

**WATER QUANTITY SURVEYS
COST SHARING AGREEMENT
CANADA - NEWFOUNDLAND
ANNUAL REPORT 1995 - 96**

Martin Goebel
Administrator for Newfoundland

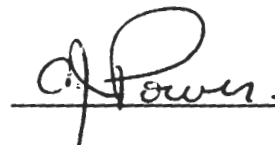
Mr. W. S. Appleby
Administrator for Canada

In accordance with Article XII of the Memorandum of Agreement covering Water Quantity Surveys in the Province of Newfoundland, we submit herewith the annual report for fiscal year 1995 - 96.

Members of the Co-ordinating Committee



H. Khan
Co-ordinator for Newfoundland
St. John's, Newfoundland



C. J. Power
Co-ordinator for Canada
Bedford, Nova Scotia

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INTRODUCTION

The year ending March 31, 1996 was the twenty first in which water quantity surveys in Newfoundland were conducted under a Memorandum of Agreement between the Federal and Provincial Governments.

The Agreement establishes the basis on which co-operative water quantity surveys are made. It is administered for Canada by the Director of the Atmospheric Environment Branch (AEB) of Environment Canada and for Newfoundland by the Director, Water Resources Division, Department of Environment and Labour.

A Co-ordinating Committee comprising the Manager Environmental Monitoring Division of AEB, and the Manager Surface Water Section, Newfoundland Department of Environment and Labour, reports to the Administrators. It is the responsibility of the Co-ordinating Committee to prepare annually, Schedules A and D for approval by the Administrators.

The full Memorandum of Agreement includes four schedules. The annually changing Schedules A and D for 1995-96 are attached to this report in Appendices I and II. Schedules B and C are primarily administrative in nature. They are provided in previous annual water reports of this series, as well as in the publication entitled Compendium of Practices, Interpretations and Administrative Procedures for the Water Quantity Survey Agreements: dated 1985-07.

Schedule A is a list of water quantity stations operated under the terms of the Agreement and their responsibility classification as federal, federal-provincial or provincial.

Schedule D provides a summary of the 1995-96 annual payment.

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND
OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS - ISLAND

1995 - 96

Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime)	292,209
Transportation and Communications	
Travel - 07	23,000
Transportation and Postage - 09	2,000
Telecommunications - 10, 11	3,000
Professional and Special Services	
Professional Services - 18	500
Other Services - 22	4,000
Rentals - 25	45,500
Purchased Repair and Upkeep	
Equipment Purchased and Repairs - 28	4,500
Building and Structures Repairs - 29	3,500
Utilities, Materials and Supplies	
Public Utility Services - 32	500
Purchased Materials, Supplies, Misc. Goods - 33, 34	30,000
Parts and Consumable Tools - 35	5,500
Other Costs - Data Processing	14,000
- Depreciation of Vehicles (5)	15,265
- Depreciation of Field Equipment and Instruments	9,500
TOTAL	452,974

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS - LABRADOR

1995 - 96

Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime)	57,000
Transportation and Communications	
Travel - 07	7,500
Transportation and Postage - 09	2,000
Telecommunications - 10, 11	-
Professional and Special Services	
Professional Services - 18	-
Other Purchased Services - 22	1,000
Rentals - 25	31,500
Purchased Repair and Upkeep	
Equipment Purchased and Repairs - 28	500
Building and Structures Repairs - 29	-
Utilities, Materials and Supplies	
Public Utility Services - 32	-
Purchased Materials, Supplies, Misc. Goods - 33, 34	2,000
Parts and Consumable Tools - 35	500
Other Costs	
- Data Processing Costs	3,000
- Depreciation of Field Equipment and Instruments	3,000
TOTAL	108,000

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

1995 - 96 OPERATIONAL COSTS FOR SEDIMENT SURVEYS

Personnel - Basic Pay - 01, 02, 03	-
Transportation and Communication	
Travel - 07	250
Transportation and Postage - 09	100
Telecommunications - 10, 11	
Professional and Special Services	
Professional Services - 18	
Other Purchased Services - 22	100
Rentals - 25	
Purchased Repair and Upkeep	
Equipment Purchased and Repairs - 28	200
Building and Structure Repairs - 29	
Utilities, Materials and Supplies	
Public Utility Services - 32	
Purchased Materials, Supplies, Misc. Goods - 33, 34	300
Parts and Consumable Tools - 35	100
Other Costs - Sample Analysis	1,200
- Depreciation of Field Equipment and Instruments	<u>500</u>
TOTAL	2,750

WATER QUANTITY SURVEYS

CALCULATION OF ANNUAL COSTS AND PAYMENTS - 1995 - 96

HYDROMETRIC SURVEYS - ISLAND

<u>Station Classification</u>	<u>Stations</u>	<u>Station Units</u>
F1	7	7.0
F4	11	11.0
FP3	44	44.0
P1	<u>26</u>	<u>23.4</u>
TOTALS	88	85.6

Average Cost/Island Station Unit = $\$452,974 / 85.6 = \5290

Provincial Share = (50% of 44 x \$5290) + (100% of 23.4 x \$5290)

= (\$116,380 + \$123,780) = **\$ 240,160**

HYDROMETRIC SURVEYS - LABRADOR

<u>Station Classification</u>	<u>Stations</u>	<u>Station Units</u>
F2	2	2.0
F4	4	4.0
FP3	1	1.0
P1	4	1.7
P3	<u>4</u>	<u>4.0</u>
TOTALS	15	12.7

Average Cost/Labrador Station Unit = $\$108,000 / 12.7 = \$8,500$

Provincial Share = (50% of 1 x \$4,250) + (100% of 5.7 x \$8,500)

= (\$4,250 + \$48,450) = **\$52,700**

SUB-TOTAL: HYDROMETRIC SURVEYS - ISLAND AND LABRADOR

Total Provincial Share of Operational Cost for Hydrometric Surveys on the Island and in Labrador

= \$240,166 + \$52,700 = **\$292,860**

Provincial Payment Received for Operational Costs for Hydrometric Surveys per Schedule "D"

\$294,040

SEDIMENT SURVEYS

Average Cost/Station = \$2,750 / 13 = \$210
Miscellaneous stations - F 4, F/P 8, P 1

Provincial Share of Operational Costs for Sediment Surveys
(50% x 8 x \$210) + (100% x 1 x \$210) = \$840 + \$210 = **\$1,050**

Provincial Payment Received for Operational Costs for
Sediment Surveys per Schedule "D" **\$ 1,375**

SUB-TOTAL HYDROMETRIC AND SEDIMENT PROGRAMS

Provincial Share of Hydrometric + Provincial Share of Sediment
= (\$292,860 + \$1,050) **\$293,910**

Provincial Payment Received for Operational Costs for Hydrometric
and Sediment Surveys per Schedule "D" **\$ 295,415**

METEOROLOGICAL STATIONS

Operational Services Relating to Humber River
Meteorological Stations \$4,232

Construction Costs Relating to Humber River
Meteorological Stations \$12,000

Provincial Payment Received for Meteorological Stations **\$16,232**

TOTALS

Total Provincial Share for Streamflow
Operations, Sediment and Met Stations
(\$292,860 + \$1,050 + \$16,232) = **\$310,142**

Total Provincial Payment Received for Streamflow
Operations, Sediment and Met Stations per Schedule "D"
(\$295,500 + \$1,375 + \$16,232) = **\$311,647**

TABLE 1
WATER QUANTITY SURVEYS
GAUGING STATION DATA FOR 1995 - 96

No. of Stations: incl Contrib		Changes during 1995-96			Stn. Designation April 1, 1995			
April 1, 1994	April 1, 1995	Change	Added	Discontinued	Fed	F/P	Prov.	Contrib.
117	117	0	0	0	24	45	34	14

TABLE 2
WATER QUANTITY SURVEYS
COMPARATIVE GAUGING STATION DATA April 1, 1975 - April 1, 1995

Federal Stations			F/P Stations			Provincial Stations			Total Stations		
Apr 1, 1975	Apr 1, 1995	Change	Apr 1, 1975	Apr 1, 1995	Change	Apr 1, 1975	Apr 1, 1995	Change	Apr 1, 1975	Apr 1, 1995	Change
14	24	20	7	45	38	9	34	25	30	103	73

TABLE 3
WATER QUANTITY SURVEYS
DETAILED GAUGING STATION DATA 1995 - 96

F-1	*F-2	F-3	F-4	Total F	FP-1	FP-2	FP-3	Total F/P	P-1	P-2	Total P	Contrib.	Total-All
7	2	0	15	24	0	0	45	45	34	0	34	14	117

TABLE 4
WATER QUANTITY SURVEYS
SUMMARY OF SCHEDULE D - 1995-96
 (does not include costs for Humber River Meteorological Stations or Sediment Program)

Streamflow & Water Level		Sediment		Total
Operation	Construction	Operation	Construction	Total
294,040	0	1,375	0	295,415

TABLE 5
WATER QUANTITY SURVEYS
COMPARISON - SCHEDULED & ACTUAL DOLLAR COSTS FOR 1995 - 96
 (does not include costs for Humber River Meteorological Stations or Sediment Program)

Salary & Operations		Construction		Total		Amount Payment Received	Received Minus Actual
Sch. D	Actual Cost	Sch. D	Actual Cost	Sch. D	Actual Cost	Received	Actual
294,040	292,860	0	0	294,040	292,860	294,040	1,180
							1,180

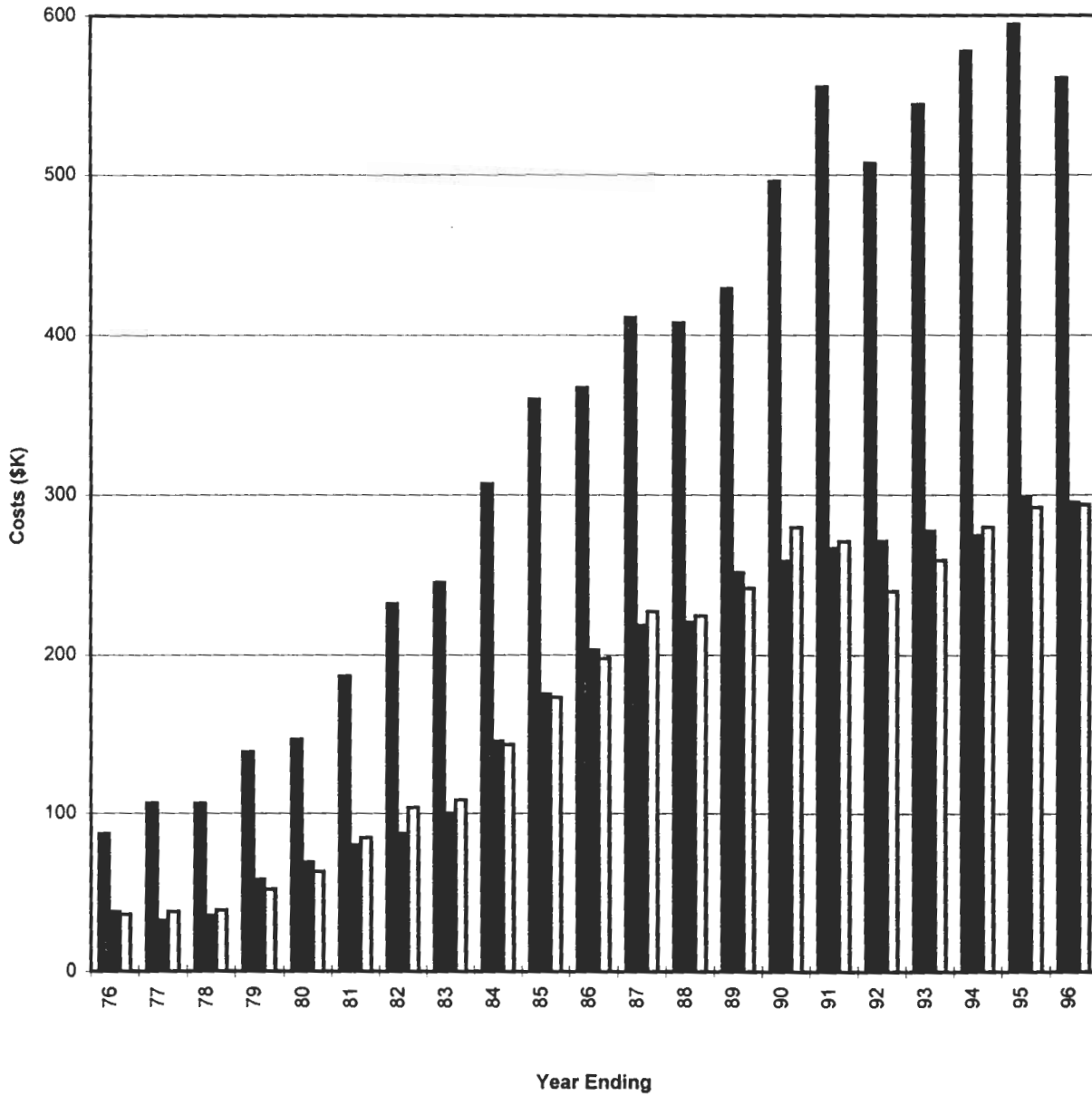
**SUMMARY OF ANNUAL COSTS AND PAYMENTS
1975-76 TO 1995 - 96**

YEAR	SCHEDULE "D" PAYMENTS BY PROVINCE					ACTUAL PROVINCIAL SHARE					+CREDIT -DEBIT
	HYDROMET	SEDIMENT	CONSTR	TOTAL	TOTAL	HYDROMET	SEDIMENT	CONSTR	TOTAL	TOTAL	
1975-76	37,800	-	3,600	41,400	36,238	-	2,177	38,415	2,985		
1976-77	32,340	-	12,000	44,340	37,840	-	1,573	39,413	4,927		
1977-78	35,520	-	24,480	60,000	38,700	-	13,963	52,663	7,337		
1978-79	56,775	1,400	11,825	70,000	51,371	679	26,000	78,050	-8,050		
1979-80	68,338	933	25,729	95,000	62,256	896	22,476	85,628	9,372		
1980-81	78,639	1,475	6,000	86,114	83,518	1,064	7,703	92,285	-6,171		
1981-82	83,523	3,750	14,000	101,273	100,726	3,114	16,560	120,400	-19,127		
1982-83	96,542	3,744	55,000	155,286	102,735	5,886	47,224	155,845	-559		
1983-84	141,457	4,470	38,000	183,927	136,917	6,906	37,864	181,687	2,240		
1984-85	168,244	7,350	52,000	227,594	168,247	5,295	48,662	222,204	5,390		
1985-86	195,563	7,650	36,787	240,000	191,580	6,324	39,203	237,107	2,893		
1986-87	211,706	6,975	34,641	253,322*	222,843	4,413	35,136	262,392	-9,070		
1987-88	213,634	6,975	42,000	262,609*	220,934	3,597	47,957	272,488	-9,879		
1988-89	245,221	6,300	15,000	266,521*	237,249	4,683	16,148	258,080	8,441		
1989-90	253,392	5,173	30,000	288,567*	274,004	5,571	21,264	300,839	-12,272		
1990-91	260,691	5,925	-	266,616**	266,058	4,809	2,532	273,399	-6,783		
1991-92	264,591	6,450	-	271,041**	234,222	5,649	-	239,871	31,170		
1992-93	273,482	3,825	-	277,307**	254,430	4,713	-	259,143	18,164		
1993-94	270,983	3,700	21,000	295,683***	276,163	3,505	20,496	300,164	-4,481		
1994-95	295,500	3,200	-	298,700	288,835	3,220	-	292,055	6,645		
1995-96	294,040	1,375	-	295,415	292,860	1,180	-	293,910	1,505		
								Net total	+24,677		

NOTES:
 * Not including \$11,678 payment for imputed rental of 14 DCPs
 ** Not including \$11,678 DCP payment plus cost of operation of Humber River met sites.
 *** Not including \$23,356 DCP payment plus cost of operation of Humber River Met Stations

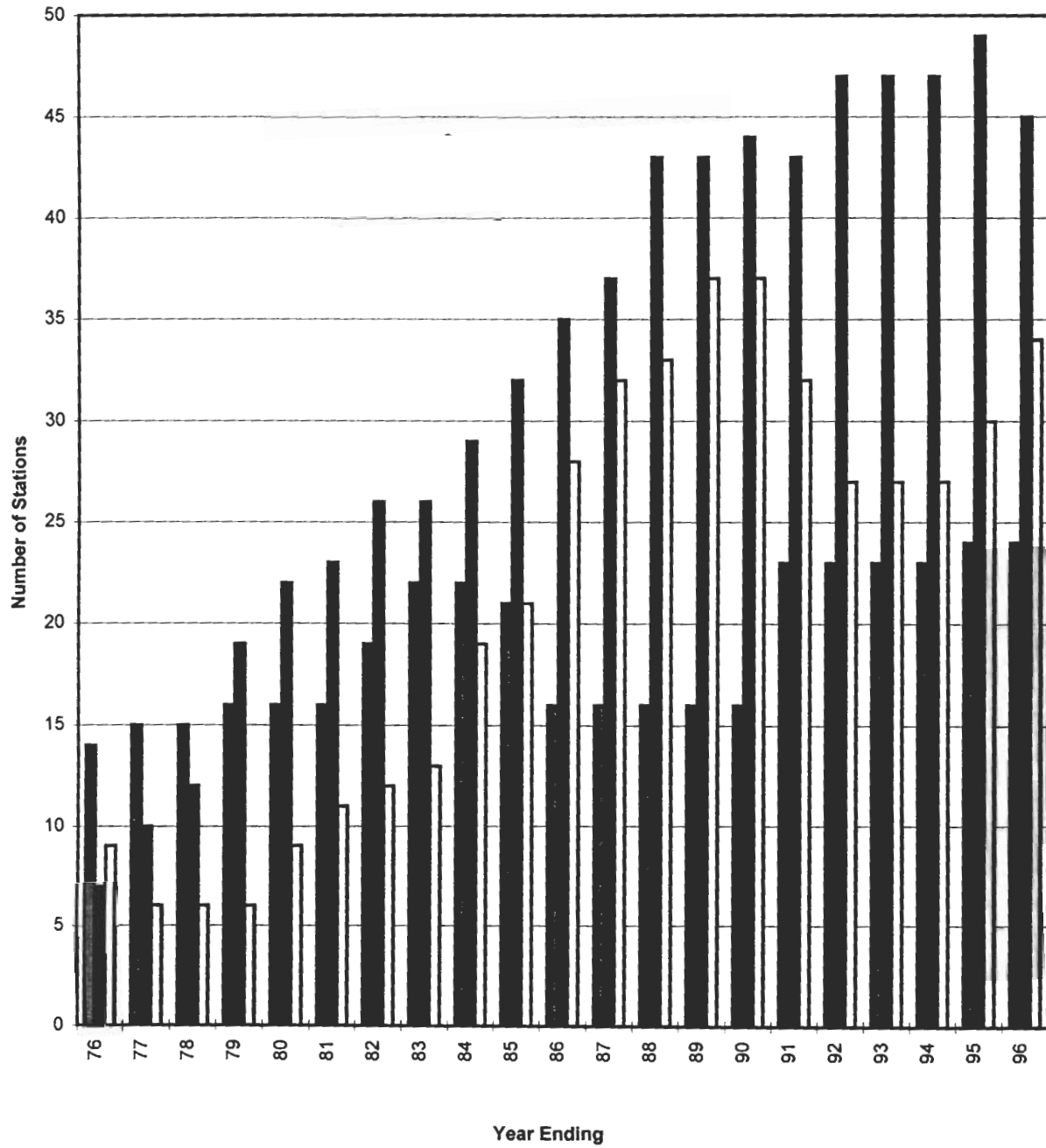
WATER QUANTITY SURVEYS Newfoundland

Operational Costs



WATER QUANTITY SURVEYS Newfoundland

Number of Stations



FEDERAL
 FED - PROV
 PROVINCIAL

APPENDIX I

SCHEDULE A
WATER QUANTITY SURVEY STATIONS

SCHEDULE "A"

RESPONSIBILITY CLASSIFICATION NEWFOUNDLAND 1995 - 96

F E D E R A L (2 4)

FEDERAL 1 FEDERAL DEPARTMENTAL PROGRAMS

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02YH001	Bottom Creek near Rocky Harbour	1985	33.4	Q R C	SEDM
02ZB001	Isle aux Morts River below Highway Bridge	1962	205	Q R C	DCP TYP LRTAP
02ZM006	Northeast Pond River at Northeast Pond	1953	3.63	Q R C	
02YS006	Northwest River at Terra Nova National Park	1994	663	Q R S	DCP LOGGER
02ZK001	Rocky River near Colinet	1948	285	Q R C	DCP TYP WQ SEDM MET
02YS003	Southwest Brook at Terra Nova National Park	1967	36.7	Q R C	
02YL001	Upper Humber River near Reidville	1928	2110	Q R C	DCP TYP SEDM

FEDERAL 2 INTERPROVINCIAL WATERS

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02XA003	Little Mecatina River above lac Fourmont	1979	4540	Q R C	DCP RMT MET
02XA004	Rivière Joir near Provincial Boundary	1980	2060	Q R C	RMT

FEDERAL 4 NATIONAL WATER QUANTITY

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02ZF001	Bay du Nord River at Big Falls	1950	1170	Q R C	DCP
03OE001	Churchill River above Upper Muskrat Falls	1948	92500	Q R C	DCP RMT REG71 WQ
03QC001	Eagle River above Falls	1966	10900	Q R C	DCP RMT WQ TYP
02YO005	Exploits River below Stony Brook	1969	8640	Q R C	REG WQ
02YQ001	Gander River at Big Chute	1949	4400	Q R C	DCP TYP
02ZG001	Garnish River near Garnish	1958	205	Q R C	LRTAP
02ZD002	Grey River near Grey River	1969	1340	Q R C	DCP RMT LRTAP MET
02YJ001	Harrys River below Highway Bridge	1968	640	Q R C	DCP SEDM WQ LRTAP
02YL003	Humber River at Humber Village Bridge	1982	7860	Q R C	DCP REG
02YG001	Main River at Paradise Pool	1986	627	Q R C	DCP RMT
03PB002	Naskaupi River below Naskaupi Lake	1978	4480	Q R C	RMT
02YD002	Northeast Brook near Roddickton	1980	200	Q R C	
02YS005	Terra Nova River at Glovertown	1985	2000	Q R C	DCP SEDM
02YC001	Torrent River at Bristol's Pool	1959	624	Q R C	WQ
03NF001	Ugjoktok River below Harp Lake	1979	7570	Q R C	RMT

FEDERAL-PROVINCIAL (45)

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
03QC002	Alexis River near Port Hope Simpson	1978	2310	Q R C	DCP RMT MET
02YA002	Bartletts River near St. Anthony	1986	33.6	Q R C	
02YJ002	Blanche Brook near Stephenville	1978	120	Q R C	REG
02ZH002	Come-by-Chance River near Goobies	1961	43.3	Q R C	
02ZE004	Conne River at Outlet of Conne Pond	1988	99.5	Q R C	DCP
02YO011	Exploits River below Noel Pauls Brook	1985	6300	Q R C	DCP REG
02ZC002	Grandy Brook below Top Pond Brook	1982	230	Q R C	DCP RMT LRTAP
02YO008	Great Rattling Brook above Tote River Confluence	1984	823	Q R C	DCP
02YE001	Greavett Brook above Portland Creek Pond	1983	95.7	Q R C	
02ZA002	Highlands River at TCH	1982	72.0	Q R C	SEDM
02YR003	Indian Bay Brook near Northeast Arm	1981	554	Q R C	
02YM001	Indian Brook at Indian Falls	1954	974	Q R C	WQ LRTAP REG SEDM
02YO010	Junction Brook near Badger	1985	61.6	Q R C	
02YK002	Lewasseechjeech Brook at Little Grand Lake	1952	470	Q R C	DCP RMT
02ZA001	Little Barachois Brook near St. George's	1978	343	Q R C	
02ZA003	Little Codroy River near Doyles	1982	139	Q R C	
02YN002	Lloyds River below King George IV Lake	1980	469	Q R C	RMT
02YG002	Middle Arm Brook below Flatwater Pond	1987	224	Q R C	
02YR001	Middle Brook near Gambo	1959	267	Q R C	
02ZK002	Northeast River near Placentia	1979	89.6	Q R C	
02ZN001	Northwest Brook at Northwest Pond	1966	53.3	Q R C	RMT
02YQ004	Northwest Gander River near Gander Lake	1983	2150	Q R C	RMT
02YO006	Peters River near Botwood	1981	177	Q R C	SEDM
02YJ003	Pinchgut Brook at Outlet of Pinchgut Lake	1986	119	Q R C	
02ZH001	Pipers Hole River at Mothers Brook	1952	764	Q R C	WQ LRTAP
02YR002	Ragged Harbour River near Musgrave Harbour	1977	399	Q R C	
02ZG004	Rattler Brook near Boat Harbour	1981	42.7	Q R C	SEDM
02YL005	Rattler Brook near McIvers	1985	17.0	Q R C	SEDM
02YQ005	Salmon River near Glenwood	1987	80.8	Q R C	
02ZG003	Salmonier River near Lamaline	1980	115	Q R C	
02ZM009	Seal Cove Brook near Cappahayden	1979	53.6	Q R C	
02YK005	Sheffield Brook near TCH	1972	391	Q R C	DCP SEDM
02ZJ003	Shoal Harbour River near Clarenceville	1985	106	Q R C	SEDM
02ZM016	South River near Holywood	1983	17.3	Q R C	
02ZJ001	Southern Bay River near Southern Bay	1976	67.4	Q R C	
02YO012	Southwest Brook at Lewisporte	1989	47.7	Q R C	
02YM003	South West Brook near Baie Verte	1980	93.2	Q R C	
02YQ006	Southwest Gander River below Larson Falls	1987	531	Q R C	RMT
02ZL003	Spout Cove Brook near Spout Cove	1979	10.8	Q R C	
02YN003	Star Brook below Star Lake	1987	427	Q R C	RMT DCP MET
02YA001	St. Geneviève River near Forresters Point	1969	306	Q R C	
02ZG002	Tides Brook below Freshwater Pond	1977	166	Q R C	DCP
02YL008	Upper Humber River above Black Brook	1988	471	Q R C	RMT DCP MET
02ZM018	Virginia River at Pleasantville	1984	10.7	Q R	
02ZM008	Waterford River at Kilbride	1974	52.7	Q R C	SEDM

PROVINCIAL (34)

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02ZL005	Big Brook at Lead Cove	1985	11.2	Q R C	
03OE010	Big Pond Brook below Big Pond	1993	71.4	QRC	RMT LOGGER
02YK008	Boot Brook at Trans-Canada Highway	1985	20.4	Q R C	
02YF002	Cat Arm Reservoir near Spillway *	1994		H R S	RMT DCP LOGGER
03OE007	Churchill River at Foot of Lower Muskrat Falls	1980		H R C	REG71 RMT DCP
03OE008	Churchill River at Grizzle Rapids	1988		H R C	REG71 RMT
03OE005	Churchill River between Upper & Lower Muskrat Falls	1978		H R C	REG71 RMT
02YL011	Copper Pond Brook near Corner Brook Lake	1994	12.9	QRC	LOGGER
02YL009	Corner Brook Lake at lake Outlet	1990		H R C	REG DCP MET
02YL007	Deer Lake at Deer Lake	1987		H R C	TMK
02YK007	Glide Brook below Glide Lake	1984	112	Q R C	
02YK010	Grand Lake East of Grand Lake Brook	1988		H R C	DCP RMT MET
02YM004	Indian Brook Diversion above Birchy Lake	1990		Q R C	DCP MET
03NG001	Kanairiktok River below Snegamook Lake	1979	8930	QRC	DCP RMT
02ZM020	Leary Brook at Prince Philip Drive	1985	17.8	Q R C	
02ZM017	Leary Brook at St. John's	1983	15.3	Q R C	LOGGER
02YO007	Leech Brook near Grand Falls	1984	88.3	Q R C	
02ZK003	Little Barachois River near Placentia	1983	37.2	Q R C	
02ZG005	Little Barasway Brook near Molliers	1987	28.2	Q R C	
02ZK004	Little Salmonier River near North Harbour	1983	104	Q R C	
030E003	Minipi River below Minipi Lake	1979	2330	QRC	RMT
02XD002	North Brook near Red Bay	1984	35.5	Q R S	RMT
03OE009	Peters River below Lindal Lake	1993		QRC	RMT LOGGER
02ZM022	Raymond Brook at Outlet of Bay Bulls Big Pond	1988		Q R C	REG
02ZJ002	Salmon Cove River near Champneys	1983	73.6	Q R C	
02ZL004	Shearstown Brook at Shearstown	1983	28.9	Q R C	
02YP001	Shoal Arm Brook near Badger Bay	1982	63.8	Q R C	RMT
02YL004	South Brook at Pasadena	1983	58.5	Q R C	SEDM
02ZM021	South Brook at Pearl Town Road	1986	9.21	Q R C	
02ZN002	St. Shotts River near Trepassey	1985	15.5	Q R C	DCP
02ZK005	Trout Brook near Bellevue	1986	50.3	Q R C	
02ZM019	Virginia River at Cartwright Place	1985	5.55	Q R C	
02ZM010	Waterford River at Mount Pearl	1981	16.6	Q R C	
02YL010	West Pond Brook near Corner Brook lake	1994	13.1	Q R C	LOGGER

CONTRIBUTED STATIONS

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>AGENCY</u>	<u>REMARKS</u>
03OA001	Ashuanipi River at Menihek Rapids	1952	19000	IOCCL	REG RMT
03OC006	Atikonak River at Gabbro Lake	1973	21400	CFLCO	REG73 RMT
03OD006	Atikonak River at Ossakmanuan Lake Control Structure 1977			CFLCO	REG64 RMT
03OD005	Churchill River at Churchill Falls Powerhouse	1972	69200	CFLCO	REG71 RMT
02YL002	Corner Brook at Watsons Brook Powerhouse	1959	127	DLPCL	REG
02YO001	Exploits River at Grand Falls	1914	8390	AB-PR	REG
02YK006	Hinds Brook at Hinds Brook Powerhouse	1981	651	N&LHY	REG81
02YK001	Humber River at Grand Lake Outlet	1898	5020	DLPCL	REG
02ZM003	Mobile River at Mobile First Pond	1962	112	NLPCL	REG
02ZM001	Petty Harbour River at Second Pond	1962	134	NLPCL	REG
02ZM002	Pierres Brook at Gull Pond	1962	117	NLPCL	REG
02YO003	Rattling Brook at Rattling Brook Powerhouse	1962	378	NLPCL	REG
02ZE003	Salmon River at Bay D'Espoir Powerhouse	1967	5910	N&LHY	REG67
02YO004	Sandy Brook at Sandy Brook Powerhouse	1964	508	NLPCL	REG

EXPLANATION OF SYMBOLS & ABBREVIATIONS

TYPE OF RECORD

H - water level data

Q - flow data

TYPE OF GAUGE

M - manual gauge

R - automatic recording gauge

OPERATION SCHEDULE

C - continuous record

M - miscellaneous record

S - seasonal record

REMARKS

DCP - data collection platform

LRTAP - samples collected for acid precipitation monitoring

MET - data available from meteorological sensors

REG - regulated flow

REG78 - regulated flow since 1978

RMT - remote station accessed by aircraft

SED - sediment data currently being collected

SEDM - miscellaneous sediment samples obtained

TMK - telephone interrogated telemark

TYP - typical stream; data used to produce statement on runoff conditions

WQ - samples collected for water quality national overview network

LOGGER - data recorded by digital data logger

HUMBER RIVER DATA COLLECTION NETWORK

Real Time Instrumentation To Be Operated and Maintained By Water Survey of Canada In Accordance With Memorandum of Understanding.

<u>Station</u>		<u>Response</u>
<u>Time</u>		
1.	Burgeo Road near Buchans Access	48 Hrs.
2.	Grand Lake at Southwest End	48 Hrs.
3.	Grand Lake on Glover Island	48 Hrs.
4.	Upper Humber River above Black Brook	48 Hrs.
5.	Corner Brook Lake at Lake Outlet	48 Hrs.
6.	Sandy Lake at Howley Road	48 Hrs.
7.	Indian Brook Diversion to Birchy Lake	48 Hrs.
8.	Lewassechjeech Brook at Little Grand Lake	48 Hrs.
9.	Sheffield Brook near T.C.H.	48 Hrs.
10.	Humber River at Humber Village Bridge	48 Hrs.
11.	Upper Humber River near Reidville	48 Hrs.
12.	Deer Lake near Generating Station	48 Hrs.

Stations 8-12 are not equipped with meteorological sensors but are included in this list of "Response Time Repair" due to the significance of the data in supporting the "Humber River Basin Data Collection Network".

APPENDIX II

SCHEDULE D

SUMMARY OF ANNUAL PAYMENT

SCHEDULE D

This schedule provides a summary of the annual payment. The details of the calculations for operation and construction are available and have been jointly reviewed by officers of each party.

ANNUAL PAYMENT FOR 1995-96 TO BE PAID THE RECEIVER GENERAL FOR CANADA BY THE PROVINCE OF NEWFOUNDLAND.

	Operation	Construction	Total
A) Streamflow and water level installations	\$294,040		\$294,040
B) Sediment Installations	\$ 1,375		\$ 1,375
C) Humber River Meteorological Stations	\$ 4,232	\$12,000	<u>\$ 16,232</u>


ANNUAL PAYMENT

\$311,647



D. Jeans
Assistant Deputy Minister
Department of Environment
and Lands

Administrator for Province



C. F. Mac Neil
Director
Atmospheric Environment Branch

Administrator for Canada

APPENDIX III

MINUTES OF COORDINATING COMMITTEE MEETINGS

CO-ORDINATING COMMITTEE MEETING
CANADA-NEWFOUNDLAND COST SHARING AGREEMENT
WATER QUANTITY SURVEYS

1995-96

MINUTES

The co-ordinating committee for the Newfoundland Cost Sharing Agreement on Water Quantity Surveys, met on November 21, 1995 and on March 27, 1996 at the Provincial Department Of Environment, Water Resources Division, office on the 4th Floor, West Block, Confederation Building, in St. John's, Newfoundland. In attendance were the following:

C. Power	AEB	Environmental Monitoring	Bedford
C. Baker	AEB	Environmental Monitoring	St. John's
W. Ullah	Newfoundland	Water Resources Division	St. John's
H. Khan	Newfoundland	Water Resources Division	St. John's

The following is an overview of discussions and decisions:

1. Program Review Implications

Environment Canada, in response to severe Federal budget reductions arising from Program Review has been forced to adopt several significant changes to its program. Funding reductions have necessitated reducing hydrometric staff in Newfoundland by two; one from each office in Corner Brook and St. John's. In concert with the funding and staff reductions a proposal was presented to accommodate reductions in station numbers and staff work load. A major thrust of Environment Canada in Program Review is to focus on providing services within the federal mandate. To this end a proposal was made to redefine some of the station classifications to more accurately represent each of the party's interests.

2. Newfoundland Hydro

Newfoundland and Labrador Hydro informed the province that they were no longer supporting the operation of Hydrometric stations in Labrador. Hence, they were withdrawing their financial contribution to the network. In lieu of this, all provincial involvement in the network was terminated with the exception of Big Pond Brook in the Goose Bay area, which will be funded based on incremental cost of operation.

Newfoundland Hydro was advised of the decision to close the Federal station at Muskrat Falls.

They subsequently expressed an interest in maintaining continuous records at this station and requested a proposal from Environment Canada to continue its operation. A proposal has been submitted. There has been no reply to date.

3. **Revised schedule "A" - List of stations.**

Labrador:

Discussions on the Labrador network after the Newfoundland Hydro pullout resulted in retaining five stations. This is a reduction of 10 from the original 15. The remaining stations will be;

- | | |
|--------------------------|---|
| 1. Ugjoktok River | F |
| 2. Eagle River | F |
| 3. Little Mecatina River | F |
| 4. Alexis River | F |
| 5. Big Pond Brook | P |

It was decided to mothball stations that would be closing with removal of instrumentation and equipment starting on the March 1996 visits to these stations. Since Newfoundland Hydro made their decision known late in 1995, the process of mothballing started late that year with the removal of some equipment which is being stored in the Environment Canada stockroom in Goose Bay.

Island:

Because of staff reductions, a commensurate reduction in station work load has been required. The Island network was reduced by agreement by eight stations. In addition to reductions, it was agreed to reclassify three additional stations. Stations removed from network were:

1. Northwest Brook at Northwest Pond
2. Waterford River at Mount Pearl
3. Little Barasway Brook near Molliers
4. Southwest Gander River below Larson Falls
5. Exploits River below Stony Brook
6. Leech Brook near Grand Falls
7. Indian Brook at Indian Falls
8. Blanche Brook at Stephenville

Reclassified:

- | | | | |
|-------------------------|---|---|-----|
| 1. Northeast Pond River | F | ⇒ | P |
| 2. Terra Nova River | F | ⇒ | F/P |
| 3. Garnish River | F | ⇒ | F/P |

After a discussion on the operational components of these stations, the province

indicated a desire to operate Waterford River at Mount Pearl and Indian Brook at Indian Falls outside the Agreement as part of the provincial network.

A proposed Schedule A for 1996-97 is attached.

4. Sediment

Based on the knowledge of sediment concentrations in sampled rivers, and the associated cost of collection and analysis, it was decided to drop all sediment activity.

5. Contract vs Agreement Stations.

It was requested by the Province that contracts secured by Environment Canada to operate hydrometric stations become part of the Agreement and invoicing be done through the Province. While not closed to this approach, upon consultation with Financial Management it was decided to defer this request for this year. Environment Canada will be operating, under contract, three stations in the Voiseys Bay area for Jacques Whitford during 1996.

6. Humber Basin Network

Two instrument shelters were constructed for the establishment of meteorological stations at Hinds Lake and Aides Lake. Precipitation gauges were purchased by Environment Canada and Provincial Environment. Installation is planned during June 1996.

7. Balance of payment

To eliminate any Provincial overpayment over the duration of this year's Agreement, Environment Canada will upgrade Provincial stations with data loggers c/w satellite transmitter to the value of the overpayment. The number of stations estimated to be modernized to meet this goal is three.

8. Schedule "D" - Summary of Annual Payment

Based on changes in Provincial external funding and network adjustments, a revised estimate for 1996-97 operational cost was completed.

Submitted to Province in Nov. 1995 = \$237,793
Amended Mar. 1996 = \$236,427

PROPOSED SCHEDULE "A" NEWFOUNDLAND 1996-97

FEDERAL 1 FEDERAL DEPARTMENTAL PROGRAMS

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02YH001	Bottom Creek near Rocky Harbour	1985	33.4	Q R C	<i>A B</i>
02ZB001	Isle aux Morts River below Hwy Bridge	1962	205	Q R C	DCP TYP LRTAP <i>A B E</i>
02YS006	Northwest River at Terra Nova National Pk	1994	663	Q R C	DCP LOGGER <i>A</i>
02ZK001	Rocky River near Colinet	1948	285	Q R C	DCP TYP WQ <i>A B E</i>
02YS003	Southwest Brook at Terra Nova National Park	1967	36.7	Q R C	<i>A B E(CARRIER)</i>
02YL001	Upper Humber River near Reidville	1928	2110	Q R C	DCP TYP <i>A B E</i>

FEDERAL 2 INTERPROVINCIAL WATERS

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02XA003	Little Mecatina River above lac Fourmont	1979	4540	Q R C	DCP RMT <i>MA</i>

FEDERAL 4 NATIONAL WATER QUANTITY INVENTORY

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
03QC002	Alexis River near Port Hope Simpson	1978	2310	Q R C	DCP RMT MET <i>MA</i>
02ZF001	Bay du Nord River at Big Falls	1950	1170	Q R C	DCP <i>A B E</i>
03QC001	Eagle River above Falls	1966	10900	Q R C	DCP RMT WQ TYP <i>MA</i>
02YQ001	Gander River at Big Chute	1949	4400	Q R C	DCP TYP <i>A B E</i>
02ZD002	Grey River near Grey River	1969	1340	Q R C	DCP RMT LRTAP MET <i>MA E</i>
02YJ001	Harrys River below Highway Bridge	1968	640	Q R C	DCP WQ LRTAP <i>A B C E</i>
02YL003	Humber River at Humber Village Bridge	1982	7860	Q R C	DCP REG <i>MA C</i>
02YG001	Main River at Paradise Pool	1986	627	Q R C	DCP RMT <i>MA E</i>
02YD002	Northeast Brook near Roddickton	1980	200	Q R C	<i>MA B</i>
02YC001	Torrent River at Bristol's Pool	1959	624	Q R C	WQ LOGGER <i>A B E</i>
03NF001	Ugjoktok River below Harp Lake	1979	7570	Q R C	RMT <i>MA</i>

FEDERAL-PROVINCIAL 3 REGIONAL WATER QUANTITY INVENTORY

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02YA002	Bartletts River near St. Anthony	1986	33.6	Q R C	A B
02ZH002	Come-by-Chance River near Goobies	1961	43.3	Q R C	A B
02ZE004	Conne River at Outlet of Conne Pond	1988	99.5	Q R C	DCP M A
02YO011	Exploits River below Noel Pauls Brook	1985	6300	Q R C	DCP REG A E
02ZG001	Garnish River near Garnish	1958	205	Q R C	LRTAP A B
02ZC002	Grandy Brook below Top Pond Brook	1982	230	Q R C	DCP RMT LRTAP M A E
02YO008	Great Rattling Brook above Tote River Confluence	1984	823	Q R C	DCP M A E
02YE001	Greavett Brook above Portland Creek Pond		1983	95.7	Q R C M A E
02ZA002	Highlands River at TCH	1982	72.0	Q R C	A B E
02YR003	Indian Bay Brook near Northeast Arm	1981	554	Q R C	A B E
02YO010	Junction Brook near Badger	1985	61.6	Q R C	M A
02YK002	Lewassechjeech Brook at Little Grand Lake		1952	470	Q R C DCP RMT M A E
02ZA001	Little Barachois Brook near St. George's	1978	343	Q R C	A B E
02ZA003	Little Codroy River near Doyles	1982	139	Q R C	M A E
02YN002	Lloyds River below King George IV Lake	1980	469	Q R C	RMT M A
02YG002	Middle Arm Brook below Flatwater Pond	1987	224	Q R C	M A E
02YR001	Middle Brook near Gambo	1959	267	Q R C	A B E
02ZK002	Northeast River near Placentia	1979	89.6	Q R C	A B
02YQ004	Northwest Gander River near Gander Lake	1983	2150	Q R C	RMT LOGGER A
02YO006	Peters River near Botwood	1981	177	Q R C	A B
02YJ003	Pinchgut Brook at Outlet of Pinchgut Lake	1986	119	Q R C	A B E
02ZH001	Pipers Hole River at Mothers Brook	1952	764	Q R C	WQ LRTAP A B
02YR002	Ragged Harbour River near Musgrave Harbour	1977	399	Q R C	A B
02ZG004	Rattler Brook near Boat Harbour	1981	42.7	Q R C	A B
02YL005	Rattler Brook near McIvers	1985	17.0	Q R C	A B
02YQ005	Salmon River near Glenwood	1987	80.8	Q R C	M A E
02ZG003	Salmonier River near Lamaline	1980	115	Q R C	M A E
02ZM009	Seal Cove Brook near Cappahayden	1979	53.6	Q R C	A B
02YK005	Sheffield Brook near TCH	1972	391	Q R C	DCP A B E
02ZJ003	Shoal Harbour River near Clarenceville	1985	106	Q R C	A B
02ZM016	South River near Holywood	1983	17.3	Q R C	A B
02ZJ001	Southern Bay River near Southern Bay	1976	67.4	Q R C	M A
02YO012	Southwest Brook at Lewisporte	1989	47.7	Q R C	M A
02YM003	South West Brook near Baie Verte	1980	93.2	Q R C	A B
02ZL003	Spout Cove Brook near Spout Cove	1979	10.8	Q R C	A
02YN003	Star Brook below Star Lake	1987	427	Q R C	RMT DCP M A E
02YA001	Ste. Genevieve River near Forresters Point		1969	306	Q R C A B E
02YS005	Terra Nova River at Glovertown	1985	2000	Q R C	DCP M A E
02ZG002	Tides Brook below Freshwater Pond	1977	166	Q R C	DCP A B
02YL008	Upper Humber River above Black Brook	1988	471	Q R C	RMT DCP MET M A E
02ZM018	Virginia River at Pleasantville	1984	10.7	Q R C	M A
02ZM008	Waterford River at Kilbride	1974	52.7	Q R C	LOGGER A

PROVINCIAL (25)

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>RECORDS</u>	<u>REMARKS</u>
02ZL005	Big Brook at Lead Cove	1985	11.2	Q R C	<i>A B</i>
03OE010	Big Pond Brook below Big Pond	1993	71.4	Q R C	RMT LOGGER <i>A</i>
02YK008	Boot Brook at Trans-Canada Highway	1985	20.4	Q R C	<i>A B</i>
02YF002	Cat Arm Reservoir near Spillway	1994		H R C	RMT DCP LOGGER <i>A</i>
02YL011	Copper Pond Brook near Corner Brook Lake	1994	12.9	Q R C	LOGGER <i>A</i>
02YL009	Corner Brook Lake at lake Outlet	1990		H R C	REG DCP MET
02YL007	Deer Lake at Deer Lake	1987		H R C	TMK <i>M</i>
02YK007	Glide Brook below Glide Lake	1984	112	Q R C	<i>M A E</i>
02YK010	Grand Lake East of Grand Lake Brook	1988		H R C	DCP RMT MET <i>M A</i>
02YM004	Indian Brook Diversion above Birchy Lake	1990		Q R C	DCP MET <i>M A E</i>
02ZM020	Leary Brook at Prince Philip Drive	1985	17.8	Q R C	<i>A</i>
02ZM017	Leary Brook at St. John's	1983	15.3	Q R C	LOGGER <i>A</i>
02ZK003	Little Barachois River near Placentia	1983	37.2	Q R C	<i>A B</i>
02ZK004	Little Salmonier River near North Harbour	1983	104	Q R C	<i>A B</i>
02ZM006	Northeast Pond River at Northeast Pond	1953	3.63	Q R C	<i>A B</i>
02ZM022	Raymond Brook at Outlet of Bay Bulls Big Pond	1988		Q R C	REG <i>A B</i>
02ZJ002	Salmon Cove River near Champneys	1983	73.6	Q R C	<i>A B</i>
02ZL004	Shearstown Brook at Shearstown	1983	28.9	Q R C	<i>A B</i>
02YP001	Shoal Arm Brook near Badger Bay	1982	63.8	Q R C	RMT <i>M A B</i>
02YL004	South Brook at Pasadena	1983	58.5	Q R C	<i>M A E</i>
02ZM021	South Brook at Pearl Town Road	1986	9.21	Q R C	<i>A B</i>
02ZN002	St. Shotts River near Trepassy	1985	15.5	Q R C	DCP <i>M A</i>
02ZK005	Trout Brook near Bellevue	1986	50.3	Q R C	<i>A B</i>
02ZM019	Virginia River at Cartwright Place	1985	5.55	Q R C	<i>A B</i>
02YL010	West Pond Brook near Corner Brook lake	1994	13.1	Q R C	LOGGER <i>A E</i>

CONTRIBUTED STATIONS (14)

<u>STA. NO.</u>	<u>STATION NAME</u>	<u>ESTAB.</u>	<u>D.A.</u>	<u>AGENCY</u>	<u>REMARKS</u>
03OA001	Ashuanipi River at Menihok Rapids	1952	19000	IOCCL	REG RMT
03OC006	Atikonak River at Gabbro Lake	1973	21400	CFLCO	REG73 RMT
03OD006	Atikonak River at Ossakmanuan Lake Control Structure	1977		CFLCO	REG64 RMT
03OD005	Churchill River at Churchill Falls Powerhouse	1972	69200	CFLCO	REG71 RMT
02YL002	Corner Brook at Watsons Brook Powerhouse	1959	127	DLPCL	REG
02YO001	Exploits River at Grand Falls	1914	8390	AB-PR	REG
02YK006	Hinds Brook at Hinds Brook Powerhouse	1981	651	N&LHY	REG81
02YK001	Humber River at Grand Lake Outlet	1898	5020	DLPCL	REG
02ZM003	Mobile River at Mobile First Pond	1962	112	NLPCL	REG
02ZM001	Petty Harbour River at Second Pond	1962	134	NLPCL	REG
02ZM002	Pierres Brook at Gull Pond REG		1962	117	NLPCL
02YO003	Rattling Brook at Rattling Brook Powerhouse	1962	378	NLPCL	REG
02ZE003	Salmon River at Bay D'Espoir Powerhouse	1967	5910	N&LHY	REG67
02YO004	Sandy Brook at Sandy Brook Powerhouse	1964	508	NLPCL	REG

EXPLANATION OF SYMBOLS & ABBREVIATIONS

TYPE OF RECORD

- H - water level data
- Q - flow data

TYPE OF GAUGE

- M - manual gauge
- R - automatic recording gauge

OPERATION SCHEDULE

- C - continuous record
- M - miscellaneous record
- S - seasonal record

REMARKS

- DCP - data collection platform
- LRTAP - samples collected for acid precipitation monitoring
- MET - data available from meteorological sensors
- REG - regulated flow
- REG78 - regulated flow since 1978
- RMT - remote station accessed by aircraft
- SED - sediment data currently being collected
- SEDM - miscellaneous sediment samples obtained
- TMK - telephone interrogated Telemark
- TYP - typical stream; data used to produce statement on runoff conditions
- WQ - samples collected for water quality national overview network
- LOGGER - data recorded by digital data logger
- A - Building
- B - Well
- C - Power and / or Telephone
- E - Cableway
- M - Manometer

