# WATER QUANTITY SURVEYS

# COST SHARING AGREEMENT

# CANADA - NEWFOUNDLAND

# ANNUAL REPORT 1999 - 2000

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 1999 - 2000.

Members of the Co-ordinating Committee

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

J. B. Merrick
Co-ordinator for Canada
Bedford, Nova Scotia

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# INTRODUCTION

The year ending March 31, 2000 was the twenty fifth 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 1999 - 2000 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 1999 - 2000 annual payment.

On a positive note no changes to the network were required and commercial activity on the Island and in Labrador provided 20 stations. Th1s was more than enough work/revenue to justify the hiring of a new technologist. While it was understood that these commercial sites may not last more than 5 years, this provides an opportunity to address some of the concerns about funding succession planning. The new stations have been added to Schedule "A" as "Other Contributed" as they are operated by WSC but not cost shared under the present agreement.

## WATER QUANTITY SURVEYS

## PROVINCE OF NEWFOUNDLAND

## ANTICIPATED OPERATIONAL COSTS FOR HYDROMETRIC SURVEYS - ISLAND

## 1999 - 2000

| Budget Item | 1999 - 00 |
|---|---|
| Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime) | 165,125 |
| Transportation and Communications | |
| Travel - 07 | 12,825 |
| Transportation and Postage - 09 | 1,468 |
| Telecommunications - 10, 11 | 3,200 |
| Professional and Special Services | |
| Professional Services - 18 | 0 |
| Other Services - 22 | 5,000 |
| Rentals - 25 | 38,500 |
| Purchased Repair and Upkeep | |
| Equipment Purchased and Repairs - 28 | 10,000 |
| Building and Structures Repairs - 29 | 500 |
| Utilities, Materials and Supplies | |
| Public Utility Services - 32 | 1,000 |
| Purchased Materials, Supplies, | |
| Misc. Goods - 33, 34 | 16,525 |
| Parts and Consumable Tools - 35 | 20,776 |
| Other Costs - Data Processing | 0 |
| Depreciation of Vehicles (5) | 7,922 |
| Depreciation of Field Equipment and Instruments | 4,150 |
| **TOTAL** | **286,991** |

## WATER QUANTITY SURVEYS

## PROVINCE OF NEWFOUNDLAND

## ANTICIPATED OPERATIONAL COSTS FOR HYDROMETRIC SURVEYSOPERATIONAL COSTS FOR HYDROMETRIC SURVEYS - LABRADOR

### 1999 - 2000

| Budget Item | 1999 - 00 |
|---|---|
| Personnel - Basic Pay - 01, 02, 03 (Salaries of hydrometric technical staff including overtime) | 11,364 |
| Transportation and Communications | |
| Travel - 07 | 7,000 |
| Transportation and Postage - 09 | 2,300 |
| Telecommunications - 10, 11 | 0 |
| Professional and Special Services | |
| Professional Services - 18 | 0 |
| Other Services - 22 | 0 |
| Rentals - 25 | 32,000 |
| Purchased Repair and Upkeep | |
| Equipment Purchased and Repairs - 28 | 100 |
| Building and Structures Repairs - 29 | 0 |
| Utilities, Materials and Supplies | |
| Public Utility Services - 32 | 0 |
| Purchased Materials, Supplies, | |
| Misc. Goods - 33, 34 | 1,400 |
| Parts and Consumable Tools - 35 | 300 |
| Other Costs - Data Processing | 0 |
| Depreciation of Vehicles (5) | 0 |
| Depreciation of Field Equipment and Instruments | 0 |
| **TOTAL** | **54,464** |

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## WATER QUANTITY SURVEYS

## CALCULATION OF ANTICIPATED ANNUAL COSTS AND PAYMENTS - 1999 – 2000

### HYDROMETRIC NETWORK - ISLAND

| Station Category | Stations | Station Units |
|---|---|---|
| Federal 1 | 5 | 5.0 |
| Federal 4 | 7 | 7.0 |
| Federal / Provincial 3 | 31 | 31.0 |
| Provincial 1 | 17 | 14.6 |
| **Total** | **60** | **57.6** |

Average Cost per Station Unit = $286,991/576 = $4,982.48

**Provincial Share** = $4,982.48 [ **(31 x .5) + 14.6** ] = $4,982.48[ **30.1** ] = **$149,972.72**

### HYDROMETRIC NETWORK - LABRADOR

| Station Category | Stations | Station Units |
|---|---|---|
| Federal 2 | 1 | 1.0 |
| Federal 4 | 3 | 3.0 |
| Provincial 1 | 1 | 0.2 |
| **Total** | **5** | **4.2** |

Average Cost per Station Unit = $54,464/ 4.2 = $12,967.73

**Provincial Share = $12,967.73[ 0.2 ] = $2,593.55**

### HUMBER BASIN METEOROLOGICAL STATIONS

| Station Category | Stations | Station Units |
|---|---|---|
| Humber Basin Meteorology | 5 | 1.0 |

Cost per Station = 20% of Hydrometric station = $4982.48 x .2 = $996.49

**Provincial Share = $996.49 x 5 = $4,982.48**

[Editor's note: discrepancy between the above two totals and the amounts shown on Schedule D arise from incorrect station units' calculations in the original estimates.]

| **Total Provincial Share =** | **$157,584.72** |
|---|---|

**TABLE 1**
**WATER QUANTITY SURVEYS**
**GAUGING STATION DATA FOR 1999 – 2000**

| No. of Stations: incl Contrib | | | Changes during 1999 - 2000 | | Stn. Designation April 1, 1999 | | | |
|---|---|---|---|---|---|---|---|---|
| April 1, 1998 | April 1, 1999 | Change | Added | Discontinued | Fed | F/P | Prov. | Contrib. |
| 79 | 99 | 20 | 20 | 0 | 16 | 31 | 18 | 34 |

**TABLE 2**
**WATER QUANTITY SURVEYS**
**COMPARATIVE GAUGING STATION DATA April 1, 1975 - April 1, 2000**

| Federal Stations | | | F/P Stations | | | Provincial Stations | | | Total Stations | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr 1, 1975 | Apr 1,1999 | Change | Apr 1, 1975 | Apr 1, 1999 | Change | Apr 1, 1975 | Apr 1, 1999 | Change | Apr 1, 1975 | Apr 1, 1999 | Change |
| 14 | 16 | 2 | 7 | 31 | 24 | 9 | 18 | 9 | 30 | 65 | 35 |

**TABLE 3**
**WATER QUANTITY SURVEYS**
**DETAILED GAUGING STATION DATA 1999 – 2000**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | 0 | 10 | 16 | 0 | 0 | 31 | 31 | 18 | 0 | 18 | 34 | 99 |

**TABLE 4**
**WATER QUANTITY SURVEYS**
**SUMMARY OF SCHEDULE D - 1999 - 2000**
(does not include costs for Humber River Meteorological Stations or Sediment Program)

| Streamflow & Water Level | | Sediment | | Total |
|---|---|---|---|---|
| Operation | Construction | Operation | Construction | |
| $147,933.80 | 0 | 0 | 0 | 147,933.80 |

**TABLE 5**
**WATER QUANTITY SURVEYS**
**COMPARISON - SCHEDULED & ACTUAL DOLLAR COSTS FOR 1999 - 2000**
(does not include costs for Humber River Meteorological Stations or Sediment Program)

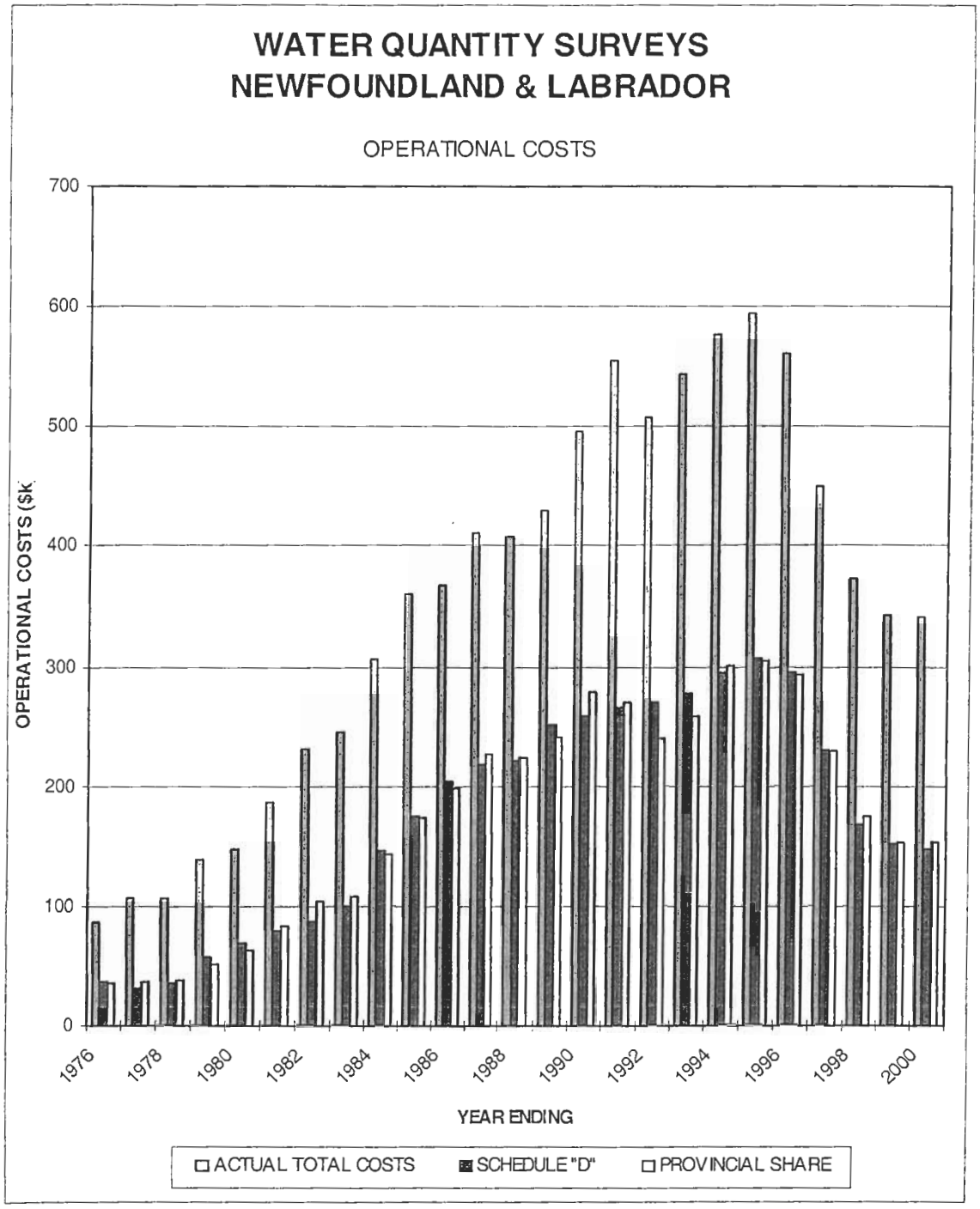
| Salary & Operations | | Construction | | Total | | | Amount Payment | Received Minus |
|---|---|---|---|---|---|---|---|---|
| Sch. D | Actual Cost | Sch. D | Actual Cost | Sch. D | Actual Cost | Difference | Received | Actual |
| $147,933.80 | 152,828.86 | 0 | 0 | 147,933.80 | 152,828.86 | -$4,895.02 | $145,696.49 | -4,895.02 |

## SUMMARY OF ACTUAL ANNUAL COSTS AND PAYMENTS
### 1975-76 TO 1999-2000

| | SCHEDULE "D" PAYMENTS BY PROVINCE | | | | ACTUAL PROVINCIAL SHARE | | | | PROVINCIAL +CREDIT |
|---|---|---|---|---|---|---|---|---|---|
| YEAR | HYDROMET | SEDIMENT | CONSTR'N | TOTAL | HYDROMET | SEDIMENT | CONSTR'N | TOTAL | -DEBIT |
| 1975-76 | 37,800 | 0 | 3,600 | 41,400 | 36,238 | 0 | 2,177 | 38,415 | 2,985 |
| 1976-77 | 32,340 | 0 | 12,000 | 44,340 | 37,840 | 0 | 1,573 | 39,413 | 4,927 |
| 1977-78 | 35,520 | 0 | 24,480 | 60,000 | 38,700 | 0 | 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 | 288,565 | 274,004 | 5,571 | 21,264 | 300,839 | -12,274 |
| | | | | | | | | | |
| 1990-91 | 260,691 | 5,925 | 0 | 266,616 | 266,058 | 4,809 | 2,532 | 273,399 | -6,783 |
| 1991-92 | 264,591 | 6,450 | 0 | 271,041 | 234,222 | 5,649 | 0 | 239,871 | 31,170 |
| 1992-93 | 273,482 | 3,825 | 0 | 277,307 | 254,430 | 4,713 | 0 | 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 | 0 | 298,700 | 288,835 | 3,220 | 0 | 292,055 | 6,645 |
| | | | | | | | | | |
| 1995-96 | 294,040 | 1,375 | 0 | 295,415 | 292,860 | 1,180 | 0 | 294,040 | 1,375 |
| 1996-97 | 229,643 | 0 | 0 | 229,643 | 229,643 | 0 | 0 | 229,643 | 0 |
| 1997-98 | 167,169 | 0 | 0 | 167,169 | 175,042 | | | 175,042 | -7,873 |
| 1998-99 | 151,374 | 0 | 0 | 151,374 | 154,159 | 0 | 0 | 154,159 | -2,785 |
| | ** Adjustment | | | -24,677 | 0 | 0 | 0 | 0 | -24,677 |
| 1999-2000 | 147,934 | 0 | 0 | 147,934 | 152,829 | 0 | 0 | 152,829 | -4,895 |
| | | | | | | | | Net total | -15,685 |

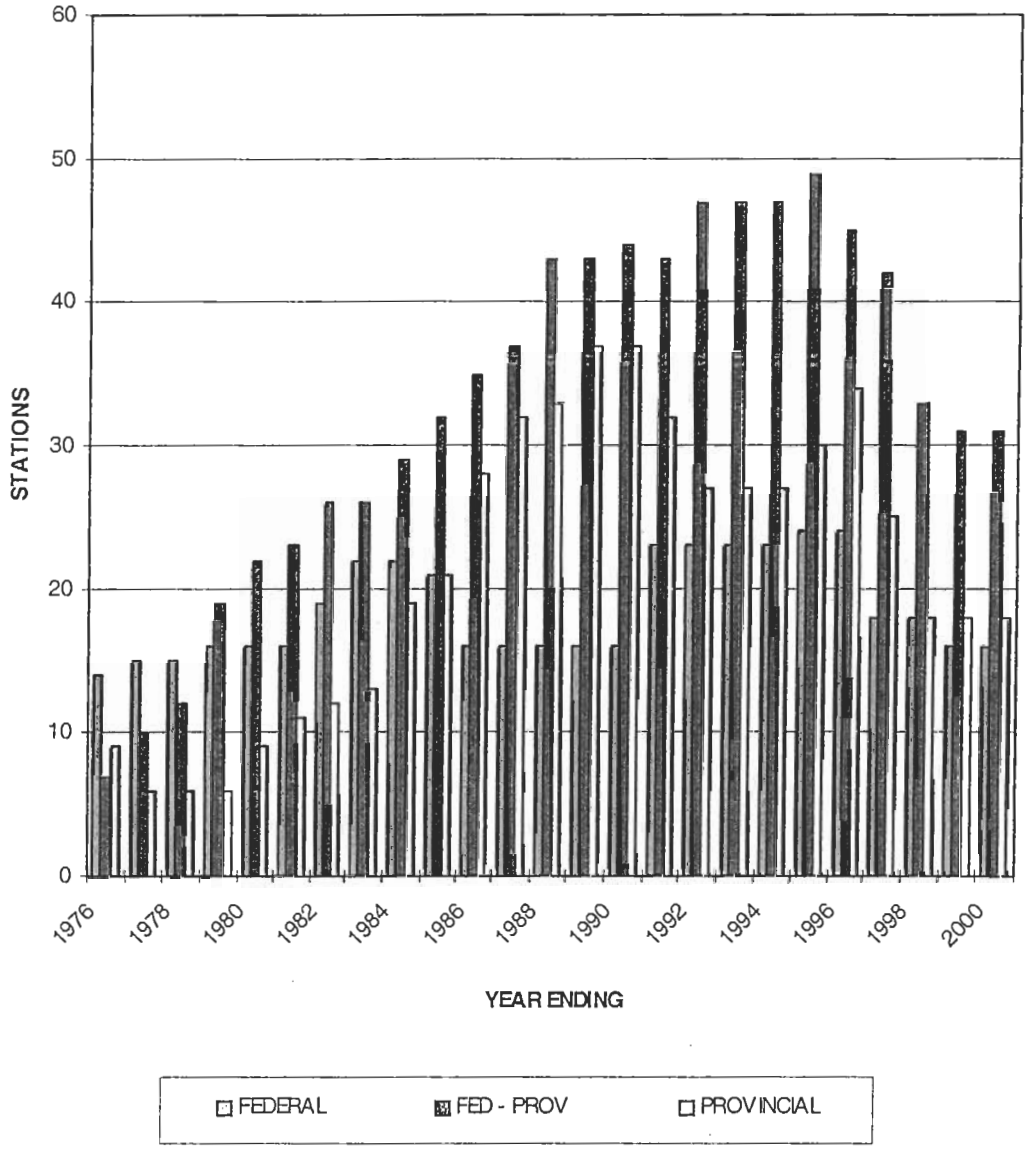
NOTES. A positive net total indicates funds owed to the Province.

** Credit surplus in account toward costs of modernization


WATER QUANTITY SURVEYS
NEWFOUNDLAND & LABRADOR
OPERATIONAL COSTS
OPERATIONAL COSTS ($K
700
600
500
400
300
200
100
0
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
YEAR ENDING
ACTUAL TOTAL COSTS
SCHEDULE "D"
PROVINCIAL SHARE

# WATER QUANTITY SURVEYS
# NEWFOUNDLAND and LABRADOR

NUMBER OF STATIONS



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# APPENDIX I

## SCHEDULE A

## WATER QUANTITY SURVEY STATIONS

SCHEDULE "A"
NEWFOUNDLAND AND LABRADOR
RESPONSIBILITY CLASSIFICATION
1999-00

## FEDERAL 1 FEDERAL DEPARTMENTAL PROGRAMS (5)

| STA. NO. | STATION NAME | ESTAB. | D.A | RECORD | REMARKS |
|---|---|---|---|---|---|
| 02ZB001 | Isle aux Morts River below Highway Bridge | 1962 | 205 | Q R C | DCP TYP LRTAP A B E |
| 02YS006 | Northwest River at Terra Nova National Park | 1994 | 663 | Q R C | DCP LGR A |
| 02ZK001 | Rocky River near Colinet | 1948 | 285 | Q R C | DCP TYP WQ A B E |
| 02YS003 | Southwest Brook at Terra Nova National Park | 1967 | 36.7 | Q R C | A B E(CARRIER) |
| 02YL001 | Upper Humber River near Reidville | 1928 | 2110 | Q R C | LGR TYP A B E |

[ 5 Island, *0 Lab*]

## FEDERAL 2 INTERPROVINCIAL WATERS (1)

| STA. NO. | STATION NAME | ESTAB. | D.A. | RECORD | REMARKS |
|---|---|---|---|---|---|
| *02XA003* | *Little Mecatina River above lac Fourmont* | *1979* | *4540* | *Q R C* | *LGR DCP RMT A* |

[ 0 Island, *1 Lab*]

## FEDERAL 4 NATIONAL WATER QUANTITY INVENTORY (10)

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

[ 7 Island, *3 Lab*]

## FEDERAL-PROVINCIAL 3 REGIONAL WATER QUANTITY INVENTORY (31)

| STA. NO. | STATION NAME | ESTAB | D.A | RECORD | REMARKS |
|---|---|---|---|---|---|
| 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 | LGR 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 | LGR RMT LRTAP A E |
| 02YO008 | Great Rattling Brook above Tote River Confluence | 1984 | 823 | Q R C | LGR A E |
| 02YE001 | Greavett Brook above Portland Creek Pond | 1983 | 95.7 | Q R C | LGR A E |
| 02ZA002 | Highlands River at TCH | 1982 | 72 | Q R C | M A B E |
| 02YR003 | Indian Bay Brook near Northeast Arm | 1981 | 554 | Q R C | A B E |
| 02YK002 | Lewasseechjeech Brook at Little Grand Lake | 1952 | 470 | Q R C | LGR DCP RMT A E |
| 02YN002 | Lloyds River below King George IV Lake | 1980 | 469 | Q R C | LGR RMT A |
| 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 |
| 02YO006 | Peters River near Botwood | 1981 | 177 | Q R C | A B |
| 02ZH001 | Pipers Hole River at Mothers Brook | 1952 | 764 | Q R C | WQ LRTAP A B |
| 02ZG004 | Rattler Brook near Boat Harbour | 1981 | 42.7 | Q R C | A B |
| 02YL005 | Rattler Brook near McIvers | 1985 | 17 | Q R C | A B |
| 02YQ005 | Salmon River near Glenwood | 1987 | 80.8 | Q R C | LGR A E |
| 02ZG003 | Salmonier River near Lamaline | 1980 | 115 | Q R C | LGR 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 | LGR A |
| 02YO012 | Southwest Brook at Lewisporte | 1989 | 47.7 | Q R C | LGR A |
| 02YM003 | South West Brook near Baie Verte | 1980 | 93.2 | Q R C | A B |
| 02YS005 | Terra Nova River at Glovertown | 1985 | 2000 | Q R C | LGR A E |
| 02YL008 | Upper Humber River above Black Brook | 1988 | 471 | Q R C | RMT LGR MET A E |
| 02ZM018 | Virginia River at Pleasantville | 1984 | 10.7 | Q R C | LGR A |
| 02ZM008 | Waterford River at Kilbride | 1974 | 52.7 | Q R C | LGR A |

[ 31 Island, *0 Lab*]

## PROVINCIAL 1 PROVINCIAL DEPARTMENTAL PROGRAM (18)

| STA. NO. | STATION NAME | ESTAB. | D.A. | RECORD | REMARKS |
|---|---|---|---|---|---|
| 02ZL005 | Big Brook at Lead Cove | 1985 | 11.2 | Q R C | A B |
| *03OE010* | *Big Pond Brook below Big Pond* | *1993* | *71.4* | *Q R C* | *RMT LGR A* |
| 02YK008 | Boot Brook at Trans-Canada Highway | 1985 | 20.4 | Q R C | A B |
| 02YF002 | Cat Arm Reservoir near Spillway | 1994 | | H R C | RMT DCP LGR A |
| 02YL011 | Copper Pond Brook near Corner Brook Lake | 1994 | 12.9 | Q R C | LGR A |
| 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 M C |
| 02YK010 | Grand Lake East of Grand Lake Brook | 1988 | | H R C | DCP RMT MET M A |
| 02YM004 | Indian Brook Diversion above Birchy Lake | 1990 | | Q R C | LGR DCP MET A E |
| 02ZM020 | Leary Brook at Prince Philip Drive | 1985 | 17.8 | Q R C | LGR A |
| 02ZK003 | Little Barachois River near Placentia | 1983 | 37.2 | Q R C | A B |
| 02ZK004 | Little Salmonier River near North Harbour | 1983 | 104 | Q R C | A B |
| 02ZM006 | Northeast Pond River at Northeast Pond | 1953 | 3.63 | Q R C | A B |
| 02ZM022 | Raymond Brk at Outlet of Bay Bulls Big Pond | 1988 | | Q R C | REG A B |
| 02ZJ002 | Salmon Cove River near Champneys | 1983 | 73.6 | Q R C | A B |
| 02ZL004 | Shearstown Brook at Shearstown | 1983 | 28.9 | Q R C | A B |
| 02YL004 | South Brook at Pasadena | 1983 | 58.5 | Q R C | LGR A C E |
| 02ZN002 | St. Shotts River near Trepassey | 1985 | 15.5 | Q R C | LGR DCP A |

[ 17Island, *1 Lab*]

## OTHER CONTRIBUTED (WSC Operated Commercial paid through Agreement)

| STA. NO. | STATION NAME | ESTAB. | D.A. | RECORD | REMARKS |
|---|---|---|---|---|---|
| *03OC007* | *Atikonak Lake West side* | *1998* | | *HRC* | *DCP LGR RMT MET A* |
| *03OC005* | *Atikonak River above Atikonak Lake* | *1972* | *3680* | *QRC* | *DCP LGR RMT WQ A* |
| *03OC003* | *Atikonak River above Panchia Lake* | *1972* | *15100* | *QRC* | *DCP LGR RMT WQ A* |
| *03OD007* | *East Metchin River below highway bridge* | *1998* | | *QRC* | *DCP LGR RMT WQ A* |
| *03OC004* | *Kepimits River below Kepimits Lake* | *1972* | *7070* | *QRC* | *DCP LGR RMT WQ A* |
| *03OE003* | *Minipi River below Minipi Lake* | *1979* | *2330* | *QRC* | *DCP LGR RMT WQ A* |
| *03PB002* | *Naskaupi River below Naskaupi Lake* | *1978* | *4480* | *QRC* | *DCP LGR RMT WQ A* |
| *03OE011* | *Pinus River* | *1998* | | *QRC* | *DCP LGR RMT WQ A* |
| *02VC003* | *Romaine River below Lac Lavoie* | *1998* | | *QRC* | *DCP LGR RMT WQ A* |

[ 0 Island, *9 Lab.*]

## OTHER CONTRIBUTED (WSC Operated Commercial )

| STA. NO. | STATION NAME | ESTAB. | D.A. | RECORD | REMARKS |
|---|---|---|---|---|---|
| *03NE002* | *Camp Pond Brook below Camp Pond* | *1995* | *24.3* | *QRC* | *LGR RMT A* |
| *03NE003* | *Camp Pond at Southwest end* | *1995* | | *HRC* | *LGR RMT A* |
| *03OE001* | *Churchill River above Upper Muskrat Falls* | *1948* | *92500* | *QRC* | *DCP LGR REG RMT* |
| 02ZD002 | Grey River near Grey River | 1969 | 1340 | Q R C | DCP LGR RMT |
| *03NE008* | *Headwater Pond near outlet* | *1998* | | *HRC* | *LGR RMT A* |
| *03NE010* | *Headwater Pond Brook below Headwater Pond* | *1998* | *3.36* | *QRC* | *LGR RMT A* |
| *03OA006* | *Julienne Lake below Wabush Lake* | *1999* | | *HRC* | *DCP LGR RMT A* |
| *03NE001* | *Reid Brook at outlet of Reid Pond* | *1995* | *75.7* | *QRC* | *DCP LGR RMT A* |
| *03NE009* | *Throat Brook 8 Km above tidewater* | *1998* | *5.01* | *QRC* | *DCP LGR RMT A* |
| *03OA005* | *Wabush Lake at Lake Outlet* | *1999* | | *QRC* | *DCP LGR RMT A* |
| *02ZC003* | *White Bear River above Big Indian Brook* | *1996* | | *QRS* | *DCP LGR REG RMT A* |

[1 Island, *10 Lab.*]

## CONTRIBUTED STATIONS (14)

| 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 Control* | *1977* | | *CFLCO* | *REG64 RMT* |
| *03OD005* | *Churchill River at Churchill Falls Pwrhouse* | *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 Pwrhouse | 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 |

[ 10 Island, *4 Lab*]

## HUMBER RIVER DATA COLLECTION NETWORK

**Real Time Instrumentation To Be Operated and Maintained By Water Survey of Canada In accordance With 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. |
| 13 Aides Lake | 48 Hrs* |
| 14 Hinds Lake | 48 Hrs* |

* precipitation guage

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".

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 |
| TMK | telephone interrogated telemark |
| TYP | typical stream; data used to produce statement on runoff conditions |
| WQ | samples collected for water quality national overview network |
| LGR | data recorded by digital data logger |
| A | building of any type on the site; California shelter incl |
| B | well |
| C | power and/or telephone |
| E | cableway |
| M | manometer |

# APPENDIX II

## SCHEDULE D

## SUMMARY OF ANNUAL PAYMENT

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## 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 the officers of each party.

### ANNUAL PAYMENT FOR 1999-2000 TO BE PAID TO THE RECEIVER GENERAL FOR CANADA BY THE PROVINCE OF NEWFOUNDLAND

| | Operation | Construction | Total |
|---|---|---|---|
| a) Streamflow and water level installations: Island | $145,738.7 | | $145,738.72 |
| b) Streamflow and water level installations: Labrador | $2,195.1 | | $2,195.07 |
| c) Sediment installations | | | $0.00 |
| d) Humber met Stations | $4,686.1 | | $4,686.13 |
| e) Churhill Falls Labrador Corp. | $115,000.0 | | $115,000.0 |
| Total Annual Payment | | | $267,619.93 |

M. G. Goebel
Director, Water Resources Management Division
Department of Environment and Labour

Administrator for Province

W. S. Appleby
Director
Atmospheric Environment Branch

Administrator for Canada

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# APPENDIX III

MINUTES
WATER QUANTITY AND WATER QUALITY
COORDINATING COMMITTEE MEETINGS

**CANADA-NEWFOUNDLAND**
**AGREEMENT ON WATER QUANTITY SURVEYS**

**ANNUAL CO-ORDINATORS MEETING**

**ST. JOHN'S, NEWFOUNDLAND**
**JUNE 30, 1999**

**OPENING REMARKS:** Bill Brimley/Martin Goebel
Organization Changes

Due to an Alternate Service Delivery review, the federal Atmospheric Environment Branch is proposed to become the Meteorological Service of Canada (MSC) and the creation of the Atmospheric Environment and Water Survey Directorate.

Provincially there are no changes in structure to the Newfoundland & Labrador, Environment and Labour ,Water Resources Division or its program.
Environment and Labour ADM - Ken Domonie
E&L investigations - Bob Picco plus 2 staff
XWave is providing the information technology, computer support and assessment of computer technology for the provincial government.

**REVIEW OF SCHEDULE "D" and "A"**

Haseen noted that the credit of $10K from Provincial Government had not been reflected in the Schedule D.
Fed govt. Invoice # 70204577 Feb 9,1999; signed on Feb 23, 1999 by Province
Action: Bill to update schedule D and send for signature.
This year Bill plans to send two invoices for schedule D 1st August: 2nd December

Action: review and update Schedule "A"

**MODERNIZATION**

All hydrometric stations are modernized with digital loggers. Approximately 90% of network on real time GOES transmission.

Three copies of HYDAT CD were provided to province.

**CONTRACTS:**
**Labrador Hydro Project:**
- network:

9 stations installed: five new in the upper Churchill basin, two new in the lower Churchill basin and two reactivated. List of stations in reconnaissance/construction report

- reconnaissance, construction:

  Action: provide province with copy

- contract:

Administrators of the Canada-Newfoundland Hydrometric Agreement to negotiate a long-term annual operation and maintenance cost.

- invoicing:

Invoicing for all LHP activity to March 1999 submitted. Current charges for field and office work since April 1 not submitted. It will become part of the regular quarterly invoicing charges after agreement is reached with LHP

- activity to date

Activity summarized detailing initial and on-going field and office duties.

- data collected:

Summary of data collected and stage of processing presented

**Voiseys Bay:**

- network:

Present network consist of 6 stations; the initial 3 installed in 1995 and three new stations installed in August 1998 in the Headwater Pond area. In addition to regular network duties on field visits, extra work is often carried out in support of assessment projects requiring hydrometric data.

- stations discontinued:

  Three stations installed in the "Option 5"area in 1997 was discontinued

- stations added

  See "network" above

- contract

Contract for continuing the operation and maintenance of the hydrometric network in Voiseys Bay has been secured for 1999.

**Newfoundland Hydro:**

- contracts:

Contracts for operating gauging stations at 3 stations - Grey River, White Bear River and Churchill River at Muskrat Falls.

**Heritage Canada:**

- contract:

Northwest River at Terra Nova National Park is operated under an agreement with Heritage Canada. Annual cost is as per the annual operating cost calculated in the Canada-Newfoundland cost sharing agreement.

- Classification of contract stations:

  Contract stations to be included in the schedule "A", classification identification to be determined

**STAR LAKE** - new hydrometric station, climate station

Preliminary reconnaissance conducted on river flowing into the North end of Star Lake. Station is in response to the original station flooded out by the Star Lake hydro development. Construction is projected to be in 2000.

**ABITIBI CONSOLIDATED** - Millertown dam - proposed station by company

Research is under-way to develop a system to retrieve data via satellite phone at Millertown dam at the outlet of Red Indian Lake. Request from Abitibi Consolidated to design a program to collect water level and meteorological data.

**Y2K** field and office instrumentation is undergoing evaluation for year 2000 roll-over. This required extensive inventory of firmware, software and hardware. Compliancy sign-off will be completed for each station during 1999.

**STAFFING:** With the added commercial work that appears to be coming out way for the next 5 years Bill Appleby has agreed to use this to fund a new position with the idea that there will be retirements before the commercial work runs out. This will help relieve the succession planning problems envisioned as the senior workforce leaves.

**WATER QUALITY** - Tom Pollock

- No changes are expected in water quality analysis work, carried out by Burlington and Moncton Laboratories of Environment Canada. Samples will be analysed as per 1999-00 annual work schedule.

- Joe Pomroy and Paul Barnable are working on the Main River Project in conjunction with other partners.

- Environment Canada has processed water quality data collected during 1995 to 99. All data files have been transferred to the Water resources Management Division for further processing and integration into the main water quality database.

- All backlogged annual agreement reports have been cleared and four technical reports (Exploits, Humber, Urban Rivers and Sate of Water Quality) are in progress.

3. Northern Ecosystem Project

- This is new federal government initiative to deal with northern ecosystem. Labrador water quality network will provide useful baseline data for this project.

- Ecological Monitoring and Assessment Network (EMAN) along with its scope and benefits was discussed.

4. Biota and Sediment Monitoring

- This new component of work along with five new stations in Labrador network will be included in 1999-00 annual work schedule. Four to five water bodies will be monitored annually under this new activity. The site specific monitoring details will be included in the annual work schedule. Tom will estimate the additional resource requirements of each party for these two new activities.

5. Communication

- In order to avoid any communication gaps between two parties, the Coordinating Committee of the Agreement will meet twice (March or April meeting in St. John's and October or November meeting in Moncton) in each fiscal year, to review the work progress.

6. Other Monitoring Programs - 1999-00

- About 842 drinking water samples (for THM analysis) will be submitted to St. John's Lab of Environment Canada. Payment of invoices and other procedural details will be worked out through a separate meeting between Haseen and Art.

- About 144 tap water samples (for selected inorganic analysis) will be submitted to Moncton Lab of Environment Canada.

- About 60 municipal wastewater samples will be submitted to Moncton Lab of Environment Canada.

7. Invoicing

- Two invoices in the amount of $15K (first invoice for $10K in July and second invoice for $5K in October) will be submitted to the Water Resources Management Division, to cover the analytical cost for the above mentioned samples.