WATER QUANTITY SURVEYS

COST SHARING AGREEMENT

CANADA - NEWFOUNDLAND

ANNUAL REPORT 1993-94

TO: Mr. D. G. Jeans
Administrator for Newfoundland

Mr. Fraser MacNeil
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 1993-94.

Members of the Coordinating Committee

W. Ullah
Member for Newfoundland
St. John's, Newfoundland

C. J. Power
Member for Canada
Bedford, Nova Scotia

TABLE OF CONTENTS

INTRODUCTION

The year ending March 31, 1994 was the nineteenth 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 cooperative 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 Assistant Deputy Minister, Department of Environment. A Co-ordinating Committee comprising the Chief Environmental Monitoring Division of AEB, and the Director, Water Resources Division, Department of Environment and Lands, 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 Memorandum of Agreement includes four schedules:

1. 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.

2. Schedule B is a list of items that are to be included for cost sharing under the Agreement.

3. Schedule C details procedures for computing annual payments.

4. Schedule D provides a summary of annual payments.

Schedules A and D for 1993-94 are attached to this report in appendices II and VII.

SUMMARY OF ACTIVITIES

CANADA / NEWFOUNDLAND AGREEMENT
ON WATER QUANTITY SURVEYS

1993-94

SUMMARY OF ACTIVITIES

Changes started in 1992-93 continued in 1993-94

In early 1993, a major internal re-organization of the water components of Environment Canada (EC) in the Atlantic region was completed. This re-alignment saw the Water Survey Division (WSD) integrate a newly created Monitoring and Evaluation Branch (MEB) located in Moncton. Some of the operational services required for the Hydrometric Agreement were located in two other MEB divisions, namely data management in the Informatics Division and network planning in the Environmental Sciences Division.

Further EC internal changes continued in 1993-94. A departmental re-organization was this time implemented at the national scale. This resulted in EC being re-organized into 3 main operational branches, Atmospheric Environment Branch (AEB), Environmental Conservation Branch (ECB) and Environmental Protection Branch (EPB). The departmental informatics services were merged into the Informatics Branch (IB). AEB, headquartered in Bedford, N.S., received the responsibility to manage the hydrometric agreements and operate the hydrometric networks. Network planning and hydrological expertise was distributed in both AEB and ECB. AEB and IB assumed data management responsibilities.

As of April 1, 1994, these organizational changes were fully implemented.

Co-ordinating Committee

The Co-ordinating Committee to the Canada - Newfoundland Agreement on Water Quantity Surveys met once in 1993-94 on March 29, 1994 in St John's. The minutes of the meeting are in Appendix VIII.

A review of the cumulative balance of payments showed that a surplus of $2,844 at the end of 1991-92 increased to $21,008. The Co-ordinating Committee agreed to adjust the 1993-94 schedule D payment downward by $11,678.

The Corner Brook office will be equipped with a COMPUMOD system for processing hydrometric data in 1994-95. Four hydrometric stations have been equipped with digital loggers.

Schedule A for 1994-95 was approved as modified. Two new federal-provincial stations in Labrador, one federal station in Terra Nova National Park and three provincial stations (two for the Model Forest Project and one for the Cab Arm River power development) were also added to the schedule.

Cost estimates for 1994-95 operations presented at the meeting were accepted with slight modifications. The Agreement costs in 1994-95 were estimated at $620,651 and included costs for construction and operation of the Humber River Basin meteorological stations. The provincial share of costs was determined to be $306,847.

During 1993-94, 97 hydrometric gauging stations were designated as follows; Federal 23, Federal-Provincial 47 and Provincial 27. The Province paid $270,983 in Schedule D payments toward the operational costs of these stations.

Two seasonal and ten miscellaneous sediment stations were operated with a Federal-Provincial designation. The Province paid $3,700 in Schedule D payments toward the operational cost of the sediment sampling program.

Four hydrometric gauging stations were constructed in 1993-94. They are;

Peters River near Goose Bay Labrador
Unknown River near Goose Bay Labrador
Copper Pond Brook near Corner Brook
West Pond Brook near Corner Brook.

Major maintenance was performed on the following gauging stations; Leary Brook, Grey River, Torrent River and Shearstown Brook.

Previous year's arrangements on the operation of 14 DCP equipped sites were continued. The Province made a double imputed rental payment of $23,365. This will constitute the last imputed rental payment required from the Province.

FIRST PAYMENT 1986/87 - 11,678
87/88 - 11,678
88/89 - 11,678
89/90 - 11,678
90/91 - 11,678
91/92 - 11,678
92/93 - 11,678
93/94 - 23,356 DOUBLE PAYMENT.. DOWN SURPLUS
105,102

TOTAL of 9 PAYMENTS + ADJUSTMENT of 1 YR TO BRING

PAY BACK OVER 10 YEARS
SEE PG. 5 1985/86 REPORT
SEE PG. 5 & PG 52 OF THIS REPORT.

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

ISLAND - 1993-94

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

	ESTIMATED	ACTUAL
Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime)	$261,100	$ 284,180
Transportation and Communications		
Travel - 07	$ 22,000	$ 22,004
Transportation and Postage - 09	$ 1,000	$ 3,462
Telecommunications - 10, 11	$ 1,500	$ 1,262
Professional and Special Services		
Professional Services - 15, 18	$ 1,800	$ 511
Other Services - 22	$ 5,000	$ 4,600
Rentals - 25	$ 55,000	$ 59,318
Purchased Repair and Upkeep		
Equipment Purchased and Repairs - 28	$ 6,500	$ 3,936
Building and Structures Repairs - 29	$ 4,000	-
Utilities, Materials and Supplies		
Public Utility Services - 32	$ 1,500	$ 1,320
Purchased Materials, Supplies, Misc. Goods - 33, 34	$ 30,000	$ 27,558
Parts and Consumable Tools - 35	$ 7,000	$ 6,315
Other Costs - Data Processing	$ 12,700	$ 10,920
- Depreciation of Vehicles (5)	$ 17,400	$ 16,878
- Depreciation of Field Equipment and Instruments	$ 8,500	$ 11,212
- Miscellaneous (47)	$ -	$ 820
TOTAL	**$435,000**	**$ 454,296**

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

LABRADOR - 1993-94

OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

	ESTIMATED	ACTUAL
Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime)	$ 58,300	$58,790
Transportation and Communications		
Travel - 07	$ 14,000	$ 8,952
Transportation and Postage - 09	$ 3,000	$ 1,066
Telecommunications - 10, 11	-	$ 70
Professional and Special Services		
Professional Services - 15, 18, 38	-	-
Other Services - 22	$ 2,500	$ 810
Rentals - 25	$ 55,000	$49,600
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	$ 656
Parts and Consumable Tools - 35	$ 1,500	-
Other Costs - Data Processing Costs	$ 1,870	$ 1,800
- Depreciation of Field Equipment and Instruments	$ 3,000	$ 1,430
TOTAL	**$141,670**	**$123,174**

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

1992-93 OPERATIONAL COSTS FOR SEDIMENT SURVEYS

	ESTIMATED	ACTUAL
Personnel - Basic Pay - 01, 02, 03	-	-
Transportation and Communication		
Travel - 07	$ 250	$ 244
Transportation and Postage - 09	$ 100	$ 191
Telecommunications - 10, 11	-	-
Professional and Special Services		
Professional Services - 18	$ 100	-
Other Purchased Services - 22	$ 100	-
Rentals - 25	-	-
Purchased Repair and Upkeep		
Equipment Purchased and Repairs - 28	$ 100	-
Building and Structure Repairs - 29	-	-
Utilities, Materials and Supplies		
Public Utility Services - 32	-	-
Purchased Materials, Supplies, Misc. Goods - 33, 34	$ 150	$ 988
Parts and Consumable Tools - 35	$ 100	-
Other Costs - Sample Analysis	$ 4,700	$4,660
- Depreciation of Field Equipment and Instruments	$ 1,800	$ 928
TOTAL	**$ 7,400**	**$ 7,011**

CONSTRUCTION COSTS: 1993-94

A. NEW STATION PROJECTS

1. **Peters River**

Travel - 07	$ 668	
Field Assistance Services - 22, 38	$ 1,128	
Rentals - 25	$ 1,268	
Repairs - 28	$ 10	
Materials - 33, 34	$ 1,542	
Parts	$ 66	
Total Construction	$ 4,682	
Instrumentation	$ 7,125	
Total Station Cost		$11,807

2. **Northwest River**

Travel - 07	$ 668	
Field Assistance Services - 22, 38	$ 1,022	
Rentals - 25	$ 1,268	
Materials - 33, 34	$ 1,382	
Parts	$ 700	
Total Construction	$ 5,040	
Instrumentation	$ 7,125	
Total Station Cost		$12,165

Total Project Construction Cost 1993-94 = $23,972
(includes 2 x $2,650 = $5,300 for digital loggers @ 100% federal responsibility as per agreement. Other expenses to be cost-shared 50/50 Federal / Provincial.)

Provincial Share of Construction Costs = ($23,972 - $5,300) / 2 = $9,336
Provincial Payment as per Schedule 'D' $9,000

B. MODERNIZATION

Purchase of DCP's to modernize stations = $11,160
Province Share $11,160
Schedule 'D' Payment $12,000

C. COST SUMMARY
Total Provincial Construction Cost Share = ($9,336 + $11,160) = $20,496
Total Provincial Schedule 'D' Construction Payment $21,000
[Federal Share ($9,336 + ($2,650 x 2)) = $14,636]

MAJOR MAINTENANCE PROJECTS: 1993-94

Newfoundland and Labrador

Costs are included in the overall Operational Costs for Hydrometric Surveys and are shown here for information.

1. Grey River

Travel - 07	$ 218
Rental - 25	$ 2,093
Material - 33, 34	$ 330
Total	$ 2,641

2. Torrent River

Travel - 07	$ 150
Material - 33, 34	$ 1,164
Equipment - 38	$ 450
Total	$ 1,764

3. Shearstown River

Travel - 07	$ 120
Rental - 22, 25	$ 1,406
Equipment - 38	$ 110
Total	$ 1,636

4. Leary Brook

Rentals - 22, 25	$ 1,975
Materials - 33, 34	$ 33
Total	$ 2,008

5. Sheffield River

Materials - 33, 34	$ 175
Total	$ 175

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

HUMBER RIVER METEOROLOGICAL NETWORK 1993-94

Travel - 07	$ 231
Rental - 25	$ 1,298
Material - 33	$ 2,006
Total	$3,535

Provincial Payment As Per Schedule 'D' $3,173

WATER QUANTITY SURVEYS

PROVINCE OF NEWFOUNDLAND

SUMMARY OF ANNUAL COSTS AND PAYMENTS RECEIVED - 1993-94

A. OPERATIONS: HYDROMETRIC SURVEYS

Island

Station Classification	Stations	Station Units
F1	6	6.0
F4	11	11.0
FP3	44	44.0
P1	23	21.2*
TOTALS	84	82.2

Average Cost/Station Unit = $454,296 / 82 = $5,540
Provincial Share
= (50% of 44.0 x $5,540) + (100% of 21.2 x $5,540) = $239,328

Labrador

Station Classification	Stations	Station Units
F2	2	2.0
F4	4	4.0
FP3	3	3.0
P1	4	1.7**
TOTALS	13	10.7

Average Cost/Station Unit = $123,174 / 10.7 = $11,511
Provincial Share
= (50% of 3.0 x $11,511) + (100% of 1.7 x $$11,511) = $36,835

Provincial share of operational cost for
Hydrometric surveys on the Island and Labrador
($238,075 + $36,835) = $276,163

Provincial Payment Received for Operational Costs for
Hydrometric Surveys per Schedule "D" $270,983

* Includes 3 WL stations (Deer Lake, Corner Brook Lake, Grand Lake) at 0.4 station units

** Includes 3 Churchill River WL stations at 0.4 station units and North Brook seasonal station at 0.5 station units

B. OPERATIONS: SEDIMENT SURVEYS

Seasonal Station Distribution	Stations
Federal	0
Federal-Provincial	2
Provincial	0
Miscellaneous Stations	
Federal-Provincial	10
TOTAL	12

Total Cost = $7,011
Provincial Share of Operational Costs for Sediment Surveys
50% of $7,011 = $ 3,505
Provincial Payment Received for Operational Costs for Sediment Surveys per Schedule "D" $ 3,700

C. CONSTRUCTION: NEW STATIONS

Total New Station Cost = $23,972
Provincial Share = ($23,972 - $5,300) x 50% = $9,336
Provincial Payment Received for Construction as per Schedule 'D' = $ 9,000

D. CONSTRUCTION: MODERNIZATION

Purchase of DCP's to modernize stations = $11,160
Province Share $11,160
Schedule 'D' Payment $12,000

E. DATA COLLECTION PLATFORMS

Annual Imputed Rental for Recovery of Costs from Purchase of 14 DCPs $23,356
Provincial Payment Received for DCPs per Schedule "D" $23,356

F. METEOROLOGICAL STATIONS

Operational Services Relating to Humber River Meteorological Stations $ 3,535
Provincial Payment Received for Meteorological Stations $ 3,173

TOTALS

Total Provincial Share for Operations (Hydrometric plus Sediment), Construction (New Stations plus Modernization), DCPs and Met Stations
($274,910 + $3,505 + ($9,336 + $11,160) + $23,356 + $3,535) = $327,055

Total Provincial Payment Received per Schedule "D"
($270,983 + $3,700 + ($9,000 + $12,000) + $23,356 + $3,173) = $322,212

TABLE 1
WATER QUANTITY SURVEYS
GAUGING STATION DATA FOR 1993-94

No. of Stations			Changes during 1993-94		Station. Designation April 1, 1993			
April 1, 1992	April 1, 1993	Change	Added	Discontinued	Fed	F/P	Provincial.	Contrib.
111 (3)	111 (2)	0	0	0	* 23	* 47 (2)	27	14

* Bracket Seasonal Sediment Stations

TABLE 2
WATER QUANTITY SURVEYS
COMPARATIVE GAUGING STATION DATA April 1, 1975 - April 1, 1993

Federal Stations			F/P Stations			Provincial Stations			Total Stations		
Apr 1, 1975	Apr 1,1993	Change	Apr 1, 1975	Apr 1, 1993	Change	Apr 1, 1975	Apr 1, 1993	Change	Apr 1, 1975	Apr 1, 1993	Change
14	23	9	7	47	40	9	27	18	30	97	67

TABLE 3
WATER QUANTITY SURVEYS
DETAILED GAUGING STATION DATA 1993-94

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
6	2	0	15	23	0	0	47 (2)	47	27	0	27	14	111

Bracket Seasonal Sediment Stations in all categories

TABLE 4
WATER QUANTITY SURVEYS
SUMMARY OF SCHEDULES D - 1993-94

Streamflow & Water Level		Sediment		Total
Operation	Construction	Operation	Construction	
$270,983	$21,000	$3,700	0	$295,683

* Note: Table 4 in previous annual reports tabulated total program costs and shareable costs. This information is no longer available due to extensive re-organization and integration of hydrometric monitoring with other activities within Environment Canada.

TABLE 5
WATER QUANTITY SURVEYS
COMPARISON - SCHEDULED & ACTUAL COSTS FOR 1993-94
(Dollars)

Salary & Operations *		Construction		Total			Amount Payment	Received Minus
Sch. D	Actual Cost	Sch. D	Actual Cost	Sch. D	Actual Cost	Difference	Received	Actual
$274,683	$279,668	$21,000	$20,496	$295,683	$300,164	($4,481)	$295,683	($4,481)

* Streamflow and Sediment Installations

SUMMARY OF ANNUAL COSTS AND PAYMENTS

1975-76 TO 1993-94

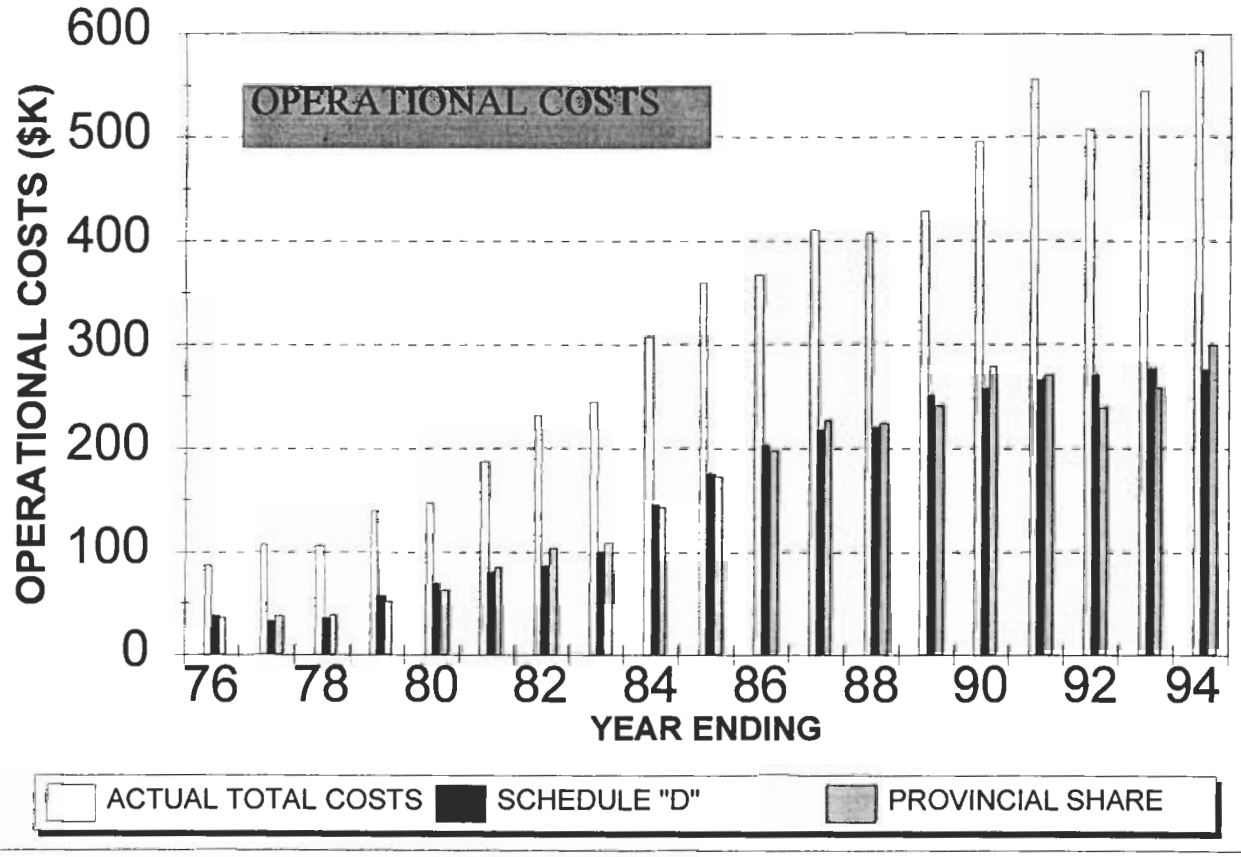
NEWFOUNDLAND

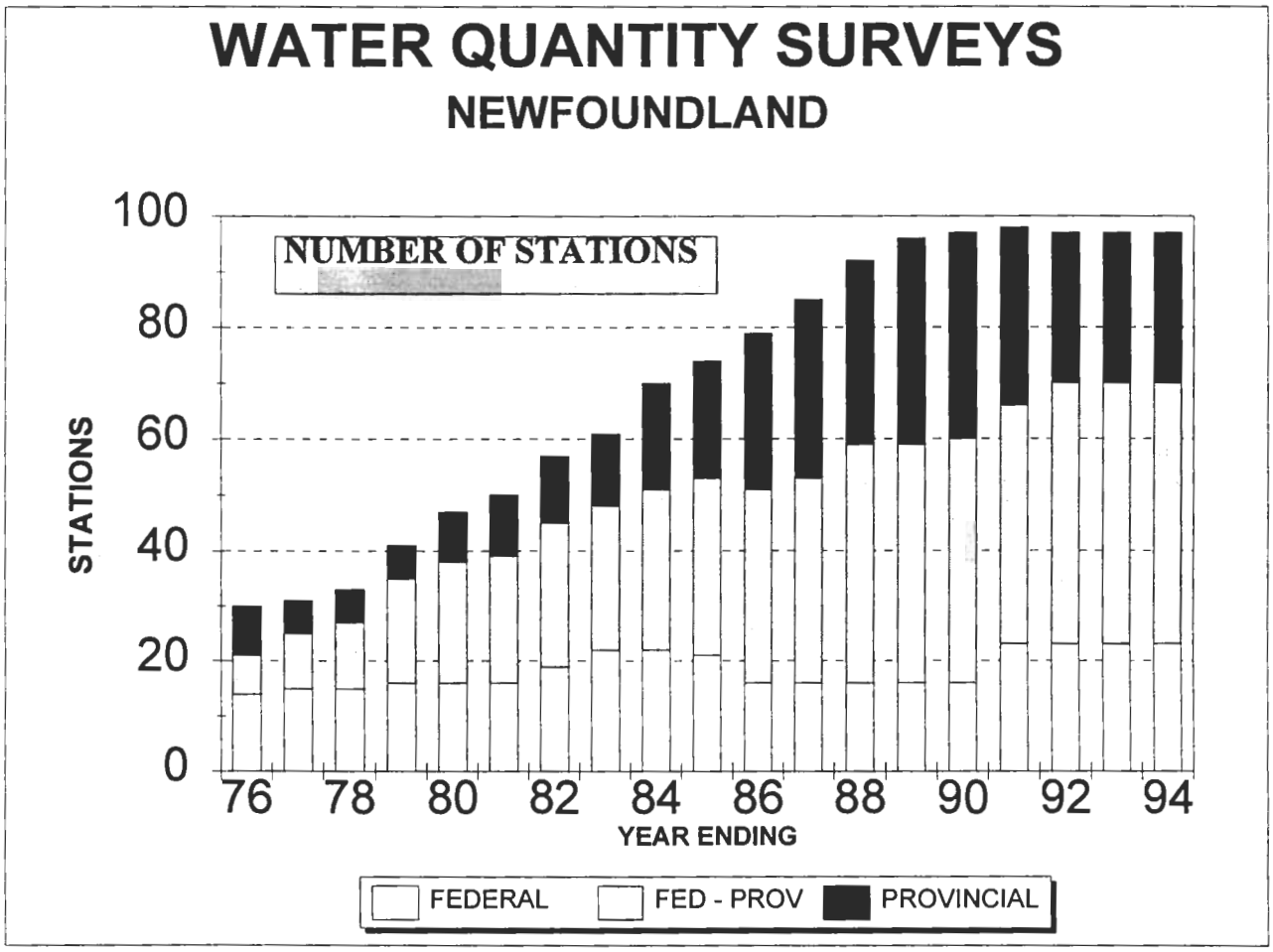
	SCHEDULE "D" PAYMENTS BY PROVINCE				ACTUAL PROVINCIAL SHARE				
YEAR	HYDROMET	SEDIMENT	CONSTR.	TOTAL	HYDROMET	SEDIMENT	CONSTR	TOTAL	+CREDIT/DEBIT-
1975-76	37,800	-	3,600	41,400	36,238	-	2,177	38,415	+ 2,985
1976-77	32,340	-	12,000	44,340	37,840	-	1,573	39,413	+ 4,927
1977-78	35,520	-	24,480	60,000	38,700	-	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
							NET	+16,527	

NOTE: * 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 sites.

WATER QUANTITY SURVEYS

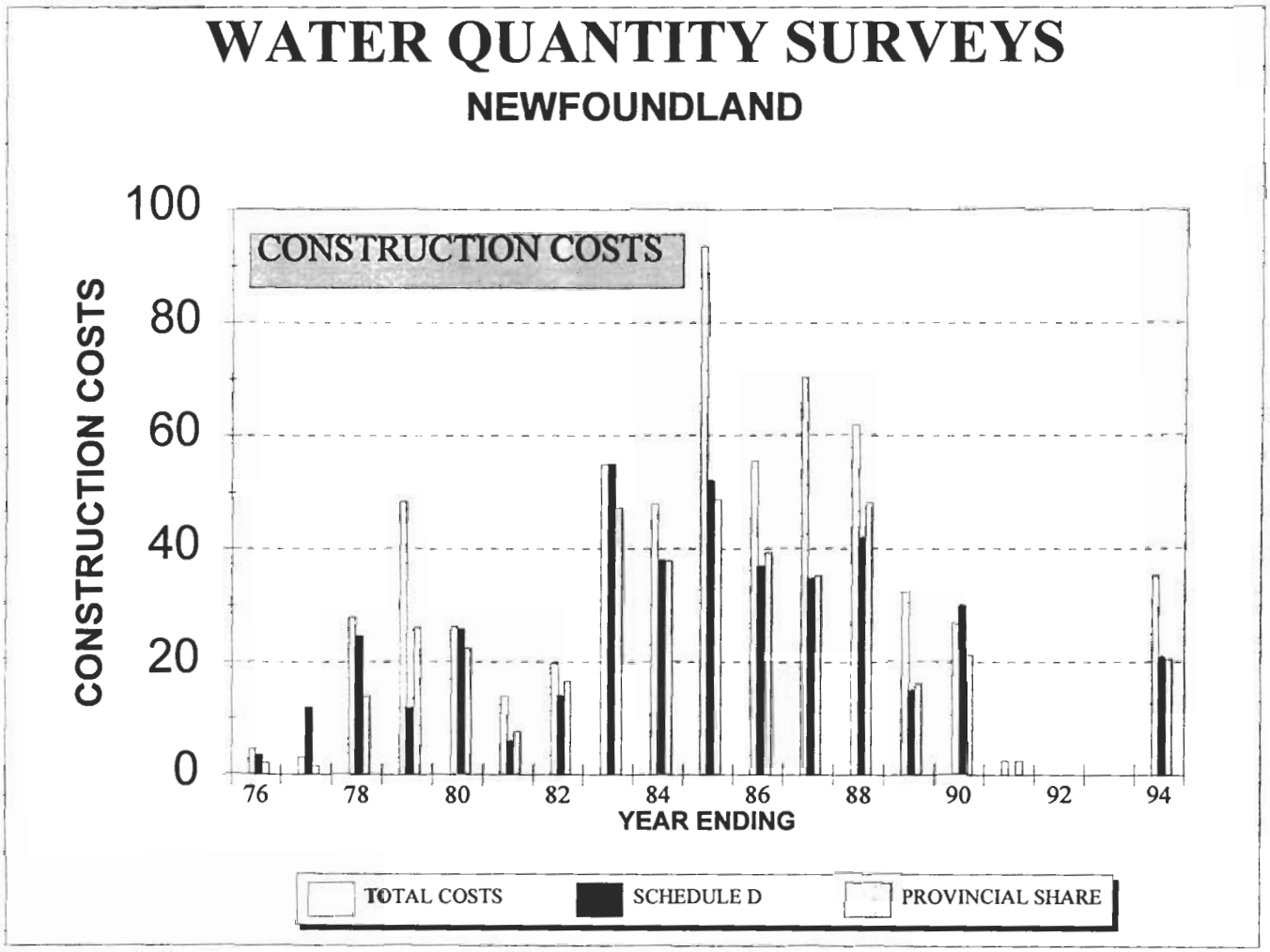
NEWFOUNDLAND




WATER QUANTITY SURVEYS
NEWFOUNDLAND
NUMBER OF STATIONS
STATIONS
100
80
60
40
20
0
76
78
80
82
84
86
88
90
92
94
YEAR ENDING
FEDERAL
FED - PROV
PROVINCIAL

WATER QUANTITY SURVEYS

NEWFOUNDLAND



APPENDIX I

MEMORANDUM OF AGREEMENT

(Sample only)

MEMORANDUM OF AGREEMENT
made this twenty-fifth day of February, 1975,

BETWEEN:

The Government of Canada,
hereinafter called "Canada", represented by the Minister of the Environment

OF THE FIRST PART

- and -

The Government of the Province of Newfoundland and Labrador,
hereinafter called the "Province",
represented by the Minister responsible for Provincial Affairs and Environment

OF THE SECOND PART

WHEREAS co-operative water quantity surveys have been carried on for many years under various informal federal-provincial agreements in the Provinces of Canada by the Water Survey of Canada of the Department of the Environment, for the purpose of securing co-ordinated and standardized basic data to facilitate resource planning and management in general and the design and implementation of projects related to navigation, hydro-electric development, irrigation, drainage, flood control, recreation, domestic and industrial water supply and other purposes;

AND WHEREAS the Governor-in-Council has by Order-in-Council NO. PC 1975-1/172 dated January 28, 1975, authorized the Minister of Environment to execute this agreement on behalf of Canada, subject to funds being voted by the Parliament of Canada;

AND WHEREAS the Lieutenant Governor in Council has, by Order-in-Council No. 1412-74 dated December 5, 1974, authorized the Minister responsible for Provincial Affairs and Environment to execute this agreement on behalf of the Province subject to funds being voted by the Legislative Assembly.

NOW THEREFORE this agreement witnesseth that water quantity surveys in the Province and the financing thereof shall be continued and maintained upon the following basis; -

INTRODUCTION

DEFINITIONS

a) ANNUAL PAYMENT - a sum, agreed to by both parties in advance of the fiscal year, which shall represent the costs of operation and construction of water quantity survey stations.

b) CONSTRUCTION - includes the construction of new water quantity survey stations and the maintenance, repair and reconstruction of existing water quantity survey stations.

c) CONSTRUCTION PERSONNEL - includes foremen and labourers on full time duty as well as engineering and technical staff on part time supervisory duty or reconnaissance assignment.

d) FIELD PERSONNEL - includes hydrometric supervisors and field technicians on full time duty as well as engineering and technical staff on temporary assignment.

e) NETWORKS - an original system of gauging stations for collection of water quantity survey data.

f) OPERATING PARTY - either party to this agreement which operates water quantity survey data.

g) PUBLISHED DATA - includes streamflow, water level and sediment data. The data is to be available in publications and computer compatible data files.

h) SEDIMENT STATIONS - any location where surveys are undertaken to collect data on suspended sediment or bed material or bed load data singly or in combination. Water temperature data is to be collected.

i) WATER QUANTITY SURVEY STATIONS - any location where surveys are undertaken to collect streamflow or water level or suspended sediment or bed material or bed load data singly or in combination. Water temperature data may be collected.

OPERATIONAL CONSIDERATIONS

ARTICLE I

Each water quantity survey station presently in operation has been identified according to the designation federal, federal-provincial or provincial. The current designation is given in Schedule A, hereto attached. Schedule A may be revised to include a change in the designation of a station, the addition of new stations or the deletion of stations as agreed by the Co-ordinating Committee (Article XII) and approved by the officials named in Article XIII.

ARTICLE II

Canada will construct and operate and pay the cost of construction and the annual cost of operation of water quantity survey stations which have been designated as federal. Where Canada deems it desirable in the interest of efficiency of operation, the Province may be requested to construct and operate some federal water quantity survey stations. If the Province agrees to such arrangements, Canada would in such cases reimburse the Province for the cost of construction and annual cost of operation in accordance with Article VI.

ARTICLE III

Where Canada constructs and operates water quantity survey stations designated as federal-provincial, the Province will reimburse Canada for 50% of the construction costs and 50% of the annual cost of operation. Where the Province constructs and operates these stations, Canada will reimburse the Province for 50% of the construction costs and 50% of the annual cost of operation in accordance with Article VI.

ARTICLE IV

If requested by the Province, Canada will construct and operate water quantity survey stations designated as provincial provided the Province reimburses Canada for 100% of the construction cost and annual cost of operation. If the Province constructs and operates these stations the Province will assume 100% of the annual cost of construction and operation in accordance with Article VI.

ARTICLE V

a) The operating party shall provide the staff to meet its responsibilities under this agreement.

b) Canada will at its own expense publish data from stations that it operates. Canada will on request at its own expense, publish data from stations operated by the Province providing the data meets national standards.

c) Water quantity surveys under this agreement shall be carried out to national standards in field procedures, equipment and instrumentation, data compilation and will use national guidelines for station designations. Such standards and guidelines shall be developed and maintained by Canada in consultation with all of the Provinces.

d) Canada and the Province shall work together to take advantage of technological advancements which improve the quality of data and the efficiency of standard procedures and to develop methods and techniques to assist in planning water quantity survey networks.

e) Canada at its own expense will provide calibration service for water quantity survey velocity instruments for both parties.

FINANCIAL CONSIDERATIONS

ARTICLE VI

a) Procedures for computing the annual payment are given in Schedule C.

b) The annual payment for 1975-76 is set out in Schedule D. The annual payment for subsequent years shall be determined according to the terms of this agreement and the procedures as set out in Schedule C.

c) Annual operation costs, except for sediment stations, will be computed using average annual water quantity survey station costs and the number of stations to be operated. The average annual water quantity survey station costs shall be recomputed annually according to the items listed in Schedule B.

d) Annual construction costs, except for sediment stations, will be the cost of constructing new water quantity survey stations plus repairs to and major reconstruction of existing water quantity survey stations.

e) The annual operation costs for sediment stations will be the summation of the individual station operation costs.

f) The annual construction costs of sediment stations will be the cost of constructing new sediment stations plus repairs to and major reconstruction of existing stations.

ARTICLE VII

a) The party operating the water quantity survey stations in accordance with Articles II, III and IV, will be responsible for providing and paying the total cost of water level recording equipment.

b) All costs associated with the purchase, installation and operation of specialized water quantity survey equipment will be paid for by the party or parties requiring the service.

ARTICLE VIII

Canada or the Province, depending on the operating responsibilities, shall submit invoices for one-quarter of the annual payment on July 1st., October 1st., January 1st. and March 1st. of each fiscal year in accordance with the annual payment set out in Schedule D. Payment is to be made as soon as possible after receipt of each quarterly claim but in no case later than March 31st. of each year.

ARTICLE IX

Except as agreed by the parties hereto where both parties have an interest, either operational or financial, the annual net change in the total number of water quantity survey stations, including federal, federal-provincial and provincial, as set out in Schedule A, is not to exceed 15% in any year.

ARTICLE X

Each party constructing or operating a water quantity survey station or stations shall keep complete records of all shareable expenditures made pursuant to this agreement and shall support such expenditures with proper documentation. Canada and the Province upon request shall make these records and documents available to auditors appointed by each other.

CO-OPERATION

ARTICLE XI

There shall be a free exchange of water quantity survey data between Canada and the Province. The party operating the water quantity survey station shall retain originals or a microfilm copy of observations, measurements, recorder charts and computations and these are to be available to the other party on request.

CO-ORDINATION

ARTICLE XII

The officials named in Article XIII shall establish a Co-ordinating Committee representing each of the parties affected by this agreement. The Co-ordinating Committee shall be responsible for:

a) Planning and the continuing review of water quantity survey networks, including addition and deletion of all stations within Provincial boundaries.

b) Determining and reviewing the designation of water quantity survey stations using national guidelines which may from time to time be changed, subject to ratification by Canada and all of the Provinces.

c) Assuring the maintenance of standards in procedures, data compilation and instrumentation.

d) Reviewing annual operating costs and establishing average annual station costs, as per Article VI, for revision of Schedule D.

e) Preparation annually of new Schedule A and D which with the approval of the officials named in Article XIII would apply for the second and each subsequent year of the agreement.

The committee shall meet at least once a year and shall report to the officials named in Article XIII.

ADMINISTRATIVE ARRANGEMENTS

ARTICLE XIII

This agreement is to be administered for Canada by the Regional Director of the Inland Waters Directorate located at Halifax, Nova Scotia, and for the Province by the Assistant Deputy Minister, Environment, located at St. John's, Newfoundland.

IMPLEMENTATION

ARTICLE XIV

The parties hereto agree that water quantity surveys will be carried out at indicated in Article I to XIII inclusive and the Schedules attached hereto.

PERIOD OF AGREEMENT

ARTICLE XV

This agreement shall become effective and binding on the parties upon the first day of April, 1975. The agreement may be terminated by Canada or the Province on March 31st of any year provided that eighteen (18) months notice in writing is given. The agreement may be revised with the consent of the Governor-in-Council and the Lieutenant Governor-in-Council.

IN WITNESS WHEREOF the Honourable Jeanne Sauve, Minister of Environment has hereunto set her hand on behalf of Canada, and the Honourable W. Gorden Dawe, Minister of Provincial Affairs and Environment has hereunto set his hand on behalf of the Province of Newfoundland and Labrador.

Signed on behalf of Canada }
by the Honourable Jeanne Sauve }
Minister of Environment }.....

IN THE PRESENCE OF }
}.....

Signed on behalf of the Province of }
Newfoundland and Labrador by the }
Honourable W. Gorden Dawe, Minister }
of Provincial Affairs and Environment }.....

IN THE PRESENCE OF }
}
}
}.....

APPENDIX II

SCHEDULE A

WATER QUANTITY SURVEY STATIONS

SCHEDULE "A" **RESPONSIBILITY CLASSIFICATION** **NEWFOUNDLAND 1993-94**

FEDERAL 1 FEDERAL DEPARTMENTAL PROGRAMS

STA. NO.	STATION NAME	ESTAB.	D.A.	RECORDS	REMARKS
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	
02ZK001	Rocky River near Colinet	1948	285	Q R C	DCP TYP WQ SEDM
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

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

FEDERAL 4 NATIONAL WATER QUANTITY INVENTORY

STA. NO.	STATION NAME	ESTAB.	D.A.	RECORDS	REMARKS
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 SED 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 Maskaupi Lake	1978	4480	Q R C	RMT
02YD002	Northeast Brook near Roddickton	1980	200	Q R C	SED
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 Warp Lake	1979	7570	Q R C	RMT

SCHEDULE "A" **RESPONSIBILITY CLASSIFICATION** **NEWFOUNDLAND 1993-94**

FEDERAL-PROVINCIAL 3 REGIONAL WATER QUANTITY INVENTORY

STA. NO.	STATION NAME	ESTAB.	D.A.	RECORDS	REMARKS
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	DCP
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	
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	SED
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	
03NG001	Kanairiktok River below Shegamook Lake	1979	8930	Q R C	DCP RMT
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	
03OE003	Minipi River below Minipi Lake	1979	2330	Q R C	DCP RMT
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
02YA001	Ste. 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 C	
02ZM008	Waterford River at Kilbride	1974	52.7	Q R C	SED

PROVINCIAL 1 PROVINCIAL DEPARTMENTAL PROGRAM

STA. NO.	STATION NAME	ESTAB.	D.A.	RECORDS	REMARKS
02ZL005	Big Brook at Lead Cove	1985	11.2	Q R C	
02YK008	Boot Brook at Trans-Canada Highway	1985	20.4	Q R C	
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 and Lower Muskrat Falls	1978		H R C	REG71 RMT
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
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	
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	
02XD002	North Brook near Red Bay	1984	35.5	Q R S	RMT
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	

CONTRIBUTED STATIONS

STA. NO.	STATION NAME	ESTAB.	D.A.	AGENCY	REMARKS
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

HUMBER RIVER DATA COLLECTION NETWORK

Real time instrumentation to be operated and maintained by Water Survey of Canada in accordance with the memorandum of understanding.

Station	Response Time
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.

Station 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 III

NATIONAL GUIDELINES FOR DESIGNATION

WATER QUANTITY SURVEY STATIONS

October 20, 1982

NATIONAL GUIDELINES FOR DESIGNATING WATER QUANTITY SURVEY STATIONS

These national guidelines of the Federal-Provincial Memoranda of Agreement for Water Quantity Surveys have been prepared by Canada in consultation with the Provinces for the purpose of designating federal, federal-provincial and provincial water quantity survey stations. In compliance with the agreements, the assignment and review of station designations is the responsibility of each Co-ordinating Committee.

The intent of these guidelines is to provide a uniform and consistent manner for designating water quantity survey stations throughout Canada. In these guidelines, "water quantity survey stations" have the same definition as in the Memoranda of Agreement and include water level, streamflow and sediment survey stations. The word "station" in these guidelines means "water quantity survey stations". Where not otherwise specified the word "Province" means "Province" or "Territory". The designation of each sediment station can be considered separately from the corresponding water quantity survey station designation.

FEDERAL STATIONS

There are stations that support programs of primary interest to the Government of Canada. These stations are funded 100 per cent by Canada in accordance with Article II and the procedures described in Schedules B, C, and D of the Memoranda of Agreement.

1. Federal Department Programs

These are stations required under statutory obligations that have developed in response to federal legislation and priorities, and as a result of programs of various federal government departments or agencies to provide quantity information on inland waters. These include stations operated in support of specific federal works, benchmark basins, studies or investigations, research projects, and to meet navigational requirements and management responsibilities. A station may be so designated where Canada has formally accepted responsibility for the continued operation of the station under an implementation agreement.

2. Interprovincial Rivers

These are stations required for monitoring of waters flowing across or forming part of provincial or territorial boundaries where federal responsibility has been established by an agreement or where justified by an inter-jurisdictional concern.

3. International Waters

These are stations associated with federal responsibilities arising from international agreements, treaties, orders or studies. These include:

a) Stations specifically named under the Boundary Waters Treaty and those approved officially as "International Gauging Stations".

b) Stations specifically stipulated under IJC orders, or required to support such orders; to provide for control of waters crossing or forming part of the international boundary and for IJC related study, surveillance, flow regulation or appointment purposes. Such stations may also be required for similar studies carried out under unilateral or bilateral mechanisms and undertaken in anticipation of the need for formal orders.

c) Stations related to international treaties and agreements which involve waters crossing or forming part of the international boundary and which specifically stipulate the reaches of streams required to be monitored or special arrangements that need to be made to meet water quantity survey needs.

d) Stations on streams flowing across or forming part of the international boundary for which Canada has determined that monitoring is required for water management purposes.

4. National Water Quantity Inventory

These are stations that provide information for a national inventory of surface waters. They consist of those stations required to determine water quantity trends in the major drainage basins in Canada that serve to provide an assessment of the total surface water resources and to measure significant discharge to the oceans.

FEDERAL-PROVINCIAL AND/OR FEDERAL-TERRITORIAL STATIONS

These are stations that support programs of joint interest to Canada and the Province. The construction and operation of these stations are funded in accordance with Article III and procedures described in Schedules B, C, and D of the Memoranda of Agreement.

1. Federal-Provincial Agreement

These are stations where joint federal and provincial (or territorial) responsibility is established under the terms and conditions of an agreement between Canada and one or more Province or Territories.

The joint funding arrangements for any particular agreement must be taken into consideration before designating a station in order to ensure the intended division of financial responsibility. Following the completion of federal-provincial water study, a station may be designated in this category only if its continuation would be in the joint interest of Canada and the Province.

2. River Basin Management

These are stations where both Canada and the Province have stated an interest in the need for information to support the management of the water resources of a river basin.

3. Regional Water Quantity Inventory

These are stations that provide an assessment of the quantity of water resources available in distinct hydrologic zones within each Province through representative sampling taking into consideration climatic variability, geographic and geologic differences, levels of population and development, basin size, streamflow regime, relationship to major groundwater resources and length of record.

PROVINCIAL STATIONS

These are stations that support programs of primary interest to a Province. They are funded 100 per cent by the Province in accordance with Article IV and procedures described in Schedules B, C, and D of the Memoranda of Agreement.

1. Provincial Department Programs

These are stations required strictly for provincial programs where water quantity information on inland waters is needed.

2. Specific Purpose Monitoring Requirements

These are stations established as a result of specific requests of provincial/territorial agencies, municipalities, or non-government organizations. All such requests shall be referred to the Province for screening and funding arrangements before being presented to the applicable Co-ordinating Committee.

CRITERIA FOR DESIGNATING STATIONS

UNDER GUIDELINE FEDERAL 4

NATIONAL WATER QUANTITY INVENTORY

1. Stations established on the main stem of large rivers discharging directly to the oceans as defined in the Hydrologic Atlas of Canada as those whose mean annual flow at the outlet of the river basin exceeds 400 m^3/sec.

2. Stations established on rivers for the purpose of determining water quantity trends or those located on rivers contributing discharge to the oceans whose mean annual flow at the mouth of the river is at least 85 m^3/sec.

3. Stations established for the purpose defined above whose drainage areas are greater than 200 km^2.

4. Stations of drainage area less than 200 km^2 may be established on rivers to determine discharge to the ocean and/or to assess the total water resource available in major hydrologic and climatic zones which are defined as follows:

   Island Provinces - P.E.I. and Newfoundland,
   Islands forming integral parts of Provinces/Territories,
   Major Peninsulas
   Distinctly identified hydrologic and/or climatic zones.

The density of such stations shall be limited to those determined by official scientifically conducted station network analysis as required to determine the desired hydrologic parameters of the major geographical zones within the Province, Territory or Region.

APPENDIX IV

SCHEDULE B

ANNUAL PAYMENTS - ITEMS TO BE INCLUDED

SCHEDULE B

ANNUAL PAYMENTS - ITEMS TO BE INCLUDED

The items to be included in computing the annual payments of water quantity survey stations are:

I. OPERATIONAL COSTS WATER QUANTITY SURVEY STATIONS EXCLUDING SEDIMENT

a) Salaries and overtime of field personnel and casual labour;

b) Field travel expenses, board and lodging costs for field personnel;

c) The computer costs associated with computing daily mean hydrometric data;

d) Observer pay;

e) Depreciation, operation and maintenance of vehicles and boats;

f) Maintenance of gauging station structures including material and labour for minor repairs;

g) Maintenance and depreciation of all field equipment and instruments (except as noted in Article VII of this agreement);

h) Fuels such as propane for heating recorder installations and gas such as nitrogen for operating pressure sensing equipment, electricity charges;

i) Rental of aircraft, vehicles, boats, etc., supplied by either party or chartered;

j) The annual cost of land leases;

k) Services, e.g. cost of establishing gas caches, operation of line cabins, etc.

II. OPERATIONAL COSTS SEDIMENT STATIONS

All items in I OPERATIONAL COST plus:

1) The computer costs associated with computing daily mean sediment data;

2) Cost of analysis of sediment samples.

III. NEW CONSTRUCTION REPAIR AND MAJOR RECONSTRUCTION COSTS FOR WATER QUANTITY SURVEY STATIONS:

a) Salaries and overtime of construction personnel;

b) Field travel expenses, board and lodging costs of construction personnel;

c) Depreciation, operation and maintenance of vehicles;

d) Construction materials;

e) Maintenance, depreciation and operation of construction equipment;

f) Rental of aircraft, vehicles, boats, construction equipment, etc. supplied by either party or chartered;

g) Land acquisition costs including legal survey costs;

h) Construction contract payments.

APPENDIX V

PROCEDURE FOR

APPLICATION OF SCHEDULE B TO THE

ATLANTIC REGION AGREEMENTS

PROCEDURE FOR

APPLICATION OF SCHEDULE B TO THE

ATLANTIC REGION AGREEMENTS

The procedures used by Water Resources Branch, Atlantic Region, to determine operational costs under the Water Quantity Surveys Cost Sharing Agreements are based on the financial system called AFMAS. Under the Departmental coding structure, costs are divided into various object groups (01 to 35) and coded accordingly, by province.

SCHEDULE B

I. OPERATIONAL COSTS - WATER QUANTITY SURVEY STATIONS EXCLUDING SEDIMENT

Objective Groups 01, 02, 03 - Salaries and Overtime

This includes salaries and overtime payments of field technicians and supervisors. To account for work on activities outside the Agreement on Water Quantity Surveys, adjustments are applied to reasonably reflect the work time.

Object Group 07 - Travel

This group of costs includes field travel expenses for field personnel and other employees required for hydrometric survey work in the respective province.

Object Group 09 - Transportation and Postage

Included under this object group are costs for the transportation of goods and materials by truck, air, rail, and water.

Object Group 10 - Telecommunication, Telephone and Voice

Expenses included within group are telephone services directly related to hydrometric operations.

Object Group 11 - Telecommunication, Message Data

This group includes message and data services directly related to the hydrometric survey, excluding data processing costs which are considered separately below.

Object Group 18 - Professional Services

This object group includes salaries of gauge readers at hydrometric stations.

Object Group 22 - Other Services

This group includes costs associated with graphic services, short term employment, photographic services, brokerage fees, storage, printing, and department of Supply and Services service charges.

Object Group 25 - Rentals

(i) Includes rentals of aircraft, vehicles, boats and light machinery used for maintenance of gauging facilities.

(ii) Annual cost of land leases for the establishment of or access to gauging stations (includes recorder shelters and cableways).

Object Group 28 - Repairs to Equipment

Repair and upkeep of such items as road motor vehicles, instrumentation, electrical equipment, survey equipment, snowmobiles, motor boats, ATVs, trailers, etc.

Object Group 29 - Building and Structure Repairs

This object group deals with all work done under contract toward the repair and upkeep of gauging facilities including shelter, stilling wells, cableways, weirs, flumes, bridges, stairways, access roads, etc.

Object Group 32 - Public Utility Services

Electrical services obtained through a public utility company.

Object Group 33, 34 - Purchased Materials; Supplies; Personal Household, Miscellaneous Goods

Gasoline and oil for road motor vehicles is the major cost item in this cost group. Other costs include gas and oil for other motorized equipment, building materials, nitrogen for manometer stations, propane, working clothes and footwear, recorder charts, etc.

Object Group 35 - Parts and Consumable Tools

Includes items such as plumbing equipment and fittings, electrical equipment and fittings,batteries, scientific equipment, heating equipment, measuring equipment, safety equipment, hand tools, boats, rubber tires, etc.

Data Processing Costs

Up to and including 1983-84, all data processing was done using the main frame computer facilities located at Bedford Institute of Oceanography. For 1983-84 the data processing cost amounted to $25,000.

During 1983-84, a PDP 11/44 mini computer system was installed at the offices of Water Resources Branch, Dartmouth. For 1984-85 the new facility was completely operational.

In accordance with "Compendium of Practices, Interpretations and Administrative Procedures used by Co-ordinating Committee in Implementing the Water Quantity Survey Agreements", the annual computing cost would include the capital expenditure for the mini computer system, the annual operating cost (AOC) and the annual maintenance cost (AMC). The capital is recovered over a ten year period through an imputed rental charge (IRC), determined by amortizing the capital expenditure over a period of ten years. Therefore, the evolving formula would be:

Total Shareable Annual Computing Cost = IRC + AOC + AMC

If the Total Shareable Annual Computing Cost exceeds the cost for the base year, 1983-84, multiplied by the annual national cost increase factors, then the latter cost will be used. This has been the case for the years 1984-85 to 1990-91, therefore, the base year cost updated by the national cost increase factors, has been used.

During 1990-91 a more modern/powerful micro VAXII (Q5 series) computer system was purchased as surplus equipment at considerably less cost than the PDP 11/44 computer. All existing software was adapted for use on the new computer and the PDP 11/44 was gradually phased out. For 1991-92 all data processing has been handled by the VAX system. At the same time a detailed inventory of all data processing equipment at Dartmouth and sub-offices is maintained annually. Starting with 1991-92 the data processing cost has been determined from the above formula. The IRC (Imputed Rental has been determined as 10% of all current equipment on inventory, as updated once per year.

In the Atlantic Region the Total Shareable Annual Computing Cost is proportioned among the four cost sharing agreements by the number of gauging station records processed.

Depreciation of Vehicles

Road motor vehicles in the Atlantic Region are depreciated in accordance to the "Compendium of Practices, Interpretations and Administrative Procedures Used by Co-ordinating Committees in Implementing the Water Quantity Survey Agreements". By this compendium Report the Multi-Purpose Vehicles, vans and trucks used in the Atlantic Region are depreciated over a term of six years from the original capital purchase cost.

To calculate this depreciation, the actual capital cost of the vehicle is divided by 72 months to give a monthly depreciation. The monthly depreciation is multiplied by the actual number of months that a vehicle served in a particular province, to give the annual depreciation for the vehicle.

During the past three years pick-up trucks fitted with special enclosures for housing field equipment have been purchased to satisfy health and safety requirements. The enclosures are expected to serve for two vehicle lifetimes, and therefore, half the value of the enclosure is added to the vehicle purchase price for depreciation purposes.

Depreciation of Field Equipment and Instrumentation

Field equipment and instrumentation are depreciated at a rate of 10% of the current value of the cost-shareable inventory as determined once a year. Normally, only items acquired through capital purchases are included on the cost-shareable inventory.

II. THE OPERATIONAL COST OF SEDIMENT STATIONS

All cost items included in Section I except salaries, overtime and depreciation of vehicles, as they relate to Sediment Surveys, are included in the operational costs for the Sediment Network. Also included is the cost of laboratory analysis for suspended concentration and particle size distribution.

III. CONSTRUCTION AND MAJOR REPAIR COSTS FOR WATER QUANTITY SURVEY STATIONS

Once a major repair or new construction project has been identified, it is assigned a cost code to which all related costs are assigned. Some of this work is contracted out with the initial reconnaissance and the general supervision on-site provided by Water Survey of Canada.

If contracted out, Department of Supply and Services contract procedures are followed and the total cost is comprised of:

- Overtime of Water Survey of Canada supervisory personnel.
- Field travel expenses, board and lodging costs of supervisory personnel provided by Water Survey of Canada.
- If a pressure installation, the cost of the manometer and pressure unit accessory equipment such as gas and cylinders. The water level recorder is not charged.
- Charter aircraft.
- Land acquisition costs if any.
- Construction contract payments.

If constructed by Water Survey of Canada personnel, costs include:

- Overtime of Water Survey of Canada supervisory personnel.
- Field travel expenses, board and lodging costs of Water Survey of Canada staff. Expenses associated with reconnaissance and construction.
- If a pressure installation, the cost of the pressure unit and accessory equipment such as gas and cylinders.
- Construction materials - All items required for the construction of stilling wells, shelters, cableways, controls and survival shelters.
- Rental of aircraft, vehicles, boats, construction equipment associated with the project.
- Land acquisition costs if required.
- Construction contract payments - The services of construction equipment operators for backhoe and bulldozer are usually involved.

APPENDIX VI

SCHEDULE C

PROCEDURES FOR PREPARATION OF ANNUAL PAYMENTS

SCHEDULE C

PROCEDURES FOR PREPARATION OF ANNUAL PAYMENTS

a) The annual payment is composed of two parts, the annual operating costs and the costs of construction for streamflow and water level installations and sediment installations.

b) The annual payment shall be computed for each year the agreement is in effect.

c) Cost data to be used as a basis for computing each annual payment will be the cost data from the latest available full fiscal year.

d) A cost index factor is to be used in computing the annual payment for the year in question commensurate with sound engineering practice.

e) The average annual unit costs for operating water quantity survey stations listed in Schedule A but not including sediment stations will be determined from the cost data of c) above and where necessary, because of significant differences in transportation costs, these average annual unit costs will be computed for more than one area or condition of operation.

f) The total annual operation cost of the water quantity survey stations listed in Schedule A but not including sediment stations will be the summation of the appropriate average annual unit cost for each station multiplied by the cost index factor as determined in item d) above.

g) The total annual operation cost of the sediment stations listed in Schedule A will be the summation of the annual operating cost for each station multiplied by the cost index factor as determined in item d) above.

h) The construction cost to be apportioned in accordance with Articles II, III and IV will be the summation of the construction cost for each new, or reconstructed water quantity survey station. The entire cost of construction is to be included in the annual payment. Construction costs are to be determined using data from reconnaissance surveys, standard plans, etc. and incorporating the cost index factor from item d) above.

i) In cases where there is a significant deviation between the cost determined in (f), (g) and (h) and actual costs because of the cost index factor used, or changes in the construction program due to unforeseen circumstances such as flooding, an adjustment may be made in the final quarterly payment (March 1st) or the next fiscal year to more accurately reflect the cost shares of the parties to this agreement.

APPENDIX VII

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 1993-94 TO BE PAID TO THE RECEIVER GENERAL FOR CANADA BY THE PROVINCE OF NEWFOUNDLAND.

	Operation	Construction	Total
A) Streamflow and water level installations	$270,983	$21,000	$291,983
B) Sediment installations	$ 3,700	--	$ 3,700
C) Data collection platform installations	$ 23,356	--	$ 23,356
D) Humber River meteorological stations	$ 3,173	--	$ 3,173
	ANNUAL PAYMENT		$322,212

D.G. Jeans
Assistant Deputy Minister
Department of Environment
and Lands

S.L. Fenety
Director, Atlantic Region
Water Resources Directorate

APPENDIX VIII

MINUTES OF COORDINATING COMMITTEE MEETING

CO-ORDINATING COMMITTEE MEETING

CANADA-NEWFOUNDLAND COST SHARING AGREEMENT

WATER QUANTITY SURVEYS

1993-94

Agenda

1. Introductory Remarks
2. Review of Balance of Payments 1992-93
3. Review of 1993-94
4. Review of Schedule A for 1994-95
5. Construction and Major Maintenance in 1994-95
6. Operational Cost Estimates for 1994-95

CO-ORDINATING COMMITTEE

CANADA-NEWFOUNDLAND COST SHARING AGREEMENT

WATER QUANTITY SURVEYS

1993-94 CO-ORDINATING COMMITTEE MINUTES

The co-ordinating committee for the Newfoundland Cost Sharing Agreement on Water Quantity Surveys, met on March 29, 1994 at the Howley Building in St. John's, Newfoundland. In attendance were the following:

C. Power	AEB Environmental Monitoring	Bedford
J.-G. Deveau	ECB	Moncton
S. Porter	AEB Scientific Services	St. John's
C. Baker	AEB Environmental Monitoring	St. John's
W. Ullah	Environment and Lands	St. John's
H. Khan	Environment and Lands	St. John's

The agenda was approved with no additional topics added. C. Power, Manager, Environmental Monitoring, AEB, Atlantic Region, chaired the meeting.

1. **Introductory Remarks**

C. Power gave an overview of the recent reorganization within Environment Canada. He pointed out that due to this restructuring, J.-G. Deveau and D. K. Randall have accepted positions with ECB and will no longer be part of the "Water Survey" program. However, these experienced employees will still be resource people for consultation.

An outline of potential monitoring cuts was presented by Charlie Power which proposes a 20% cut over 4 years with a 10% reinvestment; e.g. more efficient instrumentation and automation. The specific cuts that will affect the Hydrometric program are yet to be determined. Wasi Ullah expressed concern on the pressure to reduce spending and its implication on monitoring programs. He commented on the investment, by both levels of government, put into the Hydrometric network and suggested that the O&M cost to operate the network was relatively low in comparison. He also requested advance notice of any considered cuts in order to effectively plan his program.

Cost recovery for hydrometric information services was discussed. AEB has in place a cost recovery program for data requests. Hence, Hydrometric data will have a rate schedule. W. Ullah agreed with the concept of charging, however he sees difficulty in the province charging for provincial information. He requested a copy of the rate schedule.

- NFLD. DEPT. OF ENVIRONMENT & LANDS UPDATE

The committee was advised by Dr. Wasi Ullah that he would be stepping down as a member of the

co-ordinating committee. The new member for Newfoundland will be Hasane Khan. Dr. Ullah has been an active member since 1975 when the Canada/ Newfoundland Agreement on Water Quantity Surveys was established.

W. Ullah gave an overview of DOEL, Water Resources Division and indicated that the province is reviewing all regulations for Government Departments in order to reduce red tape. The WRD has been a target for cuts and budget restraints. Despite the climate of restraint and cuts, the Hydrometric Program will survive intact for this year with no proposed reductions.

2. **Review of Balance of Payments 1992-93**

J.-G. Deveau pointed out the Schedule D payment the Province made in 1992-93 was $18,164 more than actual Provincial share of Agreement expenditures. The accumulative balance of payment at the end of 1991-92 was $2,488 resulting in an accumulated provincial overpayment balance of $21,008 over the duration of the Agreement. As agreed at last year's cost-sharing meeting, this balance of payment was adjusted downward by $11,678 by the Federal side agreeing to forgo one year of inputed rental costs for the DCP network. With this credit applied, the cumulative balance of payment is lowered to $9,330, an acceptable amount considering the size of the Agreement.

3. **Review of 1993-94**

-P2000/MODERNIZATION

There is an on-going program to modernize the network by upgrading instrumentation and updating field and office procedures. During 1993-94, C. Baker attended a national workshop on Field Computers. A PC9000 unit is being tested for obtaining discharge meter measurements. R.P. Noseworthy attended a workshop on the operation of Compumod. It is proposed to have a Compumod system installed in the Corner Brook office this year in order to process digitally acquired data from field data loggers.

Four new Hydrometric stations were equipped with VEDAS Data Loggers with a minimum of 6 more proposed for the coming season.

- NETWORK REVIEW

Water survey in Newfoundland provided input to the HYDROMETRIC NETWORK REVIEW by completing an information form for each station. H. Khan projected that the review would be completed within the next 2 or 3 months. W. Ullah stated that a network review for Labrador would not be conducted due to the low density of existing stations.

- HUMBER RIVER BASIN DATA COLLECTION NETWORK

C. Baker reported that the annual meeting for this agreement was held in Deer Lake on March 24, 1994 with Deer Lake Power, DOEL and Environment Canada. All parties are pleased with the

program delivery. Missing GOES transmissions at the Sheffield Brook station is being addressed by relocating the antenna higher up on the river bank to ensure a clear line of site to the satellite. It is proposed to establish 2 more meteorological stations in the basin during this year.

- FIELD AND OFFICE OPERATIONS

An overview was given by C. Baker of the field and office operations. Highlights of 1993/94 and proposed activities for 1994/95 were distributed. See Attachments I and II.

The vacant Technology position in St. John's was filled in April 1993. The successful candidate was Kelly Harris, a graduate of Civil Engineering Technology. Kelly is the first female technologist to hold a position with Water Survey in Newfoundland.

4. **Review of Schedule 'A' for 1994-95**

- HYDROMETRIC and SEDIMENT STATIONS

The list of Hydrometric and Sediment stations shown in the proposed Schedule A for 1994-1995 along with the respective classifications was accepted. H. Khan indicated the new station in the Badger area was not listed in the draft Schedule A. The new hydrometric station proposed for the Badger area is expected to become operational only late in 94-95. Therefore, it is not included in Schedule A for operational and cost purposes. As for the Grand Lake station on Glover Island, it is not part of the Hydrometric Network but rather listed in the Humber River Data Collection Network.

5. **Construction and Major Maintenance in 1994-95**

It was estimated that a total of $10K would be required to complete the construction and maintenance program on the existing network. That amount is included in the overall Hydrometric Surveys cost estimates. Construction costs associated with new installations will be the responsibility of the proponent. $9,000 would be recovered to cover expenses related to the installation of the Badger station and two precipitation gauges. This amount does not cover instrumentation cost. A list of new construction is included in Attachment II.

6. **Operational Cost Estimates for 1994-95**

The operational cost estimates for 1994-95 were reviewed and accepted with the slight changes noted above.

The meeting adjourned at 1230 p.m.

ATTACHMENT I

HIGHLIGHTS 1993-94 Activities

Two gauging stations were installed in the Corner Brook Lake watershed under the Model Forest Program in conjunction with the City of Corner Brook and the Provincial Dept. of Environment and Lands.

Two gauging stations were established in Labrador under the Federal / Provincial Hydrometric Agreement.

The vacant EG position in St. John's was staffed on April 19, 1993. The successful candidate was Kelly Harris. This is the first female Technician for Water Survey in Newfoundland.

11 water temperature probes were installed at DCP equipped stations at the request of the Dept. of Fisheries and Oceans. DFO purchased all equipment.

Where required, Water Survey Technicians received speciality training in Water Safety and Winter Survival.

The gauging station at Leary Brook, St. John's was relocated to a more suitable location upstream. The stilling well was abandoned and a Data Logger installed.

Extensive repairs were carried out on the cableway at Grey River due to ice damage. The shelter was moved upstream to provide protection against further ice runs.

A new gauge shelter was built at Torrent River. This replaces the old stilling well which required major repairs. A Data Logger / Transducer is proposed for installation in 1994.

Shearstown Brook gauging station was relocated to a more suitable location upstream. Relocation was necessary due to extensive alterations to the stream during dredging operations and bridge construction.

A helicopter landing pad was constructed at the precipitation gauge on Glover Island.

A helicopter landing pad was constructed at Upper Humber River above Black Brook.

Material for the upgrade of cableway at Sheffield River was purchased with on site work proposed for 1994.

Water Survey staff assisted in the Recurrent Survey by Water Quality Division, Moncton and Provincial Environment and Lands on the Quidi Vidi / Rennies River system. Lake sampling was also carried on Western Brook Pond and other designated lakes at remote fly-in locations.

A reconnaissance was carried out on Northwest River in Terra Nova national Park at the request of Parks Canada for establishing a hydrometric station during 1994. Hydroelectric potential is being evaluated and the river flows through the park.

A request for Canada Water Act funding, specifically, under the Canada / Newfoundland Water Resources Management Agreement, was submitted on February 9,1994. Funding is to be used for the modernization of field instrumentation - data loggers.

A meterological station was installed by AES at Rocky River. Temperature and Precipitation data are being transmitted through the water survey DCP at this site.

Input was provided to the Hydrometric Technician Career Development Program Health and Safety Action Plan. Drafts were submitted for "Aircraft Operation-Rotary", "Aircraft Operation-Fixed"and "Boat Operation".

The cableway at Leech Brook was vandalized resulting in the collapse of the structure. The cableway was dismantled and transported to Corner Brook: Reconstruction is planned for 1994.

One week of Demo training was provided on Compumod Prototype III.

ATTACHMENT II

NEWFOUNDLAND
PROPOSED EXPANSION - 1994/95

HYDROMETRIC NETWORK

1. PARKS CANADA:(F) Full Hydrometric station on Northwest River, at Terra Nova National Park (Golf course).

- Proposed Hydro development.
- Information required to assess the impact of development on Salmon population.
- To establish minimum flow to maintain fish habitat.
- Impact of flow and stage on sections of the Golf course ie. Greens that are close to the river's edge.
- Water Quantity / Quality data required to support Parks scientific and biological studies on the river system.

The request to establish this station was made during 1993. Parks were supplied with procedures, instrumentation list, capital cost estimates, contacts and annual operational cost. Parks will purchase all necessary equipment and instrumentation and construct the gauge shelter. Water survey will provide technical assistance and installation.

2. NEWFOUNDLAND & LABRADOR HYDRO:(P) Water Level station (Real Time) on the Cat Arm Reservoir.

- Required to maintain "remote" management of water levels for the efficient operation the Cat Arm Hydro Power Development.

Requested in 1993. Hydro will purchase all necessary equipment and instrumentation and carry out all construction required for the gauge shelter and installation. Water survey will provide technical assistance and install the instrumentation. Hydro and Provincial of Newfoundland. agreed to have this station become part of the Federal / Provincial Hydrometric Agreement.

3. GOVERNMENT OF NEWFOUNDLAND:(P) Proposed gauging station on the Exploits system in the Badger area.

- Part of the Water Resources Management Agreement operational plan for Flow Forecasting.

This project will be fully funded by the Agreement including the purchase of instrumentation and related construction costs.

4. **FISHERIES & OCEANS:** To install 8 Water Temperature probes at DCP equipped hydrometric stations.

- Temperature data combined with flow data will enable more effective management of scheduled rivers, such as decisions to open and close to angling.

OUTSIDE HYDROMETRIC NETWORK

GOVERNMENT OF NEWFOUNDLAND:(P) Two Precipitation gauges (real time) in the Humber River Basin.

- Part of Green Plan / Water Resources Management Agreement operational plan for Flow Forecasting.

Consultants report and recommendations were reviewed. Two sites were identified in conjunction with Water Survey, Provincial Environment & Lands, Hydrometric Agreement personnel, and Deer Lake Power. An equipment list was passed on to the Provincial Government.

The Project will be fully funded by the Agreement including the purchase of all necessary equipment and instrumentation and all construction required for the gauge shelter and installation. Water Survey will provide construction supervision, technical assistance and install the instrumentation.

SUMMARY

Anticipated Increase to Hydrometric Network in 1994-95

1 Federal full hydrometric
1 Provincial full hydrometric
1 Provincial water level

2 Meteorological gauges under the Humber Basin Agreement.

APPENDIX IX

ESTIMATED COSTS FOR 1994-95

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND AND LABRADOR

ISLAND 1994-95

ESTIMATED OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

BUDGET ITEM	ESTIMATE
Technical Staff Salary and Overtime	278,500
Travel	23,000
Transportation & Postage	2,000
Telecommunications	700
Professional Services (Readers)	500
Other Services	4,500
Rentals	
56,000	
Repairs to Equipment	3,500
Repairs to Structures	3,500
Utilities	
1,500	
Materials and Supplies (Incl. Gas)	29,500
Parts and Consumable Tools	5,500
Data Processing Costs	14,380
Vehicle Depreciation	17,393
Field Equipment and Instrument Depreciation	9,037
TOTAL	**$449,510**

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND AND LABRADOR

LABRADOR 1994-95

ESTIMATED OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS

BUDGET ITEM	ESTIMATE
Technical Staff Salary and Overtime	68,500
Travel	15,500
Transportation & Postage	2,000
Telecommunications	-
Professional Services (Readers)	-
Other Services	1,500
Rentals	55,000
Repairs to Equipment	500
Repairs to Structures	-
Utilities	-
Materials and Supplies	2,000
Parts and Consumables	1,000
Data Processing Costs	2,840
Vehicle Depreciation	-
Field Equipment and Instrument Depreciation	2,706
TOTAL	**$151,546**

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND AND LABRADOR

1994-95 ESTIMATED PROVINCIAL COST

HYDROMETRIC NETWORK (ISLAND)

7	Federal 1 Stations *	6.5 Units
11	Federal 4 Stations	11.0 Units
44	Fed-Provincial 3 Stations	44.0 Units
26	Provincial 1 Stations **	23.4 Units

Total 88 Stations Total Units 84.9

Includes 0.5 year operation of parks station.

Includes 2 new Corner Brook Lake stations and half year for Cat Arm River (W.l.) Station.

Average Cost / Station = $449,510 / 84.9 = $5,294

Province Share = $5294 X ((44 x 0.5) + 23.4) = **$240,347**

HYDROMETRIC NETWORK (LABRADOR)

2	Federal 2 Stations	2.0 Units
4	Federal 4 Stations	4.0 Units
5	Fed/Provincial 3 Stations	5.0 Units
4	Provincial 1 Stations	1.7 Units

Total 15 Stations Total Units 12.7

Average Cost / Station = $151,546 / 12.7 = $11,932

Province Share = $11,932 X ((5 X .5) + 1.7) = **$50,114**

DATA COLLECTION PLATFORMS:

The Province made a double imputed rental payment in 1993 - 94, thus only one year of imputed rental remains. It was also agreed at last year's meeting, that this last rental payment would not be collected but rather credited to the projected federal deficit in the cumulative balance of payments.

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND AND LABRADOR

SEDIMENT SURVEYS
1994-95

BUDGET ITEM	ESTIMATE
Salary and Overtime	-
Travel	250
Transportation & Postage	100
Professional Services (Samplers)	-
Other Services	100
Repairs to Equipment	200
Materials and Supplies (Incl. Gas)	300
Parts and Consumables	100
Sample Analysis	4,440
Field Equipment and Instrument Depreciation	928
TOTAL	$6,418

SEDIMENT STATION NETWORK

Seasonal Stations: Fed/Provincial	Waterford Highlands
Miscellaneous Stations: Fed/Provincial	Bottom Creek Rocky Upper Humber (Reidville) Harrys Northeast Brook Terra Nova Indian Brook Peters R. (Botwood) Rattle Rattler Sheffield South Brook

Each seasonal station is considered a full unit station and each miscellaneous station is considered 0.25 unit.

Station Units = 2 X 1.0 + 12 X 0.25 = 5

Unit Cost for Sediment Stations: $6418 / 5 = $1,284

Province Share 0.5 X 5 X $1283 = **$3209**

WATER QUANTITY SURVEYS
PROVINCE OF NEWFOUNDLAND AND LABRADOR

TOTAL ESTIMATED OPERATIONAL COSTS

PROVINCE FOR 1994-95

HYDROMETRIC (ISLAND)	$240,347
HYDROMETRIC (LABRADOR)	$ 50,114
SEDIMENT	$ 3,209
HUMBER BASIN MET. STATIONS (3 Stations X 0.2 Unit Cost for Hydrometric Station + 0.5 X 2 X 0.2 for New Stations)	$ 4,177
OPERATIONAL COST - INSTALLATION	
- Badger Station	$ 5,000
- 2 New Met. Stations	$ 4,000
TOTAL 1994-95	**$306,847**