

ENVIRONMENT CANADA
MONITORING PROGRAM DATA
NEW BRUNSWICK
FISCAL YEAR 1987/88

VOLUME - I

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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 E.P. work plans and to the joint monitoring program of the Federal Department of Environment and the New Brunswick Department of Environment for the fiscal year 1987/88.

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 recieved 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 break down of industries monitored are as follows:

Type of Industry	Completed Surveys	Legal Surveys	Unscheduled Surveys
Textile	0		
Mining	12	1	
Chlor alkali	1		
Metal finishers	2		
Refineries	1		
Wood preservers	0		
Pulp and Paper	9		
Federal Facilities	5		
Food processing	9		1
Power Corporation	0		
Peat moss			3
Fertilizer	1		
Receiving water			1
Ore Smelters	1		
Ore loading	1		

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- (A) Anaconda Caribou Mine
Atlantic Galvinizers
- (B) Belledune Fertilizer
Brunswick Mining - Belledune Smelter (2 surveys)
Brunswick #6
Brunswick #12
- (C) Canadian Industries Ltd., Dalhousie
C.F.B. Gagetown, (Blue Mountain)
Consolidated Bathurst
- (D) Dalhousie Harbour
Dennison Mines
- (E)
- (F) Fraser Atholville
- (G) Gordex Gold Mine (2 surveys)
- (H) Heath Steele
Hub Meat Packers (3 surveys) (3 days)
Humpty Dumpty Foods (3 surveys) (3 days)
- (I) Irving Oil Refinery
Irving Pulp and Paper
- (J)
- (K)
- (L) Lake George Antimony (2 surveys)
Lake Utopia Pulp and Paper
- (M) McCain's, Florenceville (3 surveys) (3 days)
Miramichi Pulp and Paper, Nelson
Miramichi Pulp and Paper, Newcastle
Mount Pleasant Mine
- (N) N.B. Coal, Minto
N.B.I.P. Forest Products
Northumberland Mines
- (O)
- (P) Potash Company of America
- (Q)
- (R) Rothesay Paper Limited

1	472423	654923	BRUNSWICK MINING & SMELTING 6	BATHURST	NB	BASE METAL
1	450045	632500	NATIONAL GYPSUM	MILFORD STATION	NS	BASE METAL
1	462000	605600	LITTLE NARROWS	LITTLE NARROWS	NS	BASE METAL
1	454800	611300	GEORGIA PACIFIC RIVER DENYS	RIVER DENYS	NS	BASE METAL
1	454130	611900	GEORGIA PACIFIC SUGAR CAMP L.	RIVER DENYS	NS	BASE METAL
1	454345	602600	STIRLING	STIRLING	NS	BASE METAL
1	451140	655445	GORDEX	CAPE SPENCER	NB	BASE METAL
1	454820	603230	KAISER MILL	LAKE ENON	NS	BASE METAL
1	451620	631430	NYSTONE MINE	UPPER BROOKFIELD	NS	BASE METAL
1	440630	654200	RIO ALGOM TIN MINE	EAST-KEMPTVILLE	NS	BASE METAL
1	454730	603730	NOVEX MINE	LAKE ENON	NS	BASE METAL
1	445900	640500	FUNDY GYPSUM	WINDSOR	NS	BASE METAL
1	472837	655248	BRUNSWICK MINING & SMELTING 12	BATHURST	NB	BASE METAL
1	452528	664914	MOUNT PLEASANT	ST GEORGE	NB	BASE METAL
1	455058	670209	LAKE GEORGE ANTIMONY	FREDERICTON	NB	BASE METAL
1	473344	661717	ANACONDA CARIBOU MINE	BATHURST	NB	BASE METAL
1	495500	561000	ADVOCATE MINES LTD.	BAIE VERTE	NB	BASE METAL
1	480330	662246	BM&S ORE LOADING FACILITY	DALHOUSIE	NB	BASE METAL
1	471729	660413	HEATH STEELE	NEWCASTLE	NB	BASE METAL
1	474412	654812	NIGADOO RIVER MINE	NIGADOO	NB	BASE METAL
0	445230	633108	HALIFAX INTERNATIONAL AIRPORT	HALIFAX COUNTY	NS	BASE METAL
1	455134	602438	YAVA MINES--MINE	CAPE BRETON	NS	BASE METAL
99	450010	632033	GAYS RIVER MILL	GAYS RIVER	NS	BASE METAL
99	445507	632943	OLDHAM	OLDHAM	NS	BASE METAL
99	444250	633111	MONTAGUE	MONTAGUE	NS	BASE METAL
99	450404	624334	BEAVER DAM	BEAVER DAM	NS	BASE METAL
99	451845	614520	FOREST HILLS	FOREST HILLS	NS	BASE METAL
99	450330	625630	CARIBOU	CARIBOU MINES	NS	BASE METAL
99	451500	620030	COCHRANE HILL	SHERBROOKE	NS	BASE METAL
99	450720	620110	GOLDENVILLE	SHERBROOKE	NS	BASE METAL
1	490900	552100	ORE LOADIG, BOTWOOD, ASARCO	UNKNOWN	NFLD	BASE METAL
1	500700	573700	NEWFOUNDLAND ZINC MINES LTD	DANIELS HARBOUR	NFLD	BASE METAL
0	443827	633231	DARTMOUTH ORE LOADING-GAYSMN	DARTMOUTH	NS	BASE METAL
1	485000	565200	AMERICAN SMELTING AND REFINING	BUCHANANS	NFLD	BASE METAL
2	4516	6603	MOOSEHEAD BREWERIES LIMITED	SAINT JOHN	NB	BREWERIES
2	4516	6603	LABATT'S NEW BRUNSWICK BREWERY	SAINT JOHN	NB	BREWERIES
2	455845	633642	OLAND BREWERIES LIMITED	HALIFAX	NS	BREWERIES
2	44200	633621	MOOSEHEAD BREWERIES LIMITED	DARTMOUTH	NS	BREWERIES
28	452054	631736	CROSSLEY KARASTAN CARPET MILLS	TRURO	NS	CARPET
3	4516	6603	T.DONOVAN & SON LIMITED	SAINT JOHN	NB	CHEMICAL
3	4522	6316	MUSKOL LIMITED	TRURO	NS	CHEMICAL
3	4440	6334	HOWARD INDUSTRIES LIMITED	DARTMOUTH	NS	CHEMICAL
4	480400	662412	CANADIAN INDUSTRIES LTD.	DALHOUSIE	NB	CHLORALKALI
4	451530	660530	IRVING OIL LTD. (REFINING DIVI	SAINT JOHN	NB	CHLORALKALI
4	453924	6243006	CANSO CHEMICALS LTD.	NEW GLASGOW	NS	CHLORALKALI
4	443812	603212	IMPERIAL OIL ENTERPRISES LTD.	EASTERN PASSAGE	NS	CHLORALKALI
4	453435	612030	GULF CANADA LTD.	PORT HAWKESBURY	NS	CHLORALKALI
4	4440	6334	TEXACO CANADA	DARTMOUTH	NS	CHLORALKALI
5	4703	6744	J.M.L. SHIRT LIMITED	GRAND FALLS	NB	CLOTHING
5	4544	6352	STANFIELD'S LIMITED	TRURO	NS	CLOTHING
5	4350	6607	BONDA TEXTILES LIMITED	YARMOUTH	NS	CLOTHING
5	443754	633406	DOVER MILLS LIMITED	HALIFAX	NS	CLOTHING
5	4440	6334	HELLY-HANSEN (CANADA) LIMITED	DARTMOUTH	NS	CLOTHING
5	452203	631642	STANFIELD'S LIMITED	TRURO	NS	CLOTHING
5	445847	652403	NOVA SCOTIA TEXTILES LIMITED	WINDSOR	NS	CLOTHING
6	461046	655600	N.B. COAL WASH PLANT	MINTO	NB	COAL MINE
6	460522	645047	COMBUSTION ENGINEERING SUPERHE	MONCTON	NB	COAL MINE
6	460415	655200	RANGE (7200) MINE	MINTO	NB	COAL MINE
6	460624	660500	EIGHTEEN BROOK NORTH (7400/500	MINTO	NB	COAL MINE
6	461000	600100	DEVCO LINGAN PHALEN STRIP MINE	CAPE BRETON	NS	COAL MINE
1	475309	655016	BM&S LEAD SMELTER	BELLEDUNE	NB	BASE METAL
6	454152	642217	RIVER HERBERT COAL COMPANY	RIVER HERBERT	NS	COAL MINE
6	461154	595654	QUARRY POINT (FORMERLY #4 COLL	SYDNEY	NS	COAL MINE
6	461745	601606	ALDER POINT RECLAMATION AREA	SYDNEY	NS	COAL MINE

6	461820	601830 NOVACO LTD.	CAPE BRETON	NS	COAL MINE
6	464500	601330 SELMINCO PRINCESS COAL RECLAMA	SYDNEY MINES	NS	COAL MINE
6	461436	600248 LINGAN COLLIERY	SYDNEY	NS	COAL MINE
6	461506	601324 VICTORIA JUNCTION COAL PREPARA	SYDNEY	NS	COAL MINE
6	461224	600230 GARDINER MINES (FORMERLY \$25 C	SYDNEY	NS	COAL MINE
6	462018	611112 EVANS COAL.	INVERNESS COUNT	NS	COAL MINE
6	461254	600118 DEVCO A-1 MINE	SYDNEY	NS	COAL MINE
6	461500	601315 CAPE BRETON DEV CORP-PRINCESS	SYDNEY MINES	NS	COAL MINE
6	453418	623924 STELLARTON COAL WASH PLANT.	STELLARTON	NS	COAL MINE
6	461500	600600 SELMINCO NEW WATERFORD COAL RE	CAPE BRETON	NS	COAL MINE
6	461148	595648 #26 COLLIERY	SYDNEY	NS	COAL MINE
6	461910	601730 BROGAN BROTHERS EAST STRIP MIN	CAPE BRETON	NS	COAL MINE
6	461124	594921 DEVCO DONKIN MORIEN MINE	CAPE BRETON	NS	COAL MINE
7	4627	6738 CARLETON CO-OPERATIVE LIMITED	FLORENCEVILLE	NB	DAIRIES
7	4800	6640 INTER-CITY DAIRY COMPANY LIMIT	CAMPBELLTON	NB	DAIRIES
7	4731	6723 LAITERIE MARTEL	SAINT-QUENTIN	NB	DAIRIES
7	4516	6603 BRAXCO LIMITED	SAINT JOHN	NB	DAIRIES
7	4606	6447 MCKAY'S DAIRY LIMITED	MONCTON	NB	DAIRIES
7	4516	6603 BAXTER DAIRIES LIMITED	SAINT JOHN	NB	DAIRIES
7	4700	6534 NORTHUMBERLAND CO-OPERATIVE LI	NEWCASTLE	NB	DAIRIES
7	4736	6539 DOUG RONALDS	BATHURST	NB	DAIRIES
7	4609	6735 SUNSHINE DAIRY (1978) LIMITED	WOODSTOCK	NB	DAIRIES
7	4703	6744 BELZILE ENTERPRISES LIMITED	GRAND FALLS	NB	DAIRIES
7	4558	6639 CAPITAL DAIRY FOODS LIMITED	FREDERICTON	NB	DAIRIES
7	4722	6820 CREMERIE BELZILE LTEE.	EDMUNDSTON	NB	DAIRIES
7	4543	6531 BAXTER DAIRIES LIMITED	SUSSEX	NB	DAIRIES
7	4522	6316 BROOKFIELD FOODS LIMITED	TRURO	NS	DAIRIES
7	444401	634230 TWIN CITIES CO-OPERATIVE DAIRY	HAMMONDS PLAINS	NS	DAIRIES
7	4550	6412 SCOTSBURN CO-OPERATIVE SERVICE	AMHERSTD	NS	DAIRIES
7	4339	6340 NEW GLASGOW DAIRYING COMPANY (	HUNTER RIVER	NS	DAIRIES
7	4423	6419 PENINSULA FARM LIMITED	LUNENBURG	NS	DAIRIES
7	4440	6334 TWIN CITIES CO-OPERATIVE DAIRY	DARTMOUTH	NS	DAIRIES
7	452212	631316 PRODUCERS MILK PRODUCTS LIMITE	HALIFAX	NS	DAIRIES
7	4350	6604 COOK'S DAIRY FARM LIMITED	ARCADIA	NS	DAIRIES
7	4522	6316 SCOTSBURN CO-OPERATIVE SERVICE	TRUROTED	NS	DAIRIES
7	4537	6200 EASTERN DAIRY FOODS CO-OPERATI	ANTIGONISH	NS	DAIRIES
7	453912	625118 SCOTSBURN CO-OPERATIVE SERVICE	SCOTSBURN	NS	DAIRIES
7	4339	6340 HEALTH PASTEURIZED MILK COMPAN	HUNTER RIVER	NS	DAIRIES
7	453912	625118 SCOTSBURN CO-OPERATIVE SERVICE	STELLARTON	NS	DAIRIES
7	452212	631316 TWIN CITIES CO-OPERATIVE DAIRY	MIDDLETON	NS	DAIRIES
7	452108	631624 BROOKFIELD FOODS LIMITED	AMHERST	NS	DAIRIES
7	4505	6430 CORNWALLIS DAIRY LIMITED	KENTVILLE	NS	DAIRIES
7	4543	6318 SCOTSBURN CO-OPERATIVE SERVICE	TATAMAGUICHE	NS	DAIRIES
7	4609	6011 MODERN CITY DAIRY LIMITED	SYDNEY	NS	DAIRIES
7	4550	6412 FLETCHER COATES' DAIRY LIMITED	AMHERST	NS	DAIRIES
7	4609	6011 CAPE BRETON DAIRYMENS' CO-OP S	SYDNEY	NS	DAIRIES
7	4440	6334 BAXTER DAIRIES LIMITED	DARTMOUTH	NS	DAIRIES
7	4618	6320 THE WILTSHIRE DAIRYING COMPANY	NORTH WILTSHIRE	PEI	DAIRIES
7	4614	6330 CRAPAUD CREAMERY COMPANY	CRAPAUD	PEI	DAIRIES
7	4649	6404 WEST PRINCE DAIRY (1975) LIMIT	ALBERTON	PEI	DAIRIES
7	4621	6215 SOURIS BUTTERCUP DAIRY	SOURIS	PEI	DAIRIES
7	4624	6347 AMALGAMATED DAIRIES LIMITED	SUMMERSIDE	PEI	DAIRIES
7	4624	6347 IDEAL DAIRY LIMITED	SUMMERSIDE	PEI	DAIRIES
7	4614	6308 PERFECTION FOODS LIMITED	CHARLOTTETOWN	PEI	DAIRIES
7	4614	6308 THE PURE MILK COMPANY	CHARLOTTETOWN	PEI	DAIRIES
7	4624	6347 MAPLE LEAF DAIRY (1973) LIMITE	SUMMERSIDE	PEI	DAIRIES
7	4614	6308 PURITY DAIRY LIMITED	CHARLOTTETOWN	PEI	DAIRIES
7	4605	6253 FEDERAL DAIRYING COMPANY	BELFAST	PEI	DAIRIES
7	4610	6239 MONTAGUE DAIRY LIMITED	MONTAGUE	PEI	DAIRIES
8	464142	645142 ATLANTIC DISTILLERS LTD	RICHEBUCTO	NB	DISTILLERS
8	445039	651743 ACADIAN DISTILLERS LTD.	BRIDGETOWN	NS	DISTILLERS
9	474729	645516 CHANNEL FABRICS LTD.	CARAQUET	NB	FABRIC
9	444421	631401 CANFLOCK INDUSTRIES INC.	CHEZZETCOOK	NS	FABRIC
10	4754	6552 BELLEDUNE FERTILIZER	BELLEDUNE	NB	FERTILIZER

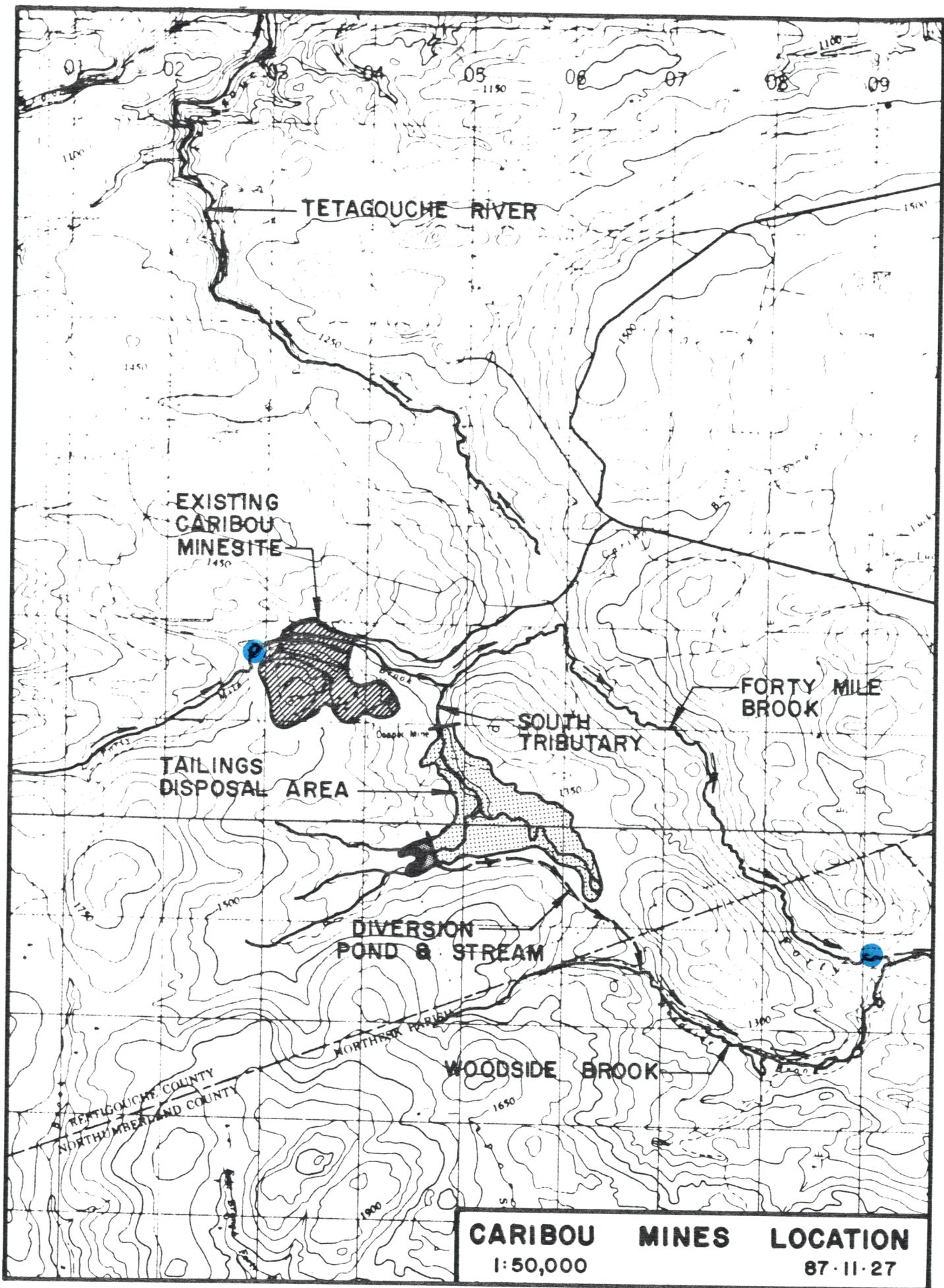
11	442820	640528	KARL KARLSEN & COMPANY LIMITED	NEW HARBOUR PT	NS	FISH WASTE
11	4440	6334	UNITED MARITIME FISHERMEN	DARTMOUTH	NS	FISH WASTE
11	4437	6546	KEITH G. RAYMOND LIMITED	DIGBY	NS	FISH WASTE
11	4327	6538	STODDARD FISHERIES LIMITED	CLARK'S HARBOUR	NS	FISH WASTE
11	434942	660724	KENNEBEC FISHERIES LIMITED	YARMOUTH	NS	FISH WASTE
11	4346	6519	SKANSEN FOOD PACKERS LIMITED	SHELBURNE	NS	FISH WASTE
11	4327	6538	KENNY & ROSS LIMITED	CLARK'S HARBOUR	NS	FISH WASTE
11	433833	654606	SEALIFE FISHERIES LIMITED	MIDDLE EAST PUB	NS	FISH WASTE
11	4440	6354	L. R. MCRAE FISHERIES LIMITED	TANTALLON	NS	FISH WASTE
11	433105	654416	SCOTIA MARINE PRODUCTS LIMITED	LOWER WOODS HAR	NS	FISH WASTE
11	4350	6607	LAURENCE SWEENEY FISHERIES LIM	YARMOUTH	NS	FISH WASTE
11	4327	6538	SABLE FISH PACKERS LIMITED	CLARK'S HARBOUR	NS	FISH WASTE
11	4330	6542	M.A.N. FISHERIES LIMITED	SHAG HARBOUR	NS	FISH WASTE
11	4338	6548	ACADIAN FISH PROCESSORS LIMITE	LOWER WEST PUBN	NS	FISH WASTE
11	4331	6544	MAITLAND SEAFOODS LIMITED	LOWER WOODS HAR	NS	FISH WASTE
11	4330	6542	ALPHEUS HALLIDAY FISHERIES LIM	SHAG HARBOUR	NS	FISH WASTE
11	4423	6612	MCCLAFFERTY & FROST FISHERIES	EAST FERRY	NS	FISH WASTE
11	4545	6210	ARISAIG FISHERIES LIMITED	ARISAIG	NS	FISH WASTE
11	4408	6435	MEDWAY FISHERIES LIMITED	PORT MEDWAY	NS	FISH WASTE
11	4428	6336	B & J FISHERIES	SAMBRO	NS	FISH WASTE
11	4402	6443	MERSEY SEAFOODS LIMITED	LIVERPOOL	NS	FISH WASTE
11	4445	6531	BAY OF FUNDY FISHERIES LIMITED	GRANVILLE FERRY	NS	FISH WASTE
11	4515	6111	MORSE & ZWICKER LIMITED	WHITE HEAD	NS	FISH WASTE
11	4618	6017	BLUENOSE FISHERIES	ALDER POINT	NS	FISH WASTE
11	4613	6015	NATIONAL SEA PRODUCTS LIMITED	NORTH SYDNEY	NS	FISH WASTE
11	4327	6538	C.S.I. FISHERMENS' CO-OP LIMIT	CLARK'S HARBOUR	NS	FISH WASTE
11	455500	595838	NATIONAL SEA PRODUCTS LIMITED	LOUISBOURG	NS	FISH WASTE
11	4330	6529	CAPE ANN SEAFOODS LIMITED	PORT LA TOUR	NS	FISH WASTE
11	4541	6243	NATIONAL SEA PRODUCTS LIMITED	PICTOU	NS	FISH WASTE
11	4437	6546	CASEY FISHERIES LIMITED	DIGBY	NS	FISH WASTE
11	442200	641747	NATIONAL SEA PRODUCTS LIMITED	BATTERY PT	NS	FISH WASTE
11	4336	6546	CHARLESVILLE FISHERIES LIMITED	LOWER EAST PUBN	NS	FISH WASTE
11	442754	660622	NATIONAL SEA PRODUCTS LIMITED	MINK COVE	NS	FISH WASTE
11	4327	6538	CLAREDON S. NICKERSON LIMITED	CLARK'S HARBOUR	NS	FISH WASTE
11	443758	633406	NATIONAL SEA PRODUCTS LIMITED	HALIFAX	NS	FISH WASTE
11	4344	6559	WEDGEPORT MARINE PRODUCTS LIM	WEDGEPORT	NS	FISH WASTE
11	434156	650643	NATIONAL SEA PRODUCTS LIMITED	LOCKEPORT	NS	FISH WASTE
11	4425	6600	SUMMER FISHERIES LIMITED	WEYMOUTH	NS	FISH WASTE
11	4517	6103	NEIL NICKERSON (SUBSID. OF K &	LITTLE DOVER	NS	FISH WASTE
11	4330	6542	SHAG HARBOUR FISHERIES LIMITED	SHAG HARBOUR	NS	FISH WASTE
11	4331	6544	NEIL NICKERSON FISHERIES LIMIT	LOWER WOODS HAR	NS	FISH WASTE
11	4428	6336	SAMBRO SEAFOODS LIMITED	SAMBRO	NS	FISH WASTE
11	4403	6442	NEWMAN B. THERIAULT LIMITED	SANDY COVE	NS	FISH WASTE
11	4525	6405	ADRIEN JOSEPH LEBLANC	LOWER FIVE ISLA	NS	FISH WASTE
11	4356	6451	NICKERSON BROTHERS LIMITED	PORT MOUTON	NS	FISH WASTE
11	4439	6438	ATLANTIC FISH SPECIALTIES LIM	PARKDALE	NS	FISH WASTE
11	4346	6519	NORTH ATLANTIC FISH PACKERS	SHELBURNE	NS	FISH WASTE
11	4422	6603	BELLIVEAU'S SEA FOODS LIMITED	BELLIVEAU COVE	NS	FISH WASTE
11	4613	6015	NORTH SYDNEY SEAFOODS LIMITED	NORTH SYDNEY	NS	FISH WASTE
11	443734	654511	CANPOL FISHERIES LIMITED	DIGBY	NS	FISH WASTE
11	4402	6443	NOVA-VAN FISHERY LIMITED	LIVERPOOL	NS	FISH WASTE
11	4402	6443	CHANDLER BROTHERS LIMITED	LIVERPOOL	NS	FISH WASTE
11	4423	6612	PASSAGE FISHERIES LIMITED	EAST FERRY	NS	FISH WASTE
11	4444	6340	CLEARWATER LOBSTER LIMITED	BEDFORD	NS	FISH WASTE
11	4600	5951	PETER A. MULLINS PROVISION MERC	MAIN-A-DIEU	NS	FISH WASTE
11	4411	6610	ST. MARY'S BAY FISHERIES LIMITE	METEGHAN	NS	FISH WASTE
11	4342	6507	PIERCE FISHERIES LIMITED	LOCKEPORT	NS	FISH WASTE
11	4416	6608	A. W. H. ENTERPRISES LIMITED	SAULNIERVILLE	NS	FISH WASTE
11	4423	6613	PIRATE COVE FISHERIES LIMITED	TIVERTON	NS	FISH WASTE
11	4330	6542	B. & E. BANKS FISHERIES LIMITED	SHAG HARBOUR	NS	FISH WASTE
11	4417	6619	POINT FISHERIES LIMITED	FREEPORT	NS	FISH WASTE
11	4328	6534	CAPE LIGHT CO-OPERATIVE LIMITE	STONE ISLAND	NS	FISH WASTE
11	434909	655547	POLAR BEAR FISHERIES LIMITED	PORT JOLI	NS	FISH WASTE
11	4437	6546	W. J. ROSS FISHERIES	DIGBY	NS	FISH WASTE

11	4330	6541 R. & D. NICKERSON FISH PRODUCTS	LOWER SHAG HARB	NS	FISH WASTE
11	4638	6101 CHETICAMP FISHERMENS' CO-OP SO	CHETICAMP	NS	FISH WASTE
11	435619	660906 C. & A. BAIN FISHERIES LIMITED	YARMOUTH	NS	FISH WASTE
11	4439	6336 SEAGLOBE INC.	HALIFAX	NS	FISH WASTE
11	4348	6553 RALPH CROWELL EEL PROCESSOR	GLENWOOD	NS	FISH WASTE
11	4637	6355 BURLEIGH BROTHERS	EAST BIDEFORD	PEI	FISH WASTE
11	4621	6215 SOURIS SEAFOODS LIMITED	SOURIS	PEI	FISH WASTE
11	4632	6341 MALPEQUE FISHERMENS' CO-OP ASS	MALPEQUE	PEI	FISH WASTE
11	4615	6342 ISLAND SEAFOODS LIMITED	BORDEN	PEI	FISH WASTE
11	4636	6357 FREELAND OYSTER CO-OP ASSOCIAT	ELLERSLIE	PEI	FISH WASTE
11	4636	6357 SMITH BROTHERS	ELLERSLIE	PEI	FISH WASTE
11	4614	6308 NATIONAL SEA PRODUCTS LIMITED	CHARLOTTETOWN	PEI	FISH WASTE
11	4649	6404 ALBERTON FISHERIES LIMITED	ALBERTON	PEI	FISH WASTE
11	4624	6347 NATIONAL SEA PRODUCTS LIMITED	SUMMERSIDE	PEI	FISH WASTE
11	4636	6357 INVERNESS OYSTER CO-OP	ELLERSLIE	PEI	FISH WASTE
11	4614	6308 BOATES (P.E.I.) LIMITED	CHARLOTTETOWN	PEI	FISH WASTE
11	4610	6239 MACDONALD & GRAHAM INC.	MONTAGUE	PEI	FISH WASTE
11	4622	6330 CARR'S LOBSTER POUND	BREADALBANE	PEI	FISH WASTE
11	4657	6402 TIGNISH FISHERIES CO-OP ASSOCI	TIGNISH	PEI	FISH WASTE
11	4653	6414 EDWARD J. GALLANT & SONS LIMITE	MIMINEGASH	PEI	FISH WASTE
11	4600	6231 MURRAY HARBOUR SEAFOODS LIMITE	MURRAY HARBOUR	PEI	FISH WASTE
11	4611	6232 GEORGETOWN PACKERS LIMITED	GEORGETOWN	PEI	FISH WASTE
11	4621	6215 UNITED MARITIME FISHERMEN	SOURIS	PEI	FISH WASTE
11	4625	6242 INTERNATIONAL SEAFOODS LIMITED	MORELL	PEI	FISH WASTE
11	4625	6242 BABINEAU FISHERIES LIMITED	MORELL	PEI	FISH WASTE
11	4614	6308 MERMAID SEA PRODUCTS LIMITED	CHARLOTTETOWN	PEI	FISH WASTE
11	4621	6215 USEN FISHERIES LIMITED	SOURIS	PEI	FISH WASTE
11	4624	6347 NEW HORIZONS LIMITED	SUMMERSIDE	PEI	FISH WASTE
11	4614	6308 DEBLOIS LIKELY LIMITED	CHARLOTTETOWN	PEI	FISH WASTE
11	4632	6341 NDRTH SHORE PACKING COMPANY LI	MALPEQUE	PEI	FISH WASTE
11	4614	6308 W.B. JOSEY	CHARLOTTETOWN	PEI	FISH WASTE
11	4610	6239 P.E.I. MUSSEL KING INC.	MONTAGUE	PEI	FISH WASTE
11	4611	6232 GEORGETOWN SEAFOODS LIMITED	GEORGETOWN	PEI	FISH WASTE
11	4614	6308 KENNIE MACWILLIAMS SEAFOODS	CHARLOTTETOWN	PEI	FISH WASTE
11	4610	6239 WENDELL GRAHAM LIMITED	MONTAGUE	PEI	FISH WASTE
11	4616	6310 NORTHUMBERLAND SEAFOODS LIMITE	WEST ROYALTY	PEI	FISH WASTE
11	4627	6319 NORTH RUSTICO FISHERMAN'S CO-O	NORTH RUSTICO	PEI	FISH WASTE
11	4624	6347 POLAR QUICK FREEZING COMPANY L	SUMMERSIDE	PEI	FISH WASTE
11	4600	6231 KEEPING AND MACKAY LIMITED	MURRAY HARBOUR	PEI	FISH WASTE
12	4516	6603 BROOKE BOND INC.	SAINT JOHN	NB	FOOD PROC
12	450900	642415 G.E. BARBOUR COMPANY LIMITED	SUSSEX	NB	FOOD PROC
12	4516	6603 CROSBY MOLASSES COMPANY LIMITE	SAINT JOHN	NB	FOOD PROC
12	4516	6603 CHAN FOODS PRODUCTS LIMITED	SAINT JOHN	NB	FOOD PROC
12	470222	674439 PIRIE POTATO COMPANY LIMITED	GRAND FALLS	NB	FOOD PROC
12	450900	642415 MIC MAC EGG PROCESSORS LIMITED	PORT WILLIAMS	NS	FOOD PROC
12	443824	634122 W.H. SCHWARTZ AND SONS LIMITED	HALIFAX	NS	FOOD PROC
12	461746	673106 HUMPTY-DUMPTY FOODS LIMITED	HARTLAND	NS	FOOD PROC
12	450430	642524 HOSTESS FOOD PRODUCTS LIMITED	KENTVILLE	NS	FOOD PROC
13	462657	673648 MCCAIN FOODS LIMITED	FLORENCEVILLE	NB	FRUIT-VEG
13	4606	6447 CLOVER PRODUCE LIMITED	MONCTON	NB	FRUIT-VEG
13	470344	647635 MCCAIN FOODS LIMITED	GRAND FALLS	NB	FRUIT-VEG
13	450520	642242 CANVIN PRODUCTS LIMITED KENT F	WOLFVILLE	NS	FRUIT-VEG
13	450600	642418 AVON FOODS LIMITED	PORT WILLIAMS	NS	FRUIT-VEG
13	4506	6425 AVON FOODS LIMITED	PORT WILLIAMS	NS	FRUIT-VEG
13	454412	635212 OXFORD FROZEN FOODS LIMITED	OXFORD	NS	FRUIT-VEG
13	450841	642451 M.W. GRAVES & COMPANY	HILLATON	NS	FRUIT-VEG
13	4539	6403 CAVENDISH FARMS	SPRINGHILL	NS	FRUIT-VEG
13	450404	643448 SCOTIAN GOLD CO-OPERATIVE LIMI	KENTVILLE	NS	FRUIT-VEG
13	450444	643019 M.W. GRAVES & COMPANY	KENTVILLE	NS	FRUIT-VEG
13	450239	644318 M.W. GRAVES & COMPANY	BERWICK	NS	FRUIT-VEG
13	4620	6342 CAMPBELL & BURNS LIMITED	CENTRAL BEDEQUE	PEI	FRUIT-VEG
13	462527	634059 CAVENDISH FARMS LIMITED	SUMMERSIDE	PEI	FRUIT-VEG
39	460948	595724 ATOMIC ENERGY OF CANADA LTD.	GLACE BAY	NS	HEAVY WATER
39	452106	612106 ATOMIC ENERGY OF CANADA LTD.	PORT TUPPER	NS	HEAVY WATER

14	444902	652004	BRITEX LIMITED	BRIDGETOWN	NS	INDUSTRIAL
15	450303	644504	LARSEN PACKERS LIMITED	BERWICK	NB	MEAT-POULTRY
15	474006	650650	SALAISSON GAUVIN 1976 LIMITEE	PAQUETVILLE	NB	MEAT-POULTRY
15	471431	624243	NADEAU POULTRY FARM LIMITED	SAINT-FRANCOIS-	NB	MEAT-POULTRY
15	4543	6531	SUSSEX POULTRY DIVISION OF CAN	SUSSEX	NB	MEAT-POULTRY
15	460423	645015	HUB MEAT PACKERS LIMITED	MONCTON	NB	MEAT-POULTRY
15	4543	6531	SUSSEX CONCENTRATE LIMITED	SUSSEX	NB	MEAT-POULTRY
15	455439	663648	CHIPPIN BROTHERS LIMITED	FREDERICTON	NB	MEAT-POULTRY
15	450754	642708	CANADA PACKERS LTD CANARD POUL	KENTVILLE	NS	MEAT-POULTRY
15	4522	6316	MARITIME PROCESSING COMPANY LI	TRURO	NS	MEAT-POULTRY
15	4609	6011	GAINERS INC.	SYDNEY	NS	MEAT-POULTRY
15	445928	643152	F.DANSART CONCENTRATES LIMITED	KENTVILLE	NS	MEAT-POULTRY
15	4505	6430	EASTERN PROTEIN FOODS LIMITED	KENTVILLE	NS	MEAT-POULTRY
15	450900	642415	O.H.ARMSTRONG LIMITED	KINGSTON	NS	MEAT-POULTRY
15	450454	642500	A.C.A.CO-OPERATIVE ASSOCIATION	NEW MINAS	NS	MEAT-POULTRY
15	4618	6311	ISLAND MEAT PACKERS LIMITED	WINSLOE	PEI	MEAT-POULTRY
15	461427	630700	CANADA PACKERS LIMITED	CHARLOTTETOWN	PEI	MEAT-POULTRY
16	472212	681927	SQUARE D COMPANY OF CANADA LIM	EDMUNSTON	NB	METAL FINISH
16	445248	633112	IMP AEROSPACE LIMITED	DARTMOUTH	NS	METAL FINISH
16	444200	633610	SIVACO MARITIMES LTD.	DARTMOUTH	NS	METAL FINISH
16	444036	633606	ZENITH PLATING MARITIME LTD.	DARTMOUTH	NS	METAL FINISH
16	454848	641306	AEROVOX CANADA LTD.	AMHERST	NS	METAL FINISH
16	444036	633606	ATL HARDCHROME & CRANKSHAFT RE	DARTMOUTH	NS	METAL FINISH
16	454935	641300	ENHEAT INC.	AMHERST	NS	METAL FINISH
16	460900	601406	INTERNAV LIMITED	SYDNEY	NS	METAL FINISH
16	443835	633235	HERMES ELECTRONICS LTD.	DARTMOUTH	NS	METAL FINISH
16	454950	641140	ATLANTIC GALVANIZERS LTD.	AMHERST	NS	METAL FINISH
43	4537	6238	TIBBETS PAINT LTD.	TRENTON	NS	PAINT
17	451630	600145	COURTENAY BAY GENERATING STATI	SAINT JOHN	NB	POWER GEN
17	450329	662742	POINT LEPREAU GENERATING STATI	ST JOHN	NB	POWER GEN
17	450920	661154	COLESON COVE GENERATING STATIO		NB	POWER GEN
17	470210	652757	CHATHAM GENERATING STATION		NB	POWER GEN
17	480310	662230	DALHOUSIE GENERATING STATION		NB	POWER GEN
17	461020	595710	GLACE BAY GENERATING STATION		NS	POWER GEN
17	454310	641600	MACAAN GENERATING STATION		NS	POWER GEN
17	443828	633354	WATER STREET GENERATING STATIO	HALIFAX	NS	POWER GEN
17	453720	623900	TRENTON GENERATING STATION	TRENTON	NS	POWER GEN
17	460328	660010	GRAND LAKE GENERATING STATION		NS	POWER GEN
17	444050	633600	NSPC TUFT'S COVE	DARTMOUTH	NS	POWER GEN
17	461355	600230	LINGAN GENERATING STATION		NS	POWER GEN
17	453516	612109	POINT TUPPER GENERATING STATIO	PORT TUPPER	NS	POWER GEN
17	461427	630700	CH'TN GENERATING STATION		PEI	POWER GEN
18	465824	653312	ACADIA FOREST PRODUCTS LTD.	NELSON-MIRAMICH	NB	PULP MILL
18	460000	671300	ST-ANNE-NACKAWIC PULP AND PAPE	NACKAWIC	NB	PULP MILL
18	472218	682000	FRASER COMPANIES LTD.	ATHOLVILLE	NB	PULP MILL
18	480400	662230	NBIP FOREST PRODUCTS INC	DALHOUSIE	NB	PULP MILL
18	473642	653830	CONSOLIDATED-BATHURST INC.	BATHURST	NB	PULP MILL
18	485735	575800	CORNERBROOK PULP&PAPR HOLD LTD	CORNERBROOK	NFLD	PULP MILL
18	451536	660548	IRVING PULP AND PAPER LTD.	ST. JOHN	NB	PULP MILL
18	483200	583100	ABITIBI PRICE INC. (STEPHENVILL	STEPHENVILLE	NFLD	PULP MILL
18	475930	664324	FRASER COMPANIES LTD.	EDMUNDSTON	NB	PULP MILL
18	451536	660548	KIMBERLEY CLARK OF CANADA LTD	SAINT-JOHN	NB	PULP MILL
18	465812	653540	REPAP ENTERPRISES	NEWCASTLE	NB	PULP MILL
18	451630	660130	MACMILLAN ROTHESAY LTD	ST. JOHN	NB	PULP MILL
18	453542	612142	NOVA SCOTIA FOREST INDUSTRIES.	PORT HAWKESBURY	NS	PULP MILL
18	4504	6410	MINAS BASIN PULP AND POWER.	HANTSPORT	NS	PULP MILL
18	440305	644150	CANADIAN KEYES FIBER	HANTSPORT	NS	PULP MILL
18	443500	640948	CANEXEL INC	HUBBARDS	NS	PULP MILL
18	440300	644154	BOWATERS MERSEY PAPER COMPANY	LIVERPOOL	NS	PULP MILL
18	485600	563900	ABITIBI PRICE GRANFALLS DIV	GRANDFALLS	NFLD	PULP MILL
18	453915	624200	SCOTT MARITIMES LTD.	NEW GLASGOW	NS	PULP MILL
18	450920	664606	LAKE UTOPIA PAPER LTD.	ST. GEORGE	PEI	PULP MILL
19	454540	652525	POTASH COMPANY OF AMERICA	SUSSEX	NB	SALT MINE
19	453338	653417	DENISON MINES LTD.	SUSSEX	NB	SALT MINE

47	453912	640400	SURRETTE BATTERY COMPANY LTD.	SPRINGHILL	NS	SMELTER
48	461013	612845	SYDNEY STEEL CORPORATION	SYDNEY	NS	STEEL
49	453635	623830	HAWKER SIDDELEY CANADA LTD.	MAIN ST. TRENTO	NS	STEEL MANUF
21	4512	6717	GANONG BROTHERS LIMITED	ST. STEPHEN	NB	SUGAR
21	451548	660329	ATLANTIC SUGAR LIMITED	SAINT JOHN	NB	SUGAR
21	4550	6412	LIFE SAVERS LIMITED	AMHERST	NS	SUGAR
21	443856	633241	MOIRS PLANT LONEY INC.	DARTMOUTH	NS	SUGAR
22	450900	642415	BRIGGS & LITTLE WOOLEN MILLS L	HARVEY STATION	NB	TEXTILES
22	4606	6447	SCOTIA TEXTILE LIMITED	MONCTON	NB	TEXTILES
22	4558	6639	LYON INDUSTRIES (1976) LIMITED	FREDERICTON	NB	TEXTILES
22	4505	6703	COTTAGE CRAFT LIMITED	SAINT ANDREWS	NB	TEXTILES
22	450419	643222	HUYCK CANADA LIMITED FORMEX FA	KENTVILLE	NS	TEXTILES
22	4432	6550	MACAUSLAND'S WOOLEN MILLS LIM	BLOOMFIELD	NS	TEXTILES
22	435052	660703	DOMINION TEXTILE INC.	YARMOUTH	NS	TEXTILES
52	442306	643230	MICHELIN TIRE.	BRIDGEWATER	NS	TIRE
52	453724	624412	MICHELIN TIRE	GRANTON	NS	TIRE
23	4710	6756	TISSERANDS MADAWASKA WEAVERS L	SAINT-LEONARD	NB	WEAVER
23	4722	6820	GANTERIE CANADIENNE LTEE.	EDMUNDSTON	NB	WEAVER
24	4608	6434	CHATEAU-GAI WINES	SCOUDOUC	NB	WINES
24	450900	642415	ANDRES WINES ATLANTIC LIMITED	TRURO	NS	WINES
24	4505	6430	CHIPMAN WINES LIMITED	KENTVILLE	NS	WINES
25	4810	5358	NEWFOUNDLAND HARDWOODS	CLARENCEVILLE	NFLD	WOOD PRES
25	4541	6641	ATLANTIC PRESSURE TREATING LTD	TRACY	NB	WOOD PRES
25	465925	653510	DOMTAR WOOD PRESERVING	NEWCASTLE	NB	WOOD PRES
25	452230	631630	DOMTAR WOOD PRESERVING.	TRURO	NS	WOOD PRES
25	4544	6107	NORTHWOOD PULP & TIMBER LTD (P	MORRISON'S COVE	NS	WOOD PRES
25	4513	6300	MARITIME WOOD PRESERVERS	UPPER STEWIACK	NS	WOOD PRES
50	46094	62390	STP (POP: 1823)	MONTAGUE	PEI	MUNICIPAL
50	46105	62313	STP (POP: 790)	GEORGETOWN	PEI	MUNICIPAL
50	46210	62144	STP (POP: 1468)	SOURIS	PEI	MUNICIPAL
50	46245	62420	STP (POP: 387)	MORELL	PEI	MUNICIPAL
50	46133	63052	STP (POP: 1768)	BUNBURY-SOUTHPORT	PEI	MUNICIPAL
50	46144	63064	STP (POP: 2340)	PARKDALE TOWN	PEI	MUNICIPAL
50	46140	63083	STP (POP: 28000)	CHARLOTTETOWN	PEI	MUNICIPAL
50	46132	63125	STP (POP: 1248)	CORNWALL	PEI	MUNICIPAL
50	46140	63294	STP (POP: 318)	CRAPAUD	PEI	MUNICIPAL
50	46273	63184	STP (POP: 722)	NORTH RUSTICO	PEI	MUNICIPAL
50	46215	62521	STP (POP: 365)	MOUNT STEWART	PEI	MUNICIPAL
50	46150	63420	STP (POP: 575)	BORDEN	PEI	MUNICIPAL
50	46192	63344	STP (POP: 277)	KINKORA	PEI	MUNICIPAL
50	46254	63383	STP (POP: 1112)	KENSINGTON	PEI	MUNICIPAL
50	46234	63473	STP (POP: 9439)	SUMMERSIDE	PEI	MUNICIPAL
50	46254	63481	STP (POP: 2468)	ST. ELENORS VILLAGE	PEI	MUNICIPAL
50	46262	63521	STP (POP: 729)	MISCOUCHE	PEI	MUNICIPAL
50	46271	64045	STP (POP: 317)	ABRAMS VILLAGE	PEI	MUNICIPAL
50	46270	64000	STP (POP: 355)	WELLINGTON	PEI	MUNICIPAL
50	46344	63555	STP (POP: 164)	TYNE VALLEY	PEI	MUNICIPAL
50	46422	64125	STP (POP: 802)	O'LEARY	PEI	MUNICIPAL
50	46482	64034	STP (POP: 1058)	ALBERTON	PEI	MUNICIPAL
50	46564	64014	STP (POP: 1062)	TIGNISH	PEI	MUNICIPAL
50	47300	64542	STP (POP: 2452)	TRACADIE	NB	MUNICIPAL
50	47304	67233	STP (POP: 2334)	SAINT QUENTIN	NB	MUNICIPAL
50	47384	67205	STP (POP: 1222)	KEDGWICK	NB	MUNICIPAL
50	48001	66413	STP (POP: 9818)	CAMPBELLTON	NB	MUNICIPAL
50	47594	66434	STP (POP: 1694)	ATHOLVILLE	NB	MUNICIPAL
50	48011	66250	STP (POP: 1431)	EEL RIVER CROSSING	NB	MUNICIPAL
50	48040	66241	STP (POP: 5707)	DALHOUSIE	NB	MUNICIPAL
50	47582	66265	STP (POP: 1823)	BALMORAL	NB	MUNICIPAL
50	47594	66182	STP (POP: 1603)	CHARLO	NB	MUNICIPAL
50	47590	66454	STP (POP: 952)	TIDE HEAD	NB	MUNICIPAL
50	47143	68420	STP (POP: 753)	ST. FRANCOIS DE MADAWASKA	NB	MUNICIPAL
50	47150	68361	STP (POP: 915)	CLAIR	NB	MUNICIPAL
50	47180	68303	STP (POP: 527)	BAKER BROOK	NB	MUNICIPAL
50	47171	68241	STP (POP: 244)	SAINT HILAIRE	NB	MUNICIPAL

ANACONDA CARIBOU MINE



CARIBOU MINES LOCATION
1:50,000
87-11-27

* 87RP069 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

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: 7/10/87 (OCT 7, 1987), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 7/10/87 (OCT 7, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:
NARRATIVE: FIELD PH WAS5.5

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	5.5	
3: 005 /HARDNESS.....	70.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	4.94	MG/L
6: 035 /SODIUM.....	2.19	MG/L
7: 036 /CALCIUM (TOTAL).....	19.0	MG/L
8: 044 /ARSENIC (TOTAL).....	L.05	MG/L
9: 046 /CADMIUM (TOTAL).....	L.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
11: 048 /COPPER (TOTAL).....	0.33	MG/L
12: 049 /IRON (TOTAL).....	.28	MG/L
13: 051 /LEAD (TOTAL).....	1.17	MG/L
14: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
15: 054 /ZINC (TOTAL).....	4.06	MG/L
16: 159 /NICKEL (TOTAL).....	L.01	MG/L
17: 160 /MANGANESE (TOTAL).....	2.75	MG/L
18: 162 /ALUMINUM (TOTAL).....	.42	MG/L

* B7RP068 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

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: 7/10/87 (OCT 7, 1987), TIME: 1130, FREQ: 1
SAMPLING ENDED, DATE: 7/10/87 (OCT 7, 1987), TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: GRAB SAMPLE COLLECTED UPSTREAM OF
POND 6

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	B.0	
2: 001F/PH.....	5.5	
3: 005 /HARDNESS.....	35.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	"SHALL SAMPLE"	MG/L
5: 022 /MAGNESIUM (TOTAL).....	2.58	MG/L
6: 035 /SODIUM.....	1.70	MG/L
7: 036 /CALCIUM (TOTAL).....	9.33	MG/L
8: 044 /ARSENIC (TOTAL).....	L.05	MG/L
9: 046 /CADMIUM (TOTAL).....	L.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
11: 048 /COPPER (TOTAL).....	0.15	MG/L
12: 049 /IRON (TOTAL).....	.15	MG/L
13: 051 /LEAD (TOTAL).....	.18	MG/L
14: 052 /ANTIMONY (TOTAL).....	LO.20	MG/L
15: 054 /ZINC (TOTAL).....	.39	MG/L
16: 159 /NICKEL (TOTAL).....	.02	MG/L
17: 160 /MANGANESE (TOTAL).....	.19	MG/L
18: 162 /ALUMINUM (TOTAL).....	.122	MG/L

ATLANTIC GALVINIZERS

Figure 1

Atlantic Galvanizers Effluent Flow

from topo 21 N/15
1:50,000

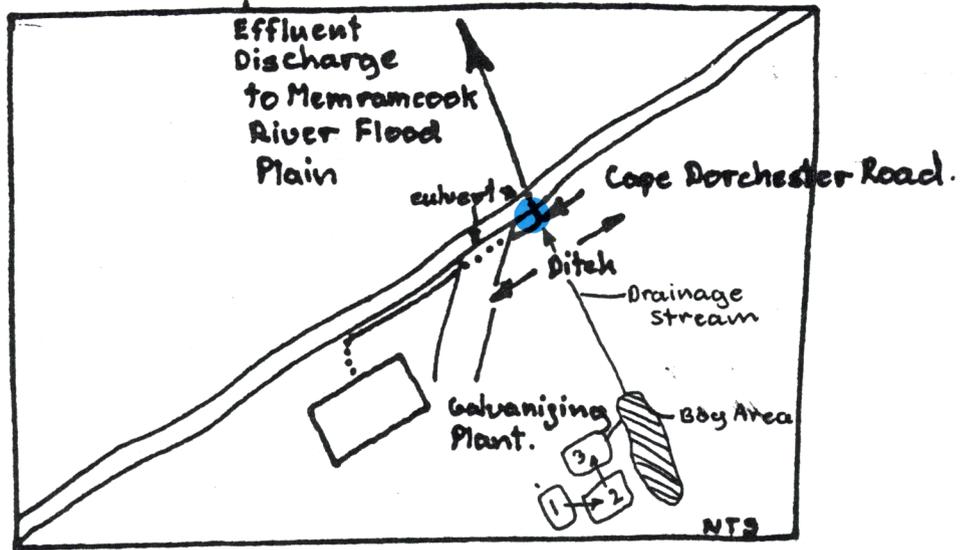
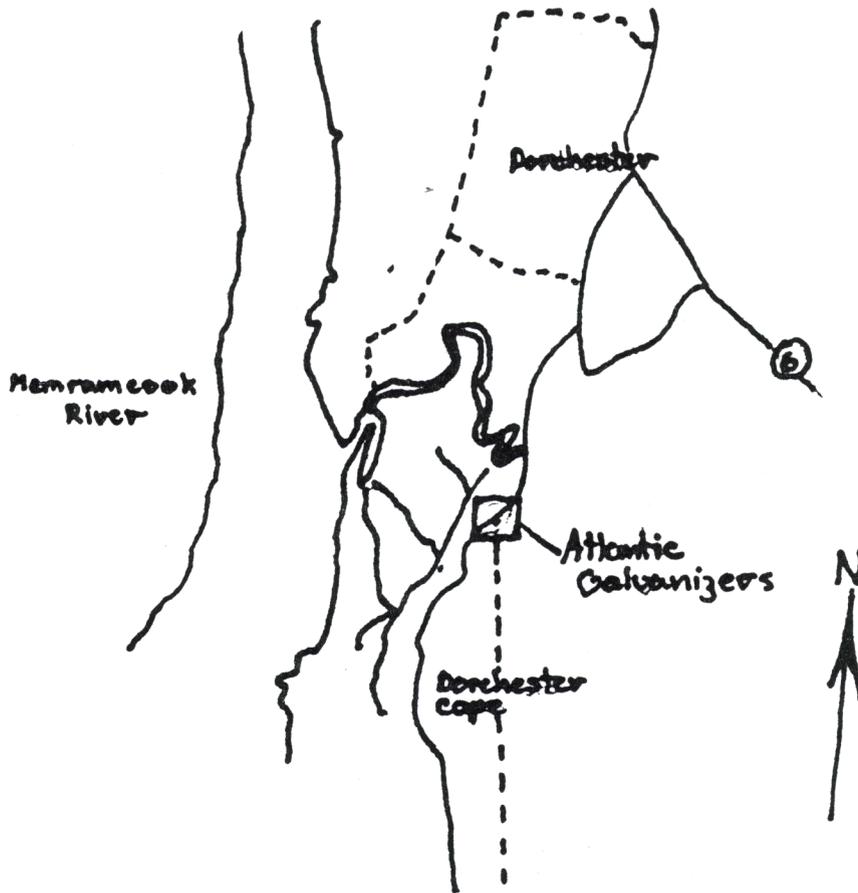
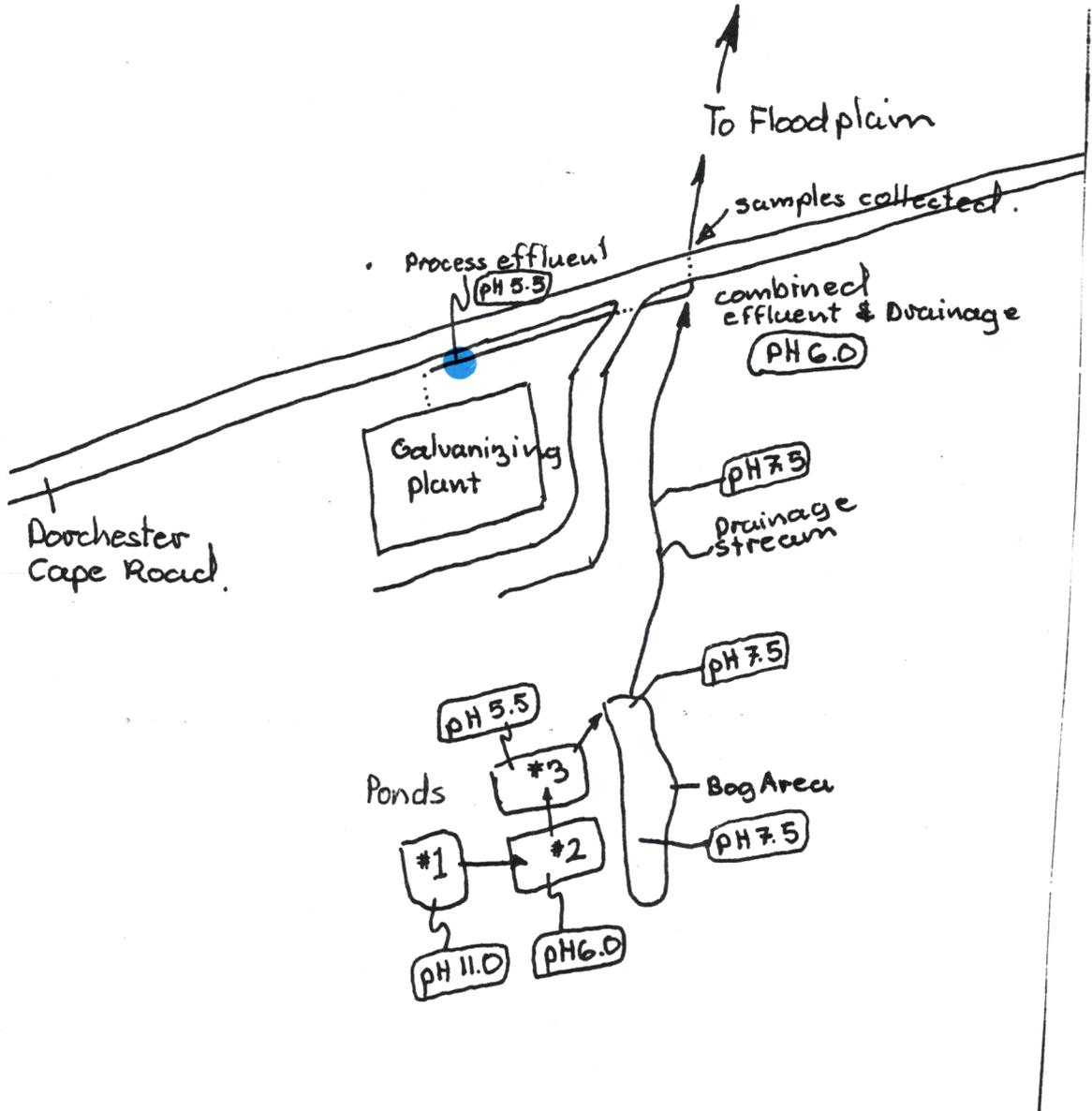


Figure 1a Atlantic Galvanizers
Property Plan
(pH survey)



* 88PH012 - PHIL HENNEBURY

STATUS AS OF MAY 24, 1988 *

REGISTERED ON: MAR 24, 1988, BY :IAN *

LOCATOR: ATBALV83/ATLANTIC GALVANIZING LTD., AMHERST

FINAL EFFLUENT

FROM: 18

PROJECT CODE: 234/ENV. CONTROL CHEMICAL INDUSTRIES

SAMPLING BEGAN, DATE: 24/ 3/88 (MAR 24, 1988), TIME: 020, PRESS: 4

SAMPLING ENDED, DATE: 24/ 3/88 (MAR 24, 1988), TIME: 1102

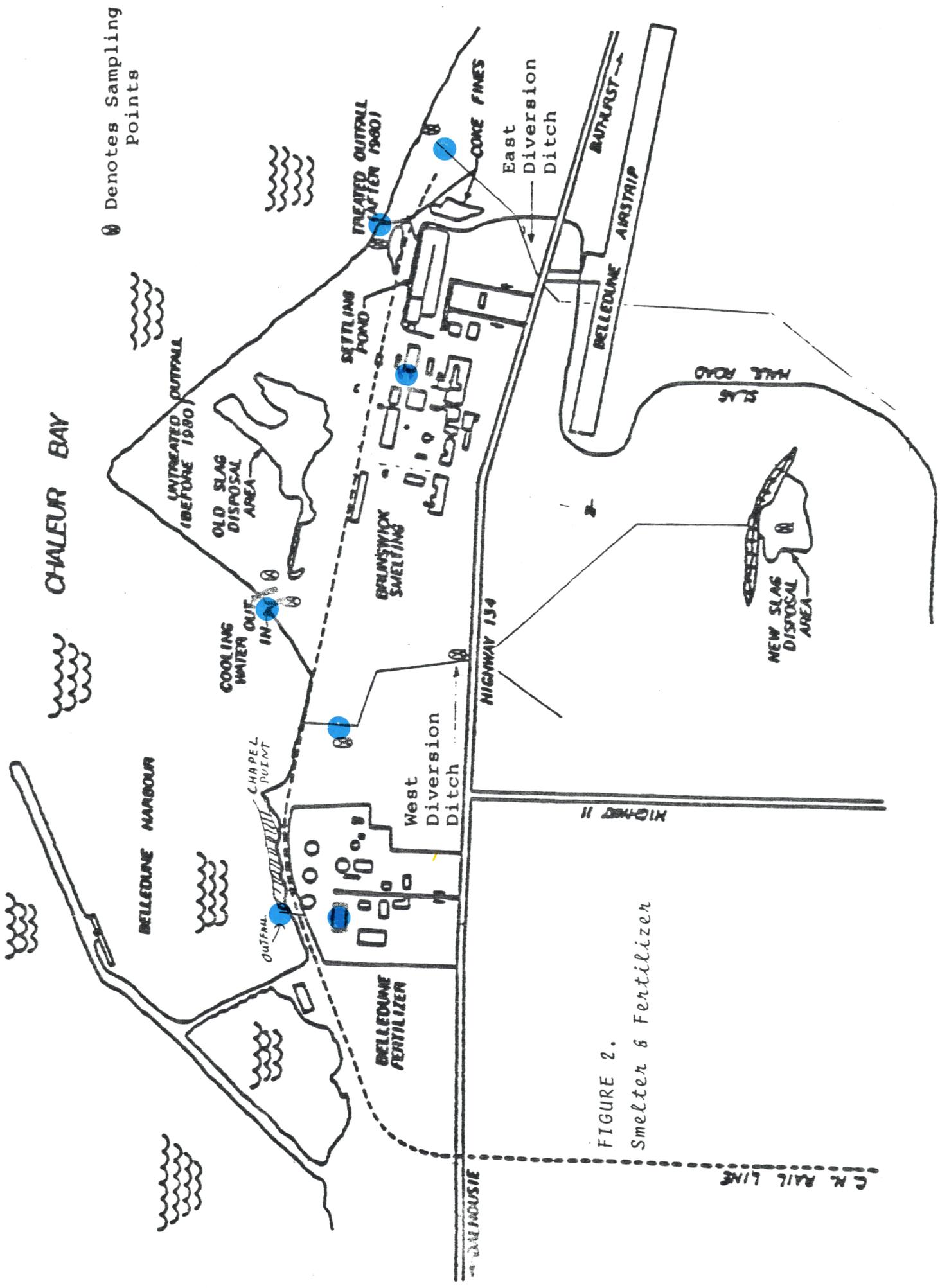
DEPTH: 1.20 METERS, TIDE:

NARRATIVE:

--- SAMPLE ANALYSIS ---

.....PARAMETER .....	..... VALUE	UNITS
1: 021P/PH.....	5.55	
2: 020 /SUSPENDED SOLIDS (SS).....	42.	MG/L
3: 029 /CYANIDE (CN).....	0.02	MG/L
4: 025H/CYANIDE (OXIDIZABLE).....	0.02	MG/L
5: 046 /CADMIUM (TOTAL).....	0.01	MG/L
6: 047 /CHROMIUM (TOTAL).....	0.01	MG/L
7: 048 /COPPER (TOTAL).....	0.05	MG/L
8: 049 /IRON (TOTAL).....	6.46	MG/L
9: 051 /LEAD (TOTAL).....	2.12	MG/L
10: 054 /ZINC (TOTAL).....	28.7	MG/L
11: 159 /NICKEL (TOTAL).....	0.01	MG/L
12: 162 /ALUMINUM (TOTAL).....	0.025	MG/L

BELLEDUNE FERTILIZER



X Denotes Sampling Points

FIGURE 2.
Smelter & Fertilizer

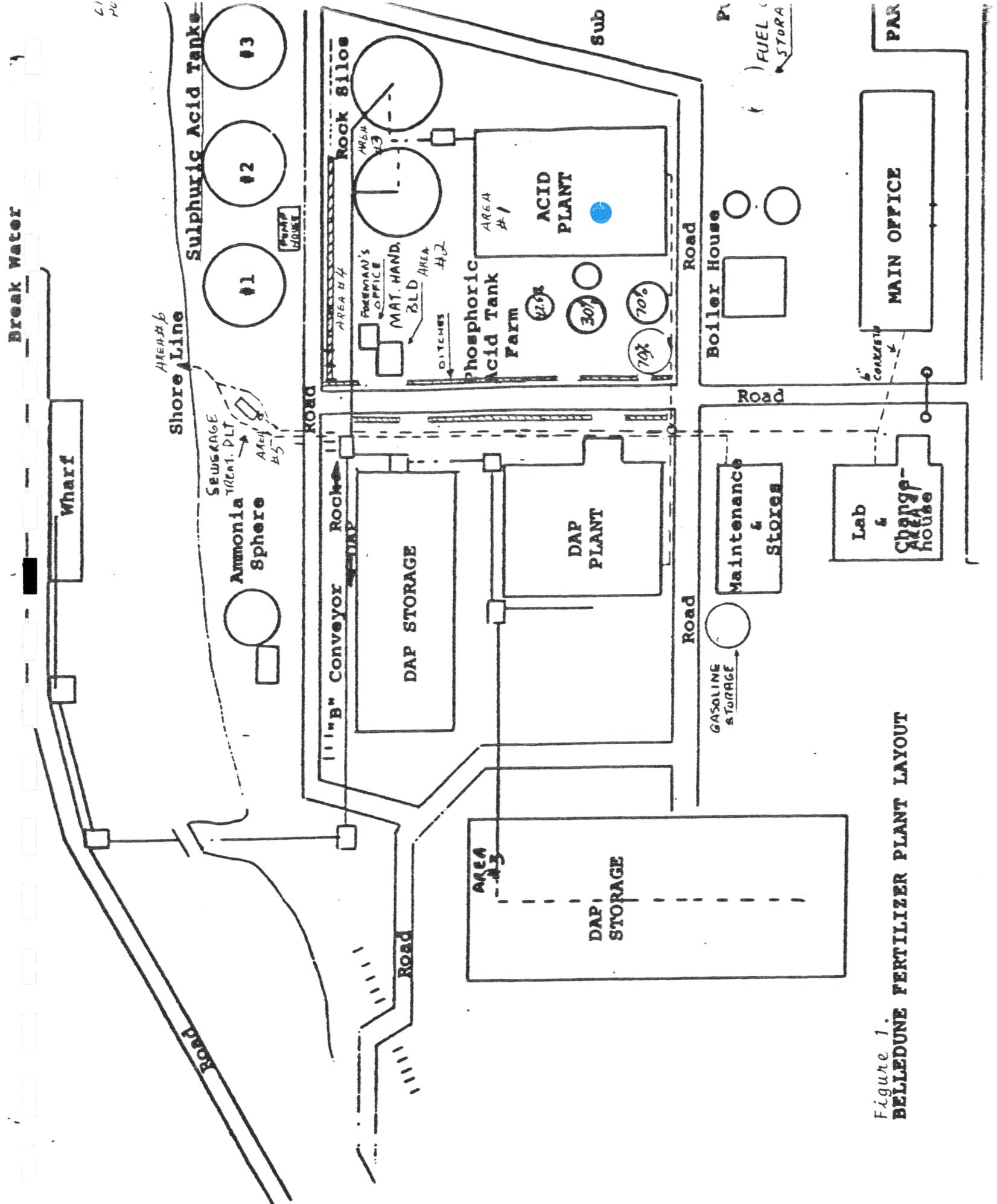


Figure 1.
BELLEDUNE FERTILIZER PLANT LAYOUT

* 87RP078 - ROY PARKER STATUS AS OF JAN 22, 1988 *

REGISTERED ON: OCT 9, 1987; BY :ROY P

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: 8/10/87 (OCT 8, 1987); TIME: 1300; FREQ: 1
SAMPLING ENDED: DATE: 8/10/87 (OCT 8, 1987); TIME: 1300

DEPTH: .00 METERS; TIDE:

NARRATIVE: PLANT PROCESS WATER COLLECTED FROM DITCH
AS IT ENTERED THE BAY

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.3	
2: 005 /HARDNESS.....	110.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	45.	MG/L
4: 022 /MAGNESIUM (TOTAL).....	10.7	MG/L
5: 035 /SODIUM.....	40.	MG/L
6: 036 /CALCIUM (TOTAL).....	24.8	MG/L
7: 044 /ARSENIC (TOTAL).....	.06	MG/L
8: 046 /CADMIUM (TOTAL).....	L.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
10: 048 /COPPER (TOTAL).....	0.05	MG/L
11: 049 /IRON (TOTAL).....	1.69	MG/L
12: 051 /LEAD (TOTAL).....	L.02	MG/L
13: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
14: 054 /ZINC (TOTAL).....	.05	MG/L
15: 159 /NICKEL (TOTAL).....	.01	MG/L
16: 160 /MANGANESE (TOTAL).....	.44	MG/L
17: 162 /ALUMINUM (TOTAL).....	.89	MG/L
18: 171 /FLUORIDE.....	4.8	MG/L

* 87RF077 - ROY PARKER STATUS AS OF JAN 22, 1988 *

REGISTERED ON: OCT 9, 1987; BY :ROY P

LOCATOR: BELFER01/BELLEUDUNE FERTILIZER
EFFLUENT TO RIVER

PROV: NE

NORMAL ANALYSIS: 1,2,5,20,44,46,48,49,50,51,54,132

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300, FREQ: 1

SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:

NARRATIVE: GYPSUM DISCHARGE TO THE BAY
COLLECTED FROM SUMP IN THE PLANT

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	1.8	
2: 005 /HARDNESS.....	3200.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	68500.	MG/L
4: 022 /MAGNESIUM (TOTAL).....	423.	MG/L
5: 035 /SODIUM.....	6000.	MG/L
6: 036 /CALCIUM (TOTAL).....	573.	MG/L
7: 044 /ARSENIC (TOTAL).....	.20	MG/L
8: 046 /CADMIUM (TOTAL).....	.11	MG/L
9: 047 /CHROMIUM (TOTAL).....	.14	MG/L
10: 048 /COPPER (TOTAL).....	0.24	MG/L
11: 049 /IRON (TOTAL).....	19.8	MG/L
12: 051 /LEAD (TOTAL).....	.10	MG/L
13: 052 /ANTIMONY (TOTAL).....	LO.20	MG/L
14: 054 /ZINC (TOTAL).....	.25	MG/L
15: 159 /NICKEL (TOTAL).....	.04	MG/L
16: 160 /MANGANESE (TOTAL).....	.77	MG/L
17: 162 /ALUMINUM (TOTAL).....	69.0	MG/L
18: 171 /FLUORIDE.....	1100.	MG/L

BRUNSWICK MINING - BELLEDUNE SMELTER
- BRUNSWICK #6
- BRUNSWICK #12

BELLEDUNE SMELTER



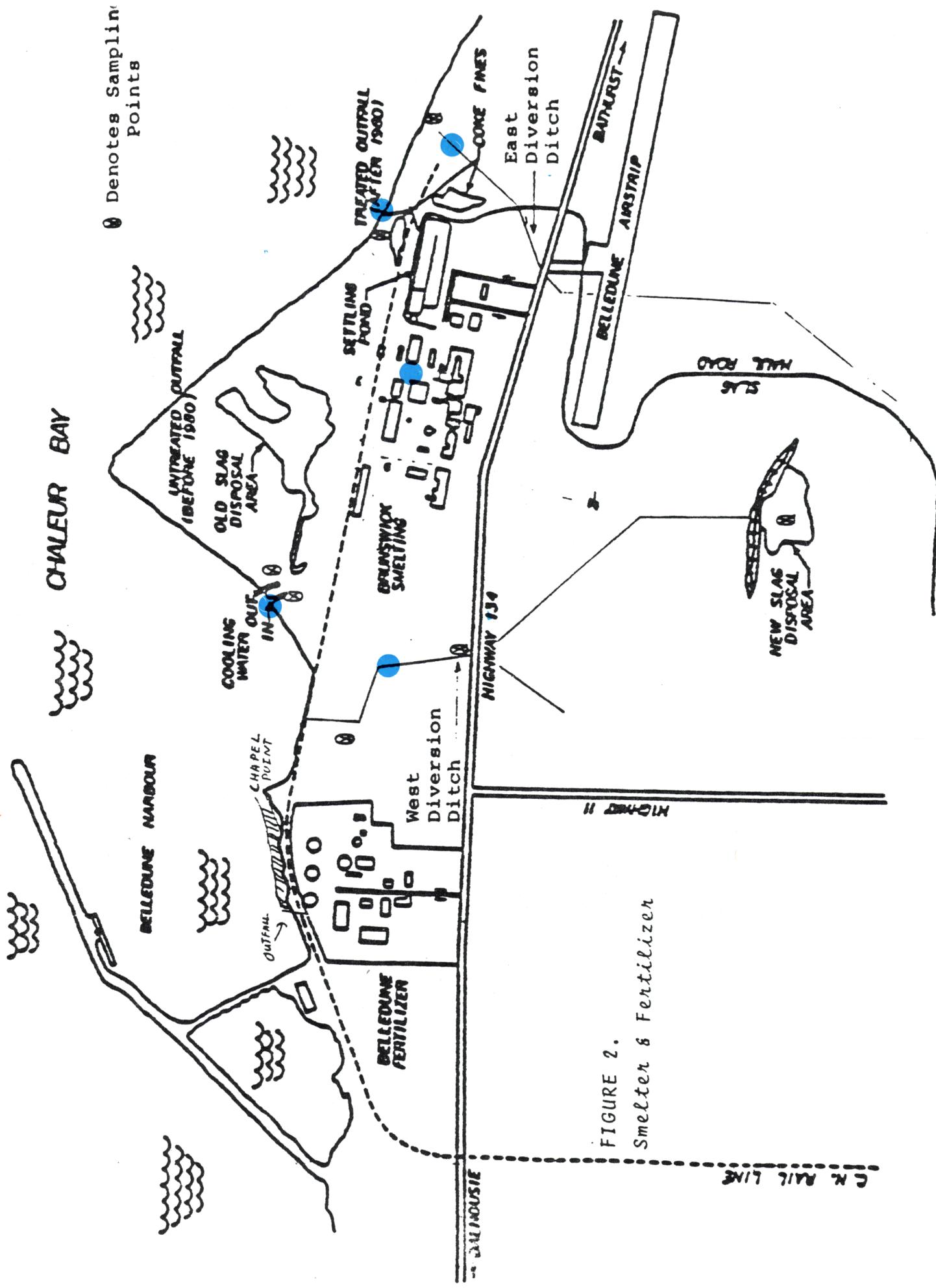
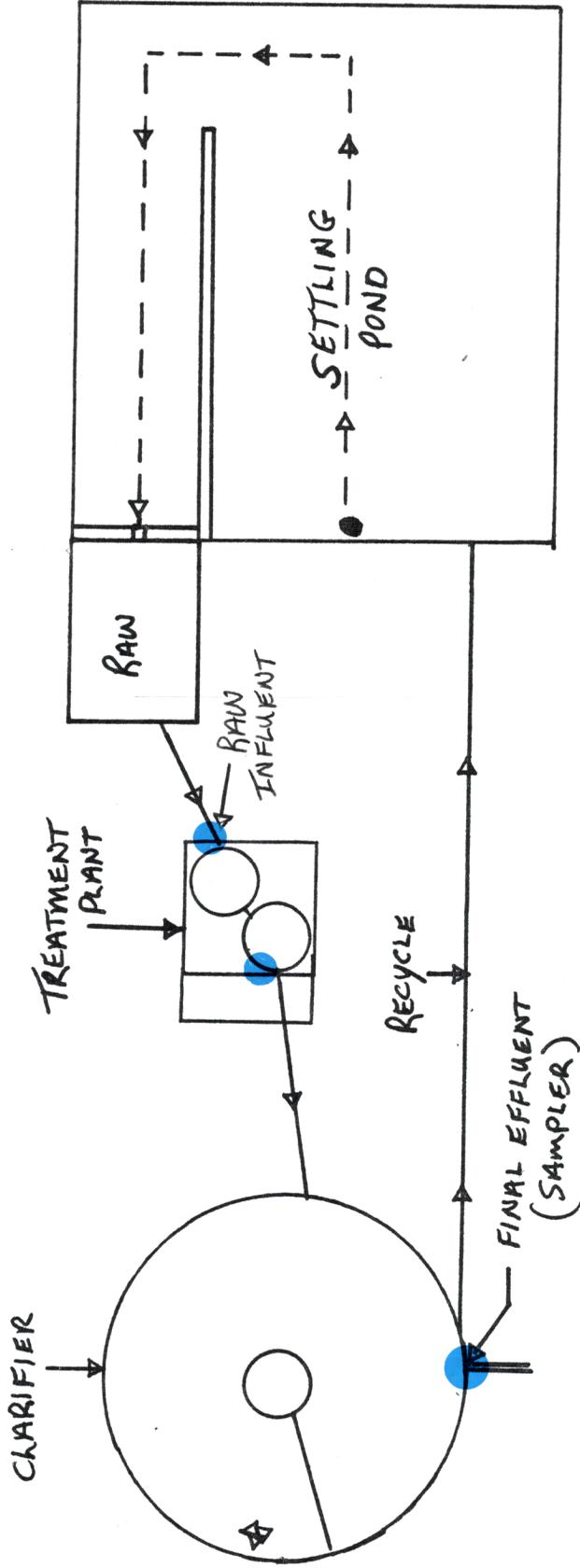


FIGURE 2.
Smelter & Fertilizer

BRUNSWICK MINING SMELTER
BELLEUDUNE, N.B.



* 87RPO38 - ROY PARKER STATUS AS OF SEP 30, 1987 *

REGISTERED ON: JUN 11, 1987, BY :ROY P

LOCATOR: BSMELT00/BRUNSWICK N&S LEAD SMELTER
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 4/ 6/87 (JUN 4, 1987), TIME: 0, FREQ: 1
SAMPLING ENDED, DATE: 4/ 6/87 (JUN 4, 1987), TIME: 0

DEPTH: .00 METERS, TIDE:

NARRATIVE: SEDIMENT SAMPLE COLLECTED FROM BELLEDUKE
BEACH BY MARC DOUCET, DFO, BATHURST

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 036S/CALCIUM (SEDIMENT).....	5000.	UG/G
2: 046S/CADMIUM (TOTAL, SEDIMENT).....	0.2	UG/G
3: 049S/IRON (SEDIMENT).....	276000.	UG/G
4: 051S/LEAD (TOTAL, SEDIMENT).....	282.	UG/G

* 87RP062 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BSMELT07/BRUNSWICK M&S LEAD SMELTER
COOLING WATER DISCHARGE

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 7/10/87 (OCT 7, 1987), TIME: 1230, FREQ: 24
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:

NARRATIVE: 24 HOUR COMPOSITE FROM COMPANY
SAMPLER

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	7.9		
2:	005 /HARDNESS.....	4100.		MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	9.		MG/L
4:	022 /MAGNESIUM (TOTAL).....	926.		MG/L
5:	035 /SODIUM.....	7300.		MG/L
6:	036 /CALCIUM (TOTAL).....	305.		MG/L
7:	044 /ARSENIC (TOTAL).....	.49		MG/L
8:	046 /CADMIUM (TOTAL).....	.77		MG/L
9:	047 /CHROMIUM (TOTAL).....	.07		MG/L
10:	048 /COPPER (TOTAL).....	0.03		MG/L
11:	049 /IRON (TOTAL).....	.09		MG/L
12:	051 /LEAD (TOTAL).....	.33		MG/L
13:	052 /ANTIMONY (TOTAL).....	10.20		MG/L
14:	054 /ZINC (TOTAL).....	.33		MG/L
15:	159 /NICKEL (TOTAL).....	1.01		MG/L
16:	160 /MANGANESE (TOTAL).....	.01		MG/L
17:	162 /ALUMINUM (TOTAL).....	1.025		MG/L

* B7RP063 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

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

SAMPLING BEGAN, DATE: 7/10/87 (OCT 7, 1987), TIME: 1230, FREQ: 24
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: 24 HOUR COMPOSITE FROM COMPANY
SAMPLER

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		10.8	
2:	005 /HARDNESS.....		500.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....		13.	MG/L
4:	022 /MAGNESIUM (TOTAL).....		11.9	MG/L
5:	035 /SODIUM.....		610.	MG/L
6:	036 /CALCIUM (TOTAL).....		180.	MG/L
7:	044 /ARSENIC (TOTAL).....		.72	MG/L
8:	046 /CADMIUM (TOTAL).....		.13	MG/L
9:	047 /CHROMIUM (TOTAL).....		L.02	MG/L
10:	048 /COPPER (TOTAL).....		0.01	MG/L
11:	049 /IRON (TOTAL).....		.02	MG/L
12:	051 /LEAD (TOTAL).....		.12	MG/L
13:	052 /ANTIMONY (TOTAL).....		L0.20	MG/L
14:	054 /ZINC (TOTAL).....		.11	MG/L
15:	159 /NICKEL (TOTAL).....		L.01	MG/L
16:	160 /MANGANESE (TOTAL).....		L.01	MG/L
17:	162 /ALUMINUM (TOTAL).....		L.025	MG/L

* 87RP064 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 7/10/87 (OCT 7, 1987), TIME: 1230, FREQ: 24

SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:

NARRATIVE: COOLING WATER INTAKE.24 HOUR COMPOSITE
COLLECTED FROM COMPANY SAMPLER

---- SAMPLE ANALYSIS ----

.....	PARAMETER	VALUE	UNITS
1:	001 /PH.....	7.8	
2:	005 /HARDNESS.....	4500.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
4:	022 /MAGNESIUM (TOTAL).....	914.	MG/L
5:	035 /SODIUM.....	8500.	MG/L
6:	036 /CALCIUM (TOTAL).....	294.	MG/L
7:	044 /ARSENIC (TOTAL).....	L.05	MG/L
8:	046 /CADMIUM (TOTAL).....	.01	MG/L
9:	047 /CHROMIUM (TOTAL).....	.07	MG/L
10:	048 /COPPER (TOTAL).....	0.07	MG/L
11:	049 /IRON (TOTAL).....	.07	MG/L
12:	051 /LEAD (TOTAL).....	L.02	MG/L
13:	052 /ANTIMONY (TOTAL).....	L0.20	MG/L
14:	054 /ZINC (TOTAL).....	.06	MG/L
15:	159 /NICKEL (TOTAL).....	L.01	MG/L
16:	160 /MANGANESE (TOTAL).....	.07	MG/L
17:	162 /ALUMINUM (TOTAL).....	L.025	MG/L

* 87RP065 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300, FREQ: 1

SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:

NARRATIVE: GRAB SAMPLE FROM THE WEST DITCH

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.6	
2: 005 /HARDNESS.....	140.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
4: 022 /MAGNESIUM (TOTAL).....	2.84	MG/L
5: 035 /SODIUM.....	30.	MG/L
6: 036 /CALCIUM (TOTAL).....	57.7	MG/L
7: 044 /ARSENIC (TOTAL).....	L.05	MG/L
8: 046 /CADMIUM (TOTAL).....	.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
10: 048 /COPPER (TOTAL).....	0.03	MG/L
11: 049 /IRON (TOTAL).....	.07	MG/L
12: 051 /LEAD (TOTAL).....	.13	MG/L
13: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
14: 054 /ZINC (TOTAL).....	.05	MG/L
15: 159 /NICKEL (TOTAL).....	L.01	MG/L
16: 160 /MANGANESE (TOTAL).....	.01	MG/L
17: 162 /ALUMINUM (TOTAL).....	L.025	MG/L

* 87RP066 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:

NARRATIVE: GRAB SAMPLE FROM THE EAST DITCH

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.7	
2: 005 /HARDNESS.....	200.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	5.	MG/L
4: 022 /MAGNESIUM (TOTAL).....	4.03	MG/L
5: 035 /SODIUM.....	20.	MG/L
6: 036 /CALCIUM (TOTAL).....	71.8	MG/L
7: 044 /ARSENIC (TOTAL).....	L.05	MG/L
8: 046 /CADMIUM (TOTAL).....	.04	MG/L
9: 047 /CHROMIUM (TOTAL).....	.04	MG/L
10: 048 /COPPER (TOTAL).....	0.21	MG/L
11: 049 /IRON (TOTAL).....	2.53	MG/L
12: 051 /LEAD (TOTAL).....	1.55	MG/L
13: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
14: 054 /ZINC (TOTAL).....	5.12	MG/L
15: 159 /NICKEL (TOTAL).....	.02	MG/L
16: 160 /MANGANESE (TOTAL).....	.20	MG/L
17: 162 /ALUMINUM (TOTAL).....	.32	MG/L

* B7RP076 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY F

LOCATOR: BSMELT00/BRUNSWICK M&S LEAD SMELTER
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:

NARRATIVE: GRAB SAMPLE

FROM DISCHARGE CHANNEL TO THE BAY

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	11.2		
2:	005 /HARDNESS.....	270.		MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	5.		MG/L
4:	022 /MAGNESIUM (TOTAL).....	3.43		MG/L
5:	035 /SODIUM.....	565.		MG/L
6:	036 /CALCIUM (TOTAL).....	103.		MG/L
7:	044 /ARSENIC (TOTAL).....	.35		MG/L
8:	046 /CADMIUM (TOTAL).....	.02		MG/L
9:	047 /CHROMIUM (TOTAL).....	L.02		MG/L
10:	048 /COPPER (TOTAL).....	0.03		MG/L
11:	049 /IRON (TOTAL).....	.05		MG/L
12:	051 /LEAD (TOTAL).....	.11		MG/L
13:	052 /ANTIMONY (TOTAL).....	L0.20		MG/L
14:	054 /ZINC (TOTAL).....	.22		MG/L
15:	159 /NICKEL (TOTAL).....	.01		MG/L
16:	160 /MANGANESE (TOTAL).....	L.01		MG/L
17:	162 /ALUMINUM (TOTAL).....	L.025		MG/L
18:	500 /BIOASSAY	"DONE"		

R. Parker
Water Pollution Control Division
Air & Water Branch, EP, Atlantic Region
Conservation and Protection

D. Vaughan
Laboratory Division
A&W Branch, EP, Atlantic Region
Conservation and Protection

SECURITY - CLASSIFICATION - DE SECURITE
OUR FILE/NOTRE REFERENCE 4705-37/B622-1
YOUR FILE/VOTRE REFERENCE
DATE December 10, 1987

SUBJECT
OBJET

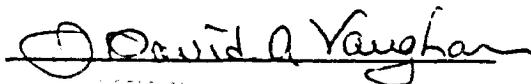
BIOASSAY RESULTS - BRUNSWICK SMELTER

On October 8, 1987, WPCD staff collected a grab sample of final effluent from the Brunswick Mining and Smelting Ltd. smelter in Belledune, New Brunswick.

On October 13, 1987, a 96-hour acute lethal static bioassay was begun on this effluent, using rainbow trout fingerling of mean weight 3.4 + 1.0 g as the test organism. Since the quantity of effluent was limited and the pH was at a known lethal level of 11.2, only an adjusted pH bioassay was conducted.

The effluent was acutely lethal to the test fish but the results were not amenable to LC50 calculation, as is often the case with effluent from this source. There was 40% mortality at 100% concentration, 100% mortality at 32% concentration, 60% mortality at 10% concentration, and no mortality at 3.2% concentration or in the control tank. The cause of the observed mortality is not evident from the chemical analysis results.

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



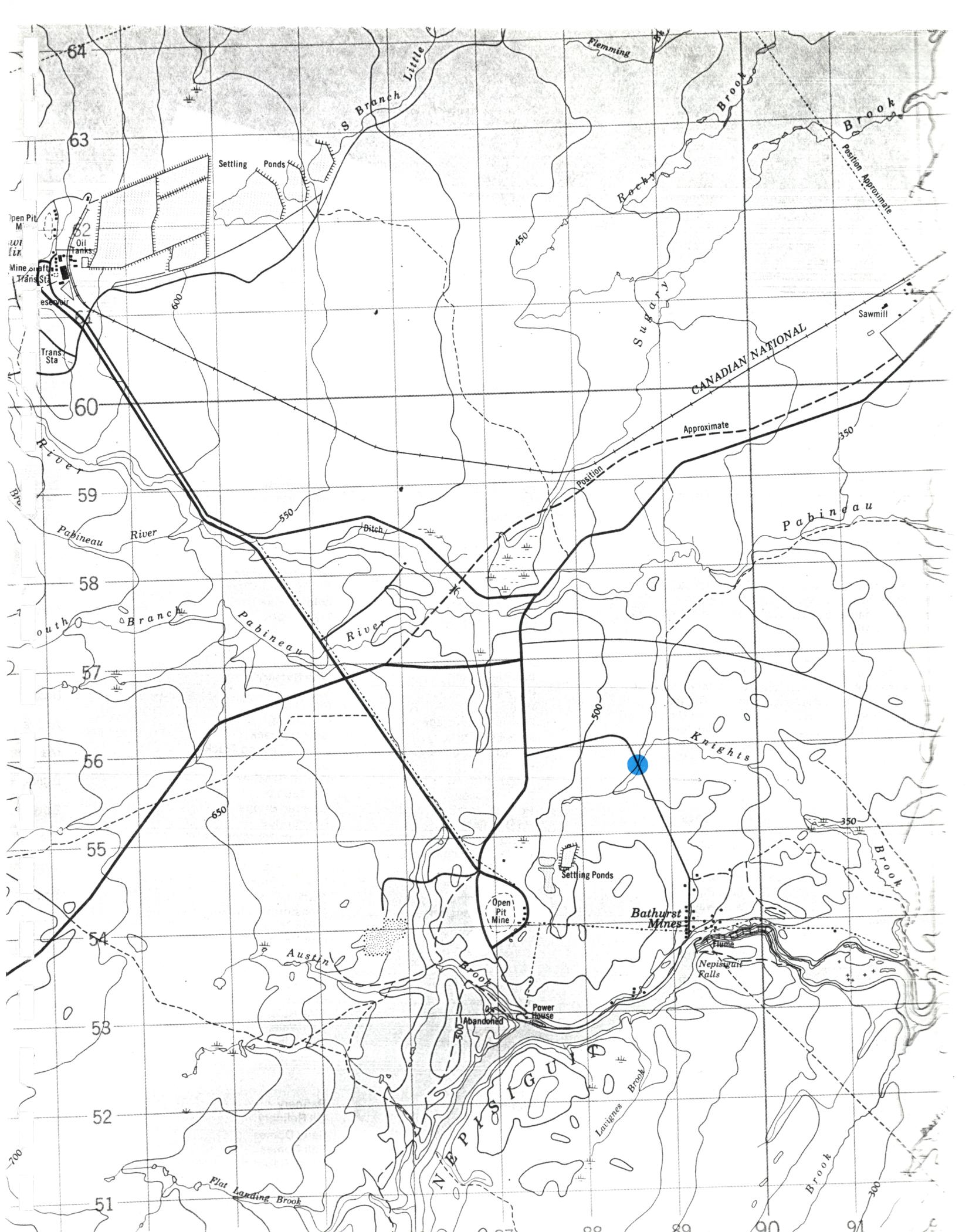
J. David A. Vaughan

JDAV/dg

Attach (1)

cc: P. Hennebury
H. Samant
K. Doe

BRUNSWICK # 6



* 87RF071 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

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: 6/10/87 (OCT 6, 1987), TIME: 1215, FREQ: 1
SAMPLING ENDED, DATE: 6/10/87 (OCT 6, 1987), TIME: 1215

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

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.3	
2: 001F/PH.....	4.3	
3: 005 /HARDNESS.....	95.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	4.23	MG/L
6: 035 /SODIUM.....	2.54	MG/L
7: 036 /CALCIUM (TOTAL).....	31.2	MG/L
8: 044 /ARSENIC (TOTAL).....	L.05	MG/L
9: 046 /CADMIUM (TOTAL).....	L.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
11: 048 /COPPER (TOTAL).....	0.06	MG/L
12: 049 /IRON (TOTAL).....	.84	MG/L
13: 051 /LEAD (TOTAL).....	.73	MG/L
14: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
15: 054 /ZINC (TOTAL).....	5.82	MG/L
16: 159 /NICKEL (TOTAL).....	L.01	MG/L
17: 160 /MANGANESE (TOTAL).....	2.21	MG/L
18: 162 /ALUMINUM (TOTAL).....	.37	MG/L

* 87RP072 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BRUNS600/BRUNSWICK M&S NO. 6 MINE
GENERAL PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

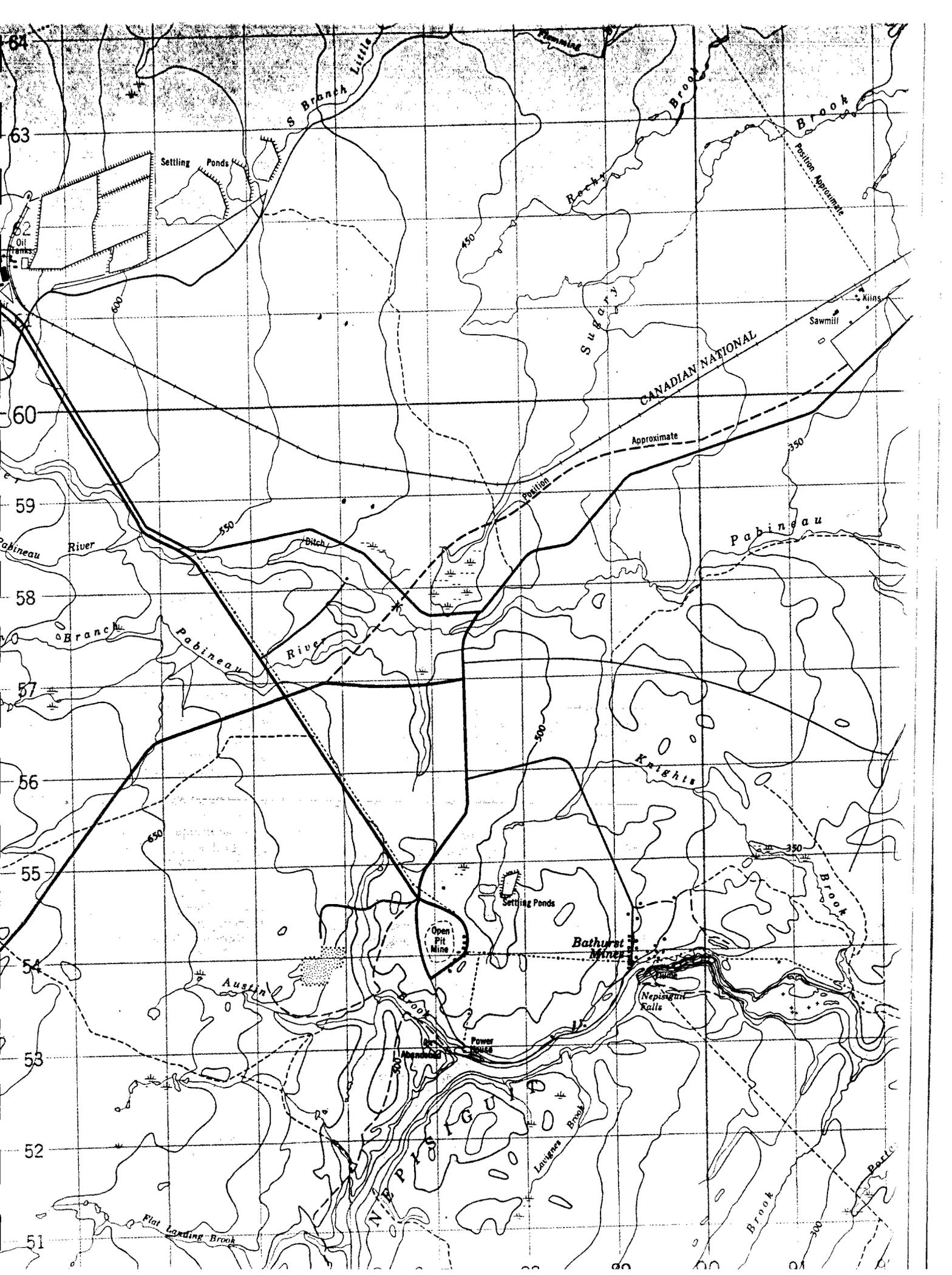
SAMPLING BEGAN, DATE: 6/10/87 (OCT 6, 1987), TIME: 1215, FREQ: 1
SAMPLING ENDED, DATE: 6/10/87 (OCT 6, 1987), TIME: 1215

DEPTH: .00 METERS, TIDE:
NARRATIVE: KNIGHTS BROOK AT PUMPING STATION

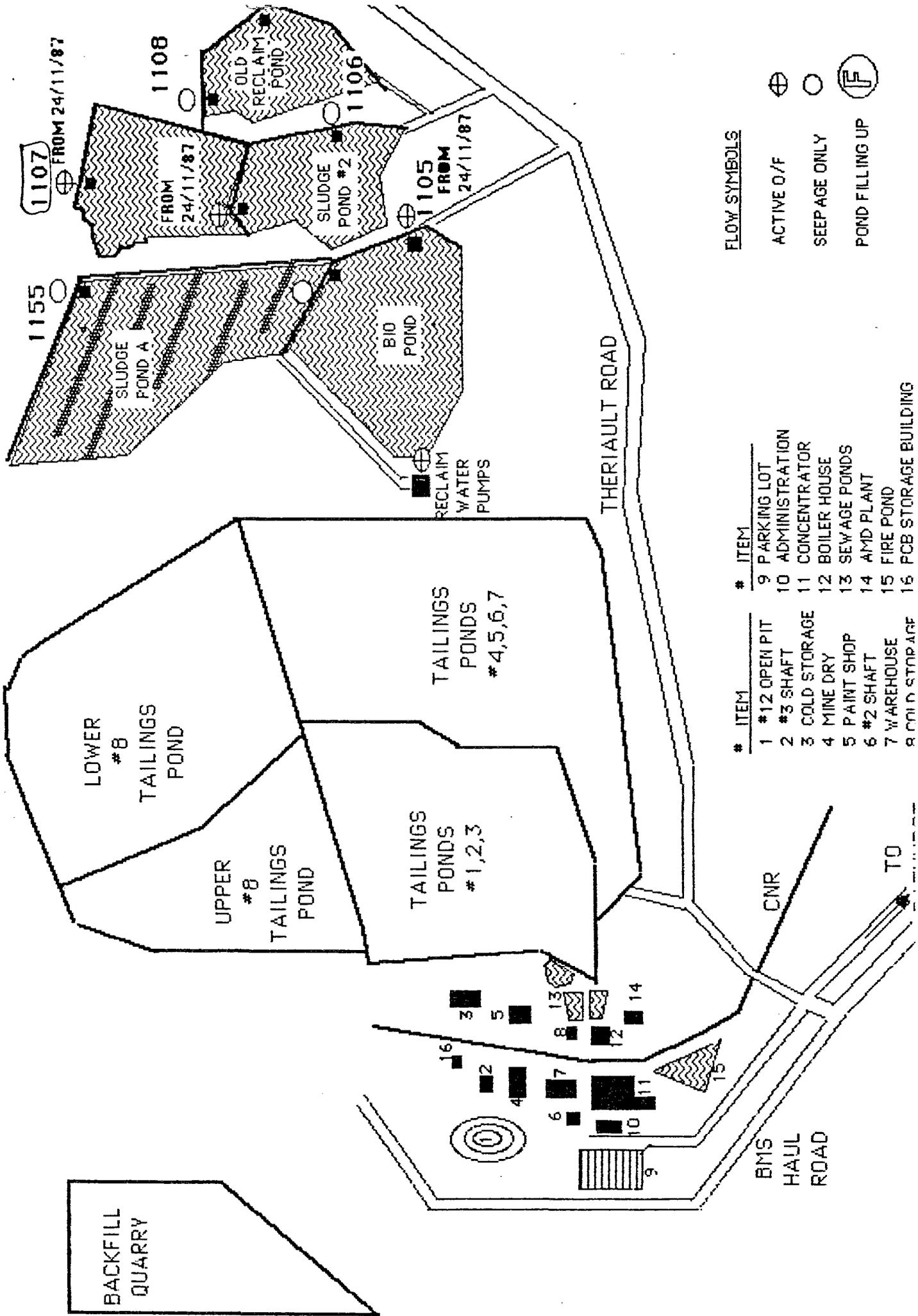
---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		3.3	
2:	001F/PH.....		3.3	
3:	005 /HARDNESS.....		370.	MG/L
4:	020 /SUSPENDED SOLIDS (SS).....		6.	MG/L
5:	022 /MAGNESIUM (TOTAL).....		20.0	MG/L
6:	035 /SODIUM.....		3.61	MG/L
7:	036 /CALCIUM (TOTAL).....		115.	MG/L
8:	044 /ARSENIC (TOTAL).....	L.05		MG/L
9:	046 /CADMIUM (TOTAL).....	.02		MG/L
10:	047 /CHROMIUM (TOTAL).....	L.02		MG/L
11:	048 /COPPER (TOTAL).....	0.32		MG/L
12:	049 /IRON (TOTAL).....	7.50		MG/L
13:	051 /LEAD (TOTAL).....	1.19		MG/L
14:	052 /ANTIMONY (TOTAL).....	L0.20		MG/L
15:	054 /ZINC (TOTAL).....	39.5		MG/L
16:	159 /NICKEL (TOTAL).....	.07		MG/L
17:	160 /MANGANESE (TOTAL).....	21.9		MG/L
18:	162 /ALUMINUM (TOTAL).....	2.90		MG/L

BRUNSWICK # 1 2



BRUNSWICK MINING PLOT PLAN - February 9, 1988



FLOW SYMBOLS

- ⊕ ACTIVE D/F
- SEEPAGE ONLY
- ⓕ POND FILLING UP

#	ITEM	#	ITEM
1	*12 OPEN PIT	9	PARKING LOT
2	*3 SHAFT	10	ADMINISTRATOR
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

* 87RP073 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

LOCATOR: BRUN1200/BRUNSWICK NO 12

GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 6/10/87 (OCT 6, 1987), TIME: 1030, FREQ: 1

SAMPLING ENDED, DATE: 6/10/87 (OCT 6, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:

NARRATIVE: CLEAN WATER DITCH. SAMPLE COLLECTED JUST
BELOW OLD RECLAIM POND BEFORE FINAL EFFL

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		3.8	
2:	001F/PH.....		3.8	
3:	005 /HARDNESS.....		630.	MG/L
4:	020 /SUSPENDED SOLIDS (SS).....		5.	MG/L
5:	022 /MAGNESIUM (TOTAL).....		32.7	MG/L
6:	035 /SODIUM.....		275.	MG/L
7:	036 /CALCIUM (TOTAL).....		199.	MG/L
8:	044 /ARSENIC (TOTAL).....	L.05		MG/L
9:	046 /CADMIUM (TOTAL).....	L.01		MG/L
10:	047 /CHROMIUM (TOTAL).....	L.02		MG/L
11:	048 /COPPER (TOTAL).....	0.09		MG/L
12:	049 /IRON (TOTAL).....	2.06		MG/L
13:	051 /LEAD (TOTAL).....	.70		MG/L
14:	052 /ANTIMONY (TOTAL).....	0.57		MG/L
15:	054 /ZINC (TOTAL).....	2.57		MG/L
16:	159 /NICKEL (TOTAL).....	.07		MG/L
17:	160 /MANGANESE (TOTAL).....	23.0		MG/L
18:	162 /ALUMINUM (TOTAL).....	4.30		MG/L

R. Parker
 Water Pollution Control Division
 Air & Water Branch, EP, Atlantic Region
 Conservation and Protection

D. Vaughan
 Laboratory Division
 A&W Branch, EP, Atlantic Region
 Conservation and Protection

SECURITY - CLASSIFICATION - DE SECURITE	
OUR FILE/VOTRE REFERENCE	
4705-37/B622-B	
YOUR FILE/VOTRE REFERENCE	
DATE	December 10, 1987

SUBJECT
 OBJET

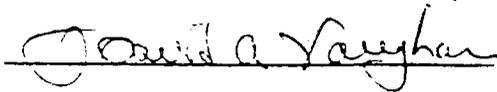
BIOASSAY RESULTS - BRUNSWICK #12

On October 6, 1987, WPCD staff collected a grab sample of final effluent from the Brunswick #12 mine near Bathurst, New Brunswick.

On October 13, 1987, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 3.1 ± 1.0 g as the test organism.

The effluent was acutely lethal to the test fish, yielding a ^{4-day} LC50 value of 18% (95% conf. limits: 10-32%). The observed mortality is attributed to low pH. When the pH of the 100% and 32% concentrations was adjusted to, and kept above, the lethal level and the tanks restocked with fish, no mortality occurred within the 96-hour exposure period.

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



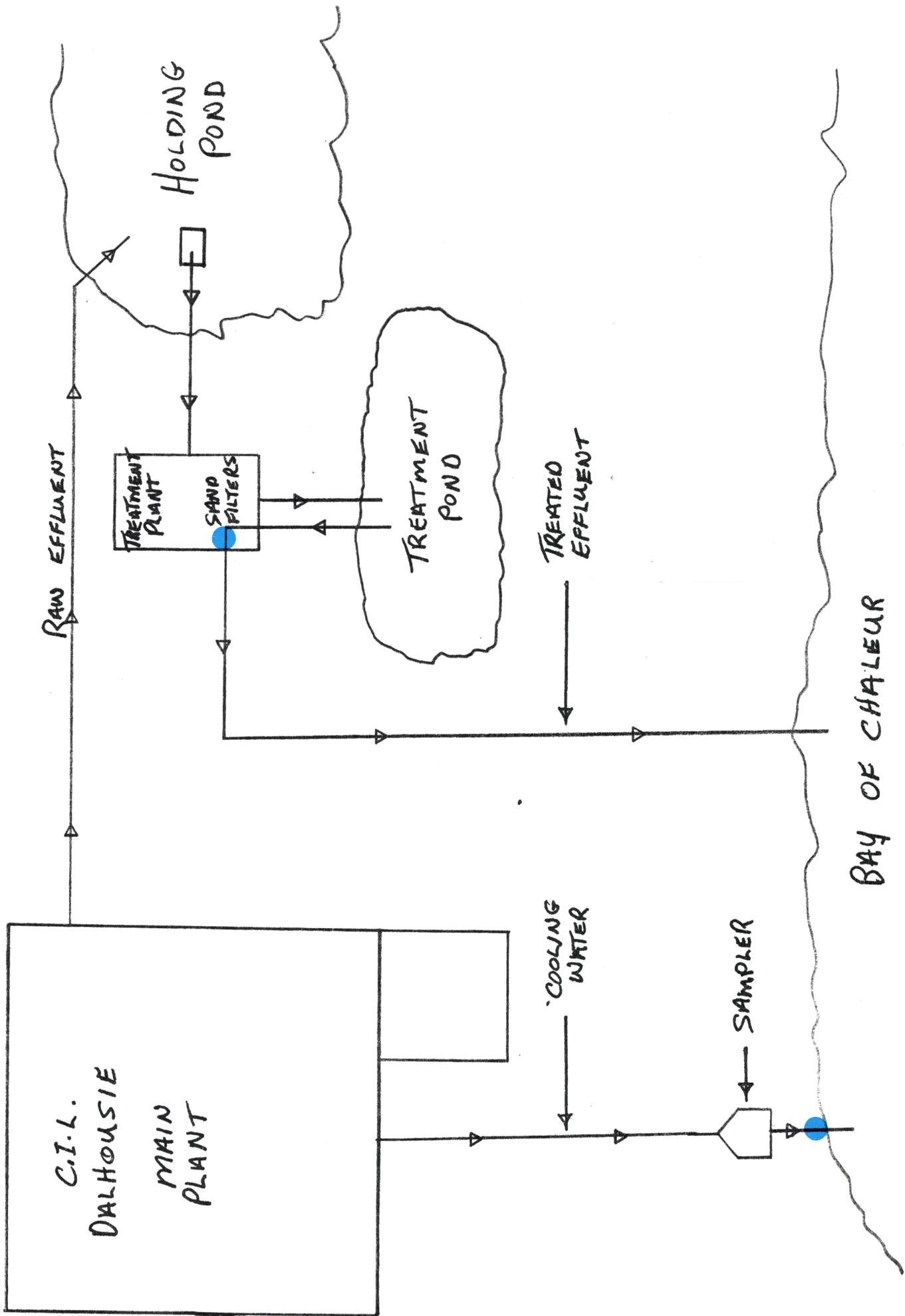
J. David A. Vaughan

JDAV/dg

Attach (1)

cc: P. Hennebury
 H. Samant
 K. Doe

CANADIAN INDUSTRIES LTD., DALHOUSIE



* 87PH039 - PHIL HENNEBURY STATUS AS OF JUL 24, 1987 *

REGISTERED ON: JUL 22, 1987, 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: 2/ 7/87 (JUL 2, 1987), TIME: 800, FREQ: 09
SAMPLING ENDED, DATE: 3/ 7/87 (JUL 3, 1987), TIME: 1700

DEPTH: .00 METERS, TIDE:

NARRATIVE: R.F.RATE =94.0 TONNES

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 050 /MERCURY (TOTAL).....	.058	MG/L
2: 278C/FLOW.....	450.	CU M/DAY

* 87PH038 - PHIL HENNEBURY STATUS NS OF JUL 24, 1987 *

REGISTERED ON: JUL 22, 1957. BY :PHIL H

LOCATOR: CILDAL46/CANADIAN INDUSTRIES LIMITED
PLANT COOLING WATER PROV: NB

NORMAL ANALYSIS: 50
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

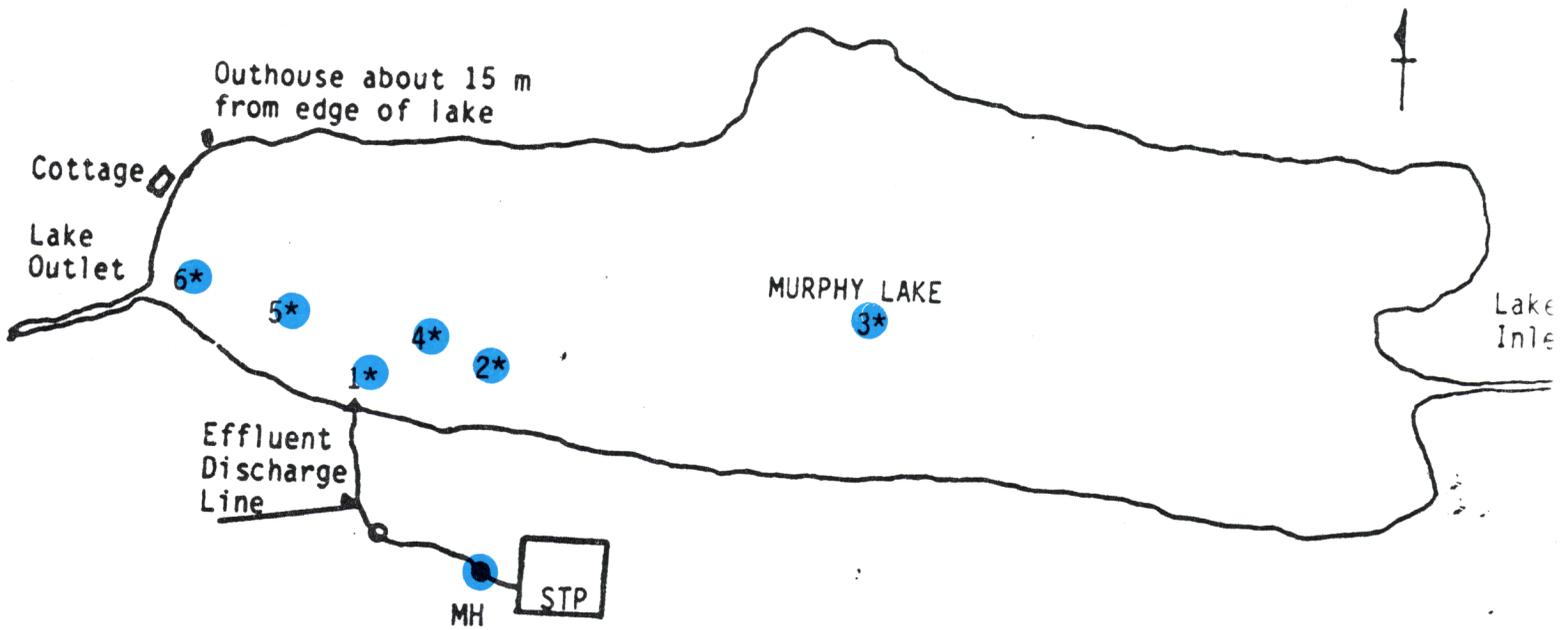
SAMPLING BEGAN: DATE: 2/ 7/87 (JUL 2, 1987); TIME: 800, FREQ: 24
SAMPLING ENDED: DATE: 3/ 7/87 (JUL 3, 1987); TIME: 800

DEPTH: .00 METERS; TIDE:
NARRATIVE: R.P.RATE #94.0 TONNES

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

.....PARAMETER .....	..... VALUE	UNITS
1: 050 /HERCURY (TOTAL).....	.007	MG/L
2: 2780/FLOW.....	1625.	CU M/DAY

C . F . B . G A G E T O W N , (B L U E M O U N T A I N)



Sample Station		DO mg/L	Temp ^o C
1	Surface	- 9.5 111%	23
	Bottom	- 7.5 86%	23
2	Surface	- 8.5 98%	23
	Bottom	- 7.2 83%	23
3	Surface	- 8.5 98%	23
	(4m) Depth	- 7.5 85%	22
4	Surface	- 8.7 100%	23
	(4m) Depth	- 5.3 60%	22
5	Surface	- 9.2 106%	23
	Bottom	- 5.7 66%	23
6	Surface	- 10.2 121%	25

* 87FK007 - PAUL KLAMAS STATUS AS OF JUL 1, 1987 *

REGISTERED ON: JUN 10, 1987, BY :BOB G

LOCATOR: CFBGAG02/CFB GAGETOWN
FINAL EFFLUENT

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 9/ 6/87 (JUN 9, 1987), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 9/ 6/87 (JUN 9, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:

NARRATIVE: CHLORINE CONTACT CHAMBER BEING CLEANED.

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	7.2	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	L10.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	5.	MG/L
5: 158 /FLOW.....	1000000.	IMP G/DAY
6: 166 /CHLORINE.....	62.0	PPM

* 87PK008 - PAUL KLAAMAS STATUS AS OF JUL 1, 1987 *

REGISTERED ON: JUN 10, 1987, BY :BOB G

LOCATOR: CFBGAG03/CFB GAGETOWN
RAW INFLUENT PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 9/ 6/87 (JUN 9, 1987), TIME: 1300, FREQ: 1
SAMPLING ENDED, DATE: 9/ 6/87 (JUN 9, 1987), TIME: 1300

DEPTH: .00 METERS, TIDE:
NARRATIVE: CHLORINE CONTACT CHAMBER BEING CLEANED.

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.9	
2: 001F/PH.....	7.4	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD).....	65.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	90.	MG/L
5: 158 /FLOW.....	1000000.	IMP G/DAY
6: 166 /CHLORINE.....	0.0	PPM

* 87PK038 - PAUL KLOMAS STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987; BY :BOB G

LOCATOR: CFBGAG04/C.F.B.GAGETOWN(BLUE MOUNTAIN)
S.T.P.FINAL

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN; DATE: 17/ 8/87 (AUG 17, 1987); TIME: 1100, FREQ: 48
SAMPLING ENDED; DATE: 18/ 8/87 (AUG 18, 1987); TIME: 1000

DEPTH: .00 METERS; TIDE:

NARRATIVE: BOTH EXTENDED AIR AND R.B C. PLANTS
OPERATING.

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

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.0	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	13.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	16.	MG/L

* S7FK039 - PAUL KLAAMAS STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987, BY :BOB G

LOCATOR: CFBGAG05/C.F.B.GAGETOWN(BLUE MOUNTAIN)
S.T.P.RAW

PROV: NB

PROJECT CODE: 242/ERV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 17/ 8/87 (AUG 17, 1987), TIME: 1100, FREQ: 48

SAMPLING ENDED, DATE: 18/ 8/87 (AUG 18, 1987), TIME: 1000

DEPTH: .00 METERS, TIDE:

NARRATIVE: BOTH EXTENDED AIR AND R.B C. PLANTS
OPERATING.

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	.....	7.9	
2:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	.....	230.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	.....	130.	MG/L

* 87FK040 - PAUL KLAAMAS

STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987; BY :BOB G

LOCATOR: CFBG04/C.F.B.GAGETOWN(BLUE MOUNTAIN)

S.T.P.FINAL

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 18/ 8/87 (AUG 18, 1987), TIME: 1000, FREQ: 48

SAMPLING ENDED, DATE: 19/ 8/87 (AUG 19, 1987), TIME: 900

DEPTH: .00 METERS; TIDE:

NARRATIVE: BOTH EXTENDED AIR AND R.B.C. PLANTS

OPERATING.(R.B.C. PLANT SEPTIC).

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.4	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	12.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	7.	MG/L

* 97PK041 - PAUL KLAAMAS STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987; BY :BUB G

LOCATOR: CFBGAG05/C.F.B.GAGETOWN(BLUE MOUNTAIN)
S.T.F.RAW

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN; DATE: 18/ 8/87 (AUG 18, 1987), TIME: 1000, FREQ: 48
SAMPLING ENDED; DATE: 19/ 8/87 (AUG 19, 1987), TIME: 900

DEPTH: .00 METERS; TIDE:

NARRATIVE: BOTH EXTENDED AIR AND R.B.C. PLANTS
OPERATING.(R.B.C. PLANT SEPTIC).

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.8	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	260.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	110.	MG/L

* 87FK042 - PAUL KLAAMAS

STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987, BY :BOB G

LOCATOR: CFBG604/C.F.B.GAGETOWN(BLUE MOUNTAIN)

S.T.P.FINAL

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 19/ 8/87 (AUG 19, 1987), TIME: 900, FREQ: 48

SAMPLING ENDED, DATE: 20/ 8/87 (AUG 20, 1987), TIME: 800

DEPTH: .00 METERS, TIME:

NARRATIVE: ONLY EXTENDED AIR PLANT OPERATING.

R.B.C. PLANT SHUTDOWN.(SEPTIC).

---- SAMPLE ANALYSIS ----

PARAMETER	VALUE	UNITS
1: 001 /PH.....	6.8	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	10.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	12.	MG/L

* 87FK043 - PAUL KLAANAS STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987; BY :BOB G

LOCATOR: CFBGAG05/C.F.B.GAGETOWN(BLUE MOUNTAIN)
S.T.P.RAW

FROM: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN; DATE: 19/ 8/87 (AUG 19, 1987); TIME: 900, FREQ: 48
SAMPLING ENDED; DATE: 20/ 8/87 (AUG 20, 1987); TIME: 800

DEPTH: .00 METERS; TIDE:

NARRATIVE: ONLY EXTENDED AIR PLANT OPERATING.
R.B.C. PLANT SHUTDOWN.(SEPTIC).

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.8	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	460.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	150.	MG/L

* 87PK044 - PAUL KLAAMAS STATUS AS OF OCT 23, 1987 *

REGISTERED ON: AUG 21, 1987, BY :BOB G

LOCATOR: CFBGAG04/C.F.B.GAGETOWN(BLUE MOUNTAIN)
S.T.P.FINAL

PROV: NB

PROJECT CODE: 242/ENV. CONTROL FEDERAL FACILITIES

SAMPLING BEGAN, DATE: 20/ 8/87 (AUG 20, 1987), TIME: 1100, FREQ: 1

SAMPLING ENDED, DATE: 20/ 8/87 (AUG 20, 1987), TIME: 1100

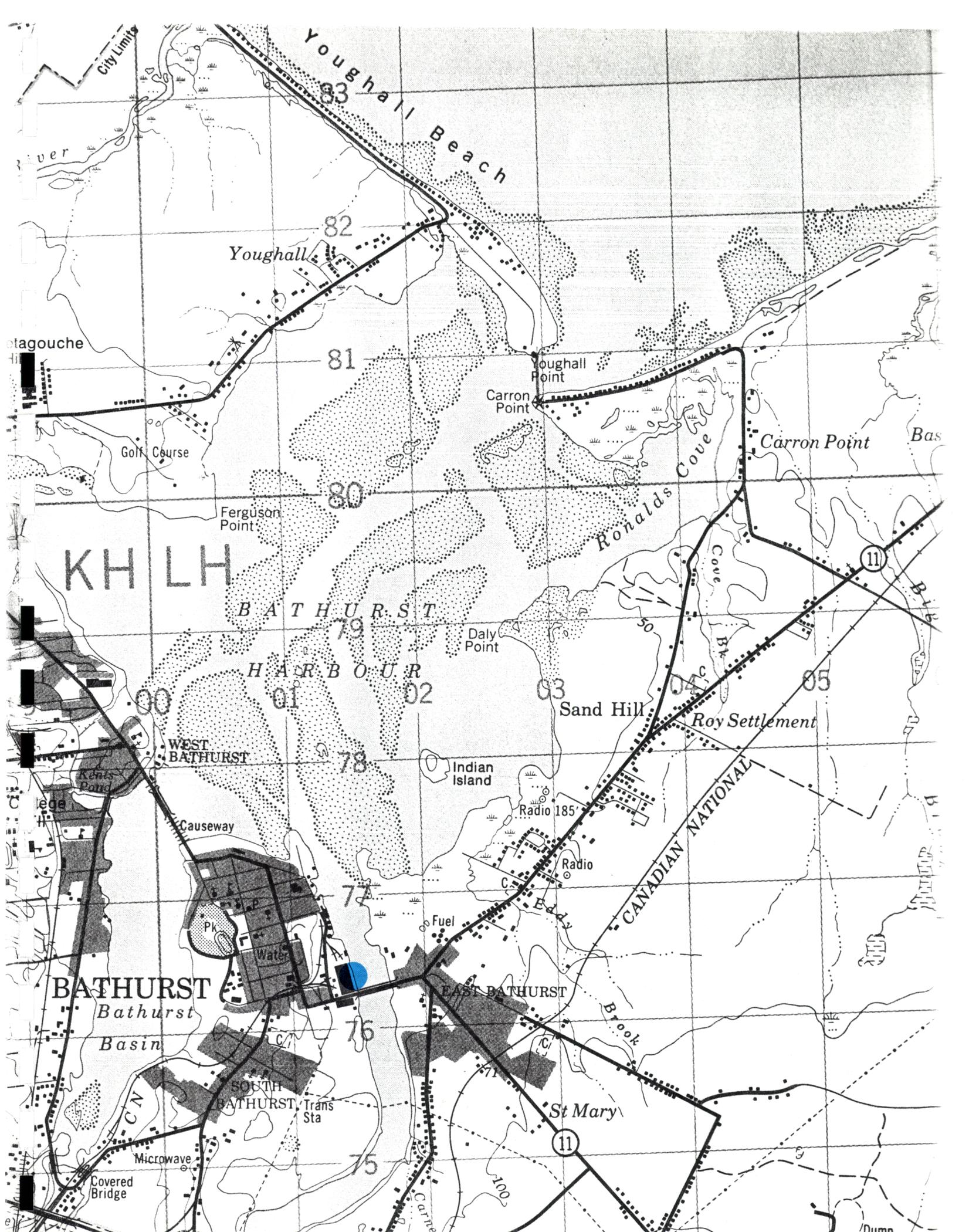
DEPTH: .00 METERS, TIDE:

NARRATIVE: GRAB SAMPLE.

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.4	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD).....	15.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	18.	MG/L

CONSOLIDATED BATHURST



City Limits

Youghall Beach

Youghall

Youghall Point

Carron Point

Bas

Golf Course

Ferguson Point

Ronalds Cove

Cove

KH LH

BATHURST

HARBOUR

Daly Point

Sand Hill

Roy Settlement

WEST BATHURST

Indian Island

Radio 185

Radio

Causeway

CANADIAN NATIONAL

BATHURST

EAST BATHURST

Bathurst Basin

SOUTH BATHURST

St Mary

Trans Sta

Microwave

Covered Bridge

Carter

Dump

* 87GT028 - GARTH TRIDER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: OCT 16, 1987, BY :IAN M

LOCATOR: CONBAT03/CONSOLIDATED BATHURST INC., BATHURST
PAPER MILL NO 3 PROV: NB
PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 7/10/87 (OCT 7, 1987), TIME: 830, FREQ: 24
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 830

DEPTH: .00 METERS, TIDE:
NARRATIVE: SEWER #3 (SHERBROOK CHEST)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.4	
2: 001F/PH.....	6.00	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD) ..	2400.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD) ..	6700.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	5700.	MG/L
6: 020 /SUSPENDED SOLIDS (SS).....	360.	MG/L
7: 421 /PRODUCTION	855.8	TONNES/DAY
8: 649 /FLOW	13850.	M3/DAY

* 87GT029 - GARTH TRIDER STATUS AS OF NOV 2/, 1987 *

REGISTERED ON: OCT 16, 1987, BY :IAN M

LOCATOR: CONBAT03/CONSOLIDATED BATHURST INC., BATHURST
PAPER MILL NO 3

PROV: NB

PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING PSP

SAMPLING BEGAN; DATE: 7/10/87 (OCT 7, 1987); TIME: 830, FREQ: 24

SAMPLING ENDED; DATE: 8/10/87 (OCT 8, 1987); TIME: 830

DEPTH: .00 METERS, TIDE:

NARRATIVE: SEWER #4 (COOLING WATER; SOME CONTAMINATED
CTMP WATER)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.6	
2: 001F/PH.....	5.50	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	95.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	450.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	460.	MG/L
6: 020 /SUSPENDED SOLIDS (SS).....	110.	MG/L
7: 421 /PRODUCTION	855.8	TONNES/DAY
8: 649 /FLOW	13800.	M3/DAY

* 87GT030 - GARTH TRIDER STATUS AS OF OCT 23, 1987 *

REGISTERED ON: OCT 16, 1987, BY :IAN M

LOCATOR: CONBATO6/CONSOLIDATED BATHURST INC., BATHURST
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: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 8/10/87 (OCT 8, 1987), TIME: 830, FREQ: 1
SAMPLING ENDED, DATE: 8/10/87 (OCT 8, 1987), TIME: 830

DEPTH: .00 METERS, TIDE:

NARRATIVE: SEWERS #3 & #4 FLOW PROF. COMBINED

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 500 /BIOASSAY	"DONE"	



TO



G. Trider, Head
Food Processing, Steel & Textile Industries Section
Water Pollution Control Division
Air & Water Branch

FROM
DE

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/VOTRE RÉFÉRENCE 4705-37/C1251
YOUR FILE/VOTRE RÉFÉRENCE
DATE 20 November 1987

SUBJECT
OBJET

Bioassay Results - Consolidated Bathurst

On 8 October 1987 R. Parker collected samples of sewer #3 and sewer #4 from the Consolidated Bathurst mill at Bathurst, New Brunswick. The samples were combined (Lab Registration No. 87GT030) based on the flow proportion from the two sewers. On 13 October 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. In addition a static bioassay was started on the residual effluent from each sewer. The latter bioassays were conducted with less test volume, but the loading densities were in accordance with Standard Procedure for Testing the Acute Toxicity of Liquid Effluents (EPS-1-WP-80-1).

In the combined bioassay all test fish died in the 100%, 56% and 32% concentrations. Twenty percent mortality was observed in the 10% concentration. An LC50 of 14.5% was computed. The bioassay run on the 100% concentration of sewer #3 was acutely lethal, whereas that for sewer #4 was not.

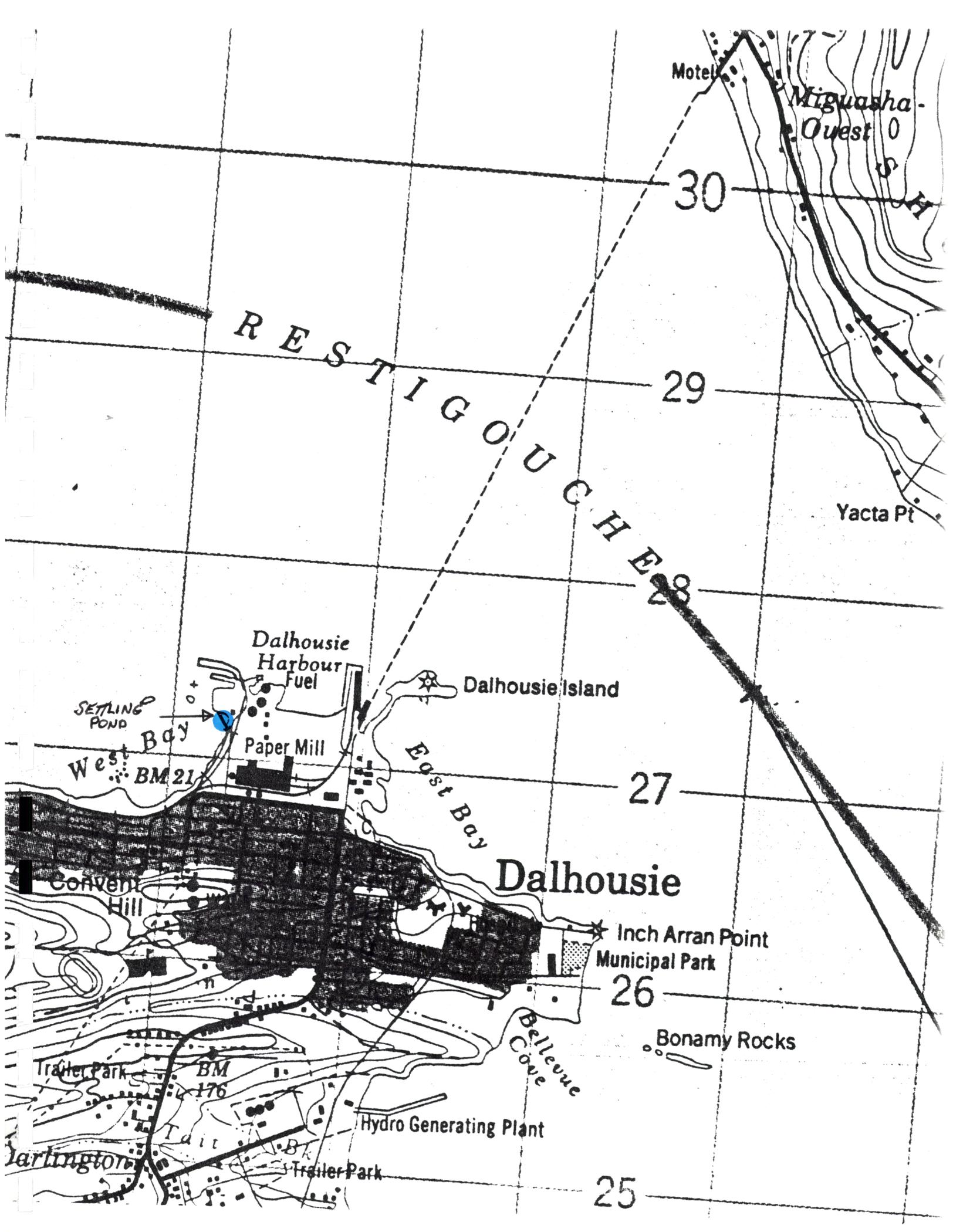
A copy of the Bioassay Report Forms are attached which provide additional details of the tests.


J. Young

Attachment (3)

- cc: K. Doe
- H. Samant
- R. Parker
- J. St. Onge, Consolidated Bathurst

DALHOUSIE HARBOUR



 * 87RP046 - ROY PARKER STATUS AS OF AUG 11, 1987 *

REGISTERED ON: JUL 21, 1987, BY :ANDRE

LOCATOR: DALHAR05/DALHOUSIE HARBOUR
 SETTLING POND (NEXT TO ORE FILE) PROV: NB
 PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 3/ 7/87 (JUL 3, 1987), TIME: 1000, FREQ: 1
 SAMPLING ENDED, DATE: 3/ 7/87 (JUL 3, 1987), TIME: 1000

DEPTH: .00 METERS, TIDE:

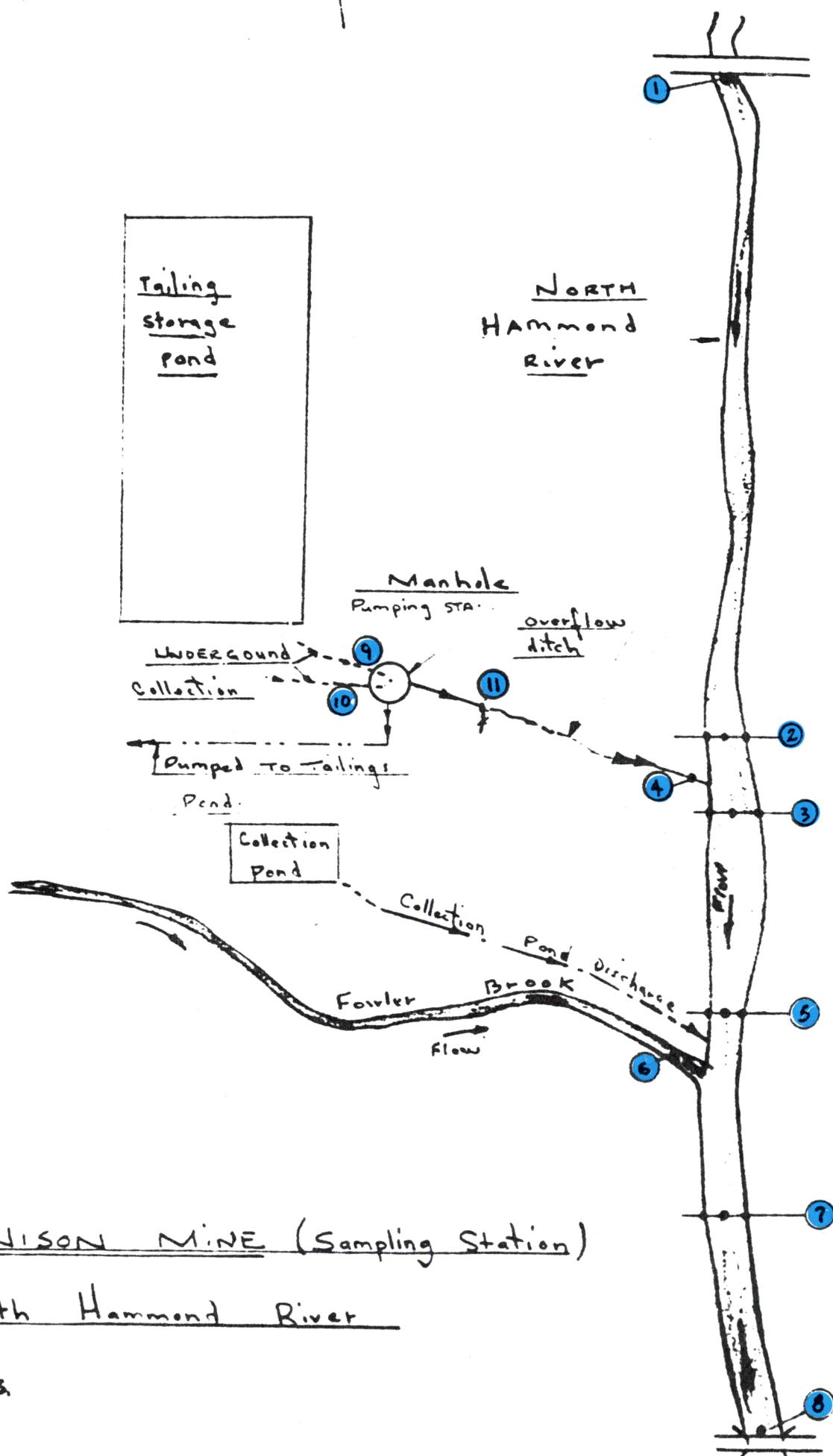
NARRATIVE: RMS ORE LOADING FACILITY
 EFFLUENT FROM SETTLING POND

---- SAMPLE ANALYSIS ----

.....PARAMETER.....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.8	
2: 001F/PH.....	6.4	
3: 005 /HARDNESS.....	170.	MG/L
4: 018 /SOLIDS, TOTAL (TS).....	840.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
6: 022 /MAGNESIUM (TOTAL).....	20.4	MG/L
7: 036 /CALCIUM (TOTAL).....	33.5	MG/L
8: 044 /ARSENIC (TOTAL).....	1.05	MG/L
9: 046 /CADMIUM (TOTAL).....	.03	MG/L
10: 047 /CHROMIUM (TOTAL).....	1.01	MG/L
11: 048 /COPPER (TOTAL).....	1.01	MG/L
12: 049 /IRON (TOTAL).....	.26	MG/L
13: 051 /LEAD (TOTAL).....	.55	MG/L
14: 054 /ZINC (TOTAL).....	9.98	MG/L
15: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	840.	MG/L
16: 159 /NICKEL (TOTAL).....	.01	MG/L
17: 160 /MANGANESE (TOTAL).....	.26	MG/L
18: 162 /ALUMINUM (TOTAL).....	1.025	MG/L
19: 049 /FLOW	100.	M3/DAY

DENNISON MINES

4



DENISON MINE (Sampling Station)

North Hammond River

N.T.S.

* 87PH040 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: DENNIN26/DENNISON MINES

STN 1(MIDDLE) N.HAMMOND R.1300M UPSTR

PROV: NB

NORMAL ANALYSIS: 1,46,48,49,51,54,131,161

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1430, FREQ: 1

SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1430

DEPTH: .00 METERS, TIDE:

NARRATIVE:

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.4	
3: 002F/TEMPERATURE.....	20.	DEGREES C.
4: 005 /HARDNESS.....	35.	MG/L
5: 006F/CONDUCTIVITY.....	0.00	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	56.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.04	MG/L
11: 048 /COPPER (TOTAL).....	0.06	MG/L
12: 049 /IRON (TOTAL).....	0.10	MG/L
13: 051 /LEAD (TOTAL).....	10.02	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	56.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	8.15	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

 * 87PH041 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030, FREQ: 1
 SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030

DEPTH: .00 METERS; TIDE:

NARRATIVE: STATION #2 (EAST) N.H.R.

M. GRID E300221 N5048394

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.5	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	17.5	DEGREES C.
4: 005 /HARDNESS.....	65.	MG/L
5: 006F/CONDUCTIVITY.....	0.18	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	124.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	0.07	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.04	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.08	MG/L
13: 051 /LEAD (TOTAL).....	10.02	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.1	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	124.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	32.2	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

* 87PH042 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030

DEPTH: .00 METERS, TIDE:

NARRATIVE: STATION #2 (MID) N.H.R.
M. GRID E300221 N5048394

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.6	
3: 002F/TEMPERATURE.....	16.0	DEGREES C.
4: 005 /HARDNESS.....	70.	MG/L
5: 006F/CONDUCTIVITY.....	0.18	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	128.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.05	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.08	MG/L
13: 051 /LEAD (TOTAL).....	0.04	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.15	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	128.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	37.8	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

 * 87FH043 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMINOO/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN; DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030; FREQ: 1
 SAMPLING ENDED; DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030

DEPTH: .00 METERS; TIDE:

NARRATIVE: STATION #2 WEST N.H.R.
 M. GRID E300221 N5048394

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.0	
2: 001F/PH.....	6.4	
3: 002F/TEMPERATURE.....	16.5	DEGREES C.
4: 005 /HARDNESS.....	95.	MG/L
5: 006F/CONDUCTIVITY.....	0.18	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	140.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.03	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.07	MG/L
13: 051 /LEAD (TOTAL).....	10.02	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.1	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	140.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	60.3	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

* 87PH044 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN: DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1045, FREQ: 1

SAMPLING ENDED: DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1045

DEPTH: .00 METERS; TIDE:

NARRATIVE: STATION #3 (EAST) N.H.R.

M. GRID E300176 N5048247

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.6	
3: 002F/TEMPERATURE.....	18.2	DEGREES C.
4: 005 /HARDNESS.....	70.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	148.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	10.01	MG/L
11: 048 /COPPER (TOTAL).....	0.04	MG/L
12: 049 /IRON (TOTAL).....	0.18	MG/L
13: 051 /LEAD (TOTAL).....	0.02	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	148.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	36.5	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

 * 87FH045 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1997; BY :PHIL H

LOCATOR: DENKINOO/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1045, FREQ: 1
 SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1045

DEPTH: .00 METERS; TIDE:

NARRATIVE: STATION #3 (MID) N.H.R.

M.GRID E300176 N5048247

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	17.6	DEGREES C.
4: 005 /HARDNESS.....	75.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	136.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	LO.05	MG/L
9: 046 /CADMIUM (TOTAL).....	LO.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.02	MG/L
11: 048 /COPPER (TOTAL).....	LO.01	MG/L
12: 049 /IRON (TOTAL).....	0.17	MG/L
13: 051 /LEAD (TOTAL).....	0.05	MG/L
14: 054 /ZINC (TOTAL).....	LO.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	136.	MG/L
17: 159 /NICKEL (TOTAL).....	LO.01	MG/L
18: 161 /CHLORIDE.....	37.4	PPM
19: 162 /ALUMINUM (TOTAL).....	LO.025	MG/L

* 87PH046 - PHIL HERNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMINOO/DENNISON MINE
GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1045, FREQ: 1
SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1045

DEPTH: .00 METERS; TIDE:
NARRATIVE: STATION #3 (WEST) N.H.R.
M.GRID E300176 N5048247

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	18.2	DEGREES C.
4: 005 /HARDNESS.....	100.	MG/L
5: 006F/CONDUCTIVITY.....	0.12	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	184.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	5.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.4	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.22	MG/L
13: 051 /LEAD (TOTAL).....	0.04	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	179.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	46.0	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

* 87PH047 - PHIL HENNEBURY STATUS AS OF JAN 11, 1988 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMINOO/DENNISON MINE
GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1100

DEPTH: .00 METERS, TIDE:

NARRATIVE: STATION #4 BROOK DISCH. TO N.H.R.
M.GRID E300112 N5048343

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.2	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	17.0	DEGREES C.
4: 005 /HARDNESS.....	2600.	MG/L
5: 006F/CONDUCTIVITY.....	3.30	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	4794.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	17.	MG/L
8: 044 /ARSENIC (TOTAL).....	LO.05	MG/L
9: 046 /CADMIUM (TOTAL).....	LO.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.04	MG/L
11: 048 /COPPER (TOTAL).....	LO.01	MG/L
12: 049 /IRON (TOTAL).....	0.27	MG/L
13: 051 /LEAD (TOTAL).....	0.02	MG/L
14: 054 /ZINC (TOTAL).....	0.02	MG/L
15: 065F/SALINITY.....	1.8	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	4777.	MG/L
17: 159 /NICKEL (TOTAL).....	LO.01	MG/L
18: 161 /CHLORIDE.....	*SAMPLE LOST*	PPM
19: 162 /ALUMINUM (TOTAL).....	LO.025	MG/L

 * 87PH048 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 2/, 1987; BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NE

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030, FREQ: 1
 SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1030

DEPTH: .00 METERS; TIDE:
 NARRATIVE: STATION #5 (EAS1) N.H.R.
 M. GRID E300150 N5048017

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.8	
3: 002F/TEMPERATURE.....	19.0	DEGREES C.
4: 005 /HARDNESS.....	80.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	128.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	0.05	MG/L
9: 046 /CADMIUM (TOTAL).....	0.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.03	MG/L
11: 048 /COPPER (TOTAL).....	0.01	MG/L
12: 049 /IRON (TOTAL).....	0.16	MG/L
13: 051 /LEAD (TOTAL).....	0.02	MG/L
14: 054 /ZINC (TOTAL).....	0.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	128.	MG/L
17: 159 /NICKEL (TOTAL).....	0.01	MG/L
18: 161 /CHLORINE.....	39.0	PPM
19: 162 /ALUMINUM (TOTAL).....	0.025	MG/L

 * 87PH049 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1130, FREQ: 1
 SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1130

DEPTH: .00 METERS, TIDE:

NARRATIVE: STATION #5 (MID) N.H.R.

M.GRID E300150 N5048017 (WSP #4)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.6	
2: 001F/PH.....	6.4	
3: 002F/TEMPERATURE.....	18.0	DEGREES C.
4: 005 /HARDNESS.....	35.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	160.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	10.01	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.15	MG/L
13: 051 /LEAD (TOTAL).....	10.02	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	160.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	41.7	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

* 87PH050 - PHIL HENNEBURY STATUS AS OF OCT 21, 1987 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: DENMINOO/DENNISON MINE
GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1130, FREQ: 1
SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: STATION #5 (WEST) N.H.R.
N.GRID E500150 N5048017

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

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	18.5	DEGREES C.
4: 005 /HARDNESS.....	85.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	144.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	0.09	MG/L
9: 046 /CADMIUM (TOTAL).....	0.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.01	MG/L
11: 048 /COPPER (TOTAL).....	0.01	MG/L
12: 049 /IRON (TOTAL).....	0.11	MG/L
13: 051 /LEAD (TOTAL).....	0.02	MG/L
14: 054 /ZINC (TOTAL).....	0.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	144.	MG/L
17: 159 /NICKEL (TOTAL).....	0.01	MG/L
18: 161 /CHLORIDE.....	40.8	PPM
19: 162 /ALUMINUM (TOTAL).....	0.025	MG/L

 * 87PH051 - PHIL HENNEBURY STATUS AS OF OCT 23, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENKIN06/DENNISON MINES
 FOWER BROOK

PROV: NB

NORMAL ANALYSIS: 1,46,48,49,51,54,131,161

PROJECT CODE: 233/COAL 2 FEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1130, FREQ: 1

SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1130

DEPTH: .00 METERS; TIDE:

NARRATIVE: NONE

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.8	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	26.7	DEGREES C.
4: 005 /HARDNESS.....	75.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	128.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	LS.	MG/L
8: 044 /ARSENIC (TOTAL).....	LO.05	MG/L
9: 046 /CADMIUM (TOTAL).....	LO.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	LO.01	MG/L
11: 048 /COPPER (TOTAL).....	0.02	MG/L
12: 049 /IRON (TOTAL).....	0.14	MG/L
13: 051 /LEAD (TOTAL).....	LO.02	MG/L
14: 054 /ZINC (TOTAL).....	LO.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	128.	MG/L
17: 159 /NICKEL (TOTAL).....	LO.01	MG/L
18: 161 /CHLORIDE.....	28.4	PPM
19: 162 /ALUMINUM (TOTAL).....	LO.025	MG/L

 * 87PH052 - PHIL HENNERBURY STATUS AS OF OCT 23, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1200, FREQ: 1

SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1200

DEPTH: .00 METERS; TIDE:

NARRATIVE: STATION #7 (EAST) N.H.R.

M.GRID E300240 N5047809

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

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	6.6	
3: 002F/TEMPERATURE.....	17.0	DEGREES C.
4: 005 /HARDNESS.....	85.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	140.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	LS.	MG/L
8: 044 /ARSENIC (TOTAL).....	LO.05	MG/L
9: 046 /CADMIUM (TOTAL).....	LO.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.08	MG/L
11: 048 /COPPER (TOTAL).....	LO.01	MG/L
12: 049 /IRON (TOTAL).....	0.11	MG/L
13: 051 /LEAD (TOTAL).....	0.05	MG/L
14: 054 /ZINC (TOTAL).....	LO.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	140.	MG/L
17: 159 /NICKEL (TOTAL).....	LO.01	MG/L
18: 161 /CHLORIDE.....	34.2	PPM
19: 162 /ALUMINUM (TOTAL).....	LO.025	MG/L

 * 87PH053 - PHIL HENNEBURY STATUS AS OF OCT 23, 1987 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN: DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1200, FREQ: 1
 SAMPLING ENDED: DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1200

DEPTH: .00 METERS; TIDE:
 NARRATIVE: STATION #7 (MID) N.H.R.
 M.GRID E300240 N5047809

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.2	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	17.5	DEGREES C.
4: 005 /HARDNESS.....	85.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	136.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.02	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.13	MG/L
13: 051 /LEAD (TOTAL).....	0.05	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	136.	MG/L
17: 159 /NICKEL (TOTAL).....	0.02	MG/L
18: 161 /CHLORIDE.....	36.5	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

 * 97PH054 - PHIL HENNEBURY STATUS AS OF OCT 23, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENMIN00/DENNISON MINE
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN: DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1200, FREQ: 1
 SAMPLING ENDED: DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1200

DEPTH: .00 METERS; TIDE:
 NARRATIVE: STATION #7 (WEST) N.H.R.
 M.GRID E300240 N5047809

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	6.2	
3: 002F/TEMPERATURE.....	17.0	DEGREES C.
4: 005 /HARDNESS.....	85.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	144.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	10.05	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.03	MG/L
11: 048 /COPPER (TOTAL).....	10.01	MG/L
12: 049 /IRON (TOTAL).....	0.12	MG/L
13: 051 /LEAD (TOTAL).....	0.07	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	144.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	41.6	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

 * 87PH055 - PHIL HENNEBURY STATUS AS OF OCT 23, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: DENKIN07/DENNISON MINES

STN 8(MIDDLE) N.HAMMOND R. 900M UNSTR PROV: NB

NORMAL ANALYSIS: 1,46,48,49,51,54,131,161

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN; DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1300, FREQ: 1

SAMPLING ENDED; DATE: 30/ 7/87 (JUL 30, 1987); TIME: 1300

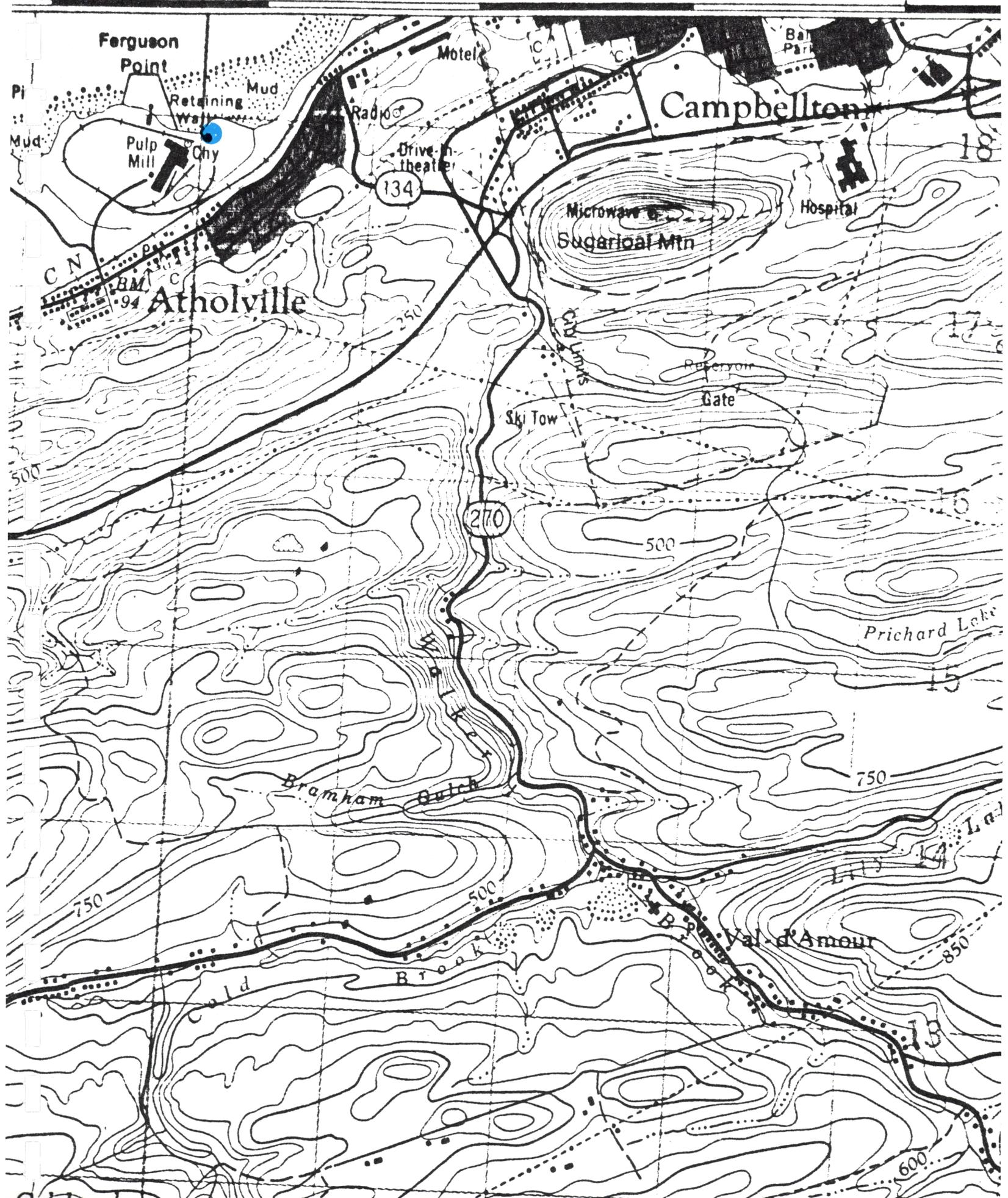
DEPTH: .00 METERS; TIDE:

NARRATIVE: DENISON STA. # WSP 3

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.2	
2: 001F/PH.....	6.6	
3: 002F/TEMPERATURE.....	20.0	DEGREES C.
4: 005 /HARDNESS.....	80.	MG/L
5: 006F/CONDUCTIVITY.....	0.1	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	144.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	15.	MG/L
8: 044 /ARSENIC (TOTAL).....	0.06	MG/L
9: 046 /CADMIUM (TOTAL).....	10.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.04	MG/L
11: 048 /COPPER (TOTAL).....	0.02	MG/L
12: 049 /IRON (TOTAL).....	0.10	MG/L
13: 051 /LEAD (TOTAL).....	0.04	MG/L
14: 054 /ZINC (TOTAL).....	10.01	MG/L
15: 065F/SALINITY.....	0.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	144.	MG/L
17: 159 /NICKEL (TOTAL).....	10.01	MG/L
18: 161 /CHLORIDE.....	38.1	PPM
19: 162 /ALUMINUM (TOTAL).....	10.025	MG/L

FRASER ATHOLVILLE



Ferguson Point

Retaining Wall

Pulp Mill

Motel

Radio

Drive-in Theater

134

Campbellton

Microwave
Sugarloaf Mtn

Hospital

Atholville

270

Ski Tow

Referon

Gate

Prichard Lake

Bramham Gulch

750

750

500

Cold Brook

Brook

Val-d'Amour

850

18

600

 * 87GT033 - GARTH TRIDER STATUS AS OF JAN 25, 1988 *

REGISTERED ON: OCT 16, 1987; BY :PHIL H

LOCATOR: FRASATO/ATHOLVILLE PULP INC.,ATHOLVILLE PROV: NB
 FINAL EFFLUENT

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: 13/10/87 (OCT 13, 1987), TIME: 830, FREQ: 48
 SAMPLING ENDED, DATE: 14/10/87 (OCT 14, 1987), TIME: 830

DEPTH: .00 METERS, TIDE:
 NARRATIVE: CLARIFIER OUTLET (HARDWOOD PROJECT)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.1	
2: 001F/PH.....	6.7	
3: 002F/TEMPERATURE.....	20.	DEGREES C.
4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	280.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	45.	MG/L
6: 278C/FLOW.....	75918.	CU M/DAY
7: 417 /BOD 5 (DEPOSIT RATE).....	94.5	KG/TONNE
8: 418 /SS (DEPOSIT RATE).....	15.2	KG/TONNE
9: 421 /PRODUCTION	225.	TONNES/DAY
10: 650 /SS(DEPOSIT RATE)	3416.	KG/DAY
11: 651 /BOD(DEPOSIT RATE)	21257.	KG/DAY

* 87GT034 - GARTH TRIDER

STATUS AS OF JAN 25, 1988 *

REGISTERED ON: OCT 16, 1987; BY :PHIL H

LOCATOR: FRASAT01/ATHOLVILLE PULP INC.,ATHOLVILLE
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: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 14/10/87 (OCT 14, 1987), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 15/10/87 (OCT 15, 1987), TIME: 830

DEPTH: .00 METERS, TIDE:

NARRATIVE: CLARIFIER OVERFLOW (HARDWOOD PROJECT)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.2	
2: 001F/PH.....	7.1	
3: 002F/TEMPERATURE.....	21.	
4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	320.	DEGREES C.
5: 016 /CHEMICAL OXYGEN DEMAND (COD)..	980.	MG/L
6: 020 /SUSPENDED SOLIDS (SS).....	45.	MG/L
7: 417 /BOD 5 (DEPOSIT RATE).....	102.9	KG/TONNE
8: 418 /SS (DEPOSIT RATE).....	14.5	KG/TONNE
9: 650 /SS(DEPOSIT RATE)	2966.	KG/DAY
10: 651 /BOD(DEPOSIT RATE)	21093.	KG/DAY

 Y 87GT037 - GARTH TRIDER STATE AS OF FEB 10, 1988 *

REGISTERED ON: OCT 16, 1987, BY (PHIL H

LOCATOR: FRASAT01/ATHOLVILLE PULF INC.,ATHOLVILLE PROV: NB
 FINGL EFFLUENT

NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
 201,235,236,2780,310,421,500,688,689,690
 PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN: DATE: 14/10/87 (OCT 14, 1987); TIME: 1400; FREQ: 1
 SAMPLING ENDED: DATE: 14/10/87 (OCT 14, 1987); TIME: 1400

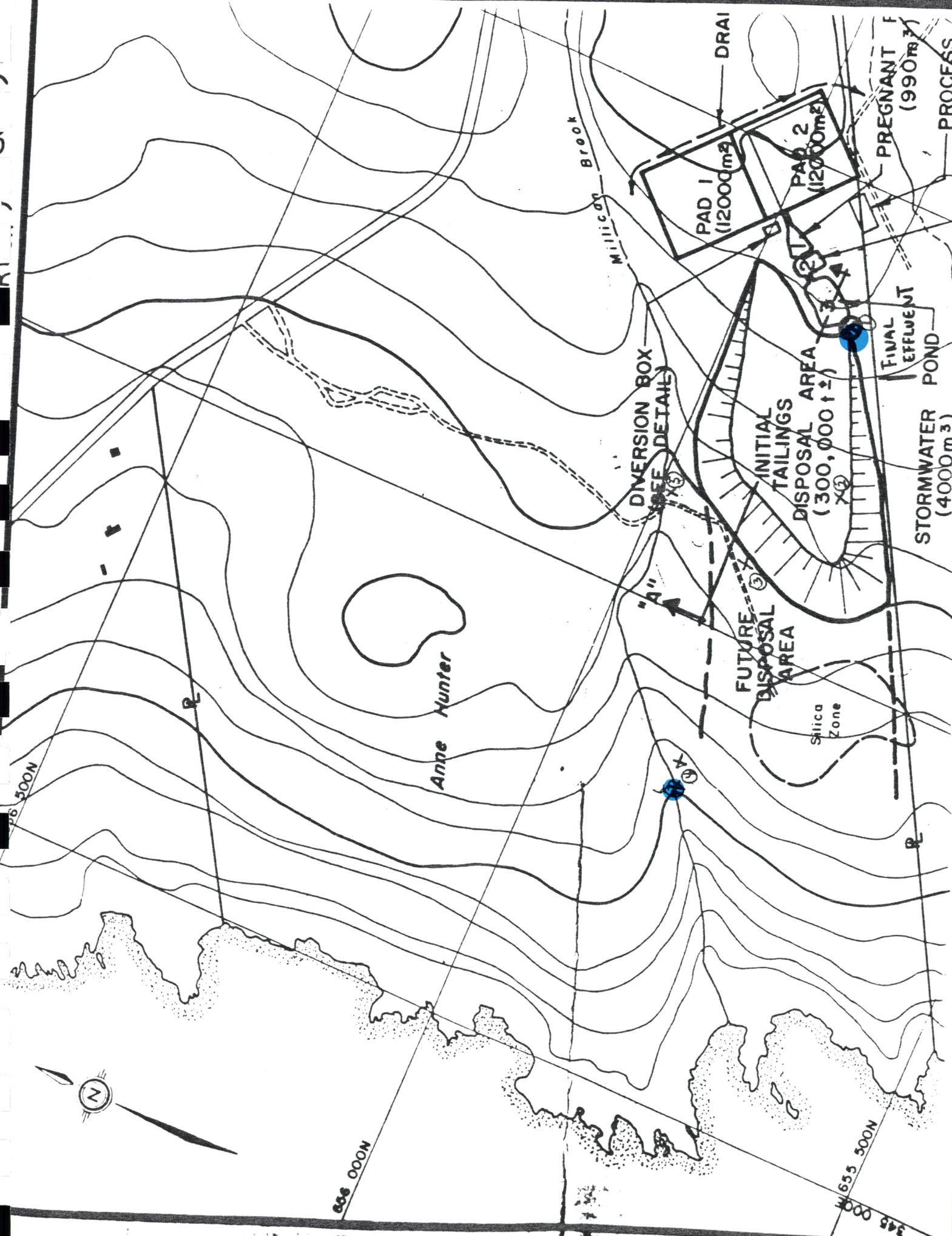
DEPTH: .00 METERS; TIDE:
 NARRATIVE: CLARIFIER OUTLET

---- SAMPLE ANALYSIS ----

PARAMETER	VALUE	UNITS
1: 001 /PH.....	7.1	
2: 011 /RESIN ACIDS (RAS).....	0.53	MG/L
3: 028 /AMMONIA-N (NH3-N).....	10.07	MG/L
4: 048 /CADMIUM (TOTAL).....	1.01	MG/L
5: 048 /COPPER (TOTAL).....	10.01	MG/L
6: 050 /MERCURY (TOTAL).....	0.00020	MG/L
7: 088 /ZINC (TOTAL).....	17	MG/L
8: 088 /SULFIDE.....	10.15	MG/L
9: 157 /PENTACHLOROPHENOL.....	10.005	MG/L
10: 162 /ALUMINUM (TOTAL).....	1.025	MG/L
11: 172 /2,3,5,6-TETRACHLOROPHENOL.....	0.0022	MG/L
12: 201 /BERYLLIUM.....	1.01	MG/L
13: 235 /2,3,4,6 - TETRACHLOROPHENOL ..	*SEE 2,3,5,6 TCP	MG/L
14: 236 /2,3,4,5 - TETRACHLOROPHENOL ..	*INTERFERENCE PRESEN	MG/L
15: 2780 /FLOW.....	88917.	CU M/DAY
16: 421 /PRODUCTION.....	205.	TUNNES/EA
17: 500 /BIODASSAY.....	*DOM*	
18: 688 /2,4,6-TRICHLOROPHENOL.....	0.0035	MG/L
19: 689 /TETRACHLOROGUACOL.....	0.049	MG/L
20: 690 /TETRACHLOROCYTECHOL.....	*	MG/L

G O R D E X G O L D M I N E

RI... J...



* 87RF044 - ROY PARKER STATUS AS OF DEC 16, 1987 *

REGISTERED ON: JUL 21, 1987; BY :ROY F

LOCATOR: SPECNB01/SPECIAL SAMPLES; N.B.

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 20/ 7/87 (JUL 20, 1987), TIME: 1315, FREQ: 1
SAMPLING ENDED, DATE: 20/ 7/87 (JUL 20, 1987), TIME: 1315

DEPTH: .00 METERS, TIDE:

NARRATIVE: GORDEX- FINAL EFFLUENT FROM FILTER NO
3, SPLIT WITH COMPANY AND NBM&E

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	10.0	
2: 001F/PH.....	10.2	
3: 005 /HARDNESS.....	470.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	1.30	MG/L
6: 029 /CYANIDE (CN).....	0.9	MG/L
7: 036 /CALCIUM (TOTAL).....	186.	MG/L
8: 044 /ARSENIC (TOTAL).....	L.05	MG/L
9: 046 /CADMIUM (TOTAL).....	L.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	L.01	MG/L
11: 048 /COPPER (TOTAL).....	.33	MG/L
12: 049 /IRON (TOTAL).....	.35	MG/L
13: 051 /LEAD (TOTAL).....	L.02	MG/L
14: 052 /ANTIMONY (TOTAL).....	L0.20	MG/L
15: 054 /ZINC (TOTAL).....	L.01	MG/L
16: 159 /NICKEL (TOTAL).....	.03	MG/L
17: 160 /MANGANESE (TOTAL).....	L.01	MG/L
18: 162 /ALUMINUM (TOTAL).....	.49	MG/L
19: 500 /BIODASSAY	"DONE"	

MEMORANDUM

NOTE DE SERVICE

W. R. Parker, Head
Mineral Industries & Toxic Studies
Air & Water Branch

J. David A. Vaughan
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY CLASSIFICATION DE SECURITE
OUR FILE NOTRE REFERENCE 4705-37/G38
YOUR FILE VOTRE REFERENCE
DATE 17 September 1987

SUBJECT
OBJET

BIOASSAY RESULTS - GORDEX MINERALS LTD.,
CAPE SPENSER PROJECT

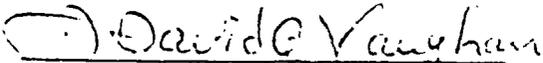
On July 20, 1987, R. Parker collected a grab sample of final effluent from Gordex Minerals Ltd., Cape Spenser, New Brunswick.

On July 22, 1987, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 2.7 ± 1.1 g as the test organism.

The effluent was acutely lethal to the test fish with all fish dying in less than 4 hours in effluent concentrations higher than 18%. The 4-day LC50 value was 13.5% (95% conf. limits: 10-18%).

Chemical analysis revealed that the sample had a pH of 10.0 and contained 0.33 mg/L total copper and 0.9 mg/L cyanide. Although the elevated pH and copper level should be of concern, they would not account for the rather rapid mortality observed. However, the cyanide could account for the observed mortality, if a sufficient proportion was present as "free cyanide" (ie. hydrocyanic acid).

A copy of the Bioassay Report is attached which provides further test details.


J. David A. Vaughan

JDAV/ldl

Attachment (1)

cc: P. Hennebury
H. Samant
K. Doe

* 87RP045 - ROY PARKER STATUS AS OF DEC 4, 1987 *

REGISTERED ON: JUL 21, 1987; BY :ROY P

LOCATOR: SPECNB01/SPECIAL SAMPLES; N.B.

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN; DATE: 20/ 7/87 (JUL 20, 1987); TIME: 1330; FREQ: 1

SAMPLING ENDED; DATE: 20/ 7/87 (JUL 20, 1987); TIME: 1330

DEPTH: .00 METERS; TIDE:

NARRATIVE: GORDEX - INFLUENT TO TANK 1 (UNTREATED)

SAMPLE SPLIT WITH COMPANY AND NBMAE

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001F/PH.....	11.3	
2: 005 /HARDNESS.....	370.	MG/L
3: 022 /MAGNESIUM (TOTAL).....	.87	MG/L
4: 029 /CYANIDE (CN).....	27.8	MG/L
5: 036 /CALCIUM (TOTAL).....	146.	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).....	28.2	MG/L
10: 049 /IRON (TOTAL).....	L.01	MG/L
11: 051 /LEAD (TOTAL).....	L.02	MG/L
12: 052 /ANTIMONY (TOTAL).....	LO.20	MG/L
13: 054 /ZINC (TOTAL).....	.03	MG/L
14: 159 /NICKEL (TOTAL).....	.94	MG/L
15: 160 /MANGANESE (TOTAL).....	.03	MG/L
16: 162 /ALUMINUM (TOTAL).....	.25	MG/L

* B7RP079 - ROY PARKER STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 23, 1987; BY :ANDRE

LOCATOR: GORDEX02/GORDEX GOLD MINE, ST-JOHN TREATMENT PLANT OUTLET PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987); TIME: 1000; FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987); TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT EFFLUENT

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		8.2	
2:	005 /HARDNESS.....		1500.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....		70.	MG/L
4:	022 /MAGNESIUM (TOTAL).....		9.83	MG/L
5:	029 /CYANIDE (CN).....		0.65	MG/L
6:	036 /CALCIUM (TOTAL).....		584.	MG/L
7:	044 /ARSENIC (TOTAL).....		.05	MG/L
8:	046 /CADMIUM (TOTAL).....		L.01	MG/L
9:	047 /CHROMIUM (TOTAL).....		L.02	MG/L
10:	048 /COPPER (TOTAL).....		0.04	MG/L
11:	049 /IRON (TOTAL).....		.37	MG/L
12:	051 /LEAD (TOTAL).....		L.02	MG/L
13:	054 /ZINC (TOTAL).....		.01	MG/L
14:	159 /NICKEL (TOTAL).....		.02	MG/L
15:	160 /MANGANESE (TOTAL).....		.04	MG/L
16:	162 /ALUMINUM (TOTAL).....		L.025	MG/L

* 87RF080 - ROY PARKER STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX01/GORDEX GOLD MINE,ST-JOHN
TREATMENT PLANT INLET
PROJECT CODE: 235/ENV. CONTROL METAL MINING

PROV: NB

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1000, FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT INLET

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		10.8	
2:	005 /HARDNESS.....		540.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....		10.	MG/L
4:	022 /MAGNESIUM (TOTAL).....		6.11	MG/L
5:	029 /CYANIDE (CN).....		171.	MG/L
6:	036 /CALCIUM (TOTAL).....		205.	MG/L
7:	044 /ARSENIC (TOTAL).....		L.05	MG/L
8:	046 /CADMIUM (TOTAL).....		L.01	MG/L
9:	047 /CHROMIUM (TOTAL).....		L.02	MG/L
10:	048 /COPPER (TOTAL).....		44.	MG/L
11:	049 /IRON (TOTAL).....		.05	MG/L
12:	051 /LEAD (TOTAL).....		.13	MG/L
13:	054 /ZINC (TOTAL).....		2.87	MG/L
14:	159 /NICKEL (TOTAL).....		.30	MG/L
15:	160 /MANGANESE (TOTAL).....		.38	MG/L
16:	162 /ALUMINUM (TOTAL).....		L.025	MG/L

* 87RPOB1 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX01/GORDEX GOLD MINE, ST-JOHN
TREATMENT PLANT INLET
PROJECT CODE: 235/ENV. CONTROL METAL MINING

PROV: NB

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1100, FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT INLET

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	005 /HARDNESS.....		450.	MG/L
2:	022 /MAGNESIUM (TOTAL).....		5.35	MG/L
3:	029 /CYANIDE (CN).....		217.	MG/L
4:	036 /CALCIUM (TOTAL).....		172.	MG/L
5:	044 /ARSENIC (TOTAL).....		L.05	MG/L
6:	046 /CADMIUM (TOTAL).....		L.01	MG/L
7:	047 /CHROMIUM (TOTAL).....		.02	MG/L
8:	048 /COPPER (TOTAL).....		44.	MG/L
9:	049 /IRON (TOTAL).....		.12	MG/L
10:	051 /LEAD (TOTAL).....		.17	MG/L
11:	054 /ZINC (TOTAL).....		2.03	MG/L
12:	159 /NICKEL (TOTAL).....		.22	MG/L
13:	160 /MANGANESE (TOTAL).....		.17	MG/L
14:	162 /ALUMINUM (TOTAL).....		.07	MG/L

* 87RF082 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX02/GORDEX GOLD MINE,ST-JOHN
TREATMENT PLANT OUTLET

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1100, FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1130

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT OUTLET

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 005 /HARDNESS.....	2100.	MG/L
2: 022 /MAGNESIUM (TOTAL).....	13.7	MG/L
3: 029 /CYANIDE (CN).....	1.1	MG/L
4: 036 /CALCIUM (TOTAL).....	823.	MG/L
5: 044 /ARSENIC (TOTAL).....	.05	MG/L
6: 046 /CADMIUM (TOTAL).....	L.01	MG/L
7: 047 /CHROMIUM (TOTAL).....	.03	MG/L
8: 048 /COPPER (TOTAL).....	0.11	MG/L
9: 049 /IRON (TOTAL).....	.34	MG/L
10: 051 /LEAD (TOTAL).....	.02	MG/L
11: 054 /ZINC (TOTAL).....	.02	MG/L
12: 159 /NICKEL (TOTAL).....	L.01	MG/L
13: 160 /MANGANESE (TOTAL).....	.02	MG/L
14: 162 /ALUMINUM (TOTAL).....	L.025	MG/L

* B7RP083 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX01/GORDEX GOLD MINE,ST-JOHN
TREATMENT PLANT INLET PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1200, FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT INLET

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 005 /HARDNESS.....	780.	MG/L
2: 022 /MAGNESIUM (TOTAL).....	13.25	MG/L
3: 029 /CYANIDE (CN).....	228.	MG/L
4: 036 /CALCIUM (TOTAL).....	297.	MG/L
5: 044 /ARSENIC (TOTAL).....	L.05	MG/L
6: 046 /CADMIUM (TOTAL).....	L.01	MG/L
7: 047 /CHROMIUM (TOTAL).....	L.02	MG/L
8: 048 /COPPER (TOTAL).....	41.	MG/L
9: 049 /IRON (TOTAL).....	.12	MG/L
10: 051 /LEAD (TOTAL).....	.55	MG/L
11: 054 /ZINC (TOTAL).....	3.54	MG/L
12: 159 /NICKEL (TOTAL).....	.477	MG/L
13: 160 /MANGANESE (TOTAL).....	.50	MG/L
14: 162 /ALUMINUM (TOTAL).....	L.025	MG/L

* B7RF084 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX02/GORDEX GOLD MINE, ST-JOHN
TREATMENT PLANT OUTLET
PROJECT CODE: 235/ENV. CONTROL METAL MINING

PROV: NR

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1200, FREQ: 2
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: TREATMENT PLANT OUTLET

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	005 /HARDNESS.....		1300.	MG/L
2:	022 /MAGNESIUM (TOTAL).....		10.9	MG/L
3:	029 /CYANIDE (CN).....		1.1	MG/L
4:	036 /CALCIUM (TOTAL).....		518.	MG/L
5:	044 /ARSENIC (TOTAL).....		L.05	MG/L
6:	046 /CADMIUM (TOTAL).....		L.01	MG/L
7:	047 /CHROMIUM (TOTAL).....		L.02	MG/L
8:	048 /COPPER (TOTAL).....		0.15	MG/L
9:	049 /IRON (TOTAL).....		.14	MG/L
10:	051 /LEAD (TOTAL).....		L.02	MG/L
11:	054 /ZINC (TOTAL).....		.07	MG/L
12:	159 /NICKEL (TOTAL).....		.01	MG/L
13:	160 /MANGANESE (TOTAL).....		.03	MG/L
14:	162 /ALUMINUM (TOTAL).....		L.025	MG/L

* 87RF085 - ROY PARKER STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 23, 1987, BY :ANDRE

LOCATOR: GORDEX00/GORDEX GOLD MINE, ST-JOHN
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 20/11/87 (NOV 20, 1987), TIME: 1230, FREQ: 1
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: WATER IN OPEN PIT

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		7.6	
2:	005 /HARDNESS.....		1400.	MG/L
3:	020 /SUSPENDED SOLIDS (SS).....		134000.	MG/L
4:	022 /MAGNESIUM (TOTAL).....		62.5	MG/L
5:	036 /CALCIUM (TOTAL).....		410.	MG/L
6:	044 /ARSENIC (TOTAL).....		L.05	MG/L
7:	046 /CADMIUM (TOTAL).....		L.01	MG/L
8:	047 /CHROMIUM (TOTAL).....		.03	MG/L
9:	048 /COPPER (TOTAL).....		0.78	MG/L
10:	049 /IRON (TOTAL).....		39.4	MG/L
11:	051 /LEAD (TOTAL).....		L.02	MG/L
12:	054 /ZINC (TOTAL).....		.30	MG/L
13:	159 /NICKEL (TOTAL).....		.05	MG/L
14:	160 /MANGANESE (TOTAL).....		16.1	MG/L
15:	162 /ALUMINUM (TOTAL).....		10.5	MG/L

W. R. Parker, Head
Mineral Industries & Toxic Studies
Air & Water Branch

J. David A. Vaughan
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SECURITE

OUR FILE / NOTRE REFERENCE

4705-37/G38

YOUR FILE / VOTRE REFERENCE

DATE

17 September 1987

SUBJECT
OBJET

BIOASSAY RESULTS - GORDEX MINERALS LTD.,
CAPE SPENSER PROJECT

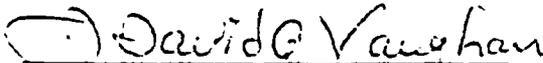
On July 20, 1987, R. Parker collected a grab sample of final effluent from Gordex Minerals Ltd., Cape Spenser, New Brunswick.

On July 22, 1987, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 2.7 ± 1.1 g as the test organism.

The effluent was acutely lethal to the test fish with all fish dying in less than 4 hours in effluent concentrations higher than 18%. The 4-day LC50 value was 13.5% (95% conf. limits: 10-18%).

Chemical analysis revealed that the sample had a pH of 10.0 and contained 0.33 mg/L total copper and 0.9 mg/L cyanide. Although the elevated pH and copper level should be of concern, they would not account for the rather rapid mortality observed. However, the cyanide could account for the observed mortality, if a sufficient proportion was present as "free cyanide" (ie. hydrocyanic acid).

A copy of the Bioassay Report is attached which provides further test details.

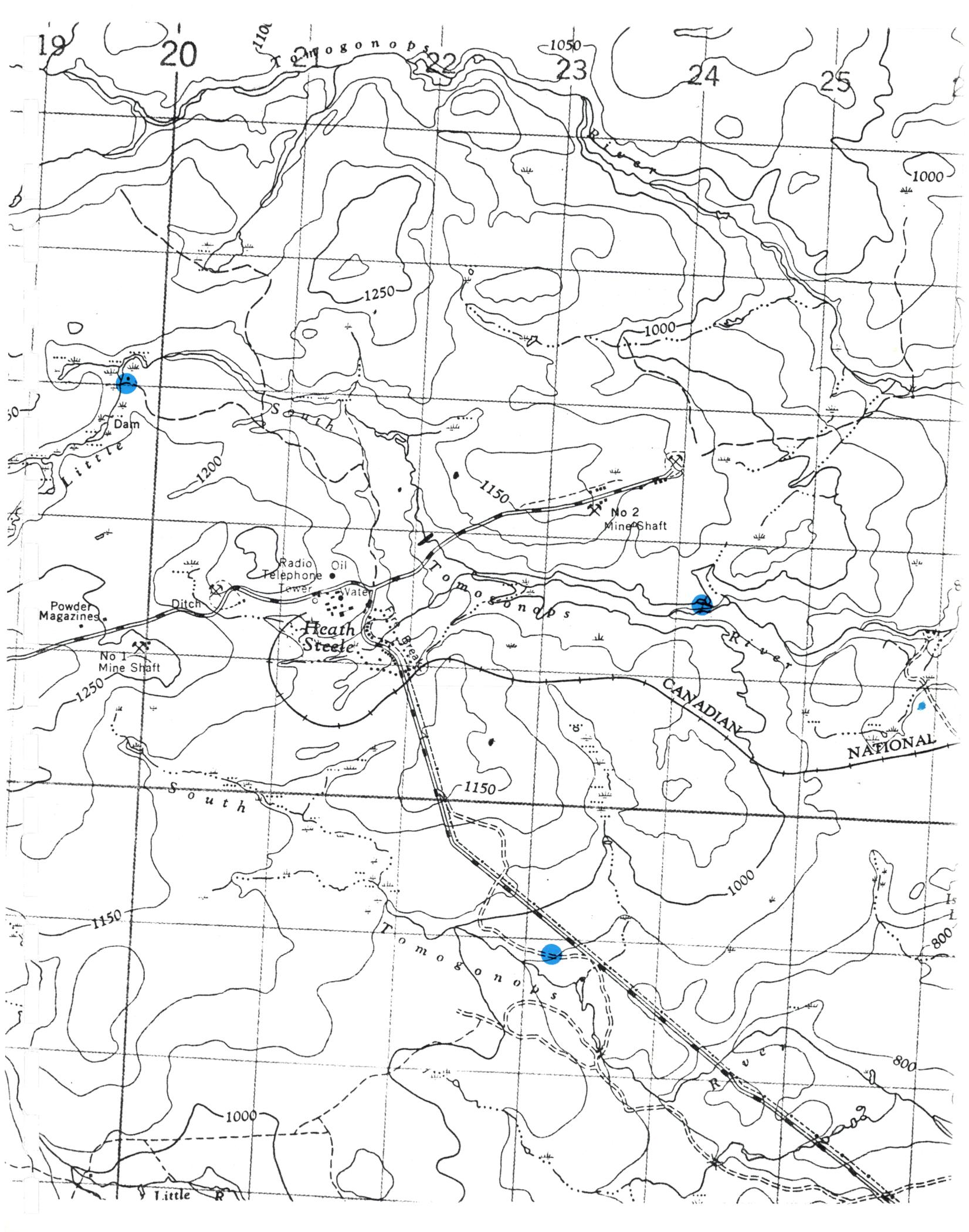

J. David A. Vaughan

JDAV/ldl

Attachment (1)

cc: P. Hennebury
H. Samant
K. Doe

HEATH STEELE



* 87RF070 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY P

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

SAMPLING BEGAN, DATE: 6/10/87 (OCT 6, 1987), TIME: 1540, FREQ: 1
SAMPLING ENDED, DATE: 6/10/87 (OCT 6, 1987), TIME: 1540

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

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		4.6	
2:	001F/PH.....		4.5	
3:	005 /HARDNESS.....		35.	MG/L
4:	020 /SUSPENDED SOLIDS (SS).....		10.	MG/L
5:	022 /MAGNESIUM (TOTAL).....		3.55	MG/L
6:	035 /SODIUM.....		2.25	MG/L
7:	036 /CALCIUM (TOTAL).....		8.13	MG/L
8:	044 /ARSENIC (TOTAL).....		L.05	MG/L
9:	046 /CADMIUM (TOTAL).....		L.01	MG/L
10:	047 /CHROMIUM (TOTAL).....		L.02	MG/L
11:	048 /COPPER (TOTAL).....		0.20	MG/L
12:	049 /IRON (TOTAL).....		1.50	MG/L
13:	051 /LEAD (TOTAL).....		.13	MG/L
14:	052 /ANTIMONY (TOTAL).....		L0.20	MG/L
15:	054 /ZINC (TOTAL).....		2.66	MG/L
16:	159 /NICKEL (TOTAL).....		.01	MG/L
17:	160 /MANGANESE (TOTAL).....		4.57	MG/L
18:	162 /ALUMINUM (TOTAL).....		2.11	MG/L

* 87RP074 - ROY PARKER STATUS AS OF DEC 7, 1987 *

REGISTERED ON: OCT 9, 1987, BY :ROY F

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: 6/10/87 (OCT 6, 1987), TIME: 1515, FREQ: 1
SAMPLING ENDED, DATE: 6/10/87 (OCT 6, 1987), TIME: 1515

DEPTH: .00 METERS, TIDE:
NARRATIVE: GRAB SAMPLE .FLOW MEASUREMENT TO FOLLOW

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	6.9		
2:	001F/PH.....	6.2		
3:	005 /HARDNESS.....	1000.		MG/L
4:	020 /SUSPENDED SOLIDS (SS).....	L5.		MG/L
5:	022 /MAGNESIUM (TOTAL).....	24.3		MG/L
6:	035 /SODIUM.....	20.		MG/L
7:	036 /CALCIUM (TOTAL).....	373.		MG/L
8:	044 /ARSENIC (TOTAL).....	L.05		MG/L
9:	046 /CADMIUM (TOTAL).....	L.01		MG/L
10:	047 /CHROMIUM (TOTAL).....	L.02		MG/L
11:	048 /COPPER (TOTAL).....	0.02		MG/L
12:	049 /IRON (TOTAL).....	.66		MG/L
13:	051 /LEAD (TOTAL).....	L.02		MG/L
14:	052 /ANTIMONY (TOTAL).....	L0.20		MG/L
15:	054 /ZINC (TOTAL).....	1.29		MG/L
16:	159 /NICKEL (TOTAL).....	.01		MG/L
17:	160 /MANGANESE (TOTAL).....	1.69		MG/L
18:	162 /ALUMINUM (TOTAL).....	L.025		MG/L
19:	500 /BIOASSAY	"DONE"		



TO



R. Parker, Head
Mineral Industries & Toxic Studies Section
Water Pollution Control Division
Air & Water Branch

FROM DE

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

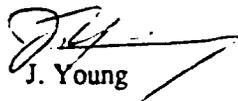
SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/VOTRE RÉFÉRENCE 4705-37/H136
YOUR FILE/VOTRE RÉFÉRENCE
DATE 9 November 1987

SUBJECT
OBJET

Bioassay Results - Heath-Steele Mine

On 6 October 1987 a sample was collected by yourself of the tailings pond overflow (Lab Registration No. 87RP074) from Heath-Steele mine near Newcastle New Brunswick. On 13 October 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The effluent was not acutely lethal to the test fish.

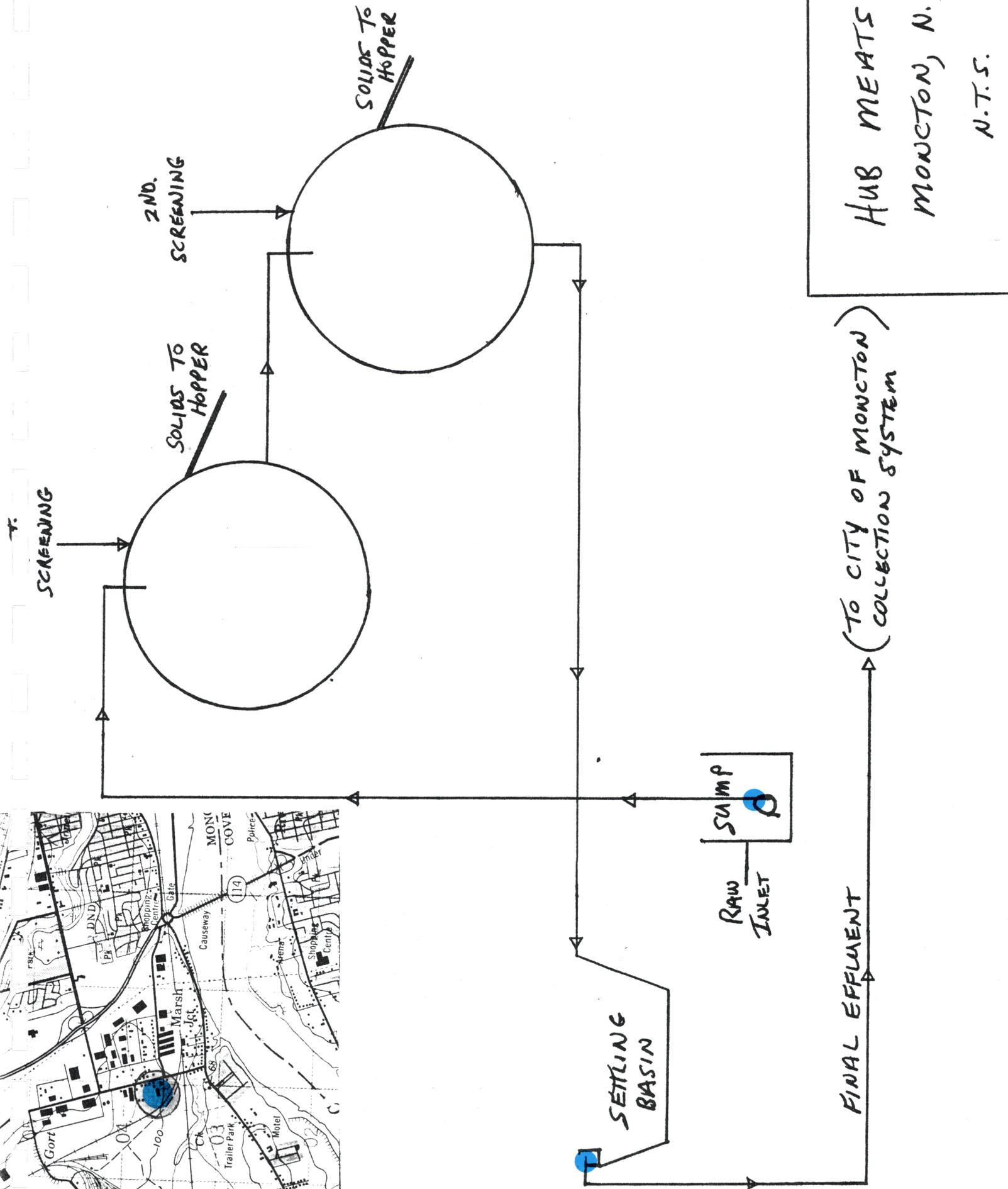
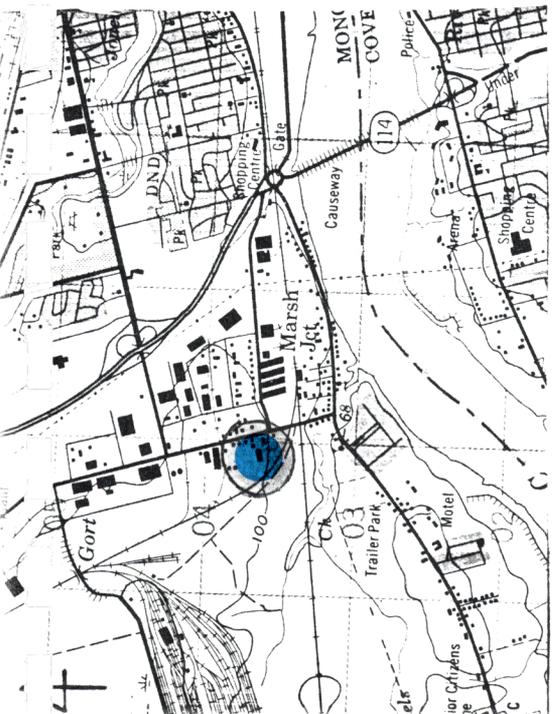
A copy of the Bioassay Report Form is attached which provides additional details of the test.


J. Young

Attachment (1)

cc: K. Doe
H. Samant

HUB MEAT PACKERS



HUB MEATS
MONCTON, N.B.
N.T.S.

* B7FK072 - PAUL KLAAMAS STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 20, 1987, BY :PHIL H

LOCATOR: HUBME02/HUB MEAT PACKERS, NONCTON PROV: NB
BEFORE ROTARY SCREEN
PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 17/11/87 (NOV 17, 1987); TIME: 900; FREQ: 48
SAMPLING ENDED, DATE: 18/11/87 (NOV 18, 1987); TIME: 900

DEPTH: .00 METERS; TIDE:
NARRATIVE: BEFORE SCREENING (RAW)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.1	
2: 001F/PH.....	7.4	
3: 013X/OIL & GREASE (SOXLET)	215.	MG/L
4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	1500.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	690.	MG/L

* 87FK073 - PAUL KLAAMAS STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 20, 1987; BY :PHIL H

LOCATOR: HUBME02/HUB MEAT PACKERS, MONCTON
BEFORE ROTARY SCREEN

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 18/11/87 (NOV 18, 1987), TIME: 900, FREQ: 48

SAMPLING ENDED, DATE: 19/11/87 (NOV 19, 1987), TIME: 900

DEPTH: .00 METERS; TIDE:

NARRATIVE: BEFORE SCREENING (ROW)

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

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.4	
2: 001F/PH.....	9.1	
3: 013X/OIL & GREASE (SOXLET)	160.	MG/L
4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	1400.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	280.	MG/L

* 87PK074 - PAUL KLAAMAS STATUS AS OF DEC 24, 1987 *

REGISTERED ON: NOV 20, 1987, BY :PHIL H

LOCATOR: HUBMEA02/HUB MEAT PACKERS, MONCTON
BEFORE ROTARY SCREEN PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 19/11/87 (NOV 19, 1987), TIME: 900, FRER: 48
SAMPLING ENDED, DATE: 20/11/87 (NOV 20, 1987), TIME: 900

DEPTH: .00 METERS, TIDE:
NARRATIVE: BEFORE SCREENING (RAW)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.2	
2: 001F/PH.....	7.3	
3: 013X/OIL & GREASE (SOXLET)	130.	MG/L
4: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	940.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	410.	MG/L

* 87PK075 - PAUL KLAAMAS STATUS AS OF DEC 21, 1987 *

REGISTERED ON: NOV 20, 1987, BY :PHIL H

LOCATOR: HUBMEA01/HUB MEAT PACKERS, MONCTON
FINAL EFFLUENT

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN, DATE: 19/11/87 (NOV 19, 1987), TIME: 1430, FREQ: 1

SAMPLING ENDED, DATE: 19/11/87 (NOV 19, 1987), TIME: 1430

DEPTH: .00 METERS, TIDE:

NARRATIVE: AFTER SCREENUND (FINAL)

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

.....PARAMETER .....	..... VALUE	UNITS
1: 500 /BIOASSAY	"DONE"	

P. Klaamas
Water Pollution Control Division
Air & Water Branch, EP, Atlantic Region
Conservation and Protection

D. Vaughan
Laboratory Division
A&W Branch, EP, Atlantic Region
Conservation and Protection

SECURITY CLASSIFICATION OF DOCUMENT
YOUR FILE / VOTRE REFERENCE 4756-1
YOUR FILE / VOTRE REFERENCE
DATE January 5, 1988

SUBJECT
OBJET

BIOASSAY RESULTS - HUB MEATS

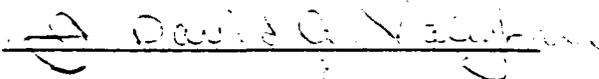
On November 19, 1987, Phil Hennebury collected a grab sample of final effluent from Hub Meats, Moncton, New Brunswick.

On November 23, 1987, a 96-hour acute lethal static bioassay was begun on this sample, using rainbow trout fingerling of mean weight 12.3 ± 3.5 g as the test organism.

The effluent was acutely lethal to the test fish, yielding a 4-day LC50 value of 57% (95% conf. limits: 32-100%).

The observed mortality was caused by the low dissolved oxygen content of the sample. However, when the effluent was heavily aerated until an acceptable level of dissolved oxygen was obtained and the tank restocked with fish, 100% mortality still occurred. The cause of mortality in the restocked test is not evident from the chemical analysis results.

A copy of the Bioassay Report is attached which provides additional information.



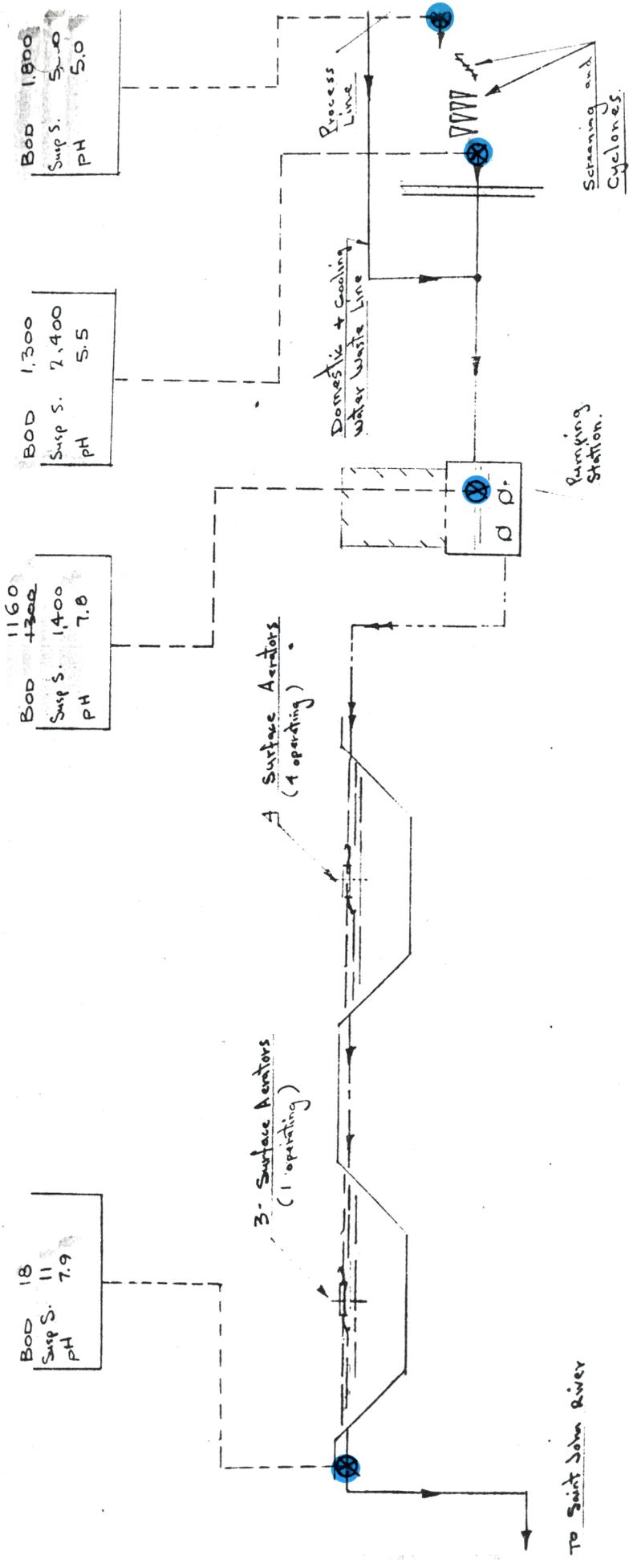
J. David A. Vaughan

SJP/dg

Attach (1)

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

HUMPTY DUMPTY FOODS



To Saint John River

⊗ denotes sampling location.

Humpy Duxiply - Horthland
 11/20/20

* 87PK049 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: HUMDUM01/HUMPTY DUMPTY FOODS,HARTLAND

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 15/ 9/87 (SEP 15, 1987), TIME: 1000, FREQ: 48

SAMPLING ENDED, DATE: 16/ 9/87 (SEP 16, 1987), TIME: 1000

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.3	
2: 001F/PH.....	7.6	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	110.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	130.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	820.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	180.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	35.	MG/L
8: 278C/FLOW.....	181.4	CU M/DAY
9: 421 /PRODUCTION	43.0	TONNES/DAY

* 87PK050 - PAUL KLAAMAS STATUS AS OF DEC 10, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: HUKDUN01/HUMPTY DUMPTY FOODS;HARTLAND

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN: DATE: 16/ 9/87 (SEP 16, 1987); TIME: 1000, FREQ: 48
SAMPLING ENDED: DATE: 17/ 9/87 (SEP 17, 1987); TIME: 1000

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	7.7	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	L10.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	75.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	690.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	180.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	35.	MG/L
8: 278C/FLOW.....	173.7	CU M/DAY
9: 421 /PRODUCTION	35.0	TONNES/DAY

* 87FK051 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: HUMDUM01/HUMPTY DUMPTY FOODS, HARTLAND

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 17/ 9/87 (SEP 17, 1987), TIME: 1000, FREQ: 48

SAMPLING ENDED, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 1000

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	7.7	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	10.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	70.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	640.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	140.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	40.	MG/L
8: 278C/FLOW.....	191.4	CU M/DAY
9: 421 /PRODUCTION	40.7	TONNES/DAY

* 87FK052 - PAUL KLAAM/S STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987; BY :PHIL H

LOCATOR: HUKIUM01/HUMPTY DUMPTY FOODS, HARTLAND

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 1100, FREQ: 1
SAMPLING ENDED, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 1100

DEPTH: .00 METERS, TIDE:

NARRATIVE: BY-PASS TO RIVER DUE TO ELEC.
PROBLEMS.

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001F/PH.....	7.0		
2:	015 /BIOCHEM. OXYGEN DEMAND (BOD)..	600.		MG/L
3:	016 /CHEMICAL OXYGEN DEMAND (COD)..	580.		MG/L
4:	018 /SOLIDS, TOTAL (TS).....	2500.		MG/L
5:	019 /VOLATILE SOLIDS TOTAL (TVS)...	1100.		MG/L
6:	020 /SUSPENDED SOLIDS (SS).....	560.		MG/L

* 87PK053 - PAUL KLAOMAS STATUS AS OF OCT 21, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: HUMDUNG01/HURFTY DUMPTY FOODS, HARTLAND

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 1100, FREQ: 1

SAMPLING ENDED, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 1100

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	025 /AMMONIA-N (NH3-N).....	0.17		MG/L
2:	086 /SULFIDE.....	LO.15		MG/L
3:	500 /BIOASSAY	"DONE"		



TO



P. Klaamas, Head
Municipal Wastes & Technology Transfer Section
Water Pollution Control Division
Air & Water Branch

FROM

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/VOTRE RÉFÉRENCE 4754-1
YOUR FILE/VOTRE RÉFÉRENCE
DATE 12 November 1987

SUBJECT
OBJET

Bioassay Results - Humpty Dumpty

On 18 September 1987 P. Hennebury collected a grab sample of the final effluent (Lab Registration No. 87PK053) from the Humpty Dumpty potato plant, Hartland New Brunswick. On 21 September 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The effluent was not acutely lethal to the test fish.

A copy of the Bioassay Report Form is attached which provides additional details of the test.

J. Young

Attachment (1)

- cc: K. Doe
- H. Samant
- R. Parker

IRVING OIL REFINERY

COMPLIANCE SURVEY FOR GUIDELINE REFINERIES

=====

COMPANY NAME: IRVING OIL LIMITED
 RCR (103m³/d): 17.3
 EFFLUENT (MALPD): 13.4

PARAMETER	CONCENTRATION	ACTUAL DEPOSIT	AUTHORIZED DEPOSIT
	(mg/L)	(kg/103m ³ /d)	(kg/103m ³ /d)
Oil & Grease	7.9	6.12	31.38
Phenols	0.05	0.04	3.14
Sulphides	0.16	0.12	1.71
NH ₃ -N	6.4	4.96	22.82
TSM	8	6.20	68.47
	(units)	(units)	(units)
pH	6.4	6.4	6.0-9.5

DATE: AUGUST 10-11/1987
 DILUTION(% EFF): 51.5
 TOXICITY: ACUTELY LETHAL

* 87PH060 - PHIL HERNEBURY STATUS AS OF OCT 12, 1987 *

REGISTERED ON: AUG 17, 1987, BY :IAN M

LOCATOR: IRVREF02/IRVING OIL REFINERY
STORM WATER

PROV: NB

PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930, FREQ: 1
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	012 /PHENOLS.....	0.004		MG/L
2:	013 /OIL & GREASE (PET, ETHER).....	6.1		MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	LS.		MG/L
4:	028 /AMMONIA-N (NH3-N).....	0.6		MG/L
5:	086 /SULFIDE.....	LO.16		MG/L
6:	500 /BIOASSAY	"DONE"		

* 87PH061 - PAUL KENNEDY STATUS AS OF DEC 9, 1987 *

REGISTERED ON: AUG 17, 1987. BY :IAN M

LOCATOR: IRVREF06/IRVING OIL REFINERY
OUTLET FROM B. I. O. POND

PROV: NB

PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930, FREQ: 1
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:
NARRATIVE:

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

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.2	
2: 001F/PH.....	7.3	
3: 002F/TEMPERATURE.....	25.	DEGREES C.
4: 003F/OXYGEN DISSOLVED.....	1.3	MG/L
5: 012 /PHENOLS.....	0.065	MG/L
6: 013 /OIL & GREASE (PET. ETHER).....	"LAB ACCIDENT"	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	8.	MG/L
8: 028 /AMMONIA-N (NH3-N).....	6.9	MG/L
9: 029 /CYANIDE (CN).....	0.02	MG/L
10: 086 /SULFIDE.....	0.16	MG/L
11: 500 /BIOASSAY	"DONE"	

* B7PH060 - PHIL HENNEBURY STATUS AS OF OCT 12, 1987 *

REGISTERED ON: AUG 17, 1987, BY :IAN M

LOCATOR: IRVREF02/IRVING OIL REFINERY
STORM WATER

PROV: NB

PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930, FREQ: 1
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	012 /PHENOLS.....	0.004		MG/L
2:	013 /OIL & GREASE (PET. ETHER).....	6.1		MG/L
3:	020 /SUSPENDED SOLIDS (SS).....	L5.		MG/L
4:	028 /AMMONIA-N (NH3-N).....	0.6		MG/L
5:	086 /SULFIDE.....	L0.16		MG/L
6:	500 /BIOASSAY	"DONE"		

Flow

16,050

mg/gal /day

* 87PH062 - PHIL HENNEBURY STATUS AS OF DEC 3, 1987 *

REGISTERED ON: AUG 17, 1967. BY :IAN M.

LOCATOR: IRVREF06/IRVING OIL REFINERY
OUTLET FROM B. I. C. POND PROV: NB
PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 10/ 8/87 (AUG 10, 1987), TIME: 930, FREQ: 24
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:

NARRATIVE: R.C.R.=108.9 (STORM WATER FLOW GRAB SAM
PLE 11/8/87 = 181050 IMP/G/DAY.)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.4	
2: 012 /PHENOLS.....	0.050	MG/L
3: 013 /OIL & GREASE (PET. ETHER).....	7.9	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	8.	MG/L
5: 028 /AMMONIA-N (NH3-N).....	6.4	MG/L
6: 029 /CYANIDE (CN).....	0.12	MG/L
7: 086 /SULFIDE.....	0.16	MG/L
8: 158 /FLOW.....	2950000.	IMP G/DAY

* B7PH062 - PHIL HENNEBURY STATUS AS OF DEC 5, 1987 *

REGISTERED ON: AUG 17, 1987. BY : IAN M.

LOCATOR: IRVREF06/IRVING OIL REFINERY
OUTLET FROM B. I. O. POND

PROV: NB

PROJECT CODE: 236/ENV. CONTROL OIL GAS ENERGY

SAMPLING BEGAN, DATE: 10/ 8/87 (AUG 10, 1987), TIME: 930, FREQ: 24
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:

NARRATIVE: R.C.R.=108.9 (STORM WATER FLOW GRAB SAM.
PLE 11/8/87 = 161050 IMP/G/DAY.)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.4	
2: 012 /PHENOLS.....	0.050	MG/L
3: 013 /OIL & GREASE (PET. ETHER).....	7.9	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	8.	MG/L
5: 028 /AMMONIA-N (NH3-N).....	6.4	MG/L
6: 029 /CYANIDE (CN).....	0.12	MG/L
7: 086 /SULFIDE.....	20.16	MG/L
8: 158 /FLOW.....	2950000.	IMP G/DAY



TO
À

L.A. MacKinnon, Head
Oil & Chemical Waste Section
Water Pollution Control Division
Air & Water Branch

FROM
DE

K. Doe, Head
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/VOTRE RÉFÉRENCE 4810-37/126
YOUR FILE/VOTRE RÉFÉRENCE
DATE 20 November 1987

SUBJECT
OBJET

Bioassay Results - Irving Oil Refinery

On 11 August 1987 I. MacLeod and yourself conducted a compliance survey at the Irving Oil Refinery at Saint John New Brunswick. Two grab samples were taken: the storm water (Lab Registration No. 87PH060) and the combined final effluent (Lab Registration No. 87PH061). On 13 August 1987 three bioassays using rainbow trout fingerling were started: a flow-through compliance bioassay was conducted on the combined final effluent; and static bioassays were conducted on the combined final effluent and the storm water.

The flow-through compliance bioassay followed the procedures in the "Petroleum Effluent Regulations and Guidelines" (Report EPS-1-WP-74-1) as close as practical. The bioassay was conducted at 51.5% effluent concentration. The effluent did not meet the objective of the Guidelines. Eighty-eight percent (i.e., 44 out of 50 fish) mortality was observed in the fish exposed to the bioassay sample. There was no control mortality during the test.

The 96-hour static bioassay conducted on the effluent yielded a LC50 of 48.9%. All of the test fish died in the 100% concentration and 60% mortality (i.e., 3 of 5 fish) was observed in the 50% and 51.5% concentrations. The 96-hour static bioassay conducted on the storm water showed it to be not acutely lethal.

The cause of the observed lethality from the combined final effluent is not apparent from the results of chemical analyses completed to date. Ammonia levels in the undiluted sample are within the range of acute lethality, but not when the sample was diluted to the compliance concentration. Sulphide, while below detection limit, can not be ruled out as a possible cause of lethality.

A copy of the Bioassay Report Forms are attached which provide additional details of the tests.

Kenneth G. Doe

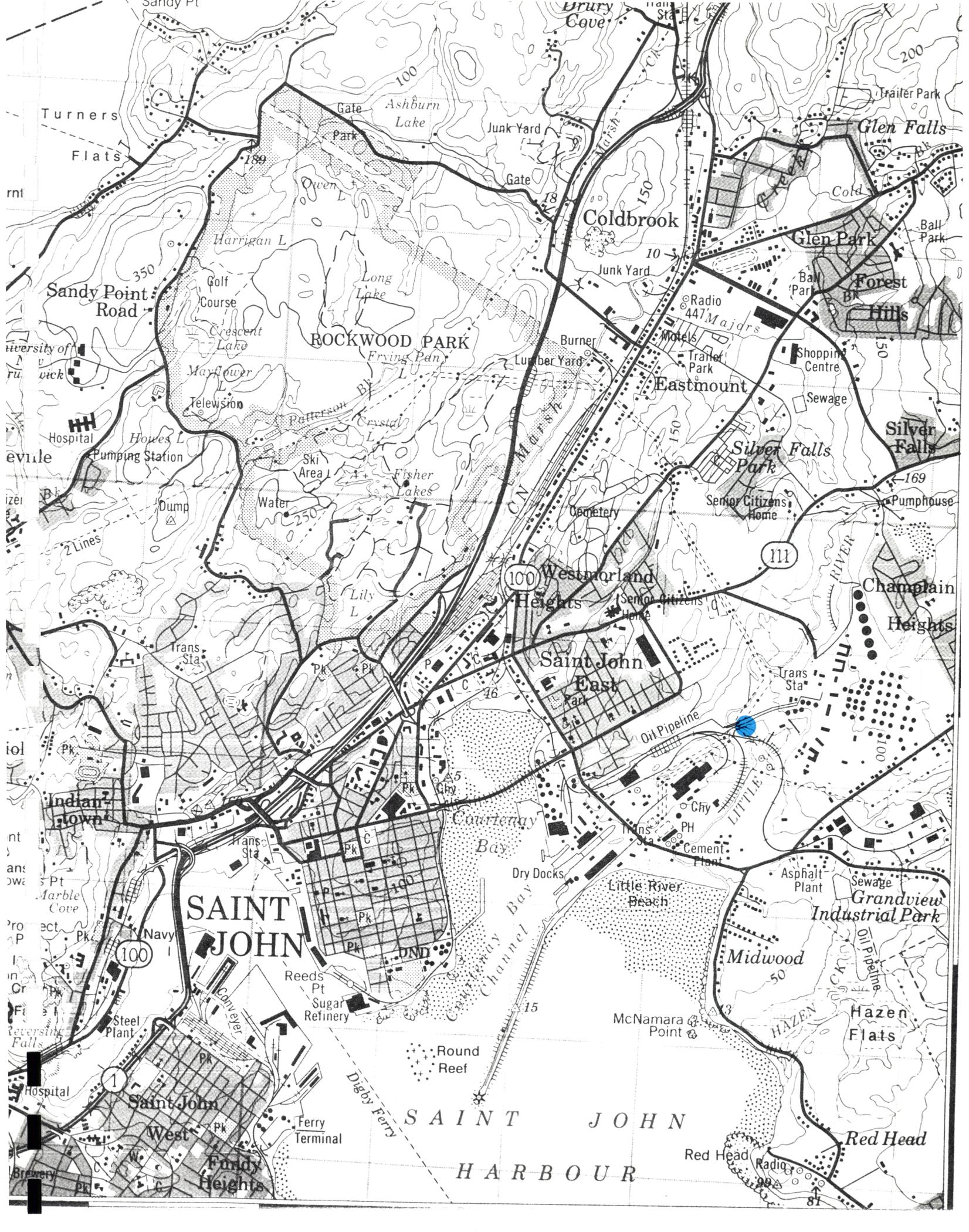
K. Doe

JHY

Attachment (3)

- cc: J. Young
- H. Samant
- P. Hensbury
- R. Parker

IRVING PULP AND PAPER



SAINT JOHN

SAINT JOHN HARBOUR

Glen Falls

Coldbrook

ROCKWOOD PARK

Eastmount

Silver Falls

Westmorland Heights

Saint John East

Champlain Heights

Sandy Point Road

SAINT JOHN

Saint John West

Grandview Industrial Park

Midwood

Hazen Flats

Red Head

Digby Ferry

Red Head

Round Reef

Dry Docks

Little River Beach

McNamara Point

Navy

Hospital

Brewery

Steel Plant

Indian Town

Trans. Sta.

Dump

Hospital

Sandy Point Road

Turners Flats

Reeds Pt Sugar Refinery

Courtenay Bay

Channel Bay

Lily L.

Fisher Lakes

Long Lake

Ashburn Lake

Junk Yard

Junk Yard

Burner Lumber Yard

Cemetery

Senior Citizens Home

Oil Pipeline

Asphalt Plant

Sewage

Shopping Centre

Trailer Park

Ball Park

Forest Hills

Radio 447 Majors

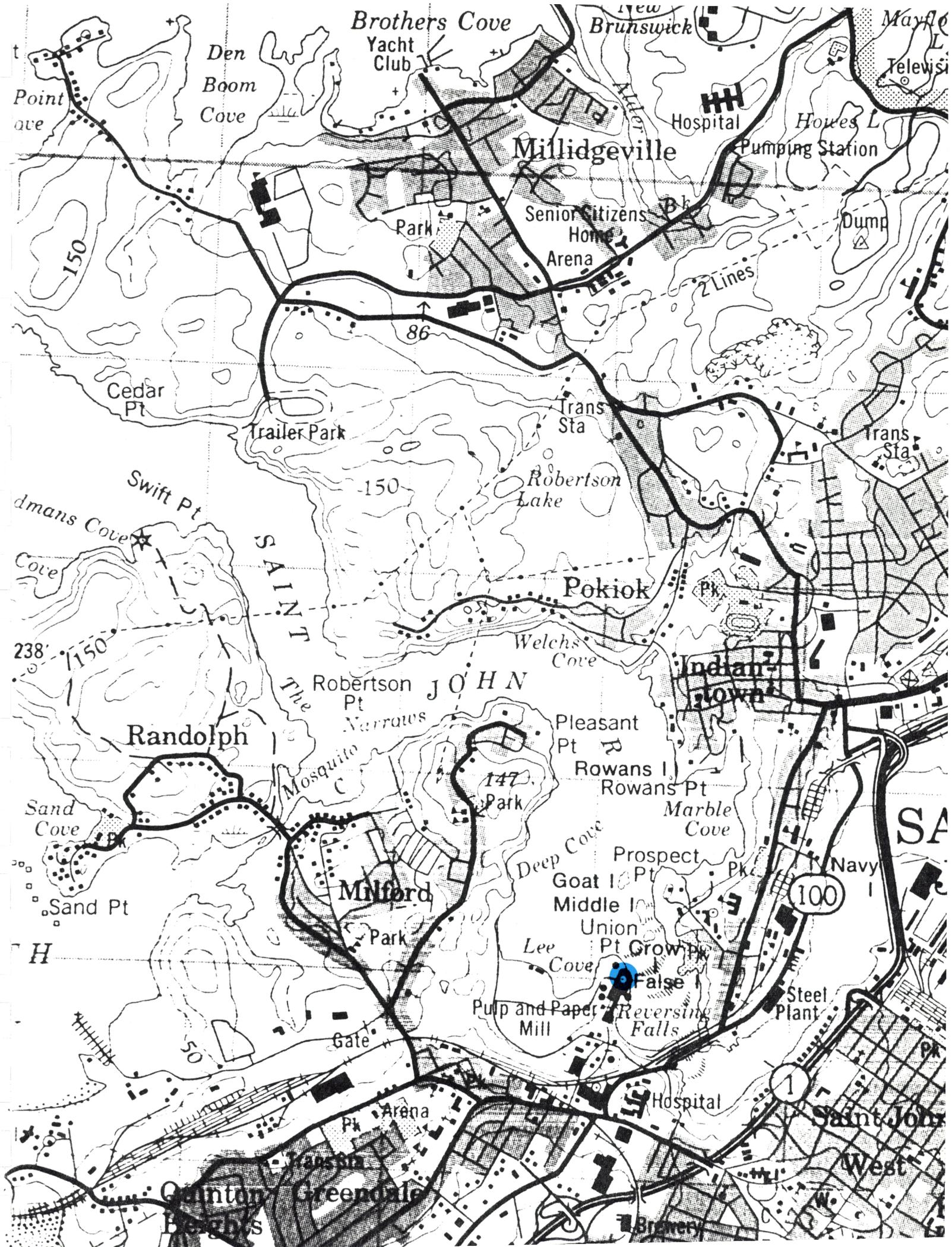
Motels

Trailer Park

Senior Citizens Home

Senior Citizens Home

Trans. Sta.



* 87GT006 - GARTH TRIDER

STATUS AS OF MAY 13, 1988 *

REGISTERED ON: AUG 16, 1987, BY :BOB G

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: 237/ENV. CONTROL WOOD PRESERVING F&P

SAMPLING BEGAN, DATE: 12/ 8/87 (AUG 12, 1987); TIME: 800, FREQ: 24

SAMPLING ENDED, DATE: 13/ 8/87 (AUG 13, 1987); TIME: 800

DEPTH: .00 METERS, TIDE:

NARRATIVE: SEWER#3=72.7%,SEWER#12-A=3%,SEWER#12-B=8

.5%,SEWER#11B=2.2%,SEWER#9=10%,SEWER#14=

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.0	
2: 011 /RESIN ACIDS (RAS).....	0.6	MG/L
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	180.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	160.	MG/L
5: 046 /CADMIUM (TOTAL).....	L.01	MG/L
6: 048 /COPPER (TOTAL).....	0.02	MG/L
7: 051 /LEAD (TOTAL).....	.03	MG/L
8: 054 /ZINC (TOTAL).....	.18	MG/L
9: 157 /PENTACHLOROPHENOL.....	0.0033	MG/L
10: 162 /ALUMINUM (TOTAL).....	.06	MG/L
11: 172 /2,3,5,6-TETRACHLOROPHENOL.....	L0.002	MG/L
12: 201 /BERYLLIUM	L.01	MG/L
13: 235 /2,3,4,6 - TETRACHLOROPHENOL ..	*UNRESOLVD FR #172	MG/L
14: 236 /2,3,4,5 - TETRACHLOROPHENOL ..	L0.03	MG/L
15: 278C/FLOW.....	90645.	CU M/DAY
16: 417 /BOD 5 (DEPOSIT RATE).....	20.6	KG/TONNE
17: 418 /SS (DEPOSIT RATE).....	18.3	KG/TONNE
18: 421 /PRODUCTION	791.	TONNES/DAY
19: 650 /SS(DEPOSIT RATE)	14503.	KG/DAY
20: 651 /BOD(DEPOSIT RATE)	16316.	KG/DAY
21: 688 /2,4,6 TRICHLOROPHENOL	0.013	MG/L

* B7GT010 - GARTH TRIDER STATUS AS OF SEP 25, 1987 *

REGISTERED ON: AUG 25, 1987, BY :GARTH T

LOCATOR: IRVPUL09/IRVING PULP AND PAPER LTD., SAINT JOHN PROV: NB
FLOW PROPORTIONED COMBINED EFFLUENT

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: 13/ 8/87 (AUG 13, 1987), TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE: 13/ 8/87 (AUG 13, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE:

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

.....PARAMETER .....	..... VALUE	UNITS
1: 500 /BIOASSAY	"DONE"	

G. Trider, Head
Food Processing, Steel & Textile Industries
Water Pollution Control Division
Air & Water Branch

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SECURITE
OUR FILE / VOTRE REFERENCE 4705-37/J99
YOUR FILE / VOTRE REFERENCE
DATE 10 September 1987

SUBJECT
OBJET

IRVING PULP AND PAPER PLANT - ST. JOHN, NEW BRUNSWICK

On 13 August 1987 a sample was collected of the combined effluent (Lab Registration No. 87GT010) of the Irving Pulp and Paper Mill, St. John, New Brunswick. On 14 August 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died within: 1.5 hours in the 100%; 1.5-3.5 hours in the 32%; and 3.5-19.5 hours in the 10% concentrations. The test fish survived in lower concentrations (i.e. 3.2% & 1%) throughout the bioassay. The 96-hour LC50 was 5.6%. The low pH value of the effluent contributed to the observed mortality.

A copy of the Bioassay Report Form is enclosed which provides additional details of the test.


J. Young

JY/ldl

Attachment (1)

cc: K. Doe
H. Samant
R. Parker

LAKE GEORGE ANTIMONY

LAIN GEORGE ANT. MCRAIL



FINAL EFFLUENT

SETTLING POND

SETTLING POND

SEWAGE LAGOON

Surface expression PROUT VEIN

TAILINGS POND

35 ACRES

Lomella Thickener

245W

345W

2151

USW

421

418

419

420

421

422

423

424

425

575

600

600

600

600

600

600

* 87PH015 - PHIL HENNEBURY STATUS AS OF JUN 10, 1987 *

REGISTERED ON: APR 9, 1987, BY :IAN M

LOCATOR: LAKGEO01/LAKE GEORGE ANTIMONY
FINAL EFFLUENT FROM TAILINGS POND PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 6/ 4/87 (APR 6, 1987), TIME: 0, FREQ: 1
SAMPLING ENDED, DATE: 6/ 4/87 (APR 6, 1987), TIME: 0

DEPTH: .00 METERS, TIDE:
NARRATIVE: NBDOE SAMPLE,ANTIMONY BRINE

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 052 /ANTIMONY (TOTAL).....	10.5	MG/L

* 87RF024 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANDRE

LOCATOR: LAKGE000/CONSOLIDATED DURHAM MINES
GENERAL

PROV: NB

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1645, FREQ: 1
SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1645

DEPTH: .00 METERS, TIDE:

NARRATIVE: UNNAMED BROOK APPROX. 1 KM DOWNSTREAM OF
MINE (ON SMALL ROAD FACING DONNELLY'S RD.

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.3	
2: 001F/PH.....	7.2	
3: 005 /HARDNESS.....	320.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	12.7	MG/L
6: 036 /CALCIUM (TOTAL).....	106.	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).....	0.04	MG/L
11: 049 /IRON (TOTAL).....	0.05	MG/L
12: 051 /LEAD (TOTAL).....	L0.02	MG/L
13: 052 /ANTIMONY (TOTAL).....	10.8	MG/L
14: 054 /ZINC (TOTAL).....	L0.01	MG/L
15: 159 /NICKEL (TOTAL).....	L0.01	MG/L
16: 160 /MANGANESE (TOTAL).....	0.03	MG/L
17: 162 /ALUMINUM (TOTAL).....	L0.025	MG/L
18: 207 /TIN (SN)	L.05	MG/L

* B7RP025 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANURE

LOCATOR: LAKGEO01/LAKE GEORGE ANTIMONY
FINAL EFFLUENT FROM TAILINGS POND PROV: NB
PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1615, FREQ: 1
SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1615

DEPTH: .00 METERS, TIDE:
NARRATIVE: LAKE GEORGE ANTIMONY
FINAL EFFLUENT

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.4	
2: 001F/PH.....	8.1	
3: 005 /HARDNESS.....	340.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	13.5	MG/L
6: 036 /CALCIUM (TOTAL).....	116.	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).....	0.22	MG/L
12: 051 /LEAD (TOTAL).....	0.03	MG/L
13: 052 /ANTIMONY (TOTAL).....	13.0	MG/L
14: 054 /ZINC (TOTAL).....	L0.01	MG/L
15: 159 /NICKEL (TOTAL).....	0.02	MG/L
16: 160 /MANGANESE (TOTAL).....	0.10	MG/L
17: 162 /ALUMINUM (TOTAL).....	L0.025	MG/L
18: 207 /TIN (SK)	L.05	MG/L
19: 500 /BIOASSAY	"DONE"	

R. Parker, Head
 Metal, Mining & Milling Section
 Water Pollution Control Division
 Air & Water Branch

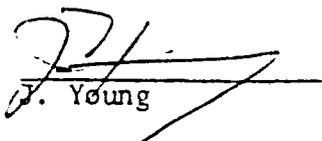
J. Young, Project Biologist
 Aquatic Toxicology Section
 Laboratory & Shellfish Division
 Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE / NOTRE RÉFÉRENCE 4705-37/C264
YOUR FILE / VOTRE RÉFÉRENCE
DATE 22 May 1987

SUBJECT
 OBJET BIOASSAY RESULTS - DURHAM RESOURCES INC.

On 15 May 1987, a 96-hour static bioassay using rainbow trout fingerling was begun on a sample of the final effluent (Lab Registration No. 87RP025) obtained from Durham Resources Inc., Lake George Antimony Mine, New Brunswick. The mean weight of the test organisms was 2.2 g (+ 0.8, S.D.) The effluent was non-acutely lethal to the test fish.

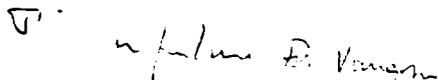
A copy of the Bioassay Report Form is attached which provides additional details of the test.


 J. Young

JY/ldl

Attachment (1)

cc: H. Samant
 K. Doe

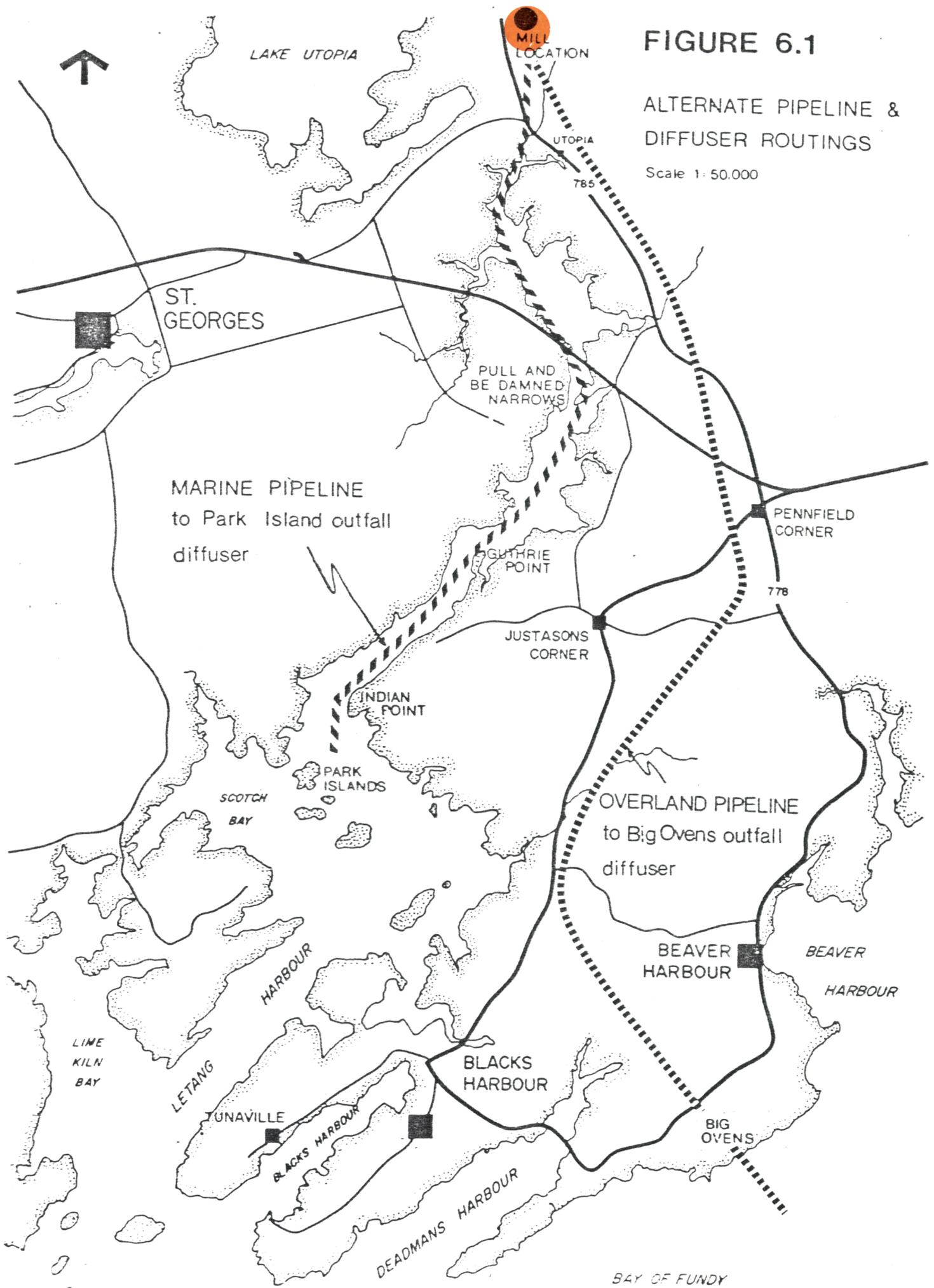


LAKE UTOPIA PULP AND PAPER

FIGURE 6.1

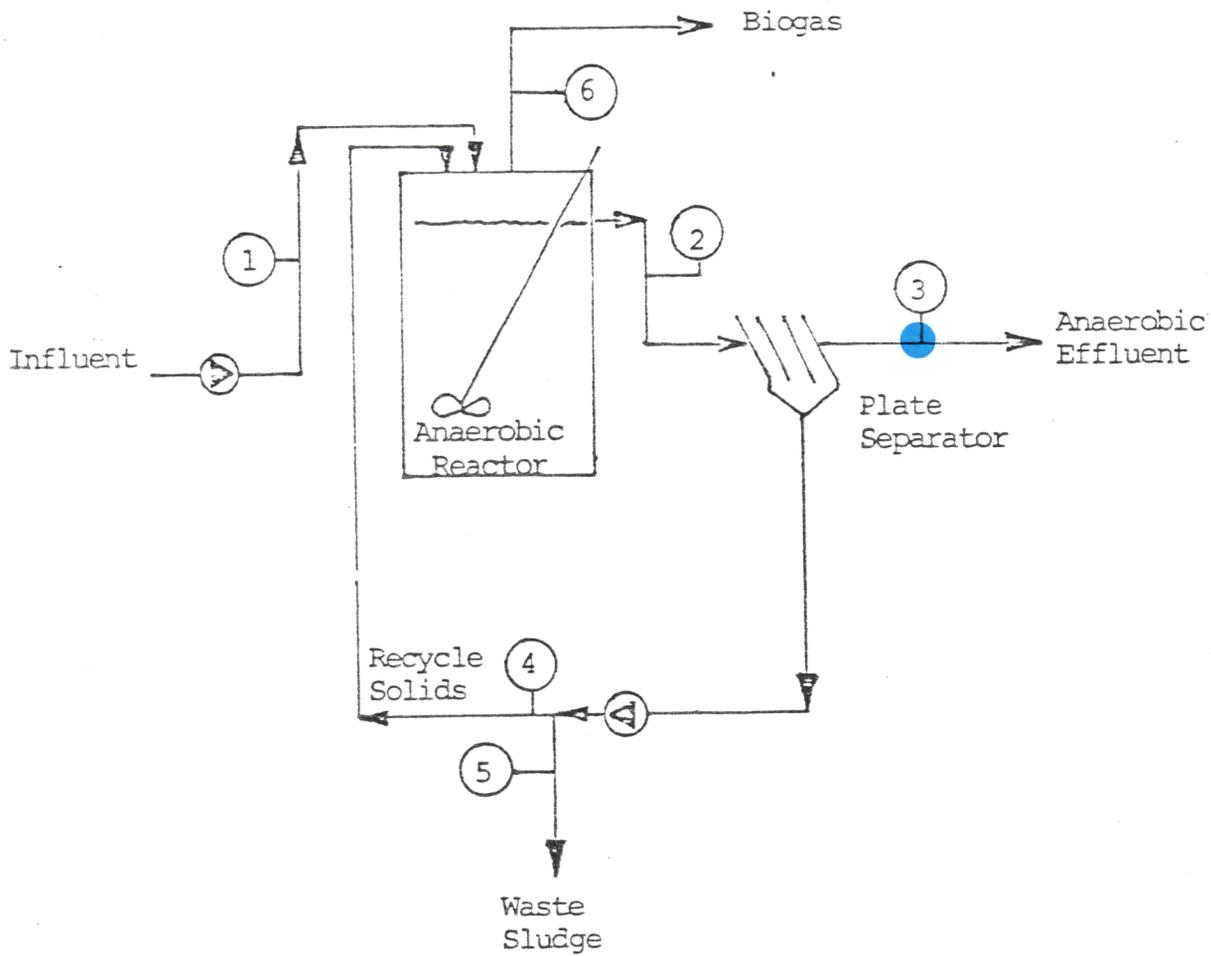
ALTERNATE PIPELINE &
DIFFUSER ROUTINGS

Scale 1: 50,000



V. TYPICAL FLOW SCHEMATIC AND ANALYTICAL SCHEDULE

A typical anaerobic flow schematic is shown below. The sample location numbers correspond to the columns of the analytical schedule which is also shown below.



* 87GT003 - GARTH TRIDER STATUS AS OF MAY 13, 1988 *

REGISTERED ON: AUG 14, 1987, BY :GARTH T

LOCATOR: LAKUT004/LAKE UTOPIA PAPER LTD.,UTOPIA
EFFLUENT FROM BIO-POND NO 2

FROM: NB

NORMAL ANALYSIS: 1,11,16,28,46,48,50,54,86,157,162,172
201,235,236,278C,310,421,500,688,699,690

PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 1030, FREQ: 1
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 011 /RESIN ACIDS (RAS).....	0.9	MG/L
2: 046 /CADMIUM (TOTAL).....	L.01	MG/L
3: 048 /COPPER (TOTAL).....	0.03	MG/L
4: 051 /LEAD (TOTAL).....	.22	MG/L
5: 054 /ZINC (TOTAL).....	.38	MG/L
6: 157 /PENTACHLOROPHENOL.....	0.00042	MG/L
7: 162 /ALUMINUM (TOTAL).....	1.66	MG/L
8: 172 /2,3,5,6-TETRACHLOROPHENOL.....	L0.002	MG/L
9: 201 /BERYLLIUM	L.01	MG/L
10: 235 /2,3,4,6 - TETRACHLOROPHENOL ..	*UNRESOLVD FR #172	MG/L
11: 236 /2,3,4,5 - TETRACHLOROPHENOL ..	L0.03	MG/L
12: 278C/FLOW.....	8798.	CU M/DAY
13: 421 /PRODUCTION	223.	TUNNES/DAY
14: 500 /BIOASSAY	*DONE*	
15: 688 /2,4,6 TRICHLOROPHENOL	0.0034	MG/L

G. Trider, Head
Food Processing, Steel & Textile Industries Section
Water Pollution Control Division
Air & Water Branch

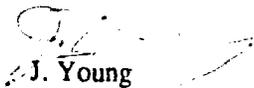
J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE
4705-37/1172
YOUR FILE/VOTRE RÉFÉRENCE
DATE
18 November 1987

Bioassay Results - Lake Utopia Pulp & Paper

On 11 August 1987 a sample of the final effluent (Lab Registration No. 87GT003) was collected at the Lake Utopia pulp and paper mill at St. George, New Brunswick. On 14 August 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died within 1.5 hours in the 100%, 56% and 32% concentrations. Forty percent of the test fish survived in the 10% concentration and all test fish survived in the 3.2% concentration throughout the bioassay. The 96-hour LC50 was 11.6%. The low initial dissolved oxygen levels alone could be responsible for the observed mortalities at 100% and 56% concentrations, but could not account for the mortalities observed at lower test concentrations. This result is similar to those obtained from previous samples (i.e., Aug.'81, Nov.'82 & Dec.'83) from the final effluent of this mill.

A copy of the Bioassay Report Form is attached which provides additional details of the test.


J. Young

Attachment (1)

- cc: K. Doe
- H. Samant
- R. Parker

* 87GT004 - GARTH TRIDER STATUS AS OF OCT 21, 1987 *

REGISTERED ON: AUG 14, 1987 BY :GARTH T

LOCATOR: LAKUT004/LAKE UTOPIA PAPER LTD.,UTOPIA
EFFLUENT FROM BIO-POND NO 2

FROM: 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: 11/ 8/87 (AUG 11, 1987), TIME: 1030, FREQ: 24
SAMPLING ENDED, DATE: 12/ 8/87 (AUG 12, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	1800.	MG/L
2: 020 /SUSPENDED SOLIDS (SS).....	490.	MG/L
3: 417 /BOD 5 (DEPOSIT RATE).....	71.	KG/TONNE
4: 651 /BOD(DEPOSIT RATE)	15820.	KG/DAY

* 8761005 - GARTH TRIDER STATUS AS OF NOV 4, 1987 *

REGISTERED ON: AUG 14, 1987, BY :GARTH :

LOCATOR: LAKUTO09/LAKE UTOPIA PAPER LTD.,UTOPIA
CLARIFIER EFFLUENT PROV: NB

PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 10/ 8/87 (AUG 10, 1987), TIME: 1030, FREQ: 24
SAMPLING ENDED, DATE: 11/ 8/87 (AUG 11, 1987), TIME: 1030

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	4000.	MG/L
2: 020 /SUSPENDED SOLIDS (SS).....	120.	MG/L
3: 418 /SS (DEPOSIT RATE).....	4.7	KG/TONNE
4: 650 /SS(DEPOSIT RATE)	1056.	KG/DAY



G. Trider, Head
 Food Processing, Steel & Textile Industries Section
 Water Pollution Control Division
 Air & Water Branch

J. Young, Project Biologist
 Aquatic Toxicology Section
 Laboratory Division
 Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE
4705-37/1.172
YOUR FILE/VOTRE RÉFÉRENCE
DATE
18 November 1987

SUBJECT
OBJET

Bioassay Results - Lake Utopia Pulp & Paper

On 11 August 1987 a sample of the final effluent (Lab Registration No. 87GT003) was collected at the Lake Utopia pulp and paper mill at St. George, New Brunswick. On 14 August 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died within 1.5 hours in the 100%, 56% and 32% concentrations. Forty percent of the test fish survived in the 10% concentration and all test fish survived in the 3.2% concentration throughout the bioassay. The 96-hour LC50 was 11.6%. The low initial dissolved oxygen levels alone could be responsible for the observed mortalities at 100% and 56% concentrations, but could not account for the mortalities observed at lower test concentrations. This result is similar to those obtained from previous samples (i.e., Aug.'81, Nov.'82 & Dec.'83) from the final effluent of this mill.

A copy of the Bioassay Report Form is attached which provides additional details of the test.

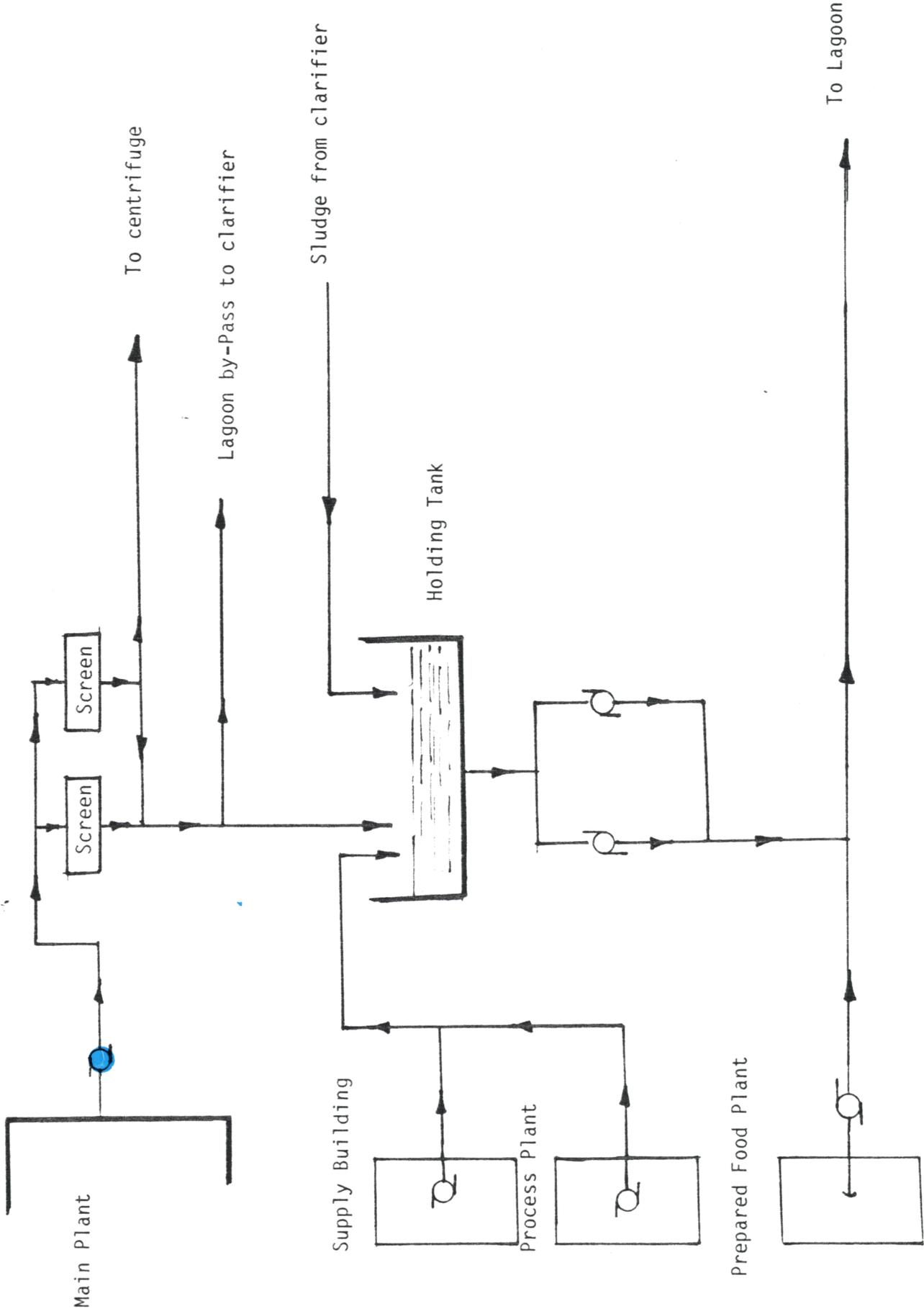

 J. Young

Attachment (1)

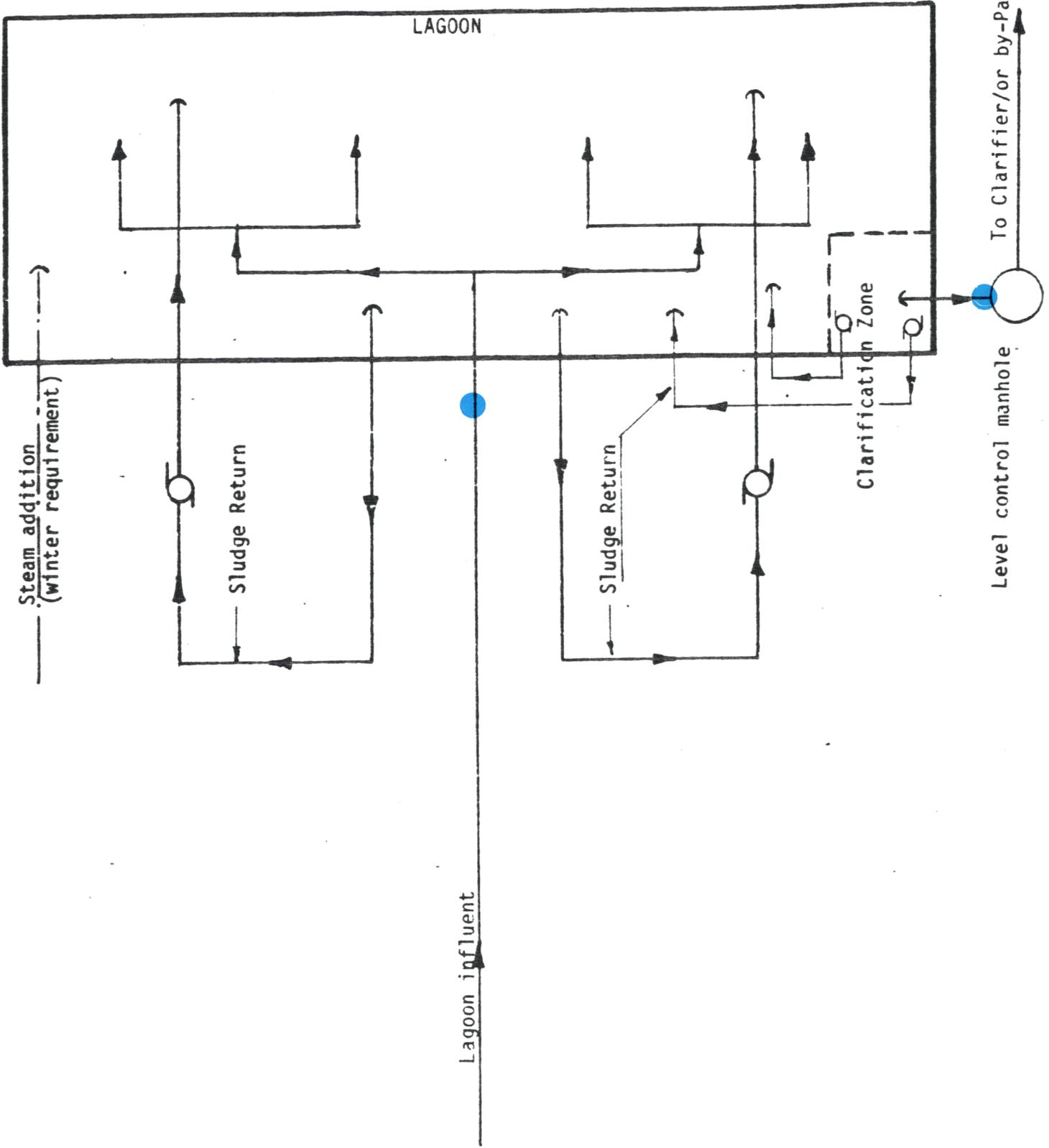
cc: K. Doe
 H. Samant
 R. Parker

MCCAIN'S, FLORENCEVILLE

rumping system

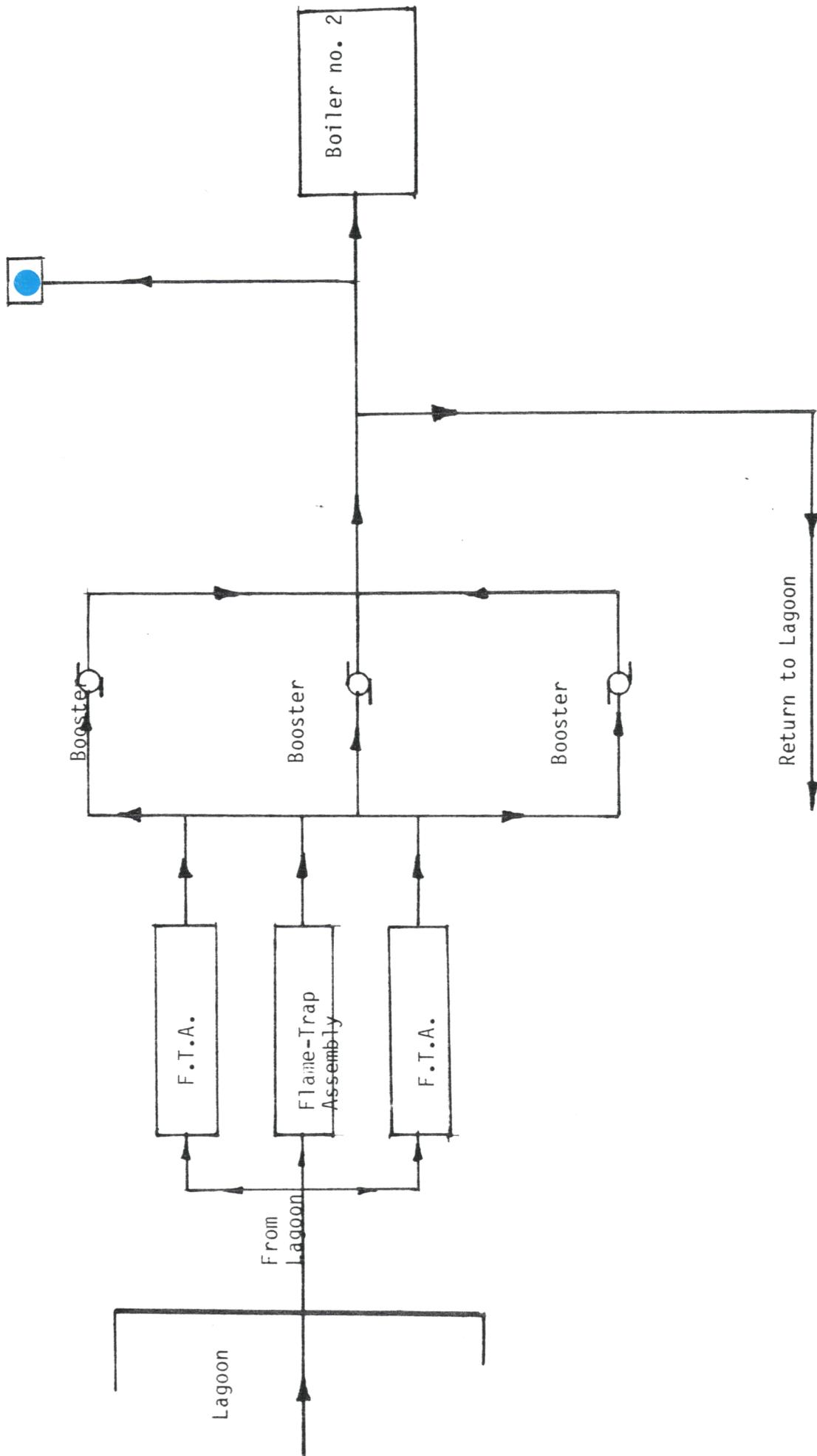


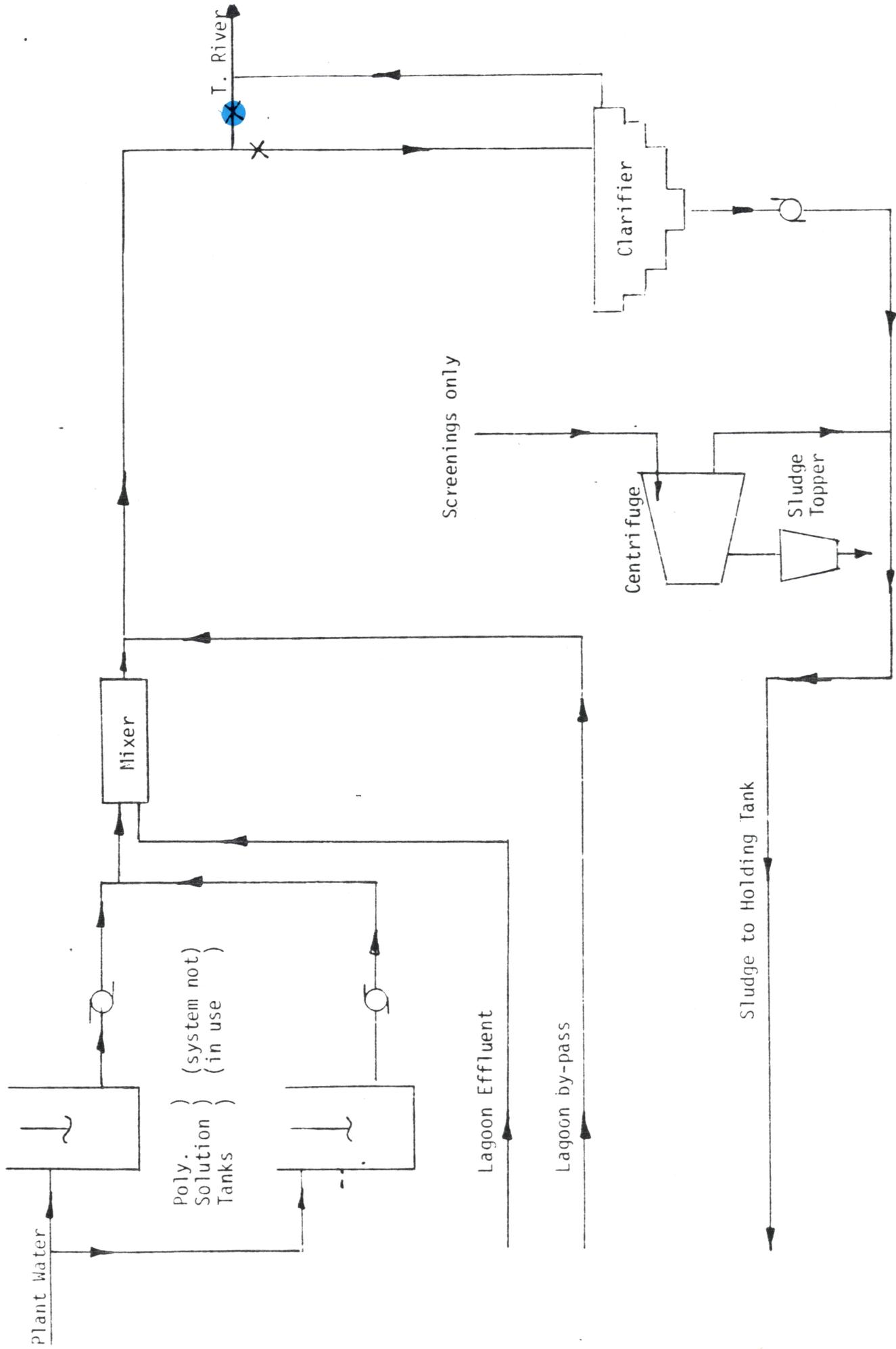
Lagoon System



Gas Recovery System

Waste gas burner





* 87PK045 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987; BY :PHIL H

LOCATOR: MCCFLO02/MCCAIN FLORENCEVILLE
CLARIFIER OVERFLOW

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 14/ 9/87 (SEP 14, 1987), TIME: 1100; FREQ: 40
SAMPLING ENDED, DATE: 15/ 9/87 (SEP 15, 1987), TIME: 700

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	7.0	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	660.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	1700.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	2700.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	1200.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	210.	MG/L
8: 028 /AMMONIA-N (NH3-N).....	51.8	MG/L
9: 086 /SULFIDE.....	1.22	MG/L
10: 27BC/FLOW.....	7380.4	CU M/DAY
11: 421 /PRODUCTION	557.1	TONNES/DAY

* 87PK046 - PAUL KLAMAS STATUS AS OF DEC 10, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: MCCFLO02/MCCAIN FLORENCEVILLE
CLARIFIER OVERFLOW

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 16/ 9/87 (SEP 16, 1987); TIME: 700, FREQ: 48
SAMPLING ENDED, DATE: 17/ 9/87 (SEP 17, 1987); TIME: 700

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.1	
2: 001F/PH.....	7.0	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	1100.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	930.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	2600.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	1300.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	160.	MG/L
8: 028 /AMMONIA-N (NH3-N).....	52.9	MG/L
9: 086 /SULFIDE.....	1.22	MG/L
10: 278C/FLOW.....	7331.2	CU M/DAY
11: 421 /PRODUCTION	929.0	TONNES/DAY

* 87FK047 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: MCCFLO02/MCCAIN FLORENCEVILLE
CLARIFIER OVERFLOW

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 17/ 9/87 (SEP 17, 1987), TIME: 700, FREQ: 48
SAMPLING ENDED, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 700

DEPTH: .00 METERS, TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER
(PROCESS LINE DWN. @ 0500 HR. 18/9/87)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	7.0	
2: 001F/PH.....	6.9	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	880.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	1400.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	2900.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	1300.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	220.	MG/L
8: 278C/FLOW.....	6549.5	CU M/DAY
9: 421 /PRODUCTION	258.7	TONNES/DAY

* 87PK048 - PAUL KLAAMAS STATUS AS OF OCT 21, 1987 *

REGISTERED ON: SEP 20, 1987; BY :PHIL H

LOCATOR: HCCFLO02/MCCAIN FLORENCEVILLE
CLARIFIER OVERFLOW

PROV: NB

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN: DATE: 18/ 9/87 (SEP 18, 1987); TIME: 800, FREQ: 1
SAMPLING ENDED: DATE: 18/ 9/87 (SEP 18, 1987); TIME: 800

DEPTH: .00 METERS; TIDE:

NARRATIVE: FINAL EFFL. TO SAINT JOHN RIVER

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	028 /AMMONIA-N (NH3-N).....	29.4		MG/L
2:	086 /SULFIDE.....	5.76		MG/L
3:	500 /BIOASSAY	"DONE"		

P. Klaamas, Head
Municipal Wastes & Technology Transfer Section
Water Pollution Control Division
Air & Water Branch

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE
4754-37/M233-1 YOUR FILE/VOTRE RÉFÉRENCE
DATE

12 November 1987

Bioassay Results - McCain's Food Ltd. Florenceville, N.B.

On 18 September 1987 P. Hennebury collected a grab sample of the final effluent (Lab Registration No. 87PK048) from the McCain's Food Ltd., Florenceville New Brunswick. On 21 September 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died within: 1.5 hours at the 100% and 56% concentrations; and 4.5 - 24 hours in the 32% concentration. The test fish survived in the lower (i.e., 10% & 3.2%) concentrations throughout the bioassay. The 96-hour LC50 was 17.9%. The very high value of sulphide could account for the observed mortality, but some concern is warranted by the level of ammonia in the effluent.

A copy of the Bioassay Report Form is attached which provides additional details of the test.

J. Young
J. Young

Attachment (1)

- cc: K. Doe
- H. Samant
- R. Parker
- P. Hennebury

Notes: (revised) Low LC50 at 32% could account for observed mortality.

* 87PK054 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987, BY PHIL H

LOCATOR: MCCFLO01/MCCAIN FLORENCEVILLE
CLARIFIER INLET

PROV: NB

NORMAL ANALYSIS: 15,20,1,28,16

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 14/ 9/87 (SEP 14, 1987), TIME: 1100, FREQ: 40
SAMPLING ENDED, DATE: 15/ 9/87 (SEP 15, 1987), TIME: 700

DEPTH: .00 METERS, TIDE:

NARRATIVE: RAW INLET TO TREATMENT SYSTEM
(AFTER COARSE SCREENING

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.6	
2: 001F/PH.....	5.2	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	2700.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	4800.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	4000.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	3100.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	1370.	MG/L

* 87PK055 - PAUL KLAAMAS STATUS AS OF DEC 10, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: MCCFLO01/MCCAIN FLORENCEVILLE
CLARIFIER INLET

PROV: NB

NORMAL ANALYSIS: 15,20,1,28,16

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 16/ 9/87 (SEP 16, 1987), TIME: 700, FREQ: 48

SAMPLING ENDED, DATE: 17/ 9/87 (SEP 17, 1987); TIME: 700

DEPTH: .00 METERS; TIDE:

NARRATIVE: RAW INLET TO TREATMENT SYSTEM
(AFTER COARSE SCREENING)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.4	
2: 001F/PH.....	4.3	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	3600.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	6100.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	5500.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	4500.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	1700.	MG/L

* 87PK056 - PAUL KLAAMAS STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 20, 1987, BY :PHIL H

LOCATOR: MCCFLO01/MCCAIN FLORENCEVILLE
CLARIFIER INLET

PROV: NB

NORMAL ANALYSIS: 15,20,1,28,16

PROJECT CODE: 244/ENV. CONTROL FOOD & TEXTILES

SAMPLING BEGAN, DATE: 17/ 9/87 (SEP 17, 1987), TIME: 700, FREQ: 48

SAMPLING ENDED, DATE: 18/ 9/87 (SEP 18, 1987), TIME: 700

DEPTH: .00 METERS, TIDE:

NARRATIVE: RAW INLET TO TREATMENT SYSTEM
(AFTER COARSE SCREENING)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.5	
2: 001F/PH.....	4.4	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	1100.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	1800.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	2100.	MG/L
6: 019 /VOLATILE SOLIDS TOTAL (TVS)...	1600.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	960.	MG/L

MIRAMICHI PULP AND PAPER, NELSON

* 87GT025 - GARTH TRUER STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 30, 1987, BY :PHIL H

LOCATOR: ACAFOR01/MIRAMICHI P&PAPER INC.,NELSON-MIRAMICHI
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: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN, DATE: 29/ 9/87 (SEP 29, 1987), TIME: 830, FREQ: 48
SAMPLING ENDED, DATE: 30/ 9/87 (SEP 30, 1987), TIME: 830

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

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	5.1	
2: 001F/PH.....	6.7	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	210.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	340.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	4200.	MG/L
6: 020 /SUSPENDED SOLIDS (SS).....	150.	MG/L
7: 417 /BOD 5 (DEPOSIT RATE).....	3.1	KG/TONNE
8: 418 /SS (DEPOSIT RATE).....	2.2	KG/TONNE
9: 650 /SS(DEPOSIT RATE)	536.	KG/DAY
10: 651 /BOD(DEPOSIT RATE)	750.	KG/DAY

 * 97GT026 - GARTH TRIDER STATUS AS OF FEB 10, 1988 *

REGISTERED ON: SEP 30, 1987, BY :PHIL H

LOCATOR: ACAFD001/MIRAMICHI P&PAPER INC., NELSON-MIRAMICHI
 FINAL EFFLUENT

PROV: NB

NORMAL ANALYSIS: 1, 11, 16, 28, 46, 48, 50, 54, 86, 157, 162, 172
 201, 235, 236, 2780, 310, 421, 500, 688, 689, 690
 PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN: DATE: 30/ 9/87 (SEP 30, 1987); TIME: 830; FREQ: 1
 SAMPLING ENDED: DATE: 30/ 9/87 (SEP 30, 1987); TIME: 830

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

---- SAMPLE ANALYSIS ----

PARAMETER	VALUE	UNITS
1: 001 /PH	"NOT FOUND"	
2: 011 /RESIN ACIDS (RAS)	4.9	MG/L
3: 028 /AMMONIA-N (NH3-N)	LO.07	MG/L
4: 046 /CADMIUM (TOTAL)	L.01	MG/L
5: 048 /COPPER (TOTAL)	0.03	MG/L
6: 050 /MERCURY (TOTAL)	0.00005	MG/L
7: 054 /ZINC (TOTAL)	VER	MG/L
8: 086 /SULFIDE	0.13	MG/L
9: 157 /PENTACHLOROPHENOL	0.00075	MG/L
10: 162 /ALUMINUM (TOTAL)	L.005	MG/L
11: 172 /2,3,5,6-TETRACHLOROPHENOL	0.0031	MG/L
12: 201 /BERYLLIUM	L.01	MG/L
13: 235 /2,3,4,6 - TETRACHLOROPHENOL	"SEE 2,3,5,6 TCP"	MG/L
14: 236 /2,3,4,5 - TETRACHLOROPHENOL	LO.005	MG/L
15: 2780 /FLOW	3573	CU M/DAY
16: 421 /PRODUCTION	241	TONNES/DAY
17: 500 /BIOASSAY	"DONE"	
18: 688 /2,4,6 TRICHLOROPHENOL	0.013	MG/L
19: 689 /TETRACHLOROQUAIACOL	0.00075	MG/L
20: 690 /TETRACHLOROCATECHOL	"	MG/L



TO
A

G. Trider, Head
Food Processing, Steel & Textile Industries Section
Water Pollution Control Division
Air & Water Branch

FROM
DE

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/VOTRE RÉFÉRENCE 4705-37/A152
YOUR FILE/VOTRE RÉFÉRENCE
DATE 18 November 1987

SUBJECT
OBJET

Bioassay Results - Miramichi Pulp & Paper, Nelson N.B.

On 30 September 1987 P. Hennebury collected a sample of the clarifier outlet (Lab Registration No. 87GT026) from the Miramichi Pulp and Paper mill at Nelson, New Brunswick. On 1 October 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died within: 3.5 hours in 100% and 56% concentrations; 3.5 - 21.5 hours in the 32% and 10% concentrations; and 28.5 - 49.5 hours in the 3.2% concentration. The 96-hour LC50 was less than 3.2%. Of the chemical analyses completed to date for this effluent only sulphide and resin acids were present in high enough levels to have contributed to the observed toxicity.

A copy of the Bioassay Report Form is attached which provides additional details of the test.

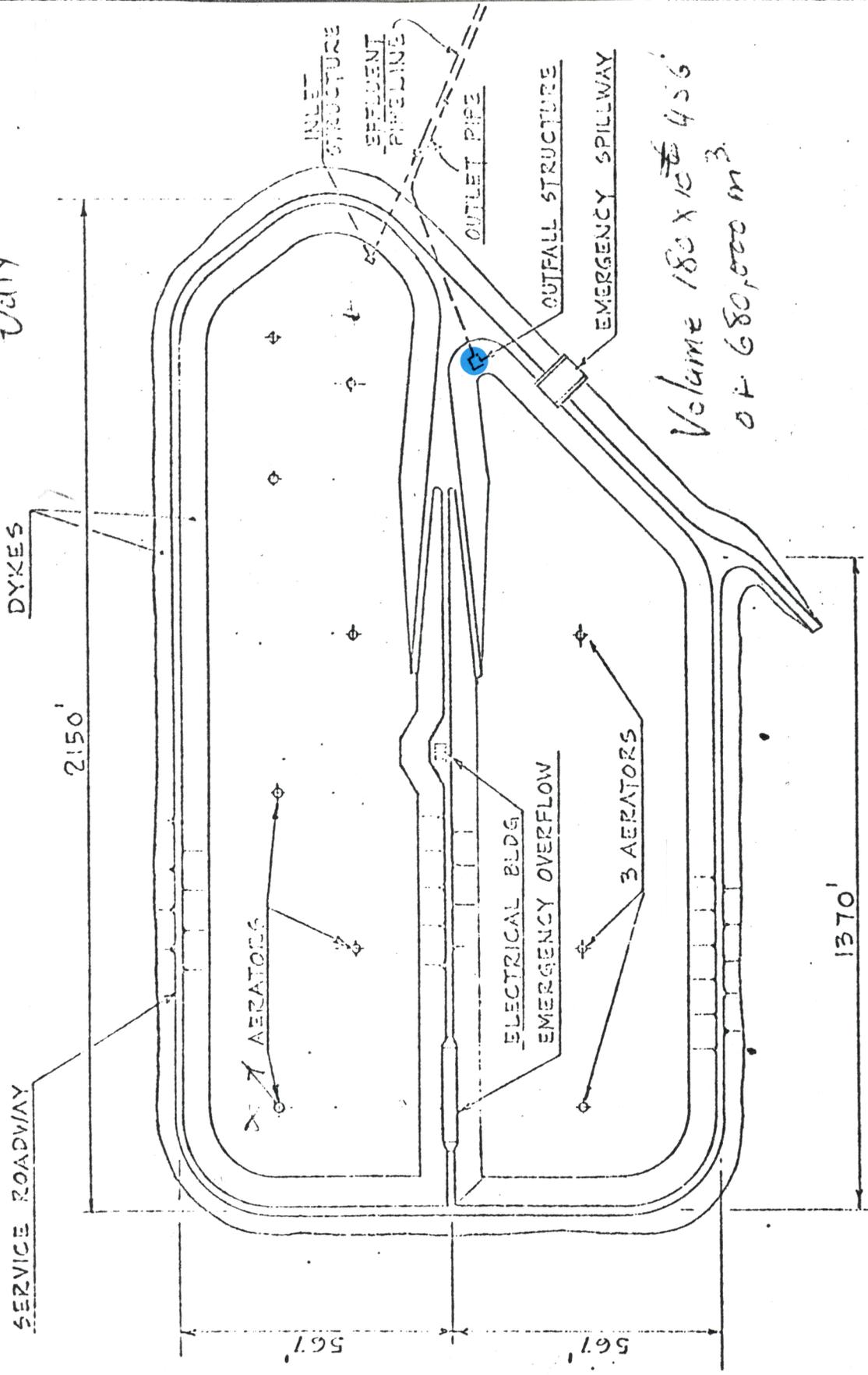
J. Young

Attachment (1)

- cc: K. Doe
- H. Samant
- R. Parker
- ~~W. Young~~

MIRAMICHI PULP AND PAPER, NEWCASTLE

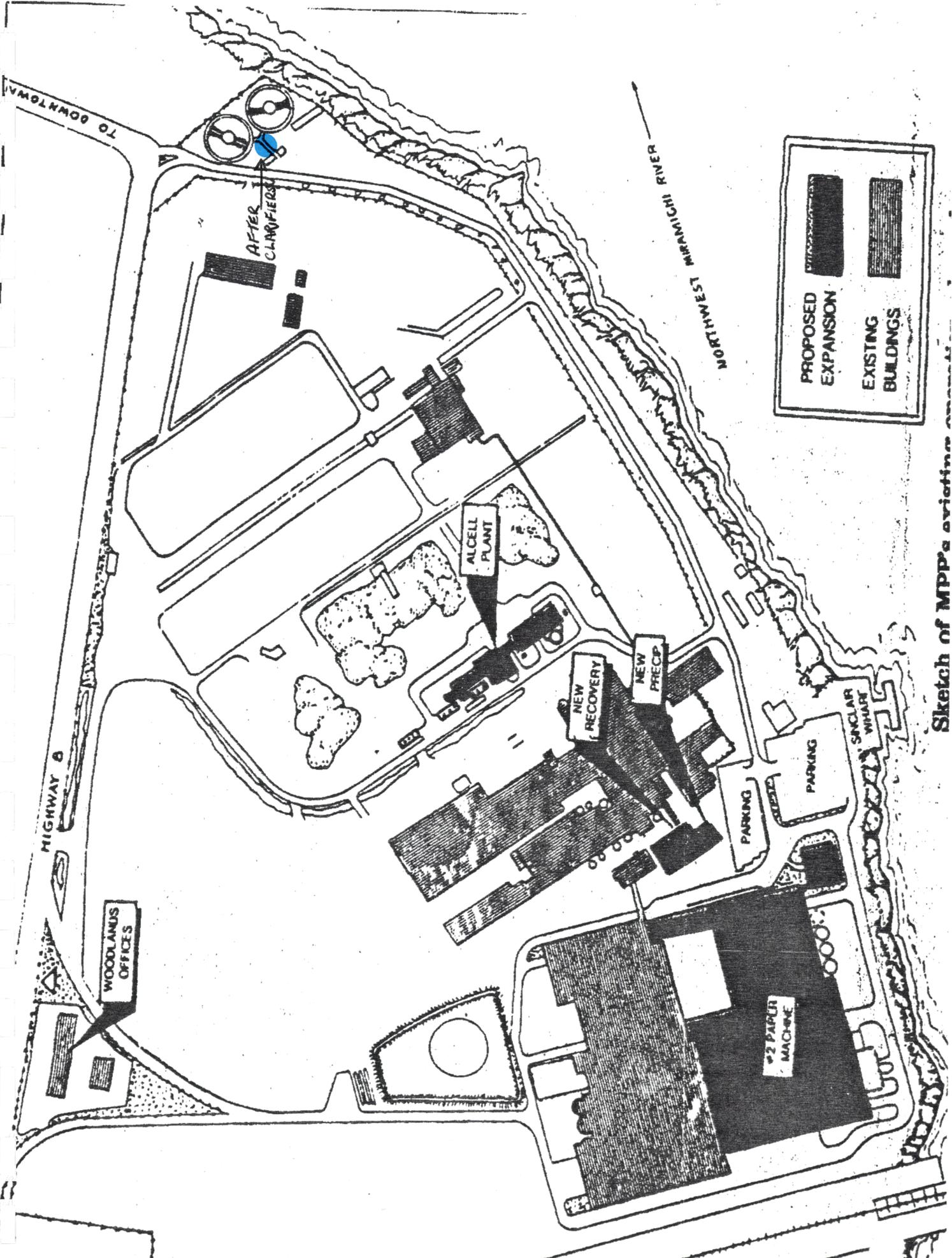
July 1971



Volume 180 x 10⁶ 456
or 680,000 m³

MIRAMICHI TIMBER RESOURCES LTD.

AERATED STABILIZATION BASIN



	
PROPOSED EXPANSION	EXISTING BUILDINGS

Sketch of MPP's existing and proposed expansion

* 87GT024 - GARTH TRIDER STATUS AS OF DEC 16, 1987 *

REGISTERED ON: SEP 30, 1987, BY :PHIL H

LOCATOR: BOSCAN04/MIRAMICHI PULP&PAPER INC.,NEWCASTLE
LAGOON 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: 237/ENV. CONTROL WOOD PRESERVING P&P

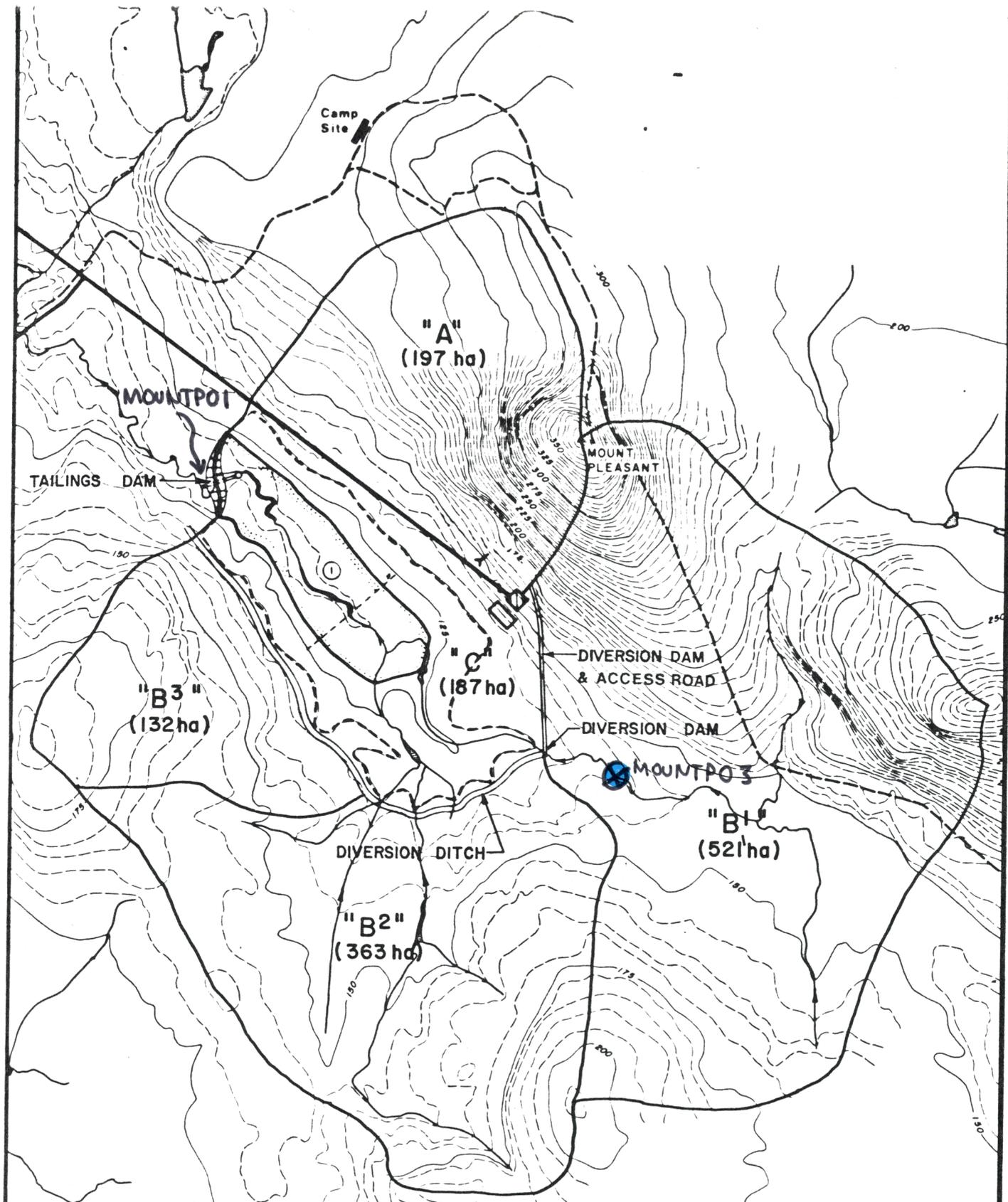
SAMPLING BEGAN, DATE: 29/ 9/87 (SEP 29, 1987), TIME: 900, FREQ: 48
SAMPLING ENDED, DATE: 30/ 9/87 (SEP 30, 1987), TIME: 900

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

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.0	
2: 001F/PH.....	7.5	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	12.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	590.	MG/L
5: 018 /SOLIDS, TOTAL (TS).....	1600.	MG/L
6: 020 /SUSPENDED SOLIDS (SS).....	80.	MG/L
7: 417 /BOD 5 (DEPOSIT RATE).....	1.6	KG/TONNE
8: 418 /SS (DEPOSIT RATE).....	10.6	KG/TONNE
9: 650 /SS(DEPOSIT RATE)	6297.	KG/DAY
10: 651 /BOD(DEPOSIT RATE)	944.	KG/DAY

MOUNT PLEASANT MINE

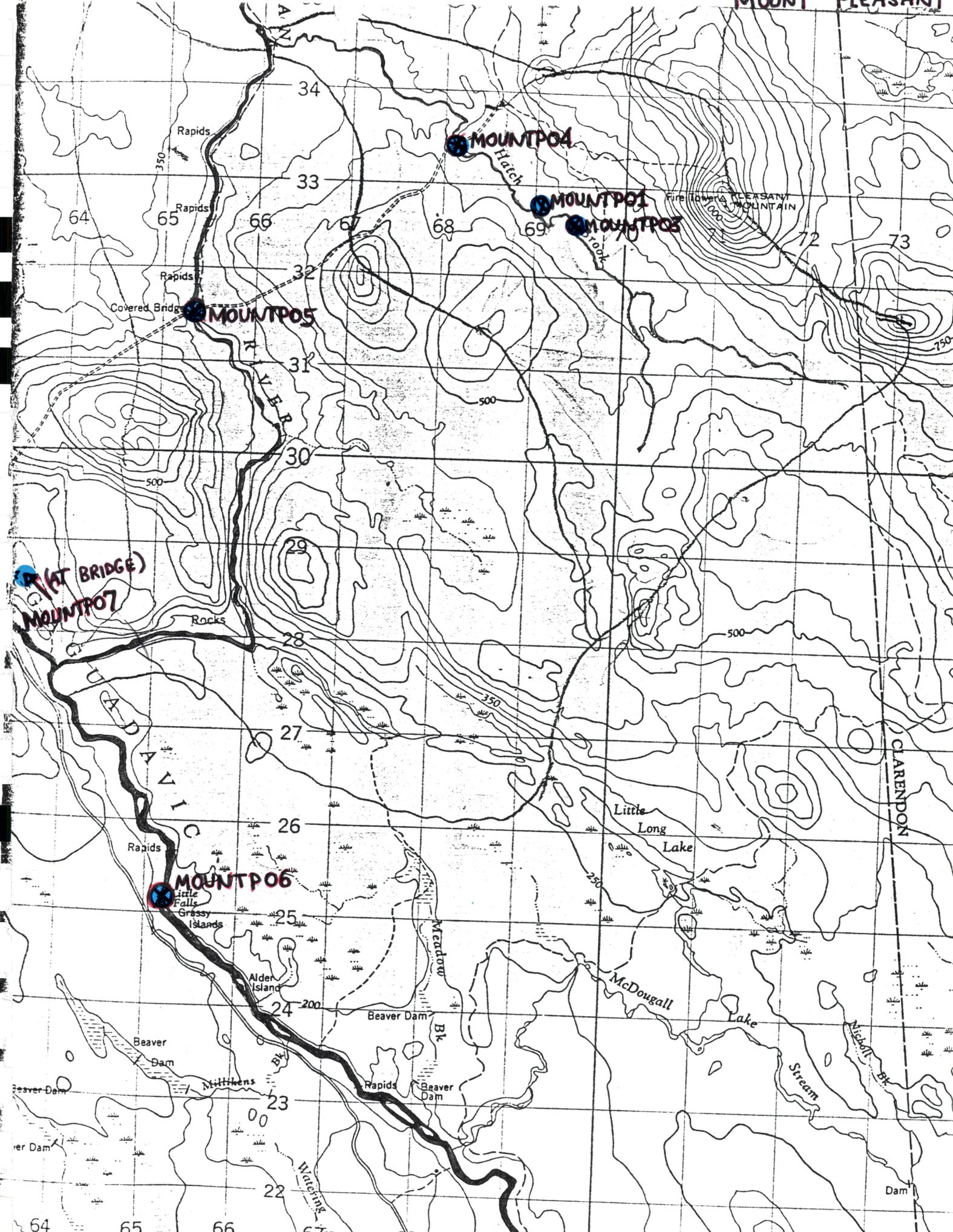


MOUNT PLEASANT TUNGSTEN MINE
TAILINGS SYSTEM DRAINAGE AREAS

FEET 0 830 1660 2490 3320 4150 FEET

PLATE 3-1

MOUNT PLEASANT



MOUNTPO4

MOUNTPO1

MOUNTPO3

MOUNTPO5

MOUNTPO7 (AT BRIDGE)

MOUNTPO6

CLARENDON

* 87RF020 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANDRE

LOCATOR: MOUNTPO1/MOUNT PLEASANT MINE
FINAL EFFLUENT

PROV: NB

NORMAL ANALYSIS: 20,15,1

PROJECT CODE: 235/ENV. CONTROL METAL MINING

SAMPLING BEGAN, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1200, FREQ: 1
SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1200

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

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	6.9		
2:	001F/PH.....	6.8		
3:	005 /HARDNESS.....	70.		MG/L
4:	020 /SUSPENDED SOLIDS (SS).....	L5.		MG/L
5:	022 /MAGNESIUM (TOTAL).....	1.30		MG/L
6:	036 /CALCIUM (TOTAL).....	25.1		MG/L
7:	044 /ARSENIC (TOTAL).....	L0.05		MG/L
8:	046 /CADMIUM (TOTAL).....	L0.01		MG/L
9:	047 /CHROMIUM (TOTAL).....	0.01		MG/L
10:	048 /COFFER (TOTAL).....	L0.01		MG/L
11:	049 /IRON (TOTAL).....	0.39		MG/L
12:	051 /LEAD (TOTAL).....	L0.02		MG/L
13:	054 /ZINC (TOTAL).....	0.38		MG/L
14:	159 /NICKEL (TOTAL).....	L0.01		MG/L
15:	160 /MANGANESE (TOTAL).....	0.31		MG/L
16:	162 /ALUMINUM (TOTAL).....	0.17		MG/L
17:	171 /FLUORIDE.....	3.6		MG/L
18:	207 /TIN (SN)	L.05		MG/L

* 87RF021 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANDRE

LOCATOR: MOUNTPO3/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: 12/ 5/87 (MAY 12, 1987), TIME: 1220, FREQ: 1
SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1220

DEPTH: .00 METERS, TIDE:
NARRATIVE: HATCH BROOK ABOVE MINE

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.3	
2: 001F/PH.....	6.5	
3: 005 /HARDNESS.....	7.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	0.43	MG/L
6: 036 /CALCIUM (TOTAL).....	2.29	MG/L
7: 044 /ARSENIC (TOTAL).....	L0.05	MG/L
8: 046 /CADMIUM (TOTAL).....	L0.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	0.01	MG/L
10: 048 /COPPER (TOTAL).....	L0.01	MG/L
11: 049 /IRON (TOTAL).....	0.33	MG/L
12: 051 /LEAD (TOTAL).....	0.03	MG/L
13: 054 /ZINC (TOTAL).....	0.02	MG/L
14: 159 /NICKEL (TOTAL).....	0.01	MG/L
15: 160 /MANGANESE (TOTAL).....	0.02	MG/L
16: 162 /ALUMINUM (TOTAL).....	0.13	MG/L
17: 171 /FLUORIDE.....	L0.25	MG/L
18: 207 /TIN (SN)	L.05	MG/L

* 87RP022 - ROY PARKER STATUS AS OF DEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANDRE

LOCATOR: MOUNTFO4/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: 12/ 5/87 (MAY 12, 1987), TIME: 1240, FREQ: 1
SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1240

DEPTH: .00 METERS, TIDE:
NARRATIVE: HATCH BROOK AT BRIDGE
DOWNSTREAM OF MINE

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.6	
2: 001F/PH.....	6.5	
3: 005 /HARDNESS.....	25.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	0.83	MG/L
6: 036 /CALCIUM (TOTAL).....	B.87	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).....	0.19	MG/L
12: 051 /LEAD (TOTAL).....	L0.02	MG/L
13: 054 /ZINC (TOTAL).....	0.08	MG/L
14: 159 /NICKEL (TOTAL).....	L0.01	MG/L
15: 160 /MANGANESE (TOTAL).....	0.09	MG/L
16: 162 /ALUMINUM (TOTAL).....	0.12	MG/L
17: 171 /FLUORIDE.....	0.9	MG/L
18: 207 /TIN (SN)	L.05	MG/L

 * 87RP023 - ROY PARKER STATUS AS OF IEC 10, 1987 *

REGISTERED ON: MAY 14, 1987, BY :ANDRE

LOCATOR: MOUNTPO5/MOUNT PLEASANT MINE
 FISKEHEGAN 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: 12/ 5/87 (MAY 12, 1987), TIME: 1250, FREQ: 1
 SAMPLING ENDED, DATE: 12/ 5/87 (MAY 12, 1987), TIME: 1250

DEPTH: .00 METERS, TIDE:
 NARRATIVE: FISKEHEGAN DOWNSTREAM OF MINE
 AT BRIDGE

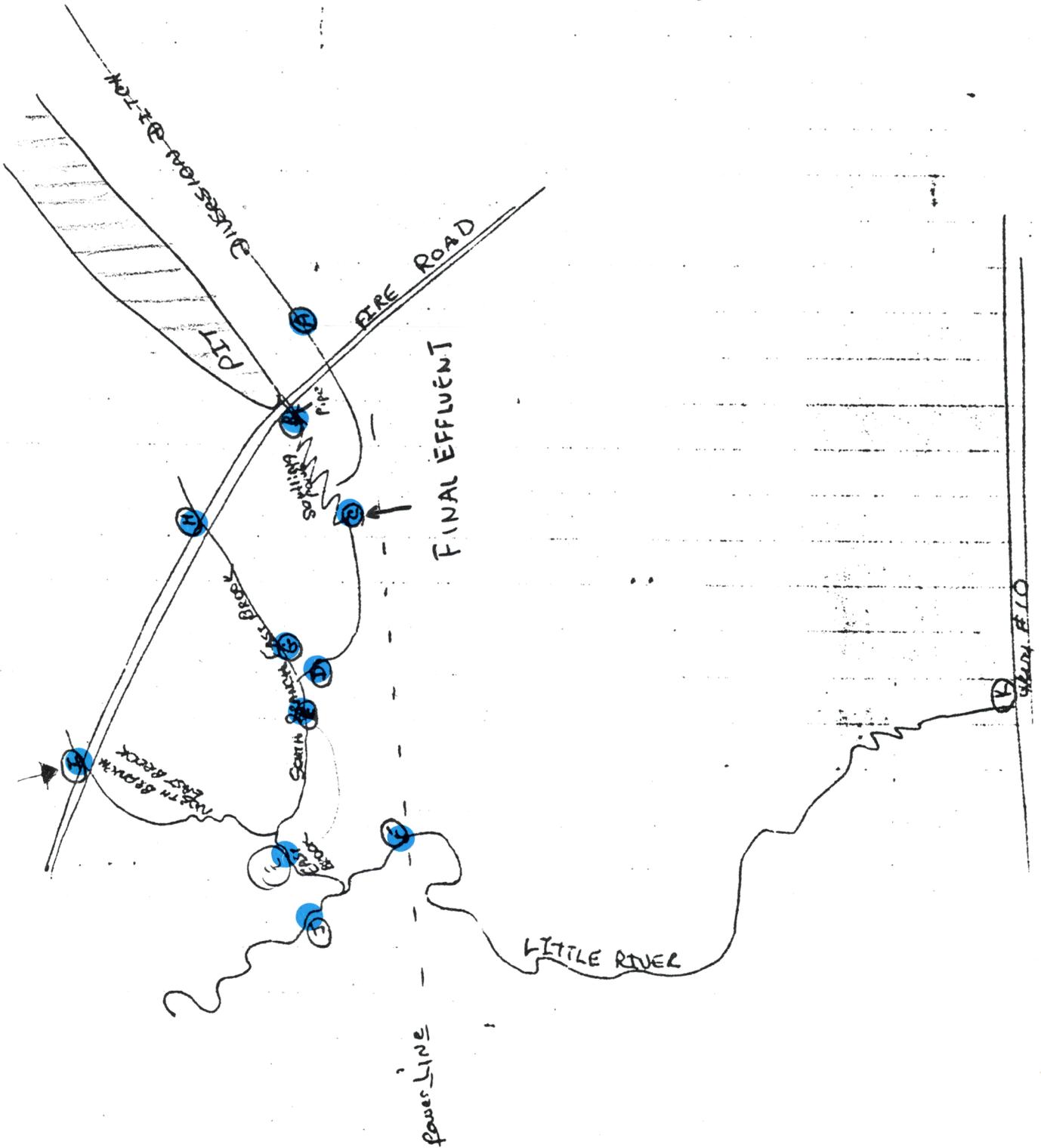
---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.3	
2: 001F/PH.....	6.7	
3: 005 /HARDNESS.....	11.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM (TOTAL).....	0.55	MG/L
6: 036 /CALCIUM (TOTAL).....	3.49	MG/L
7: 044 /ARSENIC (TOTAL).....	L0.05	MG/L
8: 046 /CADMIUM (TOTAL).....	L0.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	0.02	MG/L
10: 048 /COPPER (TOTAL).....	L0.01	MG/L
11: 049 /IRON (TOTAL).....	0.21	MG/L
12: 051 /LEAD (TOTAL).....	L0.02	MG/L
13: 054 /ZINC (TOTAL).....	0.01	MG/L
14: 159 /NICKEL (TOTAL).....	L0.01	MG/L
15: 160 /MANGANESE (TOTAL).....	0.02	MG/L
16: 162 /ALUMINUM (TOTAL).....	0.18	MG/L
17: 171 /FLUORIDE.....	L0.25	MG/L
18: 207 /TIN (SN)	L.05	MG/L

N . B . COAL , MINTO

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 intersection of East Brook & Little River
K	Little River Bridge at Hwy #10

NB COAL
FIRE ROAD MINE



 * 87RP007 - ROY PARKER STATUS AS OF MAR 6, 1987 *

REGISTERED ON: JAN 28, 1987, BY :PHIL H

LOCATOR: NBMINT00/NB COAL, FIRE ROAD MINE, MINTO
 GENERAL

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1100, FREQ: 1
 SAMPLING ENDED, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1100

DEPTH: .00 METERS, TIDE:

NARRATIVE: N.B. COAL (FIRE ROAD MINE) WATER
 FROM CENTRE CUT

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

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....	3.2		
2:	001F/PH.....	3.4		
3:	005 /HARDNESS.....	275.		MG/L
4:	020 /SUSPENDED SOLIDS (SS).....	L5.		MG/L
5:	022 /MAGNESIUM.....	15.4		MG/L
6:	036 /CALCIUM.....	14.2		MG/L
7:	044 /ARSENIC (TOTAL).....	L.05		MG/L
8:	046 /CADMIUM (TOTAL).....	L.01		MG/L
9:	047 /CHROMIUM (TOTAL).....	.02		MG/L
10:	048 /COPPER (TOTAL).....	.09		MG/L
11:	049 /IRON (TOTAL).....	9.6		MG/L
12:	051 /LEAD (TOTAL).....	L.02		MG/L
13:	054 /ZINC (TOTAL).....	.64		MG/L
14:	128 /ACIDITY, TOTAL.....	220.		MG/L
15:	159 /NICKEL (TOTAL).....	.24		MG/L
16:	160 /MANGANESE (TOTAL).....	11.10		MG/L
17:	162 /ALUMINUM (TOTAL).....	16.6		MG/L

* 87RP008 - ROY PARKER STATUS AS OF MAR 6, 1987 *

REGISTERED ON: JAN 28, 1987, BY :PHIL H

LOCATOR: NBMINT04/NB COAL, FIRE ROAD MINE, MINTO
NORTH DRAINAGE DITCH AT ROAD CROSSING PROV: NB
PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1230, FREQ: 1
SAMPLING ENDED, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1230

DEPTH: .00 METERS, TIDE:
NARRATIVE: N.B. COAL (FIRE ROAD MINE) DRAINAGE
FROM NORTH OF CUT

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	5.0	
2: 001F/PH.....	4.8	
3: 005 /HARDNESS.....	22.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	9.	MG/L
5: 022 /MAGNESIUM.....	1.07	MG/L
6: 036 /CALCIUM.....	6.95	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).....	.42	MG/L
12: 051 /LEAD (TOTAL).....	L.02	MG/L
13: 054 /ZINC (TOTAL).....	.03	MG/L
14: 128 /ACIDITY, TOTAL.....	14.	MG/L
15: 159 /NICKEL (TOTAL).....	L.01	MG/L
16: 160 /MANGANESE (TOTAL).....	.57	MG/L
17: 162 /ALUMINUM (TOTAL).....	.49	MG/L
18: 500 /BIOASSAY	*DONE*	

TO
W. Roy Parker, Head
Mineral Industries & Toxic Studies
Air & Water Branch
Conservation and Protection

FROM
DE
J. David A. Vaughan
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SECURITE
OUR FILE - N/REFERENCE 4780-6
YOUR FILE - V/REFERENCE
DATE 5 August 1987

SUBJECT
OBJET

BIOASSAY RESULTS - N. B. COAL FIRE ROAD MINE

On June 24, 1987 Wilf Pilgrim of the New Brunswick Department of Municipal Affairs and Environment collected a grab sample of final effluent from the N. B. Coal Fire Road Mine, Minto, New Brunswick.

On June 29, 1987, a 96-hour static bioassay was begun on this sample, using rainbow trout fingerling and speckled trout fingerling as test organisms. The sample was tested undiluted (i.e. 100% concentration).

There was 40% rainbow trout mortality (2 of 5 fish), with both fish dying somewhere between 24 and 45.5 hours exposure. There was no mortality of the speckled trout in 96 hours.

A copy of the Bioassay Report is attached which provides further test details.

Please forward these results to Mike Sprague and Wilf Pilgrim of N. B. MAE.

Kenneth G. Doe for

J. David A. Vaughan

JDAV/ld1

Attachment (1)

cc: H. S. Samant
K. G. Doe

*Note:
- they took their
own chemistry
samples.
- D.V.*

* S7RF009 - ROY PARKER STATUS AS OF MAR 6, 1987 *

REGISTERED ON: JAN 28, 1987, BY :PHIL H

LOCATOR: NBMINT01/NB COAL, FIRE ROAD MINE, MINTO
FINAL EFFLUENT

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1145, FREQ: 1
SAMPLING ENDED, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1145

DEPTH: .00 METERS, TIDE:

NARRATIVE: N.B. COAL (FIRE MINE ROAD)
FINAL TREATED EFFLUENT

---- SAMPLE ANALYSIS ----

.....	PARAMETER .....	.....	VALUE	UNITS
1:	001 /PH.....		7.9	
2:	001F/PH.....		13.7	
3:	005 /HARDNESS.....		1550.	MG/L
4:	020 /SUSPENDED SOLIDS (SS).....		650.	MG/L
5:	022 /MAGNESIUM.....		47.1	MG/L
6:	036 /CALCIUM.....		542.	MG/L
7:	044 /ARSENIC (TOTAL).....		.24	MG/L
8:	046 /CADMIUM (TOTAL).....	L.01		MG/L
9:	047 /CHROMIUM (TOTAL).....	.03		MG/L
10:	048 /COPPER (TOTAL).....	.22		MG/L
11:	049 /IRON (TOTAL).....	66.4		MG/L
12:	051 /LEAD (TOTAL).....	L.02		MG/L
13:	054 /ZINC (TOTAL).....	1.81		MG/L
14:	128 /ACIDITY, TOTAL.....	8.		MG/L
15:	159 /NICKEL (TOTAL).....	.67		MG/L
16:	160 /MANGANESE (TOTAL).....	27.9		MG/L
17:	162 /ALUMINUM (TOTAL).....	64.6		MG/L
18:	500 /BIOASSAY	"DONE"		

* 87RF010 - ROY PARKER STATUS AS OF MAR 6, 1987 *

REGISTERED ON: JAN 28, 1987, BY :PHIL H

LOCATOR: NBMINTO2/NB COAL, FIRE ROAD MINE, MINTO
MOUTH OF EAST BROOK

PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1430, FREQ: 1
SAMPLING ENDED, DATE: 27/ 1/87 (JAN 27, 1987), TIME: 1430

DEPTH: .00 METERS, TIDE:

NARRATIVE: N.B. COAL (FIRE MINE ROAD)EAST BROOK
AT MOUTH(BEFORE LITTLE RIVER)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.5	
2: 001F/PH.....	4.0	
3: 005 /HARDNESS.....	565.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
5: 022 /MAGNESIUM.....	22.0	MG/L
6: 036 /CALCIUM.....	190.	MG/L
7: 044 /ARSENIC (TOTAL).....	.08	MG/L
8: 046 /CADMIUM (TOTAL).....	L.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	.03	MG/L
10: 048 /COPPER (TOTAL).....	L.01	MG/L
11: 049 /IRON (TOTAL).....	.51	MG/L
12: 051 /LEAD (TOTAL).....	L.02	MG/L
13: 054 /ZINC (TOTAL).....	.27	MG/L
14: 128 /ACIDITY, TOTAL.....	40.	MG/L
15: 159 /NICKEL (TOTAL).....	.14	MG/L
16: 160 /MANGANESE (TOTAL).....	13.0	MG/L
17: 162 /ALUMINUM (TOTAL).....	4.27	MG/L
18: 500 /BIODASSAY	"DONE"	

N . B . I . P . F O R E S T P R O D U C T S

DATE JAN 4 1973

MILL NAME DALHOUSIE

MILL NO. 25

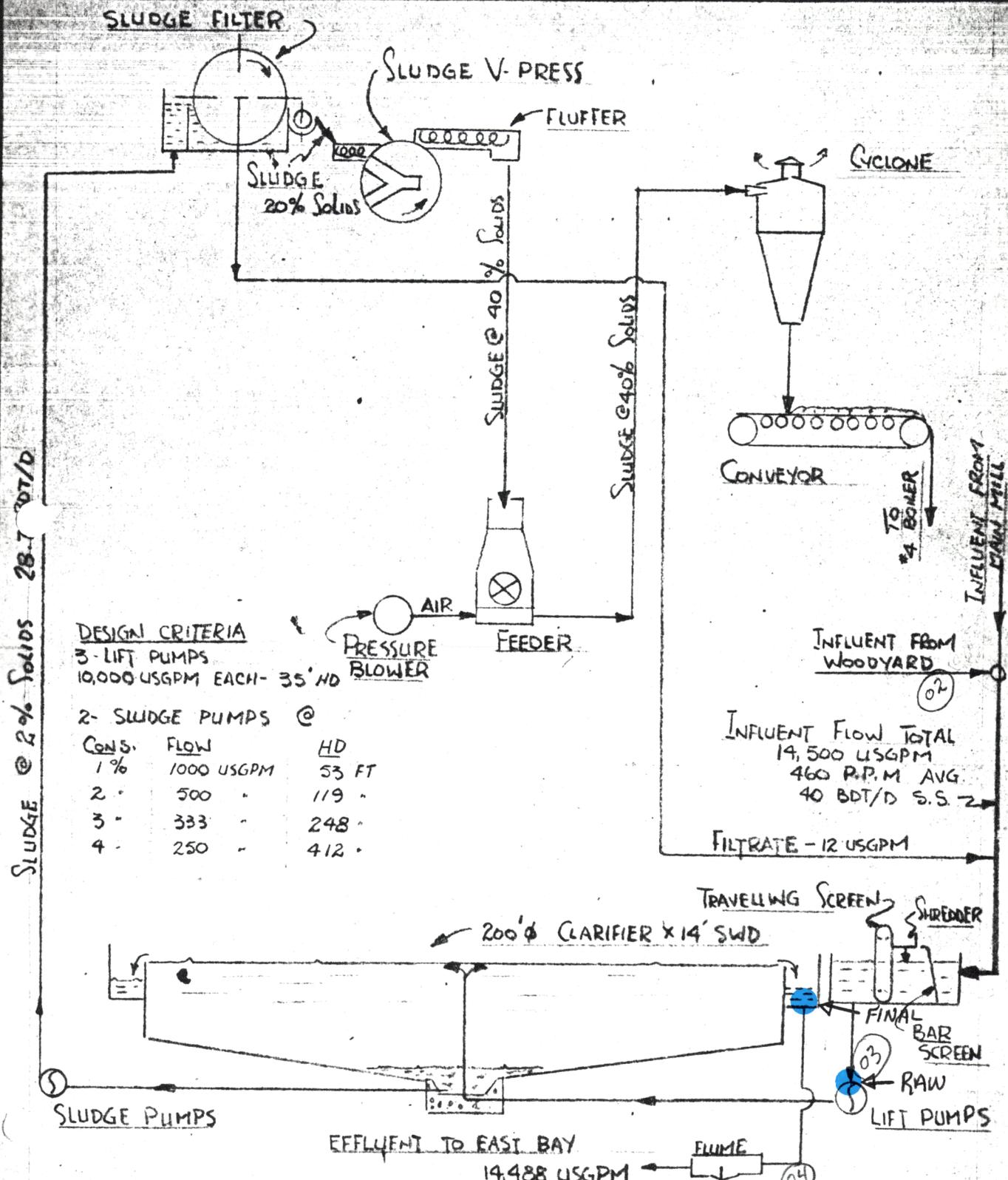
DN BY J. E. D.

CK. BY

REQ. NO.

JOB. NO.

SUBJECT POLLUTION ABATEMENT - SCHEMATIC FLOW DIAGRAM



SLUDGE @ 20% Solids 28.7 BDT/D

DESIGN CRITERIA

3- LIFT PUMPS
10,000 USGPM EACH - 35' HD

2- SLUDGE PUMPS @

CONS.	FLOW	HD
1	1000 USGPM	53 FT
2	500	119
3	333	248
4	250	412

INFLUENT FLOW TOTAL
14,500 USGPM
460 P.P.M. AVG.
40 BDT/D S.S. 2

NO.	DATE	REVISIONS	BY	CHECKED
1	1/4/73	130 P.P.M. - 11.3 BDT/D	J.E.D.	
		REDRAWN		

* 87GT035 - GARTH TRIDER STATUS AS OF JUN 27, 1988 *

REGISTERED ON: OCT 16, 1987, BY :PHIL H

LOCATOR: NBIFAP04/NBIF FOREST PRODUCTS INC., DALHOUSIE
CLARIFIER OVERFLOW 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: 14/10/87 (OCT 14, 1987), TIME: 930, FREQ: 48
SAMPLING ENDED, DATE: 15/10/87 (OCT 15, 1987), TIME: 930

DEPTH: .00 METERS, TIDE:
NARRATIVE: CLARIFIER OUTLET

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	7.3	
2: 001F/PH.....	7.2	
3: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	430.	MG/L
4: 016 /CHEMICAL OXYGEN DEMAND (COD)..	1200.	MG/L
5: 020 /SUSPENDED SOLIDS (SS).....	80.	MG/L
6: 417 /BOD 5 (DEPOSIT RATE).....	24.3	KG/TONNE
7: 418 /SS (DEPOSIT RATE).....	4.5	KG/TONNE
8: 650 /SS(DEPOSIT RATE)	4440.	KG/DAY
9: 651 /BOD(DEPOSIT RATE)	23862.	KG/DAY



TO
A

G. Trider, Head
Food Processing, Steel & Textile Industries Section
Water Pollution Control Division
Air & Water Branch

FROM
DE

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE 4705-37/N198
YOUR FILE/VOTRE RÉFÉRENCE
DATE 18 November 1987

SUBJECT
OBJET

Bioassay Results - NBIP, Dalhousie

On 14 October 1987 P. Hennebury collected a sample of the clarifier outlet (Lab Registration No. 87GT036) from NBIP Forest Products Inc. at Dalhousie, New Brunswick. On 19 October 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died in the 100%, 56% and 32% concentrations. The test fish survived lower concentrations (i.e., 10% & 3.2%) throughout the bioassay. The 96-hour LC50 was 18%. Twenty percent mortality (i.e., 1 of 5 fish) was observed in the control tank. The observed toxicity of the sample was likely caused by the level of sulphide. Note that chemical analyses on this effluent are incomplete.

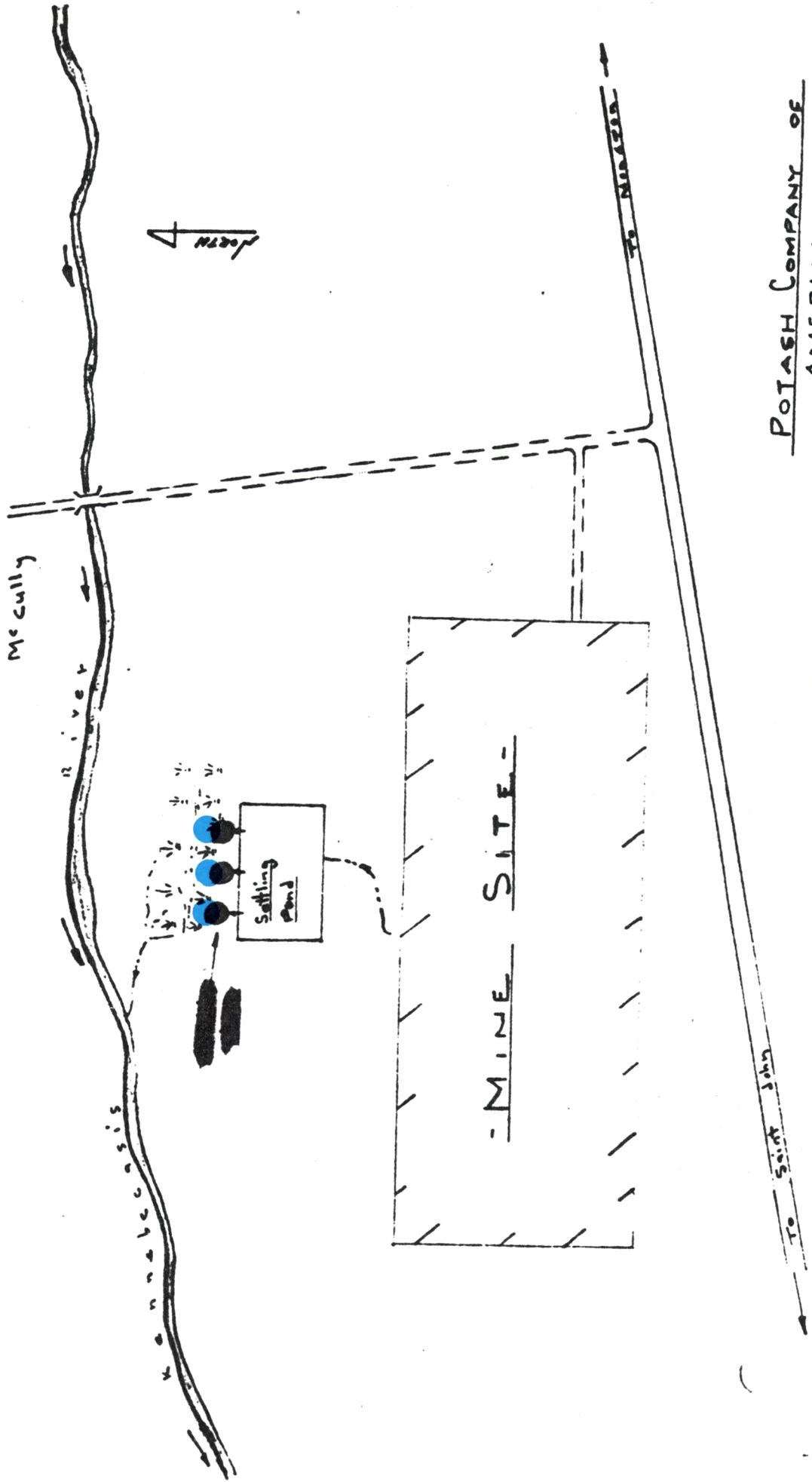
A copy of the Bioassay Report Form is attached which provides additional details of the test.

J. Young

Attachment (1)

cc: K. Doe
H. Samant

POTASH COMPANY OF AMERICA



POTASH COMPANY OF
AMERICA

SUSSEX, N.B. (Sampling Sites)
N.T.S

* 87FH057 - PHIL HENNEBURY STATUS AS OF AUG 11, 1987 *

REGISTERED ON: JUL 27, 1987; BY :PHIL H

LOCATOR: FCASX22/POTASH COMPANY OF AMERICA
#3 DECANT PIPE-MIDDLE OF SETTLING POND PROV: NB
PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN: DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1700, FREQ: 1
SAMPLING ENDED: DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1700

DEPTH: .00 METERS, TIDE:
NARRATIVE: PIPE DRY (NO FLOW)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001F/PH.....	"NO SAMPLE"	
2: 002F/TEMPERATURE.....	"NO SAMPLE"	DEGREES C.
3: 006F/CONDUCTIVITY.....	"NO SAMPLE"	MMHOS/CM
4: 065F/SALINITY.....	"NO SAMPLE"	(PPT)
5: 420 /FLOW.....	0.00	L/DAY

* B7PH056 - PHIL HENNEBURY STATUS AS OF JAN 6, 1988 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: PCASSX20/POTASH COMPANY OF AMERICA

OVERFLOW PIPE-EAST END OF SETTLING POND PROV: NB

PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1700, FREQ: 1

SAMPLING ENDED, DATE: 30/ 7/87 (JUL 30, 1987), TIME: 1700

DEPTH: .00 METERS, TIDE:

NARRATIVE: BIOASSAY MIXED PROPOKTION TO FLOW

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	6.6	
2: 001F/PH.....	8.5	
3: 002F/TEMPERATURE.....	26.5	DEGREES C.
4: 005 /HARDNESS.....	310.	MG/L
5: 006F/CONDUCTIVITY.....	8.35	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	3656.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	7.	MG/L
8: 044 /ARSENIC (TOTAL).....	LO.05	MG/L
9: 046 /CADMIUM (TOTAL).....	LO.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.04	MG/L
11: 048 /COPPER (TOTAL).....	LO.01	MG/L
12: 049 /IRON (TOTAL).....	0.40	MG/L
13: 051 /LEAD (TOTAL).....	LO.02	MG/L
14: 054 /ZINC (TOTAL).....	0.02	MG/L
15: 065F/SALINITY.....	4.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	3649.	MG/L
17: 159 /NICKEL (TOTAL).....	LO.01	MG/L
18: 161 /CHLORIDE.....	1700.	PPM
19: 162 /ALUMINUM (TOTAL).....	LO.025	MG/L
20: 420 /FLOW.....	129600.	L/DAY

 * B7PH058 - PHIL HENNEBURY STATUS AS OF JAN 6, 1988 *

REGISTERED ON: JUL 27, 1987, BY :PHIL H

LOCATOR: PCASSX24/POTASH COMPANY OF AMERICA
 #5 DECANT PIPE WST END OF SETTLING POND PROV: NB
 PROJECT CODE: 233/COAL & PEAT MINING METALLURGICAL

SAMPLING BEGAN, DATE: 3/ 7/87 (JUL 3, 1987), TIME: 1600, FREQ: 1
 SAMPLING ENDED, DATE: 3/ 7/87 (JUL 3, 1987), TIME: 1600

DEPTH: .00 METERS, TIDE:
 NARRATIVE: BIOASSAY MIXED PROPORTION TO FLOW

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	6.6	
2: 001F/PH.....	8.4	
3: 002F/TEMPERATURE.....	26.6	DEGREES C.
4: 005 /HARDNESS.....	300.	MG/L
5: 006F/CONDUCTIVITY.....	8.65	MMHOS/CM
6: 018 /SOLIDS, TOTAL (TS).....	3684.	MG/L
7: 020 /SUSPENDED SOLIDS (SS).....	L5.	MG/L
8: 044 /ARSENIC (TOTAL).....	0.05	MG/L
9: 046 /CADMIUM (TOTAL).....	L0.01	MG/L
10: 047 /CHROMIUM (TOTAL).....	0.02	MG/L
11: 048 /COPPER (TOTAL).....	0.05	MG/L
12: 049 /IRON (TOTAL).....	0.35	MG/L
13: 051 /LEAD (TOTAL).....	0.06	MG/L
14: 054 /ZINC (TOTAL).....	0.02	MG/L
15: 065F/SALINITY.....	5.0	(PPT)
16: 131 /TOTAL DISSOLVED SOLIDS (TDS).....	3684.	MG/L
17: 159 /NICKEL (TOTAL).....	L0.01	MG/L
18: 161 /CHLORIDE.....	1500.	PPM
19: 162 /ALUMINUM (TOTAL).....	L0.025	MG/L
20: 420 /FLOW.....	27870.	L/DAY
21: 500 /BIOASSAY	"DONE"	

A. MacKinnon, Head
Oil & Chemical Waste Section
Air & Water Branch
Conservation and Protection

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ

OUR FILE/NOTRE RÉFÉRENCE

4705-37/P152

YOUR FILE/VOTRE RÉFÉRENCE

DATE

28 August 1987

SUBJECT
OBJET

BIOASSAY RESULTS - POTASH COMPANY OF AMERICA, SUSSEX, N. B.

On 30 July 1987 P. Hennebury collected a sample of final effluent (Lab Registration No. 87PH058) from the Potash Company of America in Sussex, N. B. The label read "sample mixed in field". On 4 August 1987 a 96-hour static bioassay was started on the sample. The full strength effluent was not acutely lethal to the test fish, however, 40% mortality was observed in the 56% concentration test tank. I can offer no explanation other than random variation for this apparently contradictory result.

A copy of the Bioassay Report Form is attached which provides additional test details.

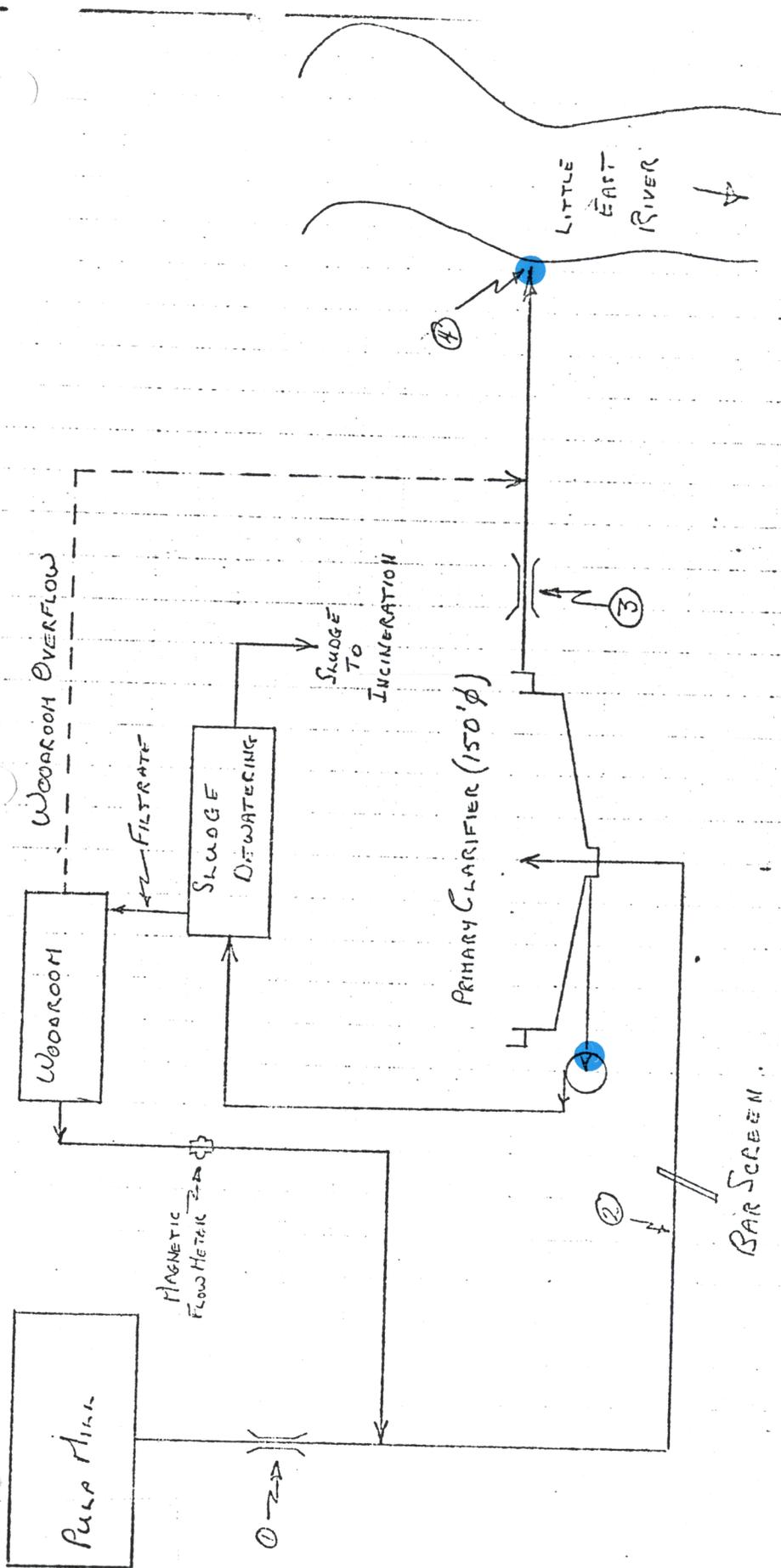

J. Young

JY/ldl

Attachment (1)

cc: H. Samant
K. Doe
D. Vaughan

ROTHESAY PAPER LIMITED



- SAMPLE LOCATIONS
- ① Pump 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/H234 16/174.

* 87GT007 - GARTH TRIDER STATUS AS OF NOV 6, 1987 *

REGISTERED ON: AUG 20, 1987, BY :PHIL H

LOCATOR: MACROT03/ROTHESAY PAPER LIMITED, SAINT JOHN
INFLUENT TO CLARIFIER

PROV: NB

PROJECT CODE: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN: DATE: 10/ 8/87 (AUG 10, 1987), TIME: 1100, FREQ: 24
SAMPLING ENDED: DATE: 11/ 8/87 (AUG 11, 1987), TIME: 1100

DEPTH: .00 METERS, TIDE:
NARRATIVE:

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	5.0	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	310.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	1000.	MG/L

* 87GTO08 - GARTH TRIDER STATUS AS OF NOV 4, 1987 *

REGISTERED ON: AUG 20, 1987; BY :PHIL H

LOCATOR: MACROTON/RUTHERSAY 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: 237/ENV. CONTROL WOOD PRESERVING P&P

SAMPLING BEGAN: DATE: 10/ 8/87 (AUG 10, 1987); TIME: 1100; FREQ: 24
SAMPLING ENDED: DATE: 11/ 8/87 (AUG 11, 1987); TIME: 1100

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

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE	UNITS
1: 001 /PH.....	4.9	
2: 015 /BIOCHEM. OXYGEN DEMAND (BOD)..	240.	MG/L
3: 020 /SUSPENDED SOLIDS (SS).....	320.	MG/L
4: 417 /BOD 5 (DEPOSIT RATE).....	13.9	KG/TONNE
5: 418 /SS (DEPOSIT RATE).....	18.6	KG/TONNE
6: 650 /SS(DEPOSIT RATE)	15047.	KG/DAY
7: 651 /BOD(DEPOSIT RATE)	11285.	KG/DAY



TO
À

G. Trider, Head
Food Processing, Steel & Textile Industries Section
Water Pollution Control Division
Air & Water Branch

FROM
DE

J. Young, Project Biologist
Aquatic Toxicology Section
Laboratory Division
Air & Water Branch

SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE/NOTRE RÉFÉRENCE 4705-37/M234
YOUR FILE/NOTRE RÉFÉRENCE
DATE 18 November 1987

SUBJECT
OBJET

Bioassay Results - Rothesay Paper

On 11 August 1987 P. Hennebury collected a sample of the final effluent (Lab Registration No. 87GT009) from the Rothesay pulp and paper mill at St. John, New Brunswick. On 13 August 1987 a 96-hour static bioassay was started on the sample using rainbow trout fingerling. The test organisms died rapidly (within 19 hours) at dilutions as low as 10% effluent and died within 45 hours at 3.2% effluent. The test fish survived in the 1% concentration throughout the bioassay. The 96-hour LC50 was 1.8%. Of the chemical analyses completed to date for this effluent only resin acid levels are high enough to have contributed to the observed toxicity of the sample.

A copy of the Bioassay Report Form is attached which provides additional details of the test.

J. Young

Attachment (1)

cc: K. Doe

K. Paine

S Q U A R E " D "

* 87PH064 - PHIL HENNEBURY STATUS AS OF MAR 14, 1988 *

REGISTERED ON: NOV 30, 1987; BY :PHIL H

LOCATOR: SQUARD02/SQUARE D
RAW INFLUENT

PROV: NR

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN; DATE: 25/11/87 (NOV 25, 1987); TIME: 930; FREQ: 1

SAMPLING ENDED; DATE: 25/11/87 (NOV 25, 1987); TIME: 930

DEPTH: .00 METERS; TIDE:
NARRATIVE: RAW (BEFORE TREATMENT)

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

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 001 /PH.....	4.0	
2: 001F/PH.....	3.2	
3: 018 /SOLIDS, TOTAL (TS).....	284.	MG/L
4: 020 /SUSPENDED SOLIDS (SS).....	24.	MG/L
5: 029 /CYANIDE (CN).....	10.02	MG/L
6: 043 /SILVER (TOTAL).....	1.02	MG/L
7: 044 /ARSENIC (TOTAL).....	1.05	MG/L
8: 046 /CADMIUM (TOTAL).....	.01	MG/L
9: 047 /CHROMIUM (TOTAL).....	.03	MG/L
10: 048 /COPPER (TOTAL).....	18.1	MG/L
11: 049 /IRON (TOTAL).....	17.1	MG/L
12: 051 /LEAD (TOTAL).....	1.34	MG/L
13: 054 /ZINC (TOTAL).....	5.02	MG/L
14: 131 /TOTAL DISSOLVED SOLIDS (TDS)..	260.	MG/L
15: 159 /NICKEL (TOTAL).....	1.72	MG/L
16: 160 /MANGANESE (TOTAL).....	.37	MG/L
17: 162 /ALUMINUM (TOTAL).....	.07	MG/L

* 87PH065 - PHIL HENNEBURY STATUS AS OF MAR 16, 1998 *

REGISTERED ON: NOV 30, 1987; BY :PHIL H

LOCATOR: SQUARD01/SQUARE D

FINAL EFFLUENT

PROV: NB

PROJECT CODE: 240/ENV. CONTROL SITE FISHERIES ACT

SAMPLING BEGAN: DATE: 25/11/87 (NOV 25, 1987); TIME: 930; FREQ: 1

SAMPLING ENDED: DATE: 25/11/87 (NOV 25, 1987); TIME: 930

DEPTH: .00 METERS; TIDE:

NARRATIVE: SLUDGE SAMPLE (FROM HOLDING TANK)

---- SAMPLE ANALYSIS ----

.....PARAMETER .....	..... VALUE .....	..... UNITS
1: 046S/CADMIUM (TOTAL, SEDIMENT).....	0.14	UG/G
2: 047S/CHROMIUM (SEDIMENT).....	46.5	UG/G
3: 048S/COPPER (TOTAL, SEDIMENT).....	8680.	UG/G
4: 049S/IRON (SEDIMENT).....	23600.	UG/G
5: 051S/LEAD (TOTAL, SEDIMENT).....	87.5	UG/G
6: 054S/ZINC (TOTAL, SEDIMENT).....	46850.	UG/G
7: 159S/NICKEL (SEDIMENT).....	106500.	UG/G
8: 162S/ALUMINUM (SEDIMENT).....	1030.	UG/G