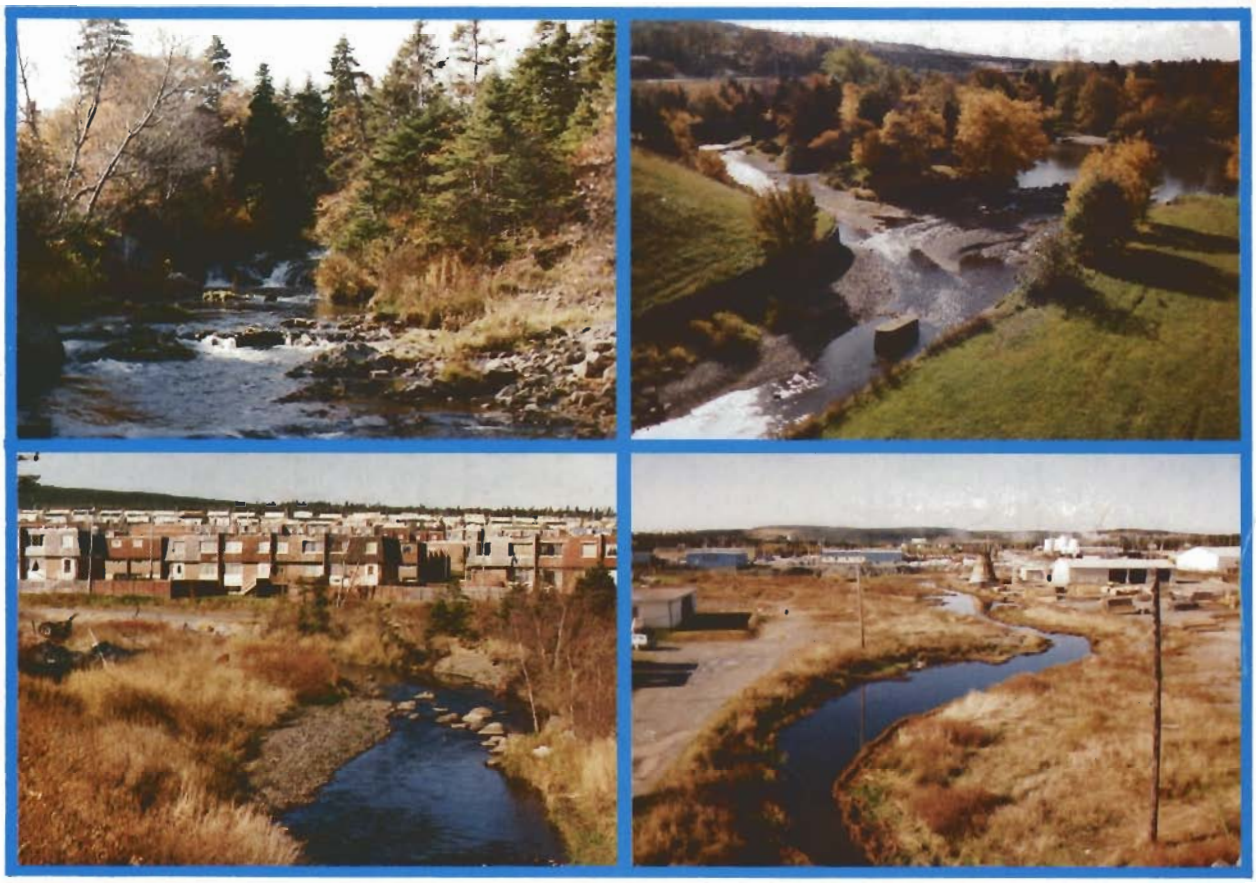
Government of Newfoundland and Labrador
Department of Environment
Water Resources Division
St. John's, Newfoundland

Government of Canada
Environment Canada
Inland Waters Directorate
Dartmouth, Nova Scotia

National Water Research Institute
Burlington, Ontario

DATA SUMMARY REPORT
VOL. 2



Urban Hydrology Study of the Waterford River Basin

TECHNICAL REPORT No.
UHS-WRB 1.9

WATERFORD RIVER BASIN URBAN HYDROLOGY STUDY

DATA SUMMARY REPORT

A REPORT COMPILED AND PREPARED BY W.A. BRIMLEY,

WATER RESOURCES BRANCH, INLAND WATERS DIRECTORATE (ATLANTIC),

ENVIRONMENT CANADA,

FOR THE HYDROMETRIC TASKS SUB-COMMITTEE

March, 1987

Volume 2 of 2

Environment Canada | Environnement Canada
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Water Resources Branch,
Inland Waters and Lands,
4th Floor, Queen Square,
45 Alderney Drive,
Dartmouth, Nova Scotia
B2Y 2N6

March 12, 1987

Your file Votre référence

Our file Notre référence

5100-15

Dr. Wasi Ullah, Chairman,
Technical Committee,
Waterford River Basin Urban Hydrology Study,
Newfoundland Department of the Environment,
P. O. Box 4750,
St. John's, Newfoundland
A1C 5T7

Dear Dr. Ullah:

I am pleased to enclose a copy of the final report of the Hydrometric Tasks Sub-Committee entitled "Waterford River Basin Urban Hydrology Study - Data Summary Report."

Yours truly,

D.K. Randall, Chairman
Hydrometric Tasks Sub-Committee

WAB/sl

Encl.

Canada

ABSTRACT

All data collected under the direction of the "Sub-Committee on Hydrometric Tasks for the Waterford River Basin Urban Hydrology Study" has been assembled and reproduced for use by any follow-up studies on the subject. Data in the summary include Precipitation, Temperature, Snowfall accumulation, Discharge, Water levels and Suspended Sediment

RESUME

Le sous-comité chargé des aspects de l'hydrometrie pour l'Etude sur l'hydrologie urbaine du bassin de la rivière Waterford a compilé et imprimé toutes les données collectionnées sous sa direction afin de les mettre à la disposition d'études ultérieures. Les données incluses dans cette compilation comprènnent la précipitation, la température, l'accumulation nivale, l'écoulement, les niveaux d'eau et les sédiments en suspension.

PREFACE

The Waterford River Basin Urban Hydrology Study, developed as a co-operative effort between the Governments of Canada and the Province of Newfoundland, was proposed by the Newfoundland Department of Environment in response to watershed management problems that had resulted from urbanization of the Waterford River Basin. Among such problems, negative effects of urbanization on both water quality and quantity were found so serious that the Newfoundland Department of Environment identified the Waterford River Basin as a high priority area.

The five-year study begun in 1980 was completed in March, 1985. Primary objectives of the study were to develop environmentally acceptable criteria for urban development in Newfoundland and to utilize the study results directly in the urban planning process in the Province. The specific objectives of the study, as outlined in the report "Waterford River Basin - Urban Hydrology Study Plan" were as follows:

(1) To examine the processes leading to changes in the hydrologic regime of the Waterford River watershed. This should include evaluation and monitoring of major hydrologic changes caused by urbanization, the study of precipitation-runoff processes, and the study of various forms of pollution originating in the urban areas of the watershed.

(2) To provide a hierarchy of mathematical models describing hydrologic processes in the watershed. Such models should deal with both water quantity and quality, and should be capable of simulating the impact of urbanization on the water resources in the studied basin.

(3) To recommend solutions to specific water management problems in the studied basin and to develop guidelines for implementation of similar solutions elsewhere in Newfoundland. Furthermore, planning and management criteria should be developed for those aspects of the urban development which related to the environmental protection of the affected water resources.

The complexity of the study called for a comprehensive approach which included hydrometric surveys, hydrological modelling, groundwater studies, biological surveys, water quality assessment, investigations of flooding, and land use and socio-economic analyses.

The study was administered by a Steering Committee appointed by the governments of Newfoundland and Canada. To implement the study plan, a Technical Committee consisting of two representatives of each government was established. Subsequently, the Technical Committee appointed sub-committees and working groups to prepare and carry out the workplans for the various components of the Study.

The Report that follows - deals with one such component - the hydrometric tasks.

ACKNOWLEDGEMENTS

The data assembled in this report are the results of the work performed by many dedicated people. It is not possible to name all of the people involved. However, the efforts of the following organizations are hereby acknowledged for their contributions.

1) Atmospheric Environment Service, Environment Canada, St. John's, Newfoundland.

2) Water Resources Division, Department of Environment, Government of Newfoundland and Labrador, St. John's, Newfoundland.

3) Water Survey of Canada Division, Water Resources Branch, Inland Waters Directorate, Environment Canada, St. John's, Newfoundland.

4) Hydraulics Division, National Water Research Institute, Environment Canada, Burlington, Ontario.

5) Water Planning and Management Branch, Inland Waters Directorate, Environment Canada, Dartmouth, Nova Scotia.

6) Water Resources Branch, Inland Waters Directorate, Environment Canada, Dartmouth, Nova Scotia.

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GLOSSARY OF AGENCY ABBREVIATIONS

AES	-	Atmospheric Environment Service, Environment Canada
IWD	-	Inland Waters Directorate, Environment Canada
NDOE	-	Newfoundland, Department of Environment
NWRI	-	National Water Research Institute, IWD
WPM	-	Water Planning and Management Branch, IWD
WQB	-	Water Quality Branch, IWD
WRB	-	Water Resources Branch, IWD
WSC	-	Water Survey of Canada Division, WRB

5.2 Precipitation Event Data

In many cases, the main interest given to the precipitation data occurs when a significant rainfall event is encountered. This is particularly true with most modelling exercises as they are event oriented as opposed to continuous simulations.

Data was extracted from the tipping bucket rain gauges at St. John's West, CDA and the hydrometric gauge 02ZM012 - Waterford River Storm Water Sewer Outfall.

5.2.1 Selected rainfall events - St. John's West, CDA

Data from selected events were extracted from the tipping bucket rain gauge charts of the gauge located at St. John's West, CDA. The data was extracted at 10 minute intervals from the start of each event. These data were input through the computer program RAINFALL which adjusted the data to the standard gauge and accumulated it from the beginning of the storm. The output format was in a form readable by the computer modelling program HYMO.

The data input to and a printout of the program RAINFALL is provided.

```
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0.0 0.0 0.2 0.0 0.2 0.0 0.4 0.2 0.2 0.2 0.4 0.0 0.2 0.2 0.2 0.0 0.2 0.4 0.4
0.4 0.6 0.4 0.6 0.6 0.6 0.4 0.2 0.4 0.2 0.4 0.2 0.2 0.4 0.2 0.2 0.2 0.0 0.0
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0.2 0.2 0.2 0.0 0.2 0.2 0.2 0.2 0.4 0.4 0.0 0.6 0.2 0.2 0.6 0.4 0.2 0.2 0.2
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0.0

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                                                    0.0 0.0 0.2 0.0 0.0 0.0
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0.2 0.2 0.2 0.2 0.4 0.4 0.4 0.2 0.2 0.4 0.2 0.2 0.2 0.4 1.0 1.0 0.8 0.8 1.4
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0.4 0.2 0.2 0.2 0.2 0.2 0.0 0.2 0.2 0.2 0.2 0.0 0.2 0.0 0.2 0.4 0.6 0.8 1.2
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* DATE=11/09/81    TIME=9:00     INTERVAL=10
POINTS=138 FACTOR=1.080
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POINTS=144 FACTOR=2.000
0.0 0.0 0.0 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.4 0.2 0.0 0.0 0.0 0.0 0.0
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POINTS=144 FACTOR=1.900
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0.2 0.0 0.2 0.0 0.2 0.2 0.6 0.6 0.0 0.0 0.0 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0
0.2 0.4 0.4 0.4 0.8 0.2 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
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1.2 0.4 0.2 0.0 0.0 0.0 0.0 0.0 0.2 0.0 0.0 0.0 0.2 2.2 0.0 0.0
POINTS=195 FACTOR=1.238
0.2 0.2 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.4 0.2 0.0 0.2
0.0 0.0 0.0 0.0 0.2 0.0 0.0 1.4 1.6 1.4 1.2 3.0 1.2 3.0 1.2 0.6 0.4 0.4 0.4
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0.0 0.0 0.2 0.0 0.2

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0.6 0.8 0.6 0.8 1.2 0.8
POINTS=065 FACTOR=1.058
 1.0 1.0 1.0 1.0 1.2 0.8 1.0 1.0 1.0 1.0 1.4 1.6 1.4
2.0 1.4 1.8 1.8 1.8 1.8 2.2 2.0 1.4 1.6 1.6 1.4 1.8 1.8 1.6 1.2 1.4 1.8 1.2
1.4 0.8 1.2 1.2 2.2 1.8 2.0 1.6 1.4 1.4 1.4 1.6 1.4 0.6 0.6 0.8 0.4 0.6 0.2
0.4 0.2 0.4 0.2 0.4 0.4 0.4 0.6 0.2 0.2 0.2 0.0 0.2 0.2

* DATE=29/08/74 TIME=24:00  INTERVAL=10
POINTS=187 FACTOR=1.000
.00 .25 .25 .25 .25 .00 .25 .00 .25 .25 .51 .25 .51 .25 .25 .25 .51 .51 .25
.51 .25 .25 .00 .51 .51 .76 .51 .51 .51 .25 .25 .51 .25 .25 .25 .00 .00 .00
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2.03 1.02 .25 .51 1.02 1.02 1.02 1.27 .51 .25 .76 .00 1.02 4.32 1.27 2.79
1.02 1.02 .51 1.02 .51 .51 .00 .25 .25 .25 .00 2.03 .25 .00 .00 .00 .00
.00 .00 .25 .76 1.27 1.52 2.03 .51 .25 .00 .25 .25 .00 .00 .00 .00 .00
.25 .00 .00 .00 .25
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      PROGRAM RAINFAL(INPUT,OUTPUT,TAPE5,TAPE6=OUTPUT,TAPE1)
C THIS PROGRAM READS THE INCREMENTAL RAIN DATA AND ADJUSTS IT BY A
C FACTOR REPRESENTING THE DIFFERENCE BETWEEN THE STANDARD AND T.B.
C RAINFALL GUAGES
C
C EACH PORTION OF THE RAINEVENT CAN BE ADJUSTED . THE ADJUSTED DATA
C IS THEN USED TO PRODUCE AN ACCUMULATIVE MASS RAINFALL
      DIMENSION RAIN(550),FRAIN(550)
C
      CHARACTER*10 ITITLE(8)
C     DATA OUTPUT UNIT -MAG
      MAG=1
C     DATA INPUT UNIT -IN
      IN=5
C     PRINTER OUTPUT UNIT -IOUT
      IOUT=6
C     INITIALIZE CUMMULATIVE COUNTER OF EVENT POINTS
      MPTS=0
C
C READ A ITITLE LINE WHICH EXPLAINS THE DATA
C
      READ (IN,20) ITITLE
20    FORMAT(8A10)
      WRITE(MAG,20) ITITLE
C
C READ IN THE NO. OF DATA POINT TO BE READ AND THE ADJ. FACTOR
C
      READ(IN,30) NPTS,FACTR
30    FORMAT( 7X,I3,8X,F6.0)
C
C  READ RAIN DATA IN FREE FORMAT (LIST DIRECTED)
C
50    READ(IN,*) (RAIN(I),I=1,NPTS)
C
C  ADJUST THE DATA BY THE FACTOR <FACTR>
C
      CALL ADJUST(RAIN,NPTS,FACTR)
C
C  FORM THE DATA INTO AN ARRAY OF ACCUMULATED RAINFALL
C
      CALL ACCUM(RAIN,NPTS,FRAIN,MPTS)
C
C  READ NEXT DATA HEADER RECORD
C
      READ(IN,30,END=100) NPTS,FACTR
      GO TO 50
C
C   MAKE LAST DATA ELEMENT EQUAL TO ZERO TO COMPLY WITH HYMO
C   AND WRITE OUT THE ENTIRE DATA ARRAY
C
100   MPTS=MPTS+1
      FRAIN(MPTS)=0.0
202   WRITE(MAG,203) (FRAIN(I),I=1,MPTS)
203   FORMAT(T20,10F6.1)
      WRITE(MAG,205)
205   FORMAT('*END RAIN')
      END
```

```
      SUBROUTINE ACCUM(RAIN,NPTS,FRAIN,MPTS)
C
C  ACCUMULATE THE RAINFALL DATA BEGINNING FROM THE LAST
C  ENTREE INTO THE ARRAY FRAIN
C
      DIMENSION RAIN(1),FRAIN(1)
      I=MPTS+1
      MPTS=MPTS+NPTS
      IF(I.EQ.1) FRAIN(1) = RAIN(1)
      IF(I.GT.1) FRAIN(I) = FRAIN(I-1) + RAIN(1)
      DO 50 K=2,NPTS
      I=I+1
      FRAIN(I)=FRAIN(I-1) + RAIN(K)
50    CONTINUE
      RETURN
      END
      SUBROUTINE ADJUST(RAIN,NPTS,FACTR)
C
C ADJUST THE RAINFALL DATA BY MULTIPLYING THE ELEMENTS
C  OF THE DATA ARRAY <RAIN> BY THE FACTER <FACTR>
C
      DIMENSION RAIN(1)
      DO 50 I=1,NPTS
      RAIN(I)=RAIN(I)* FACTR
 50   CONTINUE
      RETURN
      END
```

5.2.2 Selected rainfall events - Stormwater Catchment

Data from the tipping bucket rain gauge located at the hydrometric gauge 02ZM012 - Waterford River Storm Water Sewer Outfall was extracted from the charts at two minute intervals. The data are presented by storm event as rainfall intensities (mm/hr) calculated at two minute intervals.

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 16/10/81 TO 17/10/81

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
16/10/81	1401	0.000	0.000	0.000	0.000	0.000	.810	.810	.810	.810	.810
16/10/81	1421	.810	.810	.810	.810	.810	.810	.810	.810	.810	.810
16/10/81	1441	.810	2.400	2.400	2.400	2.400	6.000	6.000	6.000	3.210	3.210
16/10/81	1501	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210
16/10/81	1521	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210	3.210
16/10/81	1541	3.210	3.210	3.210	3.210	3.210	3.210	2.010	2.010	2.010	2.010
16/10/81	1601	2.010	2.010	.990	.990	.990	.990	.990	.990	.990	3.000
16/10/81	1621	3.000	2.400	2.400	2.400	2.400	2.400	1.200	1.200	1.200	1.200
16/10/81	1641	1.200	2.010	2.010	2.010	3.000	3.000	3.000	3.000	3.000	3.000
16/10/81	1701	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	.990
16/10/81	1721	.660	.660	.660	.660	.660	.660	.660	.660	.660	.510
16/10/81	1741	.510	.510	.510	.510	.510	.510	.510	.510	.510	.510
16/10/81	1801	.510	.990	.990	.990	.990	.990	.990	3.420	3.420	3.420
16/10/81	1821	3.420	3.420	3.420	3.420	30.000	3.000	.330	.330	.330	.330
16/10/81	1841	.330	.330	.330	.330	.330	.330	.330	.330	.330	.330
16/10/81	1901	.330	.330	.330	.192	.192	.192	.192	.192	.192	.192
16/10/81	1921	.192	.192	.192	.192	.192	.192	1.920	.192	.192	.192
16/10/81	1941	.192	.192	.192	.192	.192	.192	.192	.192	.192	.192
16/10/81	2001	.192	.192	.192	.192	.180	.180	.180	.180	.180	.180
16/10/81	2021	.180	.180	.180	.180	3.330	3.330	3.330	3.330	3.330	3.330
16/10/81	2041	3.330	3.330	3.330	4.500	4.500	4.500	.450	.450	.450	.450
16/10/81	2101	.450	.450	.450	.450	.450	.450	.450	.450	.450	.450
16/10/81	2121	.102	.102	.102	.102	.102	.102	.102	.102	.102	.102
16/10/81	2141	.102	.102	.102	.102	.102	.102	.102	.102	.102	.102
16/10/81	2201	.102	.102	.102	.102	.102	.102	.102	.102	.102	.102
16/10/81	2221	.102	.102	.102	.102	.102	.102	.102	.102	.102	.102
16/10/81	2241	.102	.102	.102	.102	.102	.102	.102	.102	.102	.102
16/10/81	2301	.102	.102	.102	.102	.102	.102	.102	.102	.102	3.000
16/10/81	2321	10.500	.105	.105	.105	.105	2.010	2.010	2.010	.750	.750
16/10/81	2341	.750	.750	.750	.750	.750	.750	12.000	12.000	3.000	3.000
17/10/81	1	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
17/10/81	21	1.050	1.050	1.050	1.050	1.050	1.050	1.050	3.000	3.000	.942
17/10/81	41	.942	.942	.942	.942	.942	.942	3.000	3.000	1.500	1.500
17/10/81	101	1.650	1.650	6.000	6.000	6.000	6.000	6.000	6.000	6.000	20.010
17/10/81	121	20.010	20.010	10.800	4.800	4.800	4.800	4.800	4.800	10.800	10.800
17/10/81	141	10.800	10.800	10.800	3.000	3.000	1.320	1.320	1.320	1.320	1.320
17/10/81	201	1.320	1.320	1.320	1.320	.231	.231	.231	.231	.231	.231
17/10/81	221	.231	.231	.231	.231	.231	.231	.231	.231	.231	.231
17/10/81	241	.231	.231	.231	.231	.231	.231	.231	.231	.231	.231
17/10/81	301	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
17/10/81	321	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
17/10/81	341	.240	.240	.240	.240	.240	14.400	14.400	14.400	14.400	14.400
17/10/81	401	3.990	3.990	3.990	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 17/10/81 TO 17/10/81

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
17/10/81	701	0.000	0.000	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
17/10/81	721	2.400	2.400	2.400	2.400	.750	.099	.099	.099	.099	.099
17/10/81	741	.099	.099	.099	.099	.099	.099	.099	.099	.099	.099
17/10/81	801	.099	.099	.099	.099	.099	.099	.099	.099	.099	.099
17/10/81	821	.099	.099	.099	.099	.099	.099	.099	.099	.099	.099
17/10/81	841	.099	.099	.099	.099	.099	.099	.099	.099	.099	.099
17/10/81	901	.099	.099	.099	.099	.099	.099	.099	.099	.099	.099
17/10/81	921	.099	.099	.099	.099	.099	1.200	1.200	1.200	1.200	1.200
17/10/81	941	12.000	3.000	3.000	.510	.510	.510	.510	.510	.510	.510
17/10/81	1001	.510	.510	.510	.510	.240	.240	.240	.240	.240	.240
17/10/81	1021	.450	.450	.450	.450	.450	.450	.450	.450	.450	.450
17/10/81	1041	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
17/10/81	1101	.450	.450	.450	.450	.450	.450	.450	.450	.450	.450
17/10/81	1121	.450	.450	.450	12.000	12.000	12.000	12.000	12.000	12.000	12.000
17/10/81	1141	6.000	6.000	18.000	4.500	4.500	4.500	24.000	6.000	2.010	2.010
17/10/81	1201	2.010	2.010	21.000	21.000	24.000	12.000	12.000	9.999	9.999	9.999
17/10/81	1221	3.000	3.000	44.010	44.010	6.000	3.000	3.000	3.000	3.000	3.000
17/10/81	1241	36.000	6.000	2.670	2.670	2.670	2.670	2.670	2.670	2.670	2.670
17/10/81	1301	2.670	2.670	1.500	1.500	1.500	1.500	1.200	1.200	.450	.450
17/10/81	1321	.450	.450	.450	.450	.450	.450	.450	.450	.450	.240
17/10/81	1341	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
17/10/81	1401	.240	.240	2.400	.240	.240	.240	.240	.240	.240	.240
17/10/81	1421	.240	.240	.240	.240	6.000	6.000	1.050	1.050	1.050	1.050
17/10/81	1441	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
17/10/81	1501	1.050	1.050	1.050	.210	.210	.210	.210	.210	.210	.210
17/10/81	1521	.210	.210	.210	.210	.210	.210	.210	.210	.210	.210
17/10/81	1541	.210	.210	.210	.210	.210	.210	.210	.210	.210	.210
17/10/81	1601	.210	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 17/10/81 TO 18/10/81

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
17/10/81	1941	0.000	0.000	0.000	0.000	0.000	.540	.540	.540	.540	.540
17/10/81	2001	.540	.540	.540	.540	.540	.540	.540	.540	.540	.540
17/10/81	2021	.540	.540	.540	.540	.540	.540	.540	.540	.540	.540
17/10/81	2041	.540	.540	.540	.540	.540	.540	.540	.540	.132	.132
17/10/81	2101	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
17/10/81	2121	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
17/10/81	2141	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
17/10/81	2201	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
17/10/81	2221	.132	.132	.132	2.010	2.010	2.010	3.000	3.000	3.000	3.000
17/10/81	2241	2.010	6.000	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010
17/10/81	2301	.510	.510	.510	.510	.510	.510	.510	.330	.330	.330
17/10/81	2321	.330	.330	.330	.330	.330	.330	.330	.330	.330	.330
17/10/81	2341	.330	.330	.330	.330	.330	.330	.330	.330	.330	.330
18/10/81	1	.330	.330	.330	.330	.330	.330	.330	.330	.330	.330
18/10/81	21	.330	.330	.330	.330	.330	.660	.660	.660	.660	.660
18/10/81	41	.660	.660	.660	.660	.990	.990	.990	.990	.990	.990
18/10/81	101	.360	.360	.360	.360	.360	.360	.360	.360	.360	.360
18/10/81	121	.360	.360	.360	.360	.360	.360	.360	1.500	1.500	1.500
18/10/81	141	1.500	1.500	1.500	1.500	1.500	.660	.660	.660	.660	.660
18/10/81	201	.660	.660	.660	.660	.660	.660	.660	.660	.660	.660
18/10/81	221	.660	.660	.660	3.000	3.000	14.010	14.010	14.010	3.000	3.000
18/10/81	241	.750	.750	.750	.750	.750	.750	.750	.750	.300	.300
18/10/81	301	.300	.300	.300	.300	.300	.300	.300	.300	.300	.300
18/10/81	321	.300	.300	.300	.300	.300	.300	.300	.300	2.010	2.010
18/10/81	341	2.010	.540	.540	.540	.540	.540	.540	.540	.540	.540
18/10/81	401	.540	.540	.660	.660	.660	.660	.660	.660	.660	.660
18/10/81	421	.660	3.000	3.000	3.000	3.000	.330	.330	.330	.330	.330
18/10/81	441	.330	.330	.330	.330	.330	.330	.330	.330	.330	.330
18/10/81	501	.330	.330	.330	.510	.510	.510	.510	.510	.510	.510
18/10/81	521	.510	.510	.510	.510	.510	.510	.132	.132	.132	.132
18/10/81	541	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
18/10/81	601	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
18/10/81	621	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
18/10/81	641	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
18/10/81	701	.132	.390	.390	.390	.390	.390	.390	.390	.390	.390
18/10/81	721	.390	.390	.390	.390	.390	.390	.510	.510	.510	.510
18/10/81	741	.510	.510	.510	.510	.510	.510	.510	.510	.990	.990
18/10/81	801	.990	.990	.990	.990	1.320	1.320	1.320	1.320	1.320	1.332
18/10/81	821	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320
18/10/81	841	1.320	1.230	.930	.930	.930	.930	.930	.930	.930	.930
18/10/81	901	.930	.930	.930	.930	.930	1.050	1.050	1.050	1.050	1.050
18/10/81	921	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
18/10/81	941	1.050	1.050	.750	.750	.750	.750	.750	.750	.750	.750

18/10/81	1001	.750	.750	.750	.750	.750	.750	.750	.750	.750	.750
18/10/81	1021	.750	.750	.750	.750	.750	.750	.450	.450	.450	.450
18/10/81	1041	.450	.450	.450	.450	.450	.450	.450	.450	.450	.840
18/10/81	1101	.840	.840	.840	.840	.840	.840	.840	.840	.840	.840
18/10/81	1121	.420	.420	.420	.420	.420	.420	.420	.420	.420	.420
18/10/81	1141	.420	.420	.420	.420	.420	.420	.420	.420	.420	.420
18/10/81	1201	.420	.420	.420	.420	.390	.390	.390	.390	.390	.390
18/10/81	1221	.840	.840	.840	.840	.840	.840	.840	.840	.390	.840
18/10/81	1241	.840	.840	.840	.840	.840	.840	3.600	3.600	3.600	3.600
18/10/81	1301	3.600	1.500	1.500	1.500	1.500	.240	.240	.240	.240	.240
18/10/81	1321	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
18/10/81	1341	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
18/10/81	1401	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
18/10/81	1421	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
18/10/81	1441	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
18/10/81	1501	.240	.240	.240	.240	.150	.150	.150	.150	.150	.150
18/10/81	1521	.150	.150	.150	.150	.150	.150	.150	.150	.150	.150

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 7/11/81 TO 8/11/81

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
7/11/81	1501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7/11/81	1521	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7/11/81	1541	0.000	0.000	0.000	0.000	0.000	0.000	.990	.990	.990	.990
7/11/81	1601	.990	.990	.990	.990	.990	.990	.990	.990	.990	2.730
7/11/81	1621	2.730	2.730	2.730	2.730	2.730	2.730	2.730	2.730	2.730	4.500
7/11/81	1641	4.500	4.500	4.500	3.810	3.810	3.810	3.810	3.810	3.810	3.810
7/11/81	1701	3.810	3.810	3.810	3.810	1.380	1.380	1.380	1.380	1.380	1.380
7/11/81	1721	1.380	1.380	1.380	1.380	1.380	1.380	1.380	1.380	.990	.990
7/11/81	1741	.990	.990	.990	.990	.990	.990	.990	.990	.990	.990
7/11/81	1801	.990	.990	.990	.990	3.000	3.000	3.000	3.000	3.000	3.000
7/11/81	1821	3.000	3.000	3.000	3.000	5.010	5.010	5.010	5.010	5.010	2.640
7/11/81	1841	2.640	2.640	2.640	2.640	2.640	2.640	2.640	2.640	2.640	7.500
7/11/81	1901	7.500	7.500	7.500	5.010	5.010	5.010	5.010	5.010	5.010	18.000
7/11/81	1921	5.010	5.010	5.010	5.010	5.010	5.010	4.950	4.950	4.950	3.150
7/11/81	1941	3.150	3.150	3.150	3.150	3.150	3.150	3.150	3.150	3.150	3.150
7/11/81	2001	3.150	3.150	3.150	3.150	3.150	7.500	7.500	7.500	7.500	24.000
7/11/81	2021	5.340	5.340	5.340	5.340	5.340	5.340	5.340	5.340	5.340	7.800
7/11/81	2041	7.800	7.800	7.800	10.800	4.740	4.740	4.740	4.740	4.740	4.740
7/11/81	2101	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740	4.740
7/11/81	2121	4.740	4.740	4.740	3.000	3.000	3.000	3.000	3.000	3.000	12.000
7/11/81	2141	12.000	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320
7/11/81	2201	6.990	6.990	6.990	6.990	6.990	6.990	9.990	9.990	9.990	21.000
7/11/81	2221	21.000	3.420	3.420	3.420	.342	.342	.342	3.420	24.000	3.270
7/11/81	2241	3.270	3.270	3.270	3.270	3.270	3.270	3.270	3.270	3.270	3.270
7/11/81	2301	1.710	1.710	1.710	1.710	1.710	1.710	1.710	1.440	1.440	1.440
7/11/81	2321	1.440	1.464	1.440	1.440	1.440	1.440	1.440	1.440	1.440	1.440
7/11/81	2341	1.440	1.440	1.440	1.440	1.440	1.440	1.440	1.440	1.200	1.200
8/11/81	1	1.200	1.200	1.200	7.710	7.710	7.710	7.710	7.710	7.710	7.710
8/11/81	21	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	12.000	12.000
8/11/81	41	1.200	1.200	1.200	1.320	1.200	1.200	1.200	1.200	1.200	1.200
8/11/81	101	15.000	15.000	6.000	6.000	.810	.810	.810	.810	.810	.810
8/11/81	121	.810	.810	.660	3.000	3.000	21.000	21.000	9.000	9.000	30.000
8/11/81	141	18.000	30.000	18.000	60.000	54.000	48.000	3.000	3.000	1.980	1.980
8/11/81	201	1.980	1.980	1.980	1.980	1.980	1.980	1.980	18.000	30.000	18.000
8/11/81	221	3.600	3.600	3.600	3.600	3.600	.120	.120	.120	.120	.120
8/11/81	241	.870	.870	.870	.870	.870	.870	.870	42.000	9.420	9.420
8/11/81	301	9.420	9.420	9.420	9.420	9.420	3.000	3.000	27.000	27.000	2.400
8/11/81	321	2.400	2.400	2.400	2.400	.090	.090	.090	.090	.090	.090
8/11/81	341	.090	.090	.090	.090	.090	.090	.090	.090	.090	.090
8/11/81	401	.090	.090	.090	.090	.090	.090	.090	.090	.090	.090
8/11/81	421	.090	.090	.090	.090	.090	.090	.090	.090	.090	.090
8/11/81	441	.090	.090	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750
8/11/81	501	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	5.460	5.460
8/11/81	521	5.460	5.460	5.460	5.460	5.460	5.460	5.460	5.460	5.460	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 26/11/81 TO 26/11/81

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
26/11/81	421	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/11/81	441	0.000	0.000	0.000	.300	.300	.300	.300	.300	.300	.300
26/11/81	501	.300	.300	.300	.300	.300	.300	.300	.300	.300	.300
26/11/81	521	.300	.930	.930	.930	.930	.930	.930	.930	.930	.930
26/11/81	541	.930	.930	.930	.930	.930	.930	.930	.930	.930	.930
26/11/81	601	.930	.930	.930	.930	.930	.930	.930	.930	1.770	1.770
26/11/81	621	1.770	1.770	1.770	1.770	1.770	1.770	1.770	1.770	1.770	1.770
26/11/81	641	1.770	1.770	1.770	1.770	1.770	3.840	3.840	3.840	3.840	3.840
26/11/81	701	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840
26/11/81	721	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840
26/11/81	741	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840	3.840
26/11/81	801	3.840	3.840	3.840	3.840	5.400	5.400	5.400	5.400	5.400	5.400
26/11/81	821	5.400	5.400	5.400	5.400	9.990	9.990	9.990	9.990	9.990	9.990
26/11/81	841	7.200	7.200	7.200	7.200	7.200	6.000	6.000	6.000	6.000	6.000
26/11/81	901	6.660	6.660	6.660	6.660	6.660	6.660	6.660	6.660	6.660	6.000
26/11/81	921	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
26/11/81	941	6.360	6.360	6.360	6.360	6.360	6.360	6.360	6.360	6.360	6.360
26/11/81	1001	6.360	6.360	6.360	6.360	6.360	6.360	6.360	9.990	9.990	9.990
26/11/81	1021	7.200	7.200	7.200	7.200	7.200	9.990	9.990	9.990	9.990	9.990
26/11/81	1041	9.990	9.420	9.420	9.420	9.420	9.420	9.420	9.420	10.980	10.980
26/11/81	1101	10.980	10.980	10.980	10.980	10.980	10.980	10.980	10.980	10.980	10.980
26/11/81	1121	10.500	10.500	10.500	10.500	9.990	9.990	9.990	9.990	9.990	9.990
26/11/81	1141	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	13.500	6.000
26/11/81	1201	6.000	6.000	9.030	9.030	9.030	9.030	9.030	9.000	9.990	9.990
26/11/81	1221	9.990	9.990	9.990	9.990	7.200	7.200	7.200	7.200	7.200	12.990
26/11/81	1241	12.990	12.990	12.990	12.990	12.990	9.420	9.420	9.420	9.420	9.420
26/11/81	1301	9.420	9.420	7.980	7.980	7.980	7.980	7.980	7.980	9.000	9.000
26/11/81	1321	9.000	9.000	9.990	9.990	9.990	9.990	9.990	9.990	9.990	9.990
26/11/81	1341	9.990	8.580	8.580	8.580	8.580	8.580	8.580	8.580	5.340	5.340
26/11/81	1401	5.340	5.340	5.340	5.340	5.340	5.340	5.340	7.500	7.500	7.500
26/11/81	1421	7.500	7.500	7.500	7.500	7.500	12.000	12.000	12.000	12.000	12.000
26/11/81	1441	12.000	12.000	9.990	9.990	9.990	12.000	12.000	12.000	12.000	12.000
26/11/81	1501	12.000	8.640	8.640	8.640	8.640	8.640	8.640	8.640	8.640	8.640
26/11/81	1521	7.980	7.980	7.980	7.980	7.980	7.980	7.980	7.980	7.980	10.500
26/11/81	1541	10.500	10.500	10.500	8.400	8.400	8.400	8.400	8.400	9.000	9.000
26/11/81	1601	3.810	3.810	3.810	3.810	3.810	3.810	3.810	3.810	3.810	3.810
26/11/81	1621	3.810	4.200	4.200	4.200	4.200	4.200	4.200	4.200	4.200	4.200
26/11/81	1641	4.200	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320
26/11/81	1701	3.000	3.000	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
26/11/81	1721	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
26/11/81	1741	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.640	2.640	2.640
26/11/81	1801	2.640	2.640	2.640	2.640	2.640	2.640	3.000	3.000	3.000	3.000
26/11/81	1821	3.000	3.000	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
26/11/81	1841	1.200	1.200	.660	.660	.660	.660	.660	.660	.660	.660
26/11/81	1901	.660	.660	.660	.660	.660	.660	.660	.660	.660	.660
26/11/81	2021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 7/ 3/82 TO 7/ 3/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
7/ 3/82	831	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500	1.500	1.500
7/ 3/82	901	1.500	1.500	1.200	1.200	1.200	1.200	1.200	.129	.129	.129
7/ 3/82	921	.129	.129	.129	.129	.129	.129	.129	.129	.129	.129
7/ 3/82	941	.129	.129	.129	.129	.129	.129	.129	.129	.129	.129
7/ 3/82	1001	.129	.129	.129	.129	.129	.129	.129	.129	.129	.129
7/ 3/82	1021	.129	.129	.129	.129	.129	.129	.129	.129	.129	.129
7/ 3/82	1041	.129	.129	.360	.360	.360	.360	.360	.360	.360	.360
7/ 3/82	1101	.360	.360	.360	.360	.360	.360	.360	.360	.360	.360
7/ 3/82	1121	.261	.261	.261	.261	.261	.261	.261	.261	.261	.261
7/ 3/82	1141	.261	.261	.261	.261	.261	.261	.261	.261	.261	.261
7/ 3/82	1201	.261	.261	.261	.990	.990	.990	.990	.990	.990	1.500
7/ 3/82	1221	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
7/ 3/82	1241	1.500	1.500	1.500	1.500	1.500	1.200	1.200	1.200	1.200	1.200
7/ 3/82	1301	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
7/ 3/82	1321	3.000	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
7/ 3/82	1341	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
7/ 3/82	1401	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
7/ 3/82	1421	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
7/ 3/82	1441	1.500	1.500	1.500	1.500	1.500	1.500	.240	.240	.240	.240
7/ 3/82	1501	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
7/ 3/82	1521	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
7/ 3/82	1541	.240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 12/ 5/82 TO 13/ 5/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
12/ 5/82	2301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 5/82	2321	0.000	7.500	7.500	7.500	7.500	7.500	3.000	3.000	7.200	7.200
12/ 5/82	2341	7.200	7.200	7.200	7.200	7.200	7.200	7.200	7.200	8.010	8.010
13/ 5/82	1	8.010	8.010	8.010	8.010	4.500	4.500	4.500	4.500	9.300	9.000
13/ 5/82	21	7.200	7.200	7.200	7.200	7.200	7.200	7.200	7.200	7.200	7.200
13/ 5/82	41	4.290	4.290	4.290	4.290	4.290	4.290	4.290	9.990	9.990	9.990
13/ 5/82	101	8.250	8.250	8.250	8.250	8.250	8.250	8.250	8.250	3.000	3.000
13/ 5/82	121	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
13/ 5/82	141	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010
13/ 5/82	201	2.010	2.010	5.460	5.460	5.460	5.460	5.460	5.460	5.460	5.460
13/ 5/82	221	5.460	5.460	5.460	9.990	9.990	9.990	3.990	3.990	3.990	12.000
13/ 5/82	241	7.200	7.200	7.200	7.200	7.200	4.500	4.500	4.500	4.500	7.500
13/ 5/82	301	7.500	7.500	7.500	7.500	7.500	7.500	9.990	9.990	9.990	10.500
13/ 5/82	321	10.500	10.500	10.500	6.000	6.000	6.000	9.000	9.000	9.000	9.000
13/ 5/82	341	2.400	2.400	2.400	2.400	2.400	12.000	3.990	3.990	3.990	3.990
13/ 5/82	401	3.990	3.990	6.000	6.000	6.000	6.000	6.000	6.000	6.870	6.870
13/ 5/82	421	6.870	6.870	6.870	6.870	6.870	7.500	7.500	7.500	7.500	7.500
13/ 5/82	441	7.500	6.000	9.990	9.990	9.990	6.000	6.000	6.000	6.000	6.000
13/ 5/82	501	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010	2.010	.450
13/ 5/82	521	.450	.450	.450	.450	.450	.450	.450	.450	.450	.450
13/ 5/82	541	.450	.450	.660	.660	.660	.660	.660	.660	.660	.660
13/ 5/82	601	.660	2.010	2.010	2.010	1.080	1.080	1.080	1.080	1.080	1.080
13/ 5/82	621	1.080	1.080	1.080	1.080	1.080	1.500	1.500	1.500	1.500	1.500
13/ 5/82	641	1.500	1.500	1.500	1.500	1.500	2.010	2.010	2.010	2.010	2.010
13/ 5/82	701	2.010	2.010	2.010	2.010	.750	.750	.750	.750	.750	.750
13/ 5/82	721	.750	.750	2.010	2.010	2.010	18.000	18.000	3.000	3.000	.240
13/ 5/82	741	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
13/ 5/82	801	.240	.240	.240	.240	.240	.240	.240	.240	.240	.240
13/ 5/82	821	.240	.240	.240	.240	.240	.390	.390	.390	.390	.390
13/ 5/82	841	.390	.390	.417	.390	.390	.390	.390	.390	.390	14.400
13/ 5/82	901	14.400	14.400	14.400	14.400	1.500	1.500	1.500	1.500	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 30/ 6/82 TO 1/ 7/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
30/ 6/82	701	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	721	0.000	.120	.120	.120	.120	.120	.120	.120	.120	.120
30/ 6/82	741	.120	.120	.120	.120	.120	.120	.120	.120	.120	.120
30/ 6/82	801	.120	.120	.120	.120	.120	.120	.120	.120	.120	.120
30/ 6/82	821	.120	.120	.120	.120	.120	.120	.120	.120	.120	.120
30/ 6/82	841	.120	1.200	.231	.231	.231	.231	.231	.231	.231	.231
30/ 6/82	901	.231	.231	.231	.231	.231	.231	.231	.231	.231	.231
30/ 6/82	921	.231	.231	.231	.231	.231	.231	.231	.231	.231	1.500
30/ 6/82	941	1.500	1.500	1.500	.660	.660	.660	.660	.660	.660	1.380
30/ 6/82	1001	1.380	.660	1.380	1.380	1.380	1.380	1.380	1.380	1.380	1.380
30/ 6/82	1021	1.380	1.380	1.380	1.380	1.380	.990	.990	.990	.990	.990
30/ 6/82	1041	.990	1.200	1.200	1.200	1.200	1.200	.840	.840	.840	.840
30/ 6/82	1101	.840	.840	.840	.750	.750	.750	.750	.750	0.000	0.000
30/ 6/82	1121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200
30/ 6/82	1241	1.200	1.200	1.200	2.580	2.580	2.580	2.580	2.580	2.580	2.580
30/ 6/82	1301	2.580	2.580	2.580	2.580	2.580	2.580	2.580	.990	.990	.990
30/ 6/82	1321	.990	.990	.990	.990	.990	.990	.990	.990	.990	2.010
30/ 6/82	1341	2.010	2.010	1.320	1.320	1.320	1.320	1.320	1.320	1.320	1.320
30/ 6/82	1401	1.320	3.000	3.000	3.000	3.000	6.000	6.000	3.990	3.990	3.990
30/ 6/82	1421	1.620	1.620	1.620	1.620	1.620	1.620	1.620	1.620	1.620	1.620
30/ 6/82	1441	1.620	2.400	2.400	2.400	2.400	2.400	.540	.540	.540	.540
30/ 6/82	1501	.540	.540	.540	.540	.540	.540	.540	.600	.600	.600
30/ 6/82	1521	.600	.600	.600	.600	.600	.600	.600	2.400	2.400	2.400
30/ 6/82	1541	2.400	2.400	2.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1601	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1621	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1641	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1701	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/ 6/82	1821	0.000	.480	.480	.480	.480	.480	.480	.480	.480	.480
30/ 6/82	1841	.480	.480	.480	.480	.480	.480	.480	.480	.480	.480
30/ 6/82	1901	.480	.480	.480	.480	.480	.480	2.400	2.400	2.400	2.400
30/ 6/82	1921	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
30/ 6/82	1941	2.400	2.400	2.400	2.400	2.400	.390	3.000	3.000	3.000	3.000
30/ 6/82	2001	3.000	3.000	.750	.750	.750	.750	.750	.750	.750	.750
30/ 6/82	2021	2.010	2.010	2.010	.390	.390	.390	.390	.390	.390	.390
30/ 6/82	2041	.390	.390	.390	.390	.390	.390	.390	.390	2.010	2.010
30/ 6/82	2101	2.010	2.010	2.010	2.010	.390	.390	.390	.390	.390	.390
30/ 6/82	2121	.390	.390	.390	.390	.390	.390	.390	.390	.390	1.500
30/ 6/82	2141	1.500	1.500	1.500	6.000	3.000	3.000	.990	.990	.990	.990
30/ 6/82	2201	.990	.990	3.000	3.000	.990	.990	.990	.990	.990	.990
30/ 6/82	2221	9.000	9.000	1.500	1.500	1.500	1.500	.420	.420	.420	.420
30/ 6/82	2241	.420	.420	.420	.420	.420	.420	.420	.420	.420	.420
30/ 6/82	2301	.273	.273	.273	.273	.273	.273	.273	.273	.273	.273
30/ 6/82	2321	.273	.273	.273	.273	.273	.273	.273	.273	.273	.273
30/ 6/82	2341	.273	.270	1.500	1.500	1.500	1.500	.750	.750	.750	.750
1/ 7/82	1	.750	.750	.750	.750	2.400	2.400	2.400	2.400	2.400	6.000
1/ 7/82	21	6.000	30.000	3.000	3.000	27.000	27.000	36.000	7.200	7.200	7.200
1/ 7/82	41	7.200	7.200	4.800	4.800	4.800	4.800	4.800	7.500	7.500	7.500
1/ 7/82	101	7.500	3.990	3.990	3.990	3.990	3.990	3.990	14.010	14.010	14.010
1/ 7/82	121	18.000	18.000	18.000	6.000	6.000	3.990	3.990	3.990	15.000	15.000
1/ 7/82	141	6.000	6.000	3.000	3.000	3.000	3.000	15.000	15.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 25/ 8/82 TO 25/ 8/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
25/ 8/82	341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.540
25/ 8/82	401	.540	.540	.540	.540	.540	.540	.540	.540	.540	.540
25/ 8/82	421	1.200	1.200	1.200	1.200	1.200	15.000	15.000	9.600	9.600	9.600
25/ 8/82	441	9.600	9.600	6.000	6.000	6.000	6.000	.750	.750	.750	.750
25/ 8/82	501	.750	.750	.750	.750	.750	.750	.750	.750	.273	.273
25/ 8/82	521	.273	.273	.273	.273	.273	.273	.273	.273	.273	1.200
25/ 8/82	541	1.200	1.200	1.200	3.000	3.000	3.000	3.000	3.000	3.000	3.000
25/ 8/82	601	3.000	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400
25/ 8/82	621	8.400	8.400	8.010	8.010	8.010	8.010	8.010	8.010	8.010	8.010
25/ 8/82	641	8.010	8.010	8.010	8.010	8.010	8.010	6.000	6.000	6.000	6.000
26/ 8/82	701	6.000	6.000	6.000	6.000	2.190	2.190	2.190	2.190	2.190	2.190
25/ 8/82	721	2.190	2.190	2.190	2.190	2.190	24.000	24.000	24.000	24.000	24.000
25/ 8/82	741	30.000	30.000	30.000	30.000	48.000	48.000	84.000	36.000	24.000	30.000
25/ 8/82	801	6.000	1.500	1.500	1.500	1.500	.420	.420	.420	.420	.420
25/ 8/82	821	.420	.420	.420	.420	.420	.420	.420	.420	.420	0.000
25/ 8/82	841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 4/ 9/82 TO 4/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
4/ 9/82	921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	941	6.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000
4/ 9/82	1001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000
4/ 9/82	1021	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
4/ 9/82	1041	0.000	6.000	12.000	18.000	18.000	30.000	30.000	30.000	30.000	96.000
4/ 9/82	1101	60.000	60.000	24.000	18.000	6.000	6.000	0.000	0.000	0.000	0.000
4/ 9/82	1121	6.000	0.000	0.000	33.840	0.000	6.000	0.000	6.000	0.000	0.000
4/ 9/82	1141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	1201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	1221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	1241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	1301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4/ 9/82	1321	0.000	0.000	0.000	6.000	0.000	0.000	6.000	0.000	0.000	0.000
4/ 9/82	1341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 18/ 9/82 TO 19/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
18/ 9/82	1221	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1321	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
18/ 9/82	1341	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
18/ 9/82	1401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1421	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1521	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000
18/ 9/82	1541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1601	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1621	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000
18/ 9/82	1641	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1701	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000
18/ 9/82	1721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1741	6.000	0.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
18/ 9/82	1801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
18/ 9/82	1901	0.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000
18/ 9/82	1921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	1941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000
18/ 9/82	2001	0.000	0.000	0.000	0.000	0.000	6.000	6.000	0.000	0.000	0.000
18/ 9/82	2021	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18/ 9/82	2041	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
18/ 9/82	2101	0.000	0.000	6.000	0.000	0.000	6.000	42.000	0.000	6.000	0.000
18/ 9/82	2121	6.000	0.000	0.000	0.000	0.000	6.000	0.000	6.000	0.000	0.000
18/ 9/82	2141	12.000	6.000	12.000	6.000	0.000	6.000	12.000	6.000	6.000	6.000
18/ 9/82	2201	6.000	6.000	6.000	6.000	12.000	6.000	0.000	6.000	6.000	0.000
18/ 9/82	2221	6.000	12.000	12.000	6.000	12.000	12.000	12.000	6.000	6.000	6.000
18/ 9/82	2241	12.000	12.000	6.000	6.000	6.000	6.000	6.000	6.000	12.000	6.000
18/ 9/82	2301	0.000	0.000	0.000	0.000	6.000	12.000	12.000	12.000	150.000	150.000
18/ 9/82	2321	36.000	18.000	18.000	12.000	12.000	30.000	42.000	12.000	18.000	12.000
18/ 9/82	2341	12.000	6.000	12.000	12.000	12.000	18.000	0.000	0.000	12.000	0.000
19/ 9/82	1	12.000	0.000	0.000	6.000	0.000	18.000	0.000	0.000	0.000	6.000
19/ 9/82	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.000	6.000	12.000
19/ 9/82	41	24.000	24.000	18.000	0.000	12.000	12.000	0.000	30.000	6.000	12.000
19/ 9/82	101	24.000	18.000	24.000	24.000	48.000	12.000	18.000	18.000	18.000	12.000
19/ 9/82	121	6.000	6.000	12.000	12.000	12.000	6.000	12.000	12.000	12.000	12.000
19/ 9/82	141	12.000	12.000	12.000	6.000	6.000	6.000	6.000	12.000	14.400	6.000
19/ 9/82	201	18.000	18.000	24.000	18.000	12.000	12.000	12.000	12.000	12.000	12.000
19/ 9/82	221	12.000	12.000	18.000	18.000	12.000	6.000	6.000	6.000	6.000	6.000
19/ 9/82	241	12.000	12.000	6.000	6.000	0.000	0.000	6.000	6.000	0.000	6.000
19/ 9/82	301	6.000	12.000	12.000	6.000	6.000	0.000	6.000	0.000	0.000	0.000
19/ 9/82	321	0.000	0.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
19/ 9/82	341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
19/ 9/82	401	0.000	0.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
19/ 9/82	421	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
19/ 9/82	441	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
19/ 9/82	501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19/ 9/82	521	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	6.000
19/ 9/82	541	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	6.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 21/ 9/82 TO 21/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
21/ 9/82	1441	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 9/82	1501	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 9/82	1521	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000
21/ 9/82	1541	0.000	0.000	0.000	0.000	0.000	6.000	6.000	6.000	12.000	12.000
21/ 9/82	1601	6.000	6.000	6.000	6.000	6.000	6.000	0.000	6.000	6.000	6.000
21/ 9/82	1621	6.000	0.000	6.000	6.000	0.000	6.000	0.000	6.000	0.000	6.000
21/ 9/82	1641	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000
21/ 9/82	1701	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000
21/ 9/82	1721	0.000	0.000	0.000	6.000	0.000	0.000	0.000	6.000	0.000	6.000
21/ 9/82	1741	0.000	6.000	0.000	6.000	0.000	6.000	0.000	6.000	6.000	6.000
21/ 9/82	1801	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 22/ 9/82 TO 22/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
22/ 9/82	201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22/ 9/82	221	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000
22/ 9/82	241	0.000	6.000	0.000	0.000	6.000	0.000	0.000	6.000	0.000	6.000
22/ 9/82	301	0.000	0.000	6.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
22/ 9/82	321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22/ 9/82	341	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	6.000	0.000
22/ 9/82	401	0.000	6.000	0.000	0.000	6.000	6.000	0.000	6.000	6.000	6.000
22/ 9/82	421	6.000	6.000	0.000	6.000	12.000	6.000	6.000	6.000	6.000	0.000
22/ 9/82	441	6.000	0.000	6.000	6.000	0.000	0.000	0.000	0.000	6.000	0.000
22/ 8/82	501	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 23/ 9/82 TO 23/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
23/ 9/82	241	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/ 9/82	301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/ 9/82	321	6.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000
23/ 9/82	341	6.000	0.000	0.000	6.000	6.000	0.000	6.000	6.000	0.000	12.000
23/ 9/82	401	0.000	0.000	6.000	0.000	6.000	0.000	6.000	0.000	0.000	6.000
23/ 9/82	421	0.000	0.000	0.000	6.000	0.000	0.000	6.000	0.000	0.000	0.000
23/ 9/82	441	6.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000
23/ 9/82	501	0.000	6.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000
23/ 9/82	521	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	6.000
23/ 9/82	541	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000
23/ 9/82	601	0.000	0.000	0.000	0.000	6.000	0.000	0.000	0.000	6.000	12.000
23/ 9/82	621	6.000	6.000	6.000	0.000	18.000	6.000	12.000	6.000	0.000	18.000
23/ 9/82	641	30.000	6.000	12.000	6.000	18.000	24.000	18.000	24.000	18.000	6.000
23/ 9/82	701	0.000	12.000	12.000	6.000	12.000	48.000	12.000	12.000	48.000	0.000
23/ 9/82	721	48.000	48.000	36.000	18.000	12.000	12.000	42.000	18.000	12.000	6.000
23/ 9/82	741	12.000	6.000	6.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000
23/ 9/82	801	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 28/ 9/82 TO 28/ 9/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
28/ 9/82	1021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 9/82	1021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 9/82	1041	0.000	0.000	0.000	0.000	0.000	6.000	0.000	6.000	0.000	6.000
28/ 9/82	1101	0.000	6.000	0.000	6.000	0.000	0.000	12.000	0.000	6.000	0.000
28/ 9/82	1121	0.000	0.000	0.000	6.000	0.000	0.000	0.000	6.000	0.000	6.000
28/ 9/82	1141	12.000	6.000	6.000	6.000	6.000	6.000	0.000	6.000	6.000	6.000
28/ 9/82	1201	6.000	6.000	6.000	12.000	12.000	6.000	6.000	12.000	12.000	6.000
28/ 9/82	1221	6.000	6.000	0.000	6.000	0.000	6.000	0.000	0.000	0.000	0.000
28/ 9/82	1241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	0.000
28/ 9/82	1301	0.000	0.000	0.000	0.000	0.000	0.000	6.000	12.000	18.000	6.000
28/ 9/82	1321	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 9/82	1341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 9/82	1401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 9/82	1421	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 2/10/82 TO 3/10/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
2/10/82	441	0.000	0.000	0.000	0.000	.342	.342	.342	.342	.342	.342
2/10/82	501	.342	.342	.342	.342	.342	.342	.342	.342	.342	.342
2/10/82	521	.342	.342	.342	.342	.342	.342	.342	.342	.342	.342
2/10/82	541	.342	.342	.342	.342	.342	.342	.342	.342	.342	.342
2/10/82	601	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	621	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	641	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	701	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	721	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	741	.183	.183	.183	.183	.183	.183	.183	.183	.183	.183
2/10/82	801	.183	.183	.183	.183	.183	.720	.720	.720	.720	.720
2/10/82	821	.720	.720	.720	.720	.720	.720	.720	.720	.720	.720
2/10/82	841	.720	.720	.720	.720	.720	.720	.720	.720	.720	.720
2/10/82	901	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800
2/10/82	921	3.600	3.600	3.600	3.600	3.600	7.200	7.200	7.200	7.200	7.200
2/10/82	941	4.800	4.800	4.800	3.600	4.800	3.999	3.999	3.999	3.999	3.999
2/10/82	1001	3.999	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.181
2/10/82	1021	2.181	2.181	.666	.666	.666	.666	.666	.666	.666	.666
2/10/82	1041	.666	.666	.666	.666	.666	.666	.666	.666	.666	.666
2/10/82	1101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2/10/82	1121	0.000	0.000	0.000	0.000	5.499	5.499	5.499	5.499	5.499	5.499
2/10/82	1141	5.499	5.499	5.499	5.499	5.499	5.499	2.001	2.001	2.001	2.001
2/10/82	1201	2.001	2.001	2.001	2.001	2.001	1.284	1.284	1.284	1.284	1.284
2/10/82	1221	1.284	1.284	1.284	1.284	1.284	1.284	1.284	1.284	1.284	2.499
2/10/82	1241	2.499	2.499	2.499	2.499	2.499	2.499	2.499	2.499	2.499	2.499
2/10/82	1301	2.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499
2/10/82	1321	5.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499	5.499
2/10/82	1341	5.499	5.499	5.499	5.499	5.499	3.228	3.228	3.228	3.228	3.228
2/10/82	1401	3.228	3.228	3.228	3.228	3.228	3.228	3.228	3.228	3.000	3.000
2/10/82	1421	3.000	3.000	3.000	3.000	8.400	8.400	8.400	8.400	8.400	9.600
2/10/82	1441	9.600	9.600	9.600	9.600	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	1501	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	1521	3.000	3.000	9.750	9.750	9.750	9.750	9.750	9.750	9.750	9.750
2/10/82	1541	6.999	6.999	6.999	6.999	6.999	6.999	2.799	2.799	2.799	2.799
2/10/82	1601	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799
2/10/82	1621	2.799	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
2/10/82	1641	6.000	6.000	10.500	10.500	10.500	10.500	2.727	2.727	2.727	2.727
2/10/82	1701	2.727	2.727	2.727	2.727	2.727	2.727	2.727	4.401	4.401	4.401
2/10/82	1721	4.401	4.401	4.401	4.401	4.401	4.401	4.401	4.401	4.401	4.401
2/10/82	1741	4.401	4.401	4.428	4.401	4.401	4.401	4.401	4.401	4.401	4.401

2/10/82	1801	4.401	4.401	4.428	4.401	4.401	4.401	4.401	4.401	4.401	4.401
2/10/82	1821	4.401	4.401	4.428	4.401	4.401	4.401	4.401	4.401	4.401	4.401
2/10/82	1841	4.401	4.401	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823
2/10/82	1901	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823
2/10/82	1921	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823
2/10/82	1941	2.823	2.823	2.823	2.823	2.823	2.823	.900	.900	.900	.900
2/10/82	2001	.900	.900	.900	.900	.900	.900	.900	.900	.900	0.000
2/10/82	2021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.856	2.856	2.856
2/10/82	2041	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856
2/10/82	2101	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	3.000	3.000
2/10/82	2121	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	2141	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	2201	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	2221	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
2/10/82	2241	3.000	3.000	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
2/10/82	2301	2.400	2.400	2.400	2.400	2.400	2.400	2.400	1.305	1.305	1.305
2/10/82	2321	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
2/10/82	2341	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
3/10/82	1	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
3/10/82	21	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.305	1.305	1.305
3/10/82	41	1.401	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
3/10/82	101	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
3/10/82	121	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
3/10/82	141	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
3/10/82	201	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	221	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	241	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	301	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	321	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	341	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	401	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
3/10/82	421	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
3/10/82	441	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
3/10/82	501	0.000	0.000	0.000	0.000	1.542	1.542	1.542	1.542	1.542	1.542
3/10/82	521	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542
3/10/82	541	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542	1.542
3/10/82	601	1.542	1.542	1.542	1.542	1.542	.399	.399	.399	.399	.399
3/10/82	621	.399	.399	.399	.399	.399	.399	.399	.399	.399	.399

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 3/10/82 TO 4/10/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
3/10/82	701	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/10/82	721	0.000	0.000	0.000	.546	.546	0.000	0.000	0.000	0.000	0.000
3/10/82	741	.546	.546	.546	.546	1.533	1.533	1.533	1.533	1.533	1.533
3/10/82	801	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533
3/10/82	821	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533
3/10/82	841	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533	1.533
3/10/82	901	1.533	1.533	1.533	1.533	1.533	1.533	1.533	.642	.642	.642
3/10/82	921	.642	.642	.642	.642	.642	.642	.642	.642	.642	.642
3/10/82	941	.642	.642	.642	.642	.642	.642	.642	.642	.642	.642
3/10/82	1001	.642	.642	.642	.642	.642	0.000	0.000	0.000	0.000	0.000
3/10/82	1021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.762	.762	.762
3/10/82	1041	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1101	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1121	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1141	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1201	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1221	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1241	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1301	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1321	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1341	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1401	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1421	.762	.762	.762	.762	.762	.762	.762	.762	.762	.762
3/10/82	1441	.753	.753	.753	.939	.939	.939	.939	.939	.939	.939
3/10/82	1501	.939	.939	.939	.939	.939	.939	.939	.939	.939	.939
3/10/82	1521	.939	.939	.939	.939	.939	.939	.939	.939	.939	.939
3/10/82	1541	.939	.939	.939	.939	.939	.534	.534	.534	.534	.534
3/10/82	1601	.534	.534	.534	.534	.534	.534	.534	.534	.534	.534
3/10/82	1621	.534	.534	.534	.534	.534	.534	.534	.534	.534	.534
3/10/82	1641	.534	.534	.534	.534	.534	.534	.534	.534	.534	.534
3/10/82	1701	.534	.534	.534	.534	.534	.534	.534	.534	.534	.534
3/10/82	1721	.534	.534	.534	.534	.534	.534	.534	.534	.534	.534
3/10/82	1741	.534	.534	.534	9.999	.999	9.999	9.999	9.999	9.999	9.999
3/10/82	1801	9.999	9.999	9.999	9.999	9.999	9.999	9.999	9.999	9.999	9.999
3/10/82	1821	2.571	2.571	4.251	4.251	4.251	4.251	4.251	4.251	4.251	4.251
3/10/82	1841	4.251	4.251	4.251	4.251	4.251	4.251	4.251	4.251	4.251	4.251
3/10/82	1901	4.251	4.251	4.251	4.251	4.251	4.251	5.250	5.250	5.250	5.250
3/10/82	1921	5.250	5.250	5.250	5.250	11.001	10.101	11.001	11.001	11.001	11.001
3/10/82	1941	9.375	9.375	9.375	9.375	9.375	9.375	9.375	9.375	9.375	9.375
3/10/82	2001	9.375	9.375	9.375	9.375	9.375	9.375	8.364	8.364	8.364	8.364
3/10/82	2021	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364
3/10/82	2041	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364
3/10/82	2101	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	8.364	3.999
3/10/82	2121	3.999	3.999	14.001	14.001	14.001	6.000	6.000	6.000	6.000	11.400
3/10/82	2141	11.400	11.400	11.400	11.400	11.400	11.400	11.400	11.400	11.400	7.500
3/10/82	2201	7.500	7.500	7.500	7.500	7.500	7.500	7.500	2.538	2.538	2.538
3/10/82	2221	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
3/10/82	2241	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
3/10/82	2301	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
3/10/82	2321	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
3/10/82	2341	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	1.524
4/10/82	1	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524
4/10/82	21	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524

4/10/82	41	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524
4/10/82	101	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524
4/10/82	121	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524
4/10/82	141	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524	1.524
4/10/82	201	1.524	1.524	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	221	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	241	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	301	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	321	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	341	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	401	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	421	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	441	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	501	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	521	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	541	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	601	.306	.306	.306	.306	.306	.306	.306	.306	.306	.306
4/10/82	621	.306	.306	.306	.306	.306	.306	.306	.306	.306	.303
4/10/82	641	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	701	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	721	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303
4/10/82	741	.303	.303	.303	.303	.303	.303	.303	.303	.303	.303

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 23/11/82 TO 24/11/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
23/11/82	2141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.999
23/11/82	2201	3.999	3.999	.783	.783	.783	.783	.783	.783	.783	.783
23/11/82	2221	.783	.783	.783	.783	.783	.783	.783	.783	.783	.783
23/11/82	2241	.783	.783	.783	.783	.783	1.371	1.371	1.371	1.371	1.371
23/11/82	2301	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371
23/11/82	2321	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371
23/11/82	2341	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371	1.371
24/11/82	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	41	0.000	0.000	.924	.924	.924	.924	.924	.924	.924	.924
24/11/82	101	.924	.924	.924	.924	.924	1.929	1.929	1.929	1.929	1.929
24/11/82	121	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929
24/11/82	141	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929	1.929
24/11/82	201	1.929	1.929	1.929	3.912	3.912	3.912	3.912	3.912	3.912	3.912
24/11/82	221	3.912	3.912	3.912	3.912	3.912	3.912	3.912	3.912	3.912	3.912
24/11/82	241	3.912	3.912	3.912	3.912	3.912	3.912	3.231	3.231	3.231	3.231
24/11/82	301	3.231	3.231	3.231	3.231	3.231	3.231	3.231	3.231	3.231	6.000
24/11/82	321	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
24/11/82	341	6.000	3.000	3.000	12.630	12.630	12.630	12.630	12.630	12.630	12.630
24/11/82	401	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630
24/11/82	421	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630	12.630
24/11/82	441	12.630	12.630	.600	.600	.600	.600	.600	.600	.600	.600
24/11/82	501	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
24/11/82	521	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
24/11/82	541	.600	.600	.261	.261	.261	.261	.261	.261	.261	.261
24/11/82	601	.261	.261	.261	.261	.261	.261	.261	.261	.261	.261
24/11/82	621	.261	.261	.261	.261	.261	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 24/11/82 TO 24/11/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
24/11/82	941	0.000	0.000	0.000	0.000	0.000	4.500	4.500	4.500	4.500	4.500
24/11/82	1001	4.500	4.500	4.500	4.500	4.500	4.500	4.500	1.500	1.500	1.500
24/11/82	1021	1.500	1.500	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000
24/11/82	1041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	1101	0.000	3.429	3.429	3.429	3.429	3.429	3.429	3.429	3.429	3.429
24/11/82	1121	3.429	3.429	3.429	3.429	3.429	2.400	2.400	2.400	2.400	2.400
24/11/82	1141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.999
24/11/82	1201	15.999	15.999	15.999	15.999	15.999	6.000	6.000	6.000	6.000	6.000
24/11/82	1221	6.000	6.000	6.000	6.000	6.000	1.500	1.500	1.500	1.500	1.500
24/11/82	1241	1.500	1.500	1.500	1.092	1.092	1.092	0.000	0.000	0.000	0.000
24/11/82	1301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	1321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	1341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24/11/82	1401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.400
24/11/82	1421	2.400	2.400	2.400	2.400	4.800	4.800	4.800	4.800	4.800	1.410
24/11/82	1441	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410
24/11/82	1501	1.410	1.410	1.410	1.410	1.410	2.250	2.250	2.250	2.250	2.250
24/11/82	1521	1.425	2.250	2.250	1.425	1.500	1.500	1.500	1.500	1.500	1.500
24/11/82	1541	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
24/11/82	1601	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
24/11/82	1621	1.875	1.875	1.875	1.875	1.875	1.875	1.875	1.875	1.875	1.875
24/11/82	1641	1.875	1.875	1.875	1.875	1.875	1.875	1.200	1.200	1.200	1.200
24/11/82	1701	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
24/11/82	1721	1.200	2.031	2.031	2.031	2.031	2.031	2.031	2.031	2.031	2.031
24/11/82	1741	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201
24/11/82	1801	3.201	3.201	3.201	3.201	3.201	17.001	17.001	17.001	17.001	17.001
24/11/82	1821	17.001	3.999	3.999	3.999	3.000	3.000	3.000	3.000	3.000	3.000
24/11/82	1841	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
24/11/82	1901	3.000	3.000	3.000	3.000	.213	.213	.213	.213	.213	.213
24/11/82	1921	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213
24/11/82	1941	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213
24/11/82	2001	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213
24/11/82	2021	.213	.213	.213	.213	.213	.213	.213	.213	.213	.213
24/11/82	2041	3.213	.213	.213	.213	.213	.213	.213	.213	.213	.213

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 29/11/82 TO 30/11/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
29/11/82	2101	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
29/11/82	2121	.858	.858	.858	.858	.858	.858	.858	.858	.858	0.000
29/11/82	2141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29/11/82	2201	3.000	3.000	3.000	3.000	3.000	3.000	3.693	3.693	3.693	3.693
29/11/82	2221	3.693	3.693	3.693	3.693	3.693	3.693	3.693	3.693	3.693	4.614
29/11/82	2241	4.614	4.614	4.614	4.614	4.614	4.614	4.614	4.614	4.614	4.614
29/11/82	2301	4.614	4.614	6.546	6.546	6.546	6.546	6.546	6.546	6.546	6.546
29/11/82	2321	6.546	6.546	6.546	8.001	8.001	8.001	6.000	6.000	6.000	6.000
29/11/82	2341	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800
30/11/82	1	9.000	9.000	9.000	9.000	6.000	6.000	6.000	6.000	5.142	5.142
30/11/82	21	5.142	5.142	5.142	5.142	5.142	9.000	9.000	9.000	9.000	9.000
30/11/82	41	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	4.500
30/11/82	101	4.500	4.500	4.500	4.500	4.500	4.500	4.500	3.990	3.990	3.990
30/11/82	121	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273
30/11/82	141	3.273	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307
30/11/82	201	2.307	2.307	2.307	2.307	.999	.999	.999	.999	.999	.999
30/11/82	221	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
30/11/82	241	.999	.999	.999	.999	.999	.999	.999	.999	0.000	0.000
30/11/82	301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	401	0.000	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	421	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000
30/11/82	501	3.000	3.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	521	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	601	0.000	0.000	0.000	0.000	12.000	12.000	12.000	12.000	2.400	2.400
30/11/82	621	2.400	2.400	2.400	2.667	2.667	2.667	2.667	2.667	2.667	2.667
30/11/82	641	2.667	2.667	6.801	6.801	6.801	6.801	6.801	6.801	6.801	6.801
30/11/82	701	6.801	6.801	6.801	6.801	6.801	6.801	6.801	2.250	2.250	2.250
30/11/82	721	2.250	2.250	2.250	2.250	2.250	0.000	0.000	0.000	0.000	0.000
30/11/82	741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	801	.801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	821	.801	.801	.801	.801	.801	0.000	0.000	0.000	0.000	0.000
30/11/82	841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30/11/82	1001	0.000	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420
30/11/82	1021	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420
30/11/82	1041	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420	6.420	.600
30/11/82	1101	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
30/11/82	1121	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
30/11/82	1141	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
30/11/82	1201	.600	.600	.600	.600	.600	.600	.600	.600	.600	.333
30/11/82	1221	.333	.333	.333	.333	.333	.333	.333	.333	.333	.333
30/11/82	1241	.333	.333	.333	.333	.333	.333	.333	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 9/12/82 TO 10/12/82

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
9/12/82	2120	0.000	0.000	0.000	.570	.570	.570	.570	.570	.570	.570
9/12/82	2140	.570	.570	.570	.570	.570	.570	.570	.570	.570	.570
9/12/82	2200	.570	.570	.570	1.713	1.713	1.713	1.713	1.713	1.713	1.713
9/12/82	2220	1.713	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
9/12/82	2240	2.001	2.001	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
9/12/82	2300	2.400	2.400	2.400	3.999	3.999	3.999	3.999	3.999	3.999	3.999
9/12/82	2320	3.999	3.999	3.999	3.999	3.999	2.400	2.400	2.400	2.400	2.400
9/12/82	2340	3.999	3.999	3.999	3.999	3.999	3.999	3.333	3.333	3.333	3.333
10/12/82	0	3.333	3.333	3.333	3.333	3.333	3.999	3.999	3.999	3.999	3.999
10/12/82	20	3.999	3.999	3.999	3.999	2.727	2.727	2.727	2.727	2.727	2.727
10/12/82	40	2.727	2.727	2.727	2.727	2.727	15.999	15.999	15.999	15.999	15.999
10/12/82	100	15.999	4.500	4.500	4.500	4.500	6.000	6.000	6.000	6.000	6.000
10/12/82	120	4.500	4.500	4.500	4.668	4.668	4.668	4.668	4.668	4.668	4.668
10/12/82	140	4.668	4.668	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
10/12/82	200	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	1.332	1.332
10/12/82	220	1.335	1.335	1.335	1.335	1.332	1.332	1.332	.900	.900	.900
10/12/82	240	.900	.900	.900	.900	.900	.900	.900	.900	.900	.900
10/12/82	300	.900	.900	.900	.900	.900	.900	.900	.666	.666	.666
10/12/82	320	.900	.900	.900	.900	.900	.900	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 12/ 3/83 TO 12/ 3/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
12/ 3/83	800	0.000	0.000	0.000	0.000	0.000	0.000	1.044	1.044	1.044	1.044
12/ 3/83	820	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044
12/ 3/83	840	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	2.307
12/ 3/83	900	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307
12/ 3/83	920	2.307	2.307	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333
12/ 3/83	940	3.333	18.000	18.000	18.000	18.000	.501	.501	.501	.501	.501
12/ 3/83	1000	.501	.501	.501	.501	.501	.501	.501	.501	.501	.501
12/ 3/83	1020	.501	.501	.501	.501	.501	.501	.501	.501	.501	0.000
12/ 3/83	1040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1220	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1300	0.000	0.000	0.000	0.000	0.000	0.000	1.059	1.059	1.059	1.059
12/ 3/83	1320	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
12/ 3/83	1340	1.059	1.059	1.059	1.305	1.305	1.305	1.305	1.305	1.305	1.305
12/ 3/83	1400	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
12/ 3/83	1420	1.305	1.305	1.305	1.305	1.305	1.305	0.000	0.000	0.000	0.000
12/ 3/83	1440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.801	.801	.801
12/ 3/83	1540	.801	.801	.801	.801	.801	.801	.801	.801	.801	.801
12/ 3/83	1600	.801	.801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	1620	0.000	0.000	0.000	0.000	0.000	.858	.858	.858	.858	.858
12/ 3/83	1640	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
12/ 3/83	1700	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
12/ 3/83	1720	.858	.858	.858	.999	.999	.999	.999	.999	.999	.999
12/ 3/83	1740	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
12/ 3/83	1800	.999	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668
12/ 3/83	1820	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668	2.181
12/ 3/83	1840	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.175	2.181
12/ 3/83	1900	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823	2.823
12/ 3/83	1920	2.823	2.823	2.823	2.823	2.823	2.823	2.823	.948	.948	.948
12/ 3/83	1940	.948	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2000	.948	.948	.948	.948	.948	.948	0.000	0.000	0.000	0.000
12/ 3/83	2020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2114	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2220	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 3/83	2240	0.000	0.000	0.000	.999	.999	.999	.999	.999	.999	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 13/ 3/83 TO 13/ 3/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
13/ 3/83	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.858
13/ 3/83	520	.858	.858	.858	.858	.858	.858	1.800	1.800	1.800	1.800
13/ 3/83	540	1.800	1.800	1.800	1.800	1.800	1.800	3.000	3.000	3.000	3.000
13/ 3/83	600	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
13/ 3/83	620	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	2.211	2.211
13/ 3/83	640	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211
13/ 3/83	700	2.211	2.211	2.211	2.211	2.211	2.211	5.667	5.667	5.667	5.667
13/ 3/83	720	5.667	5.667	5.667	5.667	5.667	5.667	5.667	5.667	5.667	5.667
13/ 3/83	740	5.667	5.667	5.667	5.667	1.044	1.044	1.044	1.044	1.044	1.044
13/ 3/82	800	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044
13/ 3/83	820	1.044	1.044	1.044	1.044	1.044	1.044	1.044	1.044	.429	.429
13/ 3/83	840	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429
13/ 3/83	900	.429	.429	.429	.429	.429	.429	.429	.429	.429	.429
13/ 3/83	920	.429	.429	.429	.429	.429	.429	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 20/ 3/83 TO 21/ 3/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
20/ 3/83	1701	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.999	.999	.999
20/ 3/83	1721	.999	.999	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	1941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2001	0.000	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500	1.500
20/ 3/83	2041	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
20/ 3/83	2101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2121	0.000	0.000	0.000	.858	.858	.858	.858	.858	.858	.858
20/ 3/83	2141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2201	0.000	.750	.750	.750	.750	.750	.750	.750	.750	.750
20/ 3/83	2221	.750	.750	.750	.750	.750	.750	.750	0.000	0.000	0.000
20/ 3/83	2241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.726
20/ 3/83	2321	.726	.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 3/83	2341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	41	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	121	0.000	.999	.999	.999	.999	.999	.999	0.000	0.000	0.000
21/ 3/83	141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21/ 3/83	221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.750
21/ 3/83	241	3.750	3.750	3.750	3.750	3.750	3.750	3.750	.999	.999	.999
21/ 3/83	301	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21/ 3/83	321	.999	.999	.999	.999	.999	2.799	2.799	2.799	2.799	2.799
21/ 3/83	341	10.500	10.500	10.500	10.500	10.500	10.500	10.500	10.500	10.500	10.500
21/ 3/83	401	10.500	10.500	10.500	10.500	3.000	3.000	3.000	3.000	3.000	3.000
21/ 3/83	421	12.000	12.000	12.000	3.999	3.999	3.999	1.635	1.635	1.635	1.635
21/ 3/83	441	3.999	3.999	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635
21/ 3/83	501	1.635	1.635	1.635	7.500	7.500	7.500	7.500	4.284	4.284	4.284
21/ 3/83	521	4.284	4.284	4.284	4.284	4.284	4.284	4.284	4.284	4.284	4.284
21/ 3/83	541	4.284	0.000	0.000	0.000	0.000	0.000	2.001	2.001	2.001	2.001
21/ 3/83	601	2.001	2.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 25/ 3/83 TO 26/ 3/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
25/ 3/83	1941	0.000	0.000	0.000	0.000	0.000	1.800	1.800	1.800	1.800	1.800
25/ 3/83	2001	1.800	1.800	1.800	1.800	1.800	.780	.780	.780	.780	.780
25/ 3/83	2021	.780	.780	.780	.780	.780	.780	.780	.780	.780	.780
25/ 3/83	2041	.780	.705	.705	.705	.705	.705	.705	.705	.705	.705
25/ 3/83	2101	.705	.705	.705	.705	.705	.705	.705	.705	0.000	0.000
25/ 3/83	2121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 3/83	2141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 3/83	2201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 3/83	2210	0.000	0.000	0.000	0.000	0.000	1.092	1.092	1.092	1.092	1.092
25/ 3/83	2241	1.092	1.092	1.092	1.092	1.092	1.092	0.000	0.000	0.000	0.000
25/ 3/83	2301	0.000	0.000	0.000	1.410	1.410	1.410	1.410	1.410	1.410	1.410
25/ 3/83	2321	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410
25/ 3/83	2341	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.410
26/ 3/83	1	1.410	1.410	1.410	1.410	1.410	1.410	1.410	1.500	1.500	1.500
26/ 3/83	21	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	.804
26/ 3/83	41	.804	.804	.804	.804	.804	.804	.804	.804	.804	.804
26/ 3/83	101	6.000	6.000	6.000	6.000	3.819	3.819	3.819	3.819	3.819	3.819
26/ 3/ 3	121	3.819	3.819	3.819	3.819	3.819	6.000	6.000	6.000	6.000	6.000
26/ 3/83	141	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
26/ 3/83	201	6.000	6.000	10.500	10.500	10.500	10.500	14.001	14.001	14.001	6.000
26/ 3/83	221	6.000	6.000	2.727	2.727	2.727	2.727	2.727	2.727	2.727	2.727
26/ 3/83	241	2.727	2.727	2.727	1.713	1.713	1.713	1.713	1.713	1.713	1.713
26/ 3/83	301	1.713	1.713	1.713	1.713	1.713	1.713	1.713	0.000	0.000	0.000
26/ 3/83	321	0.000	0.000	0.000	0.000	0.000	.999	.999	.999	.999	.999
26/ 3/83	341	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.900
26/ 3/83	401	.900	.900	.900	.900	.900	.900	.900	.900	.900	.900
26/ 3/83	421	.900	.900	.900	.900	.924	.924	.924	.924	.924	.924
26/ 3/83	441	.924	.924	.924	.924	.924	.924	.924	.924	.924	.924
26/ 3/83	501	.924	.924	.924	.924	.924	.924	.924	.924	.924	.924
26/ 3/83	521	.924	.924	.924	.924	.924	1.200	1.200	1.200	1.200	1.200
26/ 3/83	541	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
26/ 3/83	601	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
26/ 3/83	621	0.000	0.000	0.000	0.000	0.000	1.500	1.500	1.500	1.500	1.500
26/ 3/83	641	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
26/ 3/83	701	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 5/ 4/83 TO 5/ 4/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
5/ 4/83	801	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200	1.200
5/ 4/83	821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.635
5/ 4/83	901	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635
5/ 4/83	921	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656
5/ 4/83	941	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656
5/ 4/83	1001	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	.999
5/ 4/83	1021	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
5/ 4/83	1041	.999	.858	.858	.858	.858	.858	.858	0.000	0.000	0.000
5/ 4/83	1101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/ 3	1301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.924	.924
5/ 4/83	1401	.924	.924	.924	.924	.924	.924	.924	.924	.924	.924
5/ 4/83	1421	.924	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1501	0.000	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000
5/ 4/83	1521	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	1541	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
5/ 4/83	1601	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 5/ 4/83 TO 6/ 4/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
5/ 4/83	2101	.858	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	2121	.858	.858	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	2145	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5/ 4/83	2201	0.000	0.000	0.000	0.000	0.000	1.827	1.827	1.827	1.827	1.827
5/ 4/83	2221	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827
5/ 4/83	2241	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.332
5/ 4/83	2301	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	.666	.666
5/ 4/83	2321	.666	.666	.666	.666	.666	.666	.666	.666	.666	.666
5/ 4/83	2341	.666	.666	.666	.666	.666	.666	0.000	0.000	0.000	0.000
6/ 4/83	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.386	1.386	1.386
6/ 4/83	21	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.386
6/ 4/83	41	.858	.858	.858	.858	.858	.858	.858	2.250	2.250	2.250
6/ 4/83	101	2.250	2.250	2.250	2.250	2.250	2.571	2.571	2.571	2.571	2.571
6/ 4/83	121	2.571	2.571	2.571	2.571	2.571	2.571	2.571	2.571	2.571	2.571
6/ 4/83	141	2.571	2.571	2.571	2.571	2.571	2.571	2.286	2.286	2.286	2.286
6/ 4/83	201	2.286	2.286	2.286	2.286	2.286	2.286	2.286	2.286	2.286	2.286
6/ 4/83	221	2.286	2.286	2.286	2.286	2.286	2.286	2.286	1.713	1.713	1.713
6/ 4/83	241	1.713	1.713	1.713	1.713	0.000	0.000	0.000	0.000	0.000	2.250
6/ 4/83	301	2.250	2.250	2.250	2.250	2.250	2.250	2.250	0.000	0.000	0.000
6/ 4/83	321	0.000	0.000	0.000	0.000	0.000	1.800	1.800	1.800	1.800	1.800
6/ 4/83	341	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800
6/ 4/83	401	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800
6/ 4/83	421	1.800	1.800	1.800	1.800	1.800	3.273	3.273	3.273	3.273	3.273
6/ 4/83	441	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273
6/ 4/83	501	3.273	1.332	1.332	1.332	1.332	2.400	2.400	2.400	2.400	2.400
6/ 4/83	521	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
6/ 4/83	541	1.200	1.200	1.200	1.200	1.200	.999	.999	.999	.999	.999
6/ 4/83	601	.999	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
6/ 4/83	621	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
6/ 4/83	641	1.500	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000
6/ 4/83	701	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000
6/ 4/83	721	0.000	0.000	0.000	0.000	0.000	.999	.999	.999	.999	.999
6/ 4/83	741	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 12/ 4/83 TO 13/ 4/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
12/ 4/83	1401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12/ 4/83	1421	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
12/ 4/83	1441	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200	1.200
12/ 4/83	1501	1.200	1.200	1.200	1.200	1.200	.999	.999	.999	.999	.999
12/ 4/83	1521	.999	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
12/ 4/83	1541	2.400	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307
12/ 4/83	1601	2.307	2.307	2.307	2.307	1.365	1.365	1.365	1.365	1.365	1.365
12/ 4/83	1621	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365	1.365
12/ 4/83	1641	1.365	1.365	1.365	1.365	1.365	1.365	1.845	1.845	1.845	1.845
12/ 4/83	1701	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	3.000
12/ 4/83	1721	3.000	3.000	3.000	3.600	3.600	3.600	3.600	3.600	3.600	3.600
12/ 4/83	1741	3.600	3.600	3.600	2.400	2.400	2.400	2.400	2.400	2.400	2.400
12/ 4/83	1801	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.307	2.307
12/ 4/83	1821	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307	2.307
12/ 4/83	1841	2.307	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799
12/ 4/83	1901	2.799	2.799	2.799	2.799	2.799	2.799	1.713	1.713	1.713	1.713
12/ 4/83	1921	1.713	1.713	1.713	1.896	1.896	1.896	1.896	1.896	1.896	1.896
12/ 4/83	1941	1.896	1.896	1.896	1.896	1.896	1.896	1.896	1.896	1.896	1.896
12/ 4/83	2001	1.896	1.896	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118
12/ 4/83	2021	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118	.924
12/ 4/83	2041	.924	.924	.924	.924	.924	.924	.924	.924	.924	.924
12/ 4/83	2101	.924	.924	.924	.924	.924	.924	.924	.924	.924	.924
12/ 4/83	2121	.924	.924	.924	.924	.924	1.092	1.092	1.092	1.092	1.092
12/ 4/83	2141	1.092	1.092	1.092	1.092	1.092	1.092	1.386	1.386	1.386	1.386
12/ 4/83	2201	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.386	1.242
12/ 4/83	2221	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242
12/ 4/83	2241	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242
12/ 4/83	2301	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.242	1.263	1.263
12/ 4/83	2321	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263
12/ 4/83	2341	1.263	1.263	1.263	1.263	1.263	1.263	1.263	2.211	2.211	2.211
13/ 4/83	1	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211
13/ 4/83	21	2.211	2.211	2.211	2.211	2.211	2.211	1.500	1.611	1.611	1.611
13/ 4/83	41	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000	3.273
13/ 4/83	101	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273
13/ 4/83	121	.858	.858	.858	.858	.858	.858	.858	2.181	2.181	2.181
13/ 4/83	141	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.181	1.332	1.332
13/ 4/83	201	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
13/ 4/83	221	1.332	1.332	1.332	1.332	1.332	1.332	3.000	3.000	3.000	3.000
13/ 4/83	241	3.000	3.000	4.287	4.287	4.287	4.287	4.287	4.287	4.287	4.287
13/ 4/83	301	4.287	4.287	4.287	4.287	4.287	4.287	2.001	2.001	2.001	2.001
13/ 4/83	321	2.001	2.001	2.001	2.001	2.001	0.000	0.000	0.000	0.000	0.000
13/ 4/83	341	0.000	0.000	0.000	2.001	2.001	2.001	0.000	0.000	0.000	0.000
13/ 4/83	401	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13/ 4/83	421	0.000	0.000	0.000	0.000	0.000	2.001	2.001	2.001	2.001	2.001
13/ 4/83	441	2.001	2.001	2.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 20/ 4/83 TO 20/ 4/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
20/ 4/83	141	.705	.705	.705	.705	.705	.705	.705	.705	.705	.705
20/ 4/83	201	.705	.705	.705	.705	.705	.705	.705	.705	0.000	0.000
20/ 4/83	221	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	241	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160
20/ 4/83	301	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160
20/ 4/83	321	2.160	2.160	2.160	2.160	2.160	2.211	2.211	2.211	2.211	2.211
20/ 4/83	341	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211
20/ 4/83	401	2.211	2.211	2.211	2.211	4.155	4.155	4.155	4.155	4.155	4.155
20/ 4/83	421	4.155	4.155	4.155	4.155	4.155	4.155	4.155	1.500	1.500	1.500
20/ 4/83	441	1.500	1.500	1.500	1.500	1.500	6.999	6.999	6.999	6.999	6.999
20/ 4/83	501	6.999	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
20/ 4/83	521	2.400	2.400	2.400	2.400	2.400	2.400	9.000	9.000	9.000	9.000
20/ 4/83	541	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000
20/ 4/83	601	9.000	9.000	1.380	1.380	1.380	1.380	1.380	1.380	1.380	1.380
20/ 4/83	621	1.380	1.380	1.380	1.380	1.380	1.656	1.656	1.656	1.656	1.656
20/ 4/83	641	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656
20/ 4/83	701	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656	1.656
20/ 4/83	721	1.656	1.656	1.656	1.656	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.001	2.001
20/ 4/83	801	2.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200
20/ 4/83	901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	920	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	940	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20/ 4/83	1000	0.000	0.000	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 11/ 6/83 TO 11/ 6/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
11/ 6/83	340	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
11/ 6/83	400	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
11/ 6/83	420	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
11/ 6/83	440	1.500	1.500	0.000	0.000	0.000	0.000	0.000	1.149	1.149	1.149
11/ 6/83	500	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149
11/ 6/83	520	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149
11/ 6/83	540	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149
11/ 6/83	600	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149
11/ 6/83	620	1.149	1.149	1.149	1.251	1.251	1.251	1.251	1.251	1.251	1.251
11/ 6/83	640	1.251	1.251	1.251	1.251	1.251	1.251	1.251	1.251	1.251	1.251
11/ 6/83	700	1.251	1.251	1.251	1.251	1.251	1.251	1.251	1.251	1.665	1.665
11/ 6/83	720	1.665	1.665	1.665	1.665	1.665	1.665	1.665	1.665	1.665	1.665
11/ 6/83	740	1.665	1.665	1.665	1.665	1.665	1.665	2.898	2.898	2.898	2.898
11/ 6/83	800	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898
11/ 6/83	820	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898	2.898
11/ 6/83	840	2.898	2.898	2.898	2.898	4.572	4.572	4.572	4.572	4.572	4.572
11/ 6/83	900	4.572	4.572	4.572	4.572	4.572	4.572	4.572	4.572	4.572	4.572
11/ 6/83	920	4.572	4.572	4.572	4.572	4.572	4.572	6.000	6.000	6.000	6.000
11/ 6/83	940	6.000	3.429	3.429	3.429	3.429	3.429	3.429	3.429	3.429	3.000
11/ 6/83	1000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
11/ 6/83	1020	3.000	2.088	2.088	2.088	2.088	2.088	2.088	2.088	2.088	2.088
11/ 6/83	1040	2.088	2.088	2.088	2.088	2.088	2.088	2.088	2.088	2.088	2.088
11/ 6/83	1100	2.088	2.088	2.088	.858	.858	.858	.858	.858	.858	.858
11/ 6/83	1120	.858	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
11/ 6/83	1140	2.001	2.001	8.499	8.499	8.499	8.499	8.499	8.499	8.499	8.499
11/ 6/83	1200	8.499	8.499	8.499	8.499	8.499	2.499	2.499	2.499	2.499	2.499
11/ 6/83	1220	2.499	2.499	2.499	2.499	2.499	2.499	2.499	.999	.999	.999
11/ 6/83	1240	.999	.999	.999	2.142	2.142	2.142	2.142	2.142	2.142	2.142
11/ 6/83	1300	2.142	2.142	2.142	2.142	2.142	2.142	2.142	0.000	0.000	0.000
11/ 6/83	1320	0.000	0.000	0.000	0.000	0.000	0.000	1.500	1.500	1.500	1.500
11/ 6/83	1340	0.000	0.000	0.000	0.000	0.000	2.400	2.400	2.400	2.400	2.400
11/ 6/83	1400	0.000	0.000	0.000	0.000	1.092	1.092	1.092	1.092	1.092	1.092
11/ 6/83	1420	1.092	1.092	1.092	1.092	1.092	0.000	0.000	0.000	0.000	0.000
11/ 6/83	1440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11/ 6/83	1500	0.000	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
11/ 6/83	1520	1.092	1.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 3/ 7/83 TO 3/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
3/ 7/83	830	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000	6.000
3/ 7/83	910	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	930	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	950	0.000	6.600	6.600	6.600	6.600	6.600	6.600	6.600	6.600	6.600
3/ 7/83	1010	6.600	0.000	6.000	0.000	6.000	0.000	12.000	0.000	6.000	0.000
3/ 7/83	1030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	1050	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	1110	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	1130	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3/ 7/83	1150	0.000	0.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 8/ 7/83 TO 8/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
8/ 7/83	320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8/ 7/83	340	1.200	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000
8/ 7/83	400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500	1.500
8/ 7/83	420	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
8/ 7/83	440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8/ 7/83	500	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
8/ 7/83	520	0.000	0.000	0.000	0.000	0.000	0.000	3.000	3.000	3.000	3.000
8/ 7/83	540	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000
8/ 7/83	600	18.000	18.000	18.000	18.000	24.000	24.000	9.000	9.000	9.000	9.000
8/ 7/83	620	4.200	4.200	4.200	4.200	4.200	4.200	4.200	4.200	4.200	4.200
8/ 7/83	640	12.000	12.000	12.000	12.000	12.000	2.571	2.571	2.571	2.571	2.571
8/ 7/83	700	2.571	2.571	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856
8/ 7/83	720	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856
8/ 7/83	740	2.856	2.856	2.856	1.500	1.500	1.500	1.500	1.500	1.500	1.500
8/ 7/83	800	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8/ 7/83	820	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8/ 7/83	840	0.000	.990	.990	.990	.990	.990	.990	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 16/ 7/83 TO 16/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
16/ 7/83	700	6.000	30.000	12.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	720	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	740	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	820	0.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000
16/ 7/83	840	0.000	6.000	12.000	36.000	18.000	0.000	0.000	10.200	19.800	0.000
16/ 7/83	900	6.000	42.000	42.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	920	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16/ 7/83	940	6.000	6.000	6.000	6.000	6.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 17/ 7/83 TO 17/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
17/ 7/83	20	0.000	0.000	0.000	0.000	.270	.270	.270	.270	.270	.270
17/ 7/83	40	.270	.270	.870	.870	.870	.870	.870	.870	.870	.870
17/ 7/83	100	.870	.870	.870	.870	.870	.870	0.000	0.000	0.000	0.000
17/ 7/83	120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.000
17/ 7/83	140	21.000	21.000	21.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	200	0.000	0.000	0.000	9.600	9.600	0.000	0.000	0.000	0.000	0.000
17/ 7/83	220	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	240	0.000	21.990	21.990	21.990	9.000	9.000	24.000	2.250	2.250	2.250
17/ 7/83	300	2.250	2.250	2.250	2.250	2.250	0.000	0.000	0.000	0.000	0.000
17/ 7/83	320	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	340	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	420	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	520	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	620	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	640	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	700	18.000	18.000	18.000	0.000	0.000	0.000	0.000	0.000	0.000	1.092
17/ 7/83	721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.092	1.092
17/ 7/83	821	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	4.500
17/ 7/83	841	4.500	4.500	4.500	5.400	0.000	0.000	0.000	15.000	15.000	6.000
17/ 7/83	901	6.000	48.000	48.000	6.000	6.000	0.000	0.000	0.000	0.000	0.000
17/ 7/83	921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	6.000
17/ 7/83	941	6.000	6.000	6.000	6.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 22/ 7/83 TO 23/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
22/ 7/83	2200	0.000	0.000	0.000	0.000	1.092	1.092	1.092	1.092	1.092	1.092
22/ 7/83	2220	1.092	1.092	1.092	1.092	2.400	2.400	2.400	2.400	2.400	2.400
22/ 7/83	2240	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
22/ 7/83	2300	2.400	2.400	2.400	2.400	2.400	4.500	4.500	4.500	4.500	4.500
22/ 7/83	2320	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	8.667	8.667
22/ 7/83	2340	8.667	8.667	8.667	8.667	8.667	8.667	12.750	12.750	12.750	12.750
23/ 7/83	0	12.750	12.750	12.750	12.750	12.750	12.000	12.000	12.000	3.273	3.273
23/ 8/83	20	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	11.001
23/ 7/83	40	11.001	11.001	11.001	11.001	11.001	6.858	6.858	6.858	6.858	6.858
23/ 7/83	100	6.858	6.858	2.181	2.181	2.181	2.181	2.181	2.181	2.181	2.181
23/ 7/83	120	2.181	2.181	2.181	3.000	3.000	3.000	3.000	3.000	3.000	3.000
23/ 7/83	140	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 25/ 7/83 TO 25/ 7/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
25/ 7/83	1501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.400
25/ 7/83	1521	2.400	2.400	2.400	2.400	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1541	2.400	2.400	2.400	2.400	2.400	0.000	.999	.999	.999	.999
25/ 7/83	1601	.999	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1621	0.000	0.000	0.000	0.000	7.092	7.092	7.092	7.092	7.092	7.092
25/ 7/83	1641	7.092	7.092	7.092	7.092	7.092	8.727	8.727	8.727	8.727	8.727
25/ 7/83	1701	8.727	8.727	8.727	8.727	8.727	8.727	39.000	39.000	39.000	39.000
25/ 7/83	1721	16.800	16.800	16.800	16.800	16.800	3.600	3.600	3.600	3.600	3.600
28/ 7/83	1741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.000
25/ 7/83	1801	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/ 7/83	1941	0.000	0.000	.750	.750	.750	.750	.750	.750	.750	.750

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 20/ 8/83 TO 20/ 8/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
20/ 8/83	501	0.000	0.000	0.000	0.000	0.000	3.333	3.333	3.333	3.333	3.333
20/ 8/83	521	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333
20/ 8/83	541	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333
20/ 8/83	601	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333
20/ 8/83	621	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333	3.333
20/ 8/83	641	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635
20/ 8/83	701	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635	4.635
20/ 8/83	721	4.635	4.635	9.333	9.333	9.333	9.333	9.333	9.333	9.333	9.333
20/ 8/83	741	9.933	3.600	3.600	3.600	3.600	3.600	1.635	1.635	1.635	1.635
20/ 8/83	801	1.635	1.635	1.635	1.635	1.635	1.635	1.635	3.429	3.429	3.429
20/ 8/83	821	3.429	3.429	3.429	3.429	3.429	9.999	9.999	3.750	3.750	3.750
20/ 8/83	841	3.750	3.750	3.750	3.750	3.750	12.000	12.000	12.000	12.000	12.000
20/ 8/83	901	12.000	4.155	4.155	4.155	4.155	4.155	4.155	4.155	4.155	4.155
20/ 8/83	921	4.155	4.155	4.155	4.155	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 27/ 8/83 TO 28/ 8/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
27/ 8/83	2121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.500	4.500	4.500
27/ 8/83	2141	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500
27/ 8/83	2201	4.527	3.177	3.177	3.177	3.177	3.177	3.177	3.177	3.177	3.177
27/ 8/83	2221	4.527	3.177	3.177	3.177	3.177	3.177	3.177	1.500	1.500	1.500
27/ 8/83	2241	1.500	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799	2.799
27/ 8/83	2301	2.799	2.799	2.799	2.799	2.799	2.799	2.250	2.250	2.250	2.250
27/ 8/83	2321	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250
27/ 8/83	2341	2.250	2.250	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401
28/ 8/83	1	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401
28/ 8/83	21	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401	1.401
28/ 8/83	41	1.401	1.401	1.200	1.200	1.200	1.218	1.200	1.500	1.500	1.500
28/ 8/83	101	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
28/ 8/83	121	1.500	1.500	1.500	.999	.999	.999	.999	.999	.999	.999
28/ 8/83	141	.999	.999	.999	.999	.999	0.000	0.000	0.000	0.000	0.000
28/ 8/83	201	0.000	.999	.999	.999	.999	.999	.999	1.635	1.635	1.635
28/ 8/83	221	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	.858	.858
28/ 8/83	241	.858	.858	.858	.858	.858	1.200	1.200	1.200	1.200	1.200
28/ 8/83	301	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
28/ 8/83	321	0.000	1.200	1.200	1.200	1.200	1.200	1.500	1.500	1.500	1.500
28/ 8/83	341	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	0.000	0.000
28/ 8/83	401	0.000	0.000	0.000	0.000	0.000	.858	.858	.858	.858	.858
28/ 8/83	421	.858	.858	.858	.858	.858	.858	.858	.858	.858	0.000
28/ 8/83	441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 8/83	501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200
28/ 8/83	521	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 8/83	541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.827	1.827	1.827
28/ 8/83	601	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827
28/ 8/83	621	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827	1.827
28/ 8/83	641	7.635	7.635	7.635	7.635	7.635	7.635	7.635	7.635	7.635	7.635
28/ 8/83	701	7.635	4.875	4.875	4.875	4.875	4.875	4.875	4.875	4.875	4.875
28/ 8/83	721	4.875	4.875	4.875	4.875	4.875	4.875	4.875	1.035	1.035	1.035
28/ 8/83	741	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035
28/ 8/83	801	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035	1.035
28/ 8/83	821	1.035	1.035	1.035	1.035	1.035	1.035	0.000	0.000	0.000	0.000
28/ 8/83	841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 8/83	901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/ 8/83	921	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200
28/ 8/83	941	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 1/ 9/83 TO 2/ 9/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
1/ 9/83	1341	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200
1/ 9/83	1401	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1421	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.882	.882	.882
1/ 9/83	1501	.882	.882	.882	.882	.882	.882	.882	.882	.882	.882
1/ 9/83	1521	.882	.882	.882	.882	.882	.882	.882	.882	.882	.882
1/ 9/83	1541	.882	.882	.882	.882	.882	.882	.882	.882	.882	.882
1/ 9/83	1601	.882	.882	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1621	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1641	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1701	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.783	0.000	0.000
1/ 9/83	1741	.783	.783	.783	.783	.783	.783	.783	.783	.783	.783
1/ 9/83	1801	.783	.783	.783	.783	.783	.783	.783	.783	.783	.783
1/ 9/83	1821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1901	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200
1/ 9/83	1921	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	1941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1/ 9/83	2001	0.000	0.000	1.845	1.845	1.845	1.845	0.000	0.000	0.000	0.000
1/ 9/83	2021	1.845	1.845	1.845	1.845	1.845	2.856	2.856	2.856	2.856	2.856
1/ 9/83	2041	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856	2.856
1/ 9/83	2101	2.856	2.856	2.856	2.856	2.856	2.856	2.517	2.517	2.517	2.517
1/ 9/83	2121	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517
1/ 9/83	2141	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517
1/ 9/83	2201	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.001	2.001	2.001
1/ 9/83	2221	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400
1/ 9/83	2241	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400
1/ 9/83	2301	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400	8.400
1/ 9/83	2321	7.200	7.200	7.200	7.200	7.200	12.000	7.200	7.200	7.200	7.200
1/ 9/83	2341	11.142	11.142	11.142	11.142	11.142	11.142	11.142	11.142	11.142	11.142
2/ 9/83	1	11.142	11.142	11.142	11.142	10.500	9.000	10.500	10.500	10.500	10.500
2/ 9/83	21	10.500	10.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500
2/ 9/83	41	9.600	9.600	9.600	9.600	9.600	1.200	1.200	1.200	1.200	1.200
2/ 9/83	101	1.200	1.200	1.200	1.200	1.200	2.001	2.001	2.001	2.001	2.001
2/ 9/83	121	2.001	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	14.001
2/ 9/83	141	14.001	14.001	14.001	14.001	14.001	14.001	12.000	12.000	12.000	6.000
2/ 9/83	201	6.000	6.000	6.000	2.001	2.001	2.001	2.001	2.001	2.001	2.001
2/ 9/83	221	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	0.000	0.000
2/ 9/83	241	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.001	2.001
2/ 9/83	301	2.001	2.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2/ 9/83	321	0.000	1.800	1.800	1.800	1.800	1.800	1.800	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 10/ 9/83 TO 10/ 9/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
10/ 9/83	1101	0.000	0.000	0.000	0.000	0.000	1.500	1.500	1.500	1.500	1.500
10/ 9/83	1121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10/ 9/83	1141	0.000	0.000	0.000	.999	.999	.999	.999	.999	.999	.999
10/ 9/83	1201	.999	.999	.999	.999	.999	1.599	1.599	1.599	1.599	1.599
10/ 9/83	1221	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599
10/ 9/83	1241	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100
10/ 9/83	1301	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100
10/ 9/83	1321	5.001	5.001	5.001	5.001	5.001	5.001	4.422	4.422	4.422	4.422
10/ 9/83	1341	4.422	4.422	4.422	4.422	4.422	4.422	4.422	4.422	4.422	4.422
10/ 9/83	1401	4.422	4.422	4.422	4.422	4.422	6.000	6.000	6.000	6.000	6.000
10/ 9/83	1421	6.000	6.000	6.000	6.000	6.000	6.000	2.250	2.250	2.250	2.250
10/ 9/83	1441	2.100	2.100	2.100	2.100	9.000	9.000	9.000	9.000	9.000	9.000
10/ 9/83	1501	9.000	9.000	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667
10/ 9/83	1521	2.667	6.000	6.000	6.000	6.000	3.000	3.000	3.000	3.000	3.000
10/ 9/83	1541	3.000	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273
10/ 9/83	1601	3.273	3.273	1.200	12.000	12.000	12.000	1.200	2.001	2.001	2.001
10/ 9/83	1621	2.001	2.001	2.001	2.001	2.001	2.001	1.200	1.320	1.332	1.332
10/ 9/83	1641	1.200	1.200	0.000	0.000	0.000	0.000	.999	.999	.999	.999
10/ 9/83	1701	.999	.999	.999	.999	.999	.999	.999	.999	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 14/ 9/83 TO 14/ 9/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
14/ 9/83	601	1.200	1.200	1.200	1.200	1.200	2.001	2.001	2.001	2.001	2.001
14/ 9/83	621	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
14/ 9/83	641	2.001	2.001	2.001	2.001	2.001	2.001	1.635	1.635	1.635	1.635
14/ 9/83	701	1.635	1.635	1.635	1.635	1.635	1.635	1.635	0.000	0.000	0.000
14/ 9/83	721	0.000	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000
14/ 9/83	741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14/ 9/83	801	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.125	1.125
14/ 9/83	821	1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.125
14/ 9/83	841	1.125	1.125	1.125	1.125	2.250	2.250	2.250	2.250	2.250	2.250
14/ 9/83	901	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250
14/ 9/83	921	2.250	2.250	2.250	2.250	2.250	2.250	2.250	2.250	.999	.999
14/ 9/83	941	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
14/ 9/83	1001	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
14/ 9/83	1021	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
14/ 9/83	1041	1.143	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
14/ 9/83	1101	1.200	1.200	1.200	1.200	1.200	1.284	1.284	1.284	1.284	1.284
14/ 9/83	1121	1.284	1.284	1.284	1.284	1.284	1.284	1.284	1.284	1.284	1.284
14/ 9/83	1141	.999	.999	.999	.999	.999	.999	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 15/ 9/83 TO 15/ 9/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
15/ 9/83	541	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.858
15/ 9/83	601	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
15/ 9/83	621	.858	.858	.858	2.667	2.667	2.667	2.667	2.667	2.667	2.667
15/ 9/83	641	2.667	2.667	1.287	1.287	1.287	1.287	1.287	1.287	1.287	1.287
15/ 9/83	701	1.287	1.287	1.287	1.287	1.287	1.287	1.332	1.332	1.332	1.332
15/ 9/83	721	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
15/ 9/83	741	1.332	1.332	1.332	1.332	1.272	1.272	1.272	1.272	1.272	1.272
15/ 9/83	801	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272
15/ 9/83	821	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.272
15/ 9/83	841	1.272	1.272	1.272	1.272	1.272	1.272	1.272	1.200	1.200	1.200
15/ 9/83	901	1.200	1.200	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383
15/ 9/83	921	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383
15/ 9/83	941	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1101	0.000	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635
15/ 9/83	1121	1.635	1.635	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
15/ 9/83	1141	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
15/ 9/83	1201	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
15/ 9/83	1221	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469
15/ 9/83	1241	2.469	2.469	2.469	2.469	2.469	2.469	3.750	3.750	3.750	3.750
15/ 9/83	1301	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750
15/ 9/83	1321	3.750	3.750	4.332	4.332	4.332	4.332	4.332	4.332	4.332	4.332
15/ 9/83	1341	4.332	4.332	4.332	4.332	4.332	4.332	4.332	4.332	4.332	4.332
15/ 9/83	1401	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714
15/ 9/83	1421	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714	3.714
15/ 9/83	1441	3.714	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
15/ 9/83	1501	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
15/ 9/83	1521	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
15/ 9/83	1541	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
15/ 9/83	1601	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
15/ 9/83	1621	1.614	1.614	1.614	2.349	2.349	2.349	2.349	2.349	2.349	2.349
15/ 9/83	1641	2.349	2.349	2.349	2.349	2.349	2.349	2.349	2.349	2.349	2.349
15/ 9/83	1701	2.349	2.349	2.349	2.349	2.349	2.349	0.000	0.000	0.000	1.200
15/ 9/83	1721	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1741	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000
15/ 9/83	1801	0.000	0.000	0.000	0.000	0.000	1.059	1.059	1.059	1.059	1.059
15/ 9/83	1821	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
15/ 9/83	1841	1.059	1.059	.924	.924	.924	.924	.924	.924	.924	.924
15/ 9/83	1901	.924	.924	.924	.924	.924	0.000	0.000	0.000	0.000	0.000
15/ 9/83	1921	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200
15/ 9/83	1941	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	2001	0.000	0.000	0.000	0.000	0.000	.858	.858	.858	.858	.858
15/ 9/83	2021	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
15/ 9/83	2041	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
15/ 9/83	2101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	2121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15/ 9/83	2141	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 19/10/83 TO 19/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
19/10/83	200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200
19/10/83	220	1.200	1.200	0.000	0.000	2.001	2.001	2.001	2.001	2.001	2.001
19/10/83	240	2.001	2.001	2.001	1.200	1.200	1.200	1.200	1.200	0.000	0.000
19/10/83	300	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200	1.200	1.635
19/10/83	320	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635	1.635
19/10/83	340	.999	.999	.999	.999	.999	.999	0.000	0.000	0.000	0.000
19/10/83	400	0.000	0.000	0.000	0.000	.999	.999	.999	.999	.999	.999
19/10/83	420	.999	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
19/10/83	440	1.200	1.200	1.200	1.200	1.200	3.999	3.999	3.999	3.999	3.999
19/10/83	500	3.999	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500
19/10/83	520	4.500	4.500	4.500	2.001	2.001	2.001	0.000	0.000	0.000	0.000
19/10/83	540	0.000	0.000	0.000	1.800	1.800	1.800	1.800	1.800	1.800	1.800
19/10/83	600	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	1.800	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 19/10/83 TO 20/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
19/10/83	1741	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200
19/10/83	1801	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19/10/83	1821	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200
19/10/83	1841	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000
19/10/83	1901	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19/10/83	1921	0.000	.705	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19/10/83	1941	.705	.705	.705	.705	.705	.705	.705	.705	.999	.999
19/10/83	2001	.999	.999	.999	.999	1.200	1.200	1.200	1.200	1.200	.999
19/10/83	2021	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19/10/83	2041	.999	0.000	0.000	0.000	0.000	0.000	0.000	1.668	1.668	1.668
19/10/83	2101	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.665	1.668	1.668
19/10/83	2121	1.668	1.668	1.668	1.668	1.668	1.305	1.305	1.305	1.305	1.305
19/10/83	2141	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
19/10/83	2201	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.764	1.764
19/10/83	2221	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674
19/10/83	2241	1.674	1.674	1.674	1.674	1.674	1.458	1.458	1.458	1.458	1.458
19/10/83	2301	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
19/10/83	2321	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
19/10/83	2341	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458	1.458
20/10/83	1	1.458	1.458	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
20/10/83	21	2.001	2.001	2.001	2.001	2.001	2.001	2.001	3.000	3.000	3.000
20/10/83	41	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
20/10/87	101	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
20/10/83	121	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
20/10/83	141	3.000	3.000	3.000	5.295	5.295	5.295	5.295	5.295	5.295	5.295
20/10/83	201	5.295	5.295	5.295	5.295	5.295	5.295	5.295	5.295	5.295	5.295
20/10/83	221	3.750	3.750	3.750	3.750	3.750	3.750	3.750	3.750	6.750	6.750
20/10/83	241	6.750	6.750	6.750	6.750	6.750	6.750	6.750	6.750	6.750	6.750
20/10/83	301	6.750	6.750	6.750	6.750	4.500	4.500	4.500	4.500	4.500	4.500
20/10/83	321	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500
20/10/83	341	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.400	5.400
20/10/83	401	4.125	4.125	4.125	4.125	4.125	4.125	4.125	4.125	4.125	4.125
20/10/83	421	4.125	4.125	4.125	4.125	4.125	4.125	2.400	2.400	2.400	2.400
20/10/83	441	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
20/10/83	501	2.400	1.413	1.413	1.428	1.413	1.413	1.413	1.413	1.413	1.413
20/10/83	521	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413
20/10/83	541	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413	1.413
20/10/83	601	1.413	1.413	1.413	1.413	1.413	1.764	1.764	1.764	1.764	1.764
20/10/83	621	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764
20/10/83	640	17.640	17.640	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 22/10/83 TO 23/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL/10-VALUES ACROSS)									
22/10/83	1800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22/10/83	1820	0.000	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000
22/10/83	1840	0.000	0.000	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263
22/10/83	1900	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263	1.263
22/10/83	1920	1.263	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200
22/10/83	1940	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22/10/83	2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22/10/83	2020	0.000	0.000	0.000	0.000	.999	.999	.999	.999	.999	.999
22/10/83	2040	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
22/10/83	2100	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400	2.400
22/10/83	2120	2.160	2.160	2.160	2.160	2.160	1.305	1.305	1.305	1.305	1.305
22/10/83	2140	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160	2.160
22/10/83	2200	2.160	2.160	2.160	2.160	2.160	1.305	1.305	1.305	1.305	1.305
22/10/83	2220	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305
22/10/83	2240	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.305	1.332	1.332
22/10/83	2300	1.332	1.332	1.332	1.332	1.332	1.332	1.332	0.000	0.000	0.000
22/10/83	2320	0.000	0.000	.924	.924	.924	.924	.924	.924	.924	.924
22/10/83	2340	.924	.924	.924	.924	.924	.801	.801	.801	.801	.801
23/10/83	0	.801	.801	.801	.801	.801	.801	.801	.801	.801	.801
23/10/83	20	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
23/10/83	40	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
23/10/83	100	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
23/10/83	120	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
23/10/83	140	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
23/10/83	200	1.092	1.092	1.092	1.092	1.092	.858	.858	.858	.858	.858
23/10/83	220	.858	.858	.858	.858	.858	.858	.858	.858	.858	.858
23/10/83	240	.858	.858	.858	.858	.858	.858	0.000	0.000	0.000	0.000
23/10/83	300	0.000	0.000	.999	.999	.999	.999	.999	.999	.600	.600
23/10/83	320	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
23/10/83	340	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
23/10/83	400	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
23/10/83	420	.600	.600	.600	.600	.600	.600	.600	.600	.600	.600
23/10/83	440	.600	.600	.600	.600	.600	.600	.600	.600	0.000	0.000
23/10/83	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	520	0.000	.705	.705	.705	.705	.705	.705	.705	.705	.705
23/10/83	540	.705	.705	.705	.705	.705	.705	.705	.705	0.000	0.000
23/10/83	600	0.000	0.000	0.000	0.000	0.000	.858	.858	.858	.858	.858
23/10/83	620	.858	.858	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10 83	640	.858	.858	.858	.858	.858	.858	.858	0.000	0.000	0.000
23/10/83	700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	720	0.000	0.000	0.000	1.500	1.500	1.500	1.500	0.000	0.000	0.000
23/10/83	740	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.001
23/10/83	800	2.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	820	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	840	1.500	1.500	1.500	1.500	1.500	1.332	1.332	1.332	1.332	1.332
23/10/83	900	1.332	1.332	1.332	1.332	.750	.750	.750	.750	.750	.750
23/10/83	920	.750	.750	.750	.750	.750	.750	.750	.750	2.841	2.841
23/10/83	940	2.841	2.841	2.841	2.841	2.841	2.841	2.841	2.841	2.841	2.841
23/10/83	1000	2.841	2.841	2.841	2.841	2.841	2.841	2.841	2.841	.600	.600
23/10/83	1020	.600	.600	.600	.600	.600	.600	.600	2.538	2.538	2.538
23/10/83	1040	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
23/10/83	1100	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538	2.538
23/10/83	1120	2.538	1.713	1.713	1.713	1.713	1.713	1.713	1.713	1.713	1.713

23/10/83	1140	1.713	1.713	1.713	1.713	1.713	1.713	1.713	2.001	2.001	2.001
23/10/83	1200	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.130	2.130
23/10/83	1220	2.130	2.130	2.130	2.130	2.130	2.127	2.127	2.127	2.127	2.127
23/10/83	1240	2.127	2.127	2.127	2.127	2.127	2.127	2.127	2.127	2.127	2.127
23/10/83	1300	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201	3.201
23/10/83	1320	3.201	3.201	3.201	3.201	3.201	3.201	1.500	1.500	1.500	1.500
23/10/83	1340	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	1400	.750	.750	.750	.750	.750	.750	.750	.750	1.599	1.599
23/10/83	1420	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599
23/10/83	1440	1.599	1.599	1.599	2.889	2.889	2.889	2.889	2.889	2.889	2.889
23/10/83	1500	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889
23/10/83	1520	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889	2.889
23/10/83	1540	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
23/10/83	1600	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
23/10/83	1620	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
23/10/83	1640	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608	1.608
23/10/83	1700	1.608	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845
23/10/83	1720	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845
23/10/83	1740	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845
23/10/83	1800	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845
23/10/83	1820	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845	1.845
23/10/83	1840	1.845	1.845	1.845	1.614	1.614	1.614	1.614	1.614	1.614	1.614
23/10/83	1900	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
23/10/83	1920	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
23/10/83	1940	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
23/10/83	2000	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614	1.614
23/10/83	2020	1.614	1.614	1.614	1.614	1.200	1.200	1.200	1.200	1.200	1.200
23/10/83	2040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23/10/83	2120	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 25/10/83 TO 26/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL, 10-VALUES ACROSS)									
25/10/83	2221	0.000	0.000	0.000	2.211	2.211	2.211	2.211	2.211	2.211	2.211
25/10/83	2241	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211	2.211
25/10/83	2300	2.211	2.211	2.211	1.200	1.200	1.200	1.200	1.200	1.200	1.200
25/10/83	2321	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25/10/83	2341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	1	0.000	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000
26/10/83	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	41	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
26/10/83	101	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.469
26/10/83	121	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469	2.469
26/10/83	141	0.000	2.469	2.469	2.469	2.469	2.469	1.332	1.332	1.332	1.332
26/10/83	201	1.332	1.332	1.332	1.332	1.332	2.100	2.100	2.100	2.100	2.100
26/10/83	221	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100	2.100
26/10/83	241	2.100	2.100	2.100	2.100	2.100	3.000	3.000	3.000	3.000	3.000
26/10/83	301	3.000	3.000	3.000	3.000	3.000	3.000	3.000	1.200	12.000	1.200
26/10/83	321	1.200	1.200	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001
26/10/83	341	2.001	2.001	2.001	2.001	2.001	1.599	1.599	1.599	1.599	1.599
26/10/83	401	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599	1.599
26/10/83	421	3.693	3.693	3.693	3.693	3.693	3.693	3.693	3.693	3.693	3.693
26/10/83	441	3.693	3.693	3.693	4.668	4.668	4.668	4.668	4.668	4.668	4.668
26/10/83	501	4.668	4.668	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500
26/10/83	521	1.500	1.500	1.500	1.500	1.500	1.500	1.500	1.500	3.273	3.273
26/10/83	541	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	3.273	14.400
26/10/83	601	14.400	14.400	14.400	14.400	7.092	7.092	7.092	7.092	7.092	7.092
26/10/83	621	7.092	7.092	7.092	7.092	7.092	3.000	3.000	6.750	6.750	6.750
26/10/83	641	6.750	6.750	6.750	6.750	6.750	6.870	6.870	6.870	6.870	6.870
26/10/83	701	6.870	6.870	7.200	7.200	7.200	7.200	7.200	6.000	6.000	6.000
26/10/83	721	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
26/10/83	741	6.000	6.000	4.287	4.287	4.287	4.287	4.287	4.287	4.287	4.287
26/10/83	801	4.287	4.287	4.287	4.287	8.400	8.400	8.400	8.400	8.400	6.999
26/10/83	821	6.999	6.999	6.999	6.999	6.999	2.400	2.400	2.400	2.400	2.400
26/10/83	841	9.000	9.000	3.273	3.273	3.273	3.273	3.273	3.273	5.334	5.334
26/10/83	901	5.334	5.334	5.334	5.334	5.334	5.334	5.334	5.001	5.001	5.001
26/10/83	921	5.001	5.001	5.001	3.501	3.501	3.501	3.501	3.501	3.501	3.501
26/10/83	941	3.501	3.501	3.501	3.501	3.501	1.800	1.800	1.800	1.800	1.800
26/10/83	1001	1.800	1.800	1.800	1.800	1.800	3.600	3.600	3.600	3.600	3.600
26/10/83	1021	54.000	13.500	13.500	13.500	13.500	9.177	9.177	9.177	9.177	9.177
26/10/83	1041	9.177	9.177	9.177	9.177	9.177	9.177	9.177	9.177	9.177	9.177
26/10/83	1101	9.177	9.177	6.750	6.750	6.750	6.750	6.750	6.750	6.750	6.750
26/10/83	1121	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
26/10/83	1141	6.000	6.000	6.000	6.000	6.000	5.367	5.367	5.367	5.367	5.367
26/10/83	1201	5.367	5.367	5.367	5.367	5.367	5.367	5.367	5.367	5.367	5.367
26/10/83	1221	5.367	5.367	5.367	5.367	8.001	8.001	8.001	6.000	6.000	6.000
26/10/83	1241	6.000	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118
26/10/83	1301	2.118	2.118	2.118	2.118	2.118	2.118	2.118	2.118	1.332	1.332
26/10/83	1321	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
26/10/83	1341	1.332	1.332	1.332	1.332	1.332	1.332	0.000	0.000	0.000	0.000
26/10/83	1401	0.000	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	1421	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	1441	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	1501	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	1521	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	1541	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	1601	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200
26/10/83	1621	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 26/10/83 TO 27/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
26/10/83	2101	0.000	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000
26/10/83	2121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26/10/83	2141	0.000	0.000	0.000	.999	.999	.999	.999	.999	.999	.999
26/10/83	2201	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	2221	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	2241	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	2301	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	2321	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26/10/83	2341	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27/10/83	1	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
27/10/83	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27/10/83	41	0.000	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764
27/10/83	101	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.200	1.200
27/10/83	121	1.200	1.200	1.200	3.000	3.000	2.625	2.625	2.625	2.625	2.625
27/10/83	141	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625
27/10/83	201	2.625	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200	1.200
27/10/83	221	1.200	.858	.858	.858	.858	.858	.858	.858	2.001	2.001
27/10/83	241	2.001	2.001	2.001	2.001	2.001	2.001	2.001	.999	.999	.999
27/10/83	301	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27/10/83	321	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27/10/83	341	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NEWTOWN CATCHMENT, NFLD.

STORM DATE FROM 28/10/83 TO 28/10/83

DATE	HOUR	RAINFALL INTENSITY(MM/HR.) (2-MINUTE INTERVAL,10-VALUES ACROSS)									
28/10/83	400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200
28/10/83	420	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.383	1.383	1.383
28/10/83	520	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383	1.383
28/10/83	540	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	2.001	0.000
28/10/83	600	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200	1.200	2.001
28/10/83	620	2.001	2.001	2.001	2.001	2.001	2.001	2.001	1.092	1.092	1.092
28/10/83	640	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
28/10/83	700	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092	1.092
28/10/83	720	.750	.750	.750	.750	.750	.750	.750	0.000	0.000	0.000
28/10/83	740	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	820	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	840	0.000	0.000	0.000	0.000	1.200	1.200	1.200	1.200	1.200	0.000
28/10/83	900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
28/10/83	920	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	940	1.500	1.500	1.500	1.500	0.000	0.000	0.000	0.000	0.000	3.000
28/10/83	1000	3.000	6.501	6.501	6.501	6.501	6.501	6.501	6.501	6.501	6.501
28/10/83	1020	6.501	6.501	6.501	6.870	6.870	6.870	6.870	6.870	6.870	6.870
28/10/83	1040	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668	1.668
28/10/83	1100	1.668	1.668	1.668	1.668	1.668	1.668	1.668	.999	.999	.999
28/10/83	1120	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
28/10/83	1140	1.200	1.200	1.200	1.200	1.200	0.000	0.000	0.000	0.000	0.000
28/10/83	1200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.200	1.200	1.200
28/10/83	1220	1.200	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	1240	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28/10/83	1300	0.000	0.000	0.000	0.000	2.307	1.332	1.332	1.332	1.332	1.332
28/10/83	1320	2.307	2.307	2.307	2.307	2.307	2.307	2.307	1.332	1.332	1.332
28/10/83	1340	1.332	1.332	1.332	1.332	1.332	1.332	3.000	3.000	3.000	3.000
28/10/83	1400	3.000	3.000	6.750	6.750	6.750	6.750	6.750	6.750	6.750	6.750
28/10/83	1420	3.999	3.999	3.999	3.999	3.999	3.999	3.999	3.999	3.999	3.999
28/10/83	1440	3.999	3.999	3.819	3.819	3.819	3.819	3.819	3.819	3.819	3.819
28/10/83	1500	3.819	3.819	3.819	2.667	2.667	2.667	2.667	2.667	2.667	2.667
28/10/83	1520	2.667	2.667	1.332	1.332	1.332	1.332	1.332	1.332	1.332	1.332
28/10/83	1540	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.999	.999	.999
28/10/83	1600	.999	.999	.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000

5.3. Air Temperature - St. John's West, CDA

Maximum, minimum and mean daily air temperatures in degrees Celsius were recorded at the climate station, St. John's West, CDA. These data are presented by year under each data type.

5.3.1 Daily mean temperature - St. John's West, CDA

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 003 FOR 1985 AUG 21, 1984 PAGE 1

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MEAN TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-0.5	-6.5	-6.8	-0.5	0.8	11.8	13.0	18.6	18.3	8.2	2.6	2.6
2	-0.8	-5.5	-7.3	-0.8	0.3	8.8	9.8	19.0	13.0	5.0	3.5	0.3
3	0.5	-5.8	-5.8	-0.5	1.0	6.8	11.3	11.8	16.3	9.5	1.3	-2.5
4	-6.5	-5.8	-5.0	-1.5	1.8	6.8	12.8	12.5	19.0	15.8	2.5	0.5
5	-6.0	-7.5	-4.5	0.5	3.8	7.0	15.8	13.8	14.5	14.8	7.0	2.8
6	-8.0	-5.5	2.0	3.0	3.0	8.3	14.8	13.3	11.5	7.5	7.3	1.5
7	-7.5	-2.8	-3.3	-2.8	3.5	6.8	14.0	11.8	16.3	12.3	0.5	2.5
8	-5.0	-4.6	0.0	-2.5	4.0	12.5	11.5	15.8	13.0	7.3	4.0	-1.3
9	-2.5	-3.0	3.5	2.5	4.3	13.6	11.5	18.0	12.8	8.5	6.3	0.5
10	-5.8	-5.3	-3.5	0.8	4.5	11.0	11.0	17.0	13.5	8.5	6.0	-2.5
11	-13.0	-7.5	-0.5	-1.0	8.5	13.0	14.0	12.5	15.3	7.5	5.0	-3.8
12	-9.5	-4.5	0.3	2.8	7.3	11.5	9.6	14.5	12.3	6.8	4.2	-8.5
13	-2.8	-8.0	-4.8	1.3	4.5	11.0	11.5	12.5	11.8	10.3	4.3	-4.8
14	-7.0	-4.5	-5.5	1.8	3.5	15.5	15.8	10.8	10.8	9.8	4.0	-5.8
15	-4.0	-3.0	-1.0	4.0	3.5	15.8	15.5	12.3	11.8	6.3	3.5	-3.5
16	-3.0	-3.5	-0.3	5.0	4.0	16.0	16.0	12.6	9.5	3.0	2.0	-2.8
17	-6.5	1.8	-5.3	6.8	5.5	10.0	19.5	10.0	7.3	3.8	-2.0	1.3
18	-3.8	-5.0	-3.5	2.3	8.3	6.0	18.0	9.8	9.8	6.3	0.0	-1.5
19	0.5	-4.0	-3.8	2.8	11.0	10.5	15.0	9.3	14.5	9.3	2.3	1.5
20	2.0	-0.5	-1.3	-1.8	6.8	15.0	12.3	9.0	9.5	12.0	-0.5	-3.0
21	-4.0	-3.5	-3.8	0.5	6.8	16.0	14.0	13.3	5.0	8.0	0.8	-10.0
22	-6.5	-14.8	-0.8	1.8	10.0	16.3	11.2	17.8	11.5	2.0	-1.3	-10.3
23	-4.5	-5.5	1.0	3.0	3.5	15.3	12.5	18.0	13.0	3.3	2.8	-4.3
24	-2.0	-5.5	0.3	4.0	2.5	12.3	15.3	10.8	12.5	2.8	4.8	-1.8
25	-2.8	-4.3	1.0	4.5	4.8	16.6	17.0	9.5	6.5	4.8	5.8	2.5
26	-4.0	-3.3	1.5	4.8	5.5	18.3	16.0	10.8	9.8	4.3	2.0	-6.8
27	-2.8	-0.3	-0.3	2.3	7.3	19.3	15.0	11.3	12.0	7.8	2.8	-7.8
28	-2.0	-5.0	-1.3	0.5	7.0	15.8	17.0	13.8	10.0	3.3	-1.0	-7.0
29	-4.8	-3.5	-1.3	0.5	7.8	10.5	20.6	12.5	7.8	2.2	1.8	-3.8
30	-5.5		0.8	6.0	5.5	13.5	20.0	9.8	5.3	3.0	2.5	4.5
31	-5.8		0.5		7.8		22.8	14.3		3.0		5.5

366 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 063 FOR 1981 AUG 21, 1984 PAGE 2

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MEAN TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-2.0	-6.0	1.3	-2.0	9.8	13.8	20.3	14.3	17.5	7.3	2.[illegible]	-[illegible]
2	-1.0	-3.5	2.3	-0.5	10.3	8.8	12.5	19.[illegible]	11.5	9.3	2.3	-[illegible]
3	-0.3	2.5	2.3	3.3	12.0	14.0	18.0	21.3	10.3	10.0	6.3	1.3
4	0.0	-0.5	1.3	6.0	3.5	13.0	21.5	21.0	11.0	14.0	1.6	4.[illegible]
5	-3.5	-8.5	0.8	9.3	7.3	8.0	13.5	19.[illegible]	14.0	11.8	0.3	3.[illegible]
6	-8.3	-10.8	1.0	7.0	11.8	11.3	12.5	11.5	12.5	10.0	4.3	7.5
7	-4.5	-6.8	1.0	5.8	11.0	10.[illegible]	16.3	15.0	13.0	0.3	6.8	7.3
8	1.5	0.3	3.0	2.2	7.8	11.5	17.0	19.0	11.5	10.8	13.[illegible]	5.2
9	-2.0	3.0	-0.8	5.3	7.3	10.0	9.8	19.3	12.0	14.3	6.[illegible]	0.3
10	-2.5	0.5	-1.8	14.3	9.0	6.3	12.8	12.8	13.0	7.5	7.5	0.0
11	2.0	-0.5	-1.8	2.5	10.8	9.8	11.3	15.3	13.5	9.0	7.8	3.3
12	0.5	5.5	-1.5	-1.0	12.0	2.2	9.5	16.8	12.3	7.3	10.3	0.[illegible]
13	5.0	-6.0	-2.3	-1.0	11.0	5.3	12.5	19.0	12.0	5.5	-0.0	-1.3
14	1.5	-8.0	-0.3	1.3	6.5	7.8	11.8	18.8	14.5	5.0	[illegible].5	-3.5
15	-0.5	-7.5	0.5	3.3	13.0	11.5	13.5	15.5	14.5	11.0	3.0	2.3
16	-1.5	-10.0	3.0	-2.8	9.3	9.5	15.3	16.0	11.0	12.8	4.5	5.5
17	-3.0	-4.3	3.5	-4.5	6.8	6.5	17.0	18.0	12.0	13.3	0.5	3.5
18	-1.3	4.0	0.3	-2.3	10.5	7.3	16.3	18.5	11.8	6.3	7.5	2.0
19	-2.0	3.5	-0.5	0.0	8.0	11.8	17.5	16.0	10.8	7.5	5.8	1.5
20	-6.5	-0.3	-3.3	3.5	6.8	13.3	14.0	10.8	14.8	8.0	3.0	2.0
21	-6.5	-1.3	0.0	3.5	8.0	17.0	14.0	13.3	10.0	6.8	4.0	-1.[illegible]
22	-5.8	0.8	-1.0	2.0	8.3	15.8	13.2	12.0	12.8	10.8	6.2	-0.3
23	-6.5	-0.5	-1.0	1.5	7.5	15.0	19.0	17.0	10.5	11.3	6.0	0.5
24	-1.3	-0.8	-1.5	5.3	7.8	17.8	14.0	18.5	11.3	12.8	2.8	-3.0
25	-2.8	0.8	-3.0	5.8	9.0	15.0	14.3	9.0	12.5	6.3	1.5	-2.3
26	-1.8	-1.5	-0.3	7.3	10.0	13.3	19.0	11.5	8.8	2.5	2.0	-4.8
27	0.5	-0.3	1.5	5.8	6.8	13.8	17.5	14.3	8.5	4.8	3.8	-8.3
28	2.0	0.3	-3.8	8.0	7.3	14.3	14.0	13.5	9.3	10.5	1.0	-7.5
29	-0.5		1.0	6.0	11.5	15.0	14.5	11.8	11.3	2.0	0.8	-4.5
30	-7.0		0.8	5.3	15.0	19.0	15.5	13.8	10.3	1.0	0.0	-2.0
31	-10.0		1.8		13.0		12.8	17.5		-0.8		-0.8

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT C03 FOR 1982 AUG 21, 1984 PAGE 5

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MEAN TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.5	-1.5	-16.5	-6.3	6.0	6.6	14.6	17.8	12.5	8.0	8.8	-3.1
2	0.3	-3.8	-10.0	4.8	6.3	4.8	15.0	17.0	11.5	10.5	3.3	-3.8
3	1.0	-2.5	-4.5	-1.8	2.8	8.6	13.5	12.6	16.0	6.3	4.2	-2.6
4	1.5	3.5	-9.0	-4.3	9.6	9.5	14.0	13.5	19.5	8.5	10.3	0.3
5	-0.3	-2.3	-4.0	0.8	8.5	10.0	11.5	11.6	16.8	7.3	12.6	4.8
6	1.8	-3.5	-0.8	1.5	11.5	11.3	15.3	11.6	16.8	6.5	10.5	3.6
7	-3.8	-6.0	1.8	-3.0	11.5	5.8	17.5	12.8	14.8	4.3	5.6	6.3
8	-3.0	-7.8	5.5	1.5	5.5	13.0	19.0	11.6	8.8	2.3	2.3	-1.8
9	-3.8	-11.3	-0.5	6.3	5.8	4.0	22.0	13.3	6.5	3.5	2.6	-2.0
10	-0.8	-9.3	-5.0	1.0	5.3	3.5	18.8	15.5	12.3	3.5	0.0	-8.5
11	-4.5	-7.5	-4.5	-6.5	5.0	5.5	16.8	17.3	14.3	4.8	6.5	-3.6
12	-7.5	-8.8	0.8	0.0	3.5	7.5	16.5	19.5	12.5	4.8	5.3	1.8
13	-8.5	-7.0	-3.0	0.5	4.0	8.0	19.8	16.0	12.3	4.3	10.8	-3.0
14	-4.8	-6.0	0.0	-0.8	4.0	6.5	21.0	20.8	20.8	4.3	10.6	-7.0
15	1.5	-12.0	0.5	1.8	3.0	8.0	16.5	19.8	16.5	6.8	2.3	-6.4
16	-2.5	-8.3	-5.0	0.2	2.8	6.0	10.0	17.8	10.0	11.8	5.0	-3.0
17	-1.5	-9.5	-6.5	6.5	3.5	10.3	16.8	18.8	14.3	11.3	2.3	4.0
18	-13.5	-11.0	-4.5	4.3	4.5	8.0	16.5	16.5	13.3	6.0	2.8	-0.3
19	-11.8	-10.8	-3.0	3.3	3.8	10.3	17.0	15.6	14.3	5.5	-2.6	-3.2
20	-8.3	-7.3	-3.8	0.8	4.3	7.3	20.5	16.5	12.5	10.3	-1.8	1.3
21	-5.0	1.0	-2.5	1.3	7.8	7.3	21.5	18.0	10.5	12.0	5.6	6.3
22	-8.0	-1.3	-5.0	4.8	5.5	7.3	16.5	13.3	12.3	9.2	8.4	4.0
23	-8.8	-1.0	-4.8	1.0	7.8	6.6	18.5	13.8	11.5	2.3	0.8	-1.3
24	-6.5	0.0	-2.0	1.8	6.3	7.6	18.3	13.5	15.5	2.0	10.0	-7.0
25	-1.5	-7.8	-1.0	3.6	9.3	9.5	14.8	16.5	14.5	6.5	2.3	-7.8
26	-4.3	-10.5	2.3	6.5	11.5	8.0	15.0	17.5	14.3	8.0	-6.5	4.3
27	-4.3	-10.3	4.3	11.8	6.5	6.5	15.0	15.5	14.0	0.8	0.5	-1.8
28	-3.5	-10.8	-0.3	11.3	7.8	8.0	11.8	17.5	13.5	3.0	-6.3	1.0
29	-5.5		-7.5	6.8	2.0	10.3	12.3	10.8	6.3	6.3	1.6	4.3
30	-5.5		-3.8	4.8	2.8	10.0	14.8	11.5	6.5	2.8	0.0	2.0
31	-2.5		-5.5		6.8		17.8	11.3		4.5		-4.8

365 DAYS WERE SELECTED

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MEAN TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-3.3	0.0	-13.0	0.0	10.8	8.3	18.0	12.8	9.8	8.8	2.0	1.0
2	-0.5	-2.0	-5.3	0.0	10.8	11.0	16.5	14.5	11.5	10.8	4.8	-1.3
3	-8.0	-1.5	2.5	1.0	5.0	11.5	8.0	19.0	10.3	16.0	4.3	-2.3
4	-14.3	0.3	2.0	1.5	8.0	12.5	12.8	20.5	11.0	15.3	2.0	0.3
5	-7.3	4.0	-6.5	1.0	11.0	11.5	18.0	11.3	14.3	7.5	1.5	-1.5
6	0.3	1.3	-4.8	0.8	14.0	11.0	22.0	14.5	16.8	12.8	3.8	-1.5
7	-0.8	-4.5	-9.0	1.8	8.5	11.0	23.5	19.8	17.0	13.5	7.3	-0.2
8	0.0	-4.5	-7.5	2.8	4.5	13.3	20.0	20.0	19.5	10.3	6.0	3.8
9	-4.3	2.0	-6.5	5.5	8.3	13.0	14.8	18.8	14.3	9.3	3.8	1.5
10	-8.0	1.5	-4.3	-4.0	2.8	12.0	13.0	18.3	9.3	6.5	3.0	1.8
11	-1.5	-3.3	0.0	-4.8	3.0	8.5	10.5	10.5	10.0	4.8	1.5	-4.0
12	5.5	-5.3	1.5	2.5	3.2	10.5	10.0	10.8	15.0	9.3	7.0	-0.3
13	9.0	-5.3	6.3	7.0	9.8	8.3	19.0	9.8	14.0	11.5	8.5	3.0
14	5.0	-6.5	1.5	-1.0	7.0	4.3	18.3	14.0	11.8	15.3	-1.0	3.0
15	-1.0	-3.3	-1.0	4.0	10.8	5.0	16.0	17.0	8.8	12.8	-2.3	4.5
16	-3.3	-3.3	-2.8	5.8	13.0	8.0	19.0	20.0	9.0	9.0	-0.8	7.8
17	0.5	-5.5	-2.3	7.0	11.0	7.5	18.3	18.8	9.3	4.3	1.3	2.5
18	3.5	-3.8	-1.5	6.5	12.0	15.0	17.5	16.0	9.8	4.8	8.5	-3.5
19	0.0	-3.5	0.3	8.5	8.0	19.3	19.0	12.8	11.8	11.5	4.3	-0.8
20	-5.5	-7.5	3.5	6.0	9.5	15.5	14.0	10.5	14.3	5.0	2.3	-1.3
21	-7.0	-9.5	7.0	10.8	11.8	10.3	15.5	16.3	14.0	3.0	0.3	-0.0
22	-8.2	-9.2	5.0	8.2	12.0	9.2	18.2	13.0	17.8	3.0	2.3	-4.5
23	-4.3	-10.5	5.5	10.0	3.8	15.0	17.3	12.3	19.8	5.5	2.5	-1.0
24	0.5	-7.5	5.0	6.3	3.8	12.3	17.5	11.8	12.0	4.0	0.0	-2.8
25	2.0	-4.5	3.5	7.3	3.0	15.3	12.3	9.3	9.8	4.0	4.8	-2.5
26	1.3	-0.8	5.8	8.5	2.0	14.0	16.0	12.8	10.0	6.5	3.3	-3.3
27	-4.3	1.0	-3.5	6.8	5.8	12.5	14.3	14.5	12.8	8.8	1.0	-2.5
28	-7.5	-7.5	-4.0	8.8	6.3	15.5	14.8	12.8	10.0	6.3	0.0	-1.5
29	-5.8		-1.8	10.0	5.3	11.8	20.8	8.8	10.3	7.8	-0.8	4.8
30	-6.5		3.0	13.0	6.8	16.8	20.5	7.5	6.5	4.5	0.3	3.8
31	-4.0		2.0		5.5		20.0	11.8		1.5		-4.5

365 DAYS WERE SELECTED

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8403600 ST JOHNS BEST COAST, NFLD. ELEMENT: DAILY MEAN TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-3.3	-1.3	3.5	-1.3	6.6	17.5	18.3	19.8	16.3	7.3	0.8	5.0
2	-5.5	-7.8	1.8	-4.3	5.6	16.3	12.3	19.0	13.0	8.3	6.0	2.5
3	-3.8	-6.5	-0.8	-3.3	6.5	12.5	11.8	16.5	11.3	8.0	2.6	-0.5
4	-6.0	-1.5	-3.3	0.8	6.6	7.3	15.5	17.3	11.5	11.0	2.5	0.5
5	-6.8	10.6	-4.9	-0.3	2.6	6.3	16.8	16.8	11.8	8.5	6.5	0.0
6	1.3	10.5	-4.8	-0.3	3.3	7.8	18.3	21.0	17.5	3.5	13.3	0.8
7	5.5	6.3	-0.5	3.5	2.6	6.6	20.0	20.5	18.8	6.8	13.0	5.3
8	4.8	-2.5	-4.3	4.3	2.8	6.3	22.5	21.6	9.3	8.3	-0.3	0.8
9	-2.8	-7.3	-6.9	6.5	6.3	7.3	22.5	15.0	12.8	5.8	-2.8	1.0
10	-1.3	-14.5	-7.9	1.3	9.3	10.3	22.0	12.5	17.3	3.0	-1.0	-2.5
11	-8.8	-7.6	-5.0	4.5	11.8	7.6	17.8	16.5	17.5	4.0	2.5	0.6
12	-9.5	1.0	-5.8	0.0	16.0	10.3	16.8	13.8	19.5	4.6	10.0	3.0
13	-13.3	1.3	-4.3	-0.3	6.8	11.3	17.3	16.3	8.0	2.0	5.0	5.3
14	-11.3	-6.4	-7.6	0.5	11.3	15.0	20.8	21.3	8.5	3.0	7.5	1.8
15	-9.0	0.5	-4.0	0.5	13.5	14.0	16.8	14.6	14.8	4.3	4.3	-1.0
16	-9.8	5.0	3.3	-0.3	10.0	4.8	15.3	17.5	15.8	3.3	2.5	-7.0
17	-4.5	-4.5	6.3	2.0	8.5	7.5	17.0	20.0	8.3	4.0	4.5	0.3
18	-2.8	-5.3	2.3	4.8	6.8	14.0	20.5	22.8	10.0	3.8	2.0	1.3
19	-5.8	-5.5	-0.8	-0.3	9.3	14.5	20.3	18.3	11.0	5.0	1.0	-2.3
20	-7.5	-0.3	-3.0	1.3	10.5	15.8	21.3	15.0	12.5	5.0	-3.0	-2.5
21	-10.0	2.8	6.9	5.3	10.3	14.8	20.0	16.0	16.0	7.8	1.8	3.0
22	-15.0	0.8	5.3	-1.0	3.8	5.0	17.8	16.0	9.5	6.0	-2.5	0.5
23	-14.3	-3.3	5.3	-2.5	6.8	6.3	18.5	19.5	9.0	5.8	-1.3	1.8
24	-8.0	-5.5	4.3	-0.3	10.8	4.3	17.0	16.5	12.5	6.0	0.3	-0.5
25	-1.3	0.0	-0.5	-3.0	12.8	8.5	19.0	17.8	12.3	5.8	-2.0	4.5
26	1.5	3.5	-1.0	-0.5	14.3	13.0	17.5	13.0	11.8	-0.3	0.0	-7.5
27	-4.5	2.8	-2.8	1.3	13.0	8.5	17.8	10.5	9.8	-1.5	0.0	-14.8
28	-1.3	-1.5	-1.8	2.3	11.0	12.6	14.5	10.3	6.8	3.0	2.5	-11.0
29	-5.8	-0.5	0.0	2.0	10.8	12.8	18.0	20.5	9.8	8.8	1.5	-3.5
30	-5.8		-1.3	3.3	10.8	10.5	16.5	14.3	9.3	4.0	5.8	2.0
31	-3.3		-1.0		14.5		18.3	16.0		1.8		-11.5

366 DAYS WERE SELECTED

5.3.2 Daily maximum temperature - St. John's West, CDA

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 001 FOR 1980 AUG 21, 1984 PAGE 1

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MAXIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0	-4.0	-5.0	1.0	3.0	18.5	17.5	22.0	22.0	12.0	9.0	4.0
2	0.5	-2.5	-4.0	2.5	3.0	14.5	13.5	22.5	15.0	10.0	7.0	1.5
3	3.0	-1.5	-4.0	4.0	5.0	10.0	15.0	12.0	21.5	12.0	3.0	1.5
4	-5.0	-3.0	-3.0	4.5	3.0	9.0	18.0	14.0	15.5	18.0	8.0	3.0
5	-4.0	-3.0	1.0	4.0	5.0	9.0	20.0	16.5	16.0	19.0	12.0	5.0
6	-7.0	-2.0	8.5	6.0	4.5	11.5	20.0	15.5	17.0	8.0	11.0	3.5
7	-1.0	-2.5	-2.0	0.0	5.0	9.0	18.5	15.0	20.5	17.5	5.0	3.0
8	4.0	-2.0	6.0	2.0	6.0	14.0	13.0	20.5	16.0	8.0	10.0	3.0
9	-2.0	-2.0	7.5	9.0	7.0	17.5	16.5	23.5	18.0	11.0	7.0	4.0
10	-5.0	-4.0	-3.0	3.5	8.5	16.5	13.5	20.5	18.0	11.0	7.0	2.0
11	-10.5	-3.0	4.0	0.0	14.0	18.5	16.0	14.5	18.0	11.0	5.5	-3.0
12	0.0	-4.0	2.5	6.5	10.0	16.0	11.0	19.0	18.5	13.0	8.0	-3.0
13	0.0	-6.0	-3.0	5.5	8.0	16.0	15.0	13.0	14.0	11.5	5.0	3.0
14	-4.0	-1.0	1.0	5.0	5.0	21.0	22.0	11.5	15.5	12.5	5.0	3.0
15	2.0	-1.0	5.0	11.5	6.0	19.5	21.0	15.5	15.0	9.0	4.0	1.0
16	-1.0	-0.5	1.5	8.0	9.0	20.0	18.5	14.0	11.0	5.0	3.0	3.0
17	-3.0	9.0	-2.5	9.5	13.0	14.0	25.0	11.0	14.0	8.0	2.0	1.0
18	2.0	-4.0	-1.0	4.0	17.5	8.0	22.0	13.0	14.0	14.0	1.0	0.0
19	2.0	0.0	-2.0	6.0	16.0	16.0	18.0	13.0	18.0	14.0	4.5	7.0
20	5.0	0.0	0.0	0.0	9.0	21.0	13.5	12.5	8.5	13.0	2.0	-2.5
21	-3.0	-2.0	0.5	4.0	13.5	22.0	16.0	18.5	9.0	10.0	1.5	-6.5
22	-2.0	-9.0	1.0	6.0	15.0	20.0	13.0	24.0	15.0	8.0	2.5	-8.0
23	-1.0	1.5	1.5	4.0	5.0	20.5	15.0	24.0	15.0	5.5	2.0	-8.0
24	1.0	-4.5	1.5	5.5	4.0	15.5	19.5	12.0	13.0	5.0	7.0	8.5
25	1.0	-2.0	1.5	6.0	7.5	25.0	21.0	10.0	11.0	8.0	7.0	12.0
26	-2.0	0.0	3.0	6.0	9.0	23.0	18.0	14.0	17.5	10.0	5.0	-4.5
27	0.0	2.5	0.5	4.0	11.5	25.5	18.0	16.0	16.0	11.5	6.5	-4.0
28	-1.0	2.0	0.5	2.5	9.0	18.5	23.5	16.0	12.0	9.5	0.0	-2.0
29	-3.5	0.0	0.0	13.0	12.0	13.0	27.0	18.0	10.0	3.0	3.0	2.0
30	-4.0		3.5	10.0	8.0	20.0	26.0	14.0	11.5	6.0	4.0	8.5
31	-3.5		4.0		13.5		25.0	18.5		7.0		9.0

366 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 010 FOR 1981 AUG 22, 1984 PAGE 2

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: TOTAL RAINFALL (MM) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0	0.0	3.8	0.0	10.6	6.2	0.3	0.4	0.6	0.0	1.2	0.0
2	0.0	0.0	0.2	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
3	0.0	0.0	6.2	0.0	0.6	0.0	0.0	0.0	0.0	0.9	0.4	0.0
4	11.8	0.0	15.2	0.0	8.8	0.5	0.0	11.0	0.4	29.0	0.6	1.5
5	0.0	0.0	5.2	0.0	1.2	0.0	20.2	0.2	0.0	0.0	0.0	3.6
6	0.0	0.0	8.0	0.0	0.0	0.0	14.6	10.6	5.2	3.2	0.0	14.2
7	0.0	0.0	0.0	0.0	3.8	34.6	0.8	1.4	24.1	0.0	50.5	2.8
8	33.2	10.4	0.0	0.2	3.0	0.0	33.4	5.2	0.6	10.6	1.6	3.4
9	0.0	18.0	0.0	0.0	0.0	0.0	14.4	1.2	0.8	13.8	0.0	9.4
10	7.2	0.0	0.0	0.0	0.0	30.6	0.0	0.0	4.2	47.7	0.0	7.0
11	11.6	0.0	0.0	0.0	0.0	5.2	8.8	0.0	31.1	42.8	1.0	1.4
12	3.2	0.0	0.0	0.0	0.0	0.2	9.0	5.6	3.6	4.4	1.4	1.2
13	13.2	0.0	0.0	0.0	0.0	0.0	0.0	13.6	3.8	0.0	0.0	0.0
14	0.0	0.0	14.8	0.0	0.0	0.0	15.6	0.0	4.4	0.0	0.0	0.0
15	0.0	0.0	27.5	14.0	0.0	3.0	10.2	0.0	0.6	0.3	0.6	15.4
16	6.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	21.4	31.3	0.6	12.4
17	13.4	0.0	27.2	0.0	1.8	0.2	0.0	10.2	4.2	33.6	4.8	0.2
18	13.4	0.0	0.0	0.0	0.0	7.0	0.0	33.0	0.4	0.2	21.6	2.0
19	0.0	0.0	0.0	1.7	0.0	0.0	0.0	4.6	15.2	0.0	3.0	3.4
20	0.0	0.0	0.0	1.0	0.0	0.0	0.8	1.6	4.0	0.0	2.2	0.6
21	0.0	0.0	0.0	11.0	0.0	7.4	0.0	0.0	1.4	0.0	14.2	0.0
22	0.0	0.0	0.0	6.0	0.0	9.2	1.0	0.0	3.0	0.0	9.8	3.6
23	0.0	0.0	0.0	0.0	7.8	3.2	0.0	0.0	15.8	0.0	0.0	0.0
24	0.0	0.0	0.0	12.4	11.8	0.0	0.0	7.4	35.2	0.0	0.2	0.0
25	0.0	0.0	0.0	5.8	6.8	0.0	0.0	1.0	5.2	0.0	11.8	0.0
26	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.2	7.5	76.2	0.0
27	0.3	44.6	0.0	0.0	0.0	2.2	0.0	0.0	1.0	16.0	0.0	0.0
28	0.0	10.5	0.0	0.0	0.0	6.7	3.6	0.0	0.0	25.2	0.0	0.0
29	0.0		0.0	0.0	0.0	3.8	0.0	0.0	10.0	0.0	0.0	0.0
30	0.0		0.0	1.4	1.0	0.2	4.4	0.0	0.2	0.0	0.0	6.0
31	0.0		14.2		4.8		2.0	0.0		0.8		3.6

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 001 FOR 1982 AUG 21, 1984 PAGE 3

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MAXIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.0	0.0	-15.0	5.5	9.0	7.5	21.0	25.0	18.0	14.0	14.5	-2.0
2	1.5	-1.5	0.0	8.5	8.0	8.5	20.5	22.0	16.5	11.0	7.5	-2.0
3	2.5	7.0	-2.0	0.5	8.5	14.5	20.5	16.5	21.0	10.0	11.0	1.0
4	2.0	9.0	-8.0	2.0	14.0	14.0	19.0	17.0	21.5	10.0	15.5	8.0
5	2.5	-2.0	5.5	3.5	11.0	18.0	17.0	16.0	20.0	9.0	17.0	4.0
6	3.0	4.0	0.5	4.0	18.0	16.0	21.5	15.0	21.5	12.0	17.0	11.0
7	-3.0	-4.0	9.5	1.0	15.0	12.0	22.0	19.0	18.5	5.0	9.0	12.0
8	1.0	-4.0	11.0	4.0	9.0	13.0	27.0	16.0	11.5	2.0	4.0	1.5
9	0.0	-10.5	1.0	2.0	8.5	6.0	29.0	19.5	12.0	0.5	4.0	4.0
10	5.5	-6.0	-1.0	4.5	6.0	7.0	24.0	20.5	17.5	6.0	2.0	-3.0
11	-3.0	-4.0	4.5	2.0	7.0	9.0	21.5	22.0	16.0	0.0	3.5	3.0
12	-6.0	-3.0	6.0	2.5	6.0	12.0	24.0	24.0	17.0	6.5	11.5	3.5
13	-6.0	-0.5	-2.5	3.0	6.0	14.5	26.0	25.0	22.0	0.0	15.0	-2.0
14	0.5	1.0	2.5	4.5	5.0	15.0	24.0	26.0	26.0	5.5	12.5	-6.0
15	8.0	-11.0	2.0	4.5	4.0	12.0	12.0	22.0	19.0	10.5	5.0	-2.0
16	0.5	-2.5	-3.0	7.0	4.5	7.0	13.0	22.0	12.0	15.5	8.0	3.0
17	2.0	-8.5	-3.0	11.5	6.0	15.5	12.5	25.0	19.5	12.5	5.5	8.0
18	-11.0	-10.0	-1.0	10.0	7.0	11.0	17.0	22.0	15.5	10.0	4.5	-5.0
19	-8.5	-3.5	-2.0	7.0	5.5	14.0	24.0	18.0	17.5	12.0	-1.0	0.0
20	-3.5	0.5	-2.0	3.5	7.5	8.0	25.0	22.5	17.0	15.0	3.0	9.0
21	-2.0	3.0	-1.5	8.0	12.5	9.5	25.0	20.5	14.0	18.0	9.0	10.0
22	-5.0	0.5	-4.0	8.5	10.0	11.5	20.0	19.0	16.0	13.0	13.0	5.0
23	-8.0	2.0	-3.0	4.0	13.5	7.0	21.0	19.5	14.0	3.5	9.5	-1.0
24	3.0	1.0	0.5	5.5	15.0	10.0	22.5	19.0	20.0	5.0	10.0	-0.0
25	0.5	-4.5	3.5	6.0	15.0	11.5	20.0	20.0	19.5	8.0	4.0	4.0
26	-1.0	-6.0	6.5	15.0	18.0	10.5	17.5	21.0	19.0	4.0	3.0	3.0
27	-1.0	-8.0	9.0	20.5	12.0	10.0	16.5	19.0	20.0	5.5	3.5	3.0
28	-3.0	-9.0	2.0	16.5	12.5	10.5	14.5	22.5	17.0	7.0	-3.0	10.0
29	1.0		-3.0	10.5	5.5	17.0	17.0	12.0	9.5	1.0	7.0	10.5
30	-4.0		-0.5	6.5	5.5	15.0	18.5	10.0	10.0	7.0	1.5	4.0
31	2.5		-1.0		14.5		23.0	17.0		11.0		-2.5

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 001 FOR 1983 AUG 21, 1984 PAGE 4

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MAXIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0	2.0	-7.0	2.0	17.0	14.0	25.0	19.0	13.0	11.5	5.0	2.0
2	1.0	-1.0	5.0	1.5	13.0	16.0	22.5	21.0	13.0	15.0	11.5	1.5
3	-5.0	5.0	6.0	3.0	8.0	10.0	9.0	23.0	12.0	19.0	13.0	2.0
4	-13.0	3.0	4.0	2.5	14.0	20.0	18.0	25.0	12.0	16.5	9.0	1.0
5	1.5	7.0	-6.5	1.5	18.0	14.0	27.0	17.0	20.0	11.0	2.0	-1.0
6	4.0	2.5	-1.0	1.5	17.0	15.0	27.0	21.0	23.5	19.0	9.5	1.0
7	1.0	-3.0	-7.0	4.5	11.0	16.0	27.5	23.5	20.0	17.0	10.5	7.5
8	4.5	0.0	-6.0	9.0	10.0	20.0	22.5	24.0	22.0	13.5	7.0	8.0
9	-2.5	5.0	-4.0	8.0	13.5	17.0	19.5	25.5	18.0	14.5	6.0	2.5
10	-3.0	4.0	1.5	-3.0	3.5	19.0	16.5	20.0	11.5	7.0	4.0	7.5
11	6.0	-2.0	5.0	0.5	5.0	11.0	21.0	21.0	13.5	8.0	4.5	6.0
12	10.0	-2.0	3.5	8.0	6.0	16.0	19.0	13.5	20.5	14.0	13.0	-4.5
13	10.0	-2.0	11.5	10.0	17.5	11.5	23.0	11.0	18.0	16.0	10.0	3.5
14	6.0	-1.0	3.0	0.0	10.0	7.5	22.0	20.0	13.5	19.0	6.0	8.0
15	1.0	2.5	0.0	3.0	12.0	9.5	18.0	22.0	9.5	18.0	-2.0	6.0
16	1.0	-2.5	-2.5	11.5	18.0	15.0	23.0	25.5	13.0	12.5	4.5	10.0
17	5.0	-5.0	-1.5	9.0	14.0	15.0	24.0	21.5	15.0	8.5	7.5	3.0
18	7.0	-0.5	4.0	8.0	15.0	23.5	21.0	20.0	15.0	11.0	9.0	-2.0
19	1.0	-0.5	4.0	13.0	14.0	25.5	25.0	15.5	14.5	15.0	6.0	-2.5
20	-5.0	-6.0	8.0	11.0	16.0	18.0	17.0	19.5	18.0	6.0	4.5	-8.5
21	-6.0	-8.0	9.0	17.0	16.0	13.0	20.0	19.5	17.5	8.0	2.0	0.0
22	-5.0	-5.0	10.0	11.0	16.5	14.0	23.0	13.0	25.0	6.0	4.5	-2.0
23	-0.5	-9.0	7.0	15.0	5.5	21.0	21.0	19.5	23.0	6.0	4.5	3.0
24	7.0	-4.0	8.0	8.5	5.5	17.5	20.0	14.5	13.5	5.5	1.0	0.0
25	4.0	-1.0	9.0	12.5	5.0	21.5	16.0	17.0	10.5	7.0	4.0	3.0
26	3.0	0.5	11.0	13.0	4.0	17.5	19.0	20.5	15.0	11.0	7.5	-3.0
27	-4.0	3.0	-2.5	9.5	10.0	21.0	18.5	18.0	16.5	10.0	2.0	1.5
28	-5.0	-7.0	-1.0	10.0	12.0	19.0	20.0	15.0	14.0	9.5	1.0	1.0
29	-2.5		1.5	10.0	6.5	18.0	28.0	16.5	14.5	13.5	1.5	10.0
30	-4.0		11.0	20.5	10.0	24.0	24.0	11.5	8.0	5.5	5.5	4.0
31	1.0		4.0		8.0		22.5	15.0		5.5		-2.0

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 001 FOR 1984 AUG 26, 1985 PAGE 1

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MAXIMUM TEMP (C) RANGE: -1999.9 TO 1996.4

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-1.0	4.0	8.5	0.5	11.0	21.0	21.5	23.0	19.5	12.5	2.0	6.0
2	-0.5	-4.0	4.0	-1.5	8.5	21.5	15.0	23.5	14.5	12.0	15.0	4.0
3	-1.5	3.0	1.0	3.0	10.5	15.0	18.0	23.0	13.5	11.5	5.0	0.0
4	1.0	10.5	-0.5	4.5	11.5	6.0	22.0	24.0	16.5	15.0	5.5	4.0
5	2.0	14.0	-4.0	-0.5	6.0	9.0	25.0	23.0	17.0	10.5	15.0	2.0
6	3.5	13.0	1.5	0.0	5.0	11.0	22.0	27.0	22.5	8.0	19.5	4.0
7	9.5	11.5	4.0	6.0	3.0	8.0	25.0	27.0	21.0	9.5	14.0	13.5
8	6.0	-1.5	-1.0	7.5	5.0	9.5	27.0	26.0	11.0	12.5	0.5	3.0
9	-1.0	-6.0	-2.0	1.5	13.0	9.5	26.5	19.5	16.5	6.5	0.0	4.5
10	3.5	-0.0	3.5	2.5	15.0	15.0	25.0	17.0	24.0	5.0	2.5	-1.0
11	13.0	-6.5	-2.0	6.0	16.0	12.0	21.0	26.5	22.0	7.5	6.5	7.5
12	-9.0	7.0	0.0	1.0	10.5	14.0	23.0	14.5	23.0	7.0	15.0	7.0
13	-11.5	4.5	-2.0	6.5	12.0	18.0	23.0	20.5	9.0	3.5	7.5	10.0
14	-6.0	-1.0	-3.0	1.5	10.0	19.0	27.0	24.0	16.0	7.5	16.0	5.5
15	-8.0	7.5	2.0	1.0	19.0	18.5	22.0	20.5	16.5	14.5	5.5	-10.0
16	-5.5	0.0	8.5	1.0	12.0	8.5	22.0	24.0	22.0	4.5	7.0	0.5
17	-1.5	-3.0	11.0	7.0	12.0	16.5	21.0	27.5	10.5	6.0	6.5	6.5
18	-0.5	-3.5	5.5	6.0	11.5	19.0	26.5	20.5	15.5	5.5	4.0	4.5
19	-4.0	-1.0	0.0	2.0	11.0	19.5	27.0	21.0	18.0	6.0	3.0	0.0
20	-6.0	0.0	-1.5	6.5	14.0	21.0	26.0	16.0	17.0	7.5	-1.5	1.5
21	-7.0	0.5	4.5	6.5	15.0	16.5	26.5	14.0	21.0	11.5	1.5	0.0
22	-9.0	2.5	13.5	-0.5	4.5	6.0	23.5	21.0	12.5	11.0	-2.0	7.0
23	-8.5	-2.5	9.5	-1.0	11.5	9.0	24.0	25.0	13.0	6.5	4.0	6.5
24	0.0	-0.5	8.0	0.0	20.0	5.5	20.0	20.0	18.0	8.0	5.5	2.5
25	8.5	3.0	1.0	-0.5	18.0	15.0	24.0	22.0	15.5	9.5	0.5	10.0
26	4.0	5.5	2.5	1.0	19.5	20.5	22.0	16.5	18.5	1.0	3.0	-5.5
27	1.0	5.0	0.0	3.5	14.0	13.0	24.5	23.0	11.5	1.0	3.0	-10.0
28	2.0	-0.5	1.0	9.0	17.5	17.0	17.0	23.0	10.5	11.0	3.0	-6.0
29	-2.0	1.5	1.0	5.5	15.5	16.0	23.5	25.0	14.5	13.5	5.5	5.0
30	-3.0		0.0	6.0	17.5	23.0	22.0	17.0	12.5	7.0	9.5	5.0
31	5.5		0.0		21.0		25.5	14.0		8.0		-10.0

366 DAYS WERE SELECTED

5.3.3 Daily minimum temperature - St. John's West, CDA

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 052 FOR 1980 AUG 21, 1984 PAGE 1

8403660 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MINIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-1.0	-9.0	-8.5	-2.0	-1.5	2.5	8.5	12.5	14.5	5.M	1.5	M.M
2	-2.0	-8.5	-10.5	-4.0	-2.5	3.0	6.5	13.5	11.0	0.0	0.0	-1.5
3	-2.0	-10.0	-7.5	-5.0	-3.0	3.5	7.5	11.5	11.0	7.M	-0.5	-4.5
4	-8.0	-8.5	-7.0	-7.5	0.5	4.5	7.5	11.0	12.5	9.5	-3.0	-2.0
5	-8.0	-12.0	-10.0	-3.0	2.5	5.0	11.5	11.0	9.5	10.5	2.0	0.5
6	-9.0	-9.0	-4.5	0.0	1.5	5.0	9.5	11.0	6.0	7.0	3.5	-3.5
7	-14.0	-3.0	-4.5	-5.5	2.0	4.5	9.5	8.5	12.0	7.0	-4.0	2.0
8	-14.0	-6.0	-6.0	-7.0	2.0	6.0	10.0	11.0	10.0	7.0	-2.0	-0.5
9	-3.0	-4.0	-0.5	-5.0	1.5	10.0	6.5	12.5	7.5	6.0	5.5	-3.0
10	-6.5	-6.5	-4.0	-2.0	0.5	5.5	8.5	13.5	9.0	5.0	5.0	-1.0
11	-15.5	-12.0	-5.0	-2.0	3.0	7.5	10.0	10.5	12.5	4.0	4.5	-4.5
12	-19.0	-5.0	-2.0	-1.0	4.5	6.0	7.0	10.0	6.0	0.5	3.0	-5.0
13	-5.5	-10.0	-6.5	-3.0	1.0	6.0	8.0	12.0	9.5	9.0	3.5	-12.5
14	-10.0	-8.0	-12.0	-1.5	2.0	10.0	9.5	10.0	6.0	7.0	3.0	-4.5
15	-10.0	-5.0	-7.0	-3.5	1.0	12.0	10.0	9.0	8.5	3.5	2.M	-7.0
16	-5.0	-6.5	-2.0	2.0	-1.0	12.0	13.5	11.5	8.0	1.5	1.0	-8.5
17	-10.0	-5.5	-8.0	4.0	-2.0	6.0	14.0	9.0	0.5	-0.5	-6.0	-8.5
18	-9.5	-6.0	-6.0	0.0	-1.0	4.0	14.0	6.5	5.5	2.5	-1.0	-2.0
19	-1.0	-8.0	-5.5	-0.5	6.0	5.0	12.0	5.5	11.0	4.5	0.0	-4.0
20	-1.0	-1.0	-2.5	-3.5	4.5	9.0	11.0	5.5	4.5	11.0	-3.0	-3.5
21	-5.0	-5.0	-2.0	-3.0	0.0	10.0	10.0	8.0	1.0	6.5	0.0	-13.5
22	-11.0	-20.5	-2.5	-2.5	2.0	12.5	10.0	11.5	8.M	2.0	-5.0	-13.M
23	-8.0	-12.5	0.5	2.0	2.0	10.0	10.0	12.0	11.0	1.0	0.5	-11.0
24	-5.0	-6.5	-1.0	2.5	1.0	9.0	11.0	9.5	12.0	0.5	2.5	-12.0
25	-6.5	-6.5	0.5	3.0	2.0	8.5	13.0	9.0	1.5	1.5	3.M	-1.0
26	-6.0	-6.5	3.0	3.5	2.0	13.5	14.0	7.5	2.0	-1.5	2.0	-9.5
27	-5.5	-3.0	-1.0	1.0	3.0	13.0	12.0	6.5	3.0	4.0	-1.0	-11.5
28	-3.0	-12.0	-3.0	-1.0	5.0	13.0	11.0	11.5	8.0	1.0	-2.0	-12.0
29	-6.0	-7.0	-2.5	0.0	3.5	8.M	13.M	9.M	5.5	2.M	-1.0	-8.0
30	-7.0		-2.0	2.0	3.0	7.0	14.0	5.5	-1.0	0.5	1.0	0.5
31	-8.0		-3.0		2.0		20.5	10.0		-1.0		2.0

366 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT C02 FOR 1981 AUG 21, 1984 PAGE 2

8403600 ST JOHN'S WEST COA, NFLD. ELEMENT: DAILY MINIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-2.5	-11.5	0.5	-3.0	6.0	12.0	17.0	9.5	14.0	2.0	-1.0	-2.0
2	-5.0	-10.0	1.0	-7.0	6.0	2.5	7.0	12.0	9.0	5.0	-2.0	-1.0
3	-2.5	0.0	1.5	1.0	8.0	8.0	11.0	12.0	4.5	5.0	5.0	-2.0
4	-4.0	-2.0	0.0	0.0	2.0	10.5	13.5	17.0	5.0	13.0	-1.5	1.0
5	-7.0	-11.5	0.0	5.0	1.0	3.5	8.0	15.5	9.5	8.0	0.0	3.0
6	-13.0	-14.0	0.0	4.5	5.0	2.5	7.0	11.0	10.5	7.5	-4.0	5.5
7	-10.0	-14.0	0.5	4.0	10.0	7.0	10.0	11.0	11.5	4.0	4.0	2.0
8	-1.5	-3.5	-1.5	-1.0	4.0	8.0	13.0	15.0	11.0	6.5	11.0	4.5
9	-3.0	-4.0	-2.0	-1.5	-2.0	7.0	7.0	12.0	11.0	7.0	7.5	5.0
10	-11.0	0.0	-3.0	5.5	2.0	5.0	7.5	9.0	12.0	7.0	3.0	5.0
11	-2.0	-6.0	-3.0	0.5	4.5	5.0	6.0	10.0	13.0	7.0	3.5	3.0
12	-3.0	-2.0	-6.0	-2.5	3.5	4.0	7.5	13.5	10.0	7.0	2.5	-1.0
13	0.0	-7.0	-7.0	-2.0	6.0	0.5	8.0	16.0	7.5	3.5	-2.0	-3.5
14	0.0	-11.5	-4.5	-4.0	3.0	3.5	8.0	16.5	12.0	0.0	-3.5	-2.0
15	-2.0	-10.5	-2.5	0.0	5.0	6.5	10.0	11.5	12.0	0.0	-2.0	-1.5
16	-6.0	-17.0	-2.0	-3.5	5.5	3.0	13.0	11.5	10.0	7.5	3.0	-1.0
17	-6.5	-13.0	-5.0	-9.5	2.0	3.0	12.0	14.5	11.0	8.5	3.0	2.0
18	-7.0	0.0	-0.5	-6.5	3.5	5.0	9.5	17.0	11.0	5.5	5.0	1.0
19	-3.0	-1.0	-2.0	-4.5	4.0	5.5	10.0	13.5	5.0	5.0	3.5	-1.0
20	-8.0	-3.5	-2.0	2.0	2.0	7.5	11.0	9.5	10.5	4.5	3.0	0.5
21	-11.0	-5.5	-0.5	2.0	3.0	13.5	9.5	5.5	14.0	2.0	1.0	-2.5
22	-8.5	-2.0	-1.5	0.5	2.0	14.0	9.0	11.5	10.0	7.0	3.5	-4.0
23	-11.5	-3.0	-3.0	-0.5	6.0	10.0	15.0	7.5	8.0	7.5	3.0	-1.0
24	-2.0	-2.5	-3.0	0.0	4.0	13.0	10.5	15.0	9.0	6.0	-1.0	-6.0
25	-4.0	-2.5	-6.0	1.0	7.0	8.5	7.0	8.0	3.0	4.0	0.0	-12.5
26	-5.5	-6.0	-3.5	4.0	4.5	8.0	13.0	4.0	6.5	-2.0	-2.0	-6.5
27	-5.0	-2.0	-2.5	0.0	5.0	10.0	11.5	10.0	6.5	6.5	3.0	-9.0
28	1.0	-1.0	-8.0	3.5	2.0	13.0	12.0	10.0	4.5	6.0	0.0	-10.5
29	-1.0		-4.5	2.0	5.5	10.0	9.0	5.5	9.0	1.0	-1.5	-3.5
30	-8.0		3.0	0.5	7.5	13.0	11.0	6.5	7.5	-1.0	-3.0	-5.0
31	-15.0		-1.0		9.5		12.0	11.0		-2.5		-3.0

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 002 FOR 1982 AUG 21, 1984 PAGE 3

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MINIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0	-9.0	-18.0	-6.0	3.0	4.5	7.0	10.5	7.0	2.0	6.0	-4.0
2	-1.0	-6.0	-20.0	1.0	4.5	1.0	9.5	12.0	7.0	10.0	-1.0	-7.5
3	-0.5	-12.0	-7.0	-4.0	3.0	3.0	6.5	8.0	11.0	8.0	-2.0	-2.0
4	1.0	-2.0	-10.0	-10.5	4.0	5.0	9.0	10.0	17.5	7.0	5.0	-8.0
5	-3.0	-2.5	-13.5	-2.0	6.0	2.0	6.0	6.0	13.5	5.0	13.0	-6.5
6	0.5	-11.0	-2.0	-1.0	5.0	6.5	9.0	7.0	12.0	1.0	14.0	-5.0
7	-4.5	-8.0	-6.0	-7.0	8.0	-0.5	13.0	6.5	11.0	3.0	1.0	1.0
8	-7.0	-11.5	0.0	-1.0	2.0	1.0	11.0	6.0	6.0	2.0	1.0	-3.0
9	-7.5	-12.0	-2.0	-1.5	3.5	2.0	15.0	7.0	1.0	0.5	1.0	-5.0
10	-7.0	-12.5	-9.0	-2.5	4.5	0.0	13.5	10.5	7.0	1.0	-2.0	-12.0
11	-6.0	-11.0	-13.5	-3.0	3.0	2.0	12.0	12.5	12.5	3.5	-2.5	-11.0
12	-9.0	-14.5	-4.5	-2.5	1.0	3.0	9.0	12.0	8.0	3.0	-1.0	-6.0
13	-11.0	-13.5	-3.5	-2.0	2.0	1.5	13.5	11.0	3.0	3.0	6.5	-4.0
14	-10.0	-13.0	-2.5	-6.0	3.0	0.0	18.0	15.5	15.5	3.0	7.5	-8.0
15	-5.0	-13.0	-1.0	0.0	2.0	4.0	9.0	17.5	13.0	3.0	-1.5	-11.0
16	-5.5	-14.0	-7.0	-6.0	1.0	5.0	7.0	13.5	8.0	8.0	4.0	-9.0
17	-5.0	-10.5	-10.0	1.0	1.0	5.0	9.0	12.5	9.0	6.5	-1.0	-0.5
18	-16.0	-12.0	-8.0	-1.5	2.0	5.0	4.0	15.0	11.0	6.0	1.0	-8.0
19	-15.0	-18.0	-4.0	-0.5	2.0	6.0	10.0	12.0	11.0	-1.0	-3.0	-7.0
20	-13.0	-15.0	-5.5	-2.0	1.5	6.5	16.0	10.5	8.0	5.5	-0.5	-5.0
21	-8.0	-1.0	-3.5	-5.5	3.0	5.0	18.0	15.5	7.0	6.0	1.0	3.0
22	-11.0	-3.0	-6.0	1.0	1.0	3.0	13.0	10.5	9.0	8.0	3.0	2.0
23	-9.5	-4.0	-6.5	-2.0	2.0	2.0	16.0	8.0	9.0	0.5	4.0	-1.0
24	-16.0	-1.0	-4.5	-2.0	-2.5	4.0	14.0	8.0	11.0	-1.0	4.0	-8.0
25	-3.5	-9.0	-5.5	1.0	3.5	7.5	9.5	13.0	9.5	-3.0	1.5	-13.5
26	-7.5	-13.0	-2.0	-2.0	5.0	5.5	12.5	14.0	9.5	3.0	-4.0	0.5
27	-7.5	-12.5	-0.5	3.0	1.0	3.0	11.5	12.0	8.0	-4.0	-2.5	-3.5
28	-4.0	-12.5	-2.5	6.0	3.0	5.5	9.0	12.5	10.0	-1.0	-9.5	-3.0
29	-12.0		-12.0	3.0	-1.5	3.5	7.5	9.5	3.0	-2.5	-7.5	-2.0
30	-7.0		-7.0	3.0	0.0	5.0	11.0	7.0	3.0	-1.5	-1.5	0.0
31	-7.5		-10.0		-1.0		12.5	5.5		-2.0		-7.0

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 002 FOR 1983 AUG 21, 1994 PAGE 4

8403600 ST JOHN'S WEST COAST, NFLD. ELEMENT: DAILY MINIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-6.5	-2.0	-19.0	-2.0	4.5	2.5	11.0	6.5	6.5	[illegible]	-1.0	[illegible]
2	-2.0	-3.0	-15.5	-1.5	8.5	6.0	10.5	8.0	10.0	6.5	-1.5	-4.0
3	-11.0	-8.0	-1.0	0.5	2.0	7.0	7.0	16.0	8.5	13.0	[illegible]	-6.5
4	-15.5	-2.5	3.0	0.5	2.0	5.0	7.5	16.0	10.0	14.5	-1.0	0.0
5	-16.0	1.0	-6.5	0.5	4.0	9.0	9.0	2.5	8.5	4.0	-1.0	-2.5
6	-3.5	0.0	-8.5	0.0	11.0	7.0	17.0	8.0	14.0	6.5	-2.0	-4.0
7	-2.5	-6.0	-11.0	-1.0	6.0	6.0	19.5	16.0	14.0	14.0	4.0	-7.0
8	-4.5	-9.0	-9.0	-3.5	-1.0	10.5	17.5	16.0	17.0	7.0	[illegible]	[illegible]
9	-6.0	-1.0	-9.0	3.0	3.0	9.0	10.0	12.0	10.5	4.0	1.5	-3.5
10	-13.0	-1.0	-10.0	-5.0	2.0	5.0	9.5	10.5	7.0	6.5	[illegible]	-4.0
11	-9.0	-4.5	-5.0	-10.0	1.0	6.0	12.0	10.0	6.5	1.5	-1.5	-3.0
12	1.0	-8.5	-0.5	-3.0	1.0	2.0	13.0	8.0	9.5	4.5	[illegible]	-8.5
13	8.0	-8.5	1.0	4.0	2.0	5.0	15.0	8.5	10.0	7.5	7.0	-6.5
14	4.0	-12.0	0.0	-2.0	4.0	1.0	14.5	8.0	10.0	11.5	[illegible]	[illegible]
15	-3.0	-9.0	-2.0	-3.0	6.5	9.5	14.0	12.5	[illegible]	13.5	[illegible]	[illegible]
16	-7.5	-4.0	-3.0	0.0	6.0	1.0	15.0	14.5	5.0	5.5	[illegible]	5.5
17	-4.0	-6.0	-3.0	5.0	8.0	0.0	15.5	16.0	3.5	1.0	-3.0	1.0
18	0.0	-7.0	-7.0	5.0	9.0	6.5	14.0	12.0	4.5	[illegible]	4.0	-4.5
19	-1.0	-6.5	-3.5	4.0	2.0	13.0	13.0	10.0	9.0	8.0	2.5	-8.0
20	-6.0	-9.0	-1.0	5.0	3.0	13.0	11.0	12.5	10.5	4.5	0.0	-12.0
21	-8.0	-11.0	5.0	4.5	7.5	7.5	11.0	13.0	10.5	1.0	-1.5	-12.0
22	-12.0	-14.0	0.0	6.0	9.0	2.0	14.0	11.5	10.5	[illegible]	[illegible]	-7.0
23	-8.0	-12.0	4.0	5.0	2.0	9.0	13.5	9.0	16.5	4.0	0.5	-5.0
24	-6.0	-11.0	2.0	4.0	2.0	7.0	15.0	9.0	10.5	2.5	-1.0	-3.5
25	0.0	-8.0	-2.0	2.0	1.0	9.0	8.5	1.5	9.0	1.0	-2.5	-4.0
26	-0.5	-2.0	0.5	3.0	0.0	10.5	13.0	11.0	5.0	2.5	-1.0	-7.5
27	-4.5	-1.0	-4.5	4.0	1.5	10.0	10.0	14.0	5.0	7.5	[illegible]	-6.5
28	-10.0	-8.0	-7.0	7.5	0.5	12.0	9.5	10.5	6.0	3.0	-1.0	-9.0
29	-9.0		-5.0	4.0	4.0	5.5	13.5	7.0	7.0	[illegible]	-3.0	-1.0
30	-9.0		-1.0	5.5	3.5	9.5	17.0	3.5	5.0	2.5	-5.0	3.5
31	-9.0		0.0		3.0		17.5	8.5		-3.0		-7.5

365 DAYS WERE SELECTED

PROGRAM = GRP212 MONTH/DAY MATRIX OF ELEMENT 002 FOR 1984 AUG 28, 1985 PAGE 1

8403600 ST JOHN'S WEST CDA, NFLD. ELEMENT: DAILY MINIMUM TEMP (C) RANGE: -1999.9 TO 1999.9

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-5.5	-4.5	-1.5	-2.5	2.5	14.0	15.0	10.5	13.0	1.5	-0.5	4.0
2	-10.5	-11.5	-1.0	-7.0	3.0	15.0	9.5	12.0	13.0	4.5	-3.0	1.0
3	-6.0	-16.0	-2.5	-10.0	2.5	10.5	5.5	10.0	9.0	4.5	0.5	-1.0
4	-13.0	-13.5	-5.0	-3.0	2.0	5.5	9.0	10.5	6.5	8.5	-0.5	-3.0
5	-3.5	7.5	-5.0	-11.5	-0.5	3.5	12.5	14.5	6.5	6.5	-2.0	-2.0
6	-1.5	7.5	-11.0	-6.5	1.0	4.5	14.0	15.0	12.5	-1.0	7.0	-2.5
7	1.5	1.0	-5.0	0.0	1.0	4.0	15.0	14.0	16.5	4.0	12.0	-3.0
8	1.5	-3.5	-7.5	-1.5	0.5	3.0	18.0	15.5	7.5	4.0	-1.0	-1.5
9	-4.5	-6.5	-11.0	-1.5	-0.5	5.0	16.5	13.5	9.0	5.0	-5.5	-2.5
10	-6.0	-17.0	-6.5	0.0	3.5	5.5	19.0	8.0	10.5	1.0	-6.0	-4.0
11	-5.5	-14.0	-8.0	0.0	7.5	3.5	14.5	10.5	13.0	0.5	-3.5	-6.0
12	-10.0	-5.0	-11.5	-1.0	3.5	6.5	14.5	13.0	16.0	2.5	5.0	-1.0
13	-15.0	-2.0	-6.5	-1.0	1.5	4.5	11.5	12.0	7.0	0.5	2.5	0.5
14	-14.5	-11.0	-12.0	-4.5	0.5	11.0	12.5	10.5	1.0	-1.5	5.0	-2.0
15	-10.0	-6.5	-10.0	0.0	8.0	9.5	15.5	9.0	13.0	-3.0	3.0	-12.0
16	-14.0	4.0	-2.0	-1.5	8.0	3.0	8.5	11.0	9.5	2.0	-2.0	-14.5
17	-7.5	-6.0	1.5	-3.0	5.0	-1.0	13.0	12.5	6.0	2.0	0.5	-6.0
18	-5.0	-7.0	1.0	0.5	2.0	0.0	14.5	10.0	4.5	2.0	0.0	-2.0
19	-7.5	-10.5	-1.5	-2.5	7.5	10.0	13.5	15.5	4.0	4.0	-1.0	-4.5
20	-9.0	-6.5	-4.5	-4.0	7.0	10.5	16.5	14.0	8.0	2.5	-4.5	-6.5
21	-13.0	-1.0	-3.5	-1.0	5.5	13.0	13.5	13.0	11.0	4.0	-5.0	-6.0
22	-17.0	-1.0	-3.0	-1.5	3.0	4.0	12.0	11.0	6.5	1.0	-3.0	-6.0
23	-20.0	-4.0	1.0	-4.0	4.0	5.5	13.0	13.0	5.0	5.0	-6.5	-5.0
24	-12.0	-10.5	0.5	-6.5	1.5	3.0	14.0	13.0	7.0	4.0	-5.0	-3.5
25	-11.0	-3.0	-2.0	-5.5	7.5	2.0	14.0	13.5	9.0	2.0	-4.5	-1.0
26	-1.0	1.0	-4.5	-2.0	5.0	5.5	13.0	9.5	5.0	-1.5	-3.0	-5.5
27	-10.0	0.5	-4.0	-1.0	7.0	4.0	11.0	10.0	8.0	-4.0	-3.0	-19.5
28	-5.5	-2.5	-4.5	1.5	5.0	8.5	12.0	13.5	3.0	-5.0	-2.0	-16.0
29	-9.5	-2.5	-1.0	0.5	6.0	9.5	12.5	15.5	5.0	4.0	-2.5	-12.0
30	-8.5		-2.5	0.5	4.0	10.0	11.0	11.5	6.0	1.0	2.0	-1.0
31	-12.0		-2.0		8.0		11.0	13.0		-4.5		-13.0

366 DAYS WERE SELECTED

5.4 Snow Surveys

The snow that accumulates in the drainage basin can be treated as a natural storage reservoir. In order to determine the water content of the snow and estimate the amount of moisture available for runoff, snow surveys were conducted.

In the winter of 1981-82 five snow courses were established in the Waterford River Basin. This number was increased to six in 1982-83. The snow course consisted of three samples being taken at each of five locations equally spaced along a course or line which has been previously established.

The samples were taken using a Mount Rose Snow Sampler. With this method the samples were measured by depth and weight, thus giving an indication of the density of the snow as well as the water equivalent. Snow surveys were conducted on a contract basis for the winters of 1981-82 and 1982-83 only.

The locations of snow surveys are shown on Figure 2.0. In order to cross reference the snow course locations to the locations on the map, the following list is provided:

Snow Course Number	Snow Course Location
1	Topsail Road Hill
2	Harbour Arterial Hill
3	CDA Farm, Brookfield
4	Neighbourhood II, Newtown
5	Canada Drive
6	Ruby Line

5.4.1 Snow survey data for 1981-82

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: December 26th, 1981
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	½ cm light powder						wooded area surrounded by tall thin trees on 3 sides open on 4th
2 a b c	½ cm light powder						wooded area enclosed on all sides by trees
3 a b c	1 cm light powder						open enclosure approx. 15' diameter
4 a b c	1 cm light powder						semi-open-surrounded by short trees
5 a b c	trace						almost totally enclosed by over hanging branches

Time Survey Started:
Time Ended: Roughly 10 a.m.

Crust: NIL
Soil Conditions: frozen moss and bog
Ice Layers: NIL

Comments: entire location over a combination of moss and bog;
site locations have uneven (rough) surfaces for sampling

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: December 26th, 1981
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	trace						beneath a large tree-totally enclosed
2 a b c	½ cm light powder						totally surrounded by dense shrubbery and trees
3 a b c	½ cm light powder						enclosed by trees and shrubs
4 a b c	1 cm powder						semi-open trees on one side shrubs on other
5 a b c	1½ cm powder						surrounded by shrubbery

Time Survey Started: approx. 11 a.m.
Time Ended:

Crust:
Soil Conditions: frozen moss generally
Ice Layers:

Comments: Site locations have irregular (uneven) surfaces

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: December 26th, 1981
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	1 cm powder						open unproductive land - tall grasses near by
2 a b c	1 cm powder						open unproductive land
3 a b c	½ cm powder						open field productive land
4 a b c	trace to ½ cm						open field productive land
5 a b c	trace to ½ cm						open field productive land

Time Survey Started: approx. 12 noon
Time Ended:

Crust:
Soil Conditions: frozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE:
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	trace to ½ cm powder						grassy backyard
2 a b c	trace to ½ cm powder						grassy backyard
3 a b c	1 cm powder						wodden enclosed by low shrubbery
4 a b c	1½ cm powder						semi-open surrounded by shrubbery and small trees
5 a b c	1 cm powder						enclosed on all sides by low trees

Time Survey Started: approx. 1 p.m.
Time Ended:

Crust:
Soil Conditions: frozen
Ice Layers:

Comments: Heavy snow flurries at times

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 2, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	13	7.5	7	9.5			first time using sampler
b	13	8	7	8.5			
c	10	7	7	8			
2 a	8	7	7	8			
b	7	5.5	7	8			
c	7.5	6	7	8.5			
3 a	12	9	7	9			
b	12	7	7	9.5			
c	12	10.5	7	9			
4 a	13.5	7	7	8.5			
b	13.5	9	7	8.5			
c	10	8	7	8.5			
5 a	9.5	6.5	7	8			
b	5.5	4.5	7	8			
c	7.5	5	7	7.5			

Time Survey Started: approx. 10 a.m.
Time Ended: approx. 11 a.m.

Crust: ½ inch at surface
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 2, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	7.5	6	7	8			
b	8	7	7	8			
c	6	6	7	7.5			
2 a	9.5	8	7	8.5			
b	10	9	7	9			
c	9	7	7	8.5			
3 a	12	10.5	7	9			
b	10.5	9	7	8.5			
c	11.5	10	7	9.5			
4 a	8.5	5.5	7.5	9			
b	9.5	8	7.5	9			
c	10	9	7.5	9.5			
5 a	12	9.5	7	8.5			
b	10.5	10	7	8.5			
c	11	9	7	8.5			

Time Survey Started: approx. 11.15
Time Ended: approx. 12.30

Crust: No
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 2, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	7	4.5	7	8			
b	7	7	7	8			
c	7	4	7	8			
2 a	7	6.5	7	8.5			
b	7	6	7	8.5			
c	7	6.5	7	8			
3 a	8.5	7.5	7	9			
b	9	8	7	9			
c	9	8.5	7	9			
4 a	8	7.5	7	8.5			
b	7.5	7	7	8.5			
c	7.5	7.5	7	9			
5 a	6	5.5	7	8.5			
b	7	6.5	7	8.5			
c	7	6	7	8.5			

Time Survey Started: approx. 12.45
Time Ended: approx. 1.15

Crust: Yes - roughly 1 inch at surface
Soil Conditions: appeared unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 2, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a							
b							
c							
2 a							
b							
c							
3 a	11	9	7	8			
b	12	11	7	8.5			
c	13	9.5	7	8			
4 a	8.5	8	7	8.5			
b	12	11.5	7	9			
c	11	10	7	8.5			
5 a	11.5	8.5	7	8			
b	11	8.5	7	8			
c	10.5	9	7	8			

Time Survey Started: approx. 1.30
Time Ended: approx. 2.15

Crust: No
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 9th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	13	6	7	8			
b	12	10		8.5			
c	11	7		8			
2 a	6.5	4	7	7.5			
b	6	2.5		7.5			
c	6.5	4.5		8			
3 a	12.5	9	7	8			
b	12.5	11		9			
c	14	10.5		9			
4 a	14	8.5		8			
b	13	11.5	7	9.5			
c	13.5	10		9			
5 a	6	5.5		7.5			
b	6.5	5	7	7.5			
c	7	6		8			

Time Survey Started: 10:15
Time Ended: 11:00

Crust: typically 2-4" of light powdery snow above crystalline snow which extends to surface
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 9th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	6.5	4.5	7	8			
b	6	4		8			
c	6.5	5		8			
2 a	9.5	5	7	8.5			
b	9	6		8.5			
c	9.5	6		8			
3 a	11.5	9	7	8.5			
b	11.5	9		8			
c	10.5	7.5		8.5			
4 a	10.5	8	7	9			
b	9	5		8			
c	9.5	8.5		8.5			
5 a	9.5	7	7	8.5			
b	9	7.5		8.5			
c	9	7		8.5			

Time Survey Started: 12:15
Time Ended: 1:00

Crust: same as snow course #1
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 9th, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	7	6	7	7.5			
b	8	7		8.5			
c	7	6		8			
2 a	6	5	7	8			
b	6.5	5.5		9			
c	6	5		8			
3 a b c	High winds and blowing snow made further readings impossible.						
4 a b c	Quantitatively: 3-5 inches crystalline snow covered by roughly 1 inch lighter, powder snow						
5 a b c		- much the sa,e as sample #2					

Time Survey Started: 11:15
Time Ended: 11:30

Crust: Crystalline snow beneath thin layer of powdery snow
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 9th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a							
b							
c							
2 a							
b							
c							
3 a	10	8.5	7	8.5			
b	9	8		8.5			
c	9.5	8.5		9			
4 a	10	9	7	8.5			
b	9	8.5		8.5			
c	11	9		8.5			
5 a	10	8	7	8			
b	10	8.5		8			
c	10.5	9		8.5			

Time Survey Started: 1:30
Time Ended: 2:00

Crust:
Soil Conditions: same as snow course # 1
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 16th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	15	9	7	10			
b	16	11.5		10			
c	15	11		10			
2 a	13	10	7	10			
b	16	9		9.5			
c	13	10.5		10			
3 a	27.5	12.5		11			
b	23.5	18	7	11.5			
c	21.5	18.5		12			
4 a	19.5	14.5		11			
b	23	17	7	12.5			
c	20	15.5		10.5			
5 a	16.5	8.5		9			
b	13	11	7	10			
c	16	11.5		10			

Time Survey Started: 10 a.m.
Time Ended: 10:45 a.m.

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER:- Paul Barnes
DATE: January 16th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	14.5	10.5	7	10			
b	11.5	9		9.5			
c	13	9		9			
2 a	18	10	7	10.5			
b	19	12		10			
c	19	13		10.5			
3 a	17	10	7	11.5			
b	20.5	13.5		12			
c	19.5	13.5		11.5			
4 a	19	9.5	7	10.5			
b	17.5	10.5		10			
c	19	12.5		11			
5 a	19	15.5	7	11.5			
b	18.5	15		11			
c	19	16		12			

Time Survey Started: 11:00 a.m.
Time Ended: 12:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 17th, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	13	10.5		10			
b	13	11.5	7	10.5			
c	12.5	9		9.5			
2 a	12.5	10.5		10			
b	12	8	7	9.5			
c	12.5	8.5		10			
3 a	6.5	5.5		9			
b	8	8	7	10.5			
c	7	6.5		10			
4 a	8	7.5		12			
b	8.5	8	7	10.5			
c	6	6		9			
5 a	6	6		9			
b	6.5	6	7	9.5			
c	6.5	6		9			

Time Survey Started: 10:30 a.m.
Time Ended: 11:15 a.m.

Crust: 1 inch at surface
Soil Conditions: unfrozen
Ice Layers:

Comments: High winds and blowing snow delayed observation until Sunday the 17th.

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 16th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a							
b							
c							
2 a							
b							
c							
3 a	18	13		11			
b	18	16	7	11.5			
c	16	13.5		11			
4 a	16	11		10.5			
b	17	14	7	11.0			
c	21	17		11.5			
5 a	19	15		11			
b	16	13.5	7	10.5			
c	16	13.5		11			

Time Survey Started: 2:30 p.m.
Time Ended: 3:00 p.m.

Crust: NIL
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 23, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22.5	15		10.5			
b	24	14.5	7	11			
c	22.5	16		10			
2 a	21	10		11			
b	21.5	17		10.5			
c	21	17.5	7	11.5			
3 a	33	26.5		13			
b	36	27	7	13.5			
c	34	16		11.5			
4 a	32	18.5		12			
b	33	16.5	7	11.5			
c	36	21		13			
5 a	24.5	10.5		10			
b	21	11	7	10			
c	25	12		10			

Time Survey Started: 9:30 a.m.
Time Ended: 10:30 a.m.

Crust: 1 - 1½" crust under 12-15" light powder
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 23, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20	10		10			
b	27.5	10	7	11			
c	23	13.5		10			
2 a	29	20		12.5			
b	30	22.5	7	12.5			
c	28	18.5		12.5			
3 a	32.5	22.5		13			
b	33	21.5	7	13			
c	31	22		13			
4 a	35	28		15			
b	33.5	26	7	14			
c	31	18		12			
5 a	30	20.5		12.5			
b	30	16.5	7	12.5			
c	30	24.5		14.5			

Time Survey Started: 11:00
Time Ended: 12:00

Crust: 1-1½" beneath 12-15" light powder
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 23, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	26	19		12			6" powder
b	29	22.5	7	13.5			
c	26	17.5		12			
2 a	24.5	19.5		11.5			12" powder
b	25.5	20.5	7	11.5			
c	20	17.5		11			
3 a	14	13		11			6" powder
b	11	9.5	7	9.5			
c	11	10		9.5			
4 a	10	9		9			4" powder
b	11	9.5	7	9			
c	10.5	9		9.5			
5 a	9	8		8.5			5" powder
b	9	8	7	8.5			
c	9	8		8.5			

Time Survey Started: 12:15
Time Ended: 1:15

Crust: snow beneath powder on last 3 samples very compacted all the way to ground
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 23, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c							typically
2 a b c							12-14" of light powder
3 a b c	29.5 33 36.5	22.5 22 25.5	7	12 12.5 13.5			snow over crystalline snow beneath
4 a b c	31 31.5 33.5	23 23.5 24.5	7	13 13 13			
5 a b c	30.5 31 30	24 24 22		13 12.5 12			

Time Survey Started: 1:30
Time Ended: 2:00

Crust: 1-1½" crust beneath the powder
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 30th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	31.5	19		14			
b	28.5	18.5	7	14			
c	30	18		14			
2 a	28.5	20		14			
b	29.5	22	7	14			
c	29.5	23		14			
3 a	43	28		18			
b	41.5	29	7	16.5			
c	37	26		15			
4 a	34	26		15			
b	39	29	7	17			
c	39	23		16			
5 a	29	25.5		14			
b	27	20	7	14			
c	27.5	18.5		13.5			

Time Survey Started: 9 a.m.
Time Ended: 10 a.m.

Crust: 6-10" of heavy powder snow - crusty layer - 3-4" and then another crusty layer - heavier crystalline snow to bottom
Soil Conditions: unfrozen
Ice Layers:

Comments: Gushing winds and plowing snow prevented observation on CDA Farm Jan. 30th
Jan. 31st. even worse weather conditions

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 30th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	18	17	7	12			
b	20	17		13			
c	21	14		12.5			
2 a	34	25	7	16			
b	36.5	25		15.5			
c	33	21		15			
3 a	38.5	25.5	7	17			
b	39.5	28		16			
c	37	28		16			
4 a	51.5	33	7	20.5			
b	41.5	20		15			
c	32	26		16.5			
5 a	36	27.5	7	16			
b	33.5	23.5		16			
c	37	21		16			

Time Survey Started: 10 a.m.
Time Ended: 11 a.m.

Crust: 8-10" wind blown heavy powder over crusty layer, 2-3" seperation then another crusty layer.
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 30th, 1982
LOCATION: Dalhousie Crescent (#11,13,15,17,19)

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	24.5	17		14			
b	32	23	7	16			Wind swept open backyards
c	32	19		16			
2 a	28.5	25		16			
b	28	23	7	16			
c	31	25		17			
3 a	27	19	7	15			
b	27	20		15			
c	26.5	17.5		14.5			
4 a	40.5	34.5		20.5			
b	20	17.5	7	13.5			
c	41	25.5		18			
5 a	29	21		17			
b	28	23	7	18			
c	29	22		17			

Time Survey Started: 12:30
Time Ended: 1:30

Crust: Crust layer at surface, several more before reaching surface
Soil Conditions: apparently unfrozen - not possible to remove a plug
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: January 30th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	30.5	23		16			
b	31	22.5	7	16.5			open backyard
#60 c	30	20.5		16			
2 a	24.5	17		16.5			
b	24	18.5	7	15.5			open backyard
#56 c	24	17.5		15			
3 a	42.5	29		17			
b	40.5	25.5	7	16			
c	38	28		17			
4 a	42	26.5		17			
b	36	27	7	16.5			
c	41.5	27		17.5			
5 a	39	29		18			
b	35	25	7	15			
c	36.5	25		16			

Time Survey Started: 1:30
Time Ended: 2:30

Crust: Heavy powder over crusty layer - several more crusty layers before reaching surface
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 6th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22.5	12		13			
b	25.5	14	7	14			
c	24	12		13.5			
2 a	29	17.5		15			
b	23	17	7	14.5			
c	30	18.5		15			
3 a	36	21		15			
b	35	18.5	7	14.5			
c	34	19.5		16			
4 a	31	17.5		15.5			
b	29	17.5	7	15			
c	32	19		16			
5 a	26.5	18.5		15			
b	24.5	16	7	14			
c	24.5	15		13.5			

Time Survey Started: 10:30
Time Ended: 11:15

Crust: 1-2" crust under 3-4" soft crystalline snow
Soil Conditions: unfrozen - wet
Ice Layers:

Comments: wet snow on the ground caused problems by freezing to the tube when brought to surface-had to be scraped away as much as possible each time otherwise led to bulldozer effect i.e. snow would not slide up into tube.

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 6th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	25.5	11		12.5			
b	26.5	12.5	7	13			
c	23.5	11.5		12.5			
2 a	31	18.5		16			
b	30	16	7	15			
c	30.5	18		15			
3 a	33	22.5		17.5			
b	33.5	22	7	17			
c	32	19		17			
4 a	29.5	19		16.5			
b	29.5	19	7	16.5			
c	39.5	19.5		18			
5 a	34	18.5		15.5			
b	32	16	7	16			
c	31	19		17			

Time Survey Started: 11:30
Time Ended: 12:15

Crust: Crusty layer approx. 2" on top.
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 6th, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	24	19		14.5			
b	23	19	7	14.5			
c	24	19		14.5			
2 a	6	6		9.5			ice below 6" could not penetrate
b	6	6	7	9.5			
c	5.5	5.5		9.5			
3 a	10	9		11.5			
b	10	10	7	11.5			extremely hard crust/ice at surface
c	9.5	9		11			
4 a	11	11		12			
b	14.5	13	7	13.5			
c	12	11		12			
5 a	12	11.5		12			
b	13	10	7	12			
c	13	12		12.5			

Time Survey Started: 9:30
Time Ended: 10:15

Crust: Very large crust 2-3" thick, especially hard at last 3 points
Soil Conditions: apparently frozen
Ice Layers: (above)

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 6th, 1982
LOCATION: Dalhousie Crescent #11 - 19

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	23.5	16		15.5			
b	24	16.5	7	15.5			
c	23	17		15			
2 a	23.5	16		14.5			
b	24	14	7	15			
c	24	13		14			
3 a	22	14.5		14.5			
b	25	16	7	15			
c	22	16		16			
4 a	31	22.5		17			
b	32	21	7	17.5			
c	32	23		18			
5 a	26	13		14			
b	25	13	7	14			
c	22	14.5		15			

Time Survey Started: 1:00
Time Ended: 1:45

Crust: Incredibly hard crust/ice at surface
Soil Conditions: apparently unfrozen-not possible to remove plug from backyards
Ice Layers: surface very hard

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 6th, 1982
LOCATION: Canada Drive #60 #56

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	24	22		15.5			both backyards had very hard crust 2-3" thick at surface
b	24	19.5		15			
#60 c	22.5	18		16			
2 a	17	12		13.5			
b	18	14.5		14			
#56 c	17.5	12.5		13			
3 a	42	30		20			crust below approx. 6" crystalline snow
b	40.5	22		19			
c	35	24.5		18			
4 a	34	28		18.5			
b	34	27		18.5			
c	32	25.5		17.5			
5 a	36	22		15.5			
b	30.5	24		16			
c	30.5	24		16			

Time Survey Started: 2:00
Time Ended: 3:00

Crust: points 1-2 crusty/icy at surface; 3-4-5 crust under approx. 6" snow.
Soil Conditions: unfrozen at points 3-4-5, plugs not removed from yards.
Ice Layers: points 1-2 at surface

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 13th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	37	22.5		14.5			
b	32	22	7	14			
c	32	21.5		13.5			
2 a	35	25		16			
b	35.5	27	7	15.5			
c	37	24.5		16			
3 a	48	38		19			
b	48	32	7	18.5			
c	44	40		19			
4 a	41	24.5		15.5			
b	44	29	7	15			
c	43	29		16			
5 a	37.5	22.5		16.5			
b	35	25.5	7	15.5			
c	30	24		15			

Time Survey Started: 10:15
Time Ended: 11:00

Crust: 12-15" powder; crust 1-2" crystalline snow to ground level
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 13th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	25	19		13.5			
b	29	13	7	15			
c	24	16		13			
2 a	42	29		18			
b	40	27	7	16.5			
c	40	27		16			
3 a	46	34		19			
b	46.5	31	7	19			
c	46	36		19			
4 a	41.5	35		18.5			
b	48.5	41	7	21			
c	57	41.5		21.5			
5 a	45	30		18			
b	41	29	7	18			
c	47	30		19			

Time Survey Started: 11:15
Time Ended: 12:00

Crust: 12"-15" powdery snow; crust 1"-2"; crystalline to ground level
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 13th, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	24	21		13.5			
b	21	17.5	7	13			
c	21.5	18		13.5			
2 a	12	11		10			
b	11	10	7	9			could not penetrate to bottom
c	10	9.5		9			
3 a	9	8.5		9			
b	11	9.5	7	9			likewise
c	9	7		8.5			
4 a	17	15		12.5			
b	15	15	7	12.5			
c	18	15.5		12.5			
5 a	15	15		12			
b	15.5	15	7	12			
c	15	14		12			

Time Survey Started: 9:00
Time Ended: 10:00

Crust: 6-8" powder then hard crystalline to ground level
Soil Conditions: difficult to tell
Ice Layers: #2 and #3 bottom could not be reached because of ice layer

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 13th, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	31	22.5		14.5			
b	37	30	7	18.5			
c	39	26.5		17.5			
2 a	37	29		18			
b	35	21.5	7	16			
c	33	25		17.5			
3 a	35	21		15.5			
b	34.5	25.5	7	17.5			
c	33	23		16.5			
4 a	40	24		17			
b	38	33	7	18.5			
c	41	26.5		20			
5 a	39	31		19			
b	38	32	7	17.5			
c	39	32		19			

Time Survey Started: 12:00
Time Ended: 1:00

Crust: 8-12" powder : 1-2" crust: cyrstalline to ground level
Soil Conditions:
Ice Layers: crust was very hard

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 13th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	33	25		17			
b	34	24	7	16.5			
c	33	28		17.5			
2 a	22	18.5		12.5			
b	31	26.5	7	16.5			
c	34	21.5		16			
3 a	51	36		21.5			
b	48	38	7	20			
c	52	36		19			
4 a	46	28		19			
b	47	28	7	20			
c	46	36		20			
5 a	44	32		18.5			
b	44	29	7	19			
c	42.5	28		17.5			

Time Survey Started: 1:15
Time Ended: 2:00

Crust: 8-12" of powdery snow, crust 1-2" then a more crystalline snow to ground level
Soil Conditions: unfrozen
Ice Layers: crust very hard

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 20th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	36	22		15.5			
b	36.5	21.5	7	15.5			
c	35	26.5		16.5			
2 a	36	28		17.5			
b	26.5	21	7	14			
c	35	25		17			
3 a	46	36.5		18.5			
b	45	29	7	17.5			
c	45	35		19			
4 a	42	25.5		19.5			
b	40	33	7	19.5			
c	42	28		21			
5 a	34.5	22		17			
b	36	28	7	17			
c	34	26		17			

Time Survey Started: 10:20
Time Ended: 11:00

Crust: Crusty layer beneath 12-15" snow
Soil Conditions: unfrozen
Ice Layers:

omments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 20th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	32	20		14.5			
b	30.5	23	7	15			
c	33	22		15.5			
2 a	44	36		19.5			
b	45	29	7	19			
c	40	26		17.5			
3 a	44	33		21			
b	45	39	7	21			
c	45.5	38.5		20.5			
4 a	38.5	31		17			
b	48	32	7	19.5			
c	36.5	27		16			
5 a	44.5	31		20			
b	43	33.5	7	20			
c	47	36		21			

Time Survey Started: 11:15
Time Ended: 12:15

Crust: Crusty layer beneath 12-15" snow
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 20th, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	37	22	7	17			
b	32	24.5		16.5			
c	39.5	31		19			
2 a	14	14	7	11.5			too icy to penetrate to bottom
b	13	12.5		11			
c	17	16		12.5			
3 a	10.5	10.5	7	10			again no penetration to bottom
b	10.5	10		9.5			
c	8.5	7		8			
4 a	18.5	16	7	13.5			
b	16	15		12			
c	17	15		12.5			
5 a	22.5	20	7	14.5			
b	19	18.5		12.5			
c	22	21		15.5			

Time Survey Started: 9:00
Time Ended: 10:00

Crust: Crusty layer beneath 4-6" snow
Soil Conditions: ?
Ice Layers: see above

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 20th, 1982
LOCATION: Dalhousie Crescent #11 - #19

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	30	24		17			
b	23	17	7	14			
#11 c	27.5	17		15			
2 a	19	25		16.5			
b	26.5	22.5	7	16			
c	30.5	25		17.5			
3 a	36	30		20			
b	35	30	7	18.5			
c	33	26		17			
4 a	41.5	35		20.5			
b	42	34	7	19			
c	48	39.5		21			
5 a	39	34		20.5			
b	38.5	33	7	20.5			
c	39	35		20.5			

Time Survey Started: 1:00
Time Ended: 2:00

Crust: Crusty layer beneath 6-8"
Soil Conditions: ? (unable to remove plugs from yards)
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 20th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	36	30	7	19			
b	35	29		19			
#60 c	32.5	27.5		18.5			
2 a	32	28	7	20			
b	23	16		16			
#56 c	35	26.5		18.5			
3 a	51	36.5	7	23.5			
b	53	34.5		21			
c	59	37		22			
4 a	45	33	7	20			
b	48	38.5		22			
c	47	35		21			
5 a	44	34	7	18			
b	50	32		20			
c	46	34		20.5			

Time Survey Started: 2:00
Time Ended: 3:00

Crust: Backyards contained very hard crust
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: February 27th,
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	32	26		17			People cutting wood at this site-have made this site more open than before
b	34	13	7	16			
c	32	17		15			
2 a	36	29		19.5			
b	36	23.5	7	18			
c	36	24		16			
3 a	43	32		20			
b	40	29	7	20			
c	41	28		20			
4 a	40	23		18.5			
b	39	28	7	19.5			
c	43	30		21			
5 a	38	23		17			
b	39	23	7	17.5			
c	32	22		15.5			

Time Survey Started: 9:45
Time Ended: 11:00

Crust: somewhat crusty throughout
Soil Conditions: unfrozen
Ice Layers:

Comments: Far too windy and cold to continue survey
-wet snow brought up from below froze immediatly to tube during weighing
-weighing process very difficult because of wind
Sunday weather conditions no better

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 6th, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	34	20		17			
b	38	25	7	18.5			
c	36.5	29		19			
2 a	35	24		18			
b	32	24	7	18			
c	37	28		19.5			
3 a	45	36.5		21			
b	41	24	7	18			
c	43	28		21			
4 a	49	29		19.5			
b	42	30	7	20			
c	44	24		17.5			
5 a	37	28		17.5			
b	42	30	7	19			
c	38	29		19			

Time Survey Started: 10:00
Time Ended: 11:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 6th, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	35	19.5	7	16			
b	39	23		18			
c	36	23		16.5			
2 a	47	36	7	21.5			
b	45	25		20			
c	42	30		18.5			
3 a	32	23	7	19			
b	31	27		20.5			
c	48	31		23			
4 a	48	41	7	20.5			
b	47	34		23			
c	43.5	37		20.5			
5 a	31	20.5	7	16			
b	34	26.5		17.5			
c	35	28		17			

Time Survey Started: 11:00
Time Ended: 12:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 6th
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22	16	7	14			
b	22	15		16			
c	24	21.5		17			
2 a	17	17	7	15.5			
b	15	14		14			
c	22	21		18			
3 a	icy layer beneath first 2-3" of snow could not be penetrated						
b							
c							
4 a	17.5	13	7	13.5			
b	17	11		13			
c	18	13.5		14.5			
5 a	15	13.5	7	14			
b	15	13.5		15.5			
c	14	13		14.5			

Time Survey Started: 9:00
Time Ended: 10:00

Crust: Crusty layer on top, crystalline to ground
Soil Conditions: unfrozen
Ice Layers: #3

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 6th, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	29	21		16			
b	20	17.5	7	14.5			
c	32	20		18.5			
2 a	29	22		17			
b	33	23	7	17			
c	34	29		19.5			
3 a	26	18.5		16.5			
b	22	16	7	15			
c	20	16.5		14			
4 a	39	28		20			
b	45	32	7	21			
c	40	31		21.5			
5 a	38	29		22			
b	32	23	7	20			
c	37	23.5		19			

Time Survey Started: 1:00
Time Ended: 2:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 6th, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	32	27	7	19.5			
b	33	26.5		18			
c	33.5	26.5		19.5			
2 a	19	18	7	13.5			
b	23	21		15			
c	23	21		14.5			
3 a	36	28	7	20.5			
b	37	30		20			
c	26	28		20.5			
4 a	26	19	7	15			
b	27	24.5		15.5			
c	22	19		15.5			
5 a	26	22	7	15			
b	47	30		21			
c	26	23		15			

Time Survey Started: 2:00
Time Ended: 3:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 13, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	35	20		17.5		0.323	
b	33.5	20	7	17.5	10.5	32.3%	
c	29	22		17.5			
2 a	36	19		17			
b	31	18.5	7	17	10.3		
c	30	22		18			
3 a	36.5	29		19.5			
b	33.5	25	7	17	11.3		
c	33	23		18.5			
4 a	36	32		19.5			
b	32	25	7	19	12.5		
c	43	24		20			
5 a	36	25		18			
b	34	22.5	7	17.5	9.5		
c	24	17.5		14			

Time Survey Started: 10 a.m.
Time Ended: 11 a.m.

Crust:
Soil Conditions: wet
Ice Layers:

Comments: 1 oz = 1 in. water equiv.
water equiv (inches) = wt of tube + core (ounces) - wt of tube (ounces)
density = water equiv/snow depth

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 13, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	31	19		17.5			
b	35	21	7	17			
c	31	18		17			
2 a	34	23		18.5			
b	42	28.5	7	20			
c	41	28		20			
3 a	27	20		15			
b	27	23	7	16			
c	31	24.5		16			
4 a	33	26		18			
b	33	23	7	15.5			
c	33	26.5		18			
5 a	29	24.5		17			
b	23.5	22	7	15			
c	27	22		15			

Time Survey Started: 11 a.m.
Time Ended: 12 noon

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 13, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	26.5	15	7	14.5			Snowing during survey
b	35	16		15			
c	33	18		16.5			
2 a	13	12.5	7	12			
b	15	13		12.5			
c	13	12.5		13.5			
3 a	Icy layer below 2 -		2.5" light				
b	snow.						
c	Corer will not penetrate.						
4 a	Only 1 -	1.5" light	powdery snow				
b	Too light to weigh						
c							
5 a	Only 1 -	1.5" light	powdery snow				
b							
c							

Time Survey Started: 9 a.m.
Time Ended: 10 a.m.

Crust:
Soil Conditions: frozen
Ice Layers: # 3

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 13, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	18	13.5		13.5			
b	22	16	7	14.5			
c	20	17		15			
2 a	19.5	17.5		15			
b	20.5	19.5	7	15.5			
c	19	17		14			
3 a	25	19.5		16.5			
b	28.5	24.5	7	18.5			
c	31.5	24		19			
4 a	31	25.5		20.5			
b	30	24	7	19.5			
c	27.5	18.5		16			
5 a	Icy layer at surface which corer could not penetrate.						
b							
c							

Time Survey Started: 1 pm
Time Ended: 2 pm

Crust:
Soil Conditions: unfrozen
Ice Layers: #5

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 13, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	18.5	16		14			
b	22	18	7	16	7.3		
c	16.5	13		13			
2 a	13	12		13			
b	14	13	7	13	6.5		
c	24	15		14.5			
3 a	29.5	22		17.5			
b	33	26	7	18			
c	29.5	25		19.5			
4 a	27	22		17.5			
b	31	24.5	7	18			
c	25	20		15.5			
5 a	38	28		19			
b	33	22	7	17.5			
c	31	21.5		17.5			

Time Survey Started: 2 pm
Time Ended: 3 pm

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 20, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	30	17		16			Point # 1 now fairly open because of wood cutting.
b	26	15	7	16			
c	26	19		18			
2 a	30	21.5		16.5			
b	29	17	7	15.5			
c	30	22		17			
3 a	36	28		20			
b	37	26.5	7	21			
c	34	29		20			
4 a	31	20		17			
b	34.5	23	7	17.5			
c	38	33		20			
5 a	32	21.5		17			
b	33	27	7	18			
c	33	23.5		17.5			

Time Survey Started: 10:00
Time Ended: 10:45

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 20, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	30.5	15		15			
b	29	16	7	15.5			
c	32	20		17			
2 a	39	28		21			
b	40	29	7	20.5			
c	40	25.5		20			
3 a	33	28		21.5			
b	30.5	23	7	17			
c	40	35		22.5			
4 a	31	28		18			
b	29	27	7	18			
c	33	29		18.5			
5 a	34	29		21			
b	34	27	7	21.5			
c	28	24.5		18.5			

Time Survey Started: 11:00
Time Ended: 11:45

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 20, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	17.5	16		13			
b	16.5	14.5	7	13			
c	19	17		14			
2 a	5	5		8			
b	5	5	7	8.5			no penetration below 5" - icy
c	5	5		8			
3 a	only a light trace of snow overlying icy patches 1-1½" thick						
b			7				
c							
4 a							
b			7				
c							
5 a							
b			7				
c							

Time Survey Started: 9:00
Time Ended: 9.45

Crust: crusty on surface (of snow)
Soil Conditions: frozen
Ice Layers: # 3, #4, #5 especially

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 20, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	17.5	16	7	14			Snowmobile tracks all over yard.
b	22	19.5		16			
c	22	19		16.5			
2 a	22	20	7	17			
b	20	18		15			
c	21	20.5		16			
3 a	27	19	7	16			
b	28	20.5		17.5			
c	23.5	17.5		15.5			
4 a	10.5	10.5	7	12			Could not reach bottom here.
b	8	7.5		10			
c	10.5	10.5		11			
5 a	27	20	7	17			Very difficult to get a sample in this yard. Usually solid below approx. 2-3"
b	25	19.5		17			
c	25	21		19			

Time Survey Started: 1:00
Time Ended: 1:45

Crust: crusty layers throughout
Soil Conditions: unfrozen
Ice Layers: Yard #5, #4

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 20, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	15	14	7	13.5			
b	17	17		14.5			
c	16	15		14			
2 a	12.5	12.5	7	13			Many tracks all over yard
b	13	12.5		12.5			
c	10	10		11.5			
3 a	32	22	7	19			Can't reach bottom - too icy
b	41	29		22			
c	33.5	19		18			
4 a	41	28	7	22.5			
b	32	23.5		20			
c	39	29		23			
5 a	29	16.5	7	16			
b	28	24		18			
c	30	23.5		18			

Time Survey Started: 2:00
Time Ended: 2:45

Crust: first yard had crusty layers
Soil Conditions: unfrozen
Ice Layers: #3

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 27, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	32	21		18			Heavy rain
b	28	21	7	18			
c	32	18.5		18.5			
2 a	25.5	19.5		18.5			all morning
b	23.5	17.5	7	17			
c	28	19.5		18			
3 a	33.5	23.5		20.5			
b	28.5	24	7	17.5			
c	30	20.5		19			
4 a	34	20.5		19			
b	36	25.5	7	20			
c	36	27		20			
5 a	26	16		17			
b	31	18	7	17.5			
c	29	18.5		17.5			

Time Survey Started: 12:00
Time Ended: 12:45

Crust:
Soil Conditions: wet, unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 27, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	27	16.5		17			
b	29	17	7	17			
c	31	19.5		17			
2 a	31	17		18			
b	38	25	7	21			
c	37	18.5		18.5			
3 a	36	23		21.5			
b	26	18.5	7	17			
c	35	26.5		20			
4 a	32	21.5		18.5			
b	34	21	7	16.5			
c	30.5	26.5		18			
5 a	25.5	22		18			
b	24	20	7	17			
c	25	21		18			

Time Survey Started: 1:00 p.m.
Time Ended: 1:45

Crust:
Soil Conditions: wet, unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 27, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20	17	7	15.5			
b	23.5	20		16			
c	25.5	22		17.5			
2 a	6	6	7	10.5			Icy layer below 6" no penetration
b	6.5	6.5		10.5			
c	6	6		10.6			
3 a	Patches of ice 1-1.5" thick						
b							
c							
4 a	Patches of ice 1-1.5" thick						
b							
c							
5 a	Patches of ice 1-1.5" thick						
b							
c							

Time Survey Started: 2:00
Time Ended: 2:20

Crust:
Soil Conditions: unfrozen
Ice Layers: #2 - #5

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 27, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	23	20	7	15.5			
b	19.5	17		15			
c	21	15.5		15.5			
2 a	19	15	7	15			
b	16	16		15			
c	16	14		15.5			
3 a	20.5	15.5	7	17.5			
b	19	15		16			
c	19	14		15.5			
4 a	19.5	13	7	14.5			
b	20	15		15			
c	20.5	13		13			
5 a	17	14	7	15.5			
b	13.5	11.5		14.5			
c	16	14		15			

Time Survey Started: 2:30
Time Ended: 3:15

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: March 27, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	13	10	7	12.5			
b	14	13.5		13.5			
c	15	13		13.5			
2 a	9	9	7	12.5			icy layer below aprox. 9"
b	9.5	9.5		12.5			no penetration
c	9.5	9		12			
3 a	39	24	7	22			
b	32	24		21.5			
c	22	14		15			
4 a	19.5	15	7	15			
b	20	15.5		16			
c	38	20		21			
5 a	29.5	19.5	7	19			
b	28	18.5		17			
c	28	17.5		17.5			

Time Survey Started: 3:30
Time Ended: 4:20

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: April 17, 1982
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20	11	7	14			Icy layer below 4-6"
b	18.5	11		14.5			
c	19	12.5		13			
2 a	21	15.5	7	16			difficult to find a core
b	19	12.5		14.5			
c	22	17.5		17			
3 a	21.5	18	7	17			
b	21.5	16		17.5			
c	21	16		16			
4 a	28	19.5	7	19			similar to #1 and # 2
b	28	19.5		19			
c	29	21.5		19.5			
5 a	28	16.5	7	16			
b	28	15.5		16			
c	20	14		15.5			

Time Survey Started: 9:00
Time Ended: 9:45

Crust: no crust at surface - icy layers as above
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: April 17, 1982
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20	13		14			
b	28	18	7	17			
c	32	17		16.5			
2 a	34	22		20			
b	32	20.5	7	20			
c	32	22.5		20			
3 a	23	16		18			
b	19	15	7	16			
c	26	18.5		19			
4 a	30	23		20			
b	31	19	7	18			
c	29	20		18			
5 a	24.5	17.5		18			
b	25.5	20	7	18.5			
c	24	17.5		18			

Time Survey Started: 10:15
Time Ended: 11:00

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 100'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: April 17, 1982
LOCATION: CDA Farm, Brookfield

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	6	4.5	7	9			
b	9	8		10.5			
c	7	6		9.5			
2 a	19	14	7	15			icy layer 6-8" below surface difficult to find a core
b	18.5	14		16.5			
c	19	14		16			
3 a	Open field						
b							
c							
4 a	Open field						
b							
c							
5 a	Open field						
b							
c							

Time Survey Started: 11:15
Time Ended: 11:30

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 50'

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: April 17, 1982
LOCATION: Dalhousie Crescent

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	open - patches of snow in places						
2 a b c	11 11 11.5	10 10.5 9.5	7	12 12.5 12			
3 a b c	11.5 8 13	10.5 6.5 11	7	13.5 10.5 13.5			
4 a b c	14 13 17	12 10.5 9	7	14 13 12			
5 a b c	open - patches of snow in places						

Time Survey Started: 12:00
Time Ended: 12:30

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 100' (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Paul Barnes
DATE: April 17, 1982
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a b c	open - only patches of snow around periphary						
2 a b c							
3 a b c	21 26.5 29	17.5 22 22	7	18.5 20.5 20			
4 a b c	33 28.5 25	17 19.5 17	7	19.5 19.5 18.5			
5 a b c	24 14 21	16.5 11 13	7	17.5 12.5 14.5			

Time Survey Started: 1:00
Time Ended: 1:45

Crust:
Soil Conditions: unfrozen
Ice Layers:

Comments:

5.4.2 Snow survey data for 1982-83

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	10 cm						
b	12 cm						
c	14 cm						
2 a	7.5 cm						
b	4.5 cm						
c	6 cm						
3 a	5 cm						
b	3.5 cm						
c	2.5 cm						
4 a	12 cm						
b	13 cm						
c	17 cm						
5 a	7 cm						
b	8 cm						
c	9 cm						

Time Survey Started: 11:20 a.m.
Time Ended: 11:30 a.m.

Crust: Nil
Soil Conditions: Damp
Ice Layers: Nil

Comments: Snow was too light to get a significant measurement

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	13 cm						
b	10 cm						
c	11 cm						
2 a	13 cm						
b	16 cm						
c	12 cm						
3 a	12 cm						
b	10 cm						
c	8.5 cm						
4 a	10 cm						
b	15 cm						
c	19 cm						
5 a	13 cm						
b	14.5 cm						
c	15 cm						

Time Survey Started: 1:05 p.m.
Time Ended: 1:16 p.m.

Crust: Nil
Soil Conditions: Dry
Ice Layers: Nil

Comments: Snow was too light to get a significant weight measurement

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	10 cm						
b	12 cm						
c	11 cm						
2 a	10 cm						
b	10 cm						
c	13 cm						
3 a	10 cm						
b	9 cm						
c	9.5 cm						
4 a	10 cm						
b	10 cm						
c	9 cm						
5 a	10 cm						
b	9 cm						
c	10 cm						

Time Survey Started: 12:10 p.m.
Time Ended: 12:15 p.m.

Crust: Nil
Soil Conditions: Dry
Ice Layers: Nil

Comments: Snow was too light to weigh

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	9 cm						
b	10 cm						
c	10 cm						
2 a	9 cm						
b	9 cm						
c	9 cm						
3 a	9 cm						
b	9 cm						
c	10 cm						
4 a	10 cm						
b	11 cm						
c	10.5 cm						
5 a	10 cm						
b	9 cm						
c	10.5 cm						

Time Survey Started: 11:45 a.m.
Time Ended: 11:51 a.m.

Crust: Thin layer top
Soil Conditions: Dry
Ice Layers: Nil

Comments: Snow too light to weigh

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	12 cm	6.35 cm	7	7			
b	11 cm	7.62 cm	7	7			
c	12 cm	7.62 cm	7	7			
2 a	9.5 cm	6.35 cm	7	7			
b	10 cm	6.35 cm	7	7			
c	11 cm	7.62 cm	7	7			
3 a	12 cm	7.62 cm	7	7			
b	20 cm	8.89 cm	7	7			
c	18 cm	8.89 cm	7	7			
4 a	14 cm						
b	12 cm						
c	13 cm						
5 a	10 cm						
b	12 cm						
c	14 cm						

Time Survey Started: 10:25 a.m.
Time Ended: 11:07 a.m.

Crust: Nil, Fluffy light snow
Soil Conditions: Damp
Ice Layers: Nil

Comments: Discontinued weighing because the snow was not significantly changing the weight of the tube.

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: January 3, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	7.5 cm						
b	9 cm						
c	9.5 cm						
2 a	9 cm						
b	10 cm						
c	11 cm						
3 a	16 cm						
b	12 cm						
c	12.5 cm						
4 a	9.5 cm						
b	8 cm						
c	8 cm						
5 a	9.5 cm						
b	10 cm						
c	9 cm						

Time Survey Started: 12:25 p.m.
Time Ended: 12:38 p.m.

Crust: Thin layer on surface
Soil Conditions: Damp at Points 1, 2
Ice Layers: Nil

Comments: Snow was too light to get a significant weight measurement.

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	42.0	16.54	12.0"	7	11.0	4.0	0.24	
b	29.0	11.42	10.5"	7	10.0	3.0	0.26	
c	41.0	16.14	13.0"	7	11.0	4.0	0.25	
2 a	20.0	7.87	6.5"	7	10.0	3.0	0.38	
b	11.0	4.33	4.0"	7	9.0	2.0	0.46	
c	19.0	7.48	6.0"	7	8.5	1.5	0.20	
3 a	32.0	12.60	9.0"	7	11.0	4.0	0.32	
b	31.0	12.20	8.0"	7	9.5	2.5	0.20	
c	32.5	12.80	8.0"	7	9.0	2.0	0.16	
4 a	32.5	12.80	10.5"	7	10.0	3.0	0.23	
b	34.5	13.58	9.0"	7	9.0	2.0	0.15	
c	35.0	13.78	9.0"	7	9.5	2.5	0.18	
5 a	19.0	7.48	6.0"	7	9.0	2.0	0.27	
b	25.0	9.84	7.0"	7	9.0	2.0	0.20	
c	26.0	10.24	7.5"	7	9.5	2.5	0.24	

Time Survey Started: 12.01 p.m.
Time Ended: 12.46 p.m.

Crust: Thick, 1.5"
Soil Conditions: Wet
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	33	12.99	8.0"	7	10.5	2.5"	0.19	
b	37	14.57	8.0"	7	10	3.0"	0.21	
c	30	11.81	9.0"	7	9.5	2.5"	0.21	
2 a	32	12.60	8.0"	7	9.5	2.5"	0.20	
b	32	12.60	7.5"	7	9.0	2.0"	0.16	
c	27	10.63	6.0"	7	8.5	1.5"	0.14	
3 a	30	11.81	10.5"	7	10.5	3.5"	0.30	
b	32.5	12.80	9.0"	7	9.0	2.0"	0.16	
c	25.5	10.04	8.5"	7	9.0	2.0"	0.20	
4 a	21.0	8.27	7.0"	7	8.0	1.0"	0.12	
b	26.5	10.43	9.0"	7	9.0	2.0"	0.19	
c	24.0	9.45	9.0"	7	9.5	2.5"	0.26	
5 a	35.0	13.78	13.5"	7	10.5	3.5"	0.25	
b	38.5	15.16	13.0"	7	11.0	4.0"	0.26	
c	37.5	11.76	11.0"	7	10.0	3.0"	0.20	

Time Survey Started: 1:05 p.m.
Time Ended: 1:34 p.m.

Crust: Nil
Soil Conditions:
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	21.25"	16.0"	7	11.5	4.5"	.21	
b	20.00"	11.5"	7	11.0	4.0"	.20	
c	24.50"	24.0"	7	13.5	6.5"	.27	
2 a	7.87"	5.0"	7	9.0	2.0"	.25	
b	7.87"	4.5"	7	7.0	0	0	
c	8.85"	7.0"	7	9.5	2.5"	.28	
3 a	8.85"	8.5"	7	10.0	3.0"	.34	
b	9.25"	8.25"	7	9.5	2.5"	.27	
c	10.25"	9.0"	7	10.0	3.0"	.29	
4 a	9.05"	9.00"	7	10.0	3.0"	.33	
b	9.25"	9.50"	7	9.5	2.5	.27	
c	9.45"	9.00"	7	10.0	3.0	.32	
5 a	4.75"	4.5"	7	7.5	0.5	.11	
b	3.55"	3.0"	7	7.0	0	0	
c	3.95"	3.5"	7	7.0	0	0	

Time Survey Started: 2:57 p.m.
Time Ended: 2:53 p.m.

Crust: 1" thick
Soil Conditions: dry
Ice Layers: nil

Comments: Very light snow no crust

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	10.63"	7.0"	7	10.0	3.0"	.28	
b	10.83"	7.5"	7	11.0	4.0"	.37	
c	10.24"	8.0"	7	8.5	1.5"	.15	
2 a	12.99"	9.0"	7	10.0	3.0"	.23	
b	14.76"	12.5"	7	11.5	4.5"	.30	
c	11.81"	11.0"	7	10.0	3.0"	.25	
3 a	6.30"	6.0"	7	8.0	1.0"	.16	
b	7.09"	6.5"	7	7.5	0.5"	.07	
c	7.48"	6.5"	7	9.0	2.0"	.27	
4 a	6.30"	5.5"	7	8.0	1.0"	.16	
b	4.72"	4.5"	7	8.0	1.0"	.21	
c	6.50"	6.0"	7	8.5	1.5"	.23	
5 a	13.39"	11.0"	7	10.5	3.5"	.26	
b	18.11"	12.0"	7	11.0	4.0"	.22	
c	10.29"	10.0"	7	9.5	2.5"	.24	

Time Survey Started: 11:22 a.m.
Time Ended: 11:48 a.m.

Crust: 1" thick
Soil Conditions:
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	12.20"	11.5"	7	10.0	3.0"	.25	
b	15.16"	9.5"	7	9.5	2.5"	.16	
c	17.32"	17.0"	7	12.0	5.0"	.29	
2 a	17.72"	17.0"	7	11.5	4.5"	.25	
b	16.14"	16.0"	7	11.0	4.0"	.25	
c	19.69"	19.5"	7	12.0	5.0"	.25	
3 a	15.75"	10.0"	7	9.5	2.5"	.16	
b	14.17"	9.0"	7	10.5	3.5"	.25	
c	13.39"	9.5"	7	10.5	3.5"	.26	
4 a	11.81"	8.0"	7	9.0	2.0"	.17	
b	11.02"	7.5"	7	9.0	2.0"	.18	
c	9.48"	8.0"	7	9.5	2.5"	.26	
5 a	10.24"	10.0"	7	9.5	2.5"	.24	
b	9.06"	8.0"	7	9.0	2.0"	.22	
c	9.45"	7.0"	7	8.0	1.0"	.11	

Time Survey Started: 10:01 a.m.
Time Ended: 11:09 a.m.

Crust: 1" thick
Soil Conditions: damp
Ice Layers: 6" above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 19, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	16.54"	12.5"	7	10.0	3.0"	.18	Drifts
b	16.34"	11.5"	7	9.5	2.5"	.15	
c	16.14"	13.0"	7	11.0	4.0"	.25	
2 a	11.42"	6.0"	7	8.5	1.5"	.13	
b	8.66"	7.0"	7	8.5	1.5"	.17	Crust thick 1.5"
c	6.30"	5.5"	7	8.0	1.0"	.16	
3 a	6.69"	5.5"	7	8.0	1.0	.15	
b	6.69"	5.0"	7	7.5	0.5"	.07	Thick crust 2"
c	6.30"	4.5"	7	7.0	0"	0	
4 a	6.30"	5.0"	7	7.5	0.5"	0.08	
b	6.50"	5.5"	7	8.0	1.0"	0.15	Plow effect
c	6.69"	5.5"	7	8.0	1.0"	0.15	
5 a	9.45"	8.0"	7	9.0	2.0"	0.21	
b	7.48"	7.5"	7	9.5	2.5"	0.33	
c	8.46"	7.5"	7	9.0	2.0"	0.24	

Time Survey Started: 1:52 p.m.
Time Ended: 2.29 p.m.

Crust:
Soil Conditions:
Ice Layers: Above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 27, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	17.72"	11.0"	7	11.5	4.5"	.25	
b	17.32"	12.0"	7	12.5	5.5"	.32	
c	17.72"	12.5"	7	13.0	6.0"	.34	
2 a	14.96"	10.0"	7	10.0	3.0"	.20	
b	15.75"	10.5"	7	10.5	3.5"	.22	Ice from trees on ground
c	16.14"	11.0"	7	11.0	4.0"	.25	
3 a	17.32"	11.0"	7	10.0	3.0"	.17	
b	18.11"	12.0"	7	10.0"	3.0"	.17	
c	16.11"	11.0"	7	10.0	3.0"	.19	
4 a	15.35"	9.0"	7	9.5	2.5"	.16	
b	16.14"	8.0"	7	9.0	2.0"	.12	
c	16.14"	9.5"	7	10.0	3.0"	.19	
5 a	19.29"	10.0"	7	11.5	4.5"	.23	
b	18.90	11.5"	7	12.0	5.0"	.26	
c	19.69	10.0"	7	11.0	4.5"	.23	

Time Survey Started: 12:05 p.m.
Time Ended: 12:45 p.m.

Crust: ½" thick
Soil Conditions: wet
Ice Layers: above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 26, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22.83"	16.0"	7	10.0	3.0"	0.13	
b	25.98"	17.0"	7	11.0	4.0"	0.15	
c	25.39"	18.0"	7	10.0	3.0"	0.12	
2 a	24.80"	19.0"	7	12.5	5.5"	0.22	
b	26.77"	19.5"	7	13.0	6.0"	0.22	
c	27.17"	20.0"	7	12.0	5.0"	0.18	
3 a	24.02"	20.0"	7	11.0	4.0"	0.17	
b	20.47"	19.0"	7	12.0	5.0"	0.24	
c	20.87"	18.0"	7	11.0	4.0"	0.19	
4 a	20.08"	17.0"	7	11.5	4.5"	0.22	
b	21.65	16.0"	7	12.0	5.0"	0.23	
c	20.87	17.5"	7	12.0	5.0"	0.24	
5 a	20.08	16.0"	7	12.0	5.0"	0.25	
b	20.08	17.0"	7	12.0	5.0"	0.25	
c	20.87	15.0"	7	11.0	4.0"	0.19	

Time Survey Started: 11:55 a.m.
Time Ended: 12:40 p.m.

Crust: 1.5"
Soil Conditions:
Ice Layers: 2 layer above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 26, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	16.14"	10.0"	7	10.0	3.0"	0.19	
b	20.08"	12.0"	7	11.0	4.0"	0.20	
c	22.83"	11.0"	7	10.0	3.0"	0.13	
2 a	22.05"	10.0"	7	10.0	3.0"	0.14	
b	22.44"	12.0"	7	11.0	4.0"	0.18	
c	22.24"	12.0"	7	10.0	3.0"	0.13	
3 a	7.09"	7.0"	7	9.0	2.0"	0.28	
b	7.87"	6.0"	7	8.0	1.0"	0.13	
c	9.06"	7.0"	7	9.0	2.0"	0.22	
4 a	12.60"	8.0"	7	10.0	3.0"	0.24	
b	11.81"	9.0"	7	10.0	3.0"	0.25	
c	9.84"	8.5"	7	11.0	4.0"	0.41	
5 a	13.78"	13.0"	7	12.0	5.0"	0.36	
b	14.17"	12.0"	7	12.0	5.0"	0.35	
c	17.32"	12.0"	7	11.0	4.0"	0.23	

Time Survey Started: 1:11 p.m.
Time Ended: 1:53 p.m.

Crust: 1" thick ice
Soil Conditions:
Ice Layers: above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 27, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	18.11"	13.0"	7	12.5	5.5"	0.30	
b	17.72"	12.0	7	11.5	4.5"	0.25	
c	17.91"	13.5"	7	12.5	5.5"	0.31	
2 a	24.21"	14.5"	7	13.5	6.5"	0.27	
b	24.02"	12.5"	7	12.0	5.0"	0.21	
c	24.61"	13.0"	7	12.5	5.5"	0.22	
3 a	12.20"	8.0"	7	9.0	2.0"	0.16	
b	14.96"	8.5"	7	9.0	2.0"	0.13	
c	13.78"	9.0"	7	10.0	3.0"	0.22	
4 a	9.84"	7.5"	7	9.5	2.5"	0.25	
b	9.45"	8.0"	7	10.0	3.0"	0.32	Drifting
c	11.81"	9.0"	7	10.0	3.0"	0.25	
5 a	14.57"	15.0"	7	13.0	6.0"	0.41	
b	16.54"	13.5"	7	12.0	5.0"	0.30	
c	14.17"	14.0"	7	12.0	5.0"	0.35	

Time Survey Started: 12:58
Time Ended: 1:17

Crust: Thin
Soil Conditions:
Ice Layers: Above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 27, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	15.75"	10.0"	7	10.5	3.5"	0.22	
b	15.35"	10.5"	7	11.0	4.0"	0.26	
c	16.14"	9.0"	7	10.0	3.0"	0.19	
2 a	12.80"	8.5"	7	10.0	3.0"	0.23	
b	10.04"	8.0"	7	10.5	3.5"	0.35	
c	13.39"	9.0"	7	10.0	3.0"	0.22	
3 a	19.69"	11.0"	7	11.5	4.5"	0.23	3 ice layers
b	19.09"	13.0"	7	12.0	5.0"	0.26	above ground
c	24.41"	15.0"	7	13.0	6.0"	0.25	
4 a	18.11"	11.0"	7	11.0	4.0"	0.22	
b	16.54"	11.5"	7	10.5	3.5"	0.21	
c	15.35"	10.0"	7	10.0	3.0"	0.20	
5 a	15.75"	9.0"	7	10.0	3.0"	0.19	
b	16.54"	9.5"	7	10.0	3.0"	0.18	
c	16.14"	9.0"	7	10.5	3.5"	0.22	

Time Survey Started: 11:20 a.m.
Time Ended: 11:52 a.m.

Crust: Wet Ice
Soil Conditions: Damp
Ice Layers: Above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: February 27, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH (inches)	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20.08"	12.0"	7	10.5	3.5"	0.17	
b	17.72"	13.0"	7	10.0	3.0"	0.17	
c	20.87"	13.5"	7	11.0	4.0"	0.19	
2 a	18.50"	13.0"	7	15.5	8.5"	0.46	Started raining
b	18.11"	14.0"	7	15.0	8.0"	0.44	snow was wet
c	18.31"	14.5"	7	16.0	9.0"	0.49	
3 a	8.66	6.0	7	10.0	3.0"	0.35	
b	9.06	6.5	7	10.0	3.0"	0.33	
c	9.45	7.0	7	11.0	4.0"	0.42	
4 a	11.81	8.5	7	10.5	3.5"	0.30	
b	11.02	9.0	7	11.0	4.0"	0.36	
c	10.63	7.0	7	10.0	3.0"	0.28	
5 a	14.96	12.0	7	14.0	7.0"	0.47	Raining
b	16.54	11.0	7	12.0	5.0"	0.30	
c	17.72	10.0	7	13.5	6.5"	0.37	

Time Survey Started: 1:35 p.m.
Time Ended: 2.05 p.m.

Crust: Thin layer of ice
Soil Conditions:
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	38.0	14.96	8.0	7	10.0	3.0	0.20	
b	32.0	12.60	7.5	7	10.0	3.0	0.24	
c	36.0	14.17	8.5	7	11.0	4.0	0.28	
2 a	28.0	11.02	8.0	7	9.0	2.0	0.18	
b	23.0	9.06	7.5	7	9.0	2.0	0.22	
c	25.0	9.84	8.5	7	9.5	2.5	0.25	
3 a	33.0	12.99	7.0	7	9.0	2.0	0.10	
b	40.0	15.75	8.5	7	9.5	2.5	0.16	
c	47.0	18.50	9.5	7	10.0	3.0	0.16	
4 a	33.0	12.99	7.0	7	9.5	2.5	0.19	
b	36.0	14.17	6.5	7	10.0	3.0	0.21	
c	37.0	14.57	6.0	7	10.0	3.0	0.21	
5 a	27.0	10.63	7.0	7	10.0	3.0	0.28	
b	32.0	12.60	6.0	7	9.0	2.0	0.16	
c	28.0	11.02	8.0	7	9.0	2.0	0.18	

Time Survey Started: 11:55 a.m.
Time Ended: 12:20 p.m.

Crust: Very thick
Soil Conditions:
Ice Layers: 2 above ground

omments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	39.0	15.35	8.0"	7	9.0	2.0"	0.13	ice layers above ground
b	45.0	17.72	12.0"	7	11.0	4.0"	0.23	
c	40.0	15.75	12.0"	7	10.0	3.0"	0.19	
2 a	40.0	15.75	12.0"	7	11.0	4.0"	0.25	
b	37.0	14.57	12.0"	7	11.0	4.0"	0.27	
c	43.0	16.93	14.0"	7	12.0	5.0"	0.30	
3 a	38.0	14.96	10.0"	7	11.0	4.0"	0.27	
b	42.0	16.54	14.0"	7	12.0	5.0"	0.30	
c	39.0	15.35	13.0"	7	11.5	4.5"	0.29	
4 a	39.0	15.35	13.0"	7	11.5	4.5"	0.29	ice layers above ground
b	43.0	16.93	9.0"	7	10.0	3.0"	0.18	
c	40.0	15.75	10.0"	7	10.5	3.5"	0.22	
5 a	48.0	18.90	14.0"	7	10.0	3.0"	0.16	ice layer above ground
b	47.0	18.50	16.0"	7	9.0	2.0"	0.11	
c	50.0	19.69	18.0"	7	11.0	4.0"	0.20	

Time Survey Started: 12:40 p.m.
Time Ended: 1:21 p.m.

Crust: 1" thick
Soil Conditions: wet
Ice Layers: above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	24.0	9.45	5.0"	7	8.0"	1.0"	0.11	
b	25.0	9.84	6.0"	7	9.0"	2.0"	0.20	
c	28.5	11.22	7.0"	7	9.0"	2.0"	0.18	
2 a	35.0	13.78	7.0"	7	9.0"	2.0"	0.15	
b	36.0	14.17	8.0"	7	10.5"	3.5"	0.25	
c	35.0	13.78	8.5"	7	10.0"	3.0"	0.22	
3 a	5.0	1.97						
b	5.0	1.97						
c	6.0	2.36						
4 a	6.5	2.56						
b	5.0	1.96						
c	4.5	1.77						
5 a	9.0	3.54						Water on the ground
b	10.0	3.94						
c	11.0	4.33						

Time Survey Started: 2:13 p.m.
Time Ended: 2.25 p.m.

Crust:
Soil Conditions:
Ice Layers:

omments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	27.0	10.63	8.5"	7	9.5	2.5"	0.24	ice layer above ground
b	29.0	11.42	9.0"	7	10.0	3.0"	0.26	
c	27.5	10.63	8.0"	7	9.0	2.0"	0.19	
2 a	44.0	17.32	9.0"	7	11.0	4.0"	0.23	
b	45.0	17.72	8.0"	7	10.0	3.0"	0.17	
c	46.0	18.11	16.0"	7	12.0	5.0"	0.28	
3 a	13.0	5.12						
b	15.0	5.91						Fluffy snow, very light
c	16.0	6.30						
4 a	24.0	9.45	7.0	7	7.5	0.5"	0.05	
b	24.0	9.45	7.0	7	7.0	0	0	
c	25.0	9.84	6.0	7	8.0	1.0"	0.10	
5 a	28.0	11.02	10.0	7	13.0	6.0"	0.54	
b	31.0	12.20	11.0	7	11.0	4.0"	0.53	thick crust
c	34.0	13.39	12.0	7	11.5	4.5"	0.34	

Time Survey Started: 11:15 a.m.
Time Ended: 11.36 a.m.

Crust:
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22.0	8.66	6.0"	7	8.5	1.5"	0.17	
b	21.5	8.46	6.5"	7	9.5	2.5"	0.30	
c	20.0	7.87	7.0"	7	9.0	2.0"	0.25	
2 a	24.0	9.45	8.0"	7	9.0	2.0"	0.21	Crust
b	25.0	9.84	8.5"	7	10.0	3.0"	0.30	
c	28.0	11.02	8.0"	7	9.5	2.5"	0.23	
3 a	32.0	12.60	11.5"	7	10.5	3.5"	0.28	
b	33.0	12.99	9.0"	7	10.5	3.0"	0.23	Crust
c	34.5	13.58	10.0	7	11.0	4.0"	0.29	
4 a	24.0	9.45	7.0"	7	8.0	1.0"	0.11	Soil very wet
b	30.0	11.81	8.0"	7	9.5	2.5"	0.21	
c	26.0	10.24	7.5"	7	9.0	2.0"	0.20	
5 a	26.5	10.43	8.0"	7	8.5	1.5"	0.14	Wet snow
b	28.5	11.22	7.0"	7	8.0	1.0"	0.09	
c	31.5	12.40	7.5"	7	8.0	1.0"	0.08	

Time Survey Started: 10:23 a.m.
Time Ended: 10:53 a.m.

Crust: ½ thick
Soil Conditions: Very wet
Ice Layers: 2 layers above ground

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 5, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	28.0	11.02	7.0"	7	10.0	3.0"	0.27	
b	33.0	12.99	8.0"	7	10.0	3.0"	0.23	
c	39.0	15.35	9.0"	7	9.0	2.0"	0.13	
2 a	32.0	12.60	10.0"	7	9.0	2.0"	0.16	
b	38.0	14.96	12.0"	7	10.0	3.0"	0.20	
c	41.0	16.14	12.0"	7	9.5	2.5"	0.15	
3 a	7.5	2.95						
b	8.0	3.15						Ice pack
c	9.0	3.50						
4 a	9.5	3.74						
b	11.5	4.53						
c	10.0	3.94						
5 a	28.0	11.02	9.0"	7	8.5	1.5"	0.14	
b	29.0	11.42	10.0"	7	9.0	2.0"	0.18	
c	31.0	12.20	9.5"	7	8.5	1.5"	0.12	

Time Survey Started: 1:37 p.m.
Time Ended: 1:56 p.m.

Crust:
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	21.0	8.27	7.0"	7	10.0	3.0"	0.36	
b	14.5	5.71	5.0"	7	9.0	2.0"	0.35	
c	31.0	12.20	9.0"	7	10.0	3.0"	0.25	
2 a	14.0	5.51	5.0"	7	8.0	1.0"	0.18	
b	20.0	7.87	6.0"	7	8.5	1.5"	0.19	
c	23.0	9.06	7.0"	7	9.5	2.5"	0.28	
3 a	26.0	10.24	6.0"	7	9.0	2.0"	0.20	
b	25.0	9.84	7.0"		8.0	1.0"	0.10	Crust on top
c	27.5	10.83	7.5"	7	10.0	3.0"	0.28	
4 a	25.0	9.84	7.0"	7	9.5	2.5"	0.25	
b	24.0	9.45	7.0"	7	10.0	3.0"	0.32	
c	27.0	10.63	8.0"	7	10.0	3.0"	0.28	
5 a	26.0	10.24	8.0"	7	10.0	3.0"	0.29	
b	30.0	11.81	9.0"	7	11.0	4.0"	0.34	
c	24.0	9.45	8.5"	7	10.0	3.0"	0.32	

Time Survey Started: 2:00 p.m.
Time Ended: 2:35 p.m.

Crust:
Soil Conditions: Wet
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	46	18.11	17.0"	7	14.0	7.0"	0.39	
b	39.5	15.55	15.0"	7	13.5	6.5"	0.42	
c	37.5	14.76	10.5"	7	12.0	5.0"	0.34	
2 a	31.0	12.20	9.0"	7	11.0	4.0"	0.33	
b	27.0	10.63	7.0"	7	10.0	3.0"	0.28	
c	28.0	11.02	7.0"	7	10.0	3.0"	0.27	
3 a	33	12.99	6.0"	7	10.0	3.0"	0.23	A lot of surface water on ground
b	27	10.63	5.0"	7	9.0	2.0"	0.19	
c	23	9.06	7.0"	7	10.5	3.5"	0.39	
4 a	23	9.06	6.0"	7	9.5	2.5"	0.28	
b	24	9.45	7.0"	7	10.0	3.0"	0.32	
c	27	10.63	6.5"	7	10.0	3.0"	0.28	
5 a	37	14.57	9.0"	7	11.0	4.0"	0.27	
b	38	14.96	9.5"	7	11.0	4.0"	0.27	
c	36	14.17	10.0"	7	11.5	4.5"	0.32	

Time Survey Started: 2:50 p.m.
Time Ended: 3:21 p.m.

Crust: Nil
Soil Conditions: Wet
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	22	8.66	7.5"	7	10.0	3.0"	0.35	
b	27	10.63	9.0"	7	11.0	4.0"	0.38	ice layer above ground
c	23.5	9.25	8.0"	7	10.5	3.5"	0.38	
2 a	19.0	7.48	6.0"	7	12.0	5.0"	0.67	
b	24.0	9.45	7.0"	7	13.0	6.0"	0.63	slush
c	21.5	8.46	6.5"	7	12.0	5.0"	0.59	
3 a	0	0						
b	0	0						
c	0	0						
4 a	0	0						
b	0	0						
c	0	0						
5 a	12.0	4.72	3.0"	7	11.0	4.0"	0.85	
b	15.00	5.91	5.0"	7	11.0	4.0"	0.68	water beneath snow
c	21.0	8.27	7.0"	7	11.5	4.5"	0.54	

Time Survey Started: 4:05 p.m.
Time Ended: 4:18 p.m.

Crust: Nil
Soil Conditions: Watered down
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	20	7.87	5.0"	7	9.0	2.0"	0.25	
b	18	7.09	5.5"	7	8.5	1.5"	0.21	
c	19.5	7.68	6.0"	7	9.0	2.0"	0.26	
2 a	22	8.66	6.0"	7	9.5	2.5"	0.29	
b	21.5	8.46	6.0"	7	9.0	2.0"	0.24	
c	22.5	8.86	7.0"	7	9.5	2.5"	0.28	
3 a	7	2.76						
b	9	3.54						
c	10	3.94						
4 a	14	5.51	5.0"	7	9.5	2.5"	0.45	
b	13	5.12	4.0"	7	8.0	1.0"	0.20	
c	15	5.91	5.5"	7	10.0	3.0"	0.51	
5 a	27	10.63	9.0"	7	11.0	4.0"	0.38	
b	21	8.27	8.0"	7	10.0	3.0"	0.36	
c	25.5	10.04	8.5"	7	9.5	2.5"	0.25	

Time Survey Started: 1:33 p.m.
Time Ended: 1:55 p.m.

Crust: Nil
Soil Conditions: Damp
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	12.0	4.72						Wet snow
b	11.0	4.33						
c	10.5	4.13						
2 a	22.0	8.66	6.0"	7	8.0	1.0"	0.12	Ice layer above ground ½" thick
b	23.0	9.06	6.0"	7	8.0	1.0"	0.11	
c	23.0	9.06	6.5"	7	8.5	1.5"	0.17	
3 a	9.0	3.54						
b	14.0	5.51						
c	8.5	3.35						
4 a	19.0	7.48	6.5"	7	8.0	1.0"	0.13	
b	22.0	8.66	7.0"	7	9.0	2.0"	0.23	
c	21.5	8.46	7.0"	7	9.5	2.5"	0.30	
5 a	19.0	7.48	6.0"	7	8.0	1.0"	0.13	
b	19.0	7.48	6.5"	7	8.0	1.0"	0.13	
c	23.0	9.06	7.5"	7	9.5	2.0"	0.22	

Time Survey Started: 1:00 p.m.
Time Ended: 1:25 p.m.

Crust:
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 13, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	23.0	9.06	4.0"	7	8.0	1.0"	0.11	
b	26.0	10.24	3.0"	7	7.0	0	0	
c	22.0	8.66	4.5"	7	8.5	1.5"	0.17	
2 a	18.0	7.09	5.5"	7	8.5	1.5"	0.21	
b	16.0	6.30	6.0"	7	9.0	2.0"	0.32	
c	17.0	6.69	6.0"	7	9.5	2.5"	0.37	
3 a	0	0						
b	0	0						
c	0	0						
4 a	9	3.54						
b	8	3.15						
c	7	2.75						
5 a	19	7.48	6.0"	7	9.0	2.0"	0.27	
b	21	8.27	5.5"	7	8.0	1.0"	0.12	
c	18	7.09	5.0"	7	8.0	1.0"	0.14	

Time Survey Started: 3:32 p.m.
Time Ended: 3:51 p.m.

Crust: Nil
Soil Conditions: Wet
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 1
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: Topsail Road Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	12.5	4.92						
b	9.5	3.74						
c	11.5	4.53						
2 a	10.0	3.94						
b	16.0	6.30						Hard Snow
c	9.0	3.54						
3 a	18.0	7.09						
b	18.5	7.28						
c	16.0	6.30						
4 a	11.0	4.33						
b	19.0	7.48						
c	15.0	5.91						
5 a	16.0	6.30						
b	15.0	5.91						Hard
c	20.0	7.87						

Time Survey Started: 11:22 a.m.
Time Ended: 11:33 a.m.

Crust:
Soil Conditions: Wet in places
Ice Layers: Nil

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 2
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: Harbour Arterial Hill

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	46.99	18.5"	16.5"	7	13.5	6.5"	.35	Ice layer above ground
b	41.91	16.5"	14.5"	7	13.0	6.0"	.36	
c	43.18	17.0"	14.0"	7	13.0	6.0"	.35	
2 a	27.94	11.0"	10.0"	7	11.0	4.0"	.36	Ice layer above ground
b	24.13	9.5"	8.5"	7	10.5	3.5"	.37	
c	27.94	11.0"	10.0"	7	10.0	3.0"	.27	
3 a	22.86	9.0"	8.0"	7	9.0	2.0"	.22	
b	27.94	11.0"	10.0"	7	10.0	3.0"	.27	
c	30.48	12.0"	11.0"	7	11.0	4.0"	.33	
4 a	30.48	12.0"	10.0"	7	11.0	4.0"	.33	
b	27.94	11.0"	10.0"	7	10.0	3.0"	.27	
c	25.40	10.0"	9.0"	7	9.5	2.5"	.25	
5 a	30.48	12.0"	10.0"	7	10.0	3.0"	.25	
b	33.02	13.0"	12.0"	7	11.0	4.0"	.31	
c	35.56	14.0"	13.5"	7	12.0	5.0"	.36	

Time Survey Started: 11:44 a.m.
Time Ended: 12.23 p.m.
Crust: thick
Soil Conditions: wet
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 3
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: CDA Farm

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	17.0	6.69						
b	17.5	6.89						
c	18.0	7.09						
2 a	9.0	3.54						
b	10.5	4.13						
c	7.0	2.76						
3 a	0	0						
b	0	0						
c	0	0						
4 a	0	0						
b	0	0						
c	0	0						
5 a	5.0	1.97						
b	7.5	2.95						Ice layers
c	6.0	2.36						

Time Survey Started: 12:55 p.m.
Time Ended: 1:00 p.m.

Crust:
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 4
NO. OF POINTS: 5
INTERVAL: 15 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: Neighbourhood II Newton

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	11.0	4.33						Thin ice layer above ground
b	9.5	3.74						
c	8.0	3.15						
2 a	15.5	6.10						
b	13.0	5.12						
c	12.0	4.12						
3 a	6.5	2.56						
b	5.0	1.97						
c	8.0	3.15						
4 a	9.0	3.54						
b	9.0	3.54						
c	11.5	4.53						
5 a	19.0	7.48						
b	22.0	8.66						
c	21.0	8.27						

Time Survey Started: 11:09 a.m.
Time Ended: 11:15 a.m.

Crust: thin ice
Soil Conditions: dry
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 5
NO. OF POINTS: 5
INTERVAL: 30 metres

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: Canada Drive

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	5.0	1.97						mostly ice crust
b	10.0	3.94						
c	5.5	2.17						
2 a	6.5	2.56						
b	10.0	3.94						
c	9.5	3.74						
3 a	20.0	7.87						crust
b	12.0	4.72						
c	14.0	5.51						
4 a	9.0	3.54						ice layer above ground
b	18.0	7.09						
c	12.0	4.72						
5 a	8.0	3.15						
b	11.0	4.33						
c	16.0	6.30						

Time Survey Started: 10:45 a.m.
Time Ended: 10:55

Crust:
Soil Conditions:
Ice Layers:

Comments:

DEPARTMENT OF ENVIRONMENT
SNOW COVER #: 6
NO. OF POINTS: 5
INTERVAL: 30 metres (non-uniform)

WATERFORD RIVER URBAN HYDROLOGY STUDY
OBSERVER: Pierce Bailey
DATE: March 19, 1983
LOCATION: Ruby Line

SAMPLE #	SNOW DEPTH cm	SNOW DEPTH in	LENGTH OF CORE (inches)	WEIGHT OF TUBE (ounces)	WEIGHT OF TUBE + SNOW CORE (ounces)	WATER EQUIV. (inches)	DENSITY	REMARKS
1 a	16.0	6.30						
b	20.0	7.87						
c	15.0	5.91						
2 a	10.0	3.94						
b	13.0	5.12						
c	11.0	4.33						
3 a	0	0						
b	0	0						
c	0	0						
4 a	0	0						
b	0	0						
c	0	0						
5 a	9.0	3.54						
b	11.0	4.33						
c	7.5	2.95						

Time Survey Started: 12:40 p.m.
Time Ended: 12:45 p.m.

Crust:
Soil Conditions:
Ice Layers:

Comments:

6.0 HSPF MODEL DATA BASE

A data base was created for future studies of the Waterford River Basin using the computer program HSPF (Hydrologic Simulation Program - Fortran). The data in this data base include:

1) Hourly temperature, wind speed, precipitation, and solar radiation at the Climate Station - St. John's West, CDA.

2) Daily Class "A" pan evaporation at St. John's West, CDA,

3) Hourly streamflow from the Hydrometric Station Waterford River at Kilbride.

A detailed description of this data base is provided in the report, "Waterford River Basin Urban Hydrology Study HSPF Data base Computation by Glen Daurie, 1984.

A copy of this report is included here for detailed reference.

A report prepared under

The New Employment Expansion

Development Program

February 1984

WATERFORD RIVER BASIN
URBAN HYDROLOGY STUDY
HSPF DATABASE COMPILATION

BY

GLENN DAURIE

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Dartmouth, Nova Scotia

Report 1.04

ACKNOWLEDGEMENTS

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The Inland Waters Directorate of Environment Canada administered three projects under this program for which J.E. Peters Management Limited acted as Program Manager.

The author wishes to thank Wm. Brimley (Water Resources Branch IWD) for his initial insight into the HSPF model, and to Dave Smith (Water Planning and Management Branch IWD) for his invaluable hydrological knowledge and guidance while developing this dataset.

TABLE OF CONTENTS

INTRODUCTION

This dataset has been prepared to meet the data requirements to calibrate and verify the Hydrological Simulation Program - Fortran (HSPF) model of the Waterford River Basin near St. John's Newfoundland.

HSPF is a set of modules developed for the Environmental Research Laboratory located in Athens, Georgia, to "permit the continuous simulation of a comprehensive range of hydrologic and water quality processes".[1]

The database at this time contains only the data of the following hydrometeorological processes (not water quality):

Temperature (dew point and dry bulb)
Wind Speed
Precipitation
Radiation
Evaporation
Streamflow

The extensive data adaptation and calibration work performed on this dataset will enable a user to compile a time series store[2] from which an HSPF run can be made.

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1 p. 2 (1)

2 "The single direct access (as opposed to a sequential access) file used for medium/long term storage of a time series."
Ref p.640 (1)

PURPOSE

The primary purpose of this report is to provide some insight into the procedures used to develop the sequential database. These data are to be input to the Hydrological Simulation Program - Fortran to provide detailed information on the hydrological cycle of the Waterford River Basin of the St. John's metropolitan region of Newfoundland.[1] This information will be assessed by the Waterford River Basin Urban Hydrology Study[2] in order to evaluate the "effects of urbanization on the hydrologic cycle" of the basin.[3]

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1 Ref. p. 31 (2)

2 Ref. p. 2 (3)

3 Ref. p. 12 (3)

THE DATA

The following data files have been collected and re-formated for input to HSPF:

HYTMPF - St. John's Airport hourly dry bulb temperature (^{o}C)

HYDPTF - St. John's Airport hourly dew point temperature (^{o}C)

HYWNDS - St. John's Airport hourly wind speed (average velocity over one minute, assume it is the average velocity for the hour) (km/h)

TIPBUC - St. John's CDA[1] hourly tipping bucket precipitation gauge data (mm)

HYRADL - St. John's CDA hourly radiation converted to langleys[2]

DHYPEVF - St. John's CDA daily pan evaporation (mm/d)

DHYLEVF - St. John's CDA daily lake evaporation estimated from other parameters (mm/d)

HYWATA - Waterford River hourly streamflow data (m^3/s) Water Survey of Canada Hydrometric Station #02ZM008 Waterford River at Kilbride

All data is from May 1st 1980 to May 31st 1983 inclusive. Data samples can be seen in Appendix I.

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1 Canada Department of Agriculture Research Station.

2 p. 151-2 (1)

FORMATTING

The hourly and daily records for the sequential files follow the formats set out in section 4.9 of the HSPF USER'S manual.[1]

1. Hourly[2]

All hourly data over a period of one day (24 hours) is contained on two records of the following format.

Format (A10,I2,1X,I2,1X,I2,1X,I1, 12F5.0)

1 2 3 4 5 6

Fields:
1. Comment and flag field.
2. Last two digits of the calendar year.
3. Month.
4. Day.
5. Card number: 1 for 0000 hrs. to 1159 hrs.
   2 for 1200 hrs. to 2359 hrs.
6. Twelve fields of hourly data.

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1 p. 630 (1)

2 Ref. section 4.9.3 of HSPF Manual (1)

The number of significant figures in the data vary from file to file.

i.e.

File Name	Data Description	Units
HYTMPF	F5.1	^{o}C
TIPBUC	F5.1	mm
HYDPTF	F5.1	^{o}C
HYWNDS	F5.0	km/h
HYRADL	F5.2	langleys
HYWATA	F5.2	m^3/s

2. Daily[1]

All daily data over a period of one month (28 to 31 days) are contained on three records. The first two records (days 1-10, days 11-20) follow the first (1) format, whereas the third record follows the second (2) format:

Format (1) (A7,I2,I2,I1,10F6.1)

1 2 3 4 5

(2) (A7,I2,I2,I1,11F6.1)

Fields: 1 Comment and flag field.
2 Last two digits of calendar year.
3 Month.
4 Card number: 1 Contains data for days 1-10
2 Contains data for days 11-20
3 Contains data for days 21-

Note: The third record, card number 3 contains different number of data fields for different months.

1 Ref. Section 4.9.4 or HSPF manual. (1)

i.e. February has 28 days, so card number 3 has 8 fields of data or days 21-28. December has 31 days, so card number 3 has 11 fields of data or days 21-31

5 Daily Data Fields.

The following files employ the daily data format which was discussed on the previous page.

File Name	Data Description	Units
DHYPEVF	F6.1	mm/d
DHYLEVF	F6.1	mm/d

MISSING DATA

For the following data files;

HYTMPF - Dry bulb temperature
HYDPTF - Dew point temperature
HYWNDS - Wind speed
HYRADL - Radiation
HYWATA - Streamflows,

the data is continuous. In the files for which the orginal data had some data missing (radiation and streamflows), the values were either estimated or a daily mean was inserted. For the records whose data were completed by one of these methods, a flag has been placed on the comment field. For the discontinuous data files (i.e. storm-event or seasonally collected data) such as pan and lake evaporation (DVYPEVF, DHYLEVF), the following procedures were used:

- Days for which values are missing in the pan evaporation file (generally due to freezing conditions), a long term monthly mean is inserted, and a flag placed in the record's comment field.
- Negative values in the lake evaporation file were placed at zero and the comment field flagged.
- For missing values in the lake evaporation file, the following formula was used:

$$\text{Daily lake evap.} = \text{daily pan evap.} \times \frac{\sum \text{lake evap. file}}{\sum \text{pan evap. file}}$$

Missing data for the tipping bucket precipitation file (discontinuous) is discussed in the following section.

TIPPING BUCKET DATA CALIBRATION

The following steps were taken to establish the hourly tipping bucket precipitation file (the tipping bucket gauge is equipped with a heater and measurements include melted snow)[1,2] the sum of which had to equate to the sum of the daily CDA standard rain gauge data and snowfall data:

1. Manually entered the tipping bucket precipitation gauge data (in ten minute intervals) to disk from data sheets prepared by the Newfoundland Department of the Environment (see appendix II) and verified same.
   Note: Ten-minute tipping bucket data is recorded on strip charts from approximately 8:00 a.m. on one day, to 7:59 a.m. on the next day. These data were entered in 0000 to 2359 hr. days to fit the HSPF format.
2. Accumulated the 10-minute data into hourly values and reformatted to HSPF hourly format (see format section of this report.)
3. Filled-in a small percentage of data where tipping bucket gauge was noted to be malfunctioning on the data sheets, using St. John's Airport hourly precipitation information as estimator.
4. Summed the hourly tipping bucket file[3] to give daily values of 0800 to 0800 hour-days. Compared the tipping bucket dailies to the

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1 p. 2.3.38 (4)

2 p. 10 (5)

3 Hourly records are 0000 to 2300 hour-days.
Daily records are 0800 0800 hour-days.

sum of the CDA standard rain gauge data and CDA daily snowfall data.

5. Worked up a factor for each day using the following formula:

$$\text{Factor} = \frac{\text{CDA standard rain gauge + snowfall}}{\text{tipping bucket daily}}$$

6. Multiplied the hourly tipping bucket data by this daily factor. For days where rain was indicated at the standard rain gauge but not at the tipping bucket precipitation gauge, took the sum of the daily standard rain and snowfall data, divided by 24, and used this as an hourly value for each of the 24 hourly periods in the day.
7. Deleted days (records) in the tipping bucket file which indicated rain but for which no precipitation was recorded elsewhere (i.e. CDA).
8. Checked monthly sums of hourly and daily files.

DATA SOURCES

The following information was received from the AES[1] Canadian Climatological Data Archives (tape #C17185, project # 3125):

St. John's Airport -Hourly dry bulb temperature.
-Hourly dew point temperature.
-Hourly wind speed.

St. John's CDA -Hourly radiation[2]
-Daily pan evaporation.
-Daily lake evaporation.
-Daily snowfall.
-Daily rainfall.

Note: AES formatting information can be referenced in depth with the following document:
Documentation for the Digital Archive of Canadian Climatological Data identified by Element-November 1982.

Hourly streamflow data was received from Water Resources Branch IWD. Tipping bucket precipitation gauge data (abstracted from strip charts into ten-minute intervals) for St. John's West was received from the Water Resources Division, Department of Environment, Government of Newfoundland and Labrador.

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1 Atmospheric Environment Service
Canadian Climate Centre
Downsview, Ontario.

2 Hourly radiation data from AES was received in megajoules/m^2. This data was converted to langleys by the following formula:

$$\text{langleys} = 23.9 \times \text{megajoules}/m^2$$

DATABASE AVAILABILITY

1. Hard Copy

The data files have been archived on disk for future accessibility at Water Planning and Management Branch - IWD.
(Dartmouth, Nova Scotia)

2. Magnetic Tape

A magnetic tape of this data base is available for copying from Water Planning and Management Branch in Dartmouth. The tape was copied, then read, and verified.

The following specifications were noted for the tape:

Parameter	Value	Description
VSN	X01736	tape number
NT	-	nine track
D	1600 bpi	density
LB	KU	unlabelled
F	L	long block stranger format
CV	EB	EBCDIC/display code conversion
RT	F	fixed record type
BT	C	blocks are same length
RB	20	# records/block
MBL	1600	max. block length (char.)
FL	80	record length
CM	yes	coded tape file.

REFERENCES

(1) Hydrological Simulation Program-Fortran (HSPF) User's Manual Release 7.0, U.S. Environmental Protection Agency, Athens, Georgia, July 1981.

(2) Waterford River Basin Urban Hydrology Study Plan, Newfoundland Department of Environment, January 1978.

(3) Progress Report Modelling Component Waterford River Basin Urban Hydrology Study, Environment Canada, Inland Waters Directorate, November 1983.

(4) Handbook on the Principles of Hydrology, D.M. Gray, National Research Council of Canada, Ottawa, 1970.

(5) Instrumentation and Observation Techniques Proceedings of Hydrology Symposium No. 7., Department of Energy, Mines and Resources, Inland Waters Branch, May 1969.

APPENDIX I

The following is a sample of the 8 dataset files of the HSPF database. The records beginning with ******** will not be written on tape.

```
 LIST,F=TIPBUC
**********    THIS FILE CONTAINS ST.JOHN'S WEST CDA HOURLY TIPPING BUCKET
**********                       PRECIPITATION GAUGE DATA(RAIN + SNOW).
**********    THE UNITS ARE MILLIMETERS.
**********    FLAGS:
**********        'FILL-IN' MEANS TB GAUGE MALFUNCTIONING OR DATA MISSING.
**********       'CAL.DATA' MEANS HOURLY RAIN INSERTED FROM DAILIES/24 TO
**********            GIVE EQUIVALENT TOTAL DAILY PRECIP(RAIN+SNOW) MEASUREMENTS.
**********    FORMAT (A10,3(I2,1X),I1,12F5.1)
 START OF  80  5  4 1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   1.1   1.3
 TIPPING   80  5  4 2   0.9    .6   1.1   3.4   3.6   3.2   2.1   7.0   3.4   1.3    .6   0.0
 BUCKET    80  5  5 1    .4   3.4   6.5    .6   1.5   2.7   4.2   1.3   3.9   4.5    .4    .4
 DATA      80  5  5 2   0.0    .8   3.7   1.9   1.5   3.2   3.7    .9    .4   1.5   3.0   3.0
           80  5  6 1    .4    .2    .2    .2   0.0   0.0   0.0   0.0   0.2   0.0   0.0   0.0
           80  5  7 1   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0   0.0    .2    .2   0.0
           80  5  7 2   0.0   0.0   0.0   0.0   0.0   0.0   0.0    .2    .8    .4    .3   0.0


 LIST,F=HYRADL
**********    THIS FILE CONTAINS ST. JOHN'S WEST CDA HOURLY RADIATION DATA.
**********    THE UNITS ARE LANGLEYS.
**********    THE MEASUREMENT IS NOTED AS BEING 'ACCUMULATED FROM PREVIOUS HOUR'
**********    'EST.N' MEANS SOME DATA WAS ESTIMATED(AT N).
**********    FORMAT (10X,3(I2,1X),I1,12F5.2)
 START OF  80  5  1 1 0.00 0.00 0.00 0.00  .19 1.86 4.5613.5815.1818.4327.9234.61
 RADI-     80  5  1 240.1020.2912.7413.7713.96 6.33 1.58  .38 0.00 0.00 0.00 0.00
 ATION     80  5  2 1 0.00 0.00 0.00 0.00  .36 3.7813.9137.6455.0450.9170.1276.77
 DATA.     80  5  2 278.0666.2759.3748.7837.0023.28 8.01  .29 0.00 0.00 0.00 0.00
           80  5  3 1 0.00 0.00 0.00 0.00  .36 5.2621.1839.2253.9464.9855.6962.69
           80  5  3 259.3758.8238.1047.9421.9910.59 4.52  .19 0.00 0.00 0.00 0.00
           80  5  4 1 0.00 0.00 0.00 0.00  .19 1.94 6.4515.5616.1117.2112.1415.10


 LIST,F=HYWATA
**********    THIS FILE CONTAINS ST.JOHN'S (WATERFORD.R.-KILBRIDE) HOURLY
**********            STREAM FLOW DATA.
**********    FLAGS:
**********         'EST N' -HOURLY VALUE WAS MISSING, A VALUE (AT N)
**********                   WAS ESTIMATED FROM THE PREVIOUS AND THE
**********                    FOLLOWING VALUES.
**********        'DLY MNS' -HOURLY VALUES OVER AN EXTENDED
**********                  PERIOD WERE MISSING, DAILY MEANS EXTRACTED
**********                  FROM WATER SURVEY DAILY MEANS TABLE,
**********                     AND ARE INSERTED AS HOURLIES.
**********    FORMAT (A10,3(I2,1X),I1,12F5.2)
 START OF  80  5  1 1 2.29 2.29 2.29 2.30 2.30 2.30 2.30 2.30 2.29 2.29 2.28 2.28
STREAM-    80  5  1 2 2.28 2.27 2.26 2.24 2.22 2.20 2.18 2.17 2.15 2.12 2.09 2.06
 FLOW      80  5  2 1 2.04 2.01 1.98 1.95 1.93 1.90 1.87 1.85 1.82 1.80 1.78 1.77
 DATA.     80  5  2 2 1.76 1.75 1.74 1.74 1.73 1.72 1.71 1.70 1.69 1.67 1.66 1.64
           80  5  3 1 1.63 1.62 1.60 1.59 1.58 1.57 1.56 1.55 1.54 1.52 1.51 1.50
           80  5  3 2 1.49 1.49 1.49 1.49 1.49 1.49 1.49 1.49 1.49 1.49 1.48 1.47
```

```
 LIST,F=HYWNDS
**********    THIS FILE CONTAINS ST.JOHN'S AIRPORT HOURLY WIND SPEED.
**********    THE UNITS ARE KM/HOUR
**********    THIS DATA REPRESENTS THE AVERAGE VELOCITY OVER ONE MINUTE.
**********    ASSUME IT IS THE AVERAGE VELOCITY FOR THE HOUR.
**********    FORMAT (A10,3(I2,1X),I1,12F5.0)
 START OF  80  5  1 1    0.    6.    4.    4.    6.    0.    6.    9.    9.   11.   11.   17.
 WIND      80  5  1 2   24.   24.   31.   30.   44.   46.   41.   28.   41.   37.   37.   37.
 SPEED     80  5  2 1   33.   33.   33.   33.   37.   37.   30.   31.   30.   28.   30.   22.
 DATA.     80  5  2 2   22.   15.   13.   13.   20.   13.   17.   13.    9.    9.    9.    7.
           80  5  3 1    4.    7.    4.    4.    7.    4.   15.   24.   22.   30.   31.   33.
           80  5  3 2   33.   30.   24.   28.   24.   19.   20.   19.   19.   17.   20.   17.
           80  5  4 1   20.   22.   24.   24.   19.   28.   26.   28.   33.   28.   30.   30.
           80  5  4 2   30.   30.   28.   19.   19.   26.   28.   28.   28.   19.   28.   28.

 LIST,F=HYDPTF
**********    THIS FILE CONTAINS ST.JOHN'S AIRPORT HOURLY DEW POINT TEMPERATURE.
**********    THE UNITS ARE DEGREE'S CELCIUS.
**********    FORMAT (A10,3(I2,1X),I1,12F5.1)
 START OF  80  5  1 1  -2.7  -2.9  -3.4  -3.4  -2.6  -2.4  -2.5  -2.1  -1.8  -1.6  -1.1  -1.2
DEW PT.    80  5  1 2  -1.6   -.5   -.3  -1.1  -1.8  -2.5  -3.0  -4.6  -5.7  -6.6  -6.7  -6.8
   TEMP.   80  5  2 1  -6.3  -5.5  -5.3  -5.8  -5.5  -5.3  -5.5  -5.1  -4.4  -4.0  -3.1  -3.9
 DATA.     80  5  2 2  -4.2  -3.9  -3.9  -3.9  -4.1  -3.5  -3.3  -3.5  -3.2  -3.2  -3.3  -3.7
           80  5  3 1  -3.7  -4.0  -4.1  -5.8  -4.8  -2.8  -1.6  -1.0  -1.1   -.6   -.3  -1.1
           80  5  3 2   -.3   -.4   -.4   -.4   -.4  -1.0  -1.1  -1.1  -1.5  -1.3  -1.5  -1.3
           80  5  4 1  -1.2  -1.2  -1.2  -1.3  -1.4  -1.3  -1.3   -.8    .3   1.0   1.3   1.3
           80  5  4 2   1.6   1.8   2.0   1.3   1.6   1.9   1.5   2.9   1.8   2.1   1.9   1.9
 LIST,F=HYTMPF
**********    THIS FILE  CONTAINS ST.JOHN'S AIRPORT HOURLY DRY BULB TEMPERATURE.
**********    THE UNITS ARE DEGREE'S CELCIUS.
**********    FORMAT (A10,3(I2,1X),I1,12F5.1)
START OF   80  5  1 1  -1.9  -1.7  -2.0  -2.0  -1.9  -1.9  -1.7  -1.4  -1.2   -.9   -.2    .6
DRY BULB   80  5  1 2    .5   1.3    .6    .2    .2   -.8  -1.3  -1.6  -1.9  -2.1  -2.3  -2.1
 TEMP.     80  5  2 1  -1.8  -1.8  -2.1  -2.7  -2.5  -2.3  -2.0  -1.0   -.1    .4   1.4   1.8
 DATA.     80  5  2 2   1.9    .7   1.2   1.1    .8   0.0  -1.1  -1.7  -1.9  -2.0  -2.4  -2.8
           80  5  3 1  -2.6  -2.9  -3.2  -4.4  -3.8  -1.8   -.5   1.3   2.2   3.0   5.0   3.5
           80  5  3 2   4.0   3.2   3.6   2.9   2.8   1.5    .8    .5    .2    .2    .2   0.0
           80  5  4 1    .2    .2    .2    .2    .2    .4    .6   1.1   1.1   1.6   2.0   1.8
           80  5  4 2   2.4   2.4   2.7   2.0   2.5   2.5   2.4   2.9   2.7   2.7   2.7   2.5
           80  5  5 1   2.2   2.2   2.3   2.1   2.3   2.3   2.3   2.5   2.8   3.1   3.2   3.4
           80  5  5 2   3.4   3.2   2.9   3.0   2.7   2.6   2.6   2.5   2.8   2.4   1.9   1.8

 LIST,F=DHYPEVF
**********    THIS FILE CONTAINS ST.JOHN'S CDA DAILY PAN EVAPORATION.
**********    THE UNITS ARE MILLIMETERS/DAY.
**********    FLAGS:
**********          '* N' MEANS THAT A DAILY VALUE WAS MISSING,
**********                A MONTHLY MEAN WAS USED(AT N).
**********    FORMATS (A7,2I2,I1,10F6.1)
**********            (A7,2I2,I1,11F6.1)
ST.*ALL80 51    2.5   2.5   2.5   2.5   2.5   2.5   2.5   2.5   2.5   2.5
OF*1-4  80 52   3.5   2.5   2.5   2.5    .5   3.4   4.1   6.5    .4   1.6
DAILY   80 53   7.2   8.6   1.5    .9   1.8   2.8   2.2   2.0   2.2   2.8   6.0
 PAN    80 61   4.2    .2   1.8   1.4    .1   2.4    .9   5.8   3.2   4.8
 EVAP.  80 62   3.8   3.6   7.9   7.2   3.4   3.9   4.2   1.9   3.1   2.2
        80 63   4.0   7.0   2.7   1.2   6.8   5.1   9.4   2.4   5.4   8.9
        80 71   1.4   1.0    .2   2.1   5.4   1.8   5.4   2.4   3.8   1.2
        80 72   4.3   0.0   1.6   4.8   7.2   2.2   4.5   4.8   2.3   1.6
        80 73   4.5   1.4    .4   1.4   7.8   2.4   2.4   4.0   6.4   3.2   4.8

 LIST,F=DHYLEVF
**********    THIS FILE CONTAINS ST.JOHN'S CDA DAILY LAKE EVAPORATION.
**********    THE UNITS ARE MILLIMETERS/DAY.
**********    FLAGS:
**********          'NG.' MEANS THAT A DAILY VALUE WAS NEGATIVE,
**********                THE VALUE WAS REPLACED BY ZERO.
**********          '* N' MEANS THAT A DAILY VALUE WAS MISSING (AT N),
**********            ESTIMATED BY (PAN EVAP. TIMES A TOTAL RATIO).
**********
**********                        TOTAL OF LAKE EVAP.
**********      TOTAL RATIO=----------------------
**********                        TOTAL OF PAN EVAP.
**********
**********    FORMATS (A7,2I2,I1,10F6.1)
**********            (A7,2I2,I1,11F6.1)
ST.*ALL80 51    3.3   3.3   3.3   3.3   3.3   3.3   3.3   3.3   3.3   3.3
OF1*1-580 52    3.3   3.3   3.3   3.3   3.3   2.5   3.2   4.4    .8   2.9
 LAKE   80 53   4.0   6.7   3.2   1.0   1.4   2.4   1.1   1.7   1.6   2.9   3.7
 EVAP.  80 61   2.0   1.1   1.6   1.4    .2   1.6   1.0   3.2   3.0   3.4
        80 62   3.1   3.2   5.2   3.5   2.4   3.6   4.4   2.4   1.8   1.2
        80 63   2.7   5.8   2.4   1.4   3.4   3.9   6.7   2.4   4.3   5.3
 NG.3   80 71   1.5   1.3    .0   1.1   4.0   1.7   4.0   3.2   2.6   1.3
```

APPENDIX II - CDA SHEET SAMPLES

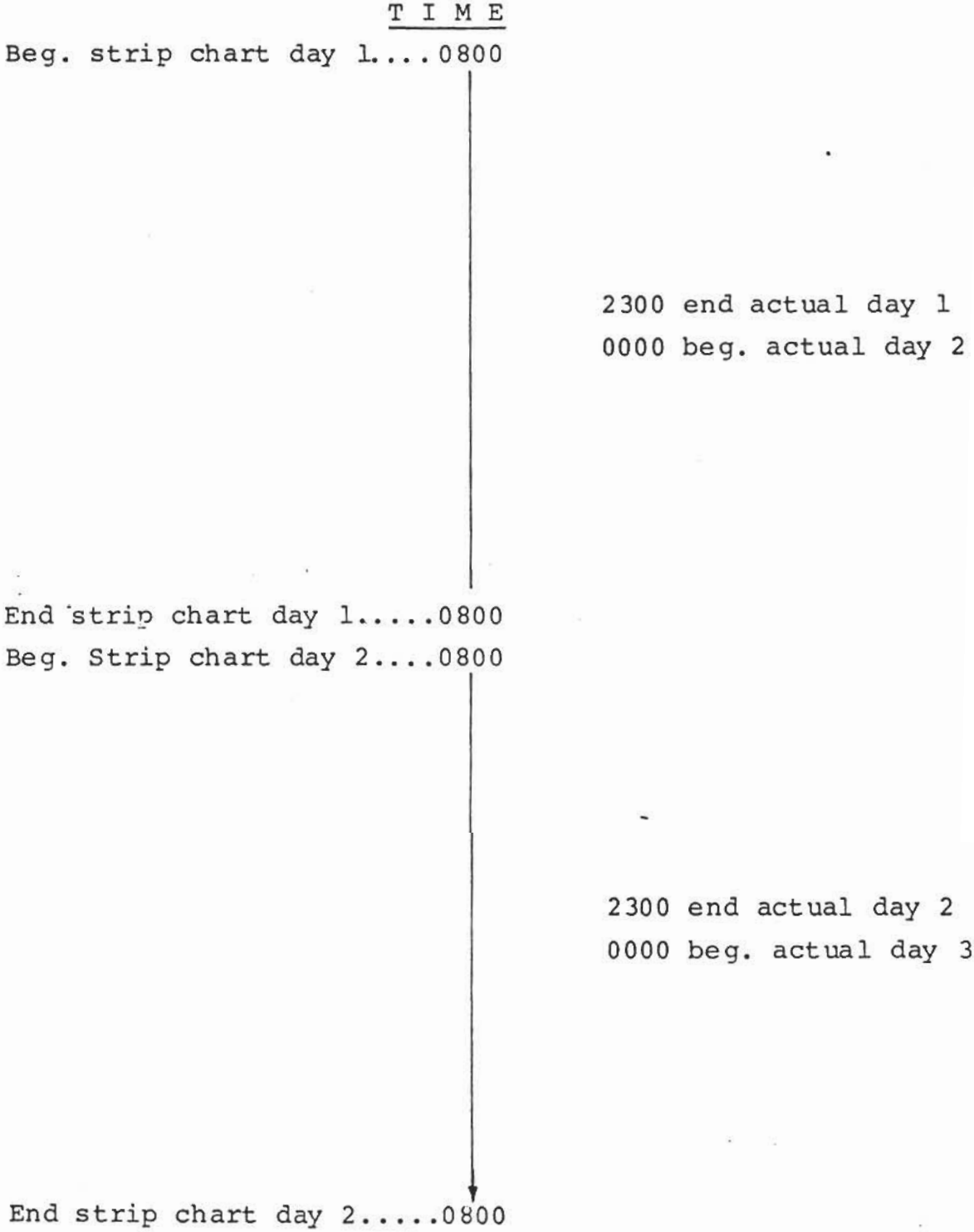
The following demonstrates the ten minute data which was converted to an hourly value when abstracted from the CDA sheets (reference end of appendix II)

June 1st strip chart indicates start of precipitation at 0252 hours. This day would be taken as follows:

date/comment	hour	hourly precip (mm)
June 2 ..	0200	
		.2
	0300	
		.6
	0400	
		1.2
	0500	
		.6
	0600	
End of June 1st strip chart		
Beginning of June 2nd strip chart		
		.2
	0700	
		.4
	0800	
		.4
	0900	
		.2
	1000	
		.2
	1100	
		.4
	1200	
		.2
	1300	
Break in event		

date/comment	hour	hourly precip (mm)
	1700	
		.6
	1800	
		.8
	1900	
		2.2
	2000	
		3.2
	2100	
		.2
	2200	
Break in event		
	2300	
		.2
	0000	

Note that when a strip chart starts at a time less than 0700 hours (as is the case for June 1st), then the chart day is added-to by one day (i.e. June 2nd) to give the actual day.



This is the sample 'CDA sheet' which is referenced in this appendix:

TIPPING BUCKET RAIN GAUGE DATA

STATION: Canada Departme... of Agriculture

* NOTE: ↑ (ARROW) INDICATES ZERO RAIN

10 MINUTE INTERVALS

CHART DATE: June 1, 2, 3, 4, 5, 6, 7 and 8

1983

CHART DATE:

Time MST	Rainfall (mm)	Remarks
0052	0.2	
0302	0.2	
0312	0.2	
0322	0.2	
0422	0.2	
0432	0.2	
0442	0.2	
0452	0.6	
0502	0.2	
0512	0.2	
0522		Total ppt for June 1 = 2.8 mm.
0542	0.2	
0552		
0642	0.2	
0652		
		← End of June 10
0722	0.2	Beginning of June 2 (continuation ...)
0732		
0742	0.2	
0752		
0802	0.2	
0812		
0822	0.2	
0832		
0922	0.2	
0942		
1032	0.2	
1042		
1102	0.2	
1112		
1152	0.2	
1202		
1212	0.2	
1222		
1722	0.2	
1732	0.2	
1742	0.2	
1802	0.2	
1812		
1842	0.2	
1852	0.4	
1902	0.4	
1912	0.6	
1922		

CHART DATE:

Time MST	Rainfall (mm)	Remarks
1922	0.6	
1932	0.4	
1942		
1952	0.4	
2002	1.6	
2012	1.0	
2022	.2	
2032	.2	
2042	.2	
2052		
2102		Total ppt for June 2 = 7.0 mm.
2112	0.2	
2202		
2212	0.2	
		← End of June 2
		No ppt June 3
		No ppt June 4
		← Beginning of June 5
0802		
0812	0.2	
0822		
0832	0.2	
0842	0.2	
0852		
0942	0.2	
0952	0.2	
1002		
1012	0.4	
1022	0.4	
1032	0.4	
1042	0.4	
1102	0.4	
1112	0.4	
1122	0.4	
1132	0.4	
1142	0.4	
1152	0.4	
1202	0.6	
1212	0.6	
1222	0.2	
1232	1.0	
1242	0.4	
1252	0.2	
1302	0.2	
1312	0.2	
1322		

Total ppt for June 5 = 12.2

CHART DATE:

Time	Rainfall (mm)	Remarks
1253	0.4	
1403		
1423	0.2	
1443		
		← End of June 5
		No ppt June 6
0140	1.0	
0150		← Beginning of June 7
0200	0.2	
0210		
0220	0.2	
0230		
0250	0.2	
0300	0.8	
0310	0.6	
0320	1.2	
0330	1.0	
0340	0.2	
		← End of June 7
2025	0.2	← Beginning of June 8
2045	0.2	
2055	0.2	
2105	0.2	
2115		
2125	0.2	
2135	0.2	
2145	0.2	
2155	0.2	
2205		
2215	0.2	
2225		
2235	0.2	
2245		
2255	0.2	
2305		
2315	0.2	
2345		
0155	0.2	
0205		
0215	0.2	
0225		
		End of June 8

Total ppt for June 7 = 22 mm