WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY
1997 DATA REPORT

APPENDICES

Submitted To:

WMC International Ltd.

Nepean, Ontario

Submitted By:

AGRA Earth & Environmental Limited

Calgary, Alberta

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APPENDIX A.1

1997 Hydrometric Monitoring Activity Summary

TABLE A.1
Hydrometric Gauging Activity Summary

Date (m/d)	Continuous Water Level and/or Streamflow Measurements[1]								Manual Level Measurements[1]					Personnel[2]
	Peg Creek near the Mouth (A1-ML)	Outlet of Peg Lake (A6-5)	Outlet of Newy Lake (B4-3)	Outlet of Lake D5 (D5-4)	Outlet of Control Lake[3] (G2-1)	Meliadine Lake near Rankin Inlet	Meliadine River near the Mouth (06MC001)	Diana River near Rankin Inlet 06NC001	Meliadine River at the Outlet of Meliadine Lake (ML-MR)	West Outlet of Meliadine Lake (ML-PL)	Peter Lake near Rankin Inlet (PL)	Diana Lake near Rankin Inlet (DL)	Meliadine Lake at Meliadine Camp	
5/19									V					DJF, WMC
6/10								V						DJF, NVG, MKJ
6/11	V	V	V	V										DJF, NVG, MKJ
6/12						V				V				NVG, MKJ
6/12		V			V				V					DJF, NVG, MKJ
6/13							V							DJF, NVG, MKJ
6/19								I						RNP, MKJ
6/20	I	I					I							DJF, RNP, MKJ
6/21		V	I	I	I									DJF, RNP, MKJ
6/22						I			I	I				DJF, RNP, MKJ
6/23						V								RNP, MKJ
6/23											I	I	I	DJF, RNP, MKJ
6/23							V							DJF, WD, MKJ
6/24	V	V	V	V										DJF, MKJ
6/25								V						DJF, WD, MKJ
6/25					V									DJF, MKJ
6/26	V						V		V	V	V	V	V	DJF, MKJ
7/1													V	DJF
7/7	V[4]	V	V											DJF, WMC
7/8				V	V	V					V	V		DJF, WMC
7/9							V		V	V				DJF, WMC
7/10	V	V			V			V						DJF, WMC
7/17											V	V		DJF, WMC
7/21		V												DJF, WMC
7/22										V				DJF, WMC
7/23			V						V					DJF, WMC
7/24	V													DJF, WMC
7/28				V			V							DJF, WMC
7/29						V		V			V	V		DJF, WMC
8/17						V								DJF, WMC
8/19	V				V									DJF, WMC
8/23							V							WMC, DJF
8/24		V							V	V	V	V		WMC, DJF
8/25								V						DJF, WMC
9/24					S			S			S	S		MKJ
9/25	S	S	S	S		S	S						S	MKJ
9/26									V	S				MKJ

Notes:

1. Field activity abbreviations are:
   I - Installed datalogger/transducer and activated gauge, or established staff gauge
   V - Visit
   S - Shut down station or removed staff gauge

2.

Personnel Initial	Full Name
DJF	Dustin Fredland (WMC)
NVG	Neil van der Gugten (AEE)
RNP	R. N. Pilling (WSC)
MKJ	Murray Jones (WSC)
WD	Wes Dick (AEE)
WMC	Other WMC staff

3. There is one undated gauge visit in July to outlet of Control Lake

4. Assumed date of visit

APPENDIX A.2

Checklist for Evaporation Pan Operation

EVAPORATION PAN OPERATION

GENERAL

- Do not lift the pan until nearly empty
- Do not dump water under or close to the pan
- Fill the graduated cylinder downwind of the pan to prevent unmeasured water from splashing into the pan
- Fill the pan from the upwind side to make sure all of the measured water goes into the pan
- Watch for splashing out of the pan; record if it occurs

DAILY

1. Read maximum/minimum thermometer, record, check and reset.

2. Add water to the point gauge level. Record the amount added. If water level is above the point gauge, remove water until you reach the point gauge level; record the amount removed. The amount removed should not be more than the rainfall.

3. Read rain gauge, then empty. Record 0 if no rain.

ON THE FIRST DAY OF THE MONTH (APPROXIMATELY)

1. Fax the data to AEE (Wes Dick, Fax: 403-248-1590).
2. Change the water in the pan. Empty by bucket or syphon.
3. Inspect for leaks.
4. Check that the rain gauge is level.

APPENDIX A.3

Checklist for Hydrometric Monitoring

HYDROMETRIC MONITORING

SITE INSPECTIONS OF GAUGING STATIONS:

1. Record logger water level.
2. Record Nitrogen tank pressure, feed and bubble rate.
3. Record conditions of control, i.e., control clear, weed growth, no flow at control, etc.
4. Record weather conditions.

SITE INSPECTIONS FOR STAFF GAUGES:

1. Record staff gauge reading in "Gauge Height Observations" booklet.
2. Note condition of staff gauge, i.e., "upright and good condition" or "has been pushed - not upright".
3. If it has been moved then pound back in to vertical position and run levels to top of staff plate.
4. At Meliadine Lake outlet gauges, record conditions of control.

DISCHARGE MEASUREMENT AT GAUGING STATIONS:

1. Record logger reading before discharge measurement.
2. Discharge measurement.
3. Run water level circuit to obtain water level.
4. Record logger reading with water level.
5. Complete front sheet information.
    - Air/water temperatures
    - N_2 pressure information
    - Measurement information (meter number)
    - Weather
    - Comments about control, etc.

APPENDIX B

CLIMATE DATA

APPENDIX B.1

Rankin Inlet Historical Precipitation

Table B.1.1
Rankin Inlet 1981-1997
Monthly and Annual Rainfall in mm
Calendar Year Basis

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Total/Avg.
1981	0.0	0.0	0.0	0.0	16.2	31.0	57.8	31.0	40.4	22.6	0.0	0.0	199.0	1.11
1982	0.0	0.0	0.0	0.0	4.9	10.7	65.7	30.7	17.9	41.1	0.0	0.0	171.0	0.96
1983	0.0	0.0	0.0	0.0	0.0	100.9	33.1	39.0	41.5	19.2	0.2	0.0	233.9	1.31
1984	0.0	0.0	0.0	3.6	0.2	35.7	12.0	95.9	24.7	2.8	0.0	0.0	174.9	0.98
1985	0.0	0.0	0.0	0.0	0.0	13.1	30.8	123.3	71.3	17.2	0.0	0.0	255.7	1.43
1986	0.0	0.0	0.0	0.2	19.3	23.6	10.4	85.1	30.0	0.2	0.0	0.0	168.8	0.94
1987	0.0	0.0	0.0	3.9	1.2	30.1	27.8	74.2	24.0	0.2	0.0	0.0	161.4	0.90
1988	0.0	0.0	0.0	0.0	0.0	14.6	22.6	32.2	29.6	10.7	0.6	0.0	110.3	0.62
1989	0.0	0.0	0.0	0.0	0.0	14.0	48.6	23.1	39.3	8.4	0.0	0.0	133.4	0.75
1990	0.0	0.0	0.0	0.0	7.9	29.7	118.6	62.9	32.7	1.6	0.0	0.0	253.4	1.42
1991	0.0	0.0	0.0	0.0	13.0	8.5	47.9	36.4	102.0	20.6	0.0	0.2	228.6	1.28
1992	0.0	0.0	0.0	0.0	4.0	11.4	3.6	75.8	45.0	0.0	0.0	0.0	139.8	0.78
1993	0.0	0.0	0.0	0.0	13.4	1.4	87.8	68.4	20.4	0.0	0.0	0.0	191.4	1.07
1994	0.0	0.0	0.0	0.0	0.0	20.8	4.0	39.0	50.8	5.4	0.0	0.0	120.0	0.67
1995	0.0	0.0	0.0	0.2	0.0	10.2	69.8	75.2	17.0	25.4	0.0	0.0	197.8	1.11
1996	0.0	0.0	0.0	0.0	0.0	37.6	10.4	50.2	60.0	1.0	0.0	0.0	159.2	0.89
1997	0.0	0.0	0.0	0.6	4.0	47.6	17.8	11.8	13.0	45.1	0.2	0.0	140.1	0.78
Average	0.0	0.0	0.0	0.5	4.9	25.9	39.3	56.1	38.8	13.0	0.1	0.0	178.7	

Table B.1.2
Rankin Inlet 1981-1997
Monthly and Annual Rainfall in mm
Hydrologic Year Basis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Total/Avg.
81 - 82	22.6	0.0	0.0	0.0	0.0	0.0	0.0	4.9	10.7	65.7	30.7	17.9	152.5	0.87
82 - 83	41.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.9	33.1	39.0	41.5	255.6	1.45
83 - 84	19.2	0.2	0.0	0.0	0.0	0.0	3.6	0.2	35.7	12.0	95.9	24.7	191.5	1.09
84 - 85	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	30.8	123.3	71.3	241.3	1.37
85 - 86	17.2	0.0	0.0	0.0	0.0	0.0	0.2	19.3	23.6	10.4	85.1	30.0	185.8	1.06
86 - 87	0.2	0.0	0.0	0.0	0.0	0.0	3.9	1.2	30.1	27.8	74.2	24.0	161.4	0.92
87 - 88	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6	22.6	32.2	29.6	99.2	0.56
88 - 89	*10.7*	*0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*14.0*	*48.6*	*23.1*	*39.3*	*136.3*	*0.77*
89 - 90	8.4	0.0	0.0	0.0	0.0	0.0	0.0	7.9	29.7	118.6	62.9	32.7	260.2	1.48
90 - 91	1.6	0.0	0.0	0.0	0.0	0.0	0.0	13.0	8.5	47.9	36.4	102.0	209.4	1.19
91 - 92	20.6	0.0	0.2	0.0	0.0	0.0	0.0	4.0	11.4	3.6	75.8	45.0	160.6	0.91
92 - 93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	1.4	87.8	68.4	20.4	191.4	1.09
93 - 94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	4.0	39.0	50.8	114.6	0.65
94 - 95	5.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	10.2	69.8	75.2	17.0	177.8	1.01
95 - 96	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.6	10.4	50.2	60.0	183.6	1.04
96 - 97	1.0	0.0	0.0	0.0	0.0	0.0	0.6	4.0	47.6	17.8	11.8	13.0	95.8	0.54
Average	11.0	0.1	0.0	0.0	0.0	0.0	0.5	4.2	25.6	38.2	57.7	38.7	176.1	

Table B.1.3
Rankin Inlet 1981-1997
Monthly and Annual Snowfall in cm
Calendar Year Basis

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Total/Avg
1981	7.3	21.1	10.5	12.1	8.7	1.6	0	0	0	18.4	26.1	2.6	108.4	0.89
1982	0.7	3.2	12.2	17.5	17.6	5	0.2	0.2	15.5	22.4	7.6	6.6	108.7	0.90
1983	9.8	3.1	18.9	3.1	28.5	0.4	0	0	1.6	20.4	5.2	6.2	97.2	0.80
1984	7.5	19.6	7.1	17.2	0.6	1.6	0	0	1.5	22	19.8	5.6	102.5	0.84
1985	4.2	10.4	17.7	24.8	6.8	1.4	0	4.8	10.2	52	71.2	6	209.5	1.73
1986	12	0.2	11.6	3.3	5.8	15.2	0	0	8.8	28.6	7.6	10.4	103.5	0.85
1987	9.8	5.4	30.2	38.1	5.2	34.4	0	0	3.6	13.1	31.6	18	189.4	1.56
1988	1.2	1	11	9.2	27.7	4	0	0	0.2	22.2	23	17.9	117.4	0.97
1989	6.5	1.6	4.6	3.4	24	0	0	0	11.2	10.4	4.8	2	68.5	0.56
1990	6.8	15.1	21.7	10.3	1.8	23.5	0	0	3.2	22.7	47.5	10	162.6	1.34
1991	4.5	2.8	25	34.6	18.8	0	0	0	12	37.7	16.2	14.2	165.8	1.37
1992	14.8	7	2.6	9.8	13	2.8	0	0	9.8	16.6	26.2	11.1	113.7	0.94
1993	15	7.4	5.2	11	20.2	5.4	0	0	6.6	18.8	12.8	19.4	121.8	1.00
1994	1.6	0.4	6.8	26	6	0.8	0	0	0	18.6	30.4	20.5	111.1	0.92
1995	6.2	1.8	2.8	15	10.4	0	0	0	2.4	12.4	13.6	9	73.6	0.61
1996	6.2	42.4	10	1.8	0.8	1	0	0	1	22.2	10.8	12.6	108.8	0.90
1997	3.4	8	4.6	10.6	4	0	0	0	0	41	7.6	21.7	100.9	0.83
Average	6.9	8.9	11.9	14.6	11.8	5.7	0.0	0.3	5.2	23.5	21.3	11.4	121.4	

Table B.1.4
Rankin Inlet 1981-1997
Monthly and Annual Snowfall in cm
Hydrologic Year Basis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Total/Avg
81 - 82	18.4	26.1	2.6	0.7	3.2	12.2	17.5	17.6	5	0.2	0.2	15.5	119.2	0.99
82 - 83	22.4	7.6	6.6	9.8	3.1	18.9	3.1	28.5	0.4	0	0	1.6	102.0	0.84
83 - 84	20.4	5.2	6.2	7.5	19.6	7.1	17.2	0.6	1.6	0	0	1.5	86.9	0.72
84 - 85	22	19.8	5.6	4.2	10.4	17.7	24.8	6.8	1.4	0	4.8	10.2	127.7	1.06
85 - 86	52	71.2	6	12	0.2	11.6	3.3	5.8	15.2	0	0	8.8	186.1	1.54
86 - 87	28.6	7.6	10.4	9.8	5.4	30.2	38.1	5.2	34.4	0	0	3.6	173.3	1.44
87 - 88	13.1	31.6	18	1.2	1	11	9.2	27.7	4	0	0	0.2	117.0	0.97
88 - 89	22.2	23	17.9	6.5	1.6	4.6	3.4	24	0	0	0	11.2	114.4	0.95
89 - 90	10.4	4.8	2	6.8	15.1	21.7	10.3	1.8	23.5	0	0	3.2	99.6	0.82
90 - 91	22.7	47.5	10	4.5	2.8	25	34.6	18.8	0	0	0	12	177.9	1.47
91 - 92	37.7	16.2	14.2	14.8	7	2.6	9.8	13	2.8	0	0	9.8	127.9	1.06
92 - 93	16.6	26.2	11.1	15	7.4	5.2	11	20.2	5.4	0	0	6.6	124.7	1.03
93 - 94	18.8	12.8	19.4	1.6	0.4	6.8	26	6	0.8	0	0	0	92.6	0.77
94 - 95	18.6	30.4	20.5	6.2	1.8	2.8	15	10.4	0	0	0	2.4	108.1	0.90
95 - 96	12.4	13.6	9	6.2	42.4	10	1.8	0.8	1	0	0	1	98.2	0.81
96 - 97	22.2	10.8	12.6	3.4	8	4.6	10.6	4	0	0	0	0	76.2	0.63
Average	22.4	22.2	10.8	6.9	8.1	12.0	14.7	12.0	6.0	0.0	0.3	5.5	120.7	

Table B.1.5
Rankin Inlet 1981-1997
Monthly and Annual Total Precipitation in mm
Calendar Year Basis

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Total/Avg.
1981	7.3	21.1	10.5	12.1	24.9	32.6	57.8	31.0	40.4	41.0	26.1	2.6	307.4	1.02
1982	0.7	3.2	12.2	17.5	22.5	15.7	65.9	30.9	33.4	63.5	7.6	6.6	279.7	0.93
1983	9.8	3.1	18.9	3.1	28.5	101.3	33.1	39.0	43.1	39.6	5.4	6.2	331.1	1.10
1984	7.5	19.6	7.1	20.8	0.8	37.3	12.0	95.9	26.2	24.8	19.8	5.6	277.4	0.92
1985	4.2	10.4	17.7	24.8	6.8	14.5	30.8	128.1	81.5	69.2	71.2	6.0	465.2	1.55
1986	12.0	0.2	11.6	3.5	25.1	38.8	10.4	85.1	38.8	28.8	7.6	10.4	272.3	0.91
1987	9.8	5.4	30.2	42.0	6.4	64.5	27.8	74.2	27.6	13.3	31.6	18.0	350.8	1.17
1988	1.2	1.0	11.0	9.2	27.7	18.6	22.6	32.2	29.8	32.9	23.6	17.9	227.7	0.76
1989	6.5	1.6	4.6	3.4	24.0	14.0	48.6	23.1	50.5	18.8	4.8	2.0	201.9	0.67
1990	6.8	15.1	21.7	10.3	9.7	53.2	118.6	62.9	35.9	24.3	47.5	10.0	416.0	1.39
1991	4.5	2.8	25.0	34.6	31.8	8.5	47.9	36.4	114.0	58.3	16.2	14.4	394.4	1.31
1992	14.8	7.0	2.6	9.8	17.0	14.2	3.6	75.8	54.8	16.6	26.2	11.1	253.5	0.84
1993	15.0	7.4	5.2	11.0	33.6	6.8	87.8	68.4	27.0	18.8	12.8	19.4	313.2	1.04
1994	1.6	0.4	6.8	26.0	6.0	21.6	4.0	39.0	50.8	24.0	30.4	20.5	231.1	0.77
1995	6.2	1.8	2.8	15.2	10.4	10.2	69.8	75.2	19.4	37.8	13.6	9.0	271.4	0.90
1996	6.2	42.4	10.0	1.8	0.8	38.6	10.4	50.2	61.0	23.2	10.8	12.6	268.0	0.89
1997	3.4	8.0	4.6	11.2	8.0	47.6	17.8	11.8	13.0	86.1	7.8	21.7	241.0	0.80
Average	6.9	8.9	11.9	15.1	16.7	31.6	39.3	56.4	44.0	36.5	21.4	11.4	300.1	

Table B.1.6
Rankin Inlet 1981-1997
Monthly and Annual Total Precipitation in mm
Hydrologic Year Basis

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Total/Avg.
81 - 82	41.0	26.1	2.6	0.7	3.2	12.2	17.5	22.5	15.7	65.9	30.9	33.4	271.7	0.92
82 - 83	63.5	7.6	6.6	9.8	3.1	18.9	3.1	28.5	101.3	33.1	39.0	43.1	357.6	1.20
83 - 84	39.6	5.4	6.2	7.5	19.6	7.1	20.8	0.8	37.3	12.0	95.9	26.2	278.4	0.94
84 - 85	24.8	19.8	5.6	4.2	10.4	17.7	24.8	6.8	14.5	30.8	128.1	81.5	369.0	1.24
85 - 86	69.2	71.2	6.0	12.0	0.2	11.6	3.5	25.1	38.8	10.4	85.1	38.8	371.9	1.25
86 - 87	28.8	7.6	10.4	9.8	5.4	30.2	42.0	6.4	64.5	27.8	74.2	27.6	334.7	1.13
87 - 88	13.3	31.6	18.0	1.2	1.0	11.0	9.2	27.7	18.6	22.6	32.2	29.8	216.2	0.73
88 - 89	32.9	23.6	17.9	6.5	1.6	4.6	3.4	24.0	14.0	48.6	23.1	50.5	250.7	0.84
89 - 90	18.8	4.8	2.0	6.8	15.1	21.7	10.3	9.7	53.2	118.6	62.9	35.9	359.8	1.21
90 - 91	24.3	47.5	10.0	4.5	2.8	25.0	34.6	31.8	8.5	47.9	36.4	114.0	387.3	1.30
91 - 92	58.3	16.2	14.4	14.8	7.0	2.6	9.8	17.0	14.2	3.6	75.8	54.8	288.5	0.97
92 - 93	16.6	26.2	11.1	15.0	7.4	5.2	11.0	33.6	6.8	87.8	68.4	27.0	316.1	1.07
93 - 94	18.8	12.8	19.4	1.6	0.4	6.8	26.0	6.0	21.6	4.0	39.0	50.8	207.2	0.70
94 - 95	24.0	30.4	20.5	6.2	1.8	2.8	15.2	10.4	10.2	69.8	75.2	19.4	285.9	0.96
95 - 96	37.8	13.6	9.0	6.2	42.4	10.0	1.8	0.8	38.6	10.4	50.2	61.0	281.8	0.95
96 - 97	23.2	10.8	12.6	3.4	8.0	4.6	11.2	8.0	47.6	17.8	11.8	13.0	172.0	0.58
Average	33.4	22.2	10.8	6.9	8.1	12.0	15.3	16.2	31.6	38.2	58.0	44.2	296.8	

APPENDIX B.2

1997 Rainfall Data Analysis

RAINFALL DATA ANALYSIS

Rainfall data for the summer of 1997 is available from three sources:

- Data collected by AES at Rankin Inlet
- A tipping-bucket rain gauge, installed as part of the Meliadine Camp climate station;
- A storage rain gauge installed as part of the Meliadine Camp pan evaporation station; and

The data are summarized in Table B.2.1.

TABLE B.2.1
1997 Field Season
Rainfall in mm

Day	June			July			August			September		
	Rankin Station	Camp Station	Evap. Station	Rankin Station	Camp Station	Evap. Station	Rankin Station	Camp Station	Evap. Station	Rankin Station	Camp Station	Evap. Station
1	0			0.0	0.0	0.0	0	0.0		0.0		0.0
2	0.0			0	0	0	0	0		0		0
3	2.8	6.4		0.0	0	0.0	0.0	0.0		1.0		0.0
4	1.0	1.0		5.2	8.1	0.0	0.0	0.0		1.0		7.4
5	0.0	0.0		0.6	2.3	4.4	0.8	3.0		0.0		0.0
6	0.0	0.0		0.0	0.0	0.0	0.0	0.5		0.0		0.2
7	14.8	34.0		0.2	9.7	4.0	0.4	1.8		0.0		0.0
8	6.2	23.6		5.6	9.1	1.1	0.0	0.0		0.0		0.0
9	0.0	0.0		1.4	3.3	3.4	0.0	0.3		0.0		0.0
10	0.0	0.0		0	0.0	0.0	1.0	0.0		0.0		0.0
11	0.0	0.0		0.0	0.0	0.0	0.8	0.3		0.0		0.0
12	0.0	0.0		0.0	0.0	0.0	0.0	0.0		1.2		
13	0.0	0.0		0	0.0	0.0	0.0	0.0	0.0	0.0		0.2
14	0.6	0.8		0.2	0.8	0.0	0.0	0.0		0.0		0.1
15	0.0	0.3		0.6	0.3	0.6	0.0	0.0	0.0	0.0		0.0
16	0.0	0.0		0.0	0.3	0.0	0.0	0.0	0.0	0.0		
17	0.0	0.0		0.0	0.0	0.0	0.2	0.0		0.0		
18	0.0	0.0		0.0	0.0	0.0	0.8	0.8		0.0		
19	0.0	0.0		0.0	0.0	0.0	0.2	2.5	1.4	0.0		
20	0.0	0.0		0.4	0.8	0.0	0.0	0.0	0.0	0.0		0.3
21	0.0	0.0		1.4	6.1	0.0	2.4	0.0	0.0	0.0		0.0
22	2.2	0.0		0.2	0.0	2.5	0.0	0.0		0.0		
23	5.4	16.0	0.0	0.0	0.0	0.0	1.6	12.4	5.0	0.0		
24	0.4	0.3	0.3	0.0	0.0	0.0	1.2	0.0		0.8		
25	0.0	0.8	1.4	0.0	0.0	0.0	0.0	0.3		7.8		
26	4.0	10.4	6.2	0.0	0.0	0.0	0.0	0.0		0.4		
27	2.6	8.9	2.8	0.0	0.0	0.0	0.4	2.3		0.0		
28	6.0	10.7	17.4	0.0	0	0.0	0.0	0.0	0.0	0.0		
29	1.6	21.1	0.6	1.6	1.5	0.0	0.0		0.0	0		
30	0	1		0.4	0.3		2		4	0.8	1.0	8.5
31				0	0		0		0			

The three sets of data were compared to assess the quality of the data. The comparison was done using a double-mass curve, in which the cumulative depth of precipitation at one station is plotted against the cumulative depth at another station.

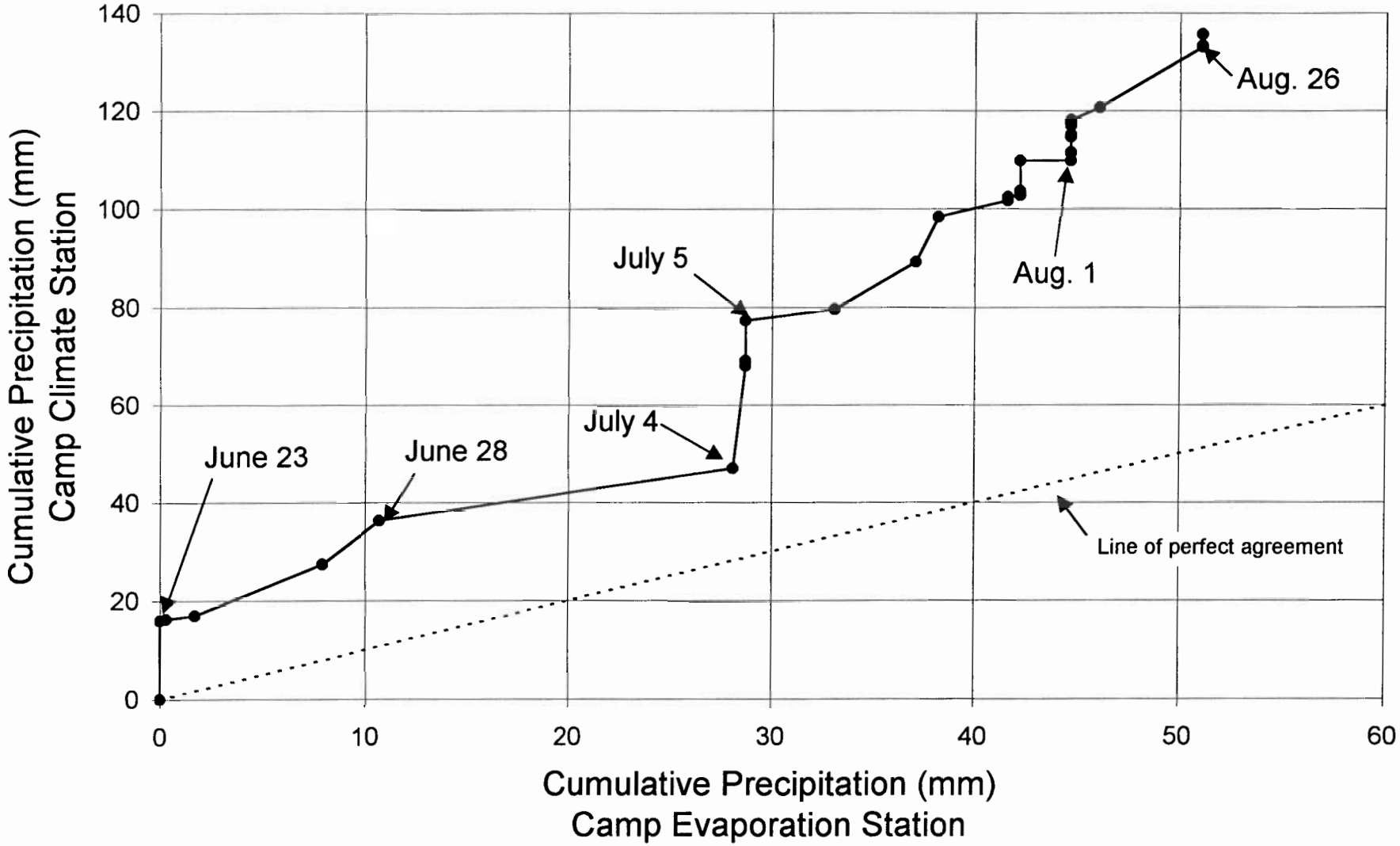
The two stations at the Meliadine Camp are compared on Figure B.2.1 for the period June 23 to August 28. Aside from an initial difference on June 23, the stations agreed reasonably well until July 4, when the climate station began to record significantly more precipitation than the evaporation station. By the end of August, the climate station had recorded over 135 mm of precipitation, compared to just over 50 mm recorded at the evaporation station. The two stations are located within a few hundred metres of each other, and should be expected to produce similar results.

A similar comparison of the Meliadine Camp climate station with the AES Rankin Inlet Station is shown on Figure B.2.2 for the full period of overlapping record which starts on June 2. This comparison shows a similar deviation, with the Meliadine Camp station accumulating over 200 mm of rain while the AES Station shows just about 75 mm for the same period.

The evaporation station is compared to the AES Rankin Inlet Station on Figure B.2.3. The total precipitation measured at Rankin Inlet (for the concurrent period of record) is about 58 mm compared to about 72 mm at the evaporation station. Agreement between these two stations appears reasonable indicating that it is the Meliadine Camp climate station data which are in error.

It is therefore concluded that the Meliadine Camp rainfall data for 1997 are in error and should not be used.

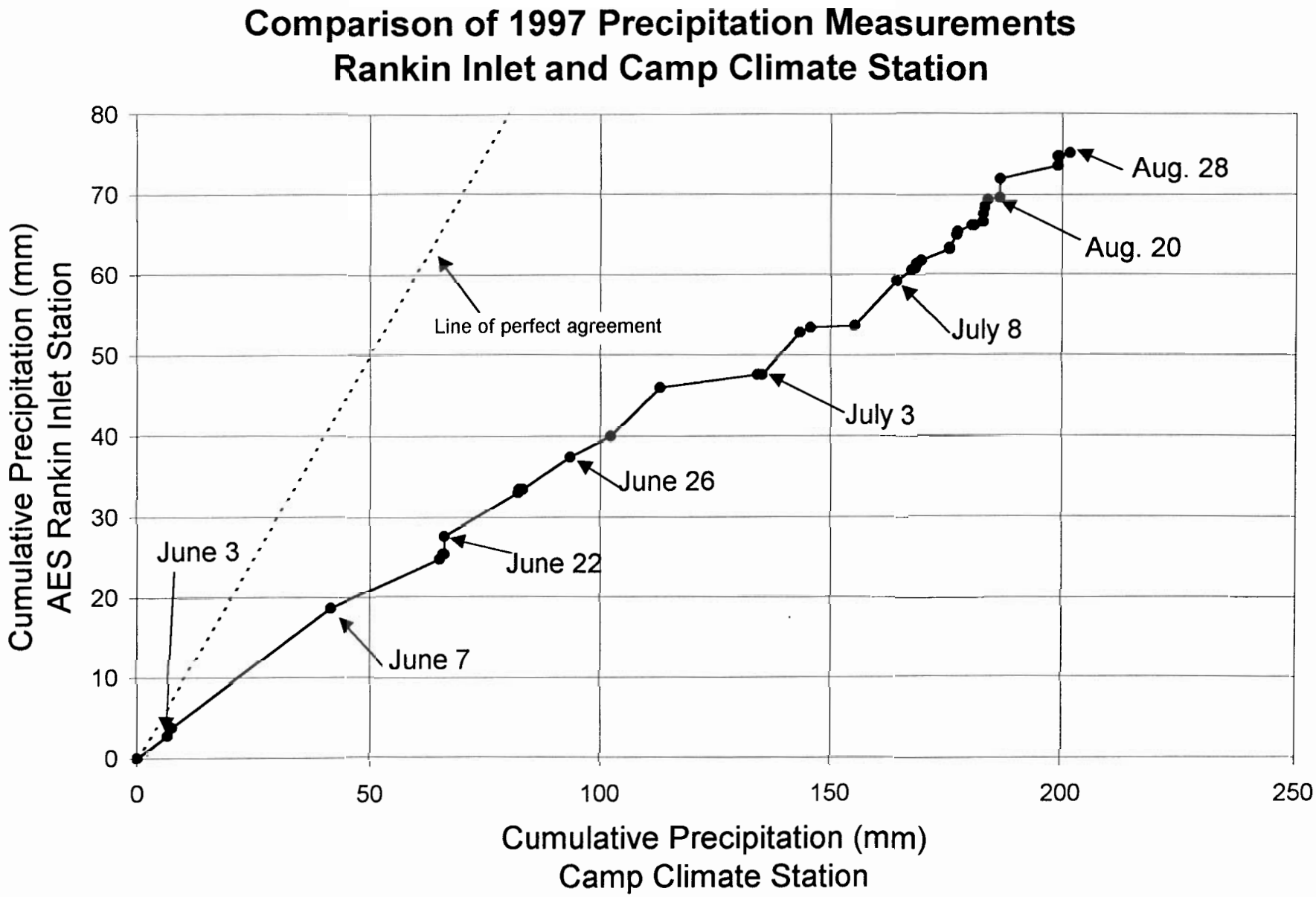
Comparison of 1997 Precipitation Measurements
Camp Climate Station and Camp Evaporation Station



P:\Project\1525\Climate\doublemass5 xls Chart1

WMC Meliadine West Gold Project
Water Balance Study

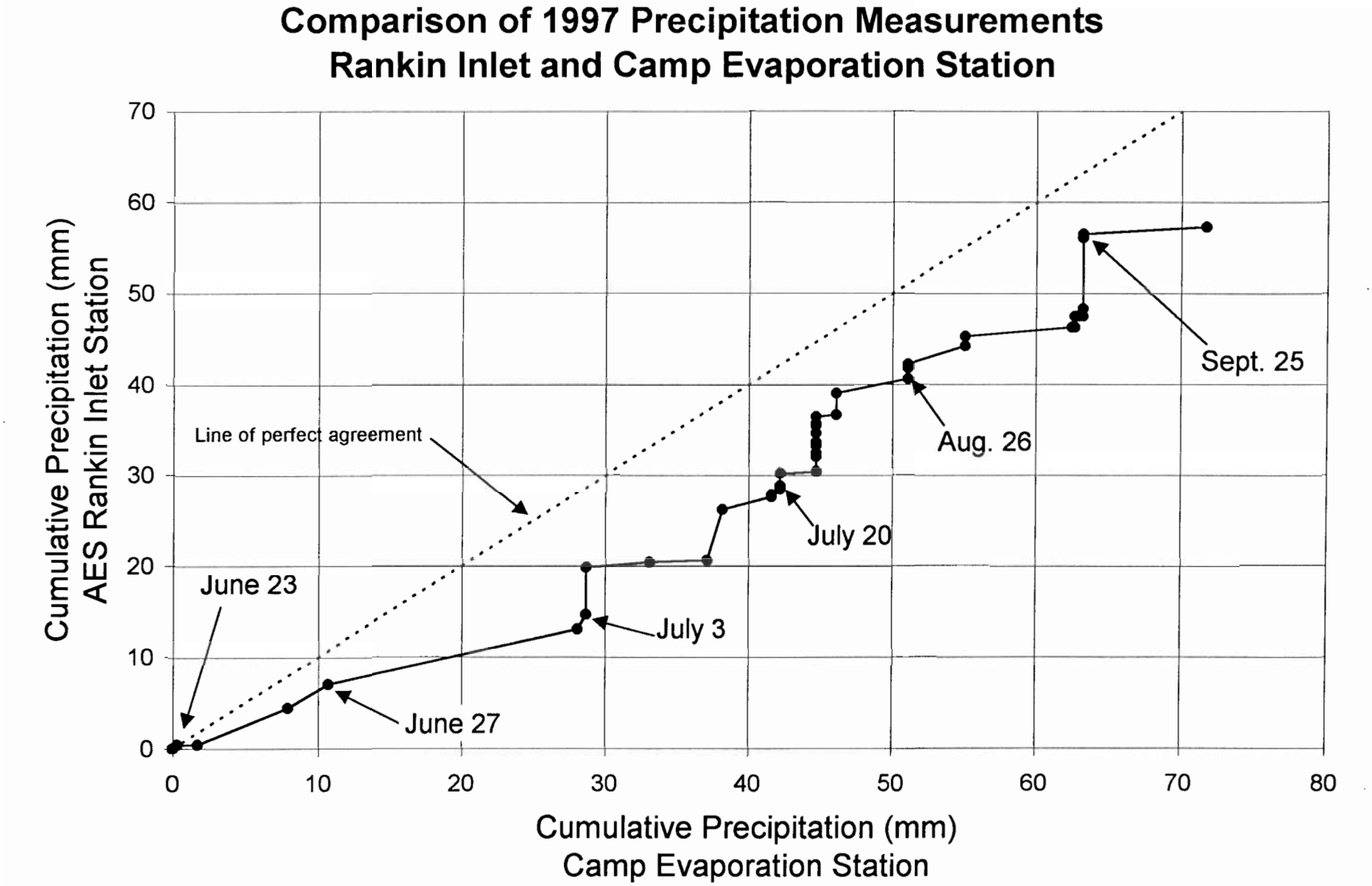
Figure B.2.1



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\Climate\doublemass5.xls Chart1 (3)

Figure B.2.2



WMC Meliadine West Gold Project
Water Balance Study

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Figure B.2.3

APPENDIX B.3

Rankin Inlet
1997 Daily Rainfall, Snowfall and Total Precipitation

Table B.3.1
Rankin Inlet
1997 Daily Rainfall in mm

Day	January	February	March	April	May	June	July	August	September	October	November	December
1	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0	0.0	0.6	0.2	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	2.8	0.0 T	0.0	1.0	10.2	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	1.0	5.2	0.0	1.0	11.1	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0 T	0.6	0.8	0.0 T	1.8	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	14.8	0.2	0.4	0.0 T	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	6.2	5.6	0.0	0.0 T	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0 T	0.0	0.0 T	0.0 T	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0 T	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	1.2	0.0 T	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.0	0.0	14.6	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0 T	0.6	0.0	0.0 T	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0 T	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0	0.8	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0 T	0.0	0.0 T	0.4	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.4	0.0	0.0	1.4	2.4	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	2.2	0.2	0.0 T	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	5.4	0.0	1.6	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.4	0.0 T	1.2	0.8	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0	0.0	7.8	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.4	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	2.6	0.0 T	0.4	0.0 T	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0 T	0.0 T	0.0	0.0	0.0
29	0.0		0.0	0.0	3.8	1.6	1.6	0.0 T	0.0	0.0	0.0	0.0
30	0.0		0.0	0.0	0.0	0.0	0.4	2.0	0.8	0.0	0.0	0.0
31	0.0		0.0		0.2		0.0 T	0.0 T		0.0		0.0
Total	**0.0**	**0.0**	**0.0**	**0.6**	**4.0**	**47.6**	**17.8**	**11.8**	**13.0**	**45.1**	**0.2**	**0.0**

Table B.3.2
Rankin Inlet
1997 Daily Snowfall in cm

Day	January	February	March	April	May	June	July	August	September	October	November	December
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2
2	0.0 T	0.0 T	0.0 T	0.0 T	0.2	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0 T
3	0.0	0.2	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.0	0.4
4	0.6	0.6	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T
5	1.8	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.8	0.0 T
6	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.6	0.0
7	0.0 T	3.4	0.0 T	0.0	0.4	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T
8	0.0 T	2.6	0.0 T	0.0 T	0.0 T	0.0 T	0.0	0.0	0.0	0.0 T	0.2	0.0 T
9	0.0 T	0.0 T	1.4	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T
10	0.2	0.6	0.0 T	0.0 T	0.8	0.0	0.0	0.0	0.0	0.2	0.0 T	1.3
11	0.0 T	0.0 T	0.0 T	0.2	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0 T
12	0.2	0.0 T	0.0 T	0.4	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T	0.0 T
13	0.6	0.0 T	0.6	7.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0 T	0.0 T
14	0.0	0.0 T	0.0 T	1.2	1.0	0.0	0.0	0.0	0.0 T	11.4	0.0 T	2.0
15	0.0	0.0 T	0.0 T	0.0 T	0.4	0.0	0.0	0.0	0.0	4.0	0.0 T	5.8
16	0.0	0.0 T	0.0 T	0.0	1.2	0.0	0.0	0.0	0.0	0.0 T	3.2	5.4
17	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T	0.0 T
18	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T
19	0.0 T	0.2	0.0 T	0.0 T	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.0 T	1.6
20	0.0	0.0 T	0.2	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0 T	0.4	0.0 T
21	0.0	0.2	0.0 T	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T
22	0.0 T	0.0 T	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0 T	4.4
23	0.0 T	0.0 T	0.0 T	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.2
24	0.0 T	0.2	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 T	0.2
25	0.0 T	0.0 T	0.0 T	0.2	0.0 T	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.2
26	0.0 T	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0 T	0.0 T
27	0.0 T	0.0 T	0.2	1.2	0.0 T	0.0	0.0	0.0	0.0	2.2	0.2	0.0
28	0.0 T	0.0 T	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0 T	1.8	0.0
29	0.0 T		0.0	0.0	0.0 T	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0
30	0.0 T		0.2	0.0 T	0.0	0.0	0.0	0.0	0.0	3.0	0.0 T	0.0 T
31	0.0 T		0.0 T		0.0		0.0	0.0		0.6		0.0 T
Total	**3.4**	**8.0**	**4.6**	**10.7**	**4.0**	**0.0**	**0.0**	**0.0**	**0.0**	**41.0**	**7.6**	**21.7**

Table B.3.3
Rankin Inlet
1997 Daily Total Precipitation in mm

Day	January	February	March	April	May	June	July	August	September	October	November	December
1	0.0	0.0	0.0	0.0	0.0	0.0 T	0.0	0.0	0.0	0.6	0.2	0.0 T
2	0.0 T	0.0 T	0.0 T	0.0 T	0.2	0.0	0.0	0.0	0.0	0.0 T	0.0 T	0.0 T
3	0.0	0.0 T	0.0 T	0.0	0.0 T	2.8	0.0 T	0.0	1.0	10.2	0.0	0.4
4	0.6	0.6	0.0 T	0.0	0.0 T	1.0	5.2	0.0	1.0	11.1	0.0	0.0 T
5	1.8	0.0 T	0.0 T	0.0	0.0 T	0.0 T	0.6	0.8	0.0 T	1.8	0.8	0.0 T
6	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.0 T	0.0	0.0 T	0.6	0.0
7	0.0 T	3.2	0.0 T	0.0	0.2	14.8	0.2	0.4	0.0 T	0.0 T	0.0 T	0.0 T
8	0.0 T	2.6	0.0 T	0.0 T	0.0 T	6.2	5.6	0.0	0.0 T	0.0 T	0.0 T	0.0 T
9	0.0 T	0.0 T	0.6	0.0 T	0.0	0.0 T	1.4	0.0 T	0.0	0.0 T	0.0 T	0.0 T
10	0.2	0.6	0.0 T	0.0 T	0.8	0.0	0.0	1.0	0.0	0.0 T	0.0 T	0.0 T
11	0.0 T	0.0 T	0.0 T	0.2	0.0 T	0.0	0.0	0.8	0.0	0.0 T	0.0	0.0 T
12	0.0 T	0.0 T	0.0 T	0.4	0.0	0.0	0.0	0.0 T	1.2	0.0 T	0.0 T	0.0 T
13	0.6	0.0 T	0.6	7.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0 T	0.0 T
14	0.0	0.0 T	0.0 T	1.2	1.0	0.6	0.2	0.0	0.0 T	25.8	0.0 T	1.6
15	0.0	0.0 T	0.0 T	0.0 T	0.4	0.0 T	0.6	0.0	0.0 T	4.0	0.0 T	5.2
16	0.0	0.0 T	0.0 T	0.0	1.2	0.0	0.0 T	0.0	0.0	0.0 T	3.2	5.0
17	0.0 T	0.0 T	0.0 T	0.2	0.0 T	0.0	0.0	0.2	0.0 T	0.0 T	0.0 T	0.0 T
18	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.0	0.0	0.8	0.0	0.0 T	0.0 T	0.0 T
19	0.0 T	0.2	0.0 T	0.0 T	0.0 T	0.0	0.0	0.2	0.0	0.0 T	0.0 T	1.4
20	0.0	0.0 T	0.0 T	0.0 T	0.0	0.0 T	0.4	0.0	0.0	0.0 T	0.4	0.0 T
21	0.0	0.2	0.0 T	0.4	0.0	0.0	1.4	2.4	0.0	0.0 T	0.0 T	0.0 T
22	0.0 T	0.0 T	0.0 T	0.0	0.0	2.2	0.2	0.0 T	0.0	0.0 T	0.0 T	4.4
23	0.0 T	0.0 T	0.0 T	0.0 T	0.0	5.4	0.0	1.6	0.0	0.0 T	0.0 T	0.2
24	0.0 T	0.2	0.0 T	0.0	0.0	0.4	0.0 T	1.2	0.8	0.0	0.0 T	0.2
25	0.0 T	0.0 T	0.0 T	0.2	0.0 T	0.0 T	0.0	0.0	7.8	0.0 T	0.0 T	0.2
26	0.0 T	0.0 T	2.0	0.0	0.0	4.0	0.0	0.0	0.4	0.8	0.0 T	0.0 T
27	0.0 T	0.0 T	0.2	1.2	0.0 T	2.6	0.0 T	0.4	0.0 T	1.8	0.2	0.0
28	0.0 T	0.0 T	0.0	0.3	0.0	6.0	0.0	0.0 T	0.0 T	0.0 T	0.6	0.0
29	0.0 T		0.0	0.0	3.8	1.6	1.6	0.0 T	0.0	0.0	0.0 T	0.0
30	0.0 T		0.2	0.0 T	0.0	0.0	0.4	2.0	0.8	3.0	0.0 T	0.0 T
31	0.0 T		0.0 T		0.2		0.0 T	0.0 T		0.6		0.0 T
Total	**3.2**	**7.6**	**3.6**	**11.1**	**7.8**	**47.6**	**17.8**	**11.8**	**13.0**	**92.7**	**6.0**	**18.6**

APPENDIX B.4

Meliadine Camp
1997 Evaporation Pan Data

Meliadine Camp
1997 Evaporation Pan Data

Date (1997)	Water (mm)				Water Temperature (°C)		Time of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
1-Jun							
2-Jun							
3-Jun							
4-Jun							
5-Jun							
6-Jun							
7-Jun							
8-Jun							
9-Jun							
10-Jun							
11-Jun							
12-Jun							
13-Jun							
14-Jun							
15-Jun							
16-Jun							
17-Jun							
18-Jun							
19-Jun							
20-Jun							
21-Jun							
22-Jun							
23-Jun	2.55		0.00	2.55	29	15	7:00 PM
24-Jun	6.60		0.30	6.90	21	11	9:00 PM
25-Jun	1.57		1.40	2.97			
26-Jun		3.40	6.20	2.80	25	10	11:00 PM
27-Jun		2.00	2.80	0.80	21	12	11:00 AM
28-Jun		9.90	17.40	7.50	24	12	2:30 PM
29-Jun	1.80		0.60	2.40	23	14	7:00 PM
30-Jun							
TOTALS	12.52	15.30	28.70	25.92			

Meliadine Camp
1997 Evaporation Pan Data

Date (1997)	Water (mm)				Water Temperature (°C)		Time of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
1-Jul	4.75		0.00	4.75	19	5	1:30 PM
2-Jul	10.80		0.00	10.80	22	9	11:00 AM
3-Jul	8.80		0.00	8.80	22	8	7:00 PM
4-Jul	6.50		0.00	6.50	15	5	7:00 PM
5-Jul	2.40		4.40	6.80	20	5	7:00 PM
6-Jul	3.50		0.00	3.50	26	6	7:00 PM
7-Jul	4.70		4.00	8.70	23	10	7:00 PM
8-Jul	5.00		1.10	6.10	23	12	7:00 PM
9-Jul	0.00		3.40	3.40	20	9	7:00 PM
10-Jul	5.00		0.00	5.00	25	9	7:00 PM
11-Jul	7.20		0.00	7.20	24	7	7:00 PM
12-Jul	5.40		0.00	5.40	22	9	7:00 PM
13-Jul	7.20		0.00	7.20	22	7	7:00 PM
14-Jul	6.70		0.00	6.70	12	7	7:00 PM
15-Jul	4.80		0.60	5.40	12	7	7:00 PM
16-Jul	7.70		0.00	7.70	19	7	7:00 PM
17-Jul	7.20		0.00	7.20	22	11	7:00 PM
18-Jul	7.00		0.00	7.00	24	10	11:00 AM
19-Jul	13.60		0.00	13.60	24	10	11:00 AM
20-Jul			0.00				
21-Jul			0.00				
22-Jul	9.40		2.50	11.90	26	7	7:00 PM
23-Jul	3.60		0.00	3.60	29	15	7:00 PM
24-Jul	10.40		0.00	10.40	21	11	9:00 PM
25-Jul			0.00				
26-Jul	14.60		0.00	14.60	25	10	11:00 PM
27-Jul	1.90		0.00	1.90	21	12	11:00 AM
28-Jul	11.40		0.00	11.40	24	12	2:30 PM
29-Jul	7.20		0.00	7.20	23	14	7:00 PM
30-Jul							
31-Jul							
TOTALS	176.75	0.00	16.00	192.75			

Meliadine Camp
1997 Evaporation Pan Data

Date (1997)	Water (mm)				Water Temperature (°C)		Time of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
1-Aug							
2-Aug							
3-Aug							
4-Aug							
5-Aug							
6-Aug							
7-Aug							
8-Aug							
9-Aug							
10-Aug							
11-Aug							
12-Aug							
13-Aug	8.50		0.00	8.50	15	5	6:30 PM
14-Aug							
15-Aug	5.50		0.00	5.50	20	5	11:30 AM
16-Aug	6.20		0.00	6.20	22	9	6:30 PM
17-Aug							
18-Aug							
19-Aug	11.20		1.40	12.60	22	10	8:00 PM
20-Aug	4.80		0.00	4.80	22	12	6:30 PM
21-Aug	3.60		0.00	3.60	11	12	9:00 PM
22-Aug							
23-Aug	3.60		5.00	8.60	19	8	9:00 PM
24-Aug							
25-Aug	4.70			4.70	14	8	9:00 PM
26-Aug							
27-Aug							
28-Aug	10.10		0.00	10.10	26	8	9:00 PM
29-Aug	1.70		0.00	1.70	17	8	8:30 PM
30-Aug	1.50		4.00	5.50	20	10	8:30 PM
31-Aug	3.20		0.00	3.20	10	8	7:15 PM
TOTAL	64.60	0.00	10.40	75.00			

Meliadine Camp
1997 Evaporation Pan Data

Date (1997)	Water (mm)				Water Temperature (°C)		Time of Observation
	Added	Removed	Rain	Net Loss	Max.	Min.	
1-Sep	6.20		0.00	6.20	10	0	8:30 PM
2-Sep	3.80		0.00	3.80	15	5	9:00 PM
3-Sep	3.80		0.00	3.80	20	8	5:00 PM
4-Sep		6.00	7.40	1.40	10	5	6:50 PM
5-Sep	4.80		0.00	4.80	10	5	9:00 PM
6-Sep	1.40		0.20	1.60	12	2	8:10 PM
7-Sep	3.60		0.00	3.60	10	4	8:20 PM
8-Sep			0.00	0.00	8	3	8:35 PM
9-Sep	3.80		0.00	3.80	6	3	8:30 PM
10-Sep	1.00		0.00	1.00	10	3	8:30 PM
11-Sep	4.00		0.00	4.00	9	4	6:45 PM
12-Sep							
13-Sep	3.80		0.20	4.00	9	1	8:00 PM
14-Sep	0.00		0.10	0.10	6	0	6:45 PM
15-Sep	4.20		0.00	4.20	7	0	7:45 PM
16-Sep							
17-Sep							
18-Sep							
19-Sep							
20-Sep	11.20		0.25	11.45	5	0	6:25 PM
21-Sep		3.00	0.00	-3.00	5	0	8:00 PM
22-Sep							
23-Sep							
24-Sep							
25-Sep							
26-Sep							
27-Sep							
28-Sep							
29-Sep							
30-Sep	iced	iced	8.50				7:30 PM
TOTAL	51.60	9.00	16.65	59.25			

APPENDIX B.5

1997 Evapotranspiration

1997 EVAPOTRANSPIRATION

Evapotranspiration (ET) for the project area for 1997 has been estimated using the "GD Relationship" proposed by Granger and Gray (1989). The relationship is defined in terms of the general evapotranspiration equation for non-saturated surfaces which is given as:

$$ET = [\Delta G\ (R_n - Q_g) + \gamma G E_a]/(\Delta G + \gamma) \quad (1)$$

where, Δ is the slope of the saturation vapour pressure versus temperature curve; G, the relative evaporation, is a dimension less parameter; R_n is the net radiation; Q_g is the soil heat flux; γ is the psychrometric constant; and E_a is the drying power of the air.

All the fluxes, ET, R_n, Q_g and E_a are in units of mm/d equivalent evaporation. The net radiation and soil heat fluxes can be converted from units of W/m^2 by multiplying by 0.035.

Δ is derived from the average air temperature using:

$$\Delta = \alpha\beta e*/(T + \beta)^2 \ in\ kPa/°C \quad (2)$$

where T is the air temperature, in C, and
for $T \geq 0$, $\alpha = 17.27$ and $\beta = 237.3$;
for $T < 0$, $\alpha = 21.88$ and $\beta = 265.5$.

e* is the saturation vapour pressure at the temperature, T, and is given as:

$$e* = 0.611\exp[\alpha T/(T + \beta)],\ in\ kPa \quad (3)$$

The drying power, E_a, is derived using a Dalton-type formulation:

$$E_a = f(u)\ (e* - e_a) \quad (4)$$

where, e_a is the actual vapour pressure of the air (kPa); and f(u) is a function of windspeed and surface roughness such that:

$$f(u) = a + bu \quad (5)$$

where the wind speed, u, is given in m/s; and the constants a and b are related to the surface roughness by:

$$a = 8.19 + 0.22z_0 \quad \textbf{(6a)}$$

$$b = 1.16 + 0.08z_0 \quad \textbf{(6b)}$$

The roughness height, z_0, is given in cm. If the roughness height is not available, it can be estimated (Brutsaert, 1982) from the mean height of the vegetation, h, by:

$$z_0 = h/7.6 \quad \textbf{(7)}$$

Brutsaert (1982) also gives examples of the roughness parameter for various surfaces.

The relative evaporation, G, is obtained from a dimension less relationship with the relative drying power:

$$D = E_a/(E_a + R_n - Q_g) \quad \textbf{(8)}$$

$$G = 1/(0.793 + 0.2 \exp(4.902D)) + 0.006D \quad \textbf{(9)}$$

Evapotranspiration, ET, is then obtained from equation (1).

The data required to calculate ET consist of the following:

Air Temperature	T
Wind Speed	μ
Vapour Pressure	e_a
Net Radiation	R_n
Soil Heat Flux	Q_g

Values of T, μ and R_n were recorded directly at the Meliadine Camp climate station, as was the relative humidity from which vapour pressure can be calculated. However, values of R_n as reported by the climate station were increased by a factor of 70.0 so that the monthly means equalled the monthly normals published for the AES Baker Lake station.

The soil heat flux, Q_g, can be measured directly using a soil heat flux plate, however, this was not available for the 1997 season; instead, soil temperatures were monitored at a depth of 5 cm below the surface. Soil heat flux was therefore calculated using a relationship obtained from Shuttleworth (1992):

$$Q_g = (Cs)\ (D) \left(\frac{T2 - T1}{t} \right) \quad (10)$$

where:
- Q_g = ground heat flux (W/m^2)
- Cs = soil heat capacity ($J/m^3°C$)
- D = depth to thermistor (m)
- T2 = current temperature (°C)
- T1 = previous temperature (°C)
- t = time interval (sec)

The soil heat capacity, Cs, is found from:

$$Cs = BD\ (Csd + (W)\ (Cw)) \quad (11)$$

where:
- BD = bulk density of the soil (kg/m^3)
- Csd = specific heat of soil (J/kg°C)
- W = soil moisture (as kg/kg)
- Cw = specific heat of water (J/kg°C) = 4190 J/kg°C

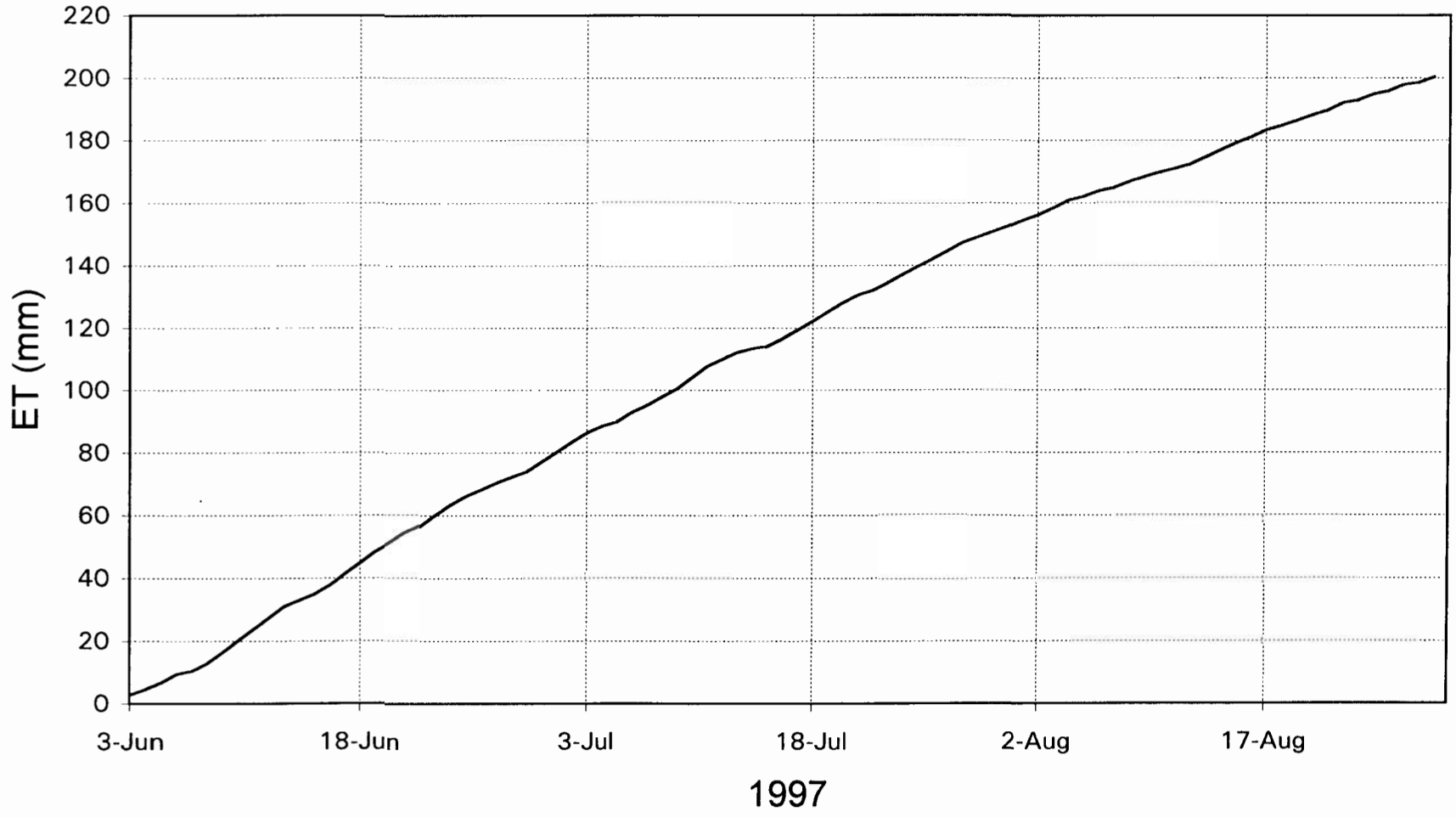
This equation for Cs is given in the instruction manual for the Campbell Scientific TCAV averaging soil thermocouple probe used at the site.

The soil parameters at the site were estimated using typical values for moss-covered glacial till, as follows:

BD	=	2080 kg/m^3
Csd	=	840 J/kg°C
W	=	30 percent

The resulting values for evapotranspiration calculated for the project area are shown in cumulative form on Figure B.5.1. The cumulative total for the 1997 season up to the end of August is estimated to be 200 mm.

Cumulative Evapotranspiration
Meliadine Basin 1997



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\climate\det2.xis.xls Chart2 (2)

Figure B.5.1

APPENDIX C

SNOW SURVEY DATA 1997

C.1 Utah Snow Survey Kit Description

C.2 Snow Survey Kit Calibrations

C.3 Snow Survey Data

APPENDIX C.1

Utah Snow Survey Kit Description

NAME: Utah Snow Kit

FUNCTION: To measure the depth of snow and the water equivalent of a snow pack.

SPECIFICATIONS AND CAPABILITIES: This kit consists of a set of duralumin tubes, a tube-turning or driving wrench, a cleaning tool, a three-cornered file, two spanner wrenches, a weighing scale and tube cradle, a hard-covered note book and a shoulder pack.

Each section of tube is 30 inches long and is marked in 1/2-inch graduations with every inch numbered. The tubes are anodic treated and staggered ports are cut in each section to enable the observer to note the length of snow core obtained at each sampling point. This also provides access to the inside of the tubes to facilitate the removal of a "sticky" section of core. The sensitive spring scale is graduated and reads directly in "inches of water" equivalent.

To obtain a snow sample, the required number of tubes are joined together and the driving wrench is attached to the last tube. This assembly is then weighed and the results are recorded. Using the driving wrench and with a turning motion, the tubes are forced through the snow pack to the surface of the ground. The depth of the snow pack is observed and recorded. The tubes are then withdrawn from the snow, the length of the entrapped core is recorded and the assembly is placed horizontally on the cradle of the scale and weighed. After weighing, the tubes are inverted and the core is allowed to slide out. The density of the snow pack is determined from the ratio of the water equivalent to the depth of snow.

Sets are available with two to eight tubes and have a capacity to measure up to 240 inches of snow. One photograph shows the shoulder pack, which will accommodate up to six tubes, with adequate space for the scale and wrenches in the attached pouch. The other shows the waterproof canvas case, which has eight pockets and has capacity for one complete kit. This case is designed to be lashed to any suitable pack frame.

English units were still used as metric specifications were not available at time of writing.

DRAWING NO.: Branch drawing not available.

APPENDIX C.2

Snow Survey Kit Calibrations

BC Environment
Water Management Division
Snow Survey Weighing Scale
Calibration Checking Form

Scale No. 3 Date May 2/97

(1) TOTAL WEIGHT* ABOVE TARE	(2) SCALE READING*	(3) SCALE RDG. MINUS TARE	(4) % ERROR*** $\frac{(3)-(1)}{(1)} \times 100$
TARE	10	0	
25			
** 50	60	50	0%
75			
** 100	110	100	0%
150			
** 200	209	199	-0.5%
250			
** 300			
350			
400			

* weights and scale readings in cm equivalents
** suggested minimum check points
*** Allowable error - 0.5% to +2.5% (at 18°C)

Checked by: Name (print): Murray K. Jones

Signature: MKJones

Comments: _____

cc: Hydrology Section, Victoria

BC Environment
Water Management Division
Snow Survey Weighing Scale
Calibration Checking Form

Scale No. 4NWT2 (3) ← Water Survey's kit Number Date Nov. 5/97

(1) TOTAL WEIGHT* ABOVE TARE	(2) SCALE READING*	(3) SCALE RDG. MINUS TARE	(4) % ERROR*** $\frac{(3)-(1)}{(1)} \times 100$
TARE	18	0	
25			
** 50	68	50	0%
75			
** 100	118	100	0%
150			
** 200	217	198	-0.5%
250			
** 300	317	299	-0.33%
350			
400			

* weights and scale readings in cm equivalents
** suggested minimum check points
*** Allowable error - 0.5% to +2.5% (at 18°C)

Checked by: Name (print): JANIS MATTHEWS

Signature: J Matthews

Comments: The 310 cm graduation on this scale is actual read 320 cm.

cc: Hydrology Section, Victoria

MDS/ames

APPENDIX C.3

Snow Survey Data

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA TRANSECT 1 1500 m SW-NE								
Station	Depth	Slope	GPS Coordinates		Remarks	Station	Depth	Density
(m)	(inches)	(percent)	East	North		(m)	(inches)	(percent)
0	18.0	1.0	538750	6987900		0	17.0	32
5	25.0	1.0				25	32.0	41
10	23.0	1.0				50	11.0	23
15	20.0	1.0				75	17.0	32
20	34.0	1.0				100	24.0	35
25	35.0	1.0				125	47.0	43
30	30.0	1.0				150	15.0	37
35	28.0	1.0				175	7.5	33
40	21.0	1.0				270	10.0	25
45	9.0	1.0				280	6.5	25
50	11.0	1.0				290	10.0	25
55	10.0	1.0				300	12.0	25
60	2.0	1.0				310	14.0	29
65	4.0	1.0				320	7.0	29
70	20.0	1.0				330	9.0	29
75	17.0	1.0				340	3.0	29
80	19.0	1.0				350	8.0	29
85	29.0	1.0				375	23.0	41
90	28.0	1.0				400	25.0	42
95	23.0	1.0				425	22.0	41
100	24.0	1.0				450	12.0	33
105	31.0	4.0				460	15.0	25
110	28.0	4.0				470	6.0	25
115	27.0	4.0				480	5.0	25
120	38.0	4.0				490	5.5	25
125	47.0	4.0				510	1.0	20
130	47.0	4.0				520	2.0	20
135	37.0	4.0				530	1.0	20
140	29.0	4.0				540	3.0	20
145	21.0	4.0				550	5.0	20
150	15.0	4.0				560	6.5	20
155	8.0	4.0				570	6.5	20
160	3.0	4.0				580	6.5	20
165	6.0	4.0				590	5.5	20
170	10.0	4.0				600	10.0	20
175	7.5	4.0				625	12.0	42
180	0.0	4.0				650	21.0	33
185	11.0	4.0				675	22.0	32
190	3.0	4.0				700	22.0	36
195	0.0	4.0				725	16.0	25
200	5.0	4.0				750	20.0	40
205	3.0	4.0				775	20.0	33
210	0.0	4.0				800	28.5	30
215	5.0	4.0				825	10.0	30
220	1.0	4.0				850	9.0	28
225	0.0	4.0				875	22.0	36

230	1.0	4.0				900	20.0	40
235	0.0	0.0			crest of ridge	975	40.0	43
240	1.0	-2.0				1000	22.0	41
245	3.0	-2.0				1010	13.5	33
250	3.0	-2.0				1020	20.0	33
255	2.0	-2.0				1030	17.0	33
260	5.0	-2.0				1040	9.0	33
265	0.0	-2.0				1050	6.0	33
270	10.0	-2.0				1060	14.0	33
275	14.0	-2.0				1070	7.0	33
280	7.0	-2.0				1080	16.0	33
285	10.0	-2.0				1090	10.5	33
290	9.0	-2.0				1100	11.0	33
295	10.0	-2.0				1110	1.0	32
300	10.0	-2.0				1120	9.5	32
305	11.0	-2.0				1130	9.0	32
310	14.0	-2.0				1140	6.0	32
315	17.0	-2.0			end of down slope	1150	8.5	32
320	8.0	0.0			flat bottom	1160	10.5	32
325	0.0	0.0			flat bottom	1170	6.0	32
330	8.0	0.0			flat bottom	1180	15.0	32
335	8.0	0.0			flat bottom	1190	20.0	32
340	4.0	0.0			flat bottom	1225	1.0	31
345	5.0	0.0			flat bottom	1250	2.5	31
350	7.0	0.0			flat bottom	1275	8.0	31
355	5.0	0.0			flat bottom	1300	4.5	31
360	10.0	0.0			flat bottom	1325	2.0	34
365	14.0	0.0			start of upslope	1350	20.0	34
370	23.0	3.0				1375	12.5	34
375	22.0	3.0				1400	10.0	34
380	20.0	3.0				1425	13.0	32
385	22.0	3.0				1450	6.0	32
390	19.0	3.0				1475	6.5	32
395	27.0	3.0				1500	11.0	32
400	27.0	3.0						
405	30.0	3.0						
410	32.0	3.0						
415	28.0	3.0						
420	24.0	3.0						
425	21.0	3.0						
430	14.0	3.0						
435	12.0	3.0						
440	16.0	3.0						
445	14.0	3.0						
450	11.0	3.0						
455	12.0	3.0						
460	14.0	3.0						
465	0.0	0.0			flat hill top			
470	6.0	0.0			flat hill top			
475	8.0	0.0			flat hill top			
480	5.0	0.0			flat hill top			
485	3.0	0.0			flat hill top			
490	5.0	0.0			flat hill top			
495	8.0	0.0			flat hill top			
500	2.0	0.0			flat hill top			
505	0.0	0.0			flat hill top			
510	1.0	0.0			flat hill top			

515	0.0	0.0			flat hill top
520	2.0	0.0			flat hill top
525	2.0	0.0			flat hill top
530	1.0	0.0			flat hill top
535	3.0	0.0			flat hill top
540	2.0	0.0			flat hill top
545	7.0	-3.0			start down slope
550	3.0	-3.0			
555	3.0	-3.0			
560	8.0	-3.0			
565	3.0	-3.0			
570	7.0	-3.0			
575	3.0	-3.0			
580	10.0	-3.0			
585	9.0	-3.0			
590	6.0	-3.0			
595	7.0	-3.0			
600	9.0	-3.0			
605	12.0	-3.0			
610	10.0	-3.0			
615	11.0	-3.0			
620	7.0	-3.0			
625	11.0	-3.0			
630	20.0	-3.0			
635	15.0	-3.0			
640	23.0	-3.0			
645	29.0	-3.0			
650	21.0	-3.0			
655	24.0	-3.0			
660	19.0	-3.0			
665	21.0	-3.0			
670	20.0	-3.0			
675	22.0	-3.0			
680	19.0	-3.0			
685	23.0	-3.0			
690	18.0	-3.0			
695	20.0	-3.0			
700	21.0	-3.0			bottom of slope
705	18.0	0.0			flat bottom
710	27.0	0.0			flat bottom
715	20.0	0.0			flat bottom
720	25.0	0.0			flat bottom
725	17.0	0.0			flat bottom
730	19.0	0.0			flat bottom
735	22.0	0.0			flat bottom
740	27.0	0.0			flat bottom
745	22.0	0.0			flat bottom
750	19.0	0.0			flat bottom
755	27.0	0.0			flat bottom
760	22.0	0.0			flat bottom
765	24.0	0.0			flat bottom
770	25.0	0.0			flat bottom
775	19.0	0.0			flat bottom
780	30.0	0.0			flat bottom
785	33.0	0.0			flat bottom
790	22.0	0.0			flat bottom
795	25.0	0.0			flat bottom

800	29.0	0.0			flat bottom
805	30.0	0.0			flat bottom
810	32.0	2.0			uphill 2% conf.with Neil
815	15.0	2.0			
820	11.5	2.0			
825	10.0	2.0			
830	13.0	2.0			
835	12.0	2.0			
840	12.0	2.0			
845	15.0	2.0			
850	10.0	2.0			
855	4.0	2.0			
860	13.0	2.0			
865	4.0	2.0			
870	10.0	2.0			
875	20.0	2.0			
880	9.0	2.0			
885	13.5	2.0			
890	1.0	2.0			
895	6.0	2.0			
900	25.0	2.0			
905	32.0	2.0			
910	49.0	10.0			gulley
915	63.0	10.0			gulley
920	66.0	10.0			gulley
925	69.0	10.0			gulley
930	80.0	10.0			gulley
935	79.0	10.0			gulley
940	81.0	10.0			gulley
945	70.0	10.0			gulley
950	57.5	10.0			gulley
955	65.0	10.0			gulley
960	69.5	10.0			gulley
965	67.0	1.5			rising 1-2%
970	63.5	1.5			
975	41.5	1.5			
980	35.0	1.5			
985	18.0	1.5			
990	19.0	1.5			
995	19.0	1.5			
1000	19.0	1.5			
1005	15.0	1.5			
1010	16.0	1.5			
1015	19.0	1.5			
1020	19.0	1.5			
1025	9.0	1.0			near top use 1%
1030	16.5	1.0			
1035	12.0	1.0			
1040	10.0	1.0			
1045	6.5	1.0			
1050	3.0	1.0			
1055	8.0	1.0			
1060	14.0	1.0			
1065	9.0	1.0			
1070	7.0	1.0			
1075	10.0	1.0			
1080	17.0	1.0			

1085	13.0	1.0			
1090	10.5	1.0			
1095	7.0	1.0			
1100	11.5	1.0			
1105	1.0	0.0			hill top
1110	0.0	0.0			hill top
1115	6.5	0.0			hill top
1120	9.0	0.0			hill top
1125	3.0	0.0			hill top
1130	7.0	0.0			hill top
1135	8.0	0.0			hill top
1140	7.0	0.0			hill top
1145	15.0	0.0			hill top
1150	10.0	0.0			hill top
1155	10.0	0.0			hill top
1160	10.5	0.0			hill top
1165	9.0	0.0			hill top
1170	1.0	0.0			hill top
1175	5.0	0.0			hill top
1180	15.5	0.0			hill top
1185	16.0	0.0			hill top
1190	20.0	0.0			hill top
1195	10.0	0.0			hill top
1200	0.0	0.0	539291	6988980	hill top
1205	1.0	-3.0			start of downslope
1210	1.0	-3.0			
1215	1.0	-3.0			
1220	2.0	-3.0			
1225	0.0	-3.0			
1230	0.0	-3.0			
1235	2.0	-3.0			
1240	3.0	-3.0			
1245	5.0	-3.0			
1250	1.0	-3.0			
1255	12.0	-3.0			
1260	8.0	-3.0			
1265	4.0	-3.0			
1270	6.0	-3.0			
1275	7.0	-3.0			
1280	6.0	-3.0			
1285	3.5	-3.0			
1290	4.0	-3.0			
1295	9.0	-3.0			
1300	8.5	-3.0			
1305	11.5	-3.0			
1310	2.0	-3.0			
1315	7.5	-3.0			
1320	1.0	-3.0			
1325	2.0	-3.0			
1330	6.0	-3.0			
1335	7.0	-3.0			
1340	18.0	-3.0			
1345	18.0	-3.0			
1350	20.0	-3.0			
1355	10.5	-3.0			
1360	8.0	-3.0			end of downslope
1365	5.0	0.0			flat bottom

1370	15.0	0.0			flat bottom
1375	12.5	0.0			flat bottom
1380	13.0	0.0			flat bottom
1385	18.0	0.0			flat bottom
1390	9.0	0.0			flat bottom
1395	9.0	0.0			flat bottom
1400	10.5	0.0			flat bottom
1405	13.0	0.0			flat bottom
1410	10.0	0.0			flat bottom
1415	20.0	0.0			flat bottom
1420	15.0	0.0			flat bottom
1425	12.5	0.0			flat bottom
1430	13.0	0.0			flat bottom
1435	13.0	0.0			flat bottom
1440	10.5	0.0			flat bottom
1445	9.0	0.0			flat bottom
1450	9.0	0.0			flat bottom
1455	1.0	0.0			flat bottom
1460	2.5	0.0			flat bottom
1465	5.5	0.0			flat bottom
1470	6.0	0.0			flat bottom
1475	6.5	0.0			flat bottom
1480	12.0	0.0			flat bottom
1485	11.0	0.0			flat bottom
1490	5.0	0.0			flat bottom
1495	13.5	0.0			flat bottom
1500	11.0	0.0	539472	6989336	flat bottom

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 3 1500 m SW-NE

Station	Depth	Slope	GPS Coordinates		Remarks	Station	Depth	Density
(m)	(inches)	(percent)	East	North		(m)	(inches)	(percent)
1500	10.5	0.0	539834	6989151	flat bottom	1475	5.5	30
1490	7.0	0.0			flat bottom	1450	6.5	30
1480	13.5	0.0			flat bottom	1425	9.0	30
1470	6.0	0.0			flat bottom	1400	6.0	30
1460	2.5	0.0			flat bottom	1375	8.0	34
1450	7.0	0.0			flat bottom	1350	13.5	34
1440	4.0	0.0			flat bottom	1325	8.0	34
1430	6.0	0.0			flat bottom	1300	4.5	34
1420	2.0	0.0			flat bottom	1275	10.0	35
1410	4.5	0.0			flat bottom	1250	27.0	35
1400	7.0	0.0			flat bottom	1225	11.0	35
1390	5.0	0.0			flat bottom	1200	17.0	35
1380	8.0	0.0			flat bottom	1150	5.5	29
1370	11.0	0.0			flat bottom	1125	6.5	29
1360	8.0	0.0			flat bottom	1100	5.5	29
1350	14.0	0.0			flat bottom	1050	9.5	27
1340	8.0	0.0			flat bottom	1025	14.5	27
1330	7.0	0.0			flat bottom	1000	4.0	27
1320	8.0	0.0			flat bottom	975	41.5	33
1310	13.0	0.0			flat bottom	950	24.0	33
1300	5.0	0.0			flat bottom	925	6.0	33
1290	4.0	0.0			flat bottom	900	7.5	33
1280	7.0	0.0			flat bottom	875	3.0	23
1270	10.0	0.0			flat bottom	850	4.0	23
1260	17.0	-1.0			start upslope	825	2.5	23
1250	27.0	-1.0				800	6.0	23
1240	26.0	-1.0				750	8.5	37
1230	17.0	-1.0				700	16.0	37
1220	10.0	-1.0				675	7.0	24
1210	24.0	-1.0				625	5.5	24
1200	20.0	-1.0				575	8.5	37
1190	9.5	-2.0				550	48.0	37
1180	9.0	-2.0				525	45.0	37
1170	4.0	-2.0				500	23.0	37
1160	8.0	-2.0				475	12.0	31
1150	5.5	-2.0				450	14.0	31
1140	5.0	-2.0				375	7.0	30
1130	15.0	-2.0				350	8.0	30
1120	2.0	0.0			start of rounded top	325	7.0	30
1110	0.0	0.0				275	51.0	40
1100	4.0	0.0				250	17.0	40
1090	5.0	0.0				225	18.0	40
1080	0.0	0.0			hill crest	175	12.0	34
1070	2.0	0.0				150	17.0	34
1060	5.0	0.0			end rounded crest	125	23.5	34
1050	10.0	2.0			down slope	100	7.0	34

1040	13.0	2.0				25	5.0	38
1030	16.0	2.0				0	3.0	38
1020	10.0	2.0						
1010	5.0	2.0						
1000	4.0	2.0			end of down slope			
990	13.0	0.0			bowl shaped bottom			
980	35.0	0.0						
970	35.5	0.0						
960	32.0	0.0						
950	26.0	0.0						
940	16.0	0.0						
930	2.0	-1.0			start upslope			
920	5.0	-1.0						
910	4.0	-1.0						
900	6.0	-1.0						
890	13.5	-1.0						
880	8.0	-1.0						
870	10.0	-1.0						
860	5.5	-1.0						
850	9.0	-1.0						
840	15.0	-1.0						
830	9.0	-1.0						
820	14.0	-1.0						
810	7.0	-1.0						
800	6.0	-1.0						
790	10.0	-1.0						
780	21.5	-1.0						
770	4.0	-1.0						
760	6.0	-1.0						
750	10.0	-1.0						
740	22.0	-9.0			steep upslope			
730	0.0	-9.0			steep upslope			
720	0.0	0.0			base crest			
710	20.0	0.5			downslope			
700	12.0	0.5	539475	6988410				
690	9.0	0.5						
680	0.0	0.5						
670	6.0	0.5						
660	7.0	0.5						
650	0.0	0.5						
640	12.0	0.5						
630	5.0	0.5						
620	5.0	0.5						
610	4.0	0.5						
600	0.0	0.5						
590	4.0	0.5			lip of steep slope			
580	9.0	6.0						
570	14.0	6.0						
560	15.0	6.0						
550	50.0	6.0						
540	31.0	6.0						
530	43.0	0.0			bottom bowl			
520	34.0	0.0						
510	21.0	0.0						
500	25.5	0.0						
490	25.0	0.0						
480	23.0	0.0			end of bowl			

470	13.0	-5.0			upslope
460	0.0	-5.0			
450	14.0	-5.0			
440	13.0	-5.0			
430	0.0	0.0			start of ridge
420	0.0	0.0			
410	0.0	0.0			
400	0.0	0.0			end of ridge
390	6.0	2.0			downslope
380	0.0	2.0			
370	19.0	2.0			
360	7.0	2.0			
350	5.0	2.0			
340	4.0	2.0			
330	7.0	2.0			
320	0.0	2.0			
310	1.0	2.0			
300	0.0	2.0			
290	6.0	5.0			start of steeper slope
280	59.0	5.0			
270	47.0	5.0			
260	36.0	5.0			
250	17.0	5.0			
240	20.0	0.0			flat bottom
230	13.0	0.0			flat bottom
220	15.0	0.0			flat bottom
210	10.0	0.0			flat bottom
200	0.0	0.0			flat bottom
190	13.0	0.0			flat bottom
180	10.0	0.0			flat bottom
170	12.0	0.0			flat bottom
160	25.0	-2.0			upslope
150	17.0	-9.0			
140	20.5	-9.0			
130	31.0	-9.0			
120	20.0	-9.0			
110	0.0	-9.0			
100	7.0	-9.0			
95	0.0	0.0			crest of narrow ridge
90	12.0	5.0			
80	11.0	5.0			
70	3.0	5.0			
60	0.0	5.0			
50	0.0	5.0			
40	0.0	5.0			
30	0.0	5.0			
20	0.0	5.0			
10	13.0	5.0			
0	2.0	5.0	539168	6987770	

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 4 500 m SW-NE

Station (m)	Depth (inches)	Slope (percent)	GPS Coordinates East	GPS Coordinates North	Remarks
0	4.0	0.0	537991	6989524	lake
10	3.0	0.0			
20	1.0	0.0			
30	2.0	0.0			
40	5.0	0.0			
50	5.0	0.0			
60	6.0	0.0			
70	6.0	0.0			
80	26.0	0.0			
90	24.0	0.0			
100	34.5	0.0			
110	23.0	0.0			
120	0.0	0.0			edge of lake
130	5.0	1.0			lake rising
140	0.0	1.0			
150	4.0	1.0			
160	5.0	1.0			
170	0.0	1.0			
180	4.0	1.0			
190	0.0	1.0			
200	4.0	1.0	538014	6989684	
210	2.0	1.0			
220	2.0	1.0			
230	5.0	1.0			
240	0.0	1.0			
250	0.0	1.0			
260	0.0	1.0			
270	0.0	1.0			
280	2.0	1.0			
290	11.0	1.0			
300	8.0	1.0			
310	10.5	1.0			
320	11.0	1.0			
330	13.0	1.0			
340	20.0	1.0			
350	16.5	1.0			
360	8.0	1.0			
370	9.0	1.0			
380	13.5	1.0			
390	10.0	1.0			
400	18.0	0.0			level ground
410	10.0	0.0			
420	9.0	0.0			
430	21.0	0.0			
440	6.0	0.0			
450	9.5	0.0			
460	10.0	0.0			
470	0.0	0.0			
480	0.0	0.0			
490	0.0	0.0			
500	8.0	0.0	538164	6989970	

Station (m)	Depth (inches)	Density (percent)
25	1.0	31
50	3.0	31
75	16.0	31
100	34.5	31
150	4.0	24
175	9.0	24
200	3.5	24
275	3.0	24
300	7.5	24
325	11.0	31
350	16.0	31
375	14.0	31
400	18.0	31
425	15.0	31
450	9.5	31
500	8.0	31

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 5 1100 m SW-NE

Station	Depth	Slope	GPS Coordinates		Remarks
(m)	(inches)	(percent)	East	North	
0	5.5	0.0	536612	6988940	wolf lake
10	11.0	0.0			
20	7.0	0.0			
30	13.0	0.0			
40	8.0	0.0			
50	7.0	0.0			
60	1.0	0.0			
70	12.0	0.0			
80	21.0	0.0			
90	14.0	0.0			
100	11.0	0.0			
110	8.0	0.0			
120	0.5	0.0			
130	12.5	1.0			edge rise
140	13.0	1.0			
150	10.0	1.0			
160	12.0	1.0			
170	13.5	1.0			
180	0.0	1.0			
190	4.0	1.0			
200	3.0	1.0			
210	0.0	1.0			
220	3.5	1.0			
230	6.0	1.0			
240	17.5	1.0			
250	36.0	1.0			
260	26.0	1.0			
270	14.0	3.0			
280	9.5	3.0			
290	14.0	3.0			
300	15.0	3.0			
310	16.0	3.0			
320	35.5	3.0			
330	38.0	3.0			
340	32.0	3.0			
350	7.0	3.0			
360	10.0	0.0			hill top
370	0.0	0.0			
380	0.0	0.0			
390	0.0	0.0			
400	0.0	0.0			
410	6.0	-4.0			descending
420	3.0	-4.0			
430	3.0	-4.0			
440	8.0	-4.0			
450	5.0	-4.0			

Station	Depth	Density
(m)	(inches)	(percent)
25	12.5	34
50	7.5	34
75	15.0	34
100	11.0	34
125	5.0	25
150	10.0	25
175	3.0	25
200	4.0	25
225	6.0	35
250	25.0	35
275	0.0	35
300	16.0	35
325	36.0	42
350	7.0	42
450	6.5	30
500	3.5	30
575	14.0	35
600	6.0	35
625	16.5	33
650	37.5	33
675	12.5	33
700	6.0	33
725	22.0	35
750	49.0	35
775	11.0	35
975	6.0	42
1000	26.0	42
1025	5.5	64

460	0.0	-4.0			
470	0.0	-4.0			
480	5.0	-4.0			
490	0.0	-4.0			
500	3.5	-4.0			
510	0.0	-4.0			
520	2.0	-4.0			
530	0.0	-4.0			
540	0.0	-4.0			
550	0.0	-4.0			
560	2.0	-4.0			
570	4.0	-4.0			
580	8.0	-4.0			
590	12.0	-4.0			
600	5.0	-4.0			
610	8.0	-4.0			
620	16.0	-4.0			
630	21.0	-4.0			
640	31.0	-4.0			
650	36.0	-4.0			
660	25.0	-4.0			
670	16.0	-4.0			
680	12.0	-4.0			
690	6.0	-4.0			
700	6.0	0.0			
710	14.0	0.0			
720	25.0	0.0			
730	23.0	0.0			
740	24.0	0.0			
750	49.0	7.0			
760	38.0	7.0			
770	40.0	7.0			
780	23.0	7.0			
790	5.0	7.0			
800	0.0	0.0	537153	6989562	
810	0.0	0.0			
820	0.0	0.0			
830	0.0	-4.0			
840	0.0	-4.0			
850	0.0	-4.0			
860	2.0	-4.0			
870	0.0	-4.0			
880	0.0	-4.0			
890	0.0	-4.0			
900	0.0	-4.0			
910	1.0	-4.0			
920	0.0	-4.0			
930	0.0	-4.0			
940	0.0	-4.0			
950	0.0	-4.0			
960	0.0	-4.0			
970	7.0	-4.0			
980	36.0	-4.0			
990	45.0	0.0			lake #1 edge
1000	25.0	0.0			
1010	9.0	0.0			
1020	2.0	0.0			

1030	3.0	0.0			
1040	1.0	0.0			
1050	0.0	0.0			
1060	4.0	0.0			
1070	0.0	0.0			
1080	1.0	0.0			
1090	5.0	0.0			
1100	0.0	0.0	537280	6989760	

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 6 300 m NW-SE

Station (m)	Depth (inches)	Slope (percent)	GPS Coordinates East	GPS Coordinates North	Remarks
0	3.0	0.0	538303	6989160	entire
10	9.0	0.0			transect
20	13.0	0.0			on lake
30	3.0	0.0			
40	2.0	0.0			
50	2.0	0.0			
60	0.0	0.0			
70	2.0	0.0			
80	1.0	0.0			
90	1.0	0.0			
100	1.0	0.0			
110	3.0	0.0			
120	4.0	0.0			
130	1.0	0.0			
140	1.0	0.0			
150	3.0	0.0			
160	1.0	0.0			
170	6.5	0.0			
180	3.0	0.0			
190	5.0	0.0			
200	5.5	0.0			
210	4.0	0.0			
220	2.5	0.0			
230	9.0	0.0			
240	7.0	0.0			
250	2.0	0.0			
260	7.0	0.0			
270	2.0	0.0			
280	5.0	0.0			
290	2.5	0.0			
300	3.0	0.0	538536	6988961	

Station (m)	Depth (inches)	Density (percent)
25	7.0	36
50	2.0	36
100	1.0	36
125	5.0	36
150	3.0	36
175	2.5	36
200	5.5	36
225	3.0	36
250	2.0	36
275	4.0	36
300	3.0	36

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 7A 500 m NW-SE

Station (m)	Depth (inches)	Slope (percent)	GPS Coordinates East	GPS Coordinates North	Remarks	Station (m)	Depth (inches)	Density (percent)
0	42.0	0.0	539166	6988661	lake edge	25	35.0	32
10	29.0	0.0				50	48.5	32
20	31.0	0.0				75	25.0	32
30	34.0	1.0				100	14.0	32
40	33.5	1.0				125	26.0	28
50	48.5	1.0				150	16.0	28
60	39.0	1.0				175	15.5	28
70	25.0	0.0			bottom of broad gulley	200	16.0	28
80	26.5	0.0				225	2.0	22
90	17.5	0.0				250	3.5	22
100	14.0	0.0				275	7.0	22
110	31.0	0.0				300	13.0	22
120	30.0	0.0				325	25.5	28
130	20.0	0.0				350	9.5	28
140	28.5	0.0				375	7.0	28
150	16.0	0.0				400	9.5	28
160	19.0	0.0				425	7.0	28
170	14.0	0.0				450	5.0	28
180	13.0	0.0				500	6.0	28
190	15.0	0.0						
200	16.0	0.0						
210	11.0	0.0						
220	6.0	0.0						
230	5.0	0.0			small lake			
240	1.0	0.0						
250	4.0	0.0						
260	2.5	0.0						
270	4.0	0.0						
280	8.0	0.0						
290	10.5	0.0						
300	13.0	0.0	539189	6988425				
310	24.0	0.0						
320	20.0	0.0						
330	28.5	2.0			start of rise			
340	17.5	2.0						
350	9.5	2.0						
360	8.0	2.0						
370	8.0	2.0						
380	7.0	2.0						
390	10.0	2.0						
400	9.5	2.0						
410	9.0	2.0						
420	10.5	2.0						
430	0.0	2.0						
440	1.5	2.0						
450	5.0	2.0						
460	0.5	2.0						
470	8.0	2.0						
480	9.0	0.0			hill top			
490	12.5	0.0						
500	6.5	0.0	539262	6988201				

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 8A 400 m NW-SE

Station	Depth	Slope	GPS Coordinates		Remarks
(m)	(inches)	(percent)	East	North	
0	28.0	0.0	538946	6988274	bottom of wide gulley
10	20.5	0.0			
20	26.0	0.0			
30	5.0	0.0			
40	28.0	0.0			
50	18.0	0.0			
60	15.5	0.0			
70	26.0	0.0			
80	15.0	0.0			
90	19.5	0.0			
100	28.0	0.0			
110	31.0	0.0			
120	31.0	0.0			
130	40.0	0.0			
140	29.5	0.0			
150	29.5	0.0			
160	22.5	0.0			
170	23.0	0.0			
180	33.0	0.0			
190	33.0	0.0			
200	30.0	0.0	539062	6988107	
210	29.0	0.0			
220	32.0	0.0			
230	11.0	0.0			
240	21.0	0.0			
250	23.0	0.0			
260	14.5	0.0			
270	16.5	0.0			
280	31.0	0.0			
290	31.0	0.0			
300	22.0	0.0			
310	21.5	0.0			
320	30.5	0.0			
330	35.0	0.0			
340	35.0	0.0			
350	47.0	0.0			
360	48.5	0.0			
370	43.5	0.0			
380	30.0	0.0			
390	21.0	0.0			
400	18.0	0.0	539145	6987929	

Station	Depth	Density
(m)	(inches)	(percent)
25	21.0	36
50	17.0	36
75	9.0	36
100	28.0	36
125	33.5	37
150	29.5	37
175	29.0	37
200	30.0	37
225	32.0	40
250	23.0	40
275	25.0	40
300	22.0	40
325	30.0	39
350	47.0	39
375	38.0	39
400	18.0	39

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 9A 400 m NW-SE

Station	Depth	Slope	GPS Coordinates		Remarks
(m)	(inches)	(percent)	East	North	
400	19.0	0.0	539150	6987683	
390	24.0	0.0			
380	27.0	0.0			
370	14.0	0.0			
360	16.0	0.0			
350	29.0	0.0			
340	34.0	0.0			
330	24.0	0.0			
320	28.0	0.0			
310	43.0	0.0			
300	43.0	0.0			
290	53.0	0.0			
280	62.0	0.0			
270	72.0	0.0			
260	75.0	0.0			
250	55.0	0.0			
240	54.0	0.0			
230	40.0	0.0			
220	42.0	0.0			
210	26.0	0.0			
200	28.0	0.0	539003	6987796	
190	22.0	0.0			
180	11.0	0.0			
170	22.0	0.0			
160	20.0	0.0			
150	8.0	0.0			
140	20.0	0.0			
130	30.0	0.0			
120	24.0	0.0			
110	13.0	0.0			
100	66.0	0.0			
90	61.0	0.0			
80	48.0	0.0			
70	19.0	0.0			
60	28.0	0.0			
50	29.0	0.0			
40	19.0	0.0			
30	24.0	0.0			
20	38.0	0.0			
10	37.0	0.0			
0	39.0	0.0	538880	6988005	

Station	Depth	Density
(m)	(inches)	(percent)
375	20.0	40
350	29.0	40
325	22.0	40
300	43.0	40
275	72.0	36
250	55.0	36
225	35.0	36
200	28.0	36
175	16.5	34
150	8.0	34
125	43.0	34
100	66.0	34
75	26.0	41
50	29.0	41
25	25.0	41
0	39.0	41

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 11 600 m NW-SE

Station	Depth	Slope	GPS Coordinates		Remarks
(m)	(inches)	(percent)	East	North	
0	10.0	1.0	537332	6988056	rising
10	14.0	1.0			
20	9.0	1.0			
30	0.0	1.0			
40	0.0	1.0			
50	8.0	1.0			
60	0.0	1.0			
70	0.0	1.0			
80	5.0	1.0			
90	8.0	1.0			
100	6.0	0.0			relatively flat
110	11.0	0.0			
120	11.0	0.0			
130	13.0	0.0			
140	9.0	0.0			
150	10.0	0.0			
160	7.0	0.0			
170	7.0	0.0			
180	0.0	0.0			
190	9.0	0.0			
200	8.0	0.0			
210	10.0	0.0			
220	11.0	0.0			
230	0.0	0.0			
240	7.0	0.0			
250	9.0	0.0			
260	16.0	0.0			
270	18.0	0.0			
280	17.0	0.0			
290	10.0	0.0			
300	5.0	0.0	537550	6987827	
310	5.0	0.0			
320	8.0	0.0			
330	2.0	0.0			
340	0.0	0.0			
350	8.0	0.0			
360	13.0	0.0			
370	0.0	0.0			
380	0.0	0.0			
390	0.0	0.0			
400	6.0	0.0			
410	9.5	0.0			
420	10.0	0.0			
430	25.0	0.0			
440	13.0	0.0			
450	29.0	0.0			

Station	Depth	Density
(m)	(inches)	(percent)
25	3.0	33
50	6.5	33
75	10.0	33
100	6.5	33
125	12.0	38
150	10.0	38
200	8.0	38
225	6.5	33
250	12.0	33
300	6.0	33
425	24.0	27
450	29.0	27
475	19.5	27
500	18.0	27
525	26.0	24
600	9.0	24

460	37.0	0.0			
470	21.0	0.0			
480	21.0	0.0			
490	25.0	0.0			
500	17.0	0.0			
510	32.0	0.0			
520	38.0	0.0			
530	18.0	0.0			
540	12.0	0.0			
550	0.0	0.0			
560	0.0	0.0			
570	0.0	0.0			
580	0.0	0.0			
590	0.0	0.0			
600	0.0	0.0	537692	6987511	

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 12 300 m NW-SE

Station (m)	Depth (inches)	Slope (percent)	GPS Coordinates East	GPS Coordinates North	Remarks	Station (m)	Depth (inches)	Density (percent)
0	10.0	4.0	538839	6987603	rising	25	22.0	34
10	15.0	4.0				50	19.0	34
20	18.0	4.0				75	12.5	34
30	17.0	4.0				100	24.5	34
40	20.0	4.0				125	28.0	34
50	19.0	4.0				150	24.0	34
60	20.0	4.0				175	15.5	34
70	24.0	4.0				200	8.0	34
80	23.0	4.0				225	23.5	34
90	23.0	4.0				250	39.0	34
100	24.5	4.0				275	23.0	34
110	21.0	4.0				300	24.0	34
120	31.0	4.0						
130	30.0	4.0						
140	33.5	4.0						
150	24.0	4.0						
160	5.5	4.0						
170	6.0	4.0						
180	10.0	4.0						
190	9.0	4.0						
200	8.0	4.0						
210	20.0	4.0						
220	21.0	4.0						
230	21.0	4.0						
240	31.0	4.0						
250	39.0	4.0						
260	31.0	4.0						
270	35.0	4.0						
280	27.0	4.0						
290	35.0	4.0						
300	24.0	4.0	539153	6987550				

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 15 700 m NW-SE

Station	Depth	Slope	GPS Coordinates		Remarks
(m)	(inches)	(percent)	East	North	
0	5.0	0.0	542792	6985600	lake
10	6.0	0.0			
20	2.0	0.0			
30	5.0	0.0			
40	7.0	0.0			
50	14.0	0.0			
60	33.0	0.0			
70	21.0	0.0			
80	7.0	0.0			
90	9.0	0.0			
100	12.0	0.0			
110	12.0	0.0			
120	11.0	0.0			
130	8.0	0.0			
140	6.0	0.0			
150	11.0	0.0			
160	15.0	0.0			
170	21.0	0.0			
180	18.0	0.0			
190	16.0	0.0			
200	23.5	0.0			
210	20.0	1.0			edge of lake shore
220	21.0	1.0			
230	16.0	1.0			
240	24.0	1.0			
250	12.0	1.0			
260	9.0	1.0			
270	15.0	0.0			bottom of broad valley
280	8.0	0.0			
290	9.0	0.0			
300	7.0	0.0	542952	6985404	
310	7.0	0.0			
320	12.0	0.0			
330	10.0	0.0			
340	4.0	0.0			
350	4.0	0.0			
360	0.0	0.0			
370	15.0	0.0			
380	4.0	0.0			
390	3.0	1.0			rising
400	0.0	1.0			
410	11.0	1.0			
420	0.0	1.0			
430	8.0	1.0			
440	2.0	1.0			
450	15.0	1.0			

Station	Depth	Density
(m)	(inches)	(percent)
25	3.5	40
50	13.5	40
75	11.5	40
100	12.5	40
125	10.0	40
150	10.5	40
175	21.0	40
200	23.5	40
225	20.5	30
250	14.5	30
275	11.0	30
300	8.0	30
325	13.0	29
350	5.5	29
375	13.0	29
425	14.0	29
450	15.5	29
475	6.5	29
500	9.5	29
550	0.8	36
575	15.5	36
600	32.5	36
625	8.0	32
700	17.0	32

460	0.0	1.0			
470	7.0	1.0			
480	9.0	1.0			
490	10.0	1.0			
500	6.0	1.0			
510	8.0	1.0			
520	8.0	1.0			
530	10.0	1.0			
540	8.0	1.0			
550	8.0	1.0			
560	5.0	1.0			
570	8.0	1.0			
580	16.0	1.0			
590	23.0	1.0			
600	34.0	1.0			
610	25.0	1.0			
620	0.0	1.0			
630	10.0	2.0			
640	13.0	2.0			
650	0.0	2.0			
660	6.0	2.0			
670	6.0	2.0			
680	6.0	2.0			
690	19.0	2.0			
700	18.0	2.0	543220	6985092	

WMC INTERNATIONAL LTD.
MELIADINE WEST GOLD PROJECT
WATER BALANCE STUDY

SNOW SURVEY DATA
TRANSECT 16 600 m NW-SE

Station (m)	Depth (inches)	Slope (percent)	GPS Coordinates East	GPS Coordinates North	Remarks
0	4.0	0.0	542758	6985190	plateau
10	0.0	0.0			
20	4.5	0.0			
30	11.0	0.0			
40	6.5	0.0			
50	5.0	0.0			
60	6.0	0.0			
70	1.0	0.0			
80	5.0	0.0			
90	7.5	0.0			
100	11.0	0.0			
110	12.0	0.0			
120	6.5	0.0			
130	8.0	0.0			
140	0.0	0.0			
150	6.0	-4.0			beginning to drop
160	8.0	-4.0			
170	9.0	-4.0			
180	17.0	-4.0			
190	14.5	-4.0			
200	8.0	-4.0			
210	0.0	-4.0			
220	11.5	-4.0			
230	36.0	-4.0			
240	22.5	-4.0			
250	17.0	0.0			valley bottom flat
260	22.5	0.0			
270	15.0	0.0			
280	17.5	0.0			
290	11.0	0.0			
300	7.0	0.0	542952	6985404	
310	4.0	0.0			
320	0.0	0.0			
330	8.0	0.0			
340	0.0	0.0			
350	7.5	0.0			
360	5.0	0.0			
370	7.0	0.0			
380	11.0	0.0			
390	9.0	0.0			
400	13.0	5.0			start rise
410	13.5	5.0			
420	32.5	5.0			
430	24.5	5.0			
440	15.0	5.0			
450	13.0	5.0			

Station (m)	Depth (inches)	Density (percent)
25	6.0	27
50	5.0	27
75	8.5	27
100	11.5	27
125	6.0	22
150	5.0	22
175	17.0	22
200	8.0	22
225	39.0	32
250	17.0	32
275	14.5	32
300	8.0	32
350	7.0	33
400	13.0	33
425	30.0	29
450	10.0	29
500	13.0	29
525	4.5	31
550	4.0	31
600	6.0	31

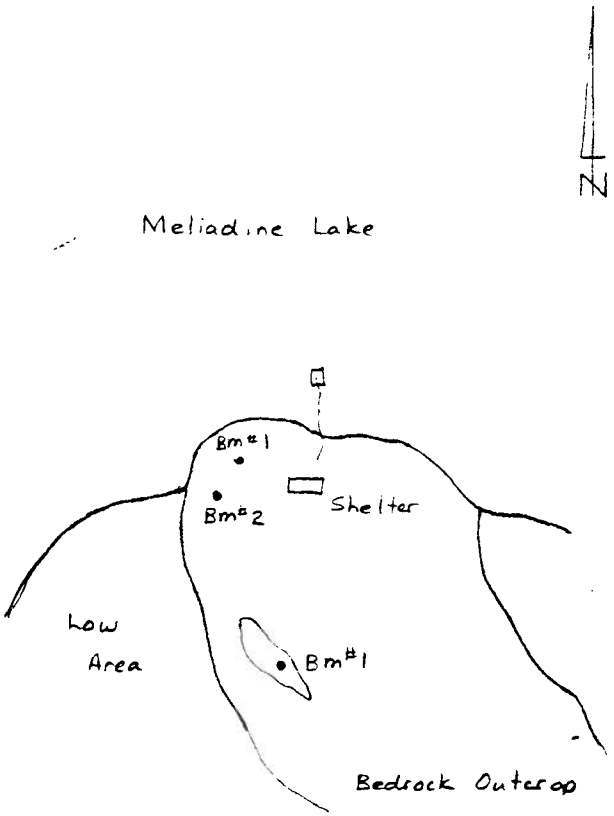
460	24.0	5.0			
470	20.0	5.0			
480	6.0	5.0			
490	0.0	5.0			
500	14.0	5.0			
510	6.0	5.0			
520	11.5	0.0			crest flat
530	11.0	0.0			
540	0.0	0.0			
550	0.0	0.0			
560	0.0	0.0			
570	0.0	0.0			
580	3.0	0.0			
590	5.0	0.0			
600	6.5	0.0	543220	6985621	

APPENDIX D

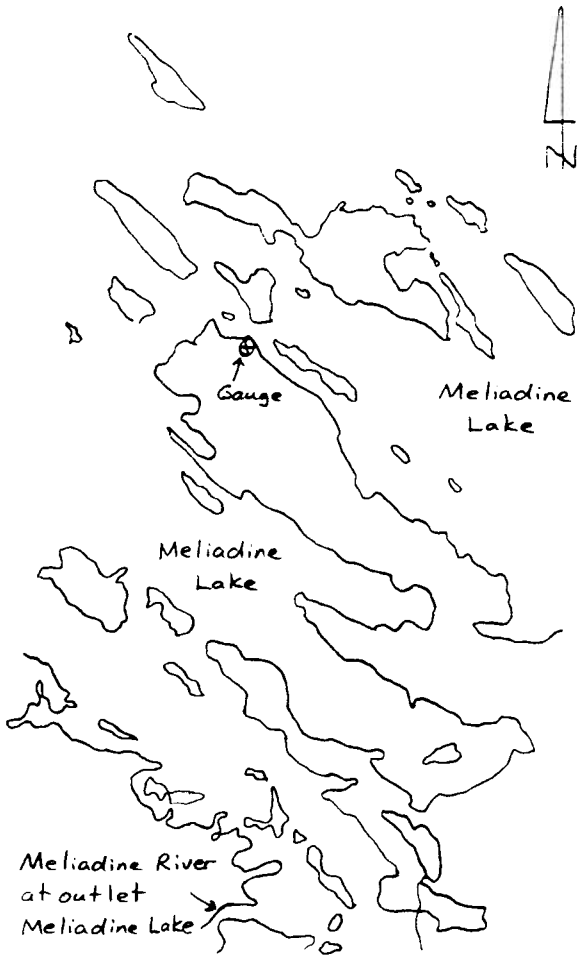
HYDROMETRIC STATION DESCRIPTIONS

- Meliadine Lake near Rankin Inlet
- Meliadine River at Outlet Meliadine Lake
- West Outlet Meliadine Lake
- Meliadine River near the Mouth
- Diana River near Rankin Inlet
- Diana Lake near Rankin Inlet
- Peter Lake near Rankin Inlet
- Outlet of Peg Lake
- Outlet of Lake A1 (= Peg Creek near the Mouth)
- Outlet of Newy Lake
- Outlet of Lake D5 (= Inlet to Lake No. 4)
- Outlet of Control Lake

SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT.
INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION
SCALE 1:50,000 **MAP** 55 N/1



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC002 **Drainage Area** _____

Station Name Meliadine Lake near Rankin Inlet **District** NWT

Latitude 63° 05' 14" **Longitude** 92° 23' 15" GPS

Established June 20, 1997 **By** A.N. Pilling, M.K. Jones

Description of Gauging Equipment and Location

Shelter contains Sutron 8210 logger and Tavis pressure transducer.

Station is located 33.6 km northwest of Rankin Inlet airport, 6 km north of outlet. Station is on the north tip of a peninsula near the middle of the lake.

Description of Control & Measuring Sections

Stage only.

Discharge measurements are made at the West outlet of Meliadine Lake and at the Meliadine River at outlet of Meliadine Lake.

Prepared by M.K. Jones **Date** Jun. 23, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

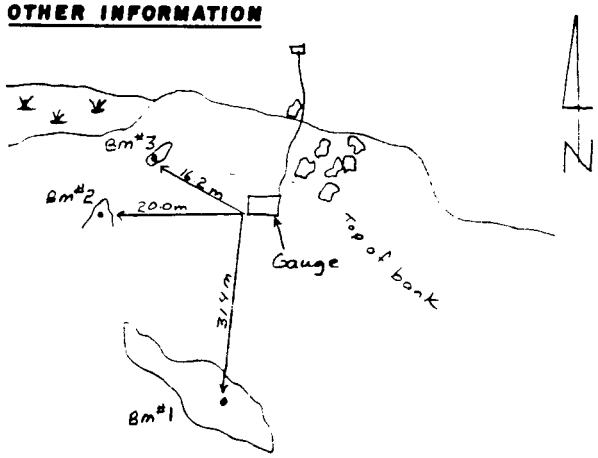
Conversion Equation _____ to convert to _____

Bm#1 - Red paint mark on top of bedrock outcrop 31.4 m. south of shelter. Elev. 10.000 m

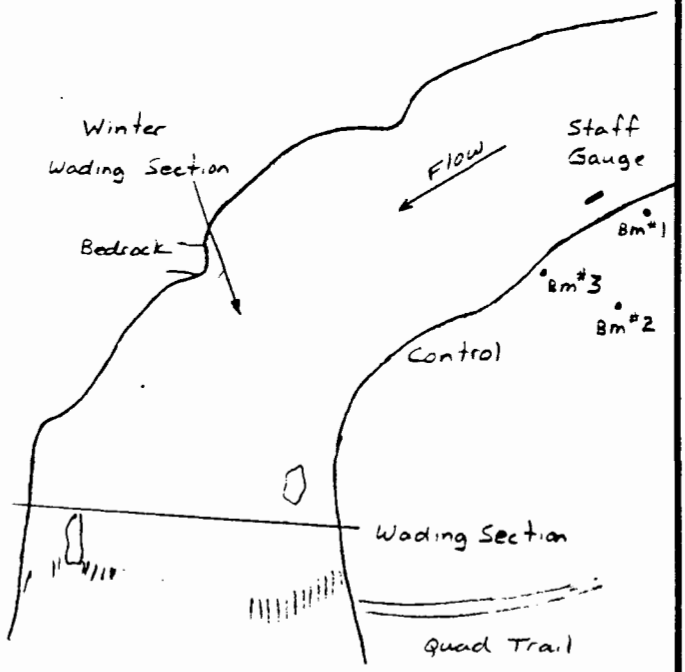
Bm#2 - Red paint mark on bedrock outcrop 20.0 m. west of shelter. Elev. 6.980 m

Bm#3 - Red paint mark on bedrock outcrop 16.2 m NW of shelter. Elev. 5.980 m

OTHER INFORMATION



SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 **MAP** 55N/1

ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC008 **Drainage Area**

Station Name Meliadine River at outlet Meliadine Lake **District** NWT

Latitude 63°02'04" **Longitude** 92°23'35" GPS

Established **By**

Description of Gauging Equipment and Location

Staff gauge set in streambed on left bank about 200 meters above first set of rapids.

Gauge is on left bank at outlet of Meliadine Lake 28.6 km NW of Rankin Inlet airport, 11.4 Km west of WMC camp and 5.9 km south of Meliadine Lake gauge.

Description of Control & Measuring Sections

Natural rock and boulder control.

Wading measurements are made just above last set of rapids. River bed at most section consists of small and medium sized boulders.

Prepared by M.K. Jones **Date** Jun. 24, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

Conversion Equation to convert to

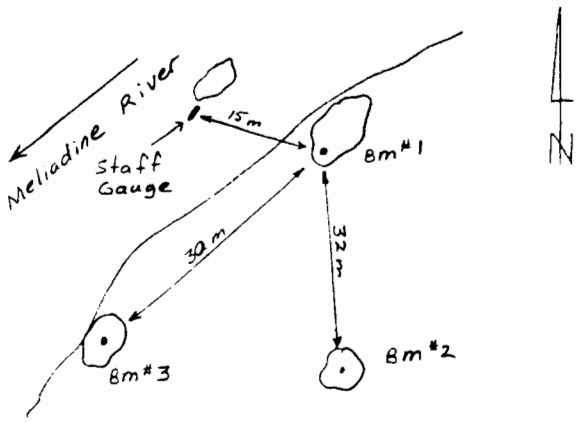
Top of staff = 9.657 m

Bm#1 - Red paint on large boulder on left bank about 200 meters upstream of rapids. Elev. 10.000m.

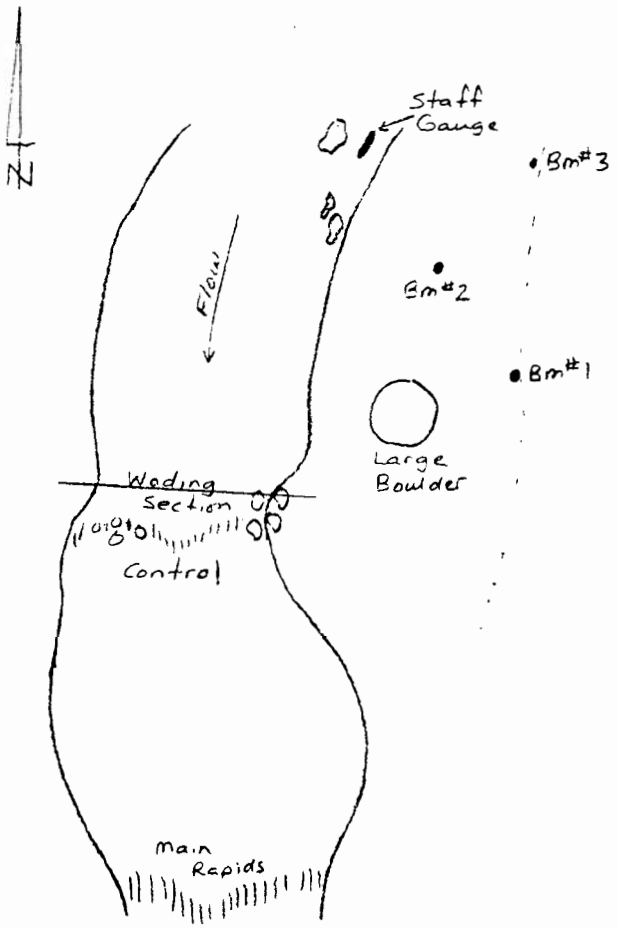
Bm#2 - Red paint mark on boulder 30m. south of Bm#1. Elev. 11.035m.

Bm#3 - Red paint mark on boulder 32 m. downstream of B.m.#1. Elev. 9.192m.

OTHER INFORMATION



SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT.
INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION
SCALE 1:50,000 MAP 55N/1
55N/2

ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. _____ Drainage Area _____

Station Name West Outlet Meliadine Lake

District NWT

Latitude 63° 08' 12" Longitude 92° 31' 42" GPS

Established June 22, 1997 By R.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Staff gauge set in streambed on left bank about 60 meters above first set of rapids

Gauge is set on left bank at the west outlet of Meliadine Lake 41.8 km NW of Rankin Inlet airport and 22 km NW of INMS Camp.

Description of Control & Measuring Sections

Natural rock and boulder control.

Wading measurements are made just above first set of rapids. River bed at mmnt section consists of small and medium sized boulders.

Prepared by M.K. Jones Date Jun 24, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

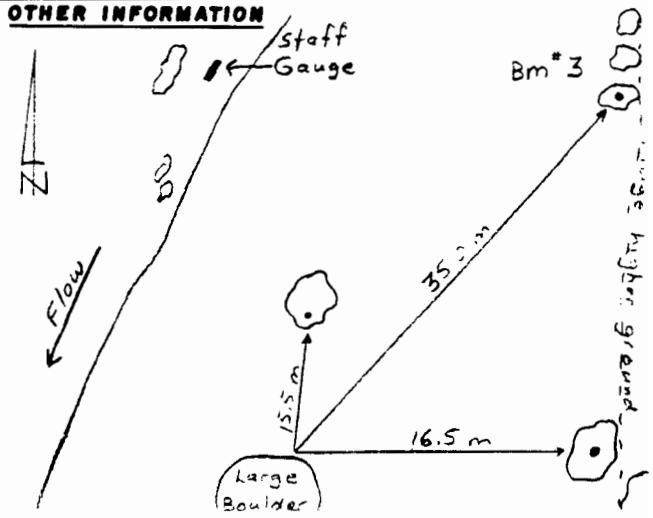
Conversion Equation _____ to convert to
Top of staff 7.641 m

Bm#1 - Red paint on large boulder on left bank 16.5 meters east of huge boulder. Elev 10.000 m

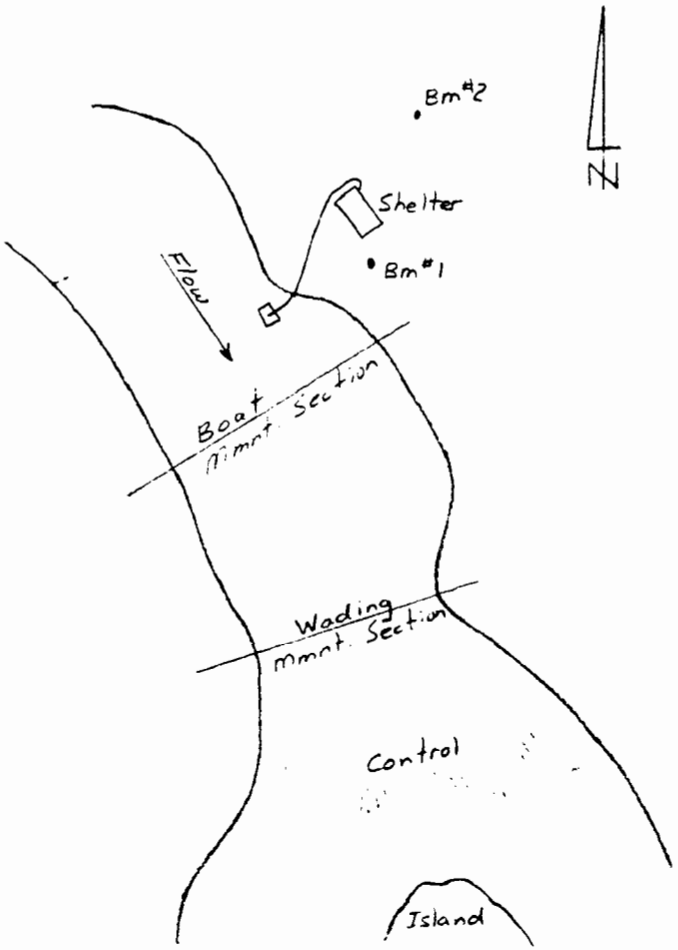
Bm#2 - Red paint on large boulder 15.5 meters north of huge boulder Elev. 9.388 m

Bm#3 - Red paint on large boulder 35 meters NE of huge boulder Elev. 9.691 m

OTHER INFORMATION

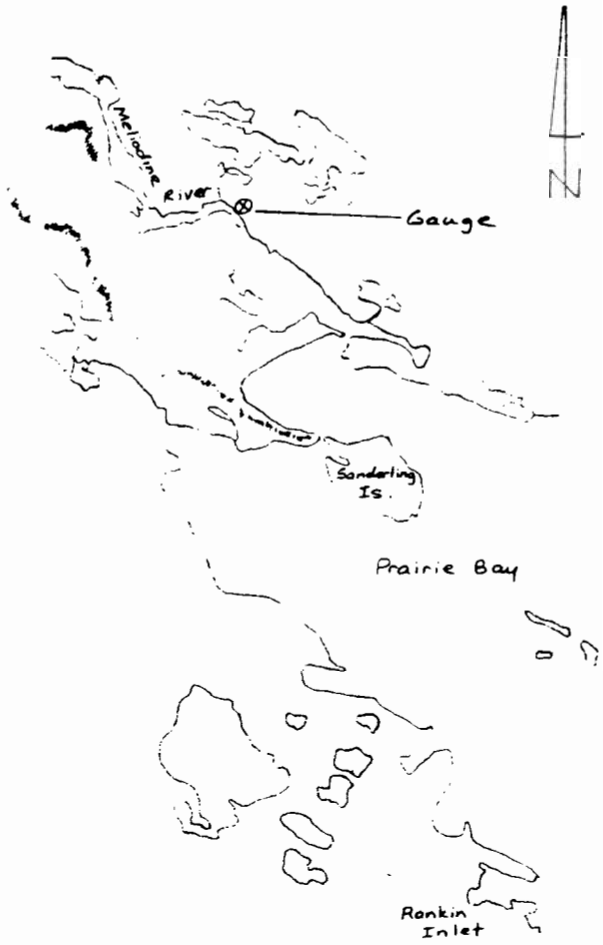


SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 MAP 55 K/16



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC001 Drainage Area: ____

Station Name Meliadine River near the Mouth District NWT

Latitude 62°52'25" Longitude 92°07'14" GPS

Established June 20, 1997 By R.N. Pilling, M.K. Jones

Description of Gauging Equipment and Location

Shelter contains Sutron 8210 logger and Taurs pressure transducer.

Boat measurement equipment is stored in the Diana River shelter.

Station is located on the left bank 7.2 km north of Rankin Inlet airport, 1.8 km upstream of the mouth.

Description of Control & Measuring Sections

Channel control with small to medium sized boulders.

Boat measurement section at gauge. Wading section about 10 m. below gauge. 7.5 meters is about maxium wading water level.

Prepared by M.K. Jones Date Jun. 23, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

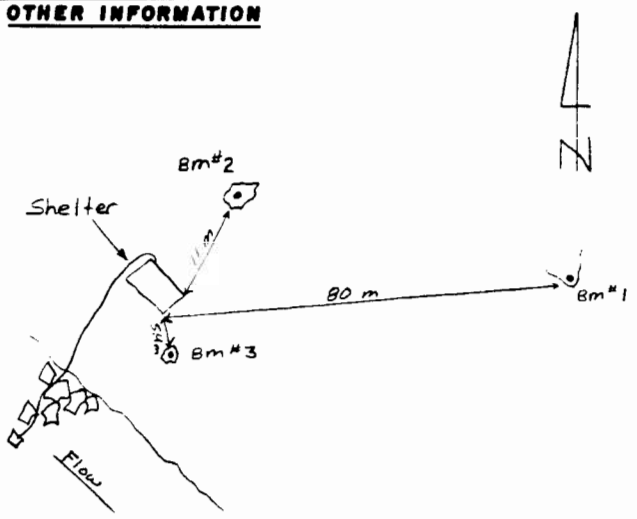
Conversion Equation ____ to convert to ____

B.m#1 - Red paint mark on bedrock outcrop 80 m. east of shelter. Elev. 10.000 m

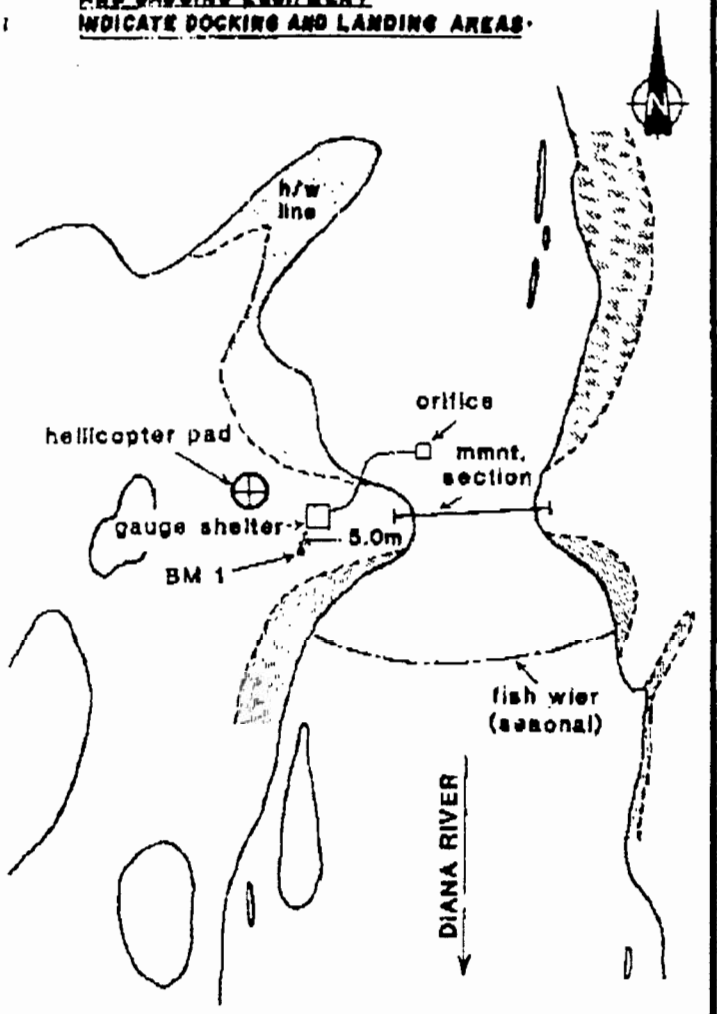
B.m#2 - Red paint mark on large boulder 11 m. NE of shelter Elev. 10.455 m

B.m#3 - Red paint mark on boulder (shoreward 5.4 m. S of shelter. Elev. 9.779 m

OTHER INFORMATION

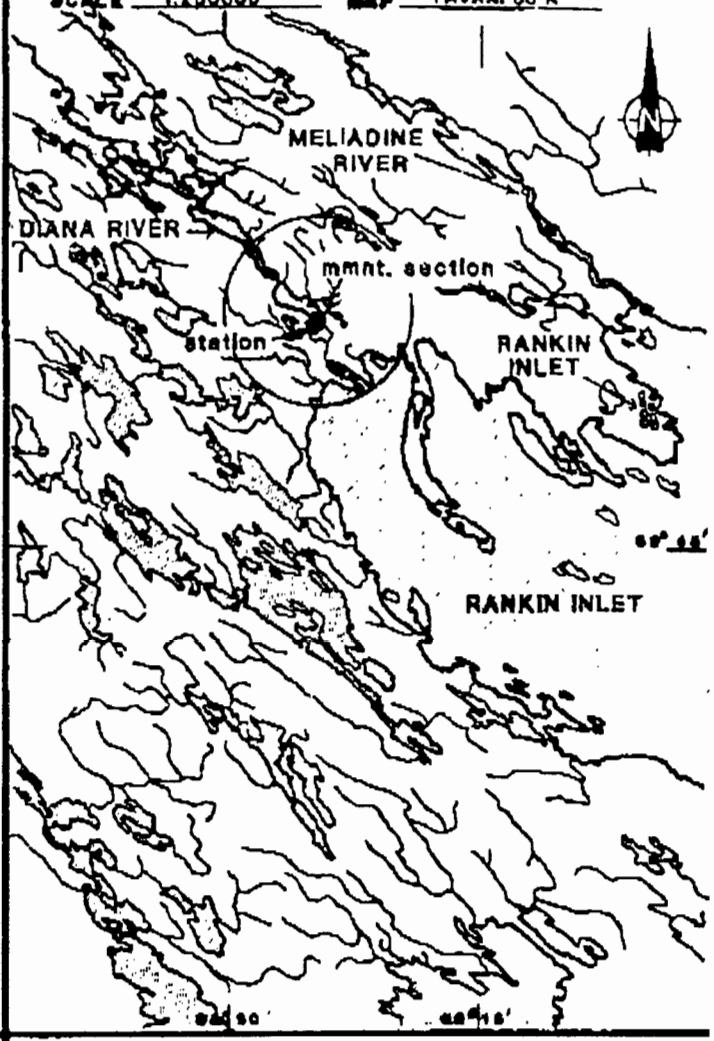


SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:250000 MAP TAVANI 55 K



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06NC001 Drainage Area 1 480 km²

Station Name DIANA RIVER NEAR RANKIN INLET

District NWT

Latitude 62° 51' 32" N Longitude 92° 24' 40" W GPS

Established 1985 06 04 By D. Curtis/T. Kudloo

S+

Description of Gauging Equipment and Location

Instrument shelter contains servo-manometer, recorder and data collection platform. On site: #30 and #50C weights, boat frame, sounding reel, summer meter, survey rods/tripod, 8" diameter hand ice auger, shovel, 9.8 outboard motor and inflatable boat.

Station is located on right bank 24 air km north-west of Rankin Inlet settlement.

Description of Control & Measuring Section

Channel control of medium to large boulders on streambed.

Water at gauge location. High velocities during high stage.

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum Assumed m, assumed

Conversion Equation to geodetic

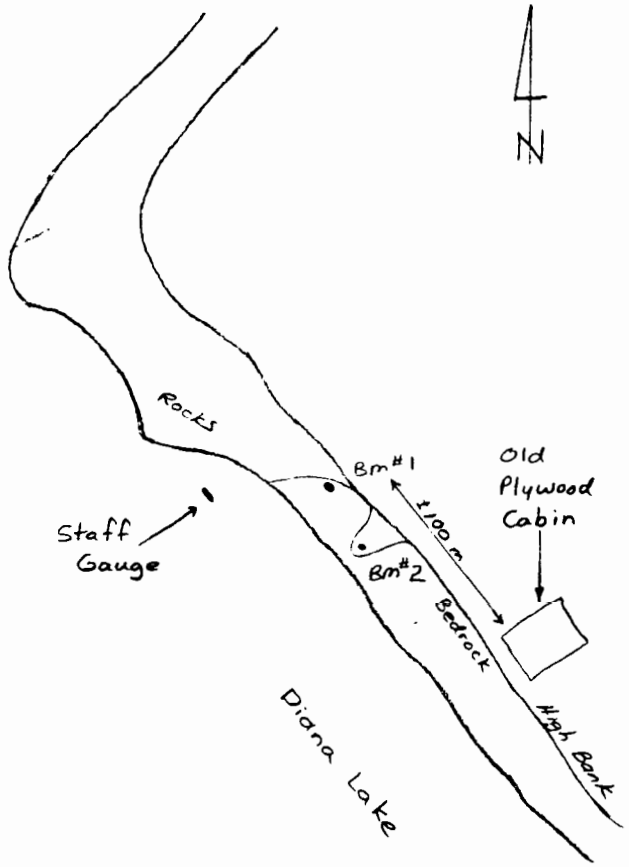
DCP ID# 481662C0; 01:04; 96; 20°/178°

BM #1	Blaze orange paint on rock southwest of southwest corner of shelter.	10.000 m
BM 88-2	Paint mark on rock 4.2 m west of south west corner of shelter.	9.900 m
BM 88-3	Paint mark on rock 14.6 m north of the northwest corner of shelter.	9.463 m

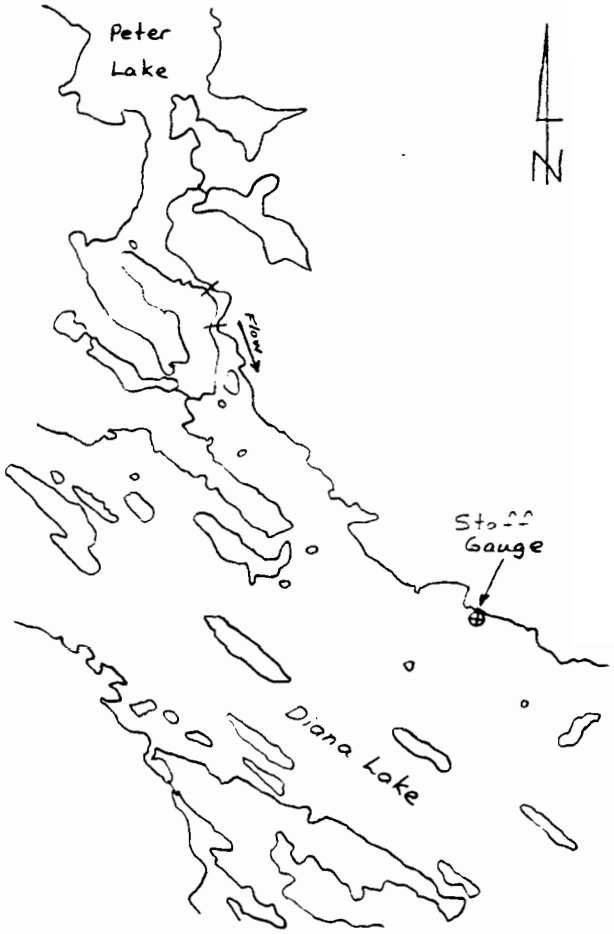
OTHER INFORMATION

Note: Helicopter access only.
For winter overland trip from Rankin Inlet via snowmachine contact Rankin Inlet Hunters and Trappers Association.

SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT.
INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION
SCALE 1:50,000 **MAP** 55N/2



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06NC002 **Drainage Area**
Station Name Diana Lake near Rankin Inlet
District
Latitude 62° 58' 59" **Longitude** 92° 42' 53" GPS
Established June 23, 1997 **By** A.N. Pilling, M.K. Jones

Description of Gauging Equipment and Location

Staff gauge is set in the lake on the north shore of the northwest corner of Diana Lake. The gauge is 4 km. from the outlet of Peter Lake and 36.5 km WNW from Rankin Inlet.

Description of Control & Measuring Sections

Natural rock and boulder control at outlet of Lake

Prepared by M.K. Jones **Date** Jun. 26, 1997

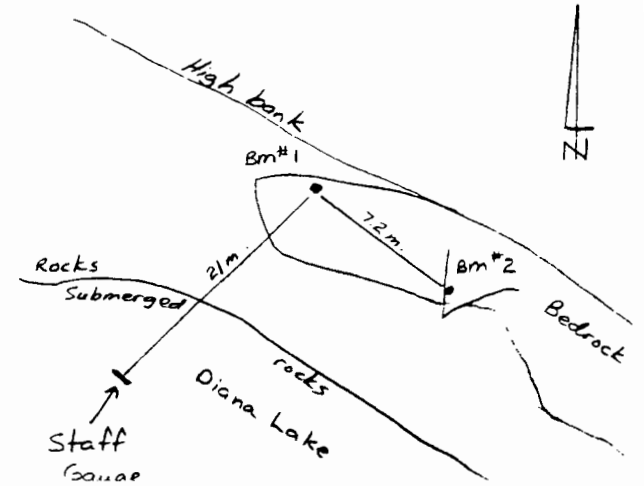
ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 **m, assumed**
Conversion Equation **to convert to**

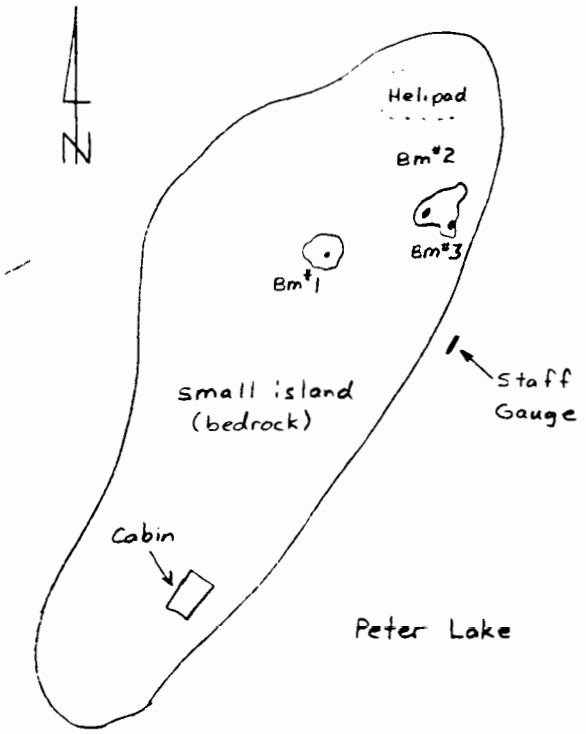
Bm#1 - Red paint mark on bedrock outcrop about 100 meters NW along bank from old plywood cabin. Elev. 10.000m

Bm#2 - Red paint mark on bedrock outcrop 7.2m SE along bank from Bm#1. Elev. 8.692 m

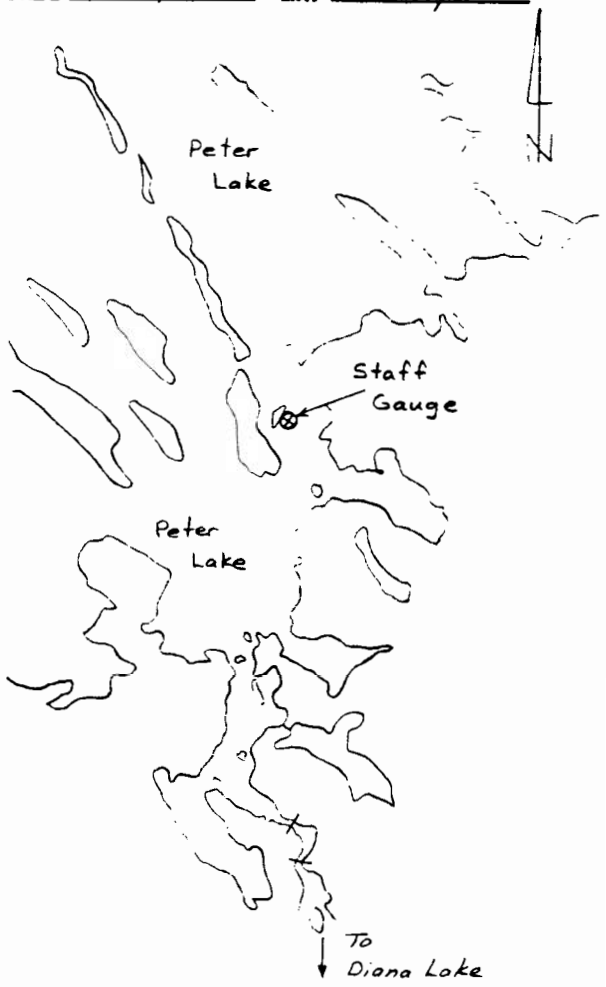
OTHER INFORMATION



SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT.
INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION
SCALE 1:50,000 MAP 55 N/2



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06NC003 Drainage Area:

Station Name Peter Lake near Rankin Inlet

District NWT

Latitude 63° 03' 03" Longitude 92° 16' 24" GPS

Established June 23, 1997 By R.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Staff gauge set in lake on southeast side of small island

Gauge is on southeast side of small island on southeast end of Peter Lake 43.2 km. WNW of Rankin Inlet airport. Gauge is 4.0 km north of outlet of Peter Lake

Description of Control & Measuring Sections

Natural rock and boulder control at outlet of lake.

Prepared by M.K. Jones Date June 25, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

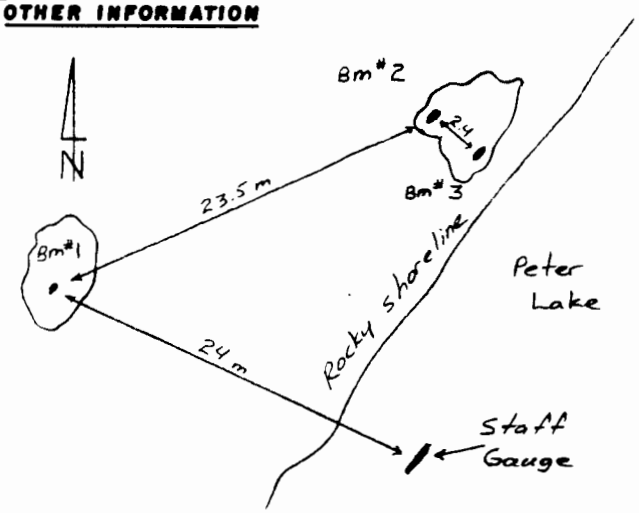
Conversion Equation to convert to

B.m.#1 - Red paint mark on top of bedrock outcrop about 21 meters inland of SE shore of island. Elev. 10.000m

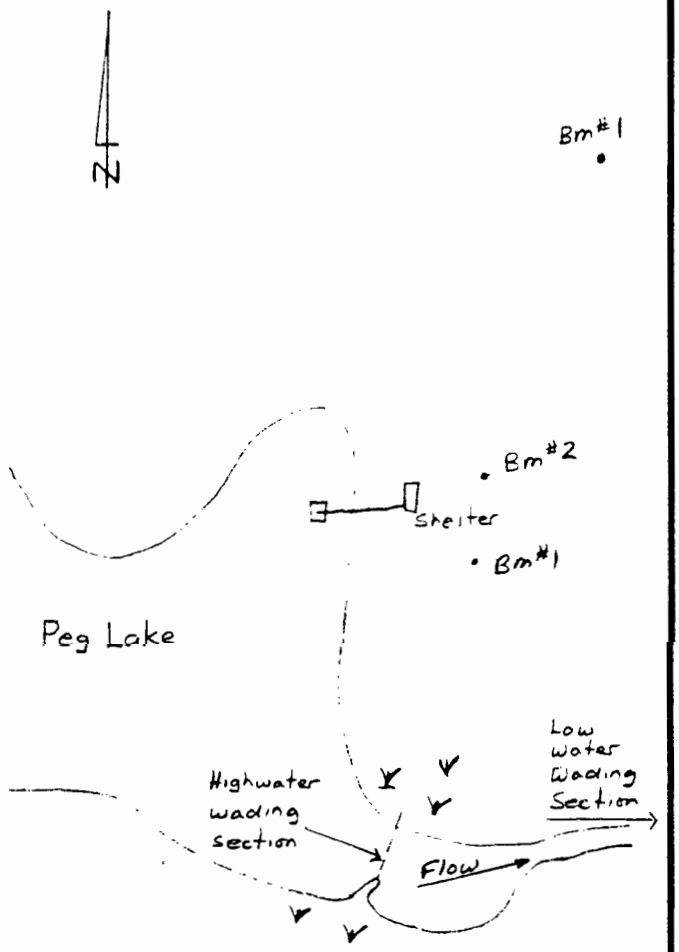
B.m.#2 - Red paint mark on bedrock outcrop 23.5m. NE of Bm#1. Elev. 9.473 m.

Bm#3 - Red paint mark on bedrock outcrop 2.4m. east of Bm#2. Elev. 9.222 m.

OTHER INFORMATION



SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 MAP 55N/1
55K/16

ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC004 Drainage Area

Station Name Outlet of Peg Lake

District NWT

Latitude 63° 00' 11" Longitude 92° 09' 42" GPS

Established June 20, 1997 By B.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Shelter contains a Sutron 8210 logger and Taus pressure transducer.

Station is located on the left bank at outlet of Peg Lake 21.6 Km. NNW of Rankin Inlet airport, 29 km. south of WMC Camp.

Description of Control & Measuring Sections

Channel control consists of till and marsh / moss vegetation with rock streambed. Weed growth at outlet of Peg Lake and control. Low stage wading mmnt about 40 m below outlet. High stage wading mmnts made at outlet Braided channel at high stage

Prepared by M.K. Jones Date June 24, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

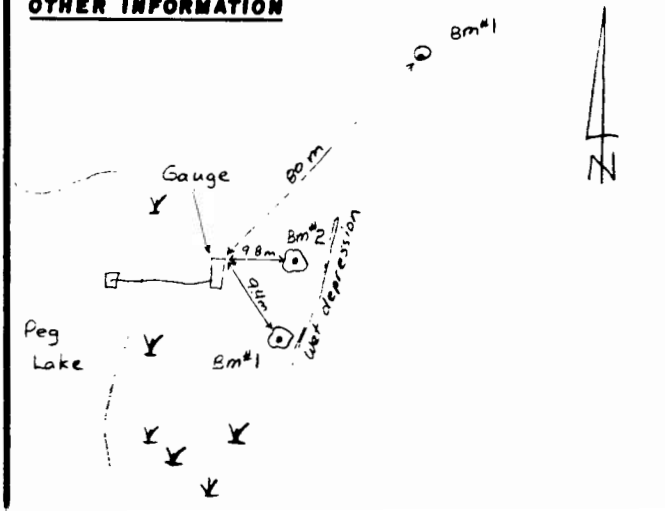
Conversion Equation to convert to

Bm #1 - Red paint mark on top of drill casing 80 meters NE of shelter. Elev. 10.000 m

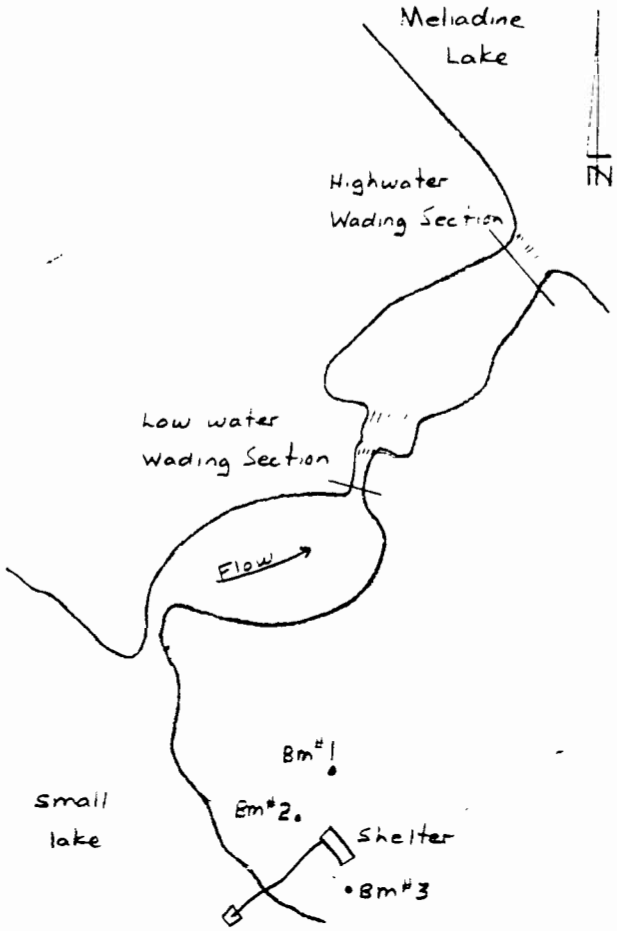
B.m. #2 - Red paint mark on large rock 9.8 meters east of shelter. Elev. 9.796 m

B.m. #3 - Red paint mark on large rock 9.4 meters SE of shelter. Elev. 9.817 m.

OTHER INFORMATION

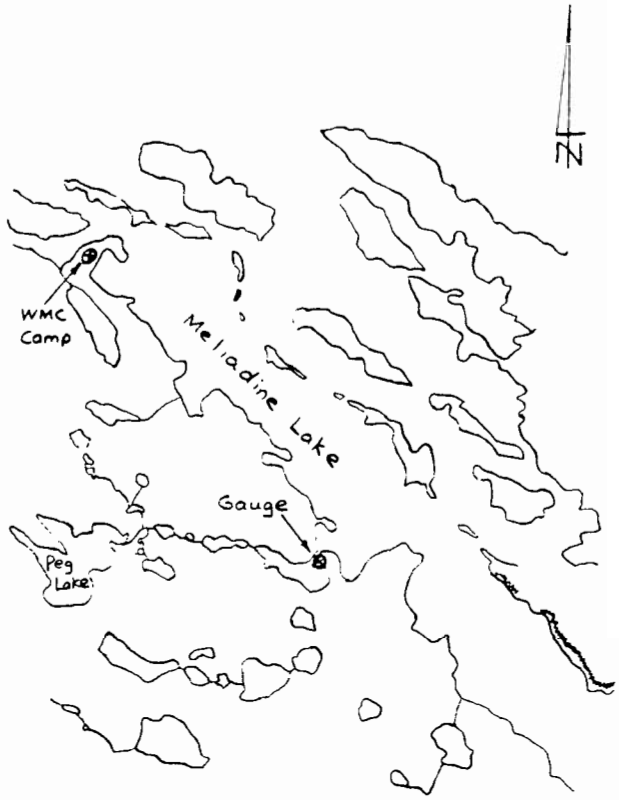


SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 MAP 55 N/1 55 K/16



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC003 Drainage Area:

Station Name A2 Peg Creek near the Mouth

District NWT

Latitude 63° 00' 03" Longitude 92° 07' 26" GPS

Established June 20, 1997 By R N P. Iling
M K Jones

Description of Gauging Equipment and Location

Shelter contains a Sutron 8210 logger and Tavis pressure transducer.

Station is located on the right bank at the outlet of a small lake 21.2 km north of Rankin Inlet airport, 3.8 km SE of WMC camp. Meliadine Lake is about 150 meters north of gauge

Description of Control & Measuring Sections

Channel control consists of till and marsh / moss vegetation with rock streambed. At low stages flow is contained in one channel. Low stage wading mmts. made at control 55 meters below gauge; medium to high stage wading mmts. made downstream of the mouth.

Prepared by M. K Jones Date Jun. 24, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

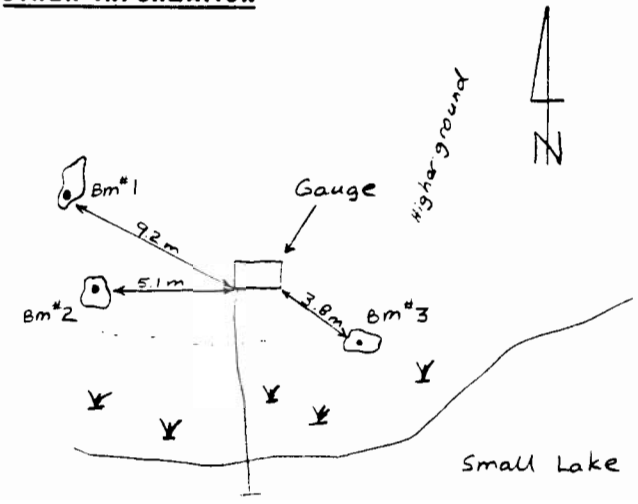
Conversion Equation to convert to

Bm#1 - Paint mark on large rock 9.2 meters NW of shelter Elev 10.000 m

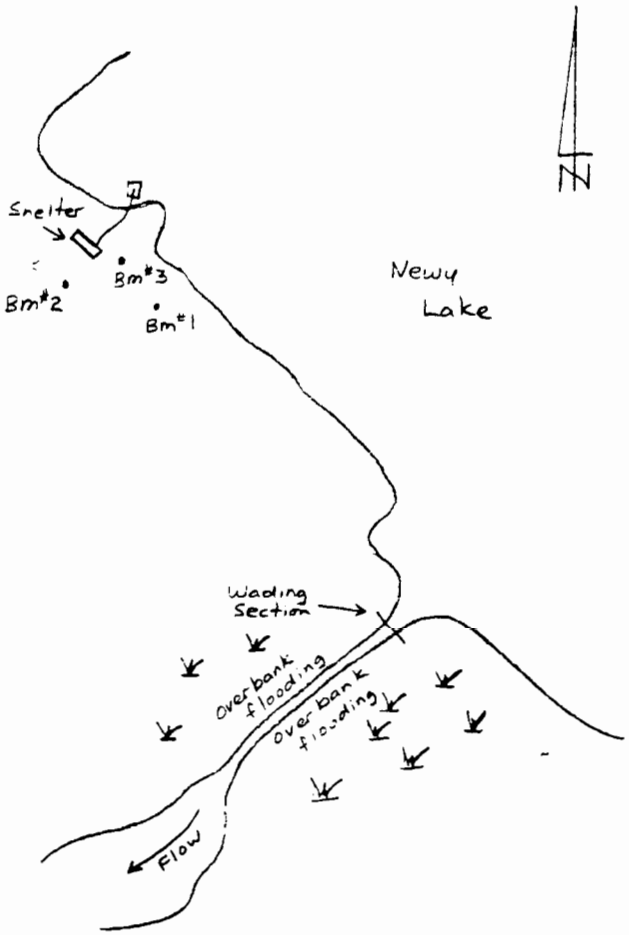
Bm#2 - Paint mark on rock 5.1 meters west of shelter. Elev. 10.146 m

Bm#3 - Paint mark on rock 3.8 meters SE of shelter. Elev. 9.978 m

OTHER INFORMATION



SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 **MAP** 55 N/1

ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC005 **Drainage Area:** _____

Station Name Outlet of Newy Lake

District NWT

Latitude 63°00'51" **Longitude** 92°15'11" GPS

Established June 21, 1997 **By** R.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Shelter contains a Sutron 8210 logger and Taus pressure transducer.

Station is located on the west shore of Newy Lake 23.8 km NNW of Rankin Inlet airport, 4.5 km SW of WMC camp. Gauge is 0.4 km west of the outlet

Description of Control & Measuring Sections

Control consists of till and marsh/moss vegetation. At low stages the flow at outlet is contained to one channel. At medium to high stages the low marsh area becomes flooded and multiple flow channels exist.

Prepared by M.K. Jones **Date** Jun 23, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 **m, assumed**

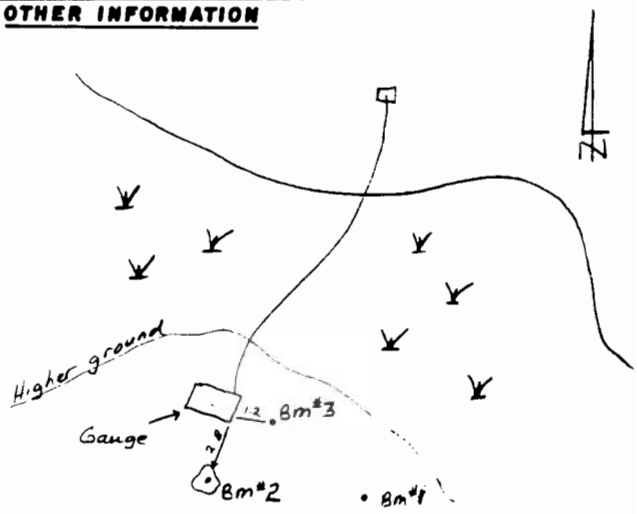
Conversion Equation _____ **to convert to**

Bm#1 - Red paint mark on rock southeast of shelter. Elev. 10.000 m

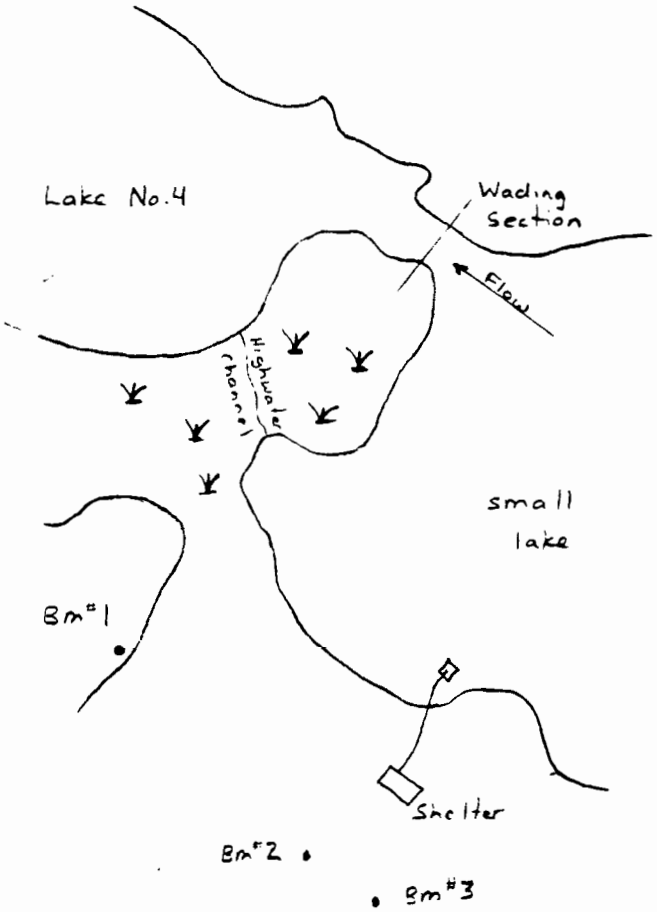
Bm#2 - Red paint mark on rock 2.8 m south of shelter. Elev. 9.911 m

Bm#3 - Red paint mark on rock 1.2 m east of shelter. Elev. 9.676 m

OTHER INFORMATION

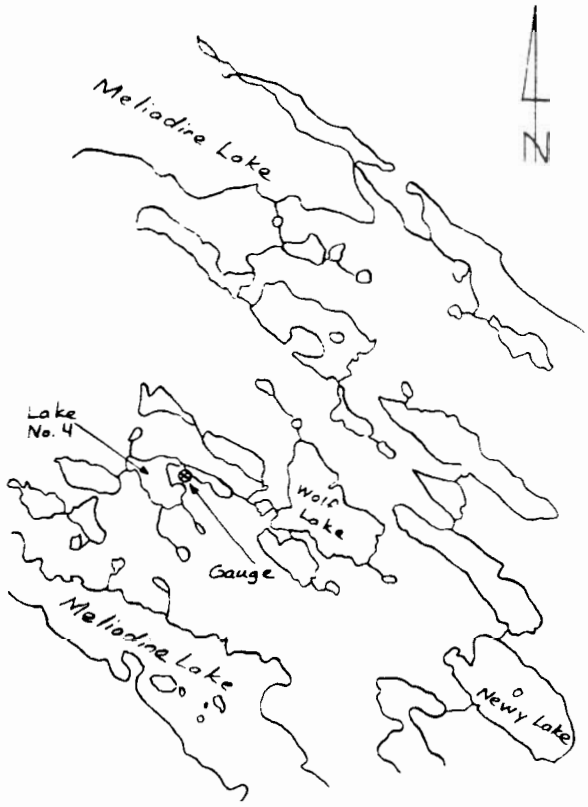


SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 MAP 55N/1



ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC006 Drainage Area:

Station Name Inlet to Lake No. 4

District NWT

Latitude 63° 01' 57" Longitude 92° 18' 25" GPS

Established June 21, 1997 By R.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Shelter contains a Sutron 8210 logger and Tavis pressure transducer.

Station is located on the left bank at the west end of a small lake at the inlet to Lake No. 4. Station is 26.7 km NNW of Rankin Inlet airport and 7.0 km west of WMC camp.

Description of Control & Measuring Sections

Control consists of till and marsh/moss vegetation with small rocks on streambed. At low stages the flow is contained to one channel. At high stages there is likely flow in highwater channel on left bank. Wading mmnts are made at the outlet

Prepared by M.K. Jones Date Jun. 25, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

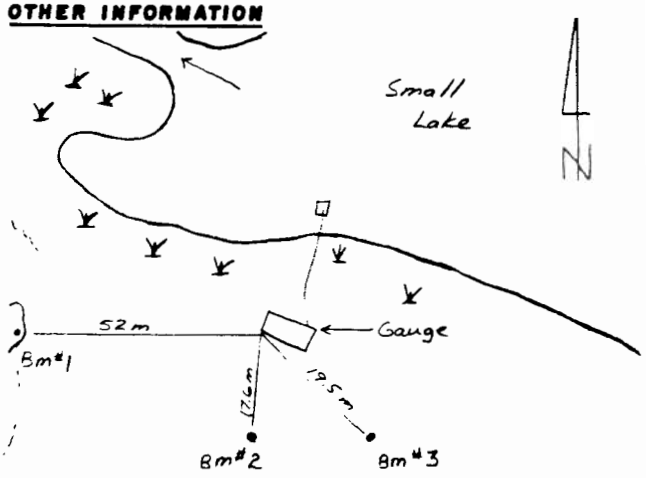
Conversion Equation to convert to

Bm #1 - Red paint mark on bedrock outcrop 52 meters west of shelter. Elev. 10.000

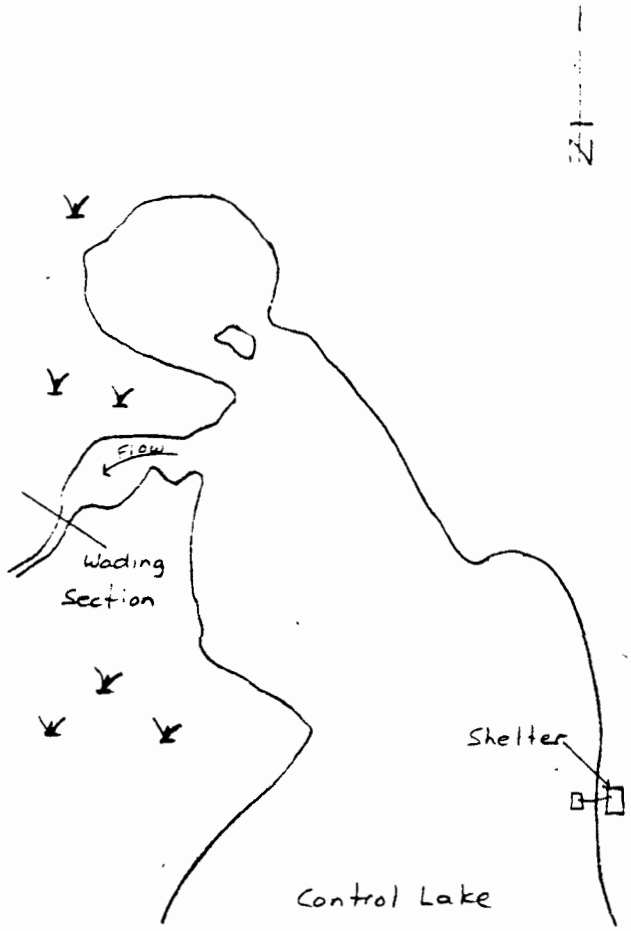
Bm #2 - Red paint mark on rock 17.6 meters south of shelter. Elev 9.212 m

Bm #3 - Red paint mark on rock 19.5 meters southeast of shelter. Elev 9.146 m

OTHER INFORMATION

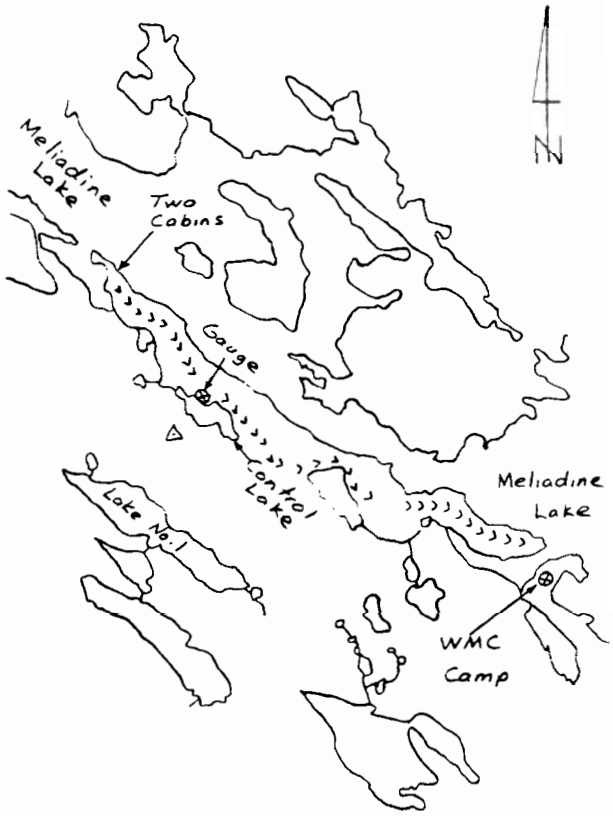


SKETCH SHOWING LOCATION OF BENCH MARKS AND GAUGING EQUIPMENT. INDICATE DOCKING AND LANDING AREAS.



SKETCH OF STATION LOCATION

SCALE 1:50,000 MAP 55N/1



Δ - GSC Triangulation Station 639527

ENVIRONMENT CANADA
WATER SURVEY OF CANADA

DESCRIPTION OF STATION

Station No. 06MC007 Drainage Area: _____

Station Name Outlet of Control Lake

District NWT

Latitude 63° 02' 43" Longitude 92° 14' 22" GPS

Established June 21, 1997 By R.N. Pilling
M.K. Jones

Description of Gauging Equipment and Location

Shelter contains a Sutron 8210 logger and Tavis pressure transducer

Station is located on the north shore of Control Lake 0.3 Km east of the outlet. Station is 26.7 Km NNW of Rankin Inlet airport, 4.0 Km NW of WMC Camp.

Description of Control & Measuring Sections

Control consists of till and marshy/moss vegetation with some rock. Streambed has some rocks and very loose matter. At low stages flow is contained to one channel. At high stages low marsh area around outlet is wet likely allowing seepage

Prepared by M.K. Jones Date Jun. 25, 1997

ELEVATION OF GAUGE DATUM AND DESCRIPTION OF BENCH MARKS

Elevation of Gauge Datum 0.000 m, assumed

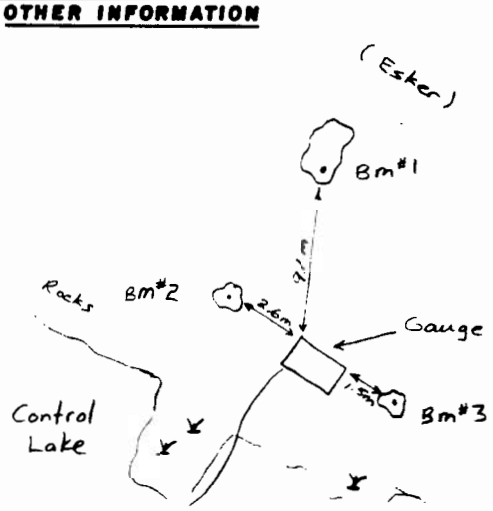
Conversion Equation _____ to convert to _____

B.M.#1 - Red paint mark on large boulder 9.1 meters north of shelter and up the slope. Elev. 10.000 m

Bm#2 - Red paint mark on large rock 1.5 m. NW of shelter. Elev. 7.904 m.

Bm#3 - Red paint mark on rock 2.6 m. SE of shelter Elev. 8.052 m

OTHER INFORMATION



APPENDIX E

HYDROLOGIC MONITORING DATA

APPENDIX E.1

General Information

Hydrometric Monitoring Data 1997
General Information

This appendix contains the following information for each station:

- A table listing the site visits made during the year, with water level observations and flow measurements.
- A "Gauge History" page reporting benchmark surveys made at the site.
- The station rating curve of the relationship between water elevation and discharge (for streamflow stations only).
- A graph showing water levels recorded in 1997.
- A table of mean daily water levels (for continuous recording stations only).
- A table of mean daily discharges (for continuous streamflow stations only).

The stations are listed in the order given in Table E.1.1 below. The table provides station names and numbers under several different numbering systems used during the project.

TABLE E.1.1
Streamflow and Lake Level Monitoring Stations

Appendix	Name (Alternate Name)	Type[1]	RL&L[2]	WSC[3]	Wall Map[4]	Proposal[5]
E.2	Outlet of Peg Lake	CS	A6-5	06MC004	5	A1
E.3	Outlet of Lake A1 (Peg Creek near the Mouth)	CS	A1-ML	06MC003	4	A2
E.4	Outlet of Newy Lake	CS	B4-3	06MC005	6	B2[6]
E.5	Outlet of Lake D5 (Inlet to Lake No. 4)	CS	D5-4	06MC006	7	D1[6]
E.6	Outlet of Control Lake	CS	G2-1	06MC007	8	
E.7	Meliadine River at Meliadine Lake Outlet	MS	ML-MR	06MC008	9	
E.8	West Outlet of Meliadine Lake	MS	ML-PL or ML-DR	06MC009	10	
E.9	Meliadine River near the Mouth	CS		06MC001	2	
E.10	Diana River near Rankin Inlet	CS		06NC001	1	
E.11	Meliadine Lake near Rankin Inlet	CL		06MC002	3	
E.12	Meliadine Lake at Meliadine Camp (Meliadine Lake at WMC Camp)	ML				
E.13	Peter Lake near Rankin Inlet	ML	PL	06NC003	11	
E.14	Diana Lake near Rankin Inlet	ML	DL	06NC002	12	

1. Type: C = Continuous (datalogger)
   M = Manual (staff gauge)
   S = Streamflow
   L = Water Level only
2. Number system based on RL&L nomenclature.
3. Water Survey of Canada station numbers (unofficial except for Diana River).
4. Number system indicating site locations on the wall map at the Meliadine Camp office.
5. Number system used in AEE's proposal.
6. These stations were installed upstream of the locations shown in the AEE proposal; due to site conditions.

Abbreviations used in this appendix are as follows:

- DWL Direct water level. A water level obtained by surveying from a benchmark.
- DL Datalogger
- E Estimate
- NR Not recorded in the field notes
- NDLR No datalogger records
- WSC Water Survey of Canada

Some general notes explaining the data in this appendix are defined below.

- Elevations shown in the "DWL" column of the Site Visit Record have been adjusted to compensate for movement of the benchmarks during the season.

- Elevations shown in the "Data Log" column of the Site Visit Record are values read from the datalogger's digital display during the field visit. These values are close to instantaneous values and are therefore considered to be less accurate than the values in the "Start" and "End" columns, which are recorded in the digital files and are the result of averaging over several minutes.

- The adjustment in the "Site Visit Record" accounts for systematic differences between the surveyed water levels and those recorded by the datalogger.

- Depths are measured above the "zero flow elevation", which is the water level below which no streamflow will occur.

- For the calculation of seasonal flow volumes, missing discharges are estimated by linear interpolation between measured discharges.

- Discharges are calculated from the recorded 15-minute interval water level readings, then averaged to obtain mean daily values.

APPENDIX E.2

Outlet of Peg Lake

Site Inspection Summary

Outlet of Peg Lake (A6-5, 06MC004)

Zero Flow elevation: 9.216 m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
11-Jun	visit	9.381		N.D.L.R	N.D.L.R.				0.000	9.381	0.165
12-Jun	0.188	9.372		12:10	12:45	N.D.L.R.	N.D.L.R.		0.000	9.372	0.156
20-Jun	0.080	N.R.		14:35	14:50	N.D.L.R.	N.D.L.R.				
21-Jun	0.057	9.311	9.312	15:00	15:15	9.312	9.311	-0.001	-0.001	9.311	0.095
24-Jun	0.053	9.300	9.306	9:10	9:30	9.303	9.308	-0.005	-0.001	9.305	0.089
7-Jul	0.045	9.420	9.424	11:41	12:03	9.287	9.288	Outlier	-0.001	9.287	0.071
10-Jul	0.021	9.285	9.276	15:13	15:28	9.280	9.279	0.005	-0.001	9.279	0.063
21-Jul	0.003	9.241	N.R.	7:05	7:30	9.231	9.235	0.008	-0.001	9.232	0.016
24-Aug	0.000	9.125	9.123	10:50	11:03	9.125	9.125	0.000	-0.001	9.124	0.000
25-Sep	0.000	9.083	9.093	N.D.L.R	N.D.L.R.	9.093 @ 12:30		-0.010	-0.001	9.092	0.000

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records

GAUGE HISTORY

STATION NAME: Outlet of Peg Lake
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 00' 11" gps **LONGITUDE:** 92° 09' 42" gps

BENCH MARKS:

B.M. #1	Red paint mark on top of drill casing 80 meters NE of shelter.	Elev. 10.000 m. (assumed)
		Elev. 9.814 m. (revised)
B.M. #2	Red paint mark on large rock 9.8 meters east of shelter.	Elev. 9.796 m.
B.M. #3	Red paint mark on large rock 9.4 meters SE of shelter.	Elev. 9.817 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 11	10.000	9.796	9.817			Established Bench Marks
Sep 25	9.814	9.796	9.805			Found BM #1 drill casing cut to ground level. B.M. #2 used as control for level circuit.
			9.817			Used for the year

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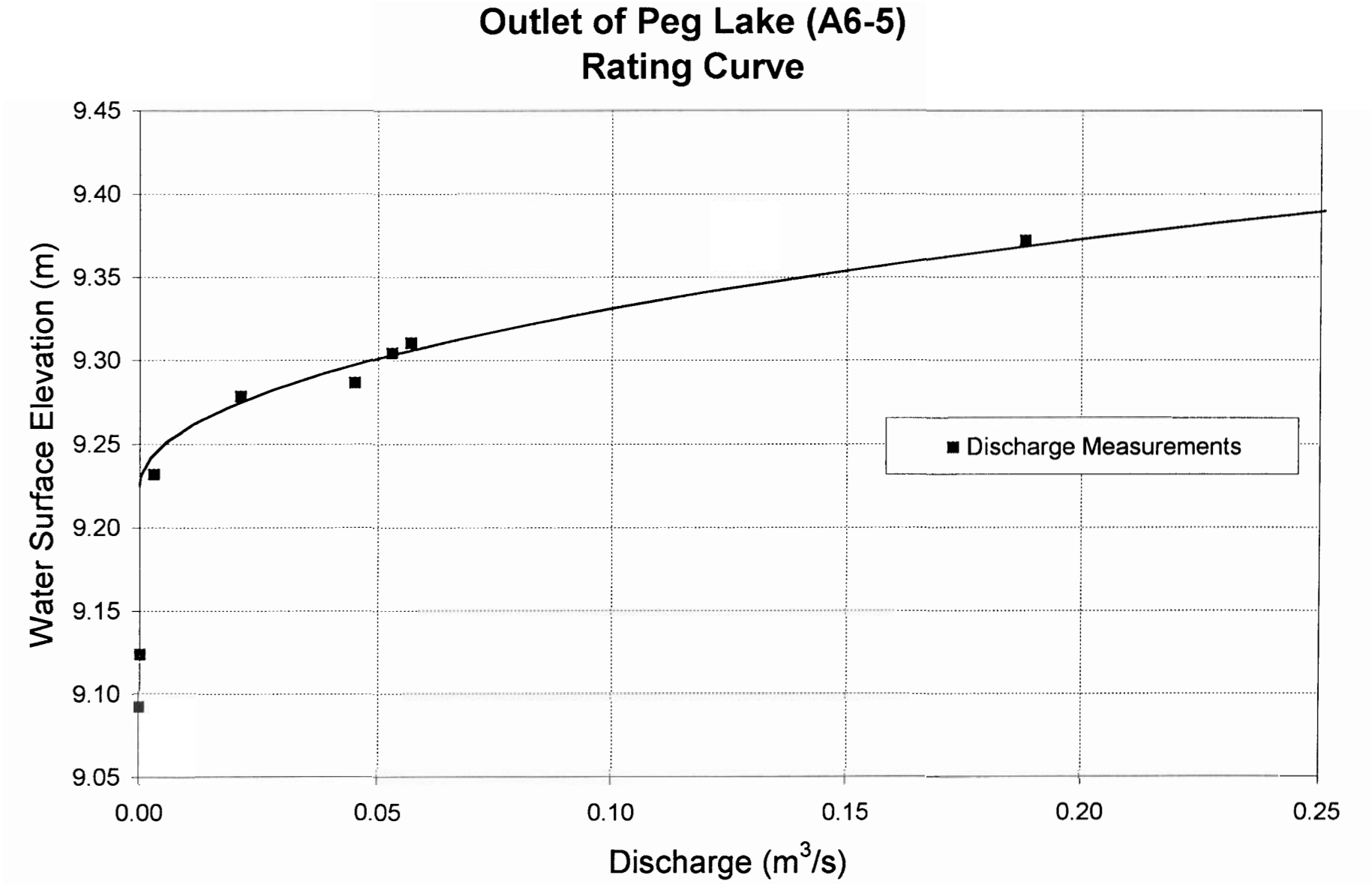
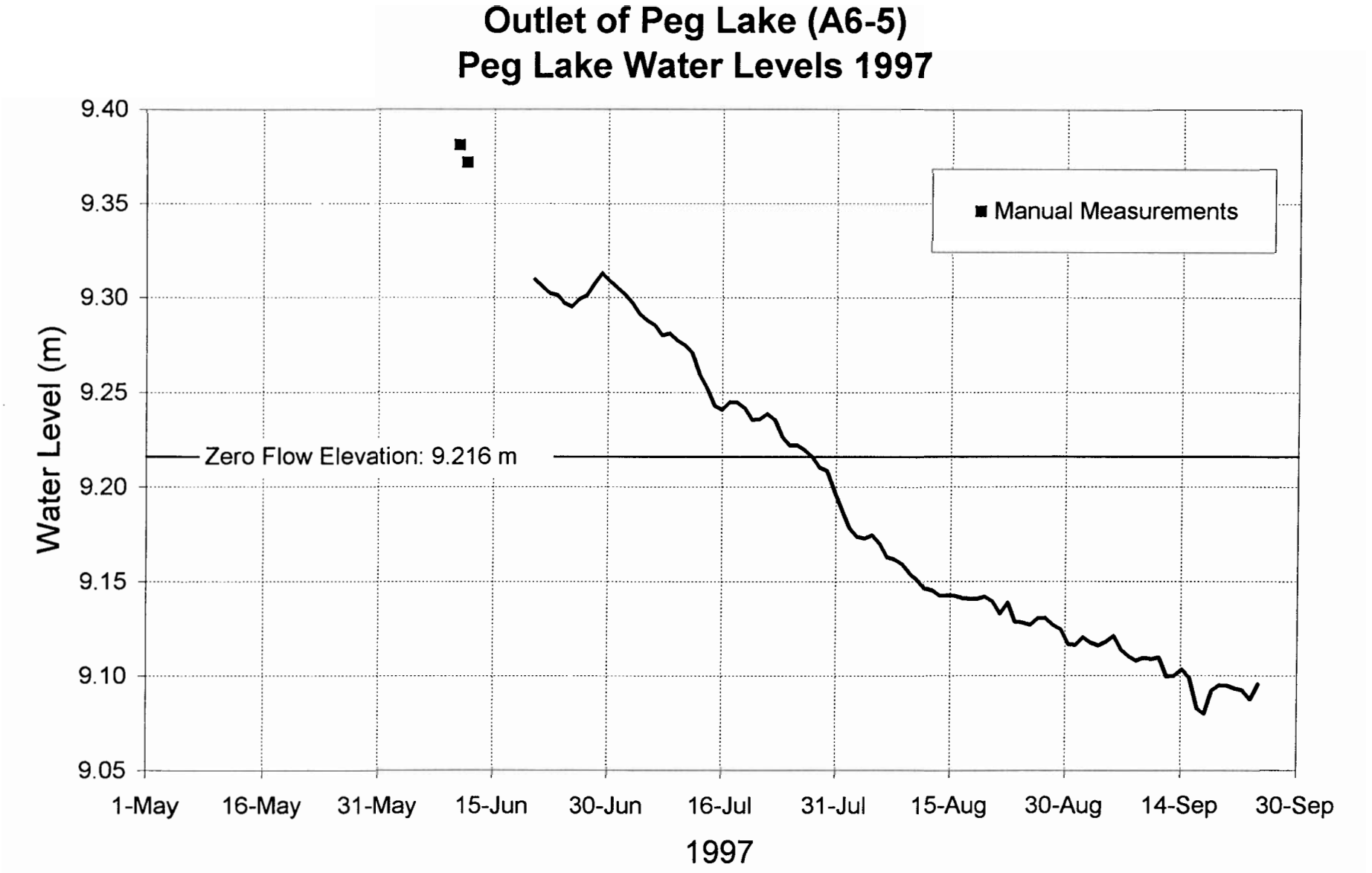
11/13/97



P:\Project\1525\Discharge\Summary2.xls 06MC004RC2

WMC Meliadine West Gold Project
Water Balance Study

Figure E.2.1



P:\Project\1525\LakeLevels\6MC004DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.2.2

STATION NUMBER: 06MC004 Outlet of Peg Lake (A6-5)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	9.309	9.188	9.116	---	---	---
2	---	---	---	---	---	---	9.305	9.178	9.120	---	---	---
3	---	---	---	---	---	---	9.302	9.174	9.117	---	---	---
4	---	---	---	---	---	---	9.297	9.173	9.116	---	---	---
5	---	---	---	---	---	---	9.292	9.175	9.118	---	---	---
6	---	---	---	---	---	---	9.288	9.170	9.121	---	---	---
7	---	---	---	---	---	---	9.285	9.163	9.114	---	---	---
8	---	---	---	---	---	---	9.280	9.162	9.110	---	---	---
9	---	---	---	---	---	---	9.281	9.159	9.108	---	---	---
10	---	---	---	---	---	---	9.278	9.154	9.110	---	---	---
11	---	---	---	---	---	9.380	9.275	9.151	9.109	---	---	---
12	---	---	---	---	---	9.370	9.271	9.146	9.110	---	---	---
13	---	---	---	---	---	---	9.259	9.145	9.100	---	---	---
14	---	---	---	---	---	---	9.252	9.142	9.100	---	---	---
15	---	---	---	---	---	---	9.243	9.143	9.104	---	---	---
16	---	---	---	---	---	---	9.241	9.142	9.099	---	---	---
17	---	---	---	---	---	---	9.245	9.141	9.083	---	---	---
18	---	---	---	---	---	---	9.245	9.141	9.080	---	---	---
19	---	---	---	---	---	---	9.242	9.141	9.092	---	---	---
20	---	---	---	---	---	---	9.235	9.142	9.095	---	---	---
21	---	---	---	---	---	9.310	9.236	9.139	9.095	---	---	---
22	---	---	---	---	---	9.306	9.239	9.133	9.093	---	---	---
23	---	---	---	---	---	9.302	9.236	9.139	9.092	---	---	---
24	---	---	---	---	---	9.301	9.227	9.129	9.087	---	---	---
25	---	---	---	---	---	9.297	9.222	9.128	9.096	---	---	---
26	---	---	---	---	---	9.295	9.222	9.127	---	---	---	---
27	---	---	---	---	---	9.299	9.219	9.130	---	---	---	---
28	---	---	---	---	---	9.301	9.216	9.131	---	---	---	---
29	---	---	---	---	---	9.307	9.210	9.127	---	---	---	---
30	---	---	---	---	---	9.313	9.209	9.125	---	---	---	---
31	---	---	---	---	---	---	9.198	9.117	---	---	---	---
MIN	---	---	---	---	---	---	9.198	9.117	9.080	---	---	---
MEAN	---	---	---	---	---	---	9.253	9.147	9.103	---	---	---
MAX	---	---	---	---	---	---	9.309	9.188	9.121	---	---	---

STATION NUMBER: 06MC004 Outlet of Peg Lake (A6-5)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	.061	.000	.000	---	---	---
2	---	---	---	---	---	---	.056	.000	.000	---	---	---
3	---	---	---	---	---	---	.051	.000	.000	---	---	---
4	---	---	---	---	---	---	.045	.000	.000	---	---	---
5	---	---	---	---	---	---	.038	.000	.000	---	---	---
6	---	---	---	---	---	---	.034	.000	.000	---	---	---
7	---	---	---	---	---	---	.031	.000	.000	---	---	---
8	---	---	---	---	---	---	.026	.000	.000	---	---	---
9	---	---	---	---	---	---	.027	.000	.000	---	---	---
10	---	---	---	---	---	---	.023	.000	.000	---	---	---
11	---	---	---	---	---	.221	.021	.000	.000	---	---	---
12	---	---	---	---	---	.188	.018	.000	.000	---	---	---
13	---	---	---	---	---	---	.010	.000	.000	---	---	---
14	---	---	---	---	---	---	.006	.000	.000	---	---	---
15	---	---	---	---	---	---	.003	.000	.000	---	---	---
16	---	---	---	---	---	---	.002	.000	.000	---	---	---
17	---	---	---	---	---	---	.003	.000	.000	---	---	---
18	---	---	---	---	---	---	.003	.000	.000	---	---	---
19	---	---	---	---	---	---	.002	.000	.000	---	---	---
20	---	---	---	---	---	.080	.001	.000	.000	---	---	---
21	---	---	---	---	---	.062	.001	.000	.000	---	---	---
22	---	---	---	---	---	.057	.002	.000	.000	---	---	---
23	---	---	---	---	---	.052	.001	.000	.000	---	---	---
24	---	---	---	---	---	.050	.000	.000	.000	---	---	---
25	---	---	---	---	---	.045	.000	.000	.000	---	---	---
26	---	---	---	---	---	.043	.000	.000	---	---	---	---
27	---	---	---	---	---	.048	.000	.000	---	---	---	---
28	---	---	---	---	---	.050	.000	.000	---	---	---	---
29	---	---	---	---	---	.059	.000	.000	---	---	---	---
30	---	---	---	---	---	.068	.000	.000	---	---	---	---
31	---	---	---	---	---	---	.000	.000	---	---	---	---
MIN	---	---	---	---	---	---	.000	.000	.000	---	---	---
MEAN	---	---	---	---	---	---	.015	.000	.000	---	---	---
MAX	---	---	---	---	---	---	.061	.000	.000	---	---	---

Discharge in cubic meters per second
Mean .010
Maximum Daily .221 on June 11
Maximum instantaneous .221 at 12:30 on June 11

Total Volume (June 11 - Sept.25)
209.563 Cubic Decameters

APPENDIX E.3

Outlet of Lake A1

Site Inspection Summary

Outlet of Lake A1 (A1-ML, 06MC003)

Zero Flow elevation: 9.282 m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
11-Jun	0.372	9.560		12:30	13:00	N.D.L.R.	N.D.L.R.		0.000	9.560	0.278
20-Jun	0.277	9.430	9.434	12:40	13:00	9.434 @ 13:45		-0.004	-0.033	9.401	0.119
24-Jun	0.226	9.402	9.427	7:40	8:00	9.426	9.424	-0.023	-0.033	9.392	0.110
26-Jun	visit	9.393	9.422	N.R.	N.R.			-0.029	-0.033	9.389	0.107
7-Jul	0.310	N.R.	9.290	13:43	14:02	9.419	9.417		-0.033	9.385	0.103
10-Jul	0.027	9.373	9.405	14:02	14:20	9.405	9.407	-0.033	-0.033	9.373	0.091
24-Jul	0.002	9.311	9.354	12:36	12:56	9.346	9.345	-0.034	-0.033	9.313	0.031
19-Aug	0.000	9.233	9.265	6:50	7:08	9.265	9.264	-0.031	-0.033	9.232	0.000
25-Sep	0.000	9.163	9.241	13:17	13:45	9.241 @ 13:15		-0.078	-0.033	9.208	0.000

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records

GAUGE HISTORY

STATION NAME: A2 Peg Creek near the Mouth
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 00' 03" gps **LONGITUDE:** 92° 07' 26" gps

BENCH MARKS:

B.M. #1	Red paint mark on large rock 9.2 meters NW of shelter.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on rock 5.1 meters west of shelter.	Elev. 10.146 m.
B.M. #3	Red paint mark on rock 3.8 meters SE of shelter.	Elev. 9.978 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 11	**10.000**	10.146	9.978			Established Bench Marks
Sep. 25	10.000	10.135	9.937			
			9.978			Used for the year

Dan Dube
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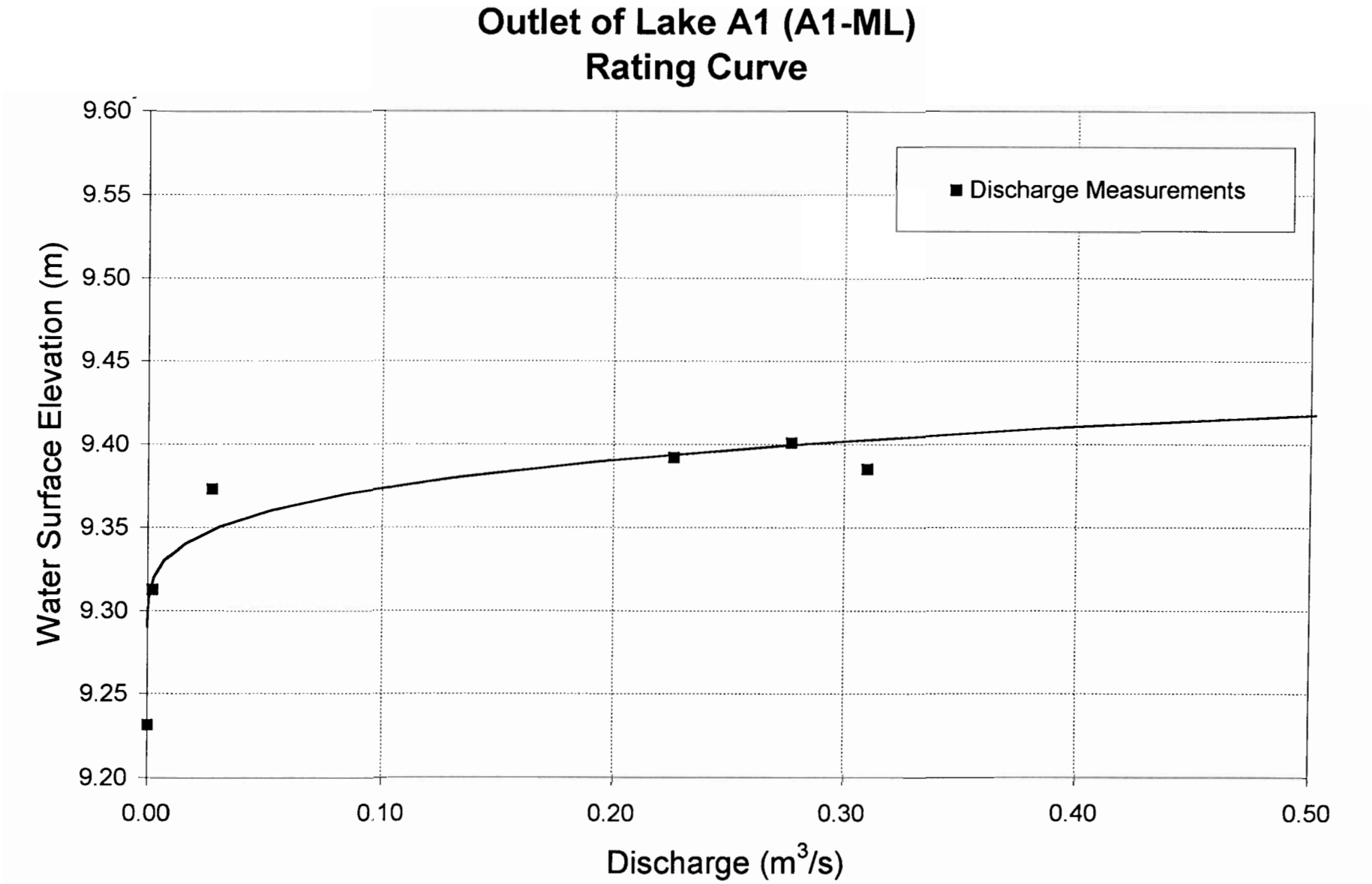
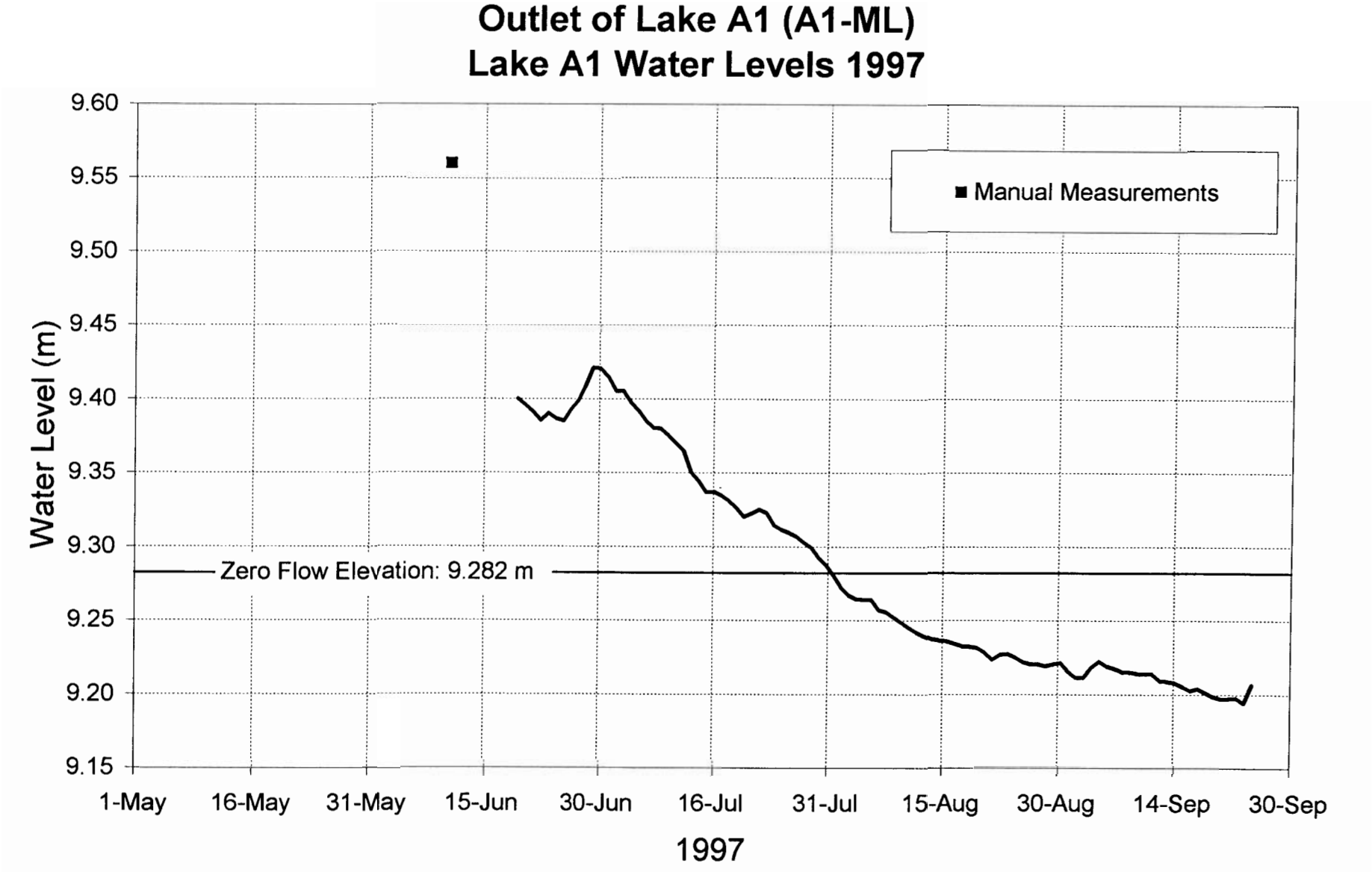
11/13/97



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\Discharge\Summary2.xls 06MC003RC2

Figure E.3.1



P:\Project\1525\LakeLevels\6MC003DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.3.2

STATION NUMBER: 06MC003 Outlet of Lake A1 (A1-ML)
DATA LOGGER START UP DATE: 6/20/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	9.420	9.280	9.215	---	---	---
2	---	---	---	---	---	---	9.415	9.272	9.211	---	---	---
3	---	---	---	---	---	---	9.405	9.267	9.211	---	---	---
4	---	---	---	---	---	---	9.405	9.265	9.218	---	---	---
5	---	---	---	---	---	---	9.397	9.264	9.222	---	---	---
6	---	---	---	---	---	---	9.392	9.264	9.219	---	---	---
7	---	---	---	---	---	---	9.385	9.257	9.217	---	---	---
8	---	---	---	---	---	---	9.381	9.256	9.215	---	---	---
9	---	---	---	---	---	---	9.380	9.252	9.215	---	---	---
10	---	---	---	---	---	---	9.375	9.248	9.214	---	---	---
11	---	---	---	---	---	9.560	9.370	9.245	9.214	---	---	---
12	---	---	---	---	---	---	9.365	9.242	9.214	---	---	---
13	---	---	---	---	---	---	9.350	9.239	9.209	---	---	---
14	---	---	---	---	---	---	9.344	9.237	9.209	---	---	---
15	---	---	---	---	---	---	9.337	9.237	9.207	---	---	---
16	---	---	---	---	---	---	9.337	9.236	9.205	---	---	---
17	---	---	---	---	---	---	9.335	9.234	9.203	---	---	---
18	---	---	---	---	---	---	9.331	9.233	9.204	---	---	---
19	---	---	---	---	---	---	9.326	9.232	9.201	---	---	---
20	---	---	---	---	---	9.400	9.320	9.231	9.198	---	---	---
21	---	---	---	---	---	9.396	9.323	9.228	9.197	---	---	---
22	---	---	---	---	---	9.391	9.325	9.224	9.197	---	---	---
23	---	---	---	---	---	9.385	9.323	9.227	9.198	---	---	---
24	---	---	---	---	---	9.390	9.314	9.227	9.194	---	---	---
25	---	---	---	---	---	9.387	9.311	9.225	9.206	---	---	---
26	---	---	---	---	---	9.385	9.310	9.222	---	---	---	---
27	---	---	---	---	---	9.393	9.307	9.220	---	---	---	---
28	---	---	---	---	---	9.399	9.303	9.220	---	---	---	---
29	---	---	---	---	---	9.408	9.299	9.219	---	---	---	---
30	---	---	---	---	---	9.421	9.293	9.220	---	---	---	---
31	---	---	---	---	---	---	9.287	9.221	---	---	---	---
MIN	---	---	---	---	---	---	9.287	9.219	9.194	---	---	---
MEAN	---	---	---	---	---	---	9.347	9.240	9.209	---	---	---
MAX	---	---	---	---	---	---	9.420	9.280	9.222	---	---	---

STATION NUMBER: 06MC003 Outlet of Lake A1 (A1-ML)
DATA LOGGER START UP DATE: 6/20/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	.539	.000	.000	---	---	---
2	---	---	---	---	---	---	.456	.000	.000	---	---	---
3	---	---	---	---	---	---	.342	.000	.000	---	---	---
4	---	---	---	---	---	---	.335	.000	.000	---	---	---
5	---	---	---	---	---	---	.258	.000	.000	---	---	---
6	---	---	---	---	---	---	.210	.000	.000	---	---	---
7	---	---	---	---	---	---	.163	.000	.000	---	---	---
8	---	---	---	---	---	---	.136	.000	.000	---	---	---
9	---	---	---	---	---	---	.132	.000	.000	---	---	---
10	---	---	---	---	---	---	.109	.000	.000	---	---	---
11	---	---	---	---	---	.372	.087	.000	.000	---	---	---
12	---	---	---	---	---	---	.068	.000	.000	---	---	---
13	---	---	---	---	---	---	.032	.000	.000	---	---	---
14	---	---	---	---	---	---	.021	.000	.000	---	---	---
15	---	---	---	---	---	---	.013	.000	.000	---	---	---
16	---	---	---	---	---	---	.013	.000	.000	---	---	---
17	---	---	---	---	---	---	.011	.000	.000	---	---	---
18	---	---	---	---	---	---	.008	.000	.000	---	---	---
19	---	---	---	---	---	---	.005	.000	.000	---	---	---
20	---	---	---	---	---	.281	.003	.000	.000	---	---	---
21	---	---	---	---	---	.244	.004	.000	.000	---	---	---
22	---	---	---	---	---	.206	.005	.000	.000	---	---	---
23	---	---	---	---	---	.166	.004	.000	.000	---	---	---
24	---	---	---	---	---	.198	.002	.000	.000	---	---	---
25	---	---	---	---	---	.173	.001	.000	.000	---	---	---
26	---	---	---	---	---	.163	.001	.000	---	---	---	---
27	---	---	---	---	---	.221	.000	.000	---	---	---	---
28	---	---	---	---	---	.269	.000	.000	---	---	---	---
29	---	---	---	---	---	.374	.000	.000	---	---	---	---
30	---	---	---	---	---	.552	.000	.000	---	---	---	---
31	---	---	---	---	---	---	.000	.000	---	---	---	---
MIN	---	---	---	---	---	---	.000	.000	---	---	---	
MEAN	---	---	---	---	---	---	.095	.000	.000	---	---	---
MAX	---	---	---	---	---	---	.539	.000	.000	---	---	---

Discharge in cubic meters per second
Mean .058
Maximum Daily .552 on June 30
Maximum instantaneous .616 at 11:30 on June 30

Total Volume (June 11 - Sept.25)
759.283 Cubic Decameters

APPENDIX E.4

Outlet of Newy Lake

Site Inspection Summary

Outlet of Newy Lake (B4-3, 06MC005)

Zero Flow Eleveation 7.763 m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
11-Jun	0.571	8.182		15:15	15:40	N.D.L.R.	N.D.L.R.		0.000	8.182	0.419
21-Jun	0.272	8.056	8.056	6:52	7:18	8.056 @ 8:30		0.000	0.000	8.056	0.293
24-Jun	0.165	8.044	8.035	10:45	11:10	8.035	8.034	0.009	-0.002	8.032	0.269
7-Jul	0.086	7.968	8.002	13:35	14:00	7.989	7.990	-0.021	-0.010	7.979	0.216
23-Jul	0.018	7.895	7.913*	9:07	9:40	7.913	7.913	-0.018	-0.020	7.893	0.130
25-Sep	0.001	7.757	7.815	N.R.	N.R.	7.815 @ 11:15		-0.058	-0.058	7.873	0.110

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records
*July-23 D.L. reading assumed to be 7.913 m

GAUGE HISTORY

STATION NAME: Outlet of Newy Lake
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 00' 51" gps **LONGITUDE:** 92° 15' 11" gps

BENCH MARKS:

B.M. #1	Red paint mark on rock 10.4 meters southeast of shelter.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on rock 2.8 meters south of shelter.	Elev. 9.911 m.
B.M. #3	Red paint mark on rock 1.2 meters east of shelter.	Elev. 9.676 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 11	10.000	9.911	9.676			Established bench marks
Sep. 25	10.000	9.908	9.673			Level circuit
			9.676			Used for the year except July 7 & July 23
	10.000					Suspect the observer used this bench mark for July 7 & July 23/97.

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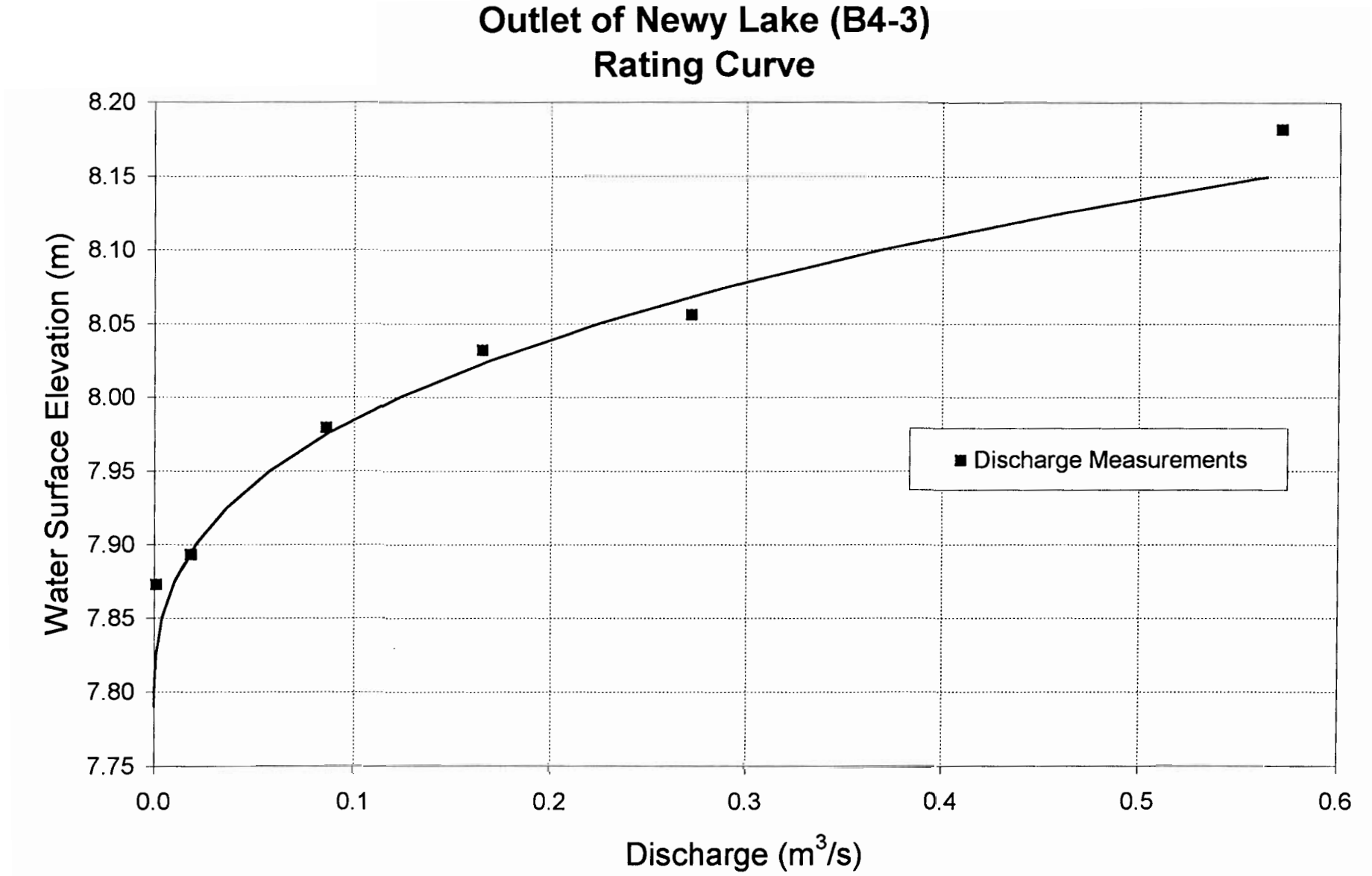
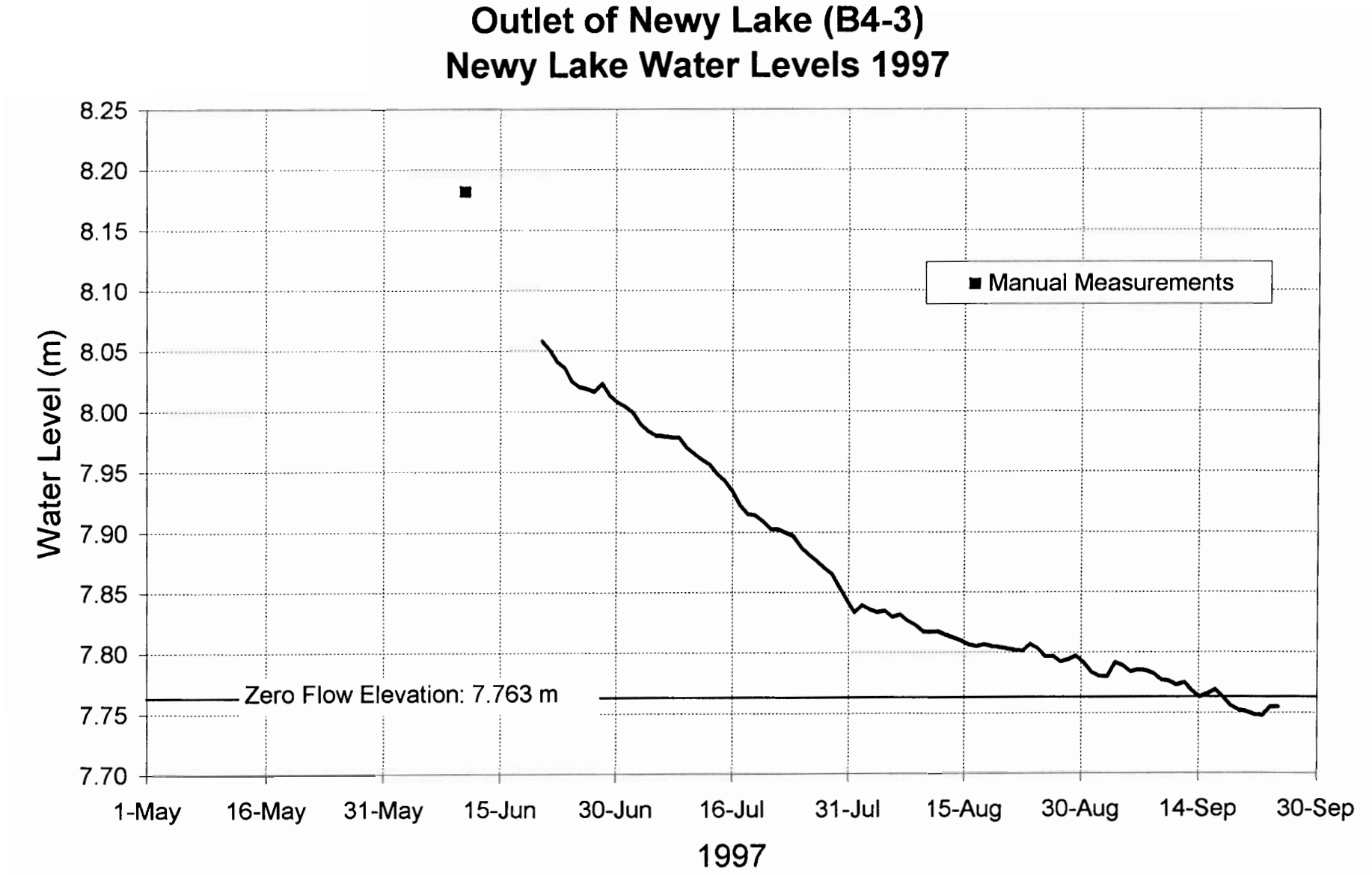
\\Sr_Yelpdc_Po\Monitor\WSC\PROJECTS\MELIADIN\Gaugehistory\Outletnewylake_Gh.Doc
11/13/97



P:\Project\1525\Discharge\Summary2.xls 06MC005RC2

WMC Meliadine West Gold Project
Water Balance Study

Figure E.4.1



P:\Project\1525\LakeLevels\6MC005DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.4.2

STATION NUMBER: 06MC005 Outlet of Newy Lake (B4-3)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	8.007	7.833	7.783	---	---	---
2	---	---	---	---	---	---	8.004	7.839	7.780	---	---	---
3	---	---	---	---	---	---	7.999	7.836	7.780	---	---	---
4	---	---	---	---	---	---	7.990	7.833	7.792	---	---	---
5	---	---	---	---	---	---	7.984	7.834	7.789	---	---	---
6	---	---	---	---	---	---	7.980	7.829	7.784	---	---	---
7	---	---	---	---	---	---	7.979	7.831	7.786	---	---	---
8	---	---	---	---	---	---	7.979	7.826	7.785	---	---	---
9	---	---	---	---	---	---	7.978	7.823	7.782	---	---	---
10	---	---	---	---	---	---	7.970	7.818	7.777	---	---	---
11	---	---	---	---	---	8.182	7.965	7.817	7.776	---	---	---
12	---	---	---	---	---	---	7.960	7.817	7.773	---	---	---
13	---	---	---	---	---	---	7.956	7.815	7.775	---	---	---
14	---	---	---	---	---	---	7.948	7.812	7.768	---	---	---
15	---	---	---	---	---	---	7.942	7.810	7.763	---	---	---
16	---	---	---	---	---	---	7.934	7.807	7.766	---	---	---
17	---	---	---	---	---	---	7.922	7.805	7.769	---	---	---
18	---	---	---	---	---	---	7.915	7.807	7.763	---	---	---
19	---	---	---	---	---	---	7.913	7.805	7.756	---	---	---
20	---	---	---	---	---	---	7.909	7.804	7.752	---	---	---
21	---	---	---	---	---	8.058	7.903	7.803	7.751	---	---	---
22	---	---	---	---	---	8.051	7.902	7.802	7.748	---	---	---
23	---	---	---	---	---	8.041	7.900	7.801	7.748	---	---	---
24	---	---	---	---	---	8.036	7.897	7.807	7.755	---	---	---
25	---	---	---	---	---	8.025	7.887	7.803	7.755	---	---	---
26	---	---	---	---	---	8.020	7.881	7.797	---	---	---	---
27	---	---	---	---	---	8.019	7.876	7.797	---	---	---	---
28	---	---	---	---	---	8.016	7.870	7.792	---	---	---	---
29	---	---	---	---	---	8.023	7.865	7.794	---	---	---	---
30	---	---	---	---	---	8.013	7.854	7.797	---	---	---	---
31	---	---	---	---	---	---	7.844	7.791	---	---	---	---
MIN	---	---	---	---	---	---	7.844	7.791	7.748	---	---	---
MEAN	---	---	---	---	---	---	7.933	7.813	7.770	---	---	---
MAX	---	---	---	---	---	---	8.007	7.839	7.792	---	---	---

STATION NUMBER: 06MC005 Outlet of Newy Lake (B4-3)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	.136	.002	.000	---	---	---
2	---	---	---	---	---	---	.130	.002	.000	---	---	---
3	---	---	---	---	---	---	.122	.002	.000	---	---	---
4	---	---	---	---	---	---	.107	.002	.000	---	---	---
5	---	---	---	---	---	---	.098	.002	.000	---	---	---
6	---	---	---	---	---	---	.094	.001	.000	---	---	---
7	---	---	---	---	---	---	.092	.002	.000	---	---	---
8	---	---	---	---	---	---	.091	.001	.000	---	---	---
9	---	---	---	---	---	---	.091	.001	.000	---	---	---
10	---	---	---	---	---	---	.080	.001	.000	---	---	---
11	---	---	---	---	---	.571	.074	.001	.000	---	---	---
12	---	---	---	---	---	---	.068	.001	.000	---	---	---
13	---	---	---	---	---	---	.064	.000	.000	---	---	---
14	---	---	---	---	---	---	.056	.000	.000	---	---	---
15	---	---	---	---	---	---	.050	.000	.000	---	---	---
16	---	---	---	---	---	---	.043	.000	.000	---	---	---
17	---	---	---	---	---	---	.034	.000	.000	---	---	---
18	---	---	---	---	---	---	.029	.000	.000	---	---	---
19	---	---	---	---	---	---	.028	.000	.000	---	---	---
20	---	---	---	---	---	---	.025	.000	.000	---	---	---
21	---	---	---	---	---	.244	.022	.000	.000	---	---	---
22	---	---	---	---	---	.227	.021	.000	.000	---	---	---
23	---	---	---	---	---	.204	.020	.000	.000	---	---	---
24	---	---	---	---	---	.192	.019	.000	.000	---	---	---
25	---	---	---	---	---	.169	.015	.000	.000	---	---	---
26	---	---	---	---	---	.159	.012	.000	---	---	---	---
27	---	---	---	---	---	.157	.011	.000	---	---	---	---
28	---	---	---	---	---	.152	.009	.000	---	---	---	---
29	---	---	---	---	---	.165	.007	.000	---	---	---	---
30	---	---	---	---	---	.146	.005	.000	---	---	---	---
31	---	---	---	---	---	---	.003	.000	---	---	---	---
MIN	---	---	---	---	---	---	.003	.000	.000	---	---	---
MEAN	---	---	---	---	---	---	.053	.001	.000	---	---	---
MAX	---	---	---	---	---	---	.136	.002	.000	---	---	---

Discharge in cubic meters per second
Mean .035
Maximum Daily .571 on June 11
Maximum instantaneous .571 at 15:40 on June 11

Total Volume (June 11 - Sept.25)
667.613 Cubic Decameters

APPENDIX E.5

Outlet of Lake D5

Site Inspection Summary
Outlet of Lake D5 (D5-4, 06MC006)
Zero Flow Elevation: 8.147 m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
11-Jun	0.100	8.212		9:05	9:39	N.D.L.R.	N.D.L.R.		0.000	8.212	0.065
21-Jun	0.075	8.168	8.172	10:05	10:35	8.172 @ 11:30		-0.004	-0.004	8.168	0.021
24-Jun	0.058	8.172	8.187	12:10	12:40	8.184	8.185	-0.012	-0.009	8.175	0.028
8-Jul	0.003	8.166	8.198	6:50	7:30	8.198	8.198	-0.032	-0.019	8.179	0.032
28-Jul	0.000	8.066	8.127	N.R.	N.R.			-0.061	-0.036	8.091	-0.056
25-Sep	0.002	7.973	8.061	10:30	10:46	8.061 @ 10:00		-0.088	-0.088	7.973	-0.174

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records

GAUGE HISTORY

STATION NAME: Inlet to Lake No. 4
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 01' 57" gps **LONGITUDE:** 92° 18' 25" gps

BENCH MARKS:

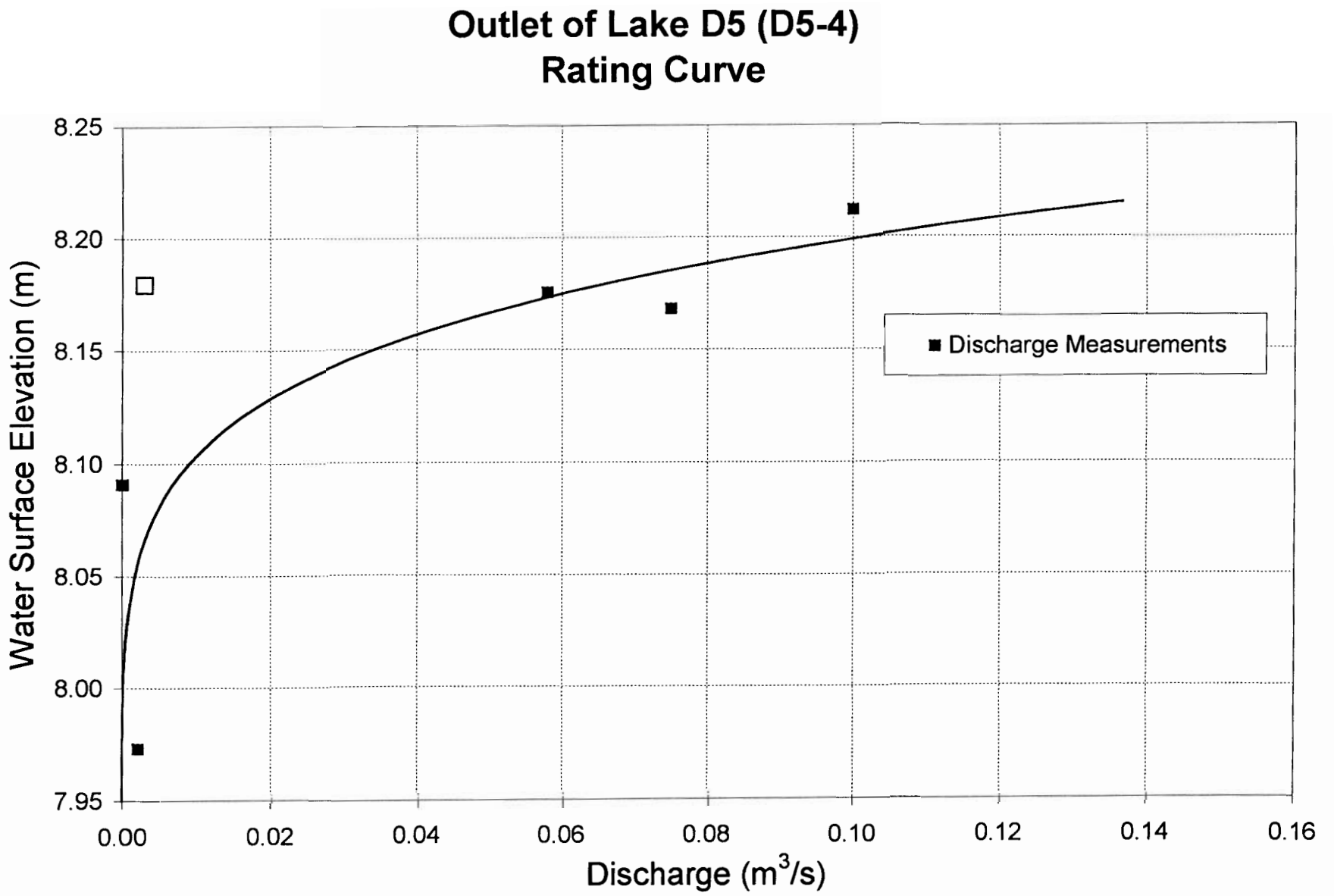
B.M. #1	**Red paint mark on bedrock outcrop 52 meters west of shelter.**	**Elev. 10.000 m. (assumed)**
B.M. #2	**Red paint mark on rock 17.6 meters south of shelter.**	**Elev. 9.212 m.**
B.M. #3	**Red paint mark on rock 19.5 meters southeast of shelter.**	**Elev. 9.146 m.**

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 11	10.000	9.212	9.146			Established bench marks
Sep. 25	10.000	9.176	9.111			Circuit levels.
			9.146			Used for the year

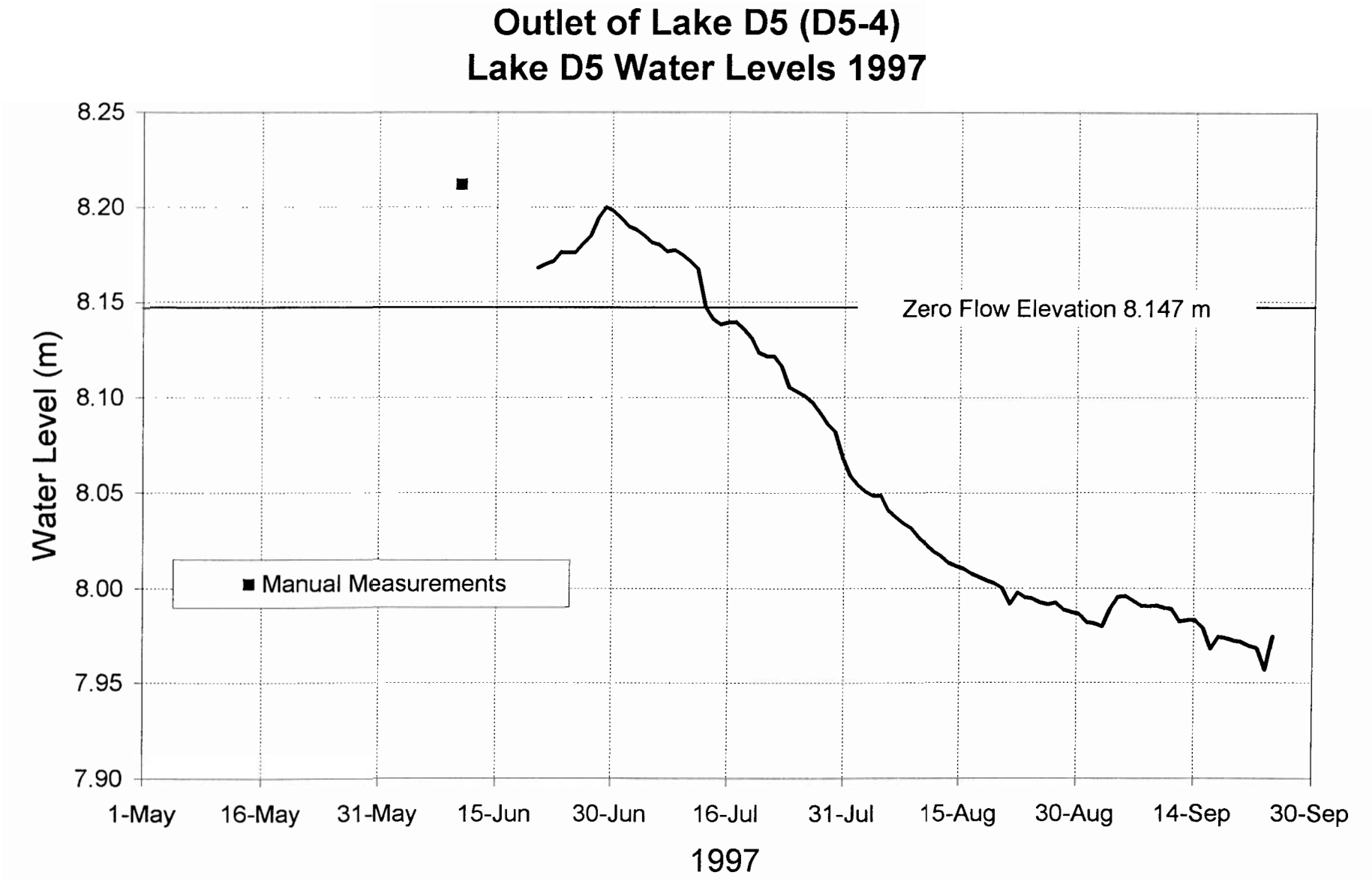
Dan Dube
\\Sr_Yelpdc_Po\Monitor\WSC\PROJECTS\MELIADIN\Gaugehistory\Inletlakeno4_Gh.Doc
11/13/97



P:\Project\1525\Discharge\Summary2.xls 06MC006RC2

WMC Meliadine West Gold Project
Water Balance Study

Figure E.5.1



P:\Project\1525\LakeLevels\6MC006DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.5.2

STATION NUMBER: 06MC006 Outlet of Lake D5 (D5-4)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	8.198	8.060	7.982	---	---	---
2	---	---	---	---	---	---	8.195	8.055	7.982	---	---	---
3	---	---	---	---	---	---	8.190	8.051	7.980	---	---	---
4	---	---	---	---	---	---	8.188	8.049	7.989	---	---	---
5	---	---	---	---	---	---	8.185	8.049	7.996	---	---	---
6	---	---	---	---	---	---	8.182	8.041	7.996	---	---	---
7	---	---	---	---	---	---	8.181	8.038	7.994	---	---	---
8	---	---	---	---	---	---	8.177	8.035	7.991	---	---	---
9	---	---	---	---	---	---	8.178	8.032	7.991	---	---	---
10	---	---	---	---	---	---	8.175	8.027	7.991	---	---	---
11	---	---	---	---	---	8.212	8.172	8.024	7.990	---	---	---
12	---	---	---	---	---	---	8.168	8.020	7.989	---	---	---
13	---	---	---	---	---	---	8.148	8.017	7.983	---	---	---
14	---	---	---	---	---	---	8.142	8.014	7.983	---	---	---
15	---	---	---	---	---	---	8.139	8.012	7.983	---	---	---
16	---	---	---	---	---	---	8.140	8.010	7.979	---	---	---
17	---	---	---	---	---	---	8.140	8.008	7.968	---	---	---
18	---	---	---	---	---	---	8.136	8.006	7.974	---	---	---
19	---	---	---	---	---	---	8.132	8.004	7.974	---	---	---
20	---	---	---	---	---	---	8.124	8.003	7.972	---	---	---
21	---	---	---	---	---	8.173	8.122	8.000	7.972	---	---	---
22	---	---	---	---	---	8.171	8.122	7.992	7.970	---	---	---
23	---	---	---	---	---	8.172	8.117	7.998	7.968	---	---	---
24	---	---	---	---	---	8.177	8.106	7.995	7.957	---	---	---
25	---	---	---	---	---	8.177	8.103	7.995	7.975	---	---	---
26	---	---	---	---	---	8.177	8.101	7.993	---	---	---	---
27	---	---	---	---	---	8.182	8.098	7.992	---	---	---	---
28	---	---	---	---	---	8.185	8.092	7.993	---	---	---	---
29	---	---	---	---	---	8.195	8.087	7.989	---	---	---	---
30	---	---	---	---	---	8.201	8.083	7.988	---	---	---	---
31	---	---	---	---	---	---	8.069	7.987	---	---	---	---
MIN	---	---	---	---	---	8.171	8.069	7.987	7.957	---	---	---
MEAN	---	---	---	---	---	8.181	8.142	8.015	7.981	---	---	---
MAX	---	---	---	---	---	8.201	8.198	8.060	7.996	---	---	---

STATION NUMBER: 06MC006 Outlet of Lake D5 (D5-4)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	.099	.002	.000	---	---	---
2	---	---	---	---	---	---	.092	.002	.000	---	---	---
3	---	---	---	---	---	---	.084	.002	.000	---	---	---
4	---	---	---	---	---	---	.081	.002	.000	---	---	---
5	---	---	---	---	---	---	.076	.002	.000	---	---	---
6	---	---	---	---	---	---	.071	.001	.000	---	---	---
7	---	---	---	---	---	---	.068	.001	.000	---	---	---
8	---	---	---	---	---	---	.064	.001	.000	---	---	---
9	---	---	---	---	---	---	.065	.001	.000	---	---	---
10	---	---	---	---	---	---	.061	.001	.000	---	---	---
11	---	---	---	---	---	.100	.057	.001	.000	---	---	---
12	---	---	---	---	---	---	.052	.000	.000	---	---	---
13	---	---	---	---	---	---	.033	.000	.000	---	---	---
14	---	---	---	---	---	---	.028	.000	.000	---	---	---
15	---	---	---	---	---	---	.026	.000	.000	---	---	---
16	---	---	---	---	---	---	.027	.000	.000	---	---	---
17	---	---	---	---	---	---	.027	.000	.000	---	---	---
18	---	---	---	---	---	---	.024	.000	.000	---	---	---
19	---	---	---	---	---	---	.022	.000	.000	---	---	---
20	---	---	---	---	---	---	.018	.000	.000	---	---	---
21	---	---	---	---	---	.058	.017	.000	.000	---	---	---
22	---	---	---	---	---	.055	.017	.000	.000	---	---	---
23	---	---	---	---	---	.057	.015	.000	.000	---	---	---
24	---	---	---	---	---	.063	.011	.000	.000	---	---	---
25	---	---	---	---	---	.063	.010	.000	.000	---	---	---
26	---	---	---	---	---	.064	.009	.000	---	---	---	---
27	---	---	---	---	---	.070	.008	.000	---	---	---	---
28	---	---	---	---	---	.076	.007	.000	---	---	---	---
29	---	---	---	---	---	.093	.006	.000	---	---	---	---
30	---	---	---	---	---	.104	.005	.000	---	---	---	---
31	---	---	---	---	---	---	.003	.000	---	---	---	---
MIN	---	---	---	---	---	---	.003	.000	.000	---	---	---
MEAN	---	---	---	---	---	---	.038	.001	.000	---	---	---
MAX	---	---	---	---	---	---	.099	.002	.000	---	---	---

Discharge in cubic meters per second
Mean .020
Maximum Daily .104 on June 30
Maximum instantaneous .113 at 11:30 on June 30

Total Volume
234.06 Cubic Decameters

APPENDIX E.6

Outlet of Control Lake

Site Inspection Summary

Outlet of Control Lake (G2-1, 06MC007)

Zero Flow Elevation: 7.304m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
12-Jun	0.007	7.347		13:43	13:53	N.A.	N.A.		0.000	7.347	0.036
21-Jun	0.006	7.323	7.325	12:40	12:50	7.326 @ 14:15		-0.003	-0.003	7.323	0.012
25-Jun	0.001	7.321	7.325	7:45E	8:00E	7.326	7.328	-0.004	-0.005	7.320	0.009
8-Jul	0.001	7.321	7.318	8:50	9:00	7.329	7.329	-0.008	-0.014	7.315	0.004
10-Jul	0.001	7.311	7.327	16:32	16:40	7.327	7.328	-0.016	-0.015	7.313	0.002
28-Jul	0.000	7.262	7.288	16:30E	16:45E	7.273	7.273	-0.026	-0.032	7.256	0.000
19-Aug	0.000	7.175	7.209	8:15E	8:30E	7.208	7.209	-0.034	-0.040	7.169	0.000
24-Sep	0.000	7.142	7.204	16:40	N.R.	7.204 @ 16:45		-0.062	-0.062	7.142	0.000

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records
E = Estimated time of measurement

GAUGE HISTORY

STATION NAME: Outlet of Control lake
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 02' 43" gps **LONGITUDE:** 92° 14' 22" gps

BENCH MARKS:

B.M. #1	Red paint mark on large boulder 9.1 meters north of shelter and up the slope.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on large rock 1.5 meters NW of shelter.	Elev. 7.904 m.
B.M. #3	Red paint mark on rock 2.6 meters SE of shelter.	Elev. 8.052 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 12	**10.000**	7.904	8.052			Established Bench Marks
Sep. 24	10.000	7.884	8.032			
			8.052			Used for the year

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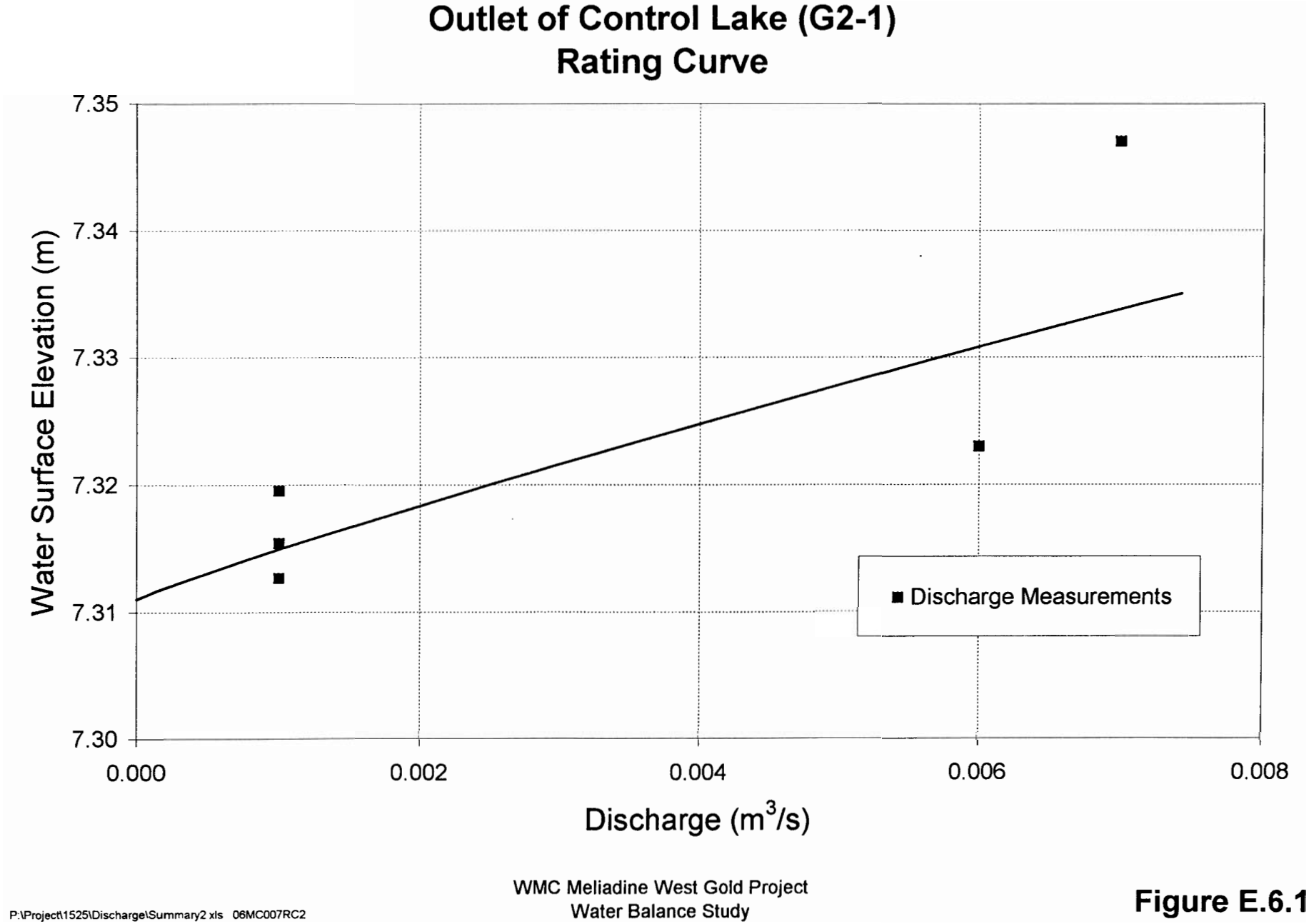
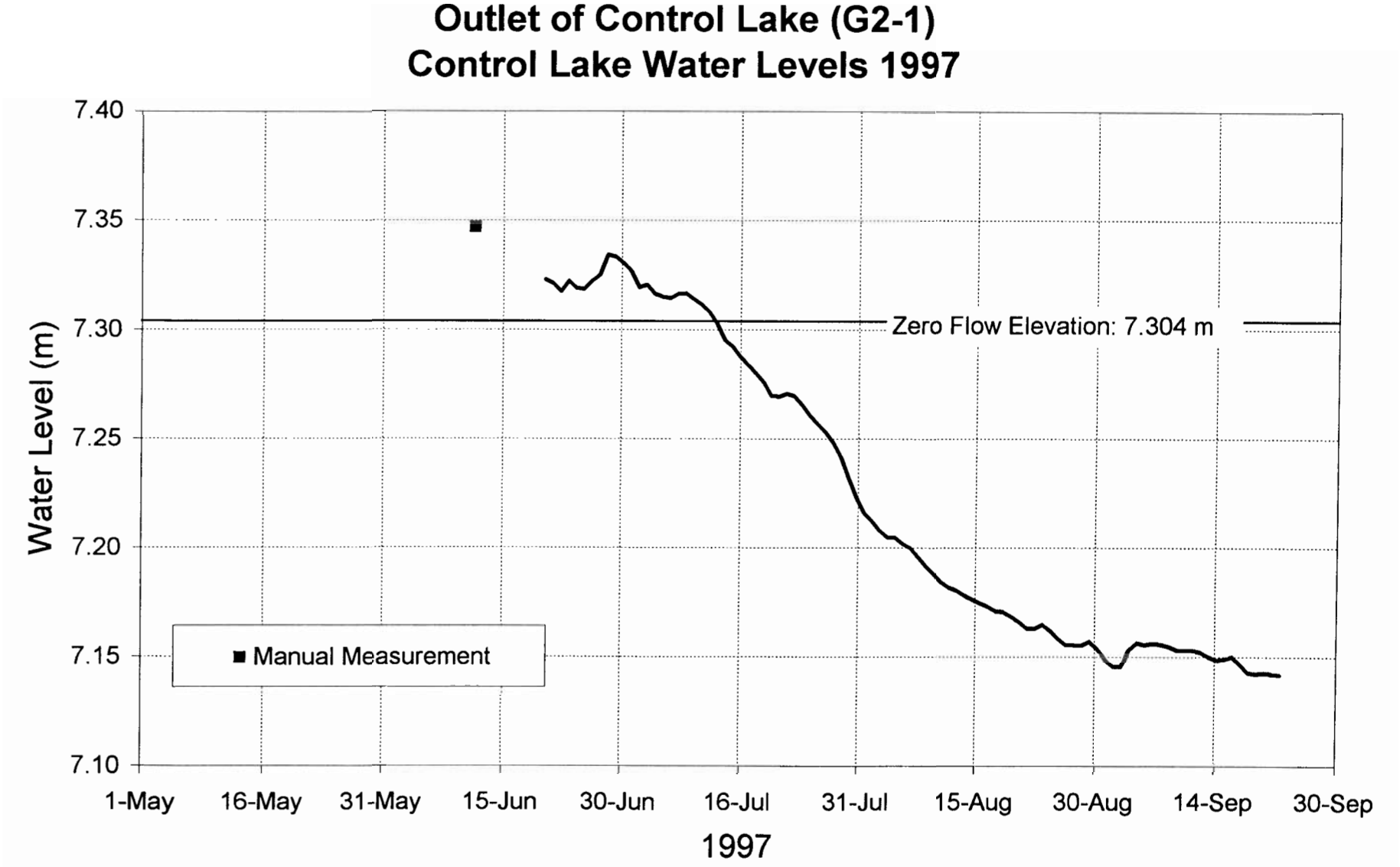
11/13/97



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\Discharge\Summary2 xls 06MC007RC2

Figure E.6.1



P:\Project\1525\LakeLevels\6MC007DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.6.2

STATION NUMBER: 06MC007 Outlet of Control Lake (G2-1)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/24/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	7.330	7.216	7.149	---	---	---
2	---	---	---	---	---	---	7.327	7.212	7.146	---	---	---
3	---	---	---	---	---	---	7.319	7.208	7.146	---	---	---
4	---	---	---	---	---	---	7.321	7.205	7.153	---	---	---
5	---	---	---	---	---	---	7.317	7.205	7.156	---	---	---
6	---	---	---	---	---	---	7.315	7.202	7.156	---	---	---
7	---	---	---	---	---	---	7.315	7.200	7.156	---	---	---
8	---	---	---	---	---	---	7.316	7.196	7.156	---	---	---
9	---	---	---	---	---	---	7.317	7.191	7.155	---	---	---
10	---	---	---	---	---	---	7.314	7.188	7.153	---	---	---
11	---	---	---	---	---	---	7.312	7.184	7.153	---	---	---
12	---	---	---	---	---	7.347	7.308	7.182	7.153	---	---	---
13	---	---	---	---	---	---	7.303	7.180	7.152	---	---	---
14	---	---	---	---	---	---	7.295	7.178	7.150	---	---	---
15	---	---	---	---	---	---	7.292	7.176	7.149	---	---	---
16	---	---	---	---	---	---	7.288	7.175	7.149	---	---	---
17	---	---	---	---	---	---	7.284	7.173	7.150	---	---	---
18	---	---	---	---	---	---	7.280	7.171	7.147	---	---	---
19	---	---	---	---	---	---	7.276	7.171	7.143	---	---	---
20	---	---	---	---	---	---	7.270	7.169	7.142	---	---	---
21	---	---	---	---	---	7.323	7.269	7.166	7.143	---	---	---
22	---	---	---	---	---	7.321	7.271	7.163	7.142	---	---	---
23	---	---	---	---	---	7.317	7.269	7.163	7.142	---	---	---
24	---	---	---	---	---	7.322	7.266	7.165	7.039	---	---	---
25	---	---	---	---	---	7.319	7.261	7.162	---	---	---	---
26	---	---	---	---	---	7.318	7.257	7.158	---	---	---	---
27	---	---	---	---	---	7.322	7.253	7.156	---	---	---	---
28	---	---	---	---	---	7.325	7.248	7.156	---	---	---	---
29	---	---	---	---	---	7.334	7.242	7.155	---	---	---	---
30	---	---	---	---	---	7.333	7.232	7.157	---	---	---	---
31	---	---	---	---	---	---	7.223	7.154	---	---	---	---
MIN	---	---	---	---	---	---	7.223	7.154	7.039	---	---	---
MEAN	---	---	---	---	---	---	7.287	7.179	7.145	---	---	---
MAX	---	---	---	---	---	---	7.330	7.216	7.156	---	---	---

STATION NUMBER: 06MC007 Outlet of Control Lake (G2-1)
DATA LOGGER START UP DATE: 6/21/1997
DATA LOGGER ENDING DATE: 09/24/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	.006	.000	.000	---	---	---
2	---	---	---	---	---	---	.005	.000	.000	---	---	---
3	---	---	---	---	---	---	.002	.000	.000	---	---	---
4	---	---	---	---	---	---	.003	.000	.000	---	---	---
5	---	---	---	---	---	---	.001	.000	.000	---	---	---
6	---	---	---	---	---	---	.001	.000	.000	---	---	---
7	---	---	---	---	---	---	.001	.000	.000	---	---	---
8	---	---	---	---	---	---	.001	.000	.000	---	---	---
9	---	---	---	---	---	---	.001	.000	.000	---	---	---
10	---	---	---	---	---	---	.001	.000	.000	---	---	---
11	---	---	---	---	---	---	.000	.000	.000	---	---	---
12	---	---	---	---	---	.007	.000	.000	.000	---	---	---
13	---	---	---	---	---	---	.000	.000	.000	---	---	---
14	---	---	---	---	---	---	.000	.000	.000	---	---	---
15	---	---	---	---	---	---	.000	.000	.000	---	---	---
16	---	---	---	---	---	---	.000	.000	.000	---	---	---
17	---	---	---	---	---	---	.000	.000	.000	---	---	---
18	---	---	---	---	---	---	.000	.000	.000	---	---	---
19	---	---	---	---	---	---	.000	.000	.000	---	---	---
20	---	---	---	---	---	---	.000	.000	.000	---	---	---
21	---	---	---	---	---	.003	.000	.000	.000	---	---	---
22	---	---	---	---	---	.003	.000	.000	.000	---	---	---
23	---	---	---	---	---	.002	.000	.000	.000	---	---	---
24	---	---	---	---	---	.003	.000	.000	.000	---	---	---
25	---	---	---	---	---	.002	.000	.000	---	---	---	---
26	---	---	---	---	---	.002	.000	.000	---	---	---	---
27	---	---	---	---	---	.003	.000	.000	---	---	---	---
28	---	---	---	---	---	.004	.000	.000	---	---	---	---
29	---	---	---	---	---	.007	.000	.000	---	---	---	---
30	---	---	---	---	---	.007	.000	.000	---	---	---	---
31	---	---	---	---	---	---	.000	.000	---	---	---	---
MIN	---	---	---	---	---	---	.000	.000	.000	---	---	---
MEAN	---	---	---	---	---	---	.001	.000	.000	---	---	---
MAX	---	---	---	---	---	---	.006	.000	.000	---	---	---

Discharge in cubic meters per second
Mean .001
Maximum Daily .007 on June 29
Maximum instantaneous .009 at 19:30 on June 29

Total Volume
9.263 Cubic Decameters

APPENDIX E.7

Meliadine River at Meliadine Lake Outlet

Site Inspection Summary

Meliadine River at Meliadine Lake Outlet (ML-MR, 06MC008)

Zero Flow Elevation: 2.791 m

Date (dd-mm)	Discharge (m3/s)	Staff Gauge (m)	DWL (m)	Start (time)	End (time)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
19-May	0.600		N.R.	11:20	11:45			
12-Jun	6.390		9.085	8:15	9:05	-5.602	3.483	0.692
22-Jun	7.670	8.399		10:25	11:20	-4.919	3.480	0.689
26-Jun	6.150	8.230		8:50	9:30	-4.919	3.312	0.521
9-Jul	6.060	8.394		13:00	13:53	-4.919	3.475	0.684
23-Jul	4.490	8.330		7:33	8:30	-4.919	3.412	0.621
24-Aug	1.890	8.209		6:50	7:40	-4.919	3.291	0.500
26-Sep	0.417	8.156		7:15	7:45	-4.919	3.237	0.446

DWL = Direct water level surveyed from bench mark
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation

GAUGE HISTORY

STATION NAME: Meliadine River at outlet Meliadine Lake
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 02' 04" gps **LONGITUDE:** 92° 23' 35" gps

BENCH MARKS:

B.M. #1	**Red paint mark on large boulder on left bank about 200 meters upstream of rapids.**	**Elev. 10.000 m. (assumed)**
B.M. #2	**Red paint mark on boulder 30 meters south of B.M. #1.**	**Elev. 11.035 m.**
B.M. #3	**Red paint mark on boulder 32 meters downstream of B.M. #1.**	**Elev. 9.192 m.**

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3	Top of Staff	Correction to Staff	
1997						
Jun. 22	10.000	11.035	9.192	8.657	0.000	Established bench marks. "Top of Staff" is the top of a 1.0 meter gauge plate.
Sep. 26	10.000	11.025	9.174	8.682	+ 0.025	Circuit levels

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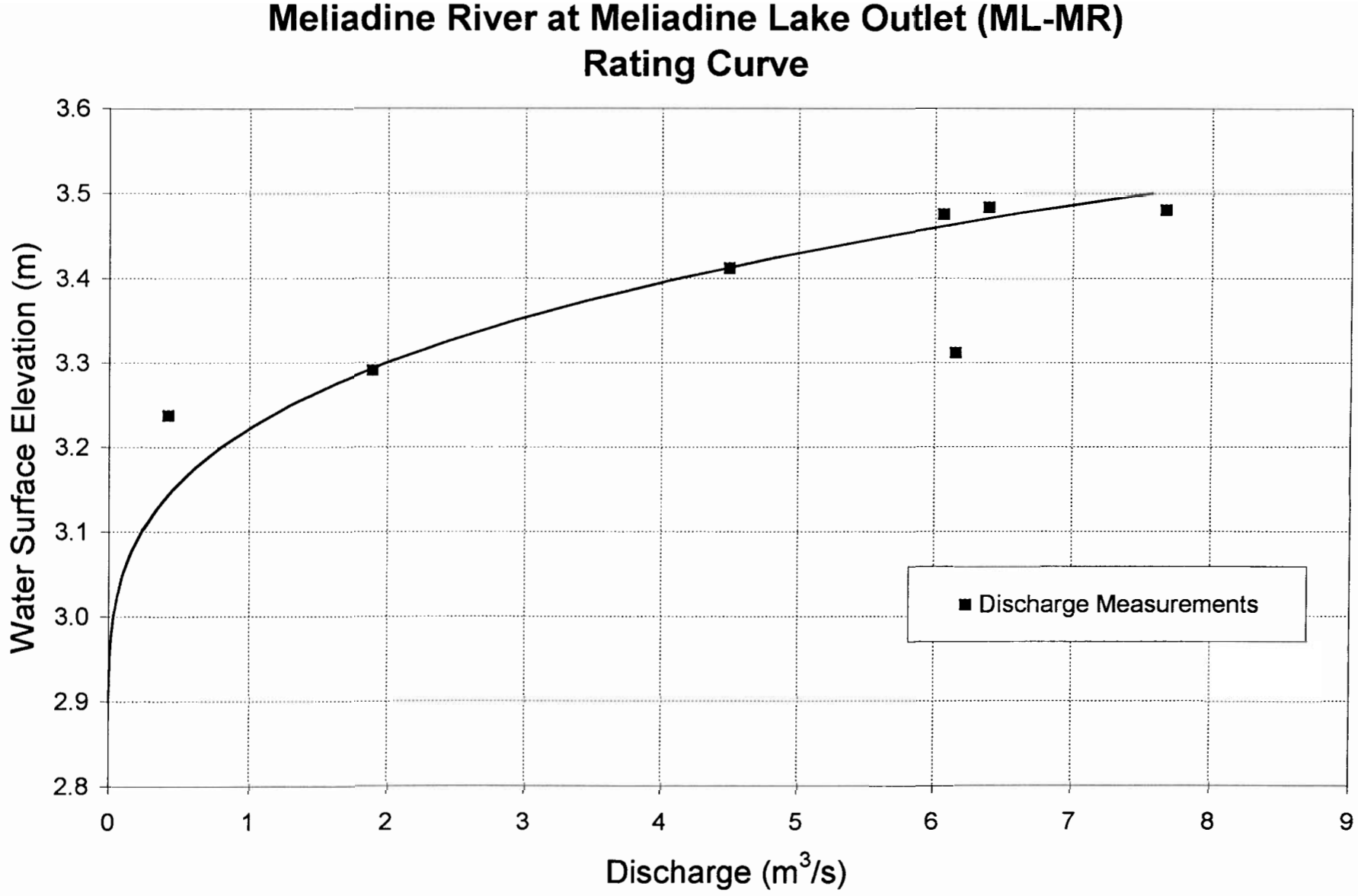
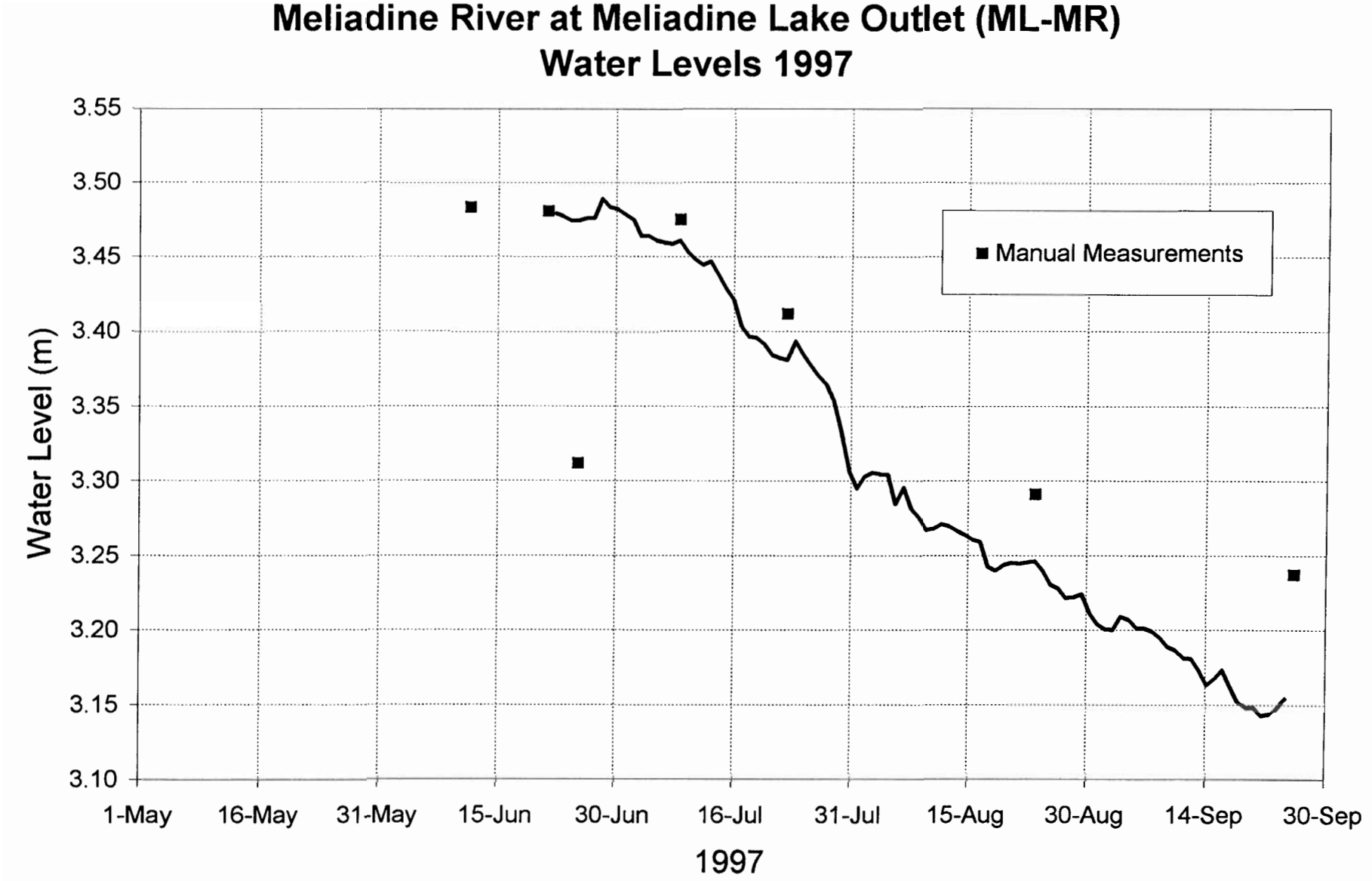
11/13/97



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\Discharge\Summary2.xls 06MC008RC2

Figure E.7.1



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\LakeLevels\6MC008DY.xls WaterLevel

Figure E.7.2

STATION NUMBER: 06MC008 Meliadine River at Meliadine Lake Outlet (ML-MR)
DATA LOGGER START UP DATE: 6/23/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	3.482	3.295	3.204	---	---	---
2	---	---	---	---	---	---	3.478	3.303	3.201	---	---	---
3	---	---	---	---	---	---	3.475	3.305	3.200	---	---	---
4	---	---	---	---	---	---	3.463	3.305	3.209	---	---	---
5	---	---	---	---	---	---	3.463	3.304	3.207	---	---	---
6	---	---	---	---	---	---	3.461	3.284	3.201	---	---	---
7	---	---	---	---	---	---	3.459	3.296	3.201	---	---	---
8	---	---	---	---	---	---	3.458	3.281	3.199	---	---	---
9	---	---	---	---	---	---	3.461	3.275	3.195	---	---	---
10	---	---	---	---	---	---	3.453	3.267	3.189	---	---	---
11	---	---	---	---	---	---	3.448	3.268	3.186	---	---	---
12	---	---	---	---	---	3.483	3.445	3.271	3.181	---	---	---
13	---	---	---	---	---	---	3.447	3.270	3.181	---	---	---
14	---	---	---	---	---	---	3.438	3.267	3.173	---	---	---
15	---	---	---	---	---	---	3.429	3.264	3.163	---	---	---
16	---	---	---	---	---	---	3.421	3.261	3.167	---	---	---
17	---	---	---	---	---	---	3.403	3.259	3.173	---	---	---
18	---	---	---	---	---	---	3.396	3.243	3.162	---	---	---
19	---	---	---	---	---	---	3.395	3.240	3.152	---	---	---
20	---	---	---	---	---	---	3.392	3.243	3.148	---	---	---
21	---	---	---	---	---	---	3.384	3.245	3.148	---	---	---
22	---	---	---	---	---	---	3.382	3.244	3.143	---	---	---
23	---	---	---	---	---	3.479	3.381	3.245	3.144	---	---	---
24	---	---	---	---	---	3.477	3.393	3.246	3.148	---	---	---
25	---	---	---	---	---	3.474	3.385	3.240	3.154	---	---	---
26	---	---	---	---	---	3.474	3.377	3.231	---	---	---	---
27	---	---	---	---	---	3.476	3.370	3.228	---	---	---	---
28	---	---	---	---	---	3.476	3.365	3.221	---	---	---	---
29	---	---	---	---	---	3.488	3.353	3.222	---	---	---	---
30	---	---	---	---	---	3.483	3.333	3.224	---	---	---	---
31	---	---	---	---	---	---	3.306	3.211	---	---	---	---
MIN	---	---	---	---	---	---	3.306	3.211	3.143	---	---	---
MEAN	---	---	---	---	---	---	3.416	3.260	3.177	---	---	---
MAX	---	---	---	---	---	---	3.482	3.305	3.209	---	---	---

STATION NUMBER: 06MC008 Meliadine River at Meliadine Lake Outlet (ML-MR)
DATA LOGGER START UP DATE: 6/23/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	6.82	1.92	.831	---	---	---
2	---	---	---	---	---	---	6.67	2.05	.805	---	---	---
3	---	---	---	---	---	---	6.55	2.09	.798	---	---	---
4	---	---	---	---	---	---	6.14	2.07	.876	---	---	---
5	---	---	---	---	---	---	6.13	2.07	.856	---	---	---
6	---	---	---	---	---	---	6.04	1.76	.810	---	---	---
7	---	---	---	---	---	---	5.99	1.93	.808	---	---	---
8	---	---	---	---	---	---	5.95	1.71	.791	---	---	---
9	---	---	---	---	---	---	6.03	1.63	.757	---	---	---
10	---	---	---	---	---	---	5.77	1.51	.710	---	---	---
11	---	---	---	---	---	---	5.59	1.53	.691	---	---	---
12	---	---	---	---	---	6.39	5.48	1.56	.652	---	---	---
13	---	---	---	---	---	---	5.55	1.55	.649	---	---	---
14	---	---	---	---	---	---	5.26	1.51	.596	---	---	---
15	---	---	---	---	---	---	4.98	1.47	.531	---	---	---
16	---	---	---	---	---	---	4.73	1.43	.558	---	---	---
17	---	---	---	---	---	---	4.22	1.41	.597	---	---	---
18	---	---	---	---	---	---	4.03	1.21	.527	---	---	---
19	---	---	---	---	0.600	---	4.01	1.19	.465	---	---	---
20	---	---	---	---	---	---	3.91	1.22	.445	---	---	---
21	---	---	---	---	---	---	3.72	1.24	.445	---	---	---
22	---	---	---	---	---	---	3.67	1.23	.415	---	---	---
23	---	---	---	---	---	6.71	3.64	1.25	.421	---	---	---
24	---	---	---	---	---	6.63	3.96	1.25	.446	---	---	---
25	---	---	---	---	---	6.53	3.73	1.18	.477	---	---	---
26	---	---	---	---	---	6.52	3.54	1.08	---	---	---	---
27	---	---	---	---	---	6.58	3.38	1.06	---	---	---	---
28	---	---	---	---	---	6.59	3.25	.992	---	---	---	---
29	---	---	---	---	---	7.09	3.00	1.00	---	---	---	---
30	---	---	---	---	---	6.87	2.58	1.02	---	---	---	---
31	---	---	---	---	---	---	2.10	.899	---	---	---	---
MIN	---	---	---	---	---	---	2.10	.899	.415	---	---	---
MEAN	---	---	---	---	---	---	4.72	1.45	.638	---	---	---
MAX	---	---	---	---	---	---	6.82	2.09	.876	---	---	---

Discharge in cubic meters per second
Mean 2.743
Maximum Daily 7.088 on June 29
Maximum instantaneous 7.520 at 13:45 on June 29

Total Volume (June 12 - Sept.25)
25403.400 Cubic Decameters

APPENDIX E.8

West Outlet of Meliadine Lake

Site Inspection Summary

West Outlet of Meliadine Lake (ML-DR, 06MC009)

Zero Flow Elevation: 3.116 m

Date (dd-mm)	Discharge (m3/s)	Staff Gauge (m)	DWL (m)	Start (time)	End (time)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
12-Jun	1.540		3.483	17:40	18:15	0.000	3.483	0.367
22-Jun	2.000	7.206		12:30	13:10	3.724	3.482	0.366
26-Jun	1.510	7.190		7:05	7:50	3.724	3.466	0.350
9-Jul	1.900	7.185		8:31	9:21	3.724	3.461	0.345
22-Jul	1.013	7.214		7:25	8:05	3.724	3.490	0.374
24-Aug	0.171	6.954		9:02	9:35	3.724	3.230	0.114
26-Sep	0.006	6.880		8:30	N.R.	3.724	3.156	0.040

DWL = Direct water level surveyed from bench mark
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes

GAUGE HISTORY

STATION NAME: West Outlet Meliadine Lake
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 08' 12" gps **LONGITUDE:** 92° 31' 42" gps

BENCH MARKS:

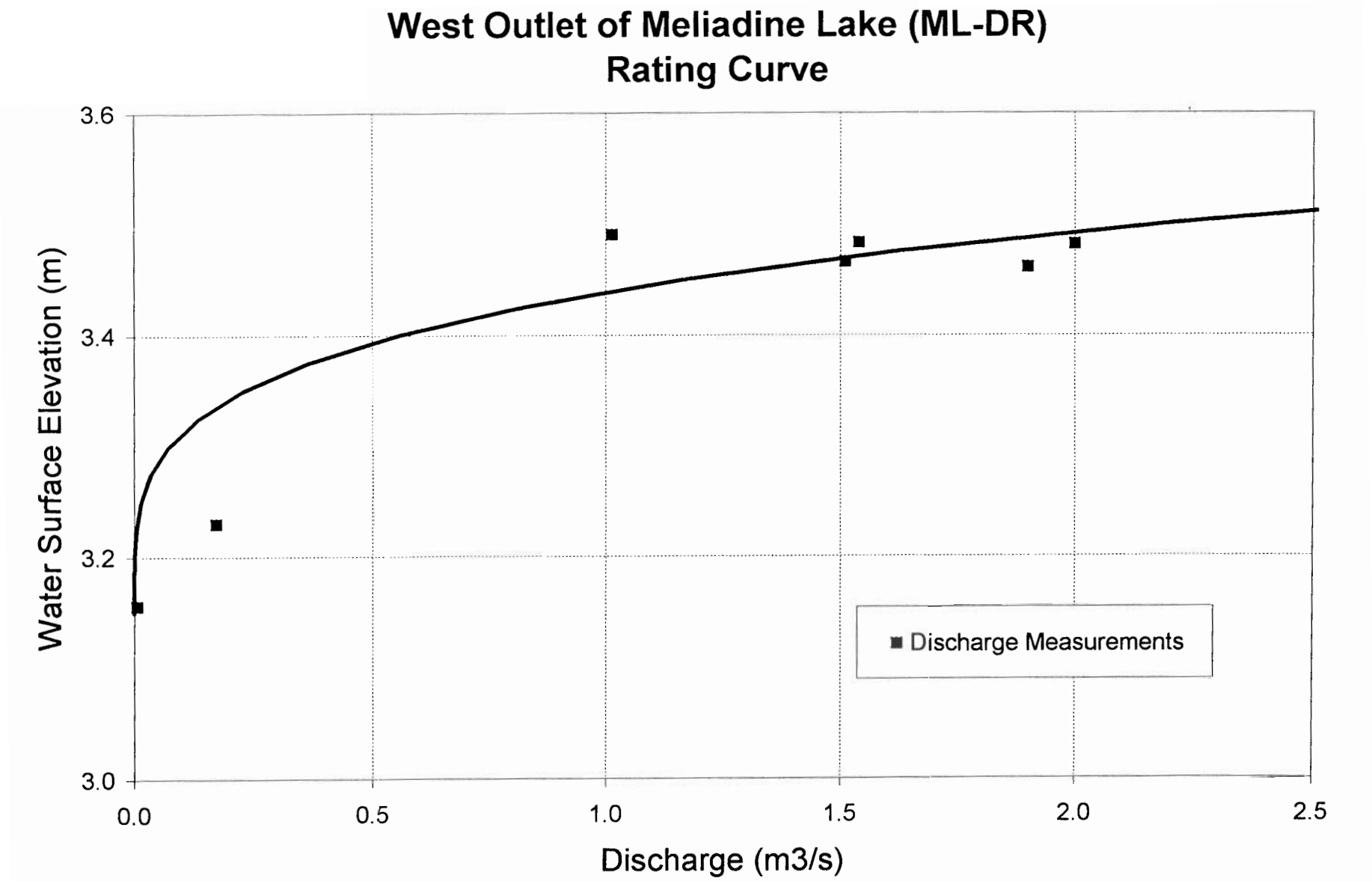
B.M. #1	Red paint mark on large boulder on left bank 16.5 meters east of huge boulder.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on large boulder 15.5 meters north of huge boulder.	Elev. 8.388 m.
B.M. #3	Red paint mark on large boulder 35 meters NE of huge boulder.	Elev. 9.691 m.

B.M. #1 is the control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3	Top of staff	Correction to Staff	
1997						
Jun. 22	10.000	8.388	9.691	7.641	0.000	Established bench marks & staff gauge. "Top of Staff" is the top of a 1.0 meter gauge plate.
Sep. 26	10.000	8.373	9.688	7.576	- 0.065	Circuit levels

Dan Dube
\\Sr_Yelpdc_Po\Monitor\WSC\PROJECTS\MELIADIN\Gaugehistory\Westoutletmeliadine_Gh.Doc
11/13/97

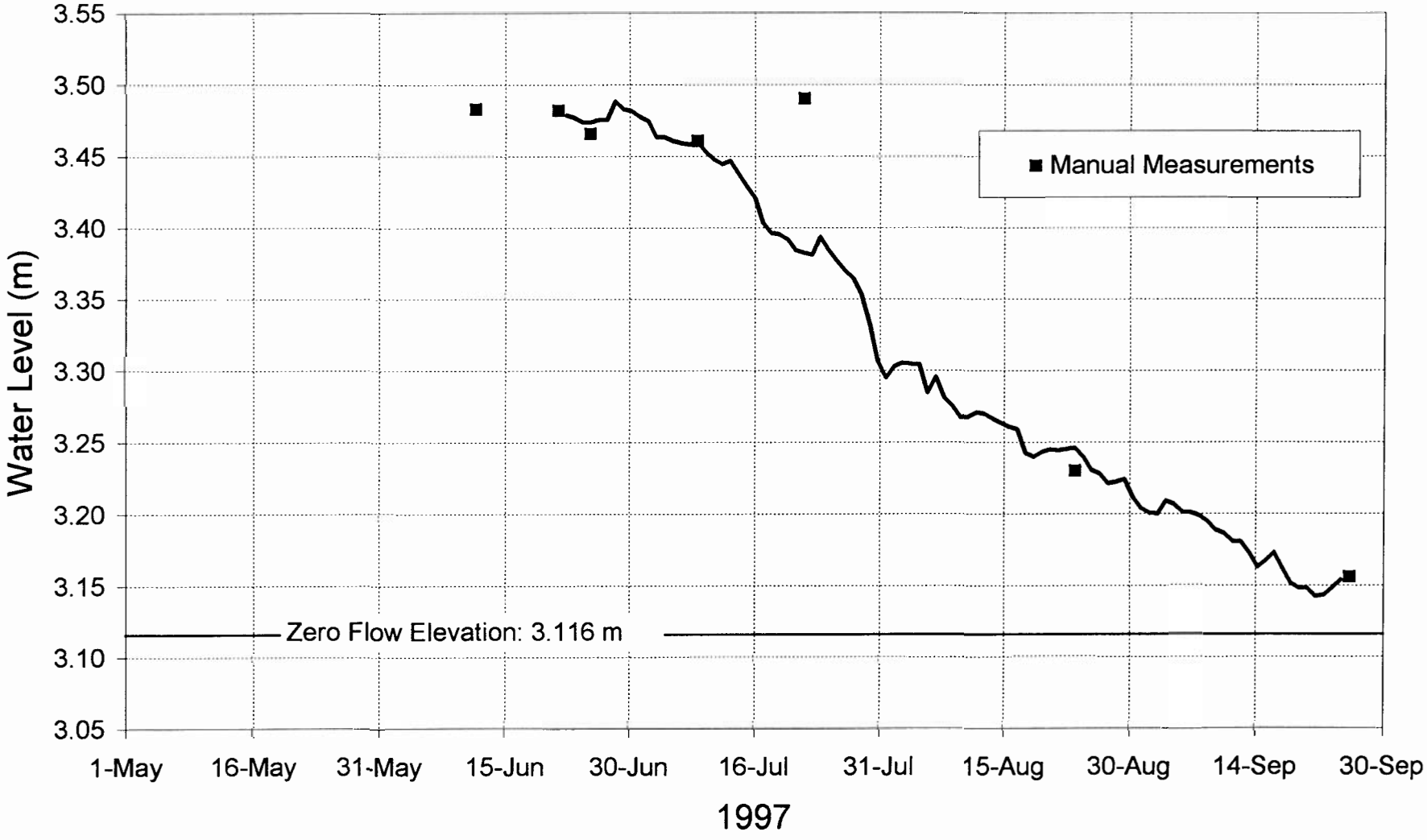


WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\LakeLevels\Summary2.xls 06MC009RC2 (2)

Figure E.8.1

West Outlet of Meliadine Lake (ML-DR)
Meliadine Lake Water Levels 1997



P:\Project\1525\LakeLevels\6MC009DY.xls WaterLevel

WMC Meliadine West Gold Project
Water Balance Study

Figure E.8.2

STATION NUMBER: 06MC009 West Outlet of Meliadine Lake (ML-DR)
DATA LOGGER START UP DATE: 6/23/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	3.482	3.295	3.204	---	---	---
2	---	---	---	---	---	---	3.478	3.303	3.201	---	---	---
3	---	---	---	---	---	---	3.475	3.305	3.200	---	---	---
4	---	---	---	---	---	---	3.463	3.305	3.209	---	---	---
5	---	---	---	---	---	---	3.463	3.304	3.207	---	---	---
6	---	---	---	---	---	---	3.461	3.284	3.201	---	---	---
7	---	---	---	---	---	---	3.459	3.296	3.201	---	---	---
8	---	---	---	---	---	---	3.458	3.281	3.199	---	---	---
9	---	---	---	---	---	---	3.461	3.275	3.195	---	---	---
10	---	---	---	---	---	---	3.453	3.267	3.189	---	---	---
11	---	---	---	---	---	---	3.448	3.268	3.186	---	---	---
12	---	---	---	---	---	3.483	3.445	3.271	3.181	---	---	---
13	---	---	---	---	---	---	3.447	3.270	3.181	---	---	---
14	---	---	---	---	---	---	3.438	3.267	3.173	---	---	---
15	---	---	---	---	---	---	3.429	3.264	3.163	---	---	---
16	---	---	---	---	---	---	3.421	3.261	3.167	---	---	---
17	---	---	---	---	---	---	3.403	3.259	3.173	---	---	---
18	---	---	---	---	---	---	3.396	3.243	3.162	---	---	---
19	---	---	---	---	---	---	3.395	3.240	3.152	---	---	---
20	---	---	---	---	---	---	3.392	3.243	3.148	---	---	---
21	---	---	---	---	---	---	3.384	3.245	3.148	---	---	---
22	---	---	---	---	---	3.482	3.382	3.244	3.143	---	---	---
23	---	---	---	---	---	3.479	3.381	3.245	3.144	---	---	---
24	---	---	---	---	---	3.477	3.393	3.246	3.148	---	---	---
25	---	---	---	---	---	3.474	3.385	3.240	3.154	---	---	---
26	---	---	---	---	---	3.474	3.377	3.231	---	---	---	---
27	---	---	---	---	---	3.476	3.370	3.228	---	---	---	---
28	---	---	---	---	---	3.476	3.365	3.221	---	---	---	---
29	---	---	---	---	---	3.488	3.353	3.222	---	---	---	---
30	---	---	---	---	---	3.483	3.333	3.224	---	---	---	---
31	---	---	---	---	---	---	3.306	3.211	---	---	---	---
MIN	---	---	---	---	---	---	3.306	3.211	3.143	---	---	---
MEAN	---	---	---	---	---	---	3.416	3.260	3.177	---	---	---
MAX	---	---	---	---	---	---	3.482	3.305	3.209	---	---	---

STATION NUMBER: 06MC009 West Outlet of Meliadine Lake (ML-DR)
DATA LOGGER START UP DATE: 6/23/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	1.76	.064	.002	---	---	---
2	---	---	---	---	---	---	1.68	.079	.001	---	---	---
3	---	---	---	---	---	---	1.62	.084	.001	---	---	---
4	---	---	---	---	---	---	1.40	.082	.002	---	---	---
5	---	---	---	---	---	---	1.40	.081	.002	---	---	---
6	---	---	---	---	---	---	1.35	.047	.001	---	---	---
7	---	---	---	---	---	---	1.33	.064	.001	---	---	---
8	---	---	---	---	---	---	1.31	.043	.001	---	---	---
9	---	---	---	---	---	---	1.35	.036	.001	---	---	---
10	---	---	---	---	---	---	1.22	.028	.001	---	---	---
11	---	---	---	---	---	---	1.14	.028	.000	---	---	---
12	---	---	---	---	---	1.54	1.09	.031	.000	---	---	---
13	---	---	---	---	---	---	1.12	.030	.000	---	---	---
14	---	---	---	---	---	---	.989	.027	.000	---	---	---
15	---	---	---	---	---	---	.869	.025	.000	---	---	---
16	---	---	---	---	---	---	.772	.022	.000	---	---	---
17	---	---	---	---	---	---	.588	.021	.000	---	---	---
18	---	---	---	---	---	---	.525	.011	.000	---	---	---
19	---	---	---	---	---	---	.517	.010	.000	---	---	---
20	---	---	---	---	---	---	.486	.012	.000	---	---	---
21	---	---	---	---	---	---	.428	.012	.000	---	---	---
22	---	---	---	---	---	---	.414	.012	.000	---	---	---
23	---	---	---	---	---	1.70	.406	.013	.000	---	---	---
24	---	---	---	---	---	1.66	.500	.013	.000	---	---	---
25	---	---	---	---	---	1.60	.431	.010	.000	---	---	---
26	---	---	---	---	---	1.60	.378	.007	---	---	---	---
27	---	---	---	---	---	1.63	.335	.006	---	---	---	---
28	---	---	---	---	---	1.63	.302	.004	---	---	---	---
29	---	---	---	---	---	1.92	.243	.005	---	---	---	---
30	---	---	---	---	---	1.79	.159	.005	---	---	---	---
31	---	---	---	---	---	---	.087	.003	---	---	---	---
MIN	---	---	---	---	---	---	.087	.003	.000	---	---	---
MEAN	---	---	---	---	---	---	.845	.030	.001	---	---	---
MAX	---	---	---	---	---	---	1.76	.084	.002	---	---	---

Discharge in cubic meters per second
Mean .425
Maximum Daily 1.916 on June 29
Maximum instantaneous 2.172 at 13:45 on June 29

Total Volume
5195.543 Cubic Decameters

APPENDIX E.9

Meliadine River Near the Mouth

Site Inspection Summary

Meliadine River Near the Mouth (06MC001)

Zero flow elevation: 6.506 m

Date (dd-mm)	Discharge (m3/s)	DWL (m)	Data Logger (D.L.) (m)	Start (time)	End (time)	Start (D.L.) (m)	End (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)	Final Depth (m)
13-Jun	12.900	7.437		9:25	10:10	N.D.L.R.	N.D.L.R		0.000	7.437	0.931
20-Jun	9.460	7.337	7.338	8:15	8:45	N.D.L.R.	N.D.L.R	-0.001	0.000	7.338	0.832
23-Jun	8.730	7.299	7.308	14:45	15:15	7.312	7.311	-0.023	-0.016	7.296	0.790
26-Jun	visit	7.296	7.311	N.R.	N.R.			-0.015	-0.016	7.295	0.789
9-Jul	6.750	7.236	7.253	10:54	11:45	7.251	7.252	-0.026	-0.016	7.236	0.730
28-Jul	3.770	6.913	7.127	8:20	9:05	7.127	7.126	Outlier	-0.016	7.111	0.605
23-Aug	1.300	6.938	6.942	8:06	8:40	6.945	6.945	-0.017	-0.016	6.929	0.423
25-Sep	0.741	6.883	6.895	15:00	15:30	6.895 @ 14:15		-0.012	-0.016	6.879	0.373

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records

GAUGE HISTORY

STATION NAME: Meliadine River near the Mouth
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 62° 52'25" gps **LONGITUDE:** 92° 07' 14" gps

BENCH MARKS:

B.M. #1	Red paint mark on bedrock outcrop 80 meters east of shelter.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on large boulder 11 meters east of shelter.	Elev. 10.455 m.
B.M. #3	Red paint mark on boulder (shoreward) 5.4 meters south of shelter.	Elev. 8.779 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 13	10.000	10.455	8.779			Established Bench Marks
Sep. 25	10.000	10.450	8.763			Circuit levels
			8.779			Used for the year

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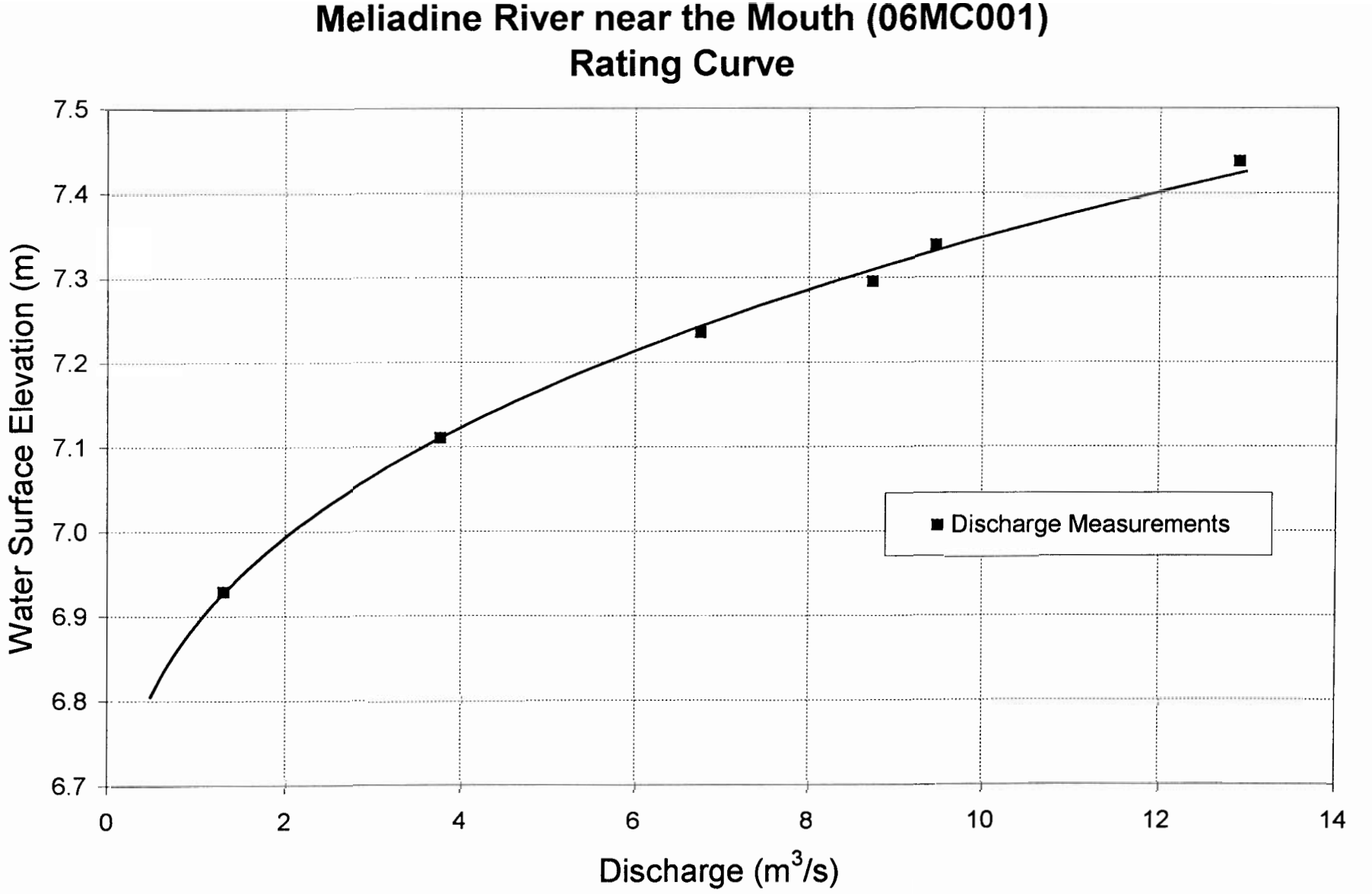
11/13/97



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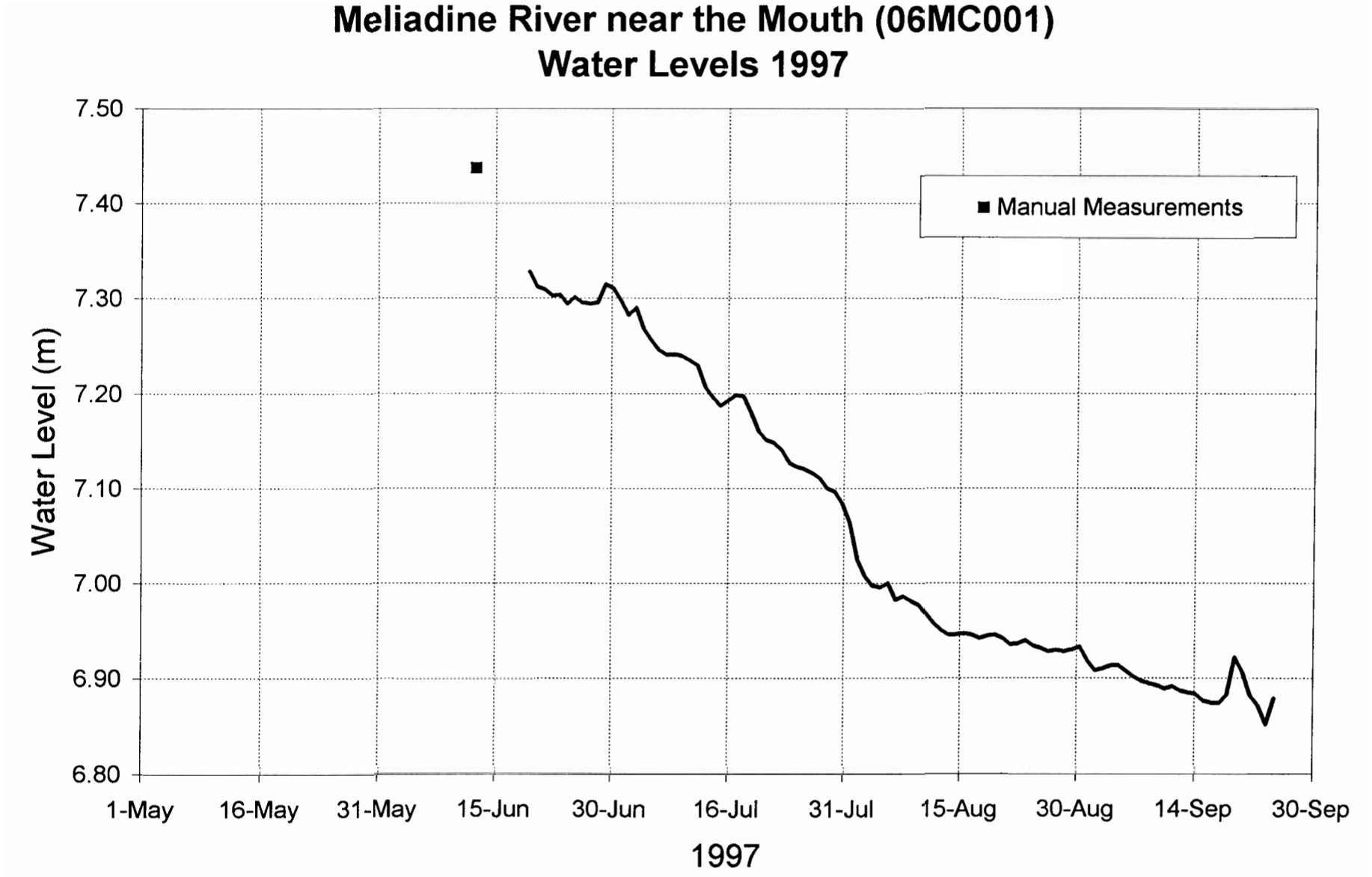
WMC Meliadine West Gold Project
Water Balance Study

Figure E.9.1



WMC Meliadine West Gold Project
Water Balance Study

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Figure E.9.2

STATION NUMBER: 06MC001 Meliadine River near the Mouth
DATA LOGGER START UP DATE: 6/20/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	7.304	7.057	6.913	---	---	---
2	---	---	---	---	---	---	7.292	7.019	6.902	---	---	---
3	---	---	---	---	---	---	7.277	7.002	6.904	---	---	---
4	---	---	---	---	---	---	7.284	6.991	6.907	---	---	---
5	---	---	---	---	---	---	7.262	6.989	6.908	---	---	---
6	---	---	---	---	---	---	7.250	6.994	6.902	---	---	---
7	---	---	---	---	---	---	7.240	6.976	6.896	---	---	---
8	---	---	---	---	---	---	7.235	6.980	6.891	---	---	---
9	---	---	---	---	---	---	7.235	6.975	6.889	---	---	---
10	---	---	---	---	---	---	7.233	6.971	6.887	---	---	---
11	---	---	---	---	---	---	7.229	6.962	6.883	---	---	---
12	---	---	---	---	---	---	7.224	6.952	6.885	---	---	---
13	---	---	---	---	---	7.437	7.201	6.945	6.881	---	---	---
14	---	---	---	---	---	---	7.190	6.939	6.879	---	---	---
15	---	---	---	---	---	---	7.182	6.940	6.878	---	---	---
16	---	---	---	---	---	---	7.187	6.941	6.871	---	---	---
17	---	---	---	---	---	---	7.192	6.939	6.868	---	---	---
18	---	---	---	---	---	---	7.191	6.936	6.868	---	---	---
19	---	---	---	---	---	---	7.173	6.938	6.877	---	---	---
20	---	---	---	---	---	7.322	7.153	6.940	6.916	---	---	---
21	---	---	---	---	---	7.306	7.145	6.936	6.901	---	---	---
22	---	---	---	---	---	7.303	7.142	6.929	6.876	---	---	---
23	---	---	---	---	---	7.297	7.134	6.931	6.866	---	---	---
24	---	---	---	---	---	7.298	7.121	6.934	6.846	---	---	---
25	---	---	---	---	---	7.288	7.117	6.928	6.873	---	---	---
26	---	---	---	---	---	7.295	7.114	6.926	---	---	---	---
27	---	---	---	---	---	7.289	7.110	6.922	---	---	---	---
28	---	---	---	---	---	7.288	7.104	6.923	---	---	---	---
29	---	---	---	---	---	7.290	7.094	6.922	---	---	---	---
30	---	---	---	---	---	7.309	7.090	6.924	---	---	---	---
31	---	---	---	---	---	---	7.078	6.927	---	---	---	---
MIN	---	---	---	---	---	---	7.078	6.922	6.846	---	---	---
MEAN	---	---	---	---	---	---	7.186	6.954	6.887	---	---	---
MAX	---	---	---	---	---	---	7.304	7.057	6.916	---	---	---

STATION NUMBER: 06MC001 Meliadine River near the Mouth
DATA LOGGER START UP DATE: 6/20/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	8.57	2.88	1.17	---	---	---
2	---	---	---	---	---	---	8.17	2.33	1.09	---	---	---
3	---	---	---	---	---	---	7.72	2.10	1.11	---	---	---
4	---	---	---	---	---	---	7.94	1.97	1.13	---	---	---
5	---	---	---	---	---	---	7.28	1.95	1.13	---	---	---
6	---	---	---	---	---	---	6.96	2.01	1.08	---	---	---
7	---	---	---	---	---	---	6.68	1.80	1.04	---	---	---
8	---	---	---	---	---	---	6.54	1.84	.999	---	---	---
9	---	---	---	---	---	---	6.55	1.79	.982	---	---	---
10	---	---	---	---	---	---	6.51	1.74	.967	---	---	---
11	---	---	---	---	---	---	6.39	1.64	.939	---	---	---
12	---	---	---	---	---	---	6.26	1.54	.957	---	---	---
13	---	---	---	---	---	12.9	5.70	1.47	.927	---	---	---
14	---	---	---	---	---	---	5.43	1.42	.912	---	---	---
15	---	---	---	---	---	---	5.24	1.42	.900	---	---	---
16	---	---	---	---	---	---	5.35	1.43	.851	---	---	---
17	---	---	---	---	---	---	5.49	1.41	.835	---	---	---
18	---	---	---	---	---	---	5.46	1.39	.833	---	---	---
19	---	---	---	---	---	---	5.05	1.41	.921	---	---	---
20	---	---	---	---	---	9.13	4.62	1.42	1.25	---	---	---
21	---	---	---	---	---	8.63	4.45	1.38	1.11	---	---	---
22	---	---	---	---	---	8.53	4.38	1.32	.891	---	---	---
23	---	---	---	---	---	8.33	4.22	1.33	.824	---	---	---
24	---	---	---	---	---	8.36	3.97	1.36	.692	---	---	---
25	---	---	---	---	---	8.07	3.90	1.31	.868	---	---	---
26	---	---	---	---	---	8.27	3.85	1.29	---	---	---	---
27	---	---	---	---	---	8.10	3.77	1.25	---	---	---	---
28	---	---	---	---	---	8.06	3.67	1.27	---	---	---	---
29	---	---	---	---	---	8.12	3.48	1.26	---	---	---	---
30	---	---	---	---	---	8.71	3.42	1.27	---	---	---	---
31	---	---	---	---	---	---	3.21	1.30	---	---	---	---
MIN	---	---	---	---	---	---	3.21	1.25	.692	---	---	---
MEAN	---	---	---	---	---	---	5.49	1.59	.976	---	---	---
MAX	---	---	---	---	---	---	8.57	2.88	1.25	---	---	---

Discharge in cubic meters per second
Mean 3.417
Maximum Daily 12.900 on June 13
Maximum instantaneous 12.900 on June 13

Total Volume (June 11 - Sept.25)
35783.63 Cubic Decameters

APPENDIX E.10

Diana River Near Rankin Inlet

Site Inspection Summary

Diana River near Rankin Inlet (06NC001)

Zero Flow Elevation: 5.00 m (Estimated)

Date	Discharge	DWL	Data Logger	Start	End	Start	End	Difference	Adjustment	Final	Final
(dd-mm)	(m3/s)	(m)	(D.L.) (m)	(time)	(time)	(D.L.) (m)	(D.L.) (m)	(DWL-D.L.)	(m)	Elev. (m)	Depth (m)
10-Jun	visit	7.130		N.R.	N.R.				0.000	7.130	2.130
19-Jun	visit	7.181		N.R.	N.R.	7.171 @ 10:00		0.010	-0.005	7.176	2.176
25-Jun	34.800	7.155	7.138	12:45	13:45	7.144	7.137	0.015	-0.005	7.150	2.150
10-Jul	29.600	7.030	N.D.L.R.	8:56	10:13	N.D.L.R.	N.D.L.R.		0.000	7.030	2.030
29-Jul	19.500	N.R.	6.882	12:40	14:30	6.823	6.822		-0.005	6.818	1.818
25-Aug	7.820	6.454	6.501	11:12	12:30	6.493	6.495	-0.040	-0.005	6.489	1.489
24-Sep	visit	6.412	6.217	N.R.	N.R.	6.217 @ 14:30		0.195	0.000	6.412	1.412

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
"Start" and **"End"** refer to the time and water level at the start and the end of the discharge measurement
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Depth = Adjusted depth of flow above the zero flow elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records
Note: - There were apparent malfunctions in the water level senor - July 9-10 and Sept. 17-24
- Data from May 18 to June 19 was obtained from the WSC strip chart.

GAUGE HISTORY

STATION NAME: Diana River near Rankin Inlet
STATION NUMBER: 06NC001 **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 62 51' 37" **LONGITUDE:** 92 24' 56"

BENCH MARKS:

BM #1 Blue paint on rock 2.0 m southwest of southwest corner of shelter.	**Elevation**	**10.000 m**
BM 88-2 Paint mark on rock 4.2 m west of south west corner of shelter.	**Elevation**	**9.900 m**
BM 88-3 Paint mark on rock 14.6 m northeast of the northwest corner of shelter.	**Elevation**	**9.463 m**

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	**BM 88-2**	**BM 88-3**			
1997						
Jun. 10	10.000	9.897	9.455			Circuit levels
Sep. 24	10.000	9.898	9.545			Circuit levels
			9.463			Used for the year

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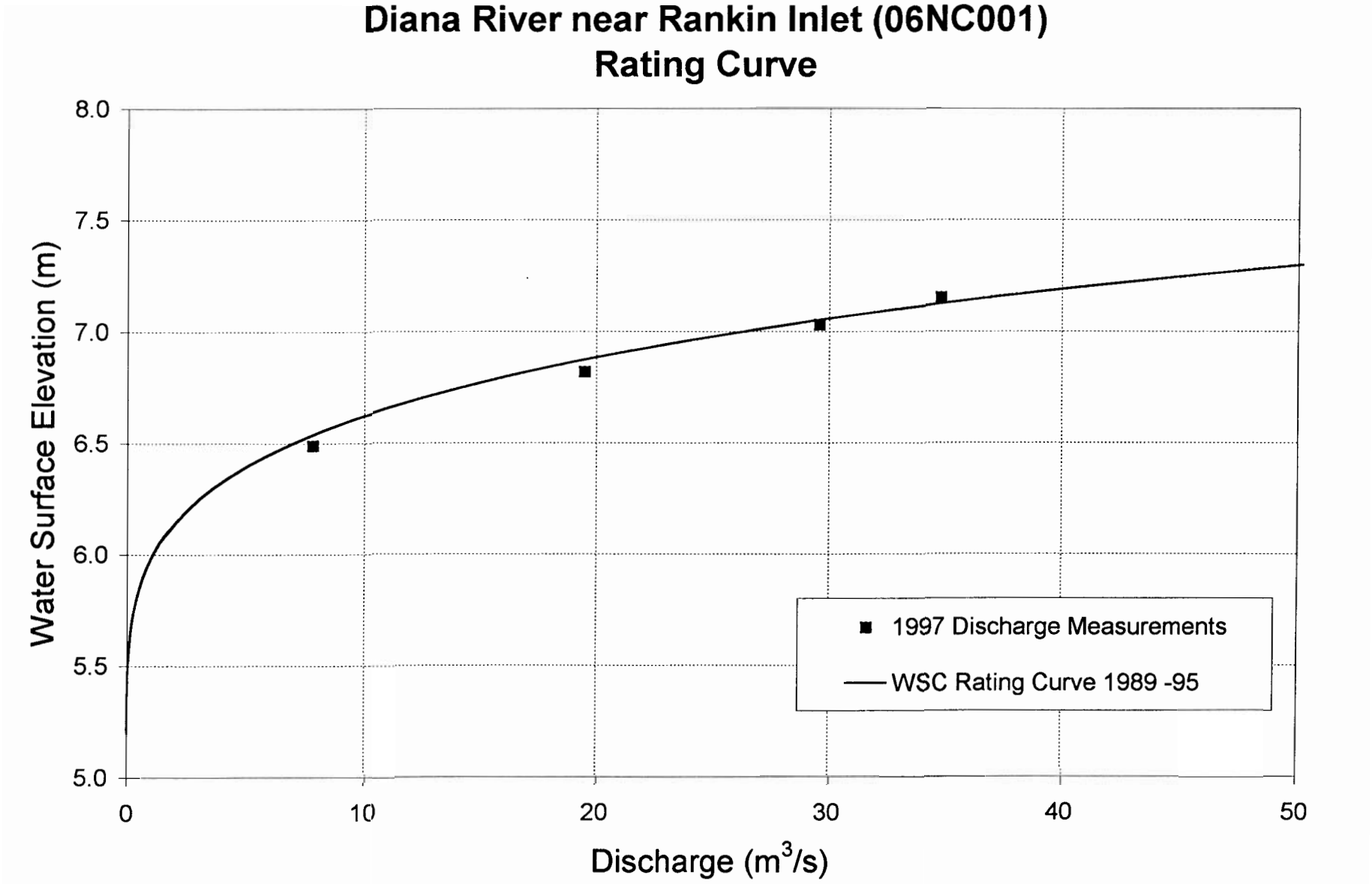
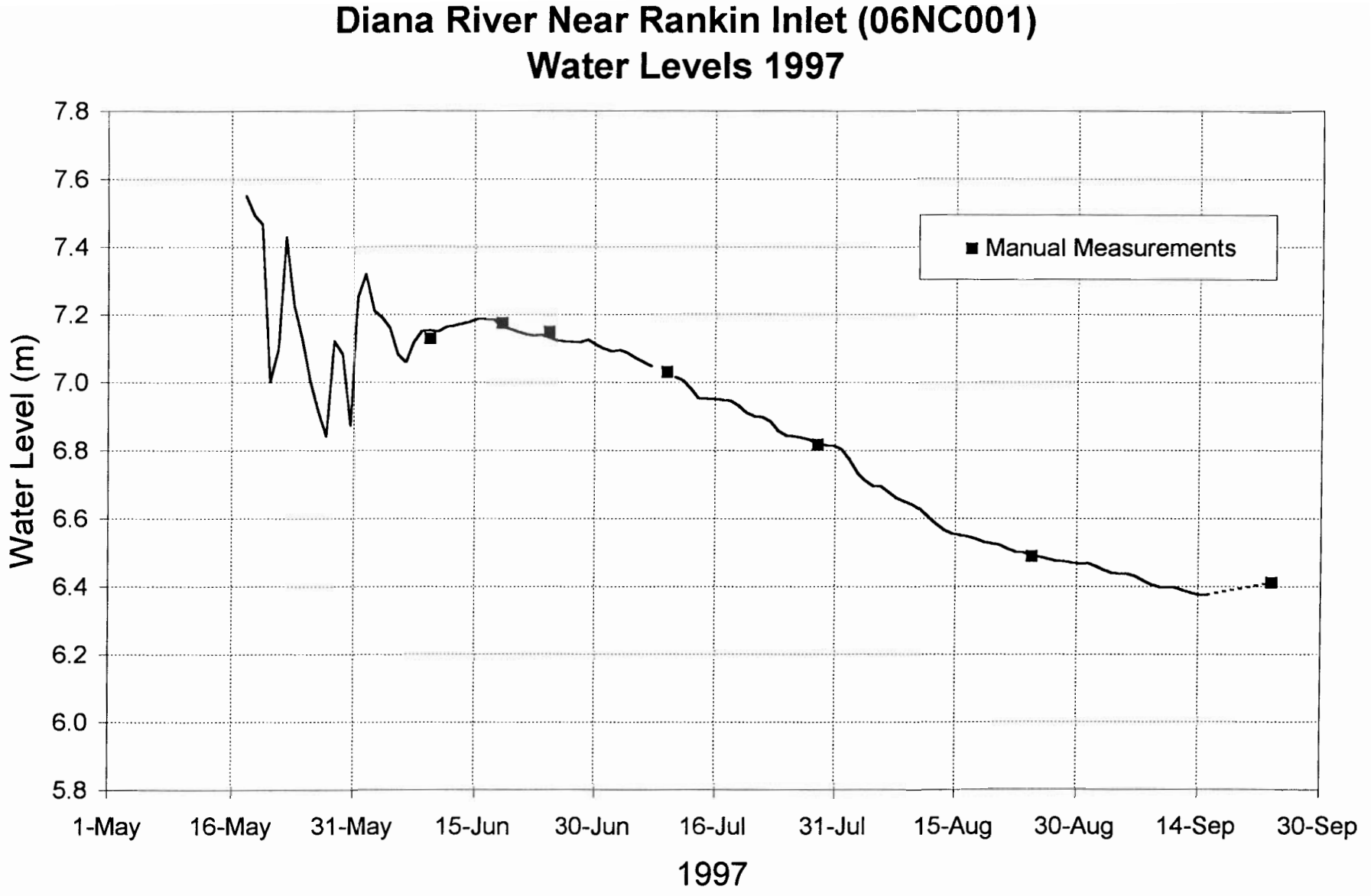
\\Sr_Yelpdc_Po\Monitor\WSC\PROJECTS\MELIADIN\Gaugehistory\Dianariver_Gh.Doc
11/13/97



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\Lakelevel\Summary2.xls 06NC001RC2 (2)

Figure E.10.1



WMC Meliadine West Gold Project
Water Balance Study

P:\Project\1525\LakeLevels\6NC001DY.xls WaterLevel

Figure E.10.2

STATION NUMBER: 06NC001 Diana River near Rankin Inlet
DATA LOGGER START UP DATE: 6/19/1997
DATA LOGGER ENDING DATE: 09/24/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	7.250	7.110	6.804	6.470	---	---	---
2	---	---	---	---	---	7.320	7.099	6.776	6.460	---	---	---
3	---	---	---	---	---	7.210	7.090	6.736	6.449	---	---	---
4	---	---	---	---	---	7.190	7.095	6.712	6.441	---	---	---
5	---	---	---	---	---	7.160	7.086	6.697	6.438	---	---	---
6	---	---	---	---	---	7.080	7.071	6.695	6.438	---	---	---
7	---	---	---	---	---	7.060	7.058	6.677	6.430	---	---	---
8	---	---	---	---	---	7.120	7.048	6.660	6.418	---	---	---
9	---	---	---	---	---	7.150	---	6.650	6.405	---	---	---
10	---	---	---	---	---	7.150	---	6.640	6.399	---	---	---
11	---	---	---	---	---	7.150	7.016	6.625	6.397	---	---	---
12	---	---	---	---	---	7.160	7.006	6.604	6.397	---	---	---
13	---	---	---	---	---	7.170	6.981	6.584	6.389	---	---	---
14	---	---	---	---	---	7.170	6.953	6.565	6.381	---	---	---
15	---	---	---	---	---	7.180	6.953	6.555	6.375	---	---	---
16	---	---	---	---	---	7.190	6.952	6.551	6.376	---	---	---
17	---	---	---	---	---	7.190	6.949	6.547	---	---	---	---
18	---	---	---	---	7.550	7.190	6.946	6.539	---	---	---	---
19	---	---	---	---	7.490	7.164	6.931	6.532	---	---	---	---
20	---	---	---	---	7.470	7.158	6.910	6.527	---	---	---	---
21	---	---	---	---	7.000	7.150	6.901	6.522	---	---	---	---
22	---	---	---	---	7.100	7.142	6.897	6.511	---	---	---	---
23	---	---	---	---	7.430	7.138	6.884	6.502	---	---	---	---
24	---	---	---	---	7.230	7.141	6.857	6.501	6.412	---	---	---
25	---	---	---	---	7.130	7.133	6.845	6.490	---	---	---	---
26	---	---	---	---	7.000	7.123	6.842	6.487	---	---	---	---
27	---	---	---	---	6.910	7.120	6.838	6.481	---	---	---	---
28	---	---	---	---	6.840	7.119	6.831	6.477	---	---	---	---
29	---	---	---	---	7.120	7.118	6.819	6.474	---	---	---	---
30	---	---	---	---	7.080	7.125	6.816	6.470	---	---	---	---
31	---	---	---	---	6.870	---	6.814	6.467	---	---	---	---
MIN	---	---	---	---	---	7.060	6.814	6.467	---	---	---	---
MEAN	---	---	---	---	---	7.160	6.951	6.583	---	---	---	---
MAX	---	---	---	---	---	7.320	7.110	6.804	---	---	---	---

STATION NUMBER: 06NC001 Diana River near Rankin Inlet
DATA LOGGER START UP DATE: 6/19/1997
DATA LOGGER ENDING DATE: 09/24/1997

DAILY MEAN DISCHARGE IN CUBIC METERS PER SECOND

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	7.00E	33.8	16.4	6.36	---	---	---
2	---	---	---	---	---	8.75E	33.0	15.2	6.17	---	---	---
3	---	---	---	---	---	10.8E	32.3	13.7	5.96	---	---	---
4	---	---	---	---	---	14.8E	32.7	12.9	5.81	---	---	---
5	---	---	---	---	---	20.8E	32.0	12.3	5.75	---	---	---
6	---	---	---	---	---	26.0E	31.0	12.3	5.74	---	---	---
7	---	---	---	---	---	30.2	30.1	11.7	5.61	---	---	---
8	---	---	---	---	---	34.4	29.4	11.2	5.39	---	---	---
9	---	---	---	---	---	37.0	28.8E	10.9	5.17	---	---	---
10	---	---	---	---	---	37.2	28.0E	10.5	5.07	---	---	---
11	---	---	---	---	---	36.9	27.4	10.1	5.03	---	---	---
12	---	---	---	---	---	37.9	26.8	9.52	5.02	---	---	---
13	---	---	---	---	---	38.2	25.3	8.98	4.90	---	---	---
14	---	---	---	---	---	38.7	23.7	8.51	4.77	---	---	---
15	---	---	---	---	---	39.1	23.6	8.26	4.67	---	---	---
16	---	---	---	---	---	39.9	23.6	8.16	4.69	---	---	---
17	---	---	---	---	---	39.9	23.4	8.06	4.77E	---	---	---
18	---	---	---	---	---	39.7	23.3	7.87	4.84E	---	---	---
19	---	---	---	---	---	38.0	22.4	7.69	4.92E	---	---	---
20	---	---	---	---	---	37.5	21.4	7.59	4.99E	---	---	---
21	---	---	---	---	---	36.8	20.8	7.47	5.06E	---	---	---
22	---	---	---	---	---	36.3	20.7	7.22	5.14E	---	---	---
23	---	---	---	---	---	35.9	20.0	7.04	5.21E	---	---	---
24	---	---	---	---	---	36.1	18.7	7.01	5.29	---	---	---
25	---	---	---	---	0.500E	35.5	18.2	6.78	---	---	---	---
26	---	---	---	---	1.00E	34.8	18.0	6.72	---	---	---	---
27	---	---	---	---	1.50E	34.6	17.9	6.60	---	---	---	---
28	---	---	---	---	2.25E	34.4	17.6	6.51	---	---	---	---
29	---	---	---	---	3.00E	34.4	17.0	6.45	---	---	---	---
30	---	---	---	---	4.25E	34.9	16.9	6.37	---	---	---	---
31	---	---	---	---	5.50E	---	16.8	6.31	---	---	---	---
MIN	---	---	---	---	---	7.00	16.8	6.31	.825	---	---	---
MEAN	---	---	---	---	---	32.2	24.3	9.24	5.16	---	---	---
MAX	---	---	---	---	---	39.9	33.8	16.4	6.36	---	---	---

Discharge in cubic meters per second
Mean 15.780
Maximum Daily 39.9 on June 15
Maximum instantaneous 39.9 on June 15

Total Volume (May 18 - Sept.24)
183425.289 Cubic Decameters

APPENDIX E.11

Meliadine Lake Near Rankin Inlet

Site Inspection Summary
Meliadine Lake Near Rankin Inlet (06MC002)

Date (dd-mm)	DWL (m)	Data Logger (D.L.) (m)	Time (hours)	D.L. File (D.L.) (m)	Difference (DWL-D.L.)	Adjustment (m)	Final Elev. (m)
12-Jun	3.483		19:05	N.D.L.R.		0.000	3.483
22-Jun	3.482	3.482	8:35	N.D.L.R.		0.000	3.482
23-Jun	3.477	3.477	10:35	N.D.L.R.		0.000	3.477
8-Jul	3.457	3.451	12:15	3.454	0.006	-0.002	3.451
29-Jul	3.345	3.351	7:00E	3.358	-0.006	-0.002	3.349
17-Aug	N.R.	3.258	9:13E	3.259		-0.002	3.256
25-Sep	3.147	3.154	9:00E	3.154	-0.007	-0.002	3.152

DWL = Direct water level surveyed from bench mark
DL = Data logger water level
Difference = difference in water level between surveyed level (DWL) and data logger
Adjustment = value selected by which to adjust the data logger water level reading
Final Elevation = Adjusted water surface elevation
N.R. = Not Recorded in Field Notes
N.D.L.R. = No Data Logger Records
E = Estimated time of Data logger reading

GAUGE HISTORY

STATION NAME: Meliadine Lake near Rankin Inlet
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 05' 14" gps **LONGITUDE:** 92° 23' 15" gps

BENCH MARKS:

B.M. #1	Red paint mark on top of bedrock outcrop 31.4 meters south of shelter.	Elev. 10.000 m. (assumed)
B.M. #2	Red paint mark on bedrock outcrop 20.0 meters west of shelter.	Elev. 6.980 m.
B.M. #3	Red paint mark on bedrock outcrop 16.2 meters NW of shelter.	Elev. 5.980 m.

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3			
1997						
Jun. 12	10.000	6.980	5.980			Established mench marks
			5.980			Used for the year

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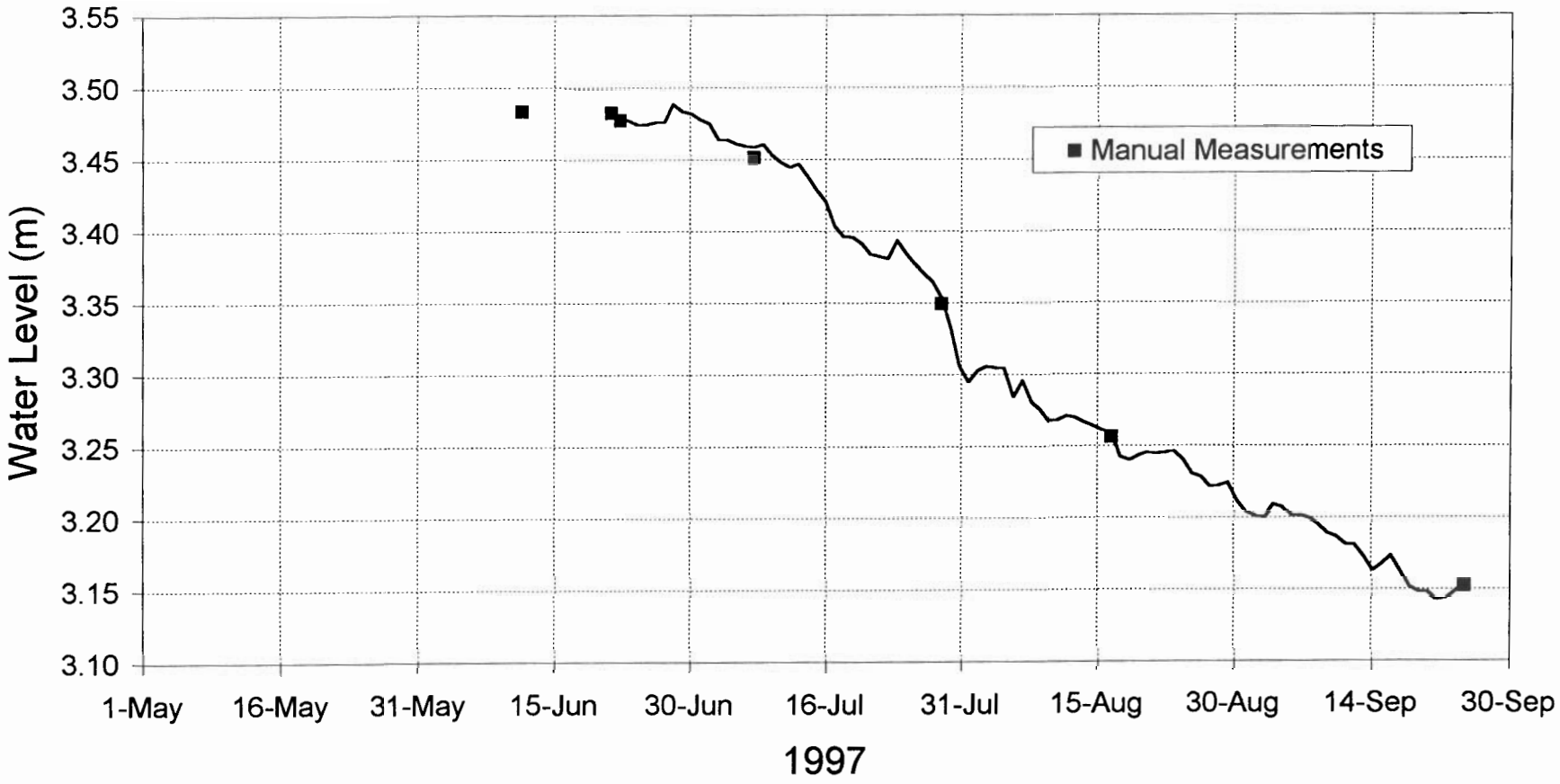
Meliadine Lake near Rankin Inlet
Water Levels 1997



P:\Project\1525\LakeLevels\Summary2.xls 06MC002 Chart 2

WMC Meliadine West Gold Project
Water Balance Study

Figure E.11.1

STATION NUMBER: 06MC002 Meliadine Lake near Rankin Inlet
DATA LOGGER START UP DATE: 6/23/1997
DATA LOGGER ENDING DATE: 09/25/1997

DAILY MEAN WATER LEVEL IN METERS

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	---	---	---	---	---	---	3.482	3.295	3.204	---	---	---
2	---	---	---	---	---	---	3.478	3.303	3.201	---	---	---
3	---	---	---	---	---	---	3.475	3.305	3.200	---	---	---
4	---	---	---	---	---	---	3.463	3.305	3.209	---	---	---
5	---	---	---	---	---	---	3.463	3.304	3.207	---	---	---
6	---	---	---	---	---	---	3.461	3.284	3.201	---	---	---
7	---	---	---	---	---	---	3.459	3.296	3.201	---	---	---
8	---	---	---	---	---	---	3.458	3.281	3.199	---	---	---
9	---	---	---	---	---	---	3.461	3.275	3.195	---	---	---
10	---	---	---	---	---	---	3.453	3.267	3.189	---	---	---
11	---	---	---	---	---	---	3.448	3.268	3.186	---	---	---
12	---	---	---	---	---	3.483	3.445	3.271	3.181	---	---	---
13	---	---	---	---	---	3.482	3.447	3.270	3.181	---	---	---
14	---	---	---	---	---	---	3.438	3.267	3.173	---	---	---
15	---	---	---	---	---	---	3.429	3.264	3.163	---	---	---
16	---	---	---	---	---	---	3.421	3.261	3.167	---	---	---
17	---	---	---	---	---	---	3.403	3.259	3.173	---	---	---
18	---	---	---	---	---	---	3.396	3.243	3.162	---	---	---
19	---	---	---	---	---	---	3.395	3.240	3.152	---	---	---
20	---	---	---	---	---	---	3.392	3.243	3.148	---	---	---
21	---	---	---	---	---	---	3.384	3.245	3.148	---	---	---
22	---	---	---	---	---	---	3.382	3.244	3.143	---	---	---
23	---	---	---	---	---	3.479	3.381	3.245	3.144	---	---	---
24	---	---	---	---	---	3.477	3.393	3.246	3.148	---	---	---
25	---	---	---	---	---	3.474	3.385	3.240	3.154	---	---	---
26	---	---	---	---	---	3.474	3.377	3.231	---	---	---	---
27	---	---	---	---	---	3.476	3.370	3.228	---	---	---	---
28	---	---	---	---	---	3.476	3.365	3.221	---	---	---	---
29	---	---	---	---	---	3.488	3.353	3.222	---	---	---	---
30	---	---	---	---	---	3.483	3.333	3.224	---	---	---	---
31	---	---	---	---	---	---	3.306	3.211	---	---	---	---
MIN	---	---	---	---	---	---	3.306	3.211	3.143	---	---	---
MEAN	---	---	---	---	---	---	3.416	3.260	3.177	---	---	---
MAX	---	---	---	---	---	---	3.482	3.305	3.209	---	---	---

APPENDIX E.12

Meliadine Lake at Meliadine Camp

Site Inspection Summary
Meliadine Lake at Meliadine Camp

Date (dd-mm)	Staff Gauge (m)	Survey time	Adjustment (m)	Final Elev. (m)
23-Jun	N.R.	14:30		
26-Jun	0.685	N.R.	2.78	3.464
1-Jul	0.704	N.R.	2.78	3.484
25-Sep	0.370	7:10	2.78	3.152

Adjustment = value selected by which to adjust the staff gauge water level reading
Final Elevation = Adjusted water surface elevation
N.R. = Not Recorded in Field Notes
Note: Estimated elevation of Meliadine Lake at Meliadine Camp B.M. #1 is 2.779 m, based on Meliadine Lake near Rankin Inlet station datum.

GAUGE HISTORY

STATION NAME: Meliadine Lake at WMC Camp
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** **0.000 m.** **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: **LONGITUDE:**

BENCH MARKS:

B.M. #1	**Elevation 10.000 m**
B.M. #2	**Elevation 7.593 m**
B.M. #3	**Elevation 7.184 m**
B.M. #1 is control bench mark.	

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M.#3	Top of Staff	Correction to Staff	
1997						
Jun. 23	10.000	7.593	7.184	6.920	0.000	Established bench marks & staff gauge. "Top of Staff" is the top of a 1.0 meter gauge plate.
Sep. 25	10.000	7.560	7.132	6.923	+ 0.003	Circuit levels

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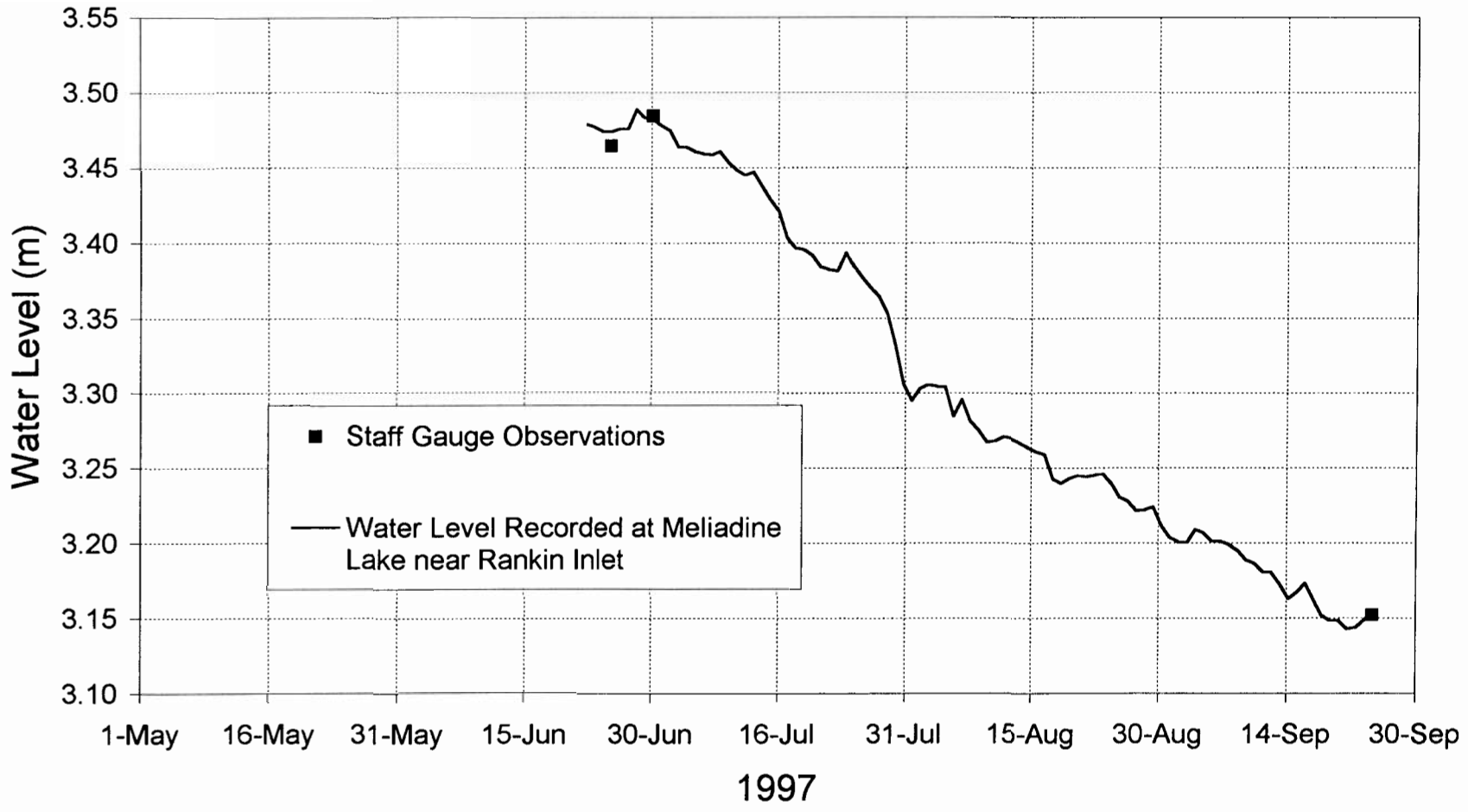
Meliadine Lake at Meliadine Camp
Water Levels 1997



P:\Project\1525\LakeLevels\Summary2.xls 06MC002 Chart 5

WMC Meliadine West Gold Project
Water Balance Study

Figure E.12.1

APPENDIX E.13

Peter Lake Near Rankin Inlet

Site Inspection Summary

Peter Lake Near Rankin Inlet (06NC003)

Date (dd-mm)	Staff Gauge (m)	Survey time	Adjust. (m)	Final Elev. (m)
23-Jun	0.478	8:10	7.01	7.488
26-Jun	0.462	N.R.	7.01	7.471
8-Jul	0.435	N.R.	7.01	7.441
17-Jul	0.474	N.R.	7.00	7.478
29-Jul	0.280	N.R.	7.00	7.281
24-Aug	0.116	N.R.	6.99	7.110
24-Sep	-0.050	13:45	6.99	6.936

Adjustment = value selected by which to adjust the staff gauge water level reading
Final Elevation = Adjusted water surface elevation
N.R. = Not Recorded in Field Notes

GAUGE HISTORY

STATION NAME: Peter Lake near Rankin Inlet
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 63° 03' 03" gps **LONGITUDE:** 92° 46' 24" gps

BENCH MARKS:

B.M. #1	**Red paint mark on top of bedrock outcrop about 21 meters inland of SE shore of island.**	**Elev. 10.000 m. (assumed)**
B.M. #2	**Red paint mark on bedrock outcrop 23.5 meters NE of B.M. #1.**	**Elev. 9.473 m.**
B.M. #3	**Red paint mark on bedrock outcrop 2.4 meters east of B.M. #2.**	**Elev. 9.222 m.**

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS (BENCH MARK USED TO OBTAIN WATER LEVELS: BOLD TYPE AND UNDERLINED)					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	B.M. #3	Top of Staff	Correction to Staff	
1997						
Jun. 23	10.000	9.473	9.222	8.010	0.000	Established bench marks & staff gauge. "Top of Staff" is the top of a 1.0 meters gauge plate.
Sep. 24			9.222	7.986	- 0.024	

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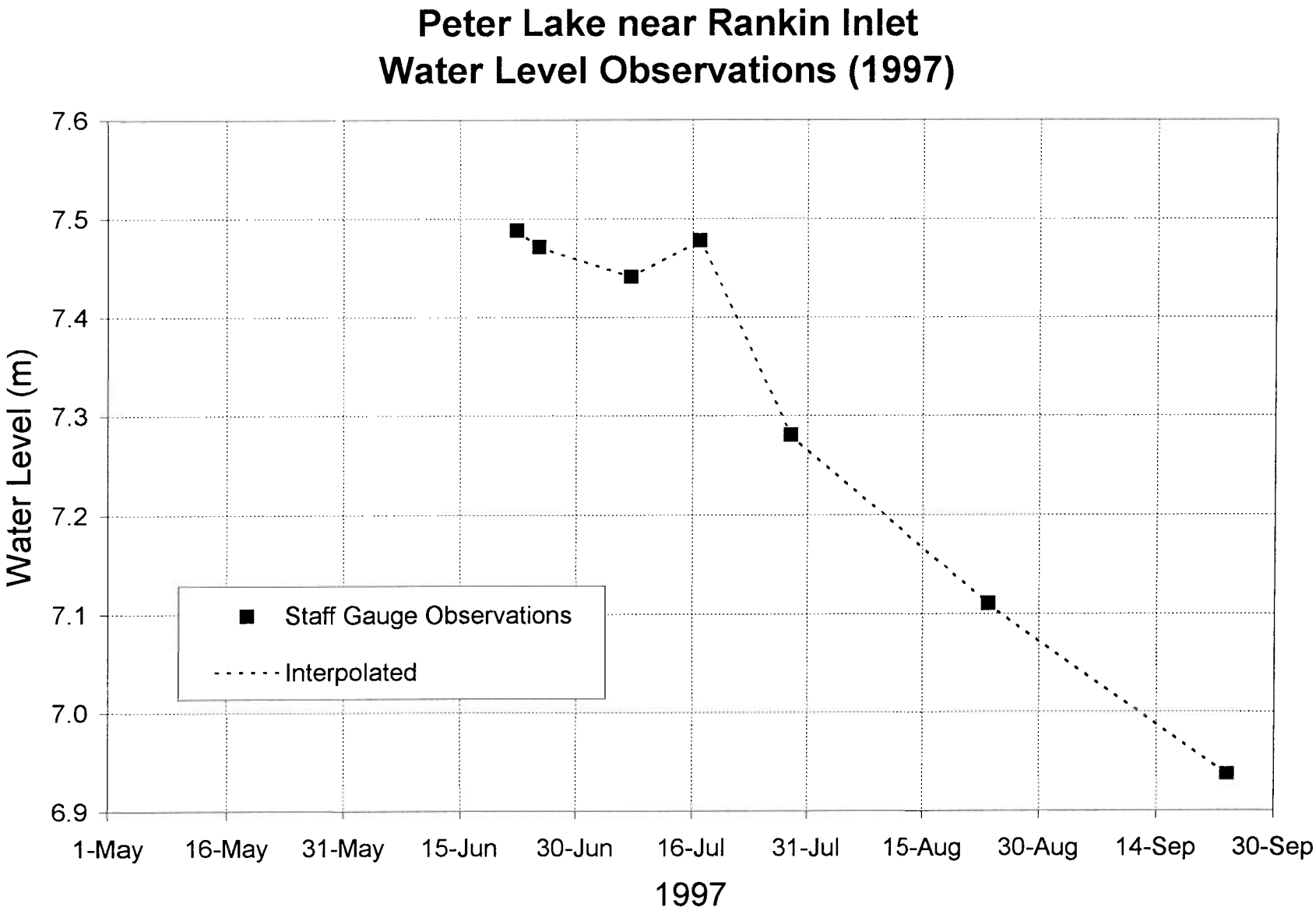
11/13/97



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WMC Meliadine West Gold Project
Water Balance Study

Figure E.13.1

APPENDIX E.14

Diana Lake Near Rankin Inlet

Site Inspection Summary
Diana Lake near Rankin Inlet (02NC002)

Date (dd-mm)	Staff Gauge (m)	Survey time	Adjust. (m)	Final Elev. (m)
23-Jun	0.610	8:10	5.930	6.540
26-Jun	0.590	N.R.	5.929	6.519
8-Jul	0.535	N.R.	5.927	6.462
17-Jul	0.476	N.R.	5.926	6.402
29-Jul	0.328	N.R.	5.924	6.252
24-Aug	0.090	N.R.	5.915	6.005
24-Sep	-0.080	13:45	5.920	5.840

Adjustment = value selected by which to adjust the staff gauge water level reading
Final Elevation = Adjusted water surface elevation
N.R. = Not Recorded in Field Notes

GAUGE HISTORY

STATION NAME: Diana Lake near Rankin Inlet
STATION NUMBER: **ELEVATION OF GAUGE DATUM:** 0.000 m. **GEODETIC SURVEY OF CANADA DATUM**
LATITUDE: 62° 58' 59" gps **LONGITUDE:** 92° 42' 53" gps

BENCH MARKS:

B.M. #1	**Red paint mark on bedrock outcrop about 100 meters NW along bank from old plywood cabin.**	**Elev. 10.000 m. (assumed)**
B.M. #2	**Red paint mark on bedrock outcrop 7.2 meters SE along bank from B.M. #1.**	**Elev. 8.692 m.**

B.M. #1 is control bench mark.

HISTORY OF GAUGE CORRECTIONS, BENCH MARKS, AND OTHER EQUIPMENT

DATE	GAUGE CORRECTIONS					NOTES ON INSTALLATION OR REMOVAL OF BENCH MARKS, ETC.
	B.M. #1	B.M. #2	Top of Staff	Correction to Staff		
1997						
Jun. 23	10.000	8.692	6.930	0.000		Established bench marks & staff gauge. "Top of Staff" is the top of a 1.0 meter gauge plate.
Sep. 24		8.692	6.915	- 0.015		

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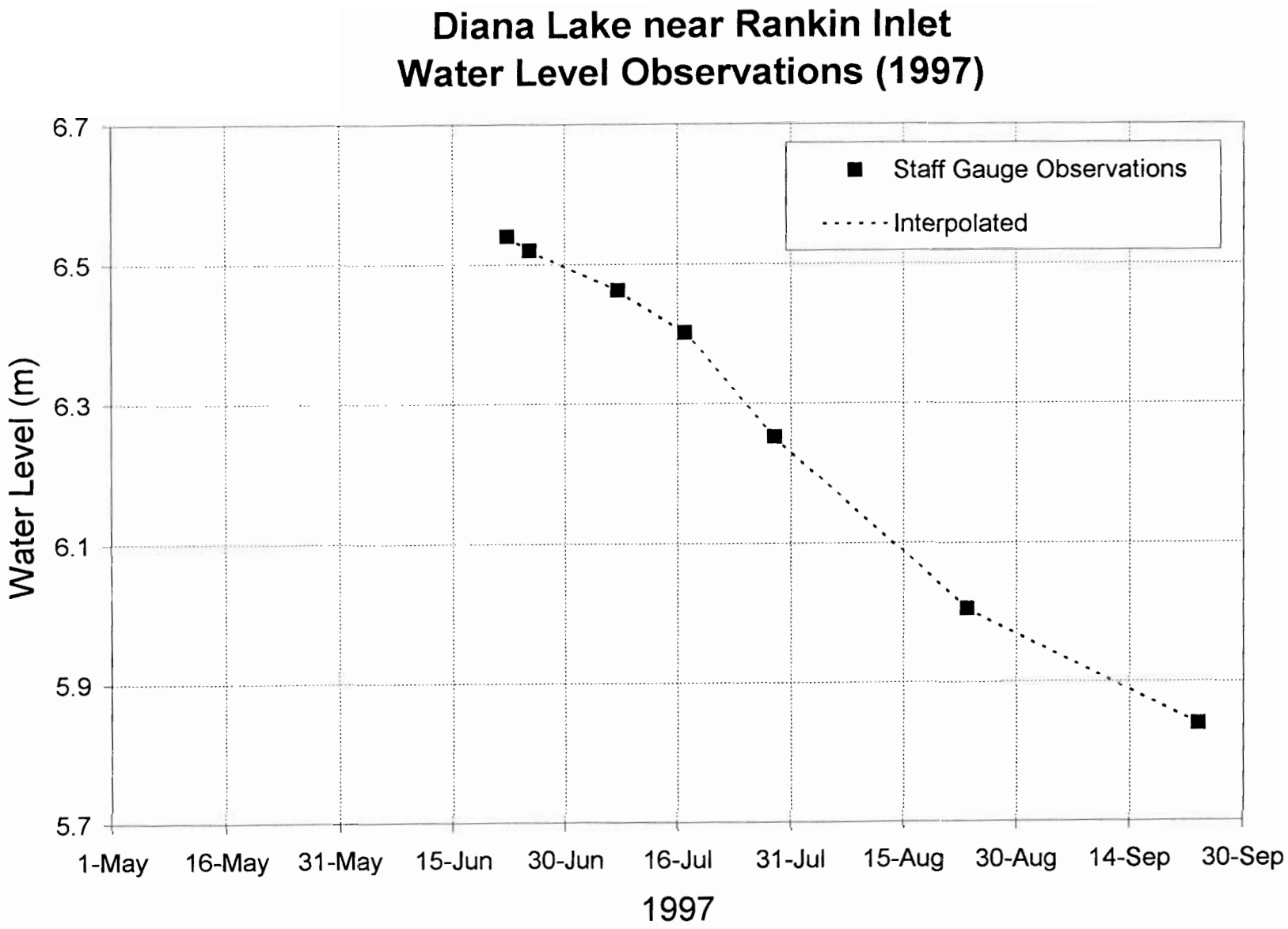
11/13/97



WMC Meliadine West Gold Project
Water Balance Study

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Figure E.14.1