	MG/L
10:	159 /NICKEL (TOTAL)	6.36	MG/L

****

* 89PH072 - PHIL HENNEBURY STATUS AS OF MAR 6, 1990 *

REGISTERED ON: AUG 13, 1989, BY :PHIL H

LOCATOR: SQUARD02/SQUARE D
RAW INFLUENT PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 9/ 8/89 (AUG 9, 1989), TIME: 1330, FREQ: 1
SAMPLING ENDED, DATE: 9/ 8/89 (AUG 9, 1989), TIME: 1330

DEPTH: .00 METERS, TIDE:
NARRATIVE:

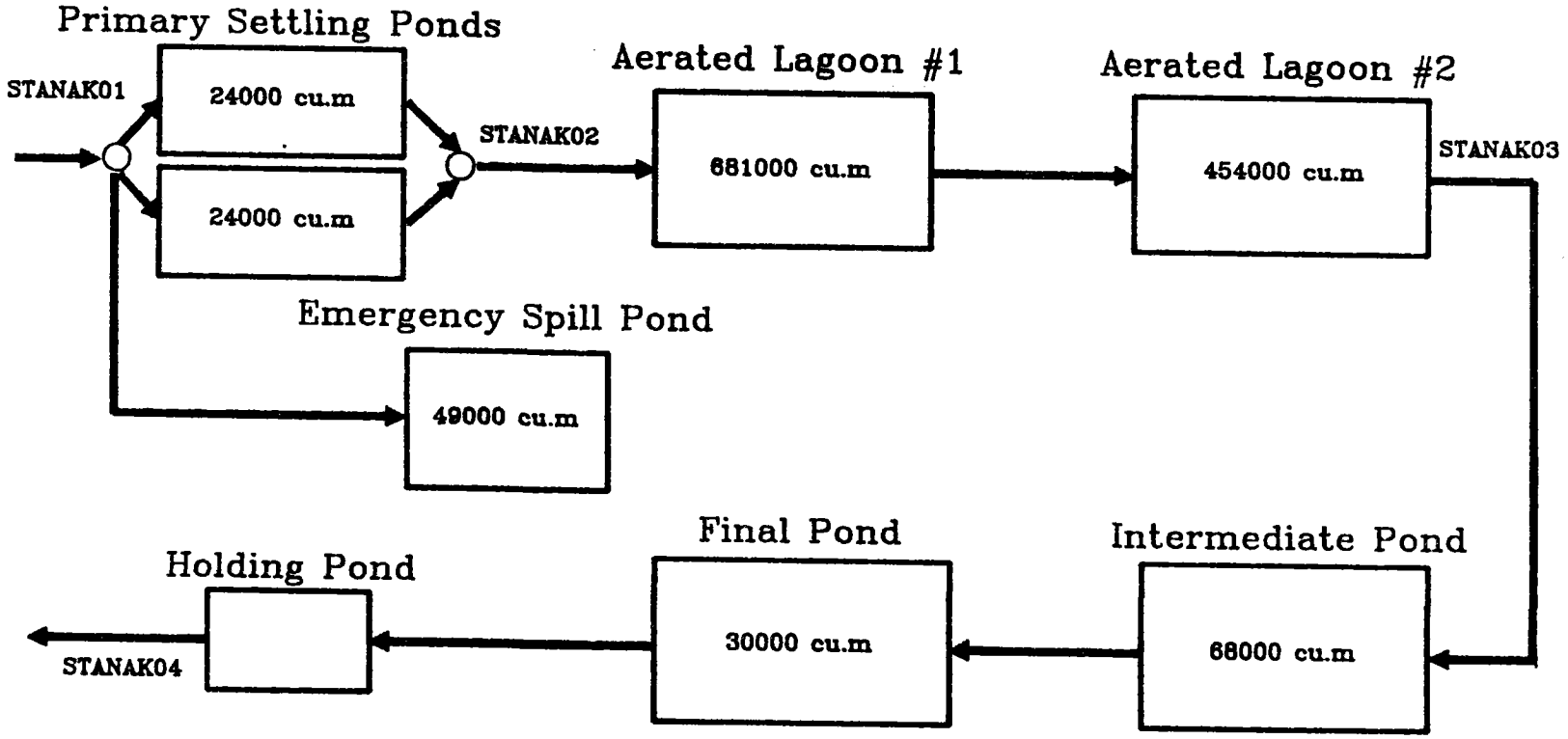
---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	7.56	
2:	020 /SUSPENDED SOLIDS (SS)	17.	MG/L
3:	029 /CYANIDE (CN)	L0.013	MG/L
4:	029H/CYANIDE(OXIDIZABLE)	L0.13	MG/L
5:	046 /CADMIUM (TOTAL)	0.003	MG/L
6:	047 /CHROMIUM (TOTAL)	0.006	MG/L
7:	048 /COPPER (TOTAL)	0.117	MG/L
8:	051 /LEAD (TOTAL)	0.037	MG/L
9:	054 /ZINC (TOTAL)	1.84	MG/L
10:	159 /NICKEL (TOTAL)	5.99	MG/L

St. Anne–Nackawic Pulp & Paper Co. Ltd.

Nackawic, N.B.

Waste Treatment System



STANAK

```
**********************************************************************
* 89PK011 - PAUL KLAAMAS                          STATUS AS OF OCT 27, 1989 *

REGISTERED ON: APR 22, 1989,  BY :PHIL H

LOCATOR: STANAK04/ST.ANNE-NACKAWIC P&P INC.,NACKAWIC
                  FINAL EFFLUENT                                  PROV: NB
NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
                 201,235,236,278C,310,421,500,688,689,690
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 21/ 4/89 (APR 21, 1989), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 21/ 4/89 (APR 21, 1989), TIME: 1100

DEPTH:    .00 METERS, TIDE:
NARRATIVE: FINAL

*****
***** WARNING:  THIS INFORMATION HAS NOT YET BEEN VERIFIED!
*****

                          ---- SAMPLE ANALYSIS ----
    .............PARAMETER ..... ..... VALUE ..... UNITS
 1: 001 /PH.....................  7.07
 2: 001F/PH.....................  6.9
 3: 002F/TEMPERATURE............  13.                    DEGREES C.
 4: 011 /RESIN ACIDS (RAS)..... TO BE COMPLETED
 5: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..  20.            MG/L
 6: 016 /CHEMICAL OXYGEN DEMAND (COD)..  313.           MG/L
 7: 020 /SUSPENDED SOLIDS (SS).....  28.                MG/L
 8: 028 /AMMONIA-N (NH3-N).....  0.41                   MG/L
 9: 046 /CADMIUM (TOTAL)..... L0.01                     MG/L
10: 048 /COPPER (TOTAL)..... L0.01                      MG/L
11: 050 /MERCURY (TOTAL).....  0.00110                  MG/L
12: 054 /ZINC (TOTAL).....  0.04                        MG/L
13: 084 /PHOSPHATE PHOSPHORUS TOTAL.... TO BE COMPLETED
14: 086 /SULFIDE..... L0.16                             MG/L
15: 129 /NITROGEN, TOTAL KJELDAHL.....  3.1             MG/L
16: 157 /PENTACHLOROPHENOL..... TO BE COMPLETED
17: 162 /ALUMINUM (TOTAL).....  2.19                    MG/L
18: 172 /2,3,5,6-TETRACHLOROPHENOL..... TO BE COMPLETED
19: 201 /BERYLLIUM ..... L0.01                          MG/L
20: 235 /2,3,4,6 - TETRACHLOROPHENOL .. TO BE COMPLETED
21: 236 /2,3,4,5 - TETRACHLOROPHENOL .. TO BE COMPLETED
22: 278C/FLOW.....  73073.                              CU M/DAY
23: 417 /BOD 5 (DEPOSIT RATE).....  2.0                 KG/TONNE
24: 418 /SS (DEPOSIT RATE).....  2.8                    KG/TONNE
25: 421 /PRODUCTION  742.8                              TONNES/DAY
26: 500 /BIOASSAY ..... "DONE"
27: 650 /SS(DEPOSIT RATE)  2046.                        KG/DAY
28: 651 /BOD(DEPOSIT RATE)  1461.                       KG/DAY
29: 688 /2,4,6 TRICHLOROPHENOL TO BE COMPLETED
30: 689 /TETRACHLOROGUAIACOL TO BE COMPLETED
31: 690 /TETRACHLOROCATECHOL TO BE COMPLETED
```

****
* 89PK010 - PAUL KLAAMAS STATUS AS OF MAY 25, 1989 *

REGISTERED ON: APR 22, 1989, BY :PHIL H

LOCATOR: STANAK02/SI:ANNC-NACKAWIC P&P INC.,NACKAWIC
EFFLUENT FROM SETTLING POND PROV: NB
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 20/ 4/89 (APR 20, 1989), TIME: 1300, FREQ: 48
SAMPLING ENDED, DATE: 21/ 4/89 (APR 21, 1989), TIME: 1300

DEPTH: .00 METERS, TIDE:
NARRATIVE: NONE

---- SAMPLE ANALYSIS ----

	PARAMETER	VALUE	UNITS
1:	001 /PH	6.54	
2:	001F/PH	6.5	
3:	002F/TEMPERATURE	30.	DEGREES C.
4:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	230.	MG/L
5:	020 /SUSPENDED SOLIDS (SS).....	60.	MG/L

Environment Canada Environnement Canada

MEMORANDUM NOTE DE SERVICE

DATE
May 10, 1989

Our file Notre reference
4705-37/S309

Your file Votre reference
YOUR COPY
Original on File 4705-37/S309

FROM: / DE:
J. David Vaughan
A/Project Biologist
Laboratory Division
Environment Canada, Atlantic Region

TO: / À:
G. L. Trider
Head, Pulp and Paper and Forest Products
Air and Water Branch
Environment Canada, Atlantic Region

SUBJECT: / SUJET:
Bioassay Results - St. Anne-Nackawic

On April 21, 1989, Phil Hennebury collected a sample of final effluent from the St. Anne Nackawic Pulp and Paper Company in Nackawic, New Brunswick.

On April 24, 1989, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 3.6 g as the test organism.

The effluent was non-acutely lethal to the test fish.

A copy of the Bioassay Report is attached which provides additional test details.

J. David Vaughan

JDAV/bb

Attachment

cc: P. Hennebury
H. Samant
K. Doe
R. Parker

T