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CANADA – NEWFOUNDLAND AND LABRADOR

**MEMORANDUM OF AGREEMENT
FOR
WATER QUANTITY SURVEYS**

**REPORT FOR FISCAL YEAR
2016-2017**

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LETTER OF TRANSMITTAL

TO: Jean François Cantin
Administrator for Canada

Haseen Khan
Administrator for the Department of Environment and Conservation,
Newfoundland and Labrador

We hereby submit an annual report for the fiscal year 2016-2017 covering activities under the Memorandum of Agreement for Water Quantity Surveys for Newfoundland and Labrador.

Members Coordinating Committee

Government of Canada



René Savoie
Environment and Climate Change
Canada

Government of Newfoundland and
Labrador



Paula V. Dawe
Dept. of Environment and Conservation,
Newfoundland and Labrador

EXECUTIVE SUMMARY

In 1975, Canada and its provincial partners signed Memoranda of Agreement for Water Quantity Surveys. The purpose of the Agreement is to provide a mechanism to harmonize the hydrometric data collection, processing and distribution, as well as a procedure to cost-share the activities of the program. The evolution of the program has generated the need to renew the Agreement. Discussions on a new Bilateral Agreement have taken place in 2016-2017. The new Agreement will ensure the delivery of an efficient and effective hydrometric monitoring service.

During this reporting period, 3 provincial stations closed. More details on these stations are given in section 4 of this report.

In addition to the regular hydrometric activities, several construction/upgrade projects have taken place during fiscal year 2016-2017.

Currently 108 stations, over 96% of the network, are equipped with satellite telemetry and 1 station has modem telemetry using standard phone lines which means that 97% of the network is reporting in real-time. Only 2 stations have no telemetry.

The actual share of the province (\$817.8K) was 9.0% higher than the original estimate (\$750.6K). Financial details are given in section 5 of this report. Also, the province spent \$15,551 on equipment for the program including batteries, solar regulators, a datalogger, GOES antenna, and pressure transducer which bring the total contribution of the province to \$766.2K.

1. INTRODUCTION

This report covers the activities under the Canada/Newfoundland and Labrador Memorandum of Agreement for Water Quantity Surveys for the fiscal year 2016-2017.

The operation of an integrated network of hydrometric stations in Newfoundland and Labrador is cost-shared between Water Survey Division, Meteorological Service of Canada, Environment Canada (DOE), and Newfoundland and Labrador, Department of Environment and Conservation under a Memorandum of Agreement (MOA).

The core of this report has been divided in 5 main sections:

The *Hydrologic Conditions* section provides a brief description of the hydrologic conditions that were encountered during 2016-2017.

The *Coordinators Meeting* section highlights the discussions undertaken during the year.

The *Network Characteristics* section includes a brief summary of the changes from the previous year. Also available is a breakdown of the responsibility classification for each category as well as a description of the other operational activities such as sediment, real-time, etc.

The *Operations* section includes a brief description of the operational activities for the year. This section lists the details of partner shares and invoices issued, as agreed to in Schedule D Estimates (Appendix B).

The report also includes a section on *Construction and Projects* which contains a brief description of the special projects.

In addition, the following Appendices have been included:

Appendix A SCHEDULE C STATION LISTING 2016-2017
Appendix B SIGNED SCHEDULE D 2016-2017

2.0 HYDROLOGIC CONDITIONS

Streamflow and Water Level Conditions

Below are flow tables based on Apr-Dec 2016 approved data and Jan-Mar 2017 preliminary data for five major rivers in Newfoundland and Labrador. Historical Extremes updated to 2016 data. The final information can be found online for all monitored sites in Newfoundland and Labrador at: www.wateroffice.ec.gc.ca

Rocky River 02ZK001 (Eastern NL) (Drainage Area 301 KM2)

Year 2016/2017	MEAN FLOW (M/3S)	FOR THE MONTH		HISTORICAL EXTREMES **			
		MAXIMUM (DAY)	MINIMUM (DAY)	MONTHLY		DAILY	
				MAXIMUM (YEAR)	MINIMUM (YEAR)	MAXIMUM (YEAR)	MINIMUM (YEAR)
April	21.2	92.7	6.73	35.8	7.89	133	1.8
2016		(2)	(20)	(1964)	(1979)	(2004)	(1959)
May	8.58	26.9	3.38	25.7	3.51	91.6	1.5
2016		(7)	(25)	(1985)	(1962)	(1985)	(1962)
June	9.8	27.8	3.41	18.5	2.04	87.1	0.65
2016	E	(14)	(8)	(1990)	(1957)	(1988)	(1951)
July	2.79	6.08	1.5	13.8	0.81	93.9	0.42
2016	D	(1)	(31)	(1981)	(1949)	(1988)	(1949)
August	5.11	26.7	1.16	30.6	0.548	199	0.2
2016		(8)	(4)	(1970)	(1949)	(2007)	(1950)
September	8.05	47.9	3.44	19.6	0.628	216	0.24
2016		(30)	(18)	(2004)	(1961)	(2004)	(1961)
October	13.9	43.6	5.38	27.2	3.68	124	0.69
2016		(23)	(9)	(1970)	(1949)	(1953)	(1961)
November	19.8	49.1	5.96	25.8	3.95	125	1.9
2016	E	(22)	(16)	(1956)	(1948)	(1956)	(1948)
December	16.9	64.8	6.87	31.1	7.53	174	2.6
2016		(31)	(16)	(1953)	(1986)	(1953)	(1961)
January	18.8	38.6	5.72	28.7	4.77	146	1.8
2017		(9)	(23)	(1952)	(1988)	(1951)	(2010)
February	13.7	54.1	5.3	36.9	2.26	294	1.2
2017		(27)	(8)	(1962)	(1975)	(1962)	(1961)
March	16.8	46	6.86	39.8	3.2	200	0.93
2017		(16)	(28)	(1994)	(1963)	(1994)	(1963)

Deficiency for the period or daily number. 25% are less than the lower quartile (below normal)

Excessive for the period or daily number. 25% are greater than the upper quartile (above normal)

Record for the period or daily number (Preliminary)

Gander River 02YQ001 (Central NL)
(Drainage Area 4400 KM2)

Year	MEAN FLOW	FOR THE		HISTORICAL EXTREMES **			
2016/2017	(M/3S)	MONTH					
		MAXIMUM	MINIMUM	MONTHLY		DAILY	
		(DAY)	(DAY)	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM
				(YEAR)	(YEAR)	(YEAR)	(YEAR)
April	226	309	67.7	513	44.4	925	22.8
2016		(12)	(1)	(1987)	(1967)	(1993)	(1950)
May	185	340	92.2	451	90.3	761	50.4
2016		(11)	(31)	(1967)	(1958)	(2001)	(2006)
June	93.9	64.1	140	198	37.7	336	18.1
2016		(9)	(19)	(2009)	(1979)	(2010)	(1979)
July	105	147	64.9	148	13.9	206	9
2016	E	(14)	(31)	(2010)	(1975)	(2006)	(1975)
August	37.7	77.4	21.7	179	6.92	378	4.8
2016		(31)	(26)	(1980)	(1987)	(1980)	(1987)
September	83.4	60.9	116	196	4.16	527	2.8
2016		(26)	(2)	(1984)	(1961)	(2004)	(1961)
October	319	920	85.9	269	9.88	597	3.3
2016	ER	(13) R	(9)	(1981)	(1950)	(2003)	(1961)
November	174	266	95.8	242	37.2	398	14.8
2016	E	(24)	(18)	(1962)	(1961)	(2003)	(1961)
December	114	224	74	272	36.9	549	28.4
2016		(1)	(19)	(2004)	(1985)	(1977)	(1985)
January	85.8	108	68.5	352	36.3	1170	25.3
2017		(17)	(31)	(1983)	(1985)	(1983)	(1985)
February	42.6	62.7	32.8	288	18.6	688	14.8
2017		(1)	(25)	(1969)	(1961)	(1984)	(1961)
March	72.1	88.1	42.3	275	17.2	560	9.8
2017		(25)	(1)	(1988)	(1950)	(1992)	(1961)

Deficiency for the period or daily number. 25% are less than the lower quartile (below normal)

Excessive for the period or daily number. 25% are greater than the upper quartile (above normal)

Record for the period or daily number (Preliminary)

Upper Humber River 02YL001 (Western NL)
(Drainage Area 2110 KM2)

Year	MEAN FLOW	FOR THE		HISTORICAL EXTREMES **			
2016/2017	(M/3S)	MONTH					
		MAXIMUM	MINIMUM	MONTHLY		DAILY	
		(DAY)	(DAY)	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM
				(YEAR)	(YEAR)	(YEAR)	(YEAR)
April	143	254	20.2	288	19.2	749	9.2
2016	E	(26)	(1)	(1934)	(1967)	(1987)	(1955)
May	199	406	83.4	383	127	879	35.8
2016	D	(10)	(1)	(1993)	(1983)	(1993)	(1983)
June	111	290	23.1	354	25.8	1010	8.5
2016		(10)	(29)	(1933)	(1979)	(1984)	(1951)
July	39.7	92	16.5	140	9.3	555	3.9
2016		(5)	(26)	(1939)	(1987)	(1933)	(1986)
August	32.2	128	7.91	103	3.91	447	1.6
2016		(31)	(18)	(1973)	(1940)	(1973)	(1940)
September	103	258	35.9	162	15.2	504	1.6
2016	E	(11)	(7)	(1944)	(1946)	(1955)	(1940)
October	119	378	20.2	167	24.7	530	8
2016	E	(24)	(9)	(1977)	(1948)	(1957)	(1954)
November	101	201	52.1	177	42.6	813	8.8
2016		(22)	(11)	(1962)	(1986)	(1935)	(1948)
December	29	58.5	15.6	156	11.4	736	6.8
2016		(1)	(15)	(1954)	(1986)	(1935)	(1986)
January	24.2	39.1	17.7	129	10.2	663	4
2017		(16)	(31)	(1950)	(1971)	(1983)	(1990)
February	15	21.3	12.9	106	5.91	348	3.7
2017		(28)	(24)	(1969)	(1975)	(1969)	(1993)
March	31.8	55.4	20	141	7.8	530	4
2017		(5)	(30)	(1979)	(1959)	(1936)	(1992)

Deficiency for the period or daily number. 25% are less than the lower quartile (below normal)

Excessive for the period or daily number. 25% are greater than the upper quartile (above normal)

Record for the period or daily number (Preliminary)

02ZB001 Isle Aux Morts River (South Western NL)
(Drainage Area 205 KM2)

Year 2016/2017	MEAN FLOW (M/3S)	FOR THE MONTH		HISTORICAL EXTREMES **			
		MAXIMUM	MINIMUM	MONTHLY		DAILY	
		(DAY)	(DAY)	MAXIMUM (YEAR)	MINIMUM (YEAR)	MAXIMUM (YEAR)	MINIMUM (YEAR)
April	38.9	226	7.71	46.3	3.62	325	0.696
2016	E	(9)	(7)	(1994)	(1967)	(2003)	(2004)
May	19.7	75.1	6.72	51.1	6.16	226	2.18
2016	D	(9)	(29)	(1994)	(1986)	(1972)	(2010)
June	9.55	74.9	2.22	34.7	2.58	259	0.79
2016		(30)	(28)	(1972)	(1976)	(1985)	(1976)
July	7.93	36.6	1.39	22.7	1.17	102	0.35
2016		(3)	(26)	(1981)	(1989)	(1993)	(1989)
August	7.18	44.9	0.479	17.9	1.39	124	0.34
2016		(30)	(16)	(2007)	(1978)	(1990)	(1978)
September	12.4	46	3.23	23.7	3.53	176	0.71
2016		(9)	(30)	(1998)	(1973)	(2005)	(1969)
October	17.4	88.2	1.14	31	5.65	178	1.13
2016		(11)	(9)	(1972)	(1963)	(1977)	(2001)
November	7.37	29	1.68	38.3	7.7	348	1.6
2016	DR	(28)	(9)	(1967)	(2000)	(2006)	(1970)
December	6.16	37.6	2.59	43	3.13	434	0.83
2016	D	(19)	(9)	(1990)	(1994)	(1990)	(2007)
January	6.64	23.8	1.82	24	1.22	219	0.57
2017		(13)	(31)	(1986)	(1991)	(1986)	(1991)
February	3.47	26.4	1.42	31.1	0.923	243	0.41
2017		(27)	(22)	(1996)	(1975)	(1996)	(1991)
March	4.54	35.4	0.776	38.9	0.737	410	0.34
2017		(2)	(31)	(1979)	(2004)	(1996)	(1987)

Deficiency for the period or daily number. 25% are less than the lower quartile (below normal)

Excessive for the period or daily number. 25% are greater than the upper quartile (above normal)

Record for the period or daily number (Preliminary)

03QC001 Eagle River (Labrador)
(Drainage Area 10900 KM2)

Year	MEAN FLOW	FOR THE		HISTORICAL EXTREMES **			
2016/2017	(M/3S)	MONTH					
		MAXIMUM	MINIMUM	MONTHLY		DAILY	
		(DAY)	(DAY)	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM
				(YEAR)	(YEAR)	(YEAR)	(YEAR)
April	90.8	292	30.4	311	8.33	2460	7.2
2016	E	(30)	(3)	(2010)	(1993)	(1983)	(1993)
May	1060	1620	298	1400	106	2690	11.8
2016	E	(27)	(1)	(1971)	(1967)	(1971)	(1975)
June	675	1050	407	1810	265	2990	127
2016		(1)	(29)	(1985)	(2005)	(1985)	(2005)
July	318	608	170	638	119	1330	71.4
2016		(4)	(22)	(1985)	(1976)	(1980)	(1976)
August	320	632	164	495	102	1320	64
2016	E	(11)	(29)	(1989)	(1988)	(1967)	(2008)
September	167	187	152	521	84.1	827	59
2016		(1)	(7)	(1976)	(1984)	(1976)	(1984)
October	187	355	127	515	100	705	78.4
2016		(27)	(18)	(1978)	(1973)	(1966)	(1973)
November	232	388	138	488	65.3	695	51
2016		(24)	(15)	(1995)	(2002)	(1980)	(1974)
December	169	256	134	218	36.3	410	27.5
2017	E	(1)	(31)	(1995)	(1974)	(2005)	(1974)
January	97.6	123	75.6	98.9	22.4	108	19
2016	E	(1) R	(31)	(1969)	(1975)	(1969)	(1993)
February	61.1	74.4	51.6	86.2	14.9	90.6	11.8
2017	E	(1)	(28)	(1969)	(1993)	(1969)	(1993)
March	37	40.7	34.5	78.7	9.64	119	8.2
2017		(1)	(31)	(1969)	(1993)	(1979)	(1993)

Deficiency for the period or daily number. 25% are less than the lower quartile (below normal)

Excessive for the period or daily number. 25% are greater than the upper quartile (above normal)

Record for the period or daily number (Preliminary)

3.0 COORDINATORS MEETINGS

The coordinators met in person once and frequent e-mail correspondence and conference calls took place in 2016-2017. Discussions range from operating cost, capital plan, network analysis and bilateral agreement.

4.0 NETWORK CHARACTERISTICS

Water Survey of Canada operates 108 hydrometric stations in Newfoundland and Labrador. The station classifications are listed in the next Table.

In 2016-2017 3 provincial stations were decommissioned:

03OE012 CHURCHILL RIVER BELOW GRIZZLE RAPIDS
03OA010 FLORA CREEK BELOW FLORA LAKE
03OB004 JAMES CREEK ABOVE BRIDGE

In 2016-2017 4 stations provincial stations were added:

02ZG006 OUTFLOW OF GREBES NEST POND
02ZG007 OUTFLOW OF UNNAMED POND SOUTH OF LONG POND
03OE015 CHURCHILL RIVER MID POOL
02YO019 BADGER BROOK BELOW FOOT BRIDGE

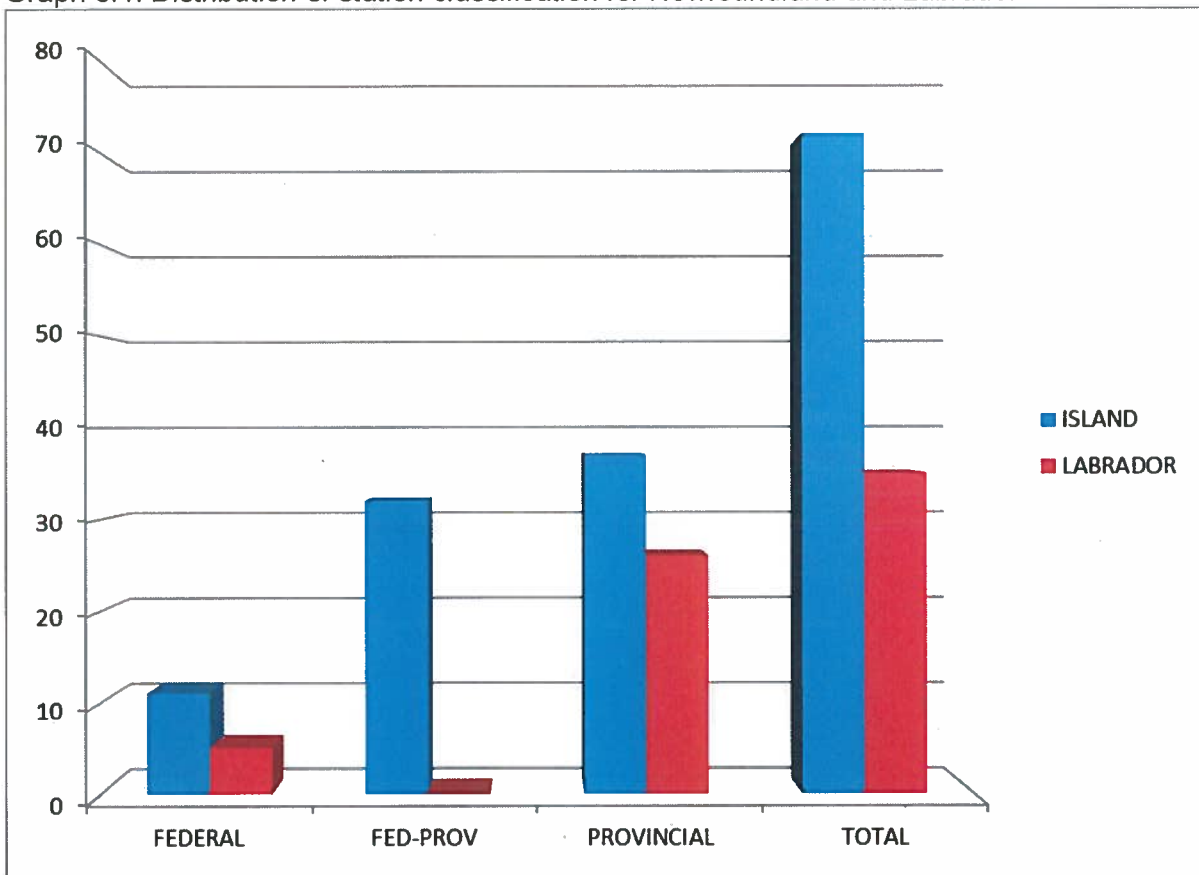
Water Survey of Canada also operates 5 precipitations stations and takes water samples at 7 different sites for water quality purpose on behalf of the Newfoundland and Labrador Department of Environment and Conversation. These sites are converted in station units in order to have their cost calculated under this agreement.

Under the Canada–Newfoundland and Labrador Memorandum of Agreement, 108 stations were operated in 2016-2017. The complete station list is available in Appendix A. The stations classifications are as follow:

Table 3.1: *Station classification based on Newfoundland and Labrador*

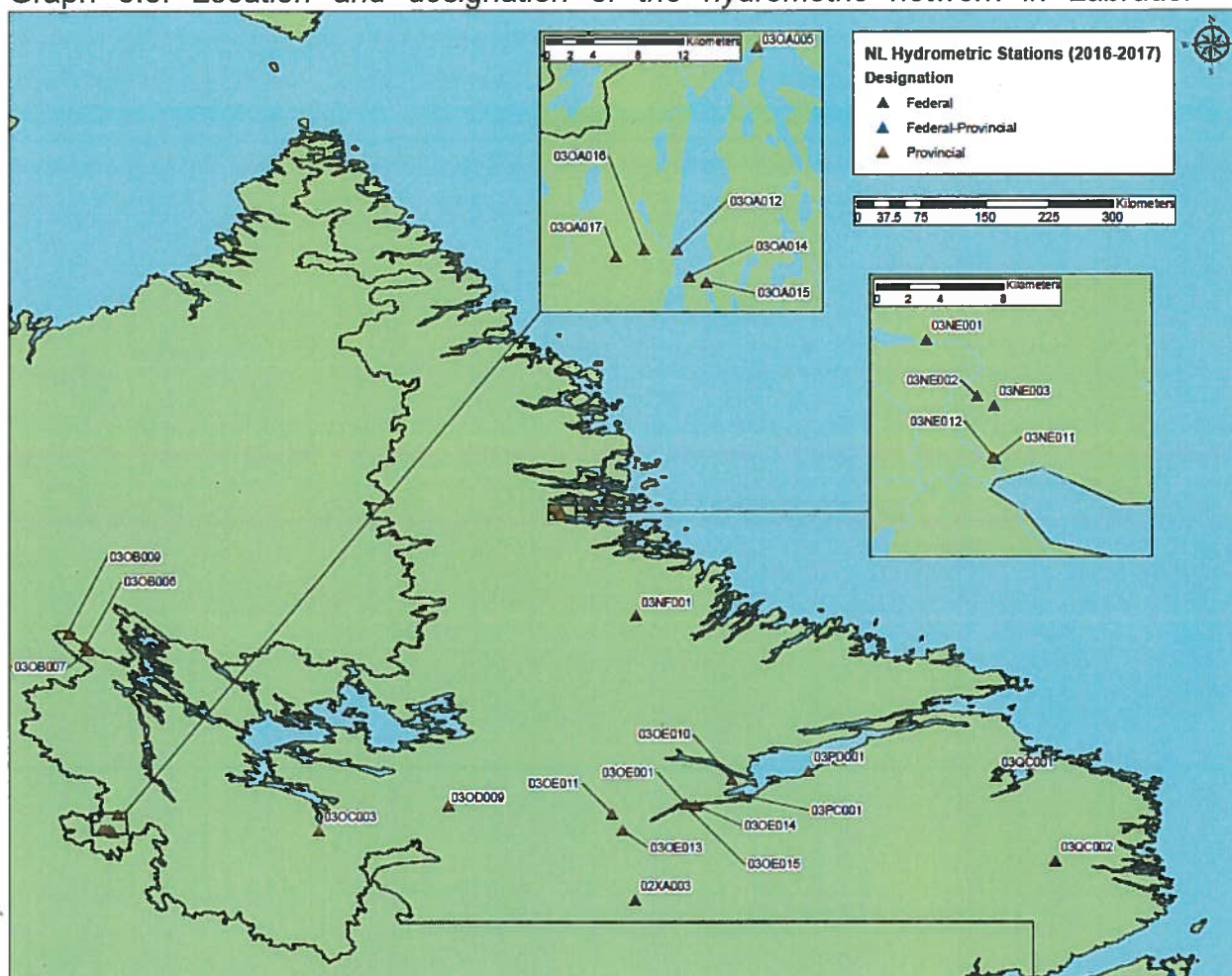
NEWFOUNDLAND AND LABRADOR			
CLASSIFICATION	ISLAND	LABRADOR	TOTAL
FEDERAL	11	5	16
FED-PROV	32	0	32
PROVINCIAL	36	24	60
TOTAL	79	30	108

Graph 3.1: *Distribution of station classification for Newfoundland and Labrador*





Graph 3.3: Location and designation of the hydrometric network in Labrador



5.0 OPERATIONS

A true costing approach has been utilized to derive the station costs for this fiscal year in accordance with the agreement. The costs were apportioned based on the station classification and then totaled to determine each parties share. Employee benefit costs on salary and data management costs have been included and attributed to all parties as agreed on by the National Administrator's meeting in Quebec City, October 1999.

The Newfoundland and Labrador Department of Environment and Conservation was credited with the total amount of \$19,405 for the contribution to the Partnership. The details of those contributions are listed in the next table.

The following table summarizes the estimated and the actual costs to operate the provincial share of the stream gauging network in Newfoundland and Labrador for 2016-2017.

STREAMFLOW AND WATER LEVEL COSTS FOR NEWFOUNDLAND AND LABRADOR

	2016/17	2016/17
OPERATIONAL	Signed Schedule D	Actual Costs
Salaries (Including benefits 20%)	\$451,986	\$ 489,901
Hydrometric Operations O&M	\$318,063	\$347,347
Real Property Credit	-\$7,750	-\$7,750
Real Time Web Cam	-\$7,350	-\$7,350
Weather Station	-\$4,305	-\$4,305
Equipment purchased by the province *	\$15,551	
TOTALS	\$766,195	\$817,843

* The equipment purchased by the province was not part of the signed schedule D but it accounted as a provincial contribution to the program.

SUMMARY OF TOTAL EXPENDITURE 2016-2017

CATEGORY	FEDERAL	NEWFOUNDLAND AND LABRADOR	TOTAL
Hydrometric Operations (O&M)	\$157,090	\$327,942	\$485,032
Capital (Hydroacoustic Equipment)	0	0	0
Capital (Vehicles)	0	0	0
Salaries +20%	\$194,318	\$ 489,901	\$684,219
TOTAL	\$351,408	\$817,843	\$1,169,251

The signed version of the Schedule D can be found in the Appendix B

O&M expenditures details

Item	ACTUAL EXPENDITURE (Fiscal year 16/17)
010 - SALARIES AND WAGES	9,027
025 - TRAVEL-PUBLIC SERVANTS	64,424
082 - SPECIAL FEES AND SERVICES	169
052 - RENTAL OF INFORMATICS EQUIPMENT	1,804
122 - ACQUISITION OF INFORMATICS EQUIPMENT	2,303
117 - MISCELLANEOUS GOODS AND PRODUCTS	10,771
040 - BUSINESS SERVICES	4,076
022 - TELECOMMUNICATION SERVICES	2,741
044 - TRAINING AND EDUCATIONAL SERVICES	3,988
065 - REPAIR OF MACHINERY AND EQUIPMENT	25,745
021 - POSTAGE, FREIGHT, EXPRESS, AND CARTAGE	3,675
115 - PERSONAL GOODS	3,641
043 - SCIENTIFIC AND RESEARCH SERVICES	7,864
121 - ACQUISITION OF MACHINERY	651
046 - PROTECTION SERVICES	1,319
112 - MINERAL PRODUCTS	41,392
070 - UTILITY SERVICES	1,519
056 - RENTAL OF AIRCRAFT AND SHIPS	157,667
126 - ACQUISITION OF OTHER VEHICLES AND PARTS	112
060 - REPAIR OF ENGINEERING WORKS	564
124 - ACQUISITION OF EQUIPMENT	3,894
Total	347,347

6.0 CONSTRUCTION & SPECIAL PROJECTS

All construction projects and hydrometric station equipment purchases (data loggers, transducers, GOES transmitter upgrades) for life cycle management (LCM) are authorized in advance by the Newfoundland and Labrador Department of Environment and Conservation on a case by case basis. Annual maintenance was conducted to ensure minimal data loss and maintain data quality. No major construction projects were completed for 2016-2017.

Appendix A

SCHEDULE C 2016-2017 – STATION LIST

FEDERAL

02ZF001	BAY DU NORD RIVER AT BIG FALLS
02YQ001	GANDER RIVER AT BIG CHUTE
02YJ001	HARRYS RIVER BELOW HIGHWAY BRIDGE
02YL003	HUMBER RIVER AT HUMBER VILLAGE BRIDGE
02ZB001	ISLE AUX MORTS RIVER BELOW HIGHWAY BRIDGE
02YG001	MAIN RIVER AT PARADISE POOL
02YD002	NORTHEAST BROOK NEAR RODDICKTON
02ZK001	ROCKY RIVER NEAR COLINET
02YS003	SOUTHWEST BROOK AT TERRA NOVA NATIONAL PARK
02YC001	TORRENT RIVER AT BRISTOL'S POOL
02YL001	UPPER HUMBER RIVER NEAR REIDVILLE
03QC002	ALEXIS RIVER NEAR PORT HOPE SIMPSON
03OE001	CHURCHILL RIVER ABOVE UPPER MUSKRAT FALLS
03QC001	EAGLE RIVER ABOVE FALLS
02XA003	LITTLE MECATINA RIVER ABOVE LAC FOURMONT
03NF001	UGJOKTOK RIVER BELOW HARP LAKE

FEDERAL - PROVINCIAL

02YA002	BARTLETTS RIVER NEAR ST. ANTHONY
02ZH002	COME-BY-CHANCE RIVER NEAR GOOBIES
02ZE004	CONNE RIVER AT OUTLET OF CONNE POND
02YO011	EXPLOITS RIVER BELOW NOEL PAULS BROOK
02ZG001	GARNISH RIVER NEAR GARNISH
02ZC002	GRANDY BROOK BELOW TOP POND BROOK
02YO008	GREAT RATTILING BROOK ABOVE TOTE RIVER CONFLUENCE
02YE001	GREAVETT BROOK ABOVE PORTLAND CREEK POND

02ZA002	HIGHLANDS RIVER AT TRANS CANADA HIGHWAY
02YR003	INDIAN BAY BROOK NEAR NORTHEAST ARM
02YK002	LEWASSEECHJEECH BROOK AT LITTLE GRAND LAKE
02YN002	LLOYDS RIVER BELOW KING GEORGE IV LAKE
02YR001	MIDDLE BROOK NEAR GAMBO
02ZK002	NORTHEAST RIVER NEAR PLACENTIA
02YO006	PETERS RIVER NEAR BOTWOOD
02ZH001	PIPERS HOLE RIVER AT MOTHERS BROOK
02ZG004	RATTLE BROOK NEAR BOAT HARBOUR
02YL005	RATTLER BROOK NEAR MCIVERS
02YQ005	SALMON RIVER NEAR GLENWOOD
02ZG003	SALMONIER RIVER NEAR LAMALINE
02ZM009	SEAL COVE BROOK NEAR CAPPAHAYDEN
02YK005	SHEFFIELD BROOK NEAR TRANS CANADA HIGHWAY
02ZJ003	SHOAL HARBOUR RIVER NEAR CLARENVILLE
02ZM016	SOUTH RIVER NEAR HOLYWOOD
02ZJ001	SOUTHERN BAY RIVER NEAR SOUTHERN BAY
02YO012	SOUTHWEST BROOK AT LEWISPORTE
02YM003	SOUTH WEST BROOK NEAR BAIE VERTE
02YS005	TERRA NOVA RIVER AT GLOVERTOWN
02YL008	UPPER HUMBER RIVER ABOVE BLACK BROOK
02ZM018	VIRGINIA RIVER AT PLEASANTVILLE
02YS006	NORTHWEST RIVER AT TERRA NOVA NATIONAL PARK
02ZM008	WATERFORD RIVER AT KILBRIDE

PROVINCIAL

02ZL005	BIG BROOK AT LEAD COVE
02YK008	BOOT BROOK AT TRANS-CANADA HIGHWAY
02YL011	COPPER POND BROOK NEAR CORNER BROOK LAKE
02YL009	CORNER BROOK LAKE AT LAKE OUTLET

02YL007	DEER LAKE NEAR GENERATING STATION
02YO015	EAST POND BROOK BELOW EAST POND
02YO014	TRIBUTARY TO GILL'S POND BROOK
02YK010	GRAND LAKE EAST OF GRAND LAKE BROOK
02YO013	EXPLOITS RIVER AT BADGER
02YO016	EXPLOITS RIVER NEAR MILLERTOWN
02YO018	EXPLOITS RIVER at Charlie Edwards Point
02YO017	Red Indian Lake at Indian Point
02ZC004	GRANITE LAKE AT EAST END
02ZD002	GREY RIVER NEAR GREY RIVER
02YM004	INDIAN BROOK DIVERSION ABOVE BIRCHY LAKE
02ZM020	LEARYS BROOK AT PRINCE PHILIP DRIVE
02ZK003	LITTLE BARACHOIS RIVER NEAR PLACENTIA
02ZK004	LITTLE SALMONIER RIVER NEAR NORTH HARBOUR
02ZK007	RATTLING BROOK BIG POND
02ZK006	RATTLING BROOK BELOW BRIDGE
02ZK008	Rattling Brook below Plant Discharge
02ZM006	NORTHEAST POND RIVER AT NORTHEAST POND
02ZM022	RAYMOND BROOK AT OUTLET OF BAY BULLS BIG POND
02ZJ002	SALMON COVE RIVER NEAR CHAMPNEYS
02ZL004	SHEARSTOWN BROOK AT SHEARSTOWN
02YL004	SOUTH BROOK AT PASADENA
02YL012	Steady Book above Confluence of Humber river
02ZN002	ST. SHOTTS RIVER NEAR TREPASSEY
02YN004	STAR BROOK ABOVE STAR LAKE
02YR004	TRITON BROOK ABOVE GAMBO POND
02YN005	VICTORIA LAKE AT NORTHEAST CONTROL STRUCTURE
02ZD003	R.R. POND NEAR GRANITE LAKE
02YF002	CAT ARM RESERVOIR NEAR SPILLWAY

02ZC003	WHITE BEAR RIVER ABOVE BIG INDIAN BROOK
02ZG006	OUTFLOW OF GREBES NEST POND
02YO013	Badger Brook below Foot Bridge
02ZG007	OUTFLOW OF UNNAMED POND SOUTH OF LONG POND
03OC003	ATIKONAK RIVER ABOVE PANCHIA LAKE
03OE010	BIG POND BROOK BELOW BIG POND
03NE003	CAMP POND AT SOUTHWEST END
03NE002	CAMP POND BROOK BELOW CAMP POND
03OA012	Luce Brook below Tinto Pond
03OA014	Wabush Lake at Dolomite Rd
03OA005	Wabush Lake at Lake Outlet
03OE011	PINUS RIVER
03NE011	REID BROOK Below Tributary
03NE001	REID BROOK AT OUTLET OF REID POND
03NE012	TRIBUTARY to Reid Brook
03OE013	CHURCHILL RIVER ABOVE GRIZZLE RAPIDS
03OE014	CHURCHILL RIVER 6.15KMS BELOW MUSKRAT FALLS
03PD001	Lake Melville East of Little River
03PC001	Churchill River at English Point
03OB006	Goodream Creek 2KM Northwest of Timmins 6
03OB007	Elross Creek below Pinette Lake Inflow
03OA015	Flora Creek below Trans Labrador Highway
03OE015	Churchill River at Mid Pool
03OB009	Joan Brook below outlet of Joan Lake
03OA016	Dumbell stream above Dumbell Lake
03OD008	Churchill River Above Churchill Falls Tailrace
03OD009	Churchill River below Metchin River

Province Precipitation Gauges

	Adies Lake
	Burgeo Road
	Glover Island
	Hinds Lake
	Howley Road

**ASHKUI WATER QUALITY
SAMPLING SITES**

	CARTER BASIN
	CAPE CARIBOU RIVER
	Dominion Lake
	Kenamu River
	Seal Lake Narrows
	Susan River
	Wuchusk lake
	NASKAUI RIVER BELOW NASKAUI LAKE

Appendix B SIGNED SCHEDULE D 2016-2017

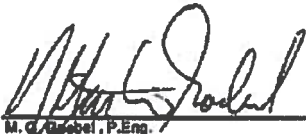
NEWFOUNDLAND AND LABRADOR 2016-2017

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 2016-2017 TO BE PAID TO THE RECEIVER
GENERAL FOR CANADA BY THE PROVINCE OF NEWFOUNDLAND AND LABRADOR**


NEWFOUNDLAND and LABRADOR SHARE	O&M	Salary	Capital	Total
a) Streamflow and Water Level Installations - Island	\$81,228	\$279,039	\$0	\$360,268
b) Streamflow and Water Level Installations - Labrador	\$226,702	\$172,947	\$0	\$399,649
c) Humber Met Stations	\$10,133	\$0	\$0	\$10,133
d) Construction & Major Maintenance (LCM)	\$0	\$0	\$0	\$0
e) Station Decommissioning	\$0	\$0	\$0	\$0
f) Hydrometric Workstation	\$0	\$0	\$0	\$0
g) Real Property Credit for Federal stations on Provincial Crown Land	(\$7,750)	\$0	\$0	-\$7,750
h) Real Time Webcam	(\$7,350)	\$0	\$0	-\$7,350
i) Weather Stations	(\$4,305)	\$0	\$0	-\$4,305
j) Basin Delineation & Information	\$0	\$0	\$0	\$0
k) Special Projects*	\$0	\$0	\$0	\$0
TOTAL	\$286,658	\$451,986	\$0	\$738,644



M. G. Gabel, P.Eng.
Assistant Deputy Minister
Environment Branch
Department of Environment and Conservation
Administrator for Province of Newfoundland and Labrador

JUL 27 2016

Date



Dr. Alain Platoniro, P.Eng.
Director
National Hydrological Service
Meteorological Service of Canada
Environment and Climate Change Canada
Administrator for Canada

2016

Date

* Special Projects that contribute to the ongoing integrity of the program will be credited upon agreement by both parties